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INVESTIGATING WHETHER ECOLOGICAL MODELS OF COMMUNITY-ORIENTED VARIABLES IMPROVE PREDICTION OF CHILDHOOD RESILIENCE OVER A SET OF PERSONAL CHARACTERISTIC VARIABLES SUCH AS IMPULSE CONTROL, EMOTIONAL REGULATION, RELATIONAL MOTIVATION, AND SELF-RELIANCE

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DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Social Work at the University of Kentucky

By

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Lexington, Kentucky

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Lexington, Kentucky

2020

ABSTRACT OF DISSERTATION

INVESTIGATING WHETHER ECOLOGICAL MODELS OF COMMUNITY-ORIENTED VARIABLES IMPROVE PREDICTION OF CHILDHOOD RESILIENCE OVER A SET OF PERSONAL CHARACTERISTIC VARIABLES SUCH AS IMPULSE CONTROL, EMOTIONAL REGULATION, RELATIONAL MOTIVATION, AND SELF-RELIANCE

Children experiencing trauma and entering child protective services have been continuously increasing. Problems associated with childhood trauma, such as neurodevelopmental disorder, trauma and stress-related disorders, personality disorders, substance use disorder, externalizing and internalizing disorders, academic problems, relational difficulties, and delinquent behaviors, have been found increasing despite advances in trauma and translational research. Children's trauma is mostly interpersonal in nature and nested in their immediate environment. There is a need for a change in focus from helping children to overcome challenges and adversities to strengthening the resilience-building process by utilizing functional strengths in the environment to achieve sustainable outcomes. This study's goal was to investigate how ecological community-oriented variables can help strengthen resilience-building processes of adaptive abilities and skills based on cognitive, behavioral, and motivational principles and moderate the progression of risks in children, adolescents, and young adults ages 10 and 21. The results of this study revealed that the ecological models comprising several community-oriented variables were statistically significant in influencing the expected variance on the resilience-building adaptive abilities of children, adolescents, and young adults.

KEYWORDS*: Resilience, Trauma, Ecological Variables, Children, Adolescents, and Young Adults.*

Vinod Kumar Srivastava
Student Signature

11/16/2020
Date

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By

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My dissertation is dedicated to my mom and dad and their unconditional love. They are not alive, but I thank them for always believing in me and encouraging me to get my doctoral degree.

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1.1 Children and Trauma/Maltreatment: Significant Development Risks

Trauma experienced during childhood may have a long-term impact on children's development and their physical, emotional, psychological, and social well-being. Child maltreatment is one of the significant public health problems which predisposes children to different types of vulnerabilities in the United States each year (Hussey, Chang, & Kotch, 2006). Studies show that adverse childhood experiences (ACEs) have been associated significantly with early deaths, health problems, substance use, delinquent behaviors, and problems in different domains of functioning, such as social, emotional, and psychological in later life (Dube et al., 2003; Felitti et al., 1998). According to Fang, Brown, Florence, and Mercy (2012), the estimated average cost of non-fatal and fatal maltreatment per child in 2010 was $210,012 and $1,272,900, respectively, which included childhood and adulthood medical costs, productivity losses, special education cost, and criminal justice system expenses. Fang et al. (2012) estimated in 2008 that the overall lifetime cost resulting from fatal and non-fatal new maltreatment cases in the United States was nearly $124 billion. A national estimate in 2017 shows that nearly 3.5 million children received investigations or alternative responses (parents voluntarily agreeing to accept Child Protective Services to address mild-moderate risks associated with children) (Child Maltreatment, 2017). Nearly seven hundred thousand children experienced maltreatment in 2017 with substantiated dispositions, almost six hundred thousand children received alternative responses, and almost five hundred thousand children among them were first-time victims (Child Welfare Information Gateway, 2019).

Child protective service investigations in 2017 increased tenfold since 2013, and the victimization rate among children increased by 2.7 percent during the same period (Child Maltreatment, 2017). The overall child maltreatment scenario in the United States presents a potentially unsettling picture of harmed children and families and a corresponding and growing financial burden on the United States economy each year.

Children learn, grow, and develop competencies in the context of their micro, mezzo, and macro environments and depend on the quality of relationships to do well and avoid risks to their development. Dysfunctional relationships with parents, family members, friends, teachers, and the community can complicate children's risk factors (Greeson et al., 2011; Metzler, Merrick, Klevens, Ports, & Ford, 2017). Repetitive maltreatment of interpersonal nature occurring within the caregiving system in early childhood or adolescence refers to complex trauma or developmental trauma (Greeson et al., 2011; Van der Kolk, 2017). Exposure to significant repetitive maltreatment within caregiving systems results from a variety of traumatic incidents, such as emotional abuse, physical abuse, sexual abuse, neglect, abandonment, domestic violence, and parental or caregivers' mental health problems and substance use (Cloitre et al., 2009; Lawson & Quinn, 2013). Exposure to repetitive maltreatment impacts children's developmental processes and places them at potential risk for future traumatization, cumulative stress, and impairments (Cook et al., 2005; Frodl & O'Keane, 2013; Stoddard, Zimmerman, & Bauermeister, 2012). The impact of maltreatment affects several domains of children's functioning and impairs their biology, behavioral control, attachment, affect-regulation, cognition, and self-concept (Cook et al., 2005; Hodel et al., 2015; Philip et al., 2016). Trauma impacts neurobiological processes and causes structural changes in the brain

(Luby, Barch, Whalen, Tillman, & Belden, A., 2017; Perry, Pollard, Blakley, Baker, & Vigilante, 1995; Silk et al., 2007). Interpersonal stressors originating from maltreatment, such as physical and sexual abuse, complicate the traumatic stress response in children corresponding to their developmental stages and may cause deficits or delays in cognitive, emotional regulation, behavioral, and neurodevelopmental achievements depending on the frequency, severity, and nature of stressors and biological differences (De Bellis, 2001). Children depend on their caregivers to feel safe from the outside world and regulate their affect in the nurturing home environment to focus on mastering competencies. Experiencing maltreatment and victimization within the primary caregiving system without a caregiver's safety net to feel safe disrupt their ability to self-regulate, self-soothe, and live consistently in hyperarousal mode due to fear of the outside world as well as proximity to abusive caregivers in the home environment, which overwhelm their behavioral, emotional, psychological, neurological, social, and biological systems. As a result, children entering the child protective service system may have complex needs given the nature of the maltreatment, the child's immediate environment, and perpetrator(s). Studies show that children's maltreatment affects their affective stability, relationships, mental health, self-perception, and increases the risk of suicidal ideation, suicidal behavior, and psychopathologies (Cook et al., 2005; Humphreys & Zeanah, 2015; Ibrahim, Cosgrave, & Woolgar, 2018; Rogosch, & Cicchetti, 2005; Wamser-Nanney & Vandenberg, 2013).

Experience with early childhood adversities increases in the presence of intergenerational continuity of maltreatment (Merrick, Leeb, & Lee, 2013; Schofield, Lee, & Merrick, 2013). Early childhood maltreatment can play an etiological role and/or

worsen the presentation and the course of psychiatric disorder (Cecil et al., 2016; Goyal, Limesand, & Goyal, 2019; Knight & Sims-Knight, 2004; Zeanah & Humphreys, 2018). Nearly all mental health problems, such as neurodevelopmental disorder, substance use disorder, externalizing and internalizing disorders, trauma and stress-related disorders, personality disorders, academic problems, relational difficulties, and delinquent behaviors have been found to associate with maltreatment and neglect (Brown et al., 2013; Dannlowski et al., 2012; Haberstick et al., 2014; Krüger et al., 2017; Powers et al., 2017).

A large proportion of children exposed to severe maltreatment and neglect in early life develop psychiatric problems (Burns et al., 2004), and other maltreated children remain latently vulnerable to an increased likelihood of psychiatric disorder across their life span due to changes in neurocognitive systems impacted by early toxic environments (McCrory & Viding, 2015). However, many children do not develop psychiatric disorders, and the presence of protective and promotive factors in children's social ecology may buffer risks of maladaptive adaptation (Fleming & Ledogar, 2008; Lösel & Farrington, 2012; Humphreys et al., 2018).

1.2 Resilience and its Relevance

While much of the literature on adverse life experiences revolve around examining neurocognitive and psychosocial factors, a significant body of the literature has been accumulated in the field of trauma and resilience over five decades. Differential interests in prevention research among researchers from different disciplines have furthered the understanding of what makes a child resilient, able to have a better quality of life and adapt well to challenges in different life situations (Luthar & Brown, 2007; Masten, 2018;

Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014; Ungar, 2018; Velez & Spencer, 2018). Resilience researchers have built up a significant pool of resilience studies to find answers for what makes a child resilient (Greenberg, 2006; Richmond-Crum, Joyner, Fogerty, Ellis, & Saul, 2013; Walsh, McCourt, Rostad, Byers, & Ocasio, 2015). However, several diverging views on resilience have created confusion and ambiguity in the literature over the last five decades.

Ambiguity and uncertainty in resilience literature stretch from definitional issues to outcome measures, and a consensus has started to form in the literature. Within the last two decades, prominent resilience researchers have focused on decreasing ambiguity in the conceptualization and operationalization of the construct resilience and associated variables. Recent developments in the resilience literature have recommendations and suggestions for future directions of resilience research in terms of its definitions, theoretical underpinnings, operationalization, measurement, as well as outcomes.

Although resilience has been recognized as an important construct in child maltreatment studies, researchers agree that it is one of the most complex and hotly debated constructs (Sippel, Pietrzak, Charney, Mayes, & Southwick, 2015). The study of resilience is not limited to psychologists, social workers, sociologists, and other scientists but has permeated the field of psychiatry, biomedical sciences, and other fields. As a result, the disagreements on the definition of resilience continue to exist among some prominent resilience researchers; however, with slight variations, most of the resilience researchers would agree in defining resilience broadly as a healthy, integrative and adaptive positive functioning over time following adverse life experiences (Yehuda, Flory, Southwick, & Charney, 2006).

The American Psychological Association (2020) has defined resilience as "the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress — such as family and relationship problems, serious health problems, or workplace and financial stressors" (p. 1). This proposed definition is simplistic but involves a complex process of resilience building and adaptation that depends on social, cultural, psychological, biological, and/or genetic determinants due to trauma effects being multi-dimensional in nature (Southwick, Douglas-Palumberi, & Pietrzak, 2014).

Given the multi-dimensional nature of resilience, the shift in resilience research from a view of personal traits to other dimensions of life have slowly taken place. With growing evidence that resilience is not person-centered and the acceptance of resilience being the interplay of person, family and community factors, resilience in the literature has been elucidated as having buffering effects in decreasing the impact of adverse life experiences, the cycle of trauma, toxic stress, and epigenesis (Rutter, 1987; 2006). Resilience processes help provide individuals with adequate resources, skills, and support, which can further be modified to strengthen and promote resilience processes through intervention, prevention, and advocacy (Traub & Boynton-Jarrett, 2017; Zolkoski & Bullock, 2012).

1.3 Resilience in Children (Those Who Develop it & Those Who don't—Brief Explanation)

Furthermore, resilience has been viewed as trajectories of adaptive functioning aided by protective and vulnerability processes after adverse life experiences. The adaptation processes occur at personal, family and community levels (Masten, 2017).

Adaptive resilience outcomes do not mean the absence of psychopathology or functional impairment, but positive developmental outcomes promoted or protected by factors at individual, social, community levels (Zimmerman et al., 2013).

The question remains: if resilience is not attributable to individuals' qualities, then why do some children thrive and overcome adversities in their lives, and some do not? Children who do not succeed pose relevant questions for researchers: such as, what prevents them from coping well or using their qualities/attributes to beat the odds of moving forward? Is a child's difficulty coping with maltreatment related to learned behavior, lack of internal and external assets, resources, psychopathology, lack of motivation, adherence to social and cultural norms, lack of opportunity in accessing environmental resources, or something else which impede children's ability to utilize internal assets (efficacy and internal qualities) to face challenges?

Children's difficulty in overcoming challenges, barriers, and difficulties may depend on a combination of factors, such as environment and the stage of developmental trajectories. A child is different from an adult in terms of maturity of brain functioning, emotional proficiency, and behavioral prowess, which may also constitute differential responses in bouncing back and moving forward. Additionally, children's ecology has functional importance in promoting developmental skills, regulatory abilities, and emotional stability, which may help develop resilience (Rutter et al., 2015).

To understand what would make a child "bounce back" in order to move forward and not regress may require sustained effort to identify protective factors. These factors may enhance the possibility of a child's utilizing internal assets/abilities as he/she seeks external factors to help in different contexts or environments (Ostaszewski & Zimmerman,

2006). A child without adverse childhood experiences may regress when confronted with challenging situations or unresponsive environments, but the internal experiences of that child will be different from a child with prior adverse childhood experiences. A child's response to current adversities and vulnerability risks with and without previous adverse life experiences may account for further vulnerabilities or bouncing back (Zimmerman, et al., 2013). The outcomes for a child with ACE and facing new setbacks or challenges may depend on the type of trauma, the severity (intensity) of it, its frequency, as well as his or her age and stages of bio-psychosocial maturity (Banyard, Hamby, & Grych, 2017; Mitchell, Moschella, Hamby, & Banyard, 2020; Allan & Ungar, 2014).

Humans cannot be compared to objects and materials made of resilient matter due to the dynamic nature of human agency, environment, and their continuous interactions to form varying dynamic dispositions. Dynamic human-environment interactions create contextualized ontogenic adaptation and developmental processes (Luthar, Crossman, & Small, 2015). These human interactions occur at micro, mezzo, and macro levels; the lack of a responsive environment may not potentiate a person's abilities and may pose barriers to overcoming challenges. It would be expected that a child with adverse life experiences would experience more setbacks due to previous negative experiences and would be more vulnerable to risk factors associated with complex trauma.

A person's agency may steer one's volition to promote or inhibit disequilibrium between internal experiences and the external environment's responsiveness. This interaction can either prevent or facilitate resilience processes (Bandura, 1989; Ungar, Connelly, Liebenberg, & Theron, 2019). The child's "agency" functions differently and depends heavily on a child's beliefs about his or her personal efficacy and unresponsive

environments. Thus, the "agency" can inhibit motivation, emotional well-being, socio-cognitive functioning, and performance successes (Bandura, 2006). Consequently, resilience factors cannot be a trajectory of just promoting and/or realizing developmental personal traits for optimal outcomes. Rather outcomes should depend on the nature and significance of promotive and protective factors external to a child to promote or facilitate the realization of internal assets/qualities to overcome future setbacks. Outcomes cannot qualify the antecedent, predisposing, precipitating, and perpetuating factors. Consequently, a child's social ecology cannot depend on the child's personal traits; rather, better ecological functioning can qualify a child's developmental assets. Internal developmental assets of children may depend on the quality of the children's environment, interplay between internal (personal) and external (environmental) factors, facilitative or promotive nature of the environment, and children's propensity towards developmental tasks to protect from risks or vulnerabilities and promote or protect internal qualities/assets of children (Luthar 1993; Ungar, 2011).

Resilience phenomena must support "good outcomes" in high-risk children by helping them to sustain competence (adaptive functioning) under stress and recover from trauma (Masten, Best, & Garmezy, 1990; Masten et al., 1995). Thus, the sustainability of competence for children with ACE constitutes one of the key factors for being resilient to bounce back and thrive; ecological factors can be facilitative and promotive of children's competence.

To illustrate the importance of the role of environmental processes in facilitating or hindering developmental competencies of children in comparison to genetic predispositions and personality traits as sole underlying causations of thriving in children,

the work of Beckett et al. (2006) is appropriate to discuss. Beckett et al. (2006) compared adoptees' (born in the U.K and adopted before 6 months) cognitive development of Romanian children (0-6 months, 6 to 24 months, and 24 to 43 months) with profound physical and social deprivation brought in the United Kingdom for adoption. Negative environment and lack of social interactions experienced by Romanian adoptees in the early phase of their development (6 months or over) were associated with severe cognitive delay and lower IQ. The delays were associated with "dose-response" of deprivation exposure—the more extensive the neglect/abuse and negative environment was associated with the greater the developmental delays (Beckett et al., 2006). Although the Romanian adoptees had certain biological and genetic dispositions to thrive, the negative quality of the environment and adverse interactions with the environment during the early phase of their development severely affected the Romanian adoptees' cognitive development, which indicates genetic propensities depends on environmental factors. Romanian adoptees who were adopted before 6 months of age were comparable to the control group of the U.K. adoptees adopted before 6 months, and Romanian adoptees who were most disordered displayed more development with exposure to qualitatively better environments although they remained impaired (Beckett et al., 2006). The case of Romanian adoptees explains how environmental factors can hinder child development or facilitate individual traits' development in supportive environments.

1.4 Relevance for Social Workers

Despite five decades of research on resilience and developments in trauma and translational research, the disconcerting confusion about the nature, scope, and practical

utility of resilience among researchers and social work practitioners continue to exist. Lack of a clear understanding of resilience and its use among service providers tends to cloud the effectiveness of interventions (Gilligan, 2004; Radke-Yarrow & Brown, 1993). Understanding and utilizing evidence-based resilience research as a strength-based approach can help facilitate social workers in handling high-risk cases, designing directions and course of interventions, formulating policies, and advocating for social justice and children's safety. However, a better understanding of protective, promotive, and risk or vulnerability factors is needed to help social workers make informed intervention strategies. Resilience research can generate evidence for social work practice, ranging from addressing context-specific vulnerabilities at family and school levels to macro policy interventions, advocacy, and empowerment of the entire community. The construct of resilience is not restricted to the individual client, family, school, and community-level interventions. The resilience paradigm has pervaded businesses, medical establishments, and social enterprises targeting staff retention, employees' well-being, and productivity enhancement; such organizations employ social workers in administrations, employee assistance programs (EAP), and as direct service providers.

The social work profession's firm belief in utilizing person-in-environment and strength-based perspectives for assessment and intervention provide them an edge in understanding and implementing the dynamic construct of resilience. Social workers can use resilience framework for enhancing positive social, individual and contextual variables to counteract progression of negative developmental trajectories from risks to problematic behavior, mental health problems, and/or poor health outcomes (Zimmerman, 2013; Zimmerman et al., 2013). Additionally, of late, physical, social, and cultural ecologies of

resilience, where children's development occurs, have received resilience researchers' attention for building better resilience outcomes in children (Luthar et al., 2001; Ungar, 2013). Culturally competent resilience-building processes are considered more effective in supporting positive development in children (Ungar, 2011). The NASW Code of Ethics for the social work profession has identified cultural competence as one of the major ethical standards (National Association of Social Workers [NASW], 2017), and social workers can incorporate in their interventions culturally competent resilience-building processes for sustainable outcomes. Resilience studies have significant implications for social work preventative work besides targeted interventions.

1.5 Gap in the Literature

Resilience researchers (Garmezy, 1991a; Luthar et al., 2001; Masten, 2018; Masten & Barnes, 2018) indicate that a notable work on personality traits as protective factors has been conducted. Ungar (2011, 2018, 2019) and Rutter (2012), giving prominence to children's ecology as resilience-building processes, advocate for more relevant work to be conducted on understanding the external ecological processes than a child's personality traits as protective or promotive factors. Some factors of social ecology such as individual and family factors have received more attention than others, and there is no rationale in furthering research on bivariate associations between such protective and risks factors (Yule, Houston, & Grych, 2019). Yule et al. (2019) in their meta-analysis document state that less is known about ecological contexts, such as school and community-level factors associated with the health and well-being of children, which is identified as future directions for resilience research. Protective factors at the community

level such as spirituality, supportive network, neighborhood, and school to mitigate risks in children with trauma have received the least attention in both cross-sectional and longitudinal studies (Yule et al., 2019). Several authors, Luthar et al. (2000, 2006), Masten and Cicchetti (2016), and Ungar (2018, 2019), have advocated for enhancing our understanding of the ecological protective and risk factors through the lens of different developmental models and levels of variance through age, race, gender, and trauma severity (Ungar, 2011).

1.6 Purpose of the Study and Primary Research Question

Poorly theorized and designed research in resilience has created epistemological and ontological ambiguity of the term resilience and resilience research designs to identify promotive and protective factors and processes to predict the resilience outcomes (Ungar, 2013, 2019; Ungar & Hadfield, 2019). Promoting resilience in children is not equivalent to a reduction in risk or risk exposure, such as the reduction in symptomology or victimization rate (Zimmerman, 2015). Resilience must promote children's systems of functioning as positive outcomes, such as biologically better response to stress, increased social engagement, productivity, safety, and ability to self-regulate, which are connected to children's systems of functioning for adapting well while facing adversities and bouncing back (Ungar, 2019).

The purpose of this study is to help align the focus of intervention rightfully from focusing on trying to change children's personality traits to modifying children's ecology to enhance their personal capacity to bounce back and adapt well. Children receiving interventions remain burdened with the traumatic stress of maltreatment and/or living in a

caregiving system where they were maltreated by a caregiver/s. Additionally, expecting children with adverse life experiences to do well with individual-level interventions without making environments and adults in those environments responsive may overwhelm children's functioning and be counter-productive. As a result, a research question for the current study is stated based on the abovementioned research sequela and stated below:

Do ecological models composed of predictor variables such as community support, geographical neighborhood, teacher engagement, spiritual well-being, school environment, and social support received determine a child's resilience when viewed by an age-appropriate developmental model and using the control variables of age, gender, race, education, income, and trauma severity?

The current research question is an attempt to understand the ecological factors contributing to promoting children's resilience to adapt well within the limits of developmental stages and examine the effect of age, gender, race, education, income, and trauma severity on resilience as control variables. In other words, the focus of the study is on children, change, and the nature of protective or promotive mechanisms to delineate whether promotive and/or protective environmental factors help children use their internal assets to adapt well. This study has drawn upon developmental theoretical models (discussed in Chapter 2) to understand the influence of ecological protective/promotive factors in impeding risks to children, adolescents, and young adults at different developmental stages. The recent shift of focus in the study of psychopathology has been moving from individuals to human environments, and resilience research must also change the focus from "changing the individual" to making social and physical ecologies

promotive and protective (Ungar, 2011). Such claims have also been established by

Masten (2014, 2018), who has done extensive research on competence and personality

traits and believes that the focus of research should be on dynamic resilience processes

rather than merely on personality traits as protective factors, which is Ungar's (2011)

"decentrality" claim as well.

Chapter 2: Review of the Relevant Literature

2.1 Historical Background of Research on Resilience

Resilience has been conceived in the literature as the ability to bounce back or overcome adversities. Resilience is a well-established construct—one which has been conceptualized in several ways: as a personality trait, a process, and an outcome (Bonanno, Romero, & Klein, 2015; 5). Norman Garmezy (1991a, 1991b) was the first to initiate competence-based resilience research to understand personalistic traits and stress resistance using a strength-based approach to understand resilience (Masten, Nuechterlein, & Wright, 2011). He started Project Competence, a longitudinal study to understand positive outcomes in children with adverse life experiences.

But even before Garmezy, Emmy Werner's longitudinal works in the 1970s on children's adaptability to adversities in Kauai, Hawaii was groundbreaking research on resilience and she used the term resilience for the first time in her research (Werner & Smith, 1982). Werner and Smith (1982) were interested in finding patterns of positive developmental progression in children exposed to adversities, which led to the origin of exploration of "invulnerable" children (Anthony, 1974), and later researchers agreed upon calling it resilience (Cowen & Work, 1988; Dahlin, Cederblad, Antonovsky, & Hagnell, 1990; Ungar, 2011). Extensive work on resilience has been undertaken over five decades to develop research-based models, frameworks, and practices; however, research on resilience still contains puzzling ontological questions (Luthar & Brown, 2007).

The ambiguity in understanding resilience is attributable largely to definitional issues in operationalization, scope, and theoretical approaches used to conceptualize

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resilience (Luthar, 1993; Masten & Tellegen, 2012; Southwick et al., 2014). There is a group of researchers such as Tolan (1996) who has argued against the usefulness of the construct resilience and Kaplan (1999) who advocated for resilience to "retire" from research with "honor." Additionally, Tarter and Vanyukov (2002) have viewed the issue as an overlap between resilience and positive adjustment in psychology.

Cicchetti (1996), Luthar (1999), and Sroufe and Rutter (1981, 1984) have noted that normative positive adjustments happen without correlates of adversities, but resilience is the pathway of adaptation that defies normative expectations. It buffers risks and enhances understanding of "normal" and atypical pathways of developmental processes in the field of developmental psychopathology. Kim-Cohen (2007) reported, "resilience reflects the positive end of this spectrum of adaptation and maladaptation in response to risk exposure" (p. 271).

Efforts to develop a consensus on the operational definitions of resilience and protective and risk factors have been noticeable in the literature within the last two decades (Luthar et al., 2000; Masten, 2018; Vanderbilt-Adriance & Shaw, 2008a). Many researchers have argued in support of the construct and deemed resilience as relevant, substantive, and valuable for prevention research despite confusion created by definitional diversity in construct validity of the term "resilience" (Hudziak & Bartels, 2008; Luthar et al., 2000; Masten, 2014). Researchers and their colleagues such as Luthar et al. (2000), Masten (2016, 2018, 2019), Rutter (2007, 2012), and Ungar (2011, 2012) have contributed to the conceptual evolution of the construct over the last two decades.

2.2 Evolution of Conceptual Definitions of Resilience

2.2.1 Definition of Resilience

Initially, the study of the construct of resilience was primarily focused on personal attributes/traits as protective factors of resilience in children (Masten & Garmezy, 1985). Garmezy (1991a, 1991b) considered resilience as equivalent to competence, but he did not negate the interwoven nature of human ecology as factors to promote resilience. He outlined the importance of the individual, family, and external support as protective factors (Garmezy, Masten, & Tellegen, 1984). Garmezy (1991a) defined resilience as the maintenance of functionality and adequate competence following adversities and subsequent stressful events; he identified parental competence, gender, IQ, and social-economic status as factors influencing children's competence.

Within the last two decades, studies on resilience started shifting away from their focus on understanding protective factors to ways protective processes contribute to resilience outcomes (Luthar, Cicchetti, & Becker, 2000). The importance of environmental processes, the role of social and physical ecologies, as well as context and culture were recognized (Ungar, 2008, 2011). Several prominent resilience researchers' studies and discussions on epistemological and ontological aspects of resilience have addressed the ambiguity and confusion in the literature and provided the forthcoming directions of resilience research, which have been presented below.

The concept of resilience as a global or absolute factor has gradually mellowed into relative and dynamic factors and processes. Masten (2014) defines resilience as a broad term, as "the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development" (p. 6). Also, Masten (1994) advocates

that the term "resiliency" should not be used due to possible connotative meanings associated with personality traits, but rather "resilience" is an appropriate term to explain the sustenance and maintenance of positive adjustment under adverse life situations. Masten and her colleagues have conducted extensive research on competence and positive mental health outcomes (Masten et al. 1999; Masten & Coatsworth, 1998; Masten & Tellegen, 2012; Masten, Burt, & Coatsworth, 2006) along with other prominent resilience researchers such as Luthar & Zigler (1992) and Garmezy (1974).

Masten (2018), in her recent article, has emphasized the importance of the systems theory framework and shows that, within the last decade, systems theory has permeated many studies of resilience, and climate change, war, and terror have been added to family and individual level adversities. Masten and Barnes (2018) and Masten and Cicchetti (2016), have pointed to definitional variations of resilience in research conducted over five decades—making systematic reviews and meta-analyses of the findings challenging. Masten (2018) points to the adaptation criteria in resilience literature being focused on "not developing symptoms" (p.15). In that paper Masten (2018) accepts the criticism of the early concept of positive adaptation as the absence of symptoms and a "positive standard of function or competence" (p. 15). Masten and Cicchetti (2016) have rehashed the main ideas of the systems framework to make it appropriate for resilience study and argue that dynamic adaptation happens within interdependent multilevel systems in the development of human beings.

Rutter (2012) believes that viewing resilience as observable traits in a person would be "fallacious." Ruther (2006) makes the case that a person may be resilient to certain adversities and outcomes, but that may not be the case with others. Rutter (2012)

differs from the viewpoints of Masten and Powell's (2003) explanation of competence as a promotive factor and argues that -

> … promotive factors include cognitive abilities, temperament, parenting quality, and good schools. Their (Masten and Powell, 2003) arguments are correct but, nevertheless, do not focus on the influences that do work differently in the presence of adversity; that is what defines resilience. (p. 32)

Rutter (1987) holds that resilience is an "interactive concept" in the lives of individuals who experienced significant trauma, and it can be inferred from individual variations in outcomes among individuals who experienced adverse life experiences. Furthermore, he (2006) explains resilience as an interactive construct that:

> … refers to a relative resistance to environmental risk experiences, or the overcoming of stress or adversity. As such, it differs from both social competence and positive mental health. Resilience differs from traditional concepts of risk and protection in its focus on individual variations in response to comparable experiences. Accordingly, the research focus needs to be on those individual differences and the causal processes that they reflect, rather than on resilience as a general quality. (p. 1).

However, Rutter (2006) did not reject the importance of risk and protective factors due to the abundant evidence in the literature about the summative effect of risk and protective factors mitigating psychopathological outcomes but stated that resilience research should go beyond such approaches. Rutter (2006) focused on the genetic and environmental interactional effects and stresses of resilience processes. According to Rutter (2006):

Resilience starts with a recognition of the huge individual variation in people's

responses to the same experiences, and considers outcomes with the assumption

that an understanding of the mechanisms underlying that variation will cast light

on the causal processes and, by so doing, will have implications for intervention

strategies with respect to both prevention and treatment. (p. 3)

Rutter (2012) argued that research's focus should be on specific risk factors given

differential individual outcomes as responses to adversities, and researchers should

consider testing risks as environmentally mediated and use biopsychosocial and

collaborative approaches. Additionally, Rutter (2012) contends that "resilience should not

constitute a theory, nor should it be seen as equivalent to positive psychology or

competence" (p. 335).

Luthar et al. (2000) defined resilience as a dynamic process of adaptation within

the context of significant adversity and emphasized a need for a clear distinction between

protective, promotive, and vulnerability factors. Luthar et al. (2000) distinguished between

resilience and positive outcomes in their developmental research. Luthar, Sawyer, and

Brown (2006) and Vanderbilt-Adriance and Shaw (2008a), in their articles, advocate for

the use of developmental models and theory-based outcome measures to distinguish

clearly protective and vulnerability factors and decrease arbitrariness in future research.

Additionally, Luther et al. (2006) sought to differentiate the resilience of children from

adults, giving importance to disentangling children's problems from parental mental

illnesses. They (2000) caution researchers not to get too engrossed with biology and gene

factors of resilience to obliviate "context-specific environmental risks," which can make it

more difficult to understand ill effects of environmental risk factors and find remedies.

Theron, Liebenberg, and Ungar (2015) state that resilience is a process that is "not one size fits all." Highlighting the individual and contextual variation, Theron et al., (2015) and Ungar and Hadfield (2019) emphasize the importance of within- and between-population differences. Luthar et al. (2006) and Vanderbilt- Adriance and Shaw (2008a) also advocate the benefits of within-group comparisons for future research to understand what makes one resilient within a specific context, which can also help researchers contrast them against a non-resilient group. Luthar et al. (2000) agree with Cicchetti and Toth (1992) and Kellam and Rebok (1992) about the relevance of developmental theories in the study of resilience as well as understanding variance in protective factors in adaptive processes.

Vanderbilt-Adriance and Shaw (2008a) make compelling arguments that "certain protective factors may be more or less helpful at particular stages of development" (p. 22). Several studies by prominent resilience researchers have addressed inconsistencies in the resilience literature and reported that minimal regard has been given to theory-based developmental stages to account for differential responses of children to risk, protective factors, and adaptation processes (Buckner, Mezzacappa, & Beardslee, 2003; Luthar & Sexton, 2007; Tiet et al., 2001; Vanderbilt-Adriance & Shaw, 2008b).

Ungar (2011) emphasized environmental antecedents as important factors associated with resilience and suggests there are four core principles: decentrality (more emphasis on the environment than on a child's personality traits), complexity (resilience depends more on complex processes of a child's capacity to use opportunities in social and physical ecologies for his/her development than a simple relationship between risks and protective factors), atypicality (protective capacity of ecological factors are context-

specific), and cultural relativity (developmental growth is historically embedded in culture and everyday practices). Ungar (2008) finds ecological variability being embedded in resilience ontology and defines resilience as:

> In the context of exposure to significant adversity, resilience is both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being and their capacity individually and collectively to negotiate for these resources to be provided and experienced in culturally meaningful ways. (p. 225)

Ungar (2008) attempts to define resilience and highlight the importance of culture as part of children's developmental processes giving importance to interactional interdependence of a child in its social ecologies. Furthermore, Ungar (2019) presents guidelines for future research and states that resilience study must focus on questions like "Which promotive and protective factors or processes are best for which people in which contexts at what level of risk exposure and for which outcomes?" (p. 2). Ungar (2019) argues that detailed descriptions of severity or chronicity of risk experience are needed to understand associated factors and processes at different systemic levels. He (2019) goes further to show that the cultural and social context of risk and protective or promotive factors make the severity of adversities as well as strengths of protective and promotive factors contextually relevant or irrelevant, which includes perceived threats and normative cultural experiences.

Finally, to sum up the definitional research exploring resilience, it is essential to note that the experience of significant adversities is central to the process of overcoming later-life risk factors and displaying relative positive functioning. In the history of

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resilience research over the last five decades, it has been established that resilience is more than personality traits, quality, or attributes of "invulnerable" children (Anthony, 1974; Garmezy, 1987; Luthar et al., 2000; Masten 2014; Rutter 2012; Ungar, 2011). It involves interactional processes in challenging environments (Ungar, 2011). Although Rutter (2012) did not explicitly talk about context like Ungar (2011), his approach appears more contextualized when he talks about a person who may be more resilient to certain adversities than others, and risks being environmentally mediated. Ungar (2011) highlights the role of social and physical ecology in shaping developmental outcomes of resilience positively, which occurs during the presence of risks and significant stress. Garmezy's (1991a) and Werner and Smith's (1992) outlines of protective and vulnerability processes occur at the individual level (personal traits, such as cognitive functions or competence), family level (nurturance or children's maltreatment), and community level (neighborhood and social supports) and have been a consistent framework used in the resilience research (Luthar et al., 2000). Ungar (2011, 2019) adds cultural context as the other relevant factor in resilience processes. Furthermore, cumulative risks have been recognized as worse than individual risks, and Rutter (2012) reports that the risk of psychopathology in children increases from 1% to 21% as the number of risks (adverse experiences) rise from 1 to multiple risks; however, no clear reports have been available on the cumulative effect of protective factors (Ungar, 2011).

2.2.2 Protective Factors and Promotive Factors

Resilience is a strength-based approach to understanding child development and designing interventions (Tedeschi & Kilmer, 2005; Zimmerman & Brenner, 2010). Shneyderman and Schwartz (2013) point out that some studies use strength-based approaches, but they do not necessarily apply a resilience paradigm in their research as the focus of change strategies to enhance strengths. Zimmerman et al. (2013) note that "resilience theory provides a framework for studying and understanding how some youths overcome risk exposure and guides the development of interventions for prevention using a strengths-based approach" (p. 1).

Children with significant adversity exposure can achieve positive adaptation despite substantial blows to their developmental processes if there are certain protective and promotive factors (Hilliard, McQuaid, Nabors, & Hood, 2015; Luthar & Zigler, 1992; Masten, 2014). Masten (2018) reports that development in resilience research and practices has helped categorize a specific set of factors associated with positive outcomes for inferring promotive and protective resilience factors. Promotive effects have been identified in the literature as having "additive effects" and protective factors having "buffering effects" and "moderating effects" (Gareis, Barnett, Ertel, & Berkman, 2009; Malmberg & Flouri, 2011). The protective factors have further been identified as with the "main effect" (a positive and more desirable outcome at both high and low-level risks) and "interaction effect" (decreased chance of negative outcomes, particularly at high-risk level) (Gallagher & Miller, 2018). Protective factors having direct effects on all risk levels have also been referred to as the "compensatory factors" and "moderating" or "interactive effects" in statistical terminology if there are reduced negative outcomes especially at

high-risk levels (Masten, 2018; Masten & Barnes, 2018; Wright, Masten, & Narayan, 2013).

Sameroff (2000) and Fergus & Zimmerman (2005) have described promotive factors as positive contextual, social, and individual variables, which could be assets or resources. Zimmerman (2013) indicates that individual assets could be self-efficacy and self-esteem, whereas resources are those factors that provide children with opportunities to learn and practice skills. Ungar et al. (2007, 2019) have stated that resilience involves individuals' capacity to navigate to and negotiate for resources in culturally meaningful ways, and resilience depends on a different set of interactions between seven factors: material resources, supportive relationships, desirable personal identity, the experience of the power of control, adherence to cultural traditions, the experience of social justice, and/or experience of social cohesion with others.

2.2.3 Outcomes Measures

Resilience as positive outcomes has more variability and ambiguity in the literature than any other terms due to resilience's inferential nature (Rutter, 1987). Lack of psychopathology and competence are the most common resilience outcomes in the literature, but many prominent researchers hold differing viewpoints (Luthar et al., 2000; Rutter 2012). While discussion on contexts and processes has taken precedence in the resilience literature, the debate on certain variables being risks in one context and protective in the other context has yet to be resolved. This continues the problem of ambiguity in future resilience studies (Luthar et al., 2000; Luthar et al., 2006). Consensus on resilience processes seems to be getting established, but debates on protective and

promotive factors and outcomes continue to predominate the epistemological and ontological literature on resilience. However, Luthar et al. (2000, 2006) and Vanderbilt-Adriance and Shaw (2008) advocate for theory-based approaches in identifying variables, processes, and conceptualizing study. Luthar et al. (2000) believe that "the continued study of resilient trajectories carries the substantial potential for ongoing refinements of existing theories of normal human development" (p. 15).

It is important to note a difference among prominent resilience researchers such as Luthar et al. (2000), Rutter (2006), and Ungar (2012) that complete avoidance of all risks in the lives of children with significant adverse experiences may not sustain resilience processes, but all of them agree the children should be saved from further maltreatment and other adversities. Rutter (2006), referring to low-level stress, states that "there is the evidence that, in some circumstances, the experience of stress or adversity sometimes strengthens resistance to later stress—a so-called "steeling" effect" (p. 2). Furthermore, Rutter (2006) acknowledges that it is unclear if the "steeling effect" of low-level risks is comparable to desensitizing effects due to the lack of research data. Rutter (2012) believes that an individual's risk experiences help develop some forms of coping abilities and protect from future adversities. Almost all prominent resilience researchers believe in the protective capacity of quality social relationships and resilience as inbuilt features of all human functioning to adapt and survive. Thus, social and ecological factors can help build upon individuals' past adverse experiences to develop the personal capacity to adapt, survive, and thrive.

2.3 Summary of the Review of the Literature and Conceptual Definition Used in this Study

The review of the literature indicates that the definitional debate on resilience has been drawing to a close, and a consensus is emerging that resilience is a dynamic concept. The usefulness of the construct, resilience, has support in the research. The debate over the protective and promotive factors among researchers has settled down with agreement over the environment playing a pivotal role. Furthermore, resilience has been accepted in the literature, not as an individual personality trait and/or better psychological functioning, but it is related to adaptation given adequate resources, and the environment qualifies the adaptation processes, taking the burden off children being solely responsible for adaptation and better functioning (Rutter, 2013).

Resilience is overcoming odds, sustaining competence, adapting to adverse life events, and functioning relatively well. Resilience is the ecological processes of adaptation that fosters efficacy, opportunities, resources, and protective processes. Crucial to understanding resilience processes are developmental theories (Luthar, 2001), a focus on the environment rather than on the individual, cultural identity (Ungar, 2014), responsive environment (Masten, 2018), emphasis on competency development (Garmezy, 1991b), and social relationships (Rutter, 2007, 2013).

There is no simple bivariate relationship between risks and protective factors (Luthar, 2001; Ungar, 2019). Rutter (2013) and Luthar, Crossman, & Small (2015) report that some protective factors could also be risk factors in certain situations. For example, financial support through family member(s) while involved in domestic violence can be a risk factor, and high intelligence could be a risk or protective factor. Resilience outcomes

as competence may vary significantly depending on an individuals' age. For example, school performance, peer relationships, and rule-abiding behaviors as resilience outcome measures might be good indicators for school-aged children, but if followed in a longitudinal study through adulthood, those measures might be irrelevant. As a result, competence measures across the age spectrum could be good indicators of resilience as adaptation processes (Masten & Powell, 2015). Thus, the developmental approach and contexts become crucial in outcome measures. Furthermore, Vanderbilt-Adriance & Shaw (2008a), Luthar et al. (2015), and Masten (2018) report that age, race, gender, and trauma severity can affect the outcomes of resilience and these factors have received less prominence in resilience research compared to other factors, such as parental and teacher support.

A review of the literature supports the dynamic nature of resilience, individuals, and environments and indicates it must be included in conceptual definitions of resilience, protective, promotive, and risk factors, and adaptation processes. Protective and promotive factors of environments can have moderating or direct effects on children's ability, respectively, to help divert the progression of risks in developmental trajectories to cause behavioral, psychological, social, and/or developmental problems. Resilience can be defined as the ability of an individual to navigate, negotiate, use resources, and internal assets to adapt relatively well to adversities with responsive support of social and physical ecologies. Positive adaptation refers to relatively better functioning by sustaining adaptive ability. These conceptual definitions have been incorporated into this study.

2.4 Theoretical Frameworks Used to Explain Resilience

The current study proposes to identify ecological factors of resilience based on theory and praxis. The next section provides the theoretical framework for this study to help describe and explain the phenomena of resilience in children's development.

2.4.1 Human Behavior, Trauma Progression, and Resilience

Masten and Obradovic (2008) report that while resilience as a construct has evolved over the last five decades, the core concept of resilience remains the same. Resilience has evolved and been visualized as adaptation processes when risk and adversities are encountered (Masten & Tellegen, 2012). Kalisch, Müller, and Tüscher (2015) report that resilience research has been focused on why some people do and do not develop psychiatric "illnesses," such as PTSD and major depressive disorders, rather than dysfunctions. Most of the prominent resilience researchers believe that resilience should be seen in the context of dysfunctions rather than disorders (Kalisch et al., 2015).

During trauma progression, dysfunctions and symptoms, such as generalized anxiety, impulsive behavior, and hypervigilance, overlap in many disorders. Views on adaptation processes in resilience-building responsive environments hold that the organismic functions of children do not equip them to adapt to disorders or disease (Southwick & Charney, 2012; Zimmerman, 2006), which corresponds to the evolutionary theory of differential susceptibility and natural selection (Darwin, 1968; Ellis, Boyce, Belsky, Bakermans-Kranenburg, & Van IJzendoorn, 2011). McLaughlin (2016) reports that adverse life experiences cause significant disruption in child development; identifying

and understanding moderators and confounders that provide a buffering effect to risk factors may help mitigate chronic problems in children.

Kalisch et al. (2015) argue that protective factors can mitigate risk factors and prevent the progression of dysfunctional dispositions from evolving but may not protect against disorders, such as PTSD or depression. As a result, traditional psychosocial and psychiatric interventions may help strengthen the resilience processes. There is a noticeable shift in the paradigm in the field of mental health treatment from being focused on specific pathophysiological processes and disease to resilience and fostering protective factors or processes (Kalisch et al., 2015). These developments show that resilience-building processes have a significant role to play in conjunction with treatment for addressing mental health disorders, which may promote better adaptation and sustained progress. The research on resilience has noticed a paradigm shift with the inclusion of ecological factors as crucial in resilience building. Resilience researchers have emphasized the importance of context as an integral part of a child's developmental processes in building resilience (Luthar & Eisenberg, 2017).

2.4.2 Self-regulation, Adaptation, and Functioning

Considerable emphasis on individual and family factors has been noticeable in the literature for enhancing self-regulation, adaptation, and functioning of children (Wyman, 2003). Studies have examined bivariate relationships of individual and family factors with risk factors for promoting resilience in children, but less is known about how environmental contexts in children's lives play a role and affect their well-being and health (McLaughlin, 2016; Yule et al., 2019). Luthar et al. (2006) recommend that resilience

outcomes should not be conceptualized as the mere absence of symptoms or the presence of certain desired behaviors or other outcome measures, such as good grades and rule compliance. Measures of predictors and outcomes of resilience should be grounded in theory to support a child's development by enhancing their abilities to self-regulate, acquire comparatively better functioning, and adapt to life's adversities (Luthar et al., 2015; Masten, 2018; Yule et al., 2019).

The review of the literature indicates that the probability of a child being resilient is associated with milder forms of trauma. Complex trauma, which complicates the severity of traumatic stress, impacts a child's ability to regulate his or her arousal, reactivity, anxiety, altered mood, cognition distortions, trauma triggers, and adapt successfully. Adverse life experiences/maltreatment can be embedded in a child's environment, including family, neighborhood and/or school, which influences internalization and externalization processes. A child's adverse life experiences are personal, but the problems are ingrained in the environment. If children's problems emanate from interactions with environmental factors, solutions must be social. Children should not solely be responsible for carrying the burden of "fixing" themselves, regulating themselves, and being responsive in the toxic environment. Adults have more maturity, resources, and assets at their disposal to be responsive and help children. The current assertions emphasize that the severity of trauma may have a severe negative impact on a child's regulatory systems and emotional abilities to adapt successfully. However, children may do well in regulating themselves and adapting to stressors with a responsive environment and resources.

2.4.3 Behavioral, Ecological, and Developmental Theories and Resilience

During the early phase of the study of resilience as a construct, two prominent theories, such as Darwin's theory of evolution and Freud's personality theory, dominated the scientific world (Masten, 2001). Darwinian theory of evolution by natural selection and adaptation (Darwin, 1968) had the most influence on understanding variance in adaptation (Ungar, 2012). Freud's psychoanalytic theory of personality gave prominence to personality traits; his psychodynamic theory emphasized the dynamic interplay of psychological forces underlying human behavior, feelings, emotions, and their possible connection to early experiences (Vallacher, Read, & Nowak, 2002). However, two world wars and the Great Depression of the 1930s shifted the scientific world's focus from personality traits as the root cause of problems to systemic and environmental factors. Conceptualization of the nature of problems as systemic and structural led to the social and political acceptance of the Social Security Act of 1935, which was contradictory to the traditional view of personality traits/defects as the root cause of individual poverty (Leff, 1973). Subsequently, structuralism by Lévi-Strauss (Lévi-Strauss, 1973) and the general system theory of Ludwig von Bertalanffy (Von Bertalanffy, 1956) gained prominence, and those theories emphasized the importance of environmental influence on human beings (Prowell, 2019).

Garmezy (1987), Masten (2017), and Zimmerman et al. (2013) report that protective and vulnerability factors operate at individual, family, and community levels. The central objective of resilience research is to identify protective factors to modify or obliterate the negative effects of adverse life situations to help an individual to do relatively well by adapting to new life situations (Luthar et al., 2015). As a result,

ecological and behavioral theories support the conceptualization of resilience in light of presented definitions of resilience-building ecological processes in the above sections and help provide the conceptual framework for this study.

2.4.3.1 Vygotsky's social development theory

Vygotsky's theory of social development contrasts itself from Piaget's cognitive theory in many ways. Vygotsky (1978) holds the transactional constructivist's view of cognitive development, but gives more importance to socio-cultural context, language, dialogues, and cultural tools without fixed stages of developmental stages. Vygotsky's (1978) stated that children's cognitive development depends on social and cultural factors in a child's interactions with his or her environment, which helps in the formation of cognitive meanings to enhance his or her learning. Children explore their environment with other individuals involved, such as parents and teachers (More Knowledgeable Other principle), and develop language, thinking, and knowledge to realize their potential (Zone of Proximal Development principle). The theory of social development is built on the dynamic relationship between children's social/cultural environment, language/dialogues, and the roles of adults and knowledgeable peers. Children's guided interactions within the zone of proximal development help develop attention, sensation, perception, memory, language, and cognitive abilities with regard to cultural contexts (Vygotsky, 1978).

Distal environmental factors, such as school, community, cultural norms, policies, and implementations of rules, affect a person's choice and schema of cognition. Unlike Piaget (1952), Vygotsky (1978) believes that learning precedes development. Vygotsky (1978) states that inter-psychological functions occur first following interactions between

individuals and their environment, and intra-psychological functions follow thereafter. As a result, a person's self-regulation would depend on the regulation of the external environment within a person's historical experiences and cultural contexts.

The promotion of resilience for Vygotsky depends on the regulation of environmental factors that can help develop resilience-building capacity at a personal level to overcome distress. For example, in comparison to peers, a child with severe trauma can dysregulate easily and fall prey to his/her inability to regulate and adapt to external stimuli, such as bullying at school. In this model, protective factors for a child in trouble vanish immediately due to his/her perception of getting further problems from parents, teachers, peers, and fear of the unknown. However, his/her age, race, gender, and the severity of previous trauma/maltreatment are also relevant. A responsive environment can help the child navigate, negotiate, and utilize resources and use internal assets to bounce back, as it would be overwhelming for that child to depend alone on his coping skills when socially and psychologically overwhelmed. A child's developmental stage and assisting environmental factors may contribute to overcoming harsh life situations. Environmental contributions interplay at micro, mezzo, and macro levels (school and state policies and programs for children), and the absence of protective factors (even temporarily) for a child with ACE (Adverse Childhood Experience) may be counterproductive.

Trauma-informed support, nurturance, and environmental resources, including self-regulation and coping resources and/or assistance from adults in the environment, may empower a child to beat the odds of adverse life experiences and protect him/her from becoming re-traumatized. These resilience-building processes would help a child to

develop resilience over time by developing self-efficacy, self-worth, and competence. Additionally, ecological processes that assist a child in learning and building upon positive outcomes must precede the developmental outcomes in order to achieve milestones on developmental trajectories (Pasqualotto, Löhr, & Stoltz, 2015). Thus, environmental factors may have buffering effects on children with severe adverse life experiences and additive effects on children with mild to moderate ACE, as well as children without traumatic stress.

2.4.3.2 Skinner's behavioral theory

Skinner (1988) has aptly described how a person remains under selective pressure, which resonates with Darwin's theory of evolution by natural selection (Darwin, 1968). A child acts in an environment to regulate, adapt, or change and, in the process, changes him/herself by the consequences of his/her actions (Skinner, 1988), forming patterns of social behavior, such as avoidance, aggression, and hypervigilance. Over time, depending on positive or negative reinforcement in the environment, a child develops specific behavioral patterns that may reflect different degrees of resilience if his or her adaptation is successful.

Although a child's trauma was embedded in his/her immediate environment, such as family and neighborhood, his/her adaptation process extends to proximal and distal environments where he/she interacts with others, experiences new consequences, and learns new skills/regulation with the help of adults. A child, while trying to regulate his or her traumatic stress, interacts with stimuli in the environment using his/her competencies, which affect his self-efficacy, self-image, and self-esteem by consequences experienced in

the environments or "qualia" (subjective properties of experiences, i.e., what it feels like) of perceived consequences (Cook et al., 2005; Place, 2000; Skinner, 1988). Many factors, such as family, culture, and norms, influence internal and external locus of control in a child (Ungar, Brown, Liebenberg, & Othman, 2007). A child with a high level of externalized locus of control blames others for his problems. Such an externalized locus of control gets accentuated with the severity of his/her traumatic stress-related response (Bearinger & Blum, 1997). A cycle of trauma forms over time when a child develops learned helplessness, dependence, stress vulnerabilities, and falls prey to victimization cycles (De Bellis & Zisk, 2014). These create further complications in the adaptation process of overcoming adversities depending on the child's developmental stage.

2.5 Conceptual Framework Used in the Study

If learning precedes development for Vygotsky (1987), social interactions in contexts of culture, impulse control, self-reliance, and relational motivation would be mediated by the experiences of learning and support in environments, which Ungar (2011) would also accept as resilience-building processes based on his claims of decentrality, complexity, atypicality, and cultural relativity. A child tries to regulate, adapt, and change in his or her environment and is affected by it. A child's subjective experiences and internalization processes depend on social interactions, support, environment, and resources in proximal and distal environments (Vygotsky, 1987), as was observed in the case of Romanian adoptees (Beckett et al., 2006).

Carr et al. (2008) enumerate five core competencies for children, such as thinking, using language/symbols/texts, managing self, relating to others, and participating and

contributing to developing learning dispositions to do well developmentally. To build resilience, a child should have key competencies and adaptive skills as enumerated by Carr et al. (2008) and learning dispositions, such as sensitivity, inclination, and abilities for motivations (Perkins, Jay, & Tishman, 1993). According to Perkins et al. (1993), inclination refers to a person's felt tendency towards a behavior (emotions and regulation), which is developed by environmental reinforcers and modeling (Skinner, 1988). In contrast, sensitivity implies alertness to situations and open-mindedness to facts, advice, and support. Abilities refer to a person's actual abilities to depend on his learnings and function appropriately and independently.

This study has used the theoretical underpinning of Vygotsky and Skinner to understand the development-based predictive value of ecological factors, such as community support, geographical neighborhood, teacher engagement, spiritual well-being, school, environment, and social support received on children's competencies, adaptive functioning and learning dispositions such as impulse control, emotional regulation, relational motivation, and self-reliance. Children's competencies and learning dispositions form motivations for resilience building and adaptive processes (Carr et al., 2008; Perkins et al., 1993; Russell, Lee, Spieker, & Oxford, 2016; Ungar, 2011).

2.6 Rationale for the Current Study

The proposed conceptual framework to study resilience in children can help enhance the understanding of children's resilience-building processes. Resilience is not a simple concept, and the effectiveness of ecological factors in predicting the competencies in children may be confounded by their age, gender, race, and trauma severity (Hamby et

al., 2018a; Rutter, 2007; Ungar, 2011). As a result, age, gender, race, and trauma severity need to be controlled to observe the predictive power of ecological factors. Ecological factors must obliterate the threats to children's developmental abilities that can jeopardize the underlying developmental adaptive processes, such as cognition, brain development, child-adult relationships, motivation for learning and engaging, as well as regulation of emotions and behavior (Mitchell et al., 2019; Masten, 2001, 2018). Understanding the predictive capacities of children's ecological factors, which can enhance their competence/adaptive abilities to adapt well and overcome setbacks in the future, may help social workers to find directions and develop models of preventative work, direct interventions, policy formulations, and advocacy.

This study, following the recent work of prominent resilience researchers, such as Ungar (2011), Masten (2018), and Rutter (2007), has used a theory-based ecological model to understand its predictive values of resilience processes to enhance the competence of children with ACE to adapt successfully. The study model has controlled for some confounding variables to understand the contribution of resilience processes to trajectories of child development (see figure 2.1). Environmental factors have a more significant influence on pre-adolescent and adolescent groups of children (between ages 10 and 18 years). At this stage, children focus on developing their competence to form identity and relationships. Children's interactions with their social ecology exert significant influence on their abilities to adapt and master developmental milestones (Vygotsky, 1987; Erikson & Erikson, 1998). Erikson (1958) believes that individuals experience psychosocial crises at each developmental stage. Failure at preadolescence and adolescence stages in resolving crises may result in inferiority (lack of competence and

competitiveness), role confusion and isolation, which can obliterate the progression of age-specific competence and social dispositions resulting in high-risk behaviors and mental health problems (Erickson & Erickson, 1998). Children with ACE need a more responsive environment to avoid developmental risks leading to risky behaviors and other adverse age-specific outcomes.

This study is unique due to the lack of such theory-based ecological models in the literature, based on the above sequela of prominent resilience researchers' recent work and advocacy, for testing such ecological models to enhance resilience processes. Furthermore, this study focuses on strength-based outcomes (unlike lack of psychopathologies, such as PTSD and depression), and there do not appear to be any other studies that have used social-ecological variables to examine how they may or may not contribute to resilience-building processes based on behavioral, cognitive, and motivational principles in a large sample of adolescents who previously were known to have been victims of adverse childhood experiences. Additionally, Rutter (2007) advocates for etiology-based resilience research to enhance resilience-building ecological processes and contribute back to enrich resilience and developmental theories. As a result, a set of ecological predictors to enhance children's strengths/competencies/assets to contribute to their learning dispositions is used in this study. The outcomes measured have been drawn based on developmental, behavioral, cognitive, and motivational theories and can be used to compare within-group and outside-group variability (like children, adolescents, and young adults comparisons to understand etiological factors responsible for resilience-building processes) (Luthar, 2001; Vanderbilt-Adriance & Shaw, 2008a).

2.7 Study Hypotheses

The study's hypotheses are based on the following research question –

Do ecological models composed of predictor variables such as community support, geographical *neighborhood, teacher engagement, spiritual well-being, school environment, and social support received determine a child's personal characteristics, impulse control, emotional regulation, relational motivation, and self-reliance when viewed by an age-appropriate developmental model and using the control variables of age, race, gender, income, education, and trauma severity?*

Following the conceptual framework of the study, hypothesis 1 is presented below:

Hypothesis 1: An ecological model composed of the predictor variables of community support, geographical neighborhood, teacher engagement, spiritual well-being, school environment, and social support received will determine reliance-building adaptive ability/skills (a composite variable composed of impulse control, emotional regulation, relational motivation, and self-reliance) of children, adolescents, and young adults between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

Skinner (1988) presents that a child's positive or negative reinforcement and modeling in the environment can help to develop specific behavioral patterns and motivations. As a result, hypothesis number two was proposed based on the assertion that relational motivation to do well can emanate from modeling and reinforcers in the environments. Additionally, social interactions and learning in the environment following

Vygotsky's principles of the zone of proximal development (ZPD) and the more knowledgeable other (MKO) through adults' support and resources can help develop relational motivation (Vygotsky, 1973). Following these assertions, hypothesis 2 has been presented below:

Hypothesis 2: An ecological model composed of predictor variables such as community support, teacher engagement, and social support received, determine the positive relational motivation of children, adolescents and young adults between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

Quality of environment and the perception of environmental transactions can have some effect on a child's dispositional qualities of self-reliance (Perkins et al., 1993; Skinner, 1988). Children's development depends on social and cultural contexts as well as social processes that determine higher mental functioning (Vygotsky, 1973). The hypothesis 3, as presented below, is founded on the above-presented arguments.

Hypothesis 3: An ecological model composed of predictor variables such as geographical neighborhood, school environment, and spiritual well-being (non-theistic) would determine the self-reliance of children, adolescents and young adults between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

Vygotsky (1973) presents that adults' engagement in the environment can qualify the transactional interactions between children and their environments. Based on Vygotsky's assertion, the hypothesis 4 is presented below:

Hypothesis 4: An ecological model composed of predictor variables such as social support received, community support, teacher engagement, and spiritual well-being

(theistic) would determine impulse control and emotional regulation of children,

adolescents and young adults between the ages of 10 and 21 years while controlling for

age, gender, race, education, income, and trauma severity.

Figure 2.1

Conceptual Model of Risk and Resilience

Ecological variables
(protective effects)

Community support,
Geographical
neighborhood,
Teacher engagement,
Spiritual well-being,
School environment,
and social support

Risks

Maltreatment

Outcomes

Impulse control,
Emotional regulation,
Relational motivation,
and Self-reliance

Age

Race

Gender

Socioeconomic
Factors- mother, father,
and child' Education, and
household income.

Trauma Severity

Control Variables

Chapter 3: Methodology

This chapter describes the methodology of the study, which includes the description of the source of the existing data used for secondary analyses, sample, sampling method, and study variables. Furthermore, a description of the analytical plan for the study has been presented with the rationale.

3.1 Origin and Description of the Secondary Dataset

The dataset used in the study is from the federally funded project, Poly-victimization & Resilience Portfolios: Advancing the Science of Resilience Following Children's Exposure to Violence, Alabama, Georgia, Mississippi, and Tennessee, 2016-2018 (Hamby, 2019). This dataset is maintained and distributed by the National Archive of Criminal Justice Data (NACJD), the criminal justice archive within ICPSR (the Inter-university Consortium for Political and Social Research). The NACJD data was collected by Sherry L. Hamby, Ph.D., principal investigator, and the Director of Life Paths Research Center funded by the National Institute of Justice (Grant number: 2015-R2-CX-0004) at the United States Department of Justice. The researchers of this study have no financial interests in the above-mentioned grant and did not receive any funding from any agencies in the past or at present. The NACJD data were collected by the principal investigator and her team from the Appalachian regions of Alabama, Georgia, Mississippi, and Tennessee in the United States.

3.2 Characteristics of the Population

The NACJD data have been used in this study to understand the resilience-building processes associated with ecological protective factors to help minimize potential risks and enhance better developmental outcomes in children. The location of the population in the study has been defined as "understudied," "low-income," and "the largest and most vulnerable" regions of the United States (Hamby et al., 2018a, p. 174). The samples were drawn in 2017 and 2018 from four Appalachian geographical areas of Alabama, Georgia, Mississippi, and Tennessee. The children and young adults' inclusion criteria in the study was the experience of one or more adversity(ies). A total of 440 children and young adults participated in the study from four southern states of the United States.

The NACJD data were collected using a non-probability sampling method. The NACJD data 2017-18 has 440 cases. The respondents' ages ranged from 10 to 21 years (total male = 38.9%, female = 61.1%, N = 440) from the Appalachian regions in four southern states of the United States. The average age of the respondents was 16.38 years (SD 3.08). There were 311 children between the ages of 10 and 18, and young adults (19 to 21 years) accounted for 129 cases. The NACJD data sample's racial makeup was 69.9% Caucasian, 17.1% African Americans, 3.9% Hispanic, 1.9% American Indian or Alaskan, 1.6% Asian, and 5.6% multiracial. The majority of the respondents (N = 271, 61.7%) were in elementary, middle, high school, or had high school degrees (including GED). The majority of the respondents (61.1%) were from rural (N=119, 27.4%) and small-town (N=146, 33.6%) areas, whereas 38.9% came from town and cities (above 20,000 population). Additionally, the respondents' parent or guardian's profiles indicates that the majority of them were educated. The educational level of the majority of respondents'

mothers or guardians (70.6%) was above high school, and 58.3 % of fathers or guardians

had above high school degrees, which also included some college experiences without

college degrees (see Table 3.1).

Table 3.1

Demographic Characteristics of the Population Sample (N=440)

Variables	Total Number (Missing)	Valid Percentage
Age	439 (1)	
10-12 years	59	13.4%
13-18 years	251	57.2%
19-21 Years	129	29.4%
Gender	434 (6)	
Male	169	38.9%
Female	265	61.1%
Race	440	
White	308	69.9%
Black	75	17.1%
Hispanic	17	3.9%
Asian	7	1.6%
American Indian/Alaska native	8	1.9%
Multiracial	25	5.6%
Education (Children)	439 (1)	
Elementary/Middle school	99	22.6%
In high school	159	36.2%
Some high school (no degree)	2	0.5%
GED	1	0.2%
High School Graduate	10	2.3%
Attending college	158	36%
Some college (dropped out)	7	1.6%
Associate degree (2 years)	1	0.2%
Bachelor's degree (4 years)	2	0.5%
Location	334(6)	
Rural (<2,500)	119	27.4%
Small Town (2,500-20K)	146	33.6%
Town (20K-100K)	61	14.1%
Smaller City (100K-300K)	65	15.0%
Suburb of a large city	11	2.5%
Large City (100K-300K)	32	7.4%
Mother/guardian's highest Education level	426 (14)	
Some high school (No degree)	31	7.3%
GED	19	4.5%
High School Graduate	75	17.6%
Some College (No degree)	63	14.8%
Associate Degree (2 years)	59	13.8%
Bachelor's Degree (4 years)	109	25.6%
Master's Degree (2 years)	50	11.7%
Doctoral degree (Ph.D., MD, JD)	20	4.7%

3.3 Sample, Sampling Strategies, and Delimits

According to Hamby et al. (2018a), the respondents were interviewed in person after being recruited through youth-serving organizations. All participants received $20 for their participation in the study through the organizations which were involved in the recruitment of the respondents. Mixed methods were used to obtain information from the respondents, which included "cognitive interviews," focus groups, and surveys. Focus groups were used to understand the strengths of children and parents, along with adverse experiences (Hamby et al., 2019). There were eight focus groups and 24 cognitive interviews conducted with the parents, children, and youth to explore constructs of resilience. Subsequently, a survey questionnaire was completed by children and youth (N = 440) ages 10 to 21 years (Hamby, 2019). Hamby et al. (2019) state that the information in the NACJD dataset, which is being used in this study, was obtained through computer-assisted self-administered surveys. The principal investigators used the SNAP11 software platform on computers and tablets to record data, and the completion rate was recorded at 92% (Hamby et al., 2019). Focus group data is not available and is not part of this study.

The sampling strategy used for the NACJD data collection was a convenient sampling method, and it lacked probability sampling. Hamby et al. (2018a) report that this was the most productive recruitment strategy in the resource-poor Appalachian regions. The NACJD data collection and sampling strategies may lack the representativeness of the sample.

The target sample of this study includes children between ages 10 and 21 years (N = 439). The inclusion of the target sample in the study is based on the theoretical framework of this study to understand the resilience processes and how a set of ecological

factors may moderate the progression of risks and enhance resilience building abilities of children between ages 10 and 21 years. The selection of the age group is based on the developmental and behavioral theories and adaptation processes (see conceptual framework). Replications of such a model in the future with a similar demographic profile may help quantify the resilience processes in children. The majority of children and youth's families in the NACJD sample reside in rural and resource-poor areas of Southern Appalachia, and the majority of parents are white and educated, which constitute the unique profile of the sample.

3.4 Data Adequacy and Ethical Considerations and IRB Approval of the Study

The NACJD dataset has been obtained from ICPSR for this study to understand the resilience-building processes associated with ecological protective factors to help minimize potential risks and enhance better developmental outcomes in children. Hamby et al. (2018a) state that all NACJD study procedures were conducted in accordance with the American Psychological Association (APA) ethical principles and the University of the South Institutional Review Board's (IRB) approved protocols. They state that parents signed informed consent forms for themselves and provided parental consent for minors for the NACJD data collections (Hamby, 2019; Hamby et al., 2018a).

The researchers of the study have obtained IRB approval (IRB Number: 56621) from the University of Kentucky to use the NACJD data within the scope of this study's objectives to understand children's resilience. This study has been approved under the exempt category by the University of Kentucky IRB, and there is no greater than the minimal risk involved in this study due to the use of the existing NACJD data in the public

domain. The principal investigator, Hamby (2019), had provided the NACJD data, after cleaning and de-identifying it, to ICPSR of the University of Michigan; the data was available in their public domain with certain restrictions. The researchers of this study have checked and cleaned the NACJD dataset, and no identifiable information has been found in the data. Additionally, the nature and scope of this study do not necessitate further interactions with the participants of the NACJD study conducted by Hamby (2019). Also, no interactions are possible due to the unavailability of any identifying information of participants in the NACJD data available in the public domain.

3.5   **Conceptual and Operational Definition of Study Variables and Instruments**

Following the conceptual framework (see Figure 2.1), this study has several ecological predictors to understand how these variables impact children's resilience-building abilities while controlling for certain variables, which may confound the actual effects. The children, adolescents, and youth between ages 10 and 21 years form this study's target group, and the NACJD dataset, available through ICPSR, will be used to test four hypotheses. There are seven ecological predictor variables in the study, which include community support, geographical neighborhood, teacher engagement, spiritual well-being (theistic), spiritual well-being (non-theistic), school environment, and social support received. The four response variables have been categorized as children, adolescents, and youth (ages between 10 and 21 years) resilience-building abilities, which include impulse control, emotional regulation, relational motivation, and self-reliance. Furthermore, age, gender, race, and trauma severity variables have been identified as having effects on the developmental growth progression and mastery of resilience-building abilities. "Dose-

response," "complex trauma," and "poly-victimization" have been identified to be significantly associated with developmental risks (Hodgdon, Blaustein, Kinniburgh, Peterson, & Spinazzola, 2016; Mitchell et al., 2020; Masten, 2018; Rutter, 2012). Differential responses to trauma have been found in the literature to be associated with age, gender, and race, creating different risk and tolerance profiles (Hatch & Dohrenwend, 2007; Kimerling, Ouimette, & Weitlauf, 2007; Tolin & Foa, 2006). Trauma occurring in early childhood and midlife years may have comparatively more significant negative consequences than those experienced at other ages and life stages. Potential trauma exposure is not culture-specific, but certain racial and ethnic groups may be at higher risk of some specific kinds of traumas than others, and differential responses are possible depending on cultural factors of coping mechanisms (Bell, 2011; De Bellis & Zisk, 2014).

The response variables do not reflect the bivariate relationships between independent and dependent variables; instead, they present complex organic relationships between the environmental factors and children's resilience-building abilities to adapt well to adversities. The present model is a strength-based model based on the plethora of evidence found in the early research on resilience, quantifying that personal abilities help individuals to bounce back and do well in their lives. The operational definition of variables and instruments used in this study, as well as instruments' reliability and validity, have been discussed below.

3.5.1 Risks

The literature on trauma is very clear about the pervasive impact of exposure to multiple and prolonged traumatic incidents on children, adolescents, and young adults' competency development, which hinders the healthy development of children and adolescents (Cook et al., 2006; Hodgdon et al., 2016; Mitchell et al., 2020). Child maltreatment, exposure to domestic violence, parental substance abuse, interpersonal violence, and re-victimization are highly related to children and adolescents' physical, emotional, and psychological well-being and risky behaviors, such as substance use and other delinquent behaviors (Finn, Warner, Price, & Spinazzola, 2018; Turner, Shattuck, Hamby, & Finkelhor, 2013). The literature on resilience indicates that resilience factors must have predictive abilities and positive protective or promotive effects to obliterate the progression of risk factors into problems, as they may impede children/adolescents' abilities to adapt successfully to potential adversities.

3.5.2 Independent Variables

Community support. Community support has been defined as to what extent one's neighbors get along and help each other (Roberts, Hamby, Banyard, & Grych, 2015). A child receiving support and help from neighbors can develop relational skills, compassion, and regulation (Hamby et al., 2015). The community support scale has six items and is a reliable and valid instrument ($\alpha = .80$; $r = .32 - .46$). A four-point Likert scale has been used to measure the variable. Sample items in the community support scale have been presented below:

"People in my neighborhood offer to help one another."

"Friends or neighbors would give me a ride if I needed it."

"In this community, children and teenagers are supported and valued."

Geographical Neighborhood. The geographical neighborhood is geographical area which is one of the important areas where a child grows, and its culture, traditions, and practices may have some impact on a child's dispositional attributes. The geographical neighborhood has been defined as what best describes where you live (Roberts, Hamby, Banyard, & Grych, 2015)? The variable geographical neighborhood has been characterized as below:

"Rural area (population under 2,500)"

"Small town (population about 2,500-20,000)"

"Town (population about 20,000-100,000)"

"Smaller city (population about 100,000-300,000)"

'Suburb of a large city."

"Large city (population over 300,000 people)"

School environment. The school environment is one of the most important areas where children spend the majority of the time during weekdays. The school environment has been referred to as the qualitatively advantageous characteristics of the school environment (Hamby, Taylor, Smith, & Blount, 2018b). The School Climate Scale ($\alpha =$ .78; r =.30-.41) has been used to measure the school environment and has six items. The scale uses a 4-point Likert scale to measure the variability (Hamby et al., 2018b). The sample items on School Climate are shown below:

"Most of my classes have less than 30 students."

"Teachers and other adults at my school are fair to students."

"My school building is in good condition."

Social support received. Social Support Received is an instrument, which contains five items ($\alpha = .80$; $r = .32$ to $.46$). Social support has been defined as help or encouragement provided to children and adolescents in times of distress. Social support is one of the significant ecological factors recognized in the literature that is associated with the support received from family members, peers, or other individuals associated with children's ecological system (Hamby et al., 2018a; Frison, & Eggermont, 2015; Fritz, de Graaff, Caisley, Van Harmelen, & Wilkinson, 2018). The scale has been used to measure the degree of support and access to resources that children or adolescents perceive to have during distress (Hamby et al., 2018b). The sample items on the scale are presented below:

"Someone was there for me when I was having a hard time."

"Someone helped me get my mind off things."

"Someone gave me a place where I could get away for a while."

Spiritual well-being (Theistic). Spiritual Well-being (theistic) is a five-item subscale of the Spiritual Well-Being scale to measure the spiritual well-being associated with God or higher power providing a sense of connection with God/higher power or well-being. Spiritual Well-being – *theistic* is a five-item scale and is reliable and valid ($\alpha = .95$) (Hamby et al., 2018b). A few items from the scale have been presented below:

"I get a sense of inner peace from my relationship with God or a higher power."

"I feel good about my church or religious group."

"God or a higher power helps me with hard times."

Spiritual well-being (Non-theistic). Spiritual Well-being – *non theistic* is a subscale of the Spiritual Well-being Scale, which has five items to measure the sense of connectedness with nature, which gives a similar sense of awe or well-being as with *theistic* well-being (Hamby et al., 2018b). The scale is a reliable and valid instrument (α = .82). The sample items on the scale have been enumerated below:

"I feel peaceful when I'm outside."

"I feel all living things are connected."

"I feel a sense of connection to the earth."

Teacher engagement. Teacher engagement has been defined as positive, enthusiastic, and caring experiences with teachers (Hamby et al., 2018b). The teacher engagement scale is a five-item valid and reliable scale (α = .86), and responses have been collected on a 4-point Likert scale to understand the degree of positive experiences of children and adolescents with their teachers. Sample items on the scale have been presented below:

"I had a teacher who wanted me to do well in school."

"I had a teacher who made the subject interesting."

"Even when my teachers are upset, they don't yell."

3.5.3 Dependent Variables (Outcome Variables)

Impulse control. Impulse regulation has been defined as the behavioral regulation abilities of children and adolescents (Hamby et al., 2018b). The Impulse Control Scale has five items and is valid and reliable (α = .63). Examples of scale items have been presented below:

"I stop to think before I act."

"I can keep quiet when I need to."

"I stay out of trouble at school."

Emotional regulation. Emotional regulation has been defined as recovering positive affect and returning to a good mood after experiencing distress (Hamby et al., 2018b). The Recovering Positive Affect Scale has six items and is a valid and reliable scale (α = .81). A four-point Likert scale has been used to record the degree of self-perceived ability of children and adolescents in managing their affect. Sample items from the scale have been presented below:

"I can still laugh at a joke, even when I'm having a bad day."

"I don't stay mad for very long."

"If I am feeling sad, I can cheer myself up."

Relational motivation. The relational motivation scale is a three-item reliable and valid scale (α = .70) (Hamby et al., 2018b). The scale has used a 4-points Likert scale to measure the degree of one's relational motivation to do well and overcome adversities. Relational motivation has been defined as having some positive feelings of motivation and thoughtfulness associated with the meaning-making activities of some important people in one's social ecology. Relational motivation is one of the crucial elements of children's social ecology. Social-ecological factors can help develop protective effects through positive interactions with key persons, such as parents, peers, coaches, and teachers (Hamby et al., 2018b). Sample items from the scale have been enumerated to clarify the construct's content:

"I want the people in my life to be proud of me."

"I care if I let people in my life down."

"I want to be a good example for other people."

Self-reliance. Self-reliance is the ability of children and adolescents to cope using one's own resources and assets (Hamby et al., 2018b). The Self-reliance Scale has three items ($\alpha = .81$) and uses a 4-points Likert scale to measure the degree to which an individual can cope well. A sample of scale items has been presented below:

"I don't ask for help unless I really need it."

"I like to solve problems on my own."

"I try to figure things out before asking for help."

Resilience-building adaptive ability/skills. This is a composite variable created by combining four valid scales of impulse regulation, relational motivation, self-reliance, and emotional regulation. All four unique variables were reliable and valid scales (as mentioned above) measured on a 4-point Likert scale. Confirmatory factor analysis was conducted to determine the underlying structure for the four measures (impulse regulation, relational motivation, self-reliance, and emotional regulation) included in the composite variable, resilience-building adaptive ability. The reliability test of the composite scale was also conducted ($\alpha = .84$).

3.5.4 Control Variables

Control variables have been identified as age, gender, race, and trauma severity, which can impact the resilience-building abilities in the children and adapt well to their development trajectories. Control variables have been proposed to keep their contributions in statistical analysis constant/neutral to understand the causal relationship and predictive value of ecological factors. The identified control variables are operationalized as below:

Age. The age of children in the study has been recorded as a continuous level of measurement. The age of the target population (children, adolescents, and young adults) in the study ranges from 10 to 21 years.

Gender. Gender has been recorded in the study as dichotomous level measurements – "Male," or "Female."

Race. Race and ethnic identity of children and adolescents have been operationalized as - White or European American (non-Latino), Black or African American, Latino, American Indian or Alaska Native (non-Latino), Asian (non-Latino), and multiracial.

Mother's Education. Respondents' mother/guardian's education has been measured on a scale of 1 to 8. The education levels for the mother or guardian include having some high school but did not graduate, GED, having a high school diploma, some college but no degree, a two-year associate degree, a four-year bachelor's degree, master's degree, or doctoral degree (Ph.D., MD, JD).

Father's Education. Respondents' father/guardian's education has been measured on a scale of 1 to 8. The education levels for the father or guardian include

having some high school but did not graduate, GED, having a high school diploma, some college but no degree, a two-year associate degree, a four-year bachelor's degree, master's degree, or doctoral degree (Ph.D., MD, JD).

Household income. The respondent's family's household income has been measured in United States Dollars and is an interval level measure. The range of income present in the NACJD dataset is $33,600 to $134,600.

Trauma Severity. The severity of trauma has been defined as the expanse of children's and adolescents' adverse life experiences**.** Adverse life experiences in children will be measured by the Juvenile Victimization Questionnaire (JVQ-KDSF) - Key Domain Short Form, which includes ten items to record children's and adolescents' lifetime interpersonal nature of trauma histories (Hamby et al., 2018a; Turner, Shattuck, Hamby, & Finkelhor, 2013). The JVQ-KDSF is an adapted version of the Juvenile Victimization Questionnaire (JVQ), which had 34 items questionnaire designed for children between ages 2 and 17 years (Finkelhor, Hamby, Ormrod, & Turner, 2005). The items on the JVQ-KDSF are constructed to have dichotomous responses of "yes" or "no" to calculate a score of total victimization/severity ($\alpha = .73$). The sample items on the JVQ-KDSF has been presented below:
"At any time in your life, in real life, did you see anyone get attacked or hit on purpose with a stick, rock, gun, knife, or something that would hurt? Somewhere like at home, at school, at a store, in a car, on the street, or anywhere else?"

"Was there a time in your life that you often had to look after yourself because a parent drank too much alcohol, took drugs, or wouldn't get out of bed?"

"At any time in your life, did anyone ever hit or attack you on purpose? Somewhere like at home, at school, at a store, in a car, on the street, or anywhere else?"

3.5.5 Risk Activated moderating Variables

Risk-activated moderating variables are hard to control for due to their inherent nature in causal relationships (Masten, 2001). A possibility of developing moderating effects of genetics, medical conditions, and/or immune system over time with the experience of adversities cannot be overruled. Additionally, accounting for the risk-activated variables are important for establishing causal/etiological relationships or understanding "steeling effects" between predictors and outcomes (Rutter, 2006), but difficulties lie with the nature and scope of social science research and available resources. It will not be possible to control for the variables listed below:

Genetics. Children and adolescents are born with certain genetical makeup, which gets expressed with interactions with one's social and physical ecologies. The genetic profile is hard to account for in social and psychological research, and it may have some influence on children's abilities.

Medical conditions. Certain medical conditions can be responsible for creating, even temporarily, certain conditions or perceived conditions, which can have an adverse impact on children's and adolescents' well-being and functioning. For example, a caring parent may be engaged in certain activities like uncommitted sexual relationships due to borderline personality disorder, which can disturb children in many ways and that is unable to be explained because his or her children have apathy towards developing a relationship with this presumably key person in their lives.

Immune system. Problems with children's immune systems may create certain unsolicited or perceived risk factors, which can have adverse effects on children's functioning and achieving their milestones. Controlling intervening variables is challenging, especially in social science research.

3.6 Plan for the Data Analysis

The study has used NACJD data [NCAC.CEVres.survey-data_Updated] for statistical analyses to understand the resilience processes in children with adverse life experiences. The focus of the study is to understand the predictive values of the ecological factors in promoting resilience in children to protect them against adverse life experiences by testing the four hypotheses. Following the operationalized predictor variables of community support, geographical neighborhood, teacher engagement, spiritual well-being *theistic* and *non-theistic*, school environment, and social support received, hierarchical regression analyses have been conducted to observe the predictive capacity of the ecological model on a set of resilience-building competencies/personal characteristics of children. Age, gender, race, education, income, and trauma severity have been defined and are proposed to be controlled in the analysis to obliterate their confounding effects on children's developmental trajectories.

The study has used descriptive statistics to understand the target sample's demographic characteristics. The study has included children, adolescents, and young adults between ages 10 and 21 years (N = 439) based on the theoretical underpinnings. The data has been screened and checked for assumptions of the multiple regression analyses and assumption violations. Four hypotheses have been checked using the IBM

Statistical Package for Social Sciences 27 (SPSS) to present the results along with

significance levels within the scope of the study.

Chapter 4: Results

The chapter presents the hypothesis-testing and analysis of the investigation. First, the portrayal of the characteristics of the sample is described. All statistical analyses were conducted using the IBM Statistical Package for Social Sciences 27 (SPSS), and the results are presented descriptively and using tables as applicable.

This study used NACJD data and hierarchical multiple regression analyses for data analysis. The data were cleaned by visually examining the NACJD dataset for missing data and running univariate analyses. Eleven cases were removed from the dataset due to being outliers indicated by calculating the Mahalanobis distance and Mahalanobis distance probability. The data did not violate the regression analysis assumptions after removing 11 outliers. Multiple regression assumptions were tested, such as a linear relationship between independent and dependent variables, normality, multicollinearity, homoscedasticity, and the autocorrelation of residuals by running several analyses in SPSS using scatter plots, histograms, graphs/plots, correlational tables, residual analyses, collinearity diagnostic outcomes, and residual statistics. Power analysis was conducted using SPSS 27, and results indicate that the sample size of the NACJD dataset used to test the four hypotheses met the minimum threshold of power value of 0.80 with the significance level set at 0.05. Descriptive analyses were used to examine the frequency distribution, mean, SD, and range as appropriate to understand the sample characteristics. Subsequently, hierarchical regression analyses were conducted to test four hypotheses while controlling for the control variables proposed in the hypotheses.

4.1 Characteristics of the sample

Descriptive analyses of the NACJD dataset cases included for the analysis indicate that the majority of the children (57.5%) were adolescents between ages 13 and 18 years. Most of them (61%) came from rural areas (<2,500) and small towns (2,500-20,000 population). The majority of the children participating in the study were white (69.9%) and the black students accounted for 17.1%. Female students were in the majority and constituted 61.1% of the participants.

A large proportion (58.8%) of the participants were in high school (36.2%), followed by elementary school students (22.6%). Almost 71 percent of the children's mothers/guardians had at least some college education (mother/guardians with GED: 4.5%, high school diploma: 17.6%, some college: 14.8%, associate degree: 13.8%, bachelor's degree: 25.6%, master's degree: 11.7%, and Ph.D./MD/JD degree: 4.7%).

The children's fathers also had relatively high levels of education with 58.3% of them having at least a some college education (GED: 5.5%, high school diploma: 26%, some college: 13%, associate degree: 6.5%, bachelor's degree: 19.3%, master's degree: 13.5%, and Ph.D./MD/JD degree: 6 %). The majority (52.6%) of the respondents' household income was between $41,000 and $51,300, followed by 26.1% of all the respondents having an income equal to or below $41,000, whereas 15.8% and 5.5% of the respondents' households income were between $51,300 - $61,200 and $61,200 - $134,600, respectively. The demographic characteristics of the respondent children have been presented below figuratively (Figure 2-7).

Figure 4.2

Number of Children with Different Types of Trauma
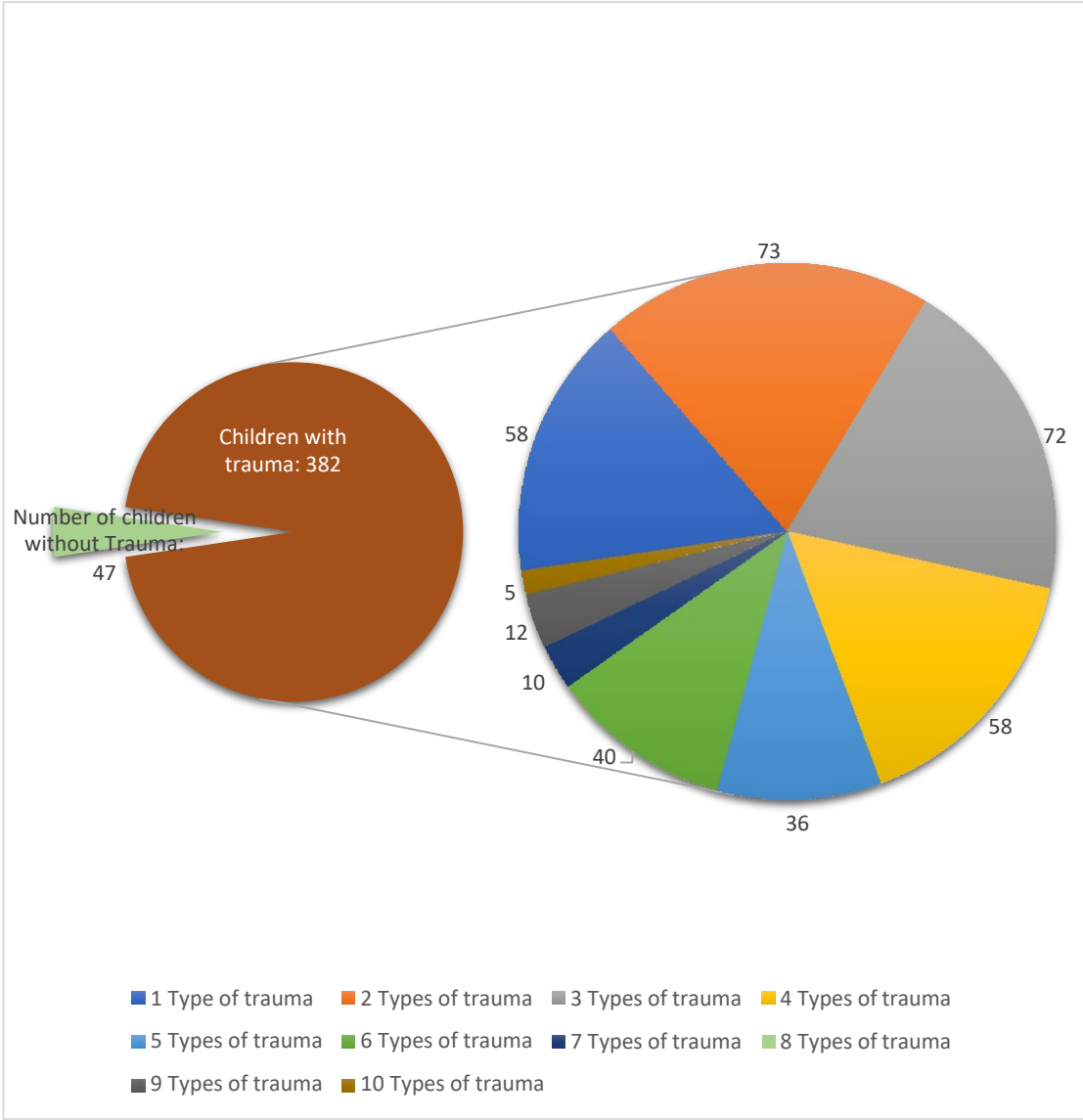
Figure 4.3

Respondent Children's age Group
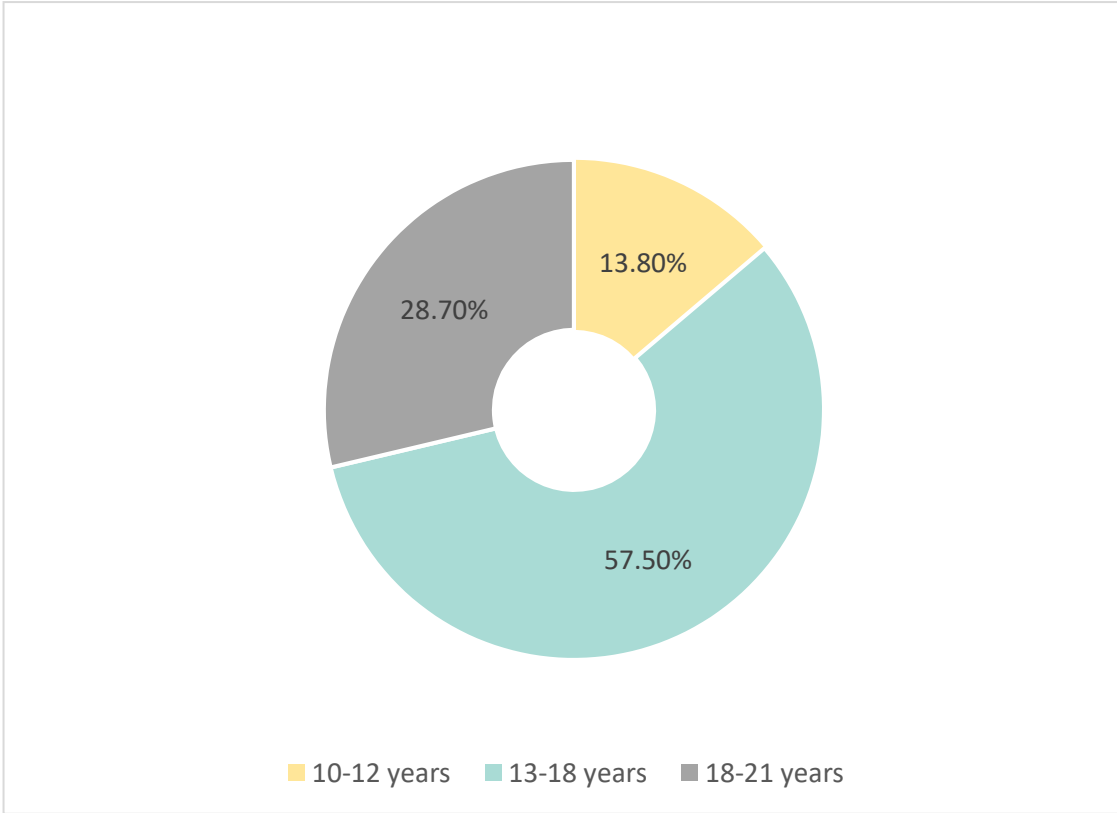
Figure 4.4

Respondent Children's Race
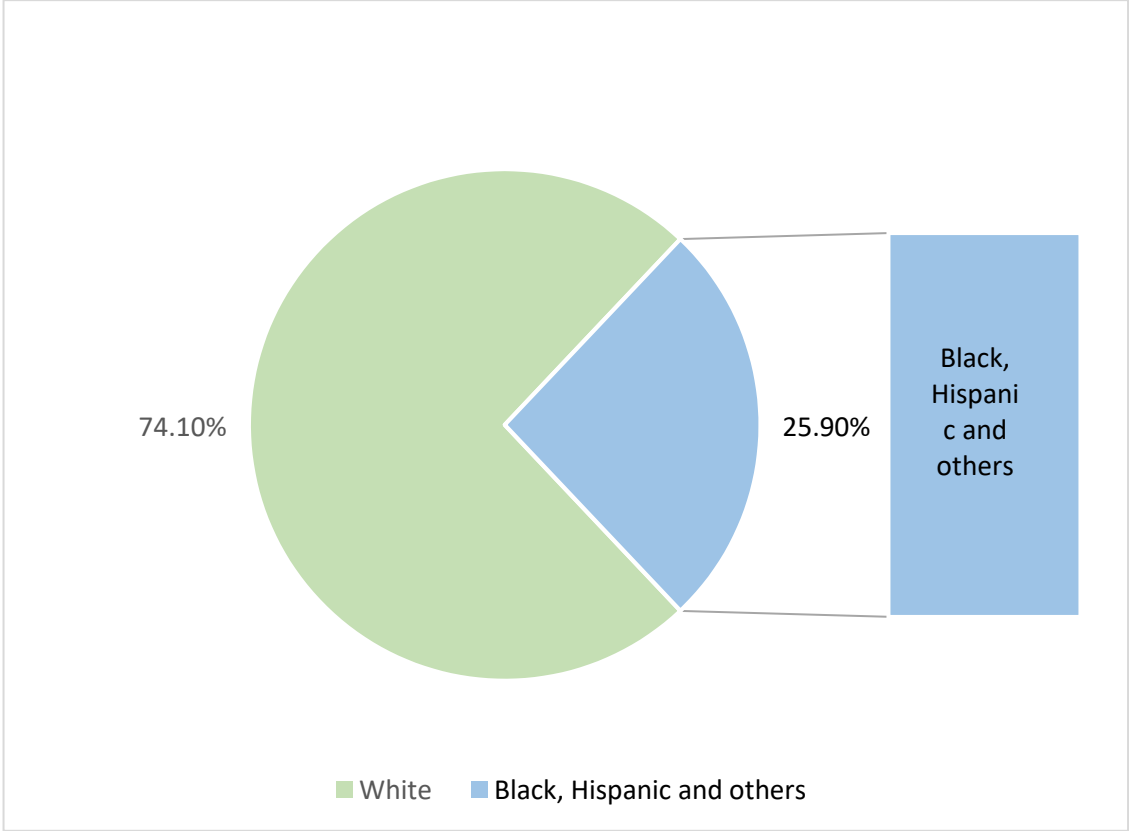
Figure 4.5

Demographic Areas of Respondent Children
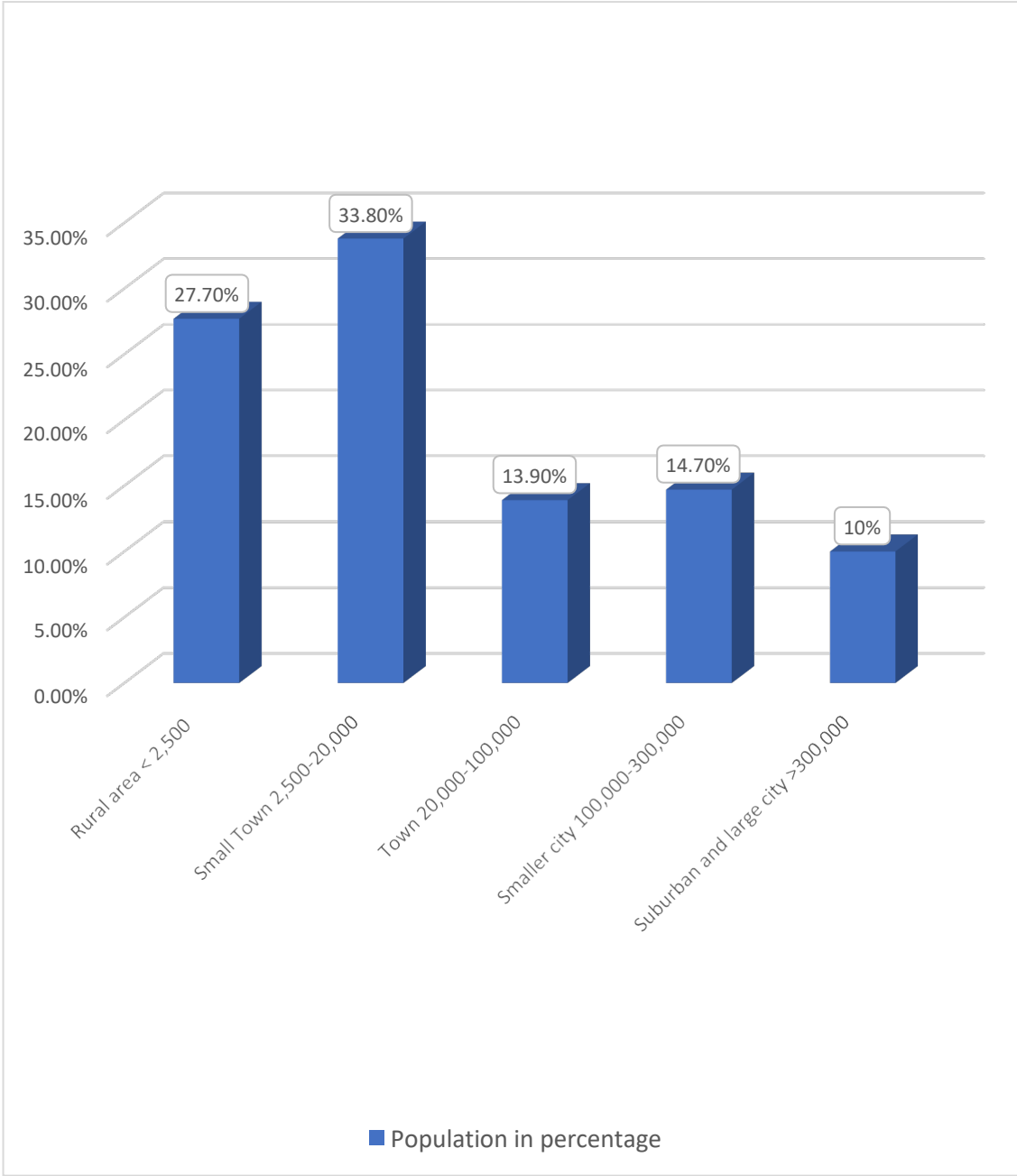
Figure 4.6

Respondent Children's parents/Guardians' Education Level
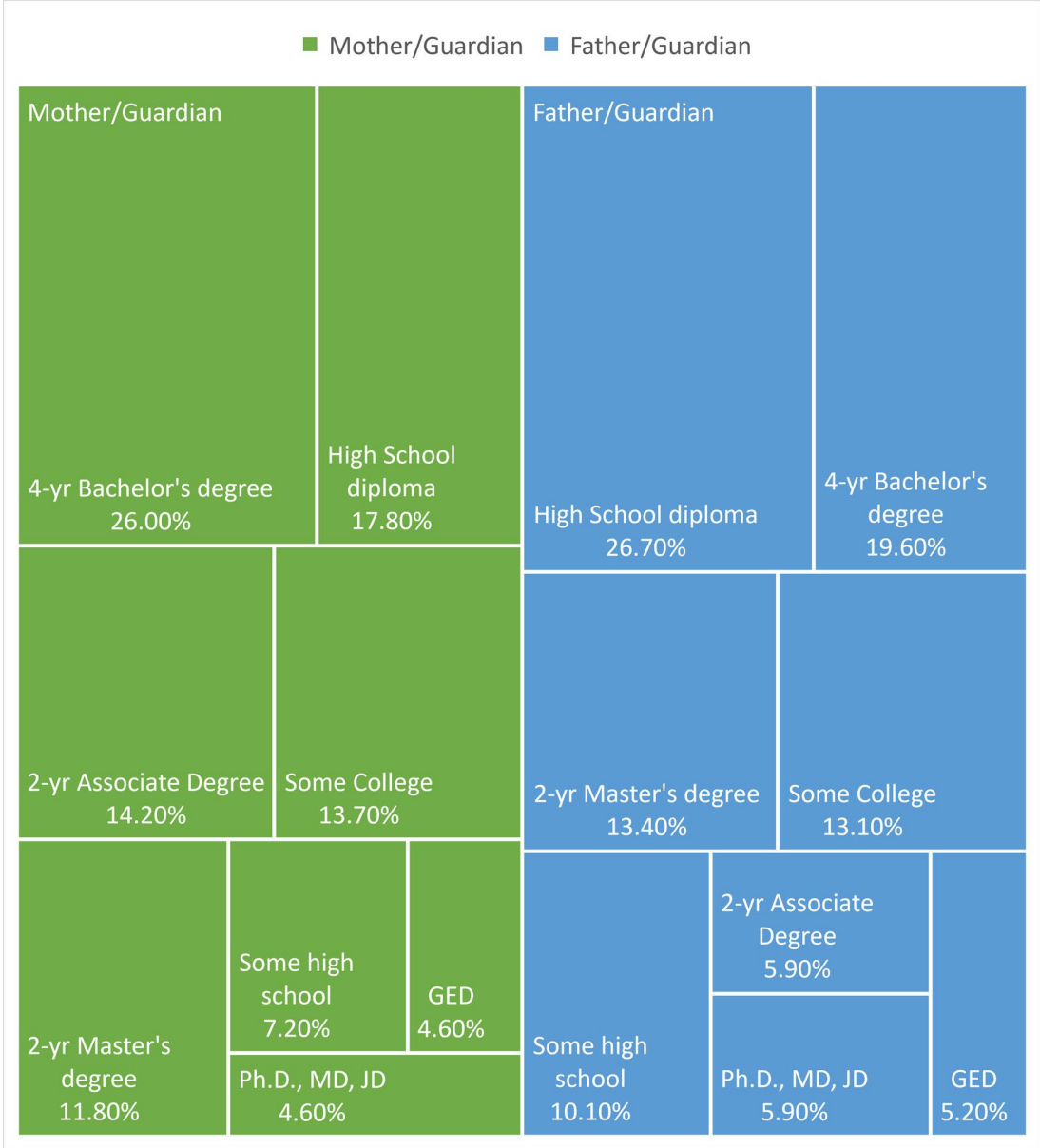
Figure 4.7

Respondent Children's parents/Guardians' Median Household Income
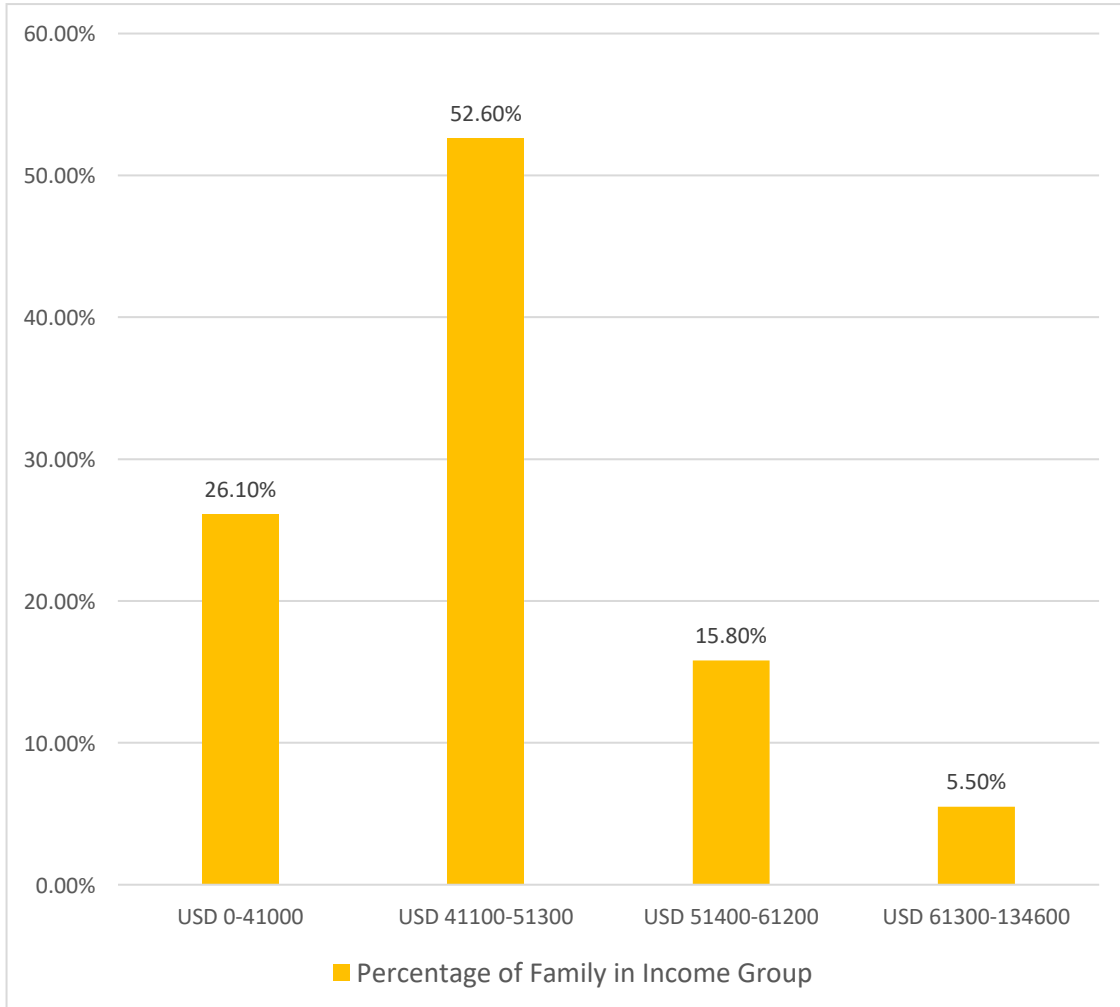
4.2 Hypotheses testing

Following the multiple regression assumption analyses, four hierarchical multiple regression analyses were conducted to test the four proposed hypotheses based on the conceptual and theoretical underpinnings. There were several control variables: trauma severity, age, gender, race, respondent children's education, respondent children's parents'

education, and household income. The same proposed control variables are included in all four of the hypotheses being tested.

Trauma severity was computed and represented on a scale of 0 to 10. The trauma severity scale's values signify that a score of '10' means children with experience of all ten types of trauma, and a score of '0' corresponds to having no traumatic experience.

The household income of the respondent children's families is an interval level measure ranging between $41,000 and $134,600. Gender has been dummy-coded with the female being the reference group (Male = 1, Female = 0). Race has also been categorized in dummy variables, and Hispanic, Asian, Multiracial, and Others constituting the reference group (White = 1, Hispanic, Asian, multiracial, and others = 0). The respondents' parental education variable is nominal-level and has also been used as a control variable in the analysis. An initial multiple regression analysis was conducted to calculate Mahalanobis distance. There were 9 cases that turned out to be outliers and were removed from all of the analyses using chi-squared cumulative probability distribution function calculations (Aggarwal, 2015).

4.2.1 Testing of Hypothesis 1

Hypothesis 1: An ecological model composed of the predictor variables of community support, geographical neighborhood, teacher engagement, spiritual well-being, school environment, and social support received will determine reliance-building adaptive ability/skills (a composite variable composed of impulse control, emotional regulation, relational motivation, and self-reliance) of children, adolescents, and young adults

between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

There are seven predictor variables in the first model to test hypothesis 1 and six control variables. The dependent variable in the first hypothesis being tested has been transformed into a resilience skills scale by computing four variables: impulse control, emotional regulation, self-reliance, and relational motivation, using a four-level Likert scale.

To test the first hypothesis, a hierarchical analysis was conducted along with several additional tests to understand the unique relationship among variables, check the multiple regression assumptions, and transform variables to suit the hypothesis testing requirements. There were 9 cases, which were outliers and were removed from the analyses following the Mahalanobis distance and probability tests calculation. Removing the outliers improved the adjusted R^2 value in the hierarchical analysis by almost three percent. Before running the hierarchical analysis, the dependent variable, resilience-building adaptive skills, was computed by summing the four variables: impulse control, emotional regulation, relational motivation, and self-reliance. The variables, impulse control and emotional regulation had five and six questions, respectively, whereas relational motivation and self reliance had three questions in each. All variables were measured on a 4-point Likert Scale, giving the dependent variable a theoretical range from a maximum of 68 points representing higher resilience skills to a minimum of 17, denoting minimal competencies in the identified areas of impulse control, emotional regulation, self-reliance, and relational motivation.

Additionally, confirmatory factor analysis was performed to determine the

underlying structure for the four measures (impulse regulation, relational motivation, self-

reliance, and emotional regulation) included in the composite variable, resilience-building

adaptive ability. Varimax rotation was used in the factor analysis, and the results indicated

that the four factors above met the eigenvalue of 1 and accounted for 53.12% variance.

Emotional regulation had the largest positive loadings on factor 1 (28.4%), followed by

self-reliance on factor 2 (12.38%), impulse control on factor 3 (10.34%), and relational

motivation on factor 4 (8.00%). The composite scale's reliability test was also conducted

and was found to be reliable ($\alpha = .84$).

The descriptive data have been presented in Tables 2 and indicate that there were

375 valid cases included in the first hierarchical regression analysis. The descriptive

statistics presented in Table 4.2 indicated that the average score on the resilience skills

was 56.73 (N=375, SD=7.182). The correlation among predictors is not above .70, and the

correlation between predictor and outcome variables are above .30 (see Table 4.3). There

was no multi-collinearity (all tolerance values are greater than .10 and close to 1). No

auto-correlation among residuals was noted as the Durbin-Watson value of the regression

analysis was close to 2. Residuals were normally distributed and met the assumption of

homoscedasticity.

The first control variable, trauma severity, was entered in the first block to run the

hierarchical regression analysis, followed by demographic control variables such as age,

race, gender, education, and income, that were entered in the second block. Finally, seven

predictor variables (community support, geographical neighborhood, teacher engagement,

spiritual well-being-theistic, spiritual well-being-non-theistic, school environment, and

74

social support received) were entered in the third block to run the hierarchical analysis.

This hierarchical regression analysis indicated that the first iteration of the regression

outcome endorsed trauma severity contributing significantly to the model [R^2 = .071, R^2_{ad}

= 0.069, F (1, 373) = 28.538, p< .0001], and the model accounted for 6.9 percent of the

variance in the outcome variable of children's resilience skills.

The second iteration of the regression analysis added the control variables (age,

race, gender, parents' education, and household income). The addition of these control

variables slightly increased the predictive capacity of the model and accounted for 8.7

percent of the variance in the dependent variable [R^2 = .104, R^2_{ad} = 0.087, F (7, 367) =

6.102, p< .0001]. A 3.3 percent variance in the dependent variable was explained by the

control variables, age, race, gender, parents' education, and household income while

controlling for trauma severity. In the final iteration, the inclusion of seven predictor

variables, community support, geographical neighborhood, teacher engagement, spiritual

well-being- theistic, spiritual well-being- non-theistic, school environment, and social

support received, with control variables significantly increased the predictive capacity of

the model [R^2 = .403, R^2_{adj} = 0.380, F (14, 360) = 17.347, p< .0001] and predictor

variables explained 29.9 percent of the variance in the dependent variable while

controlling for all control variables. The unique contribution of predictor variables,

community support, teacher engagement, spiritual well-being- theistic, spiritual well-

being- non-theistic, school environment, and social support received was statistically

significant, but the geographical neighborhood did not contribute to the model

significantly (p=.096). The summary of the findings has been presented in Table 4.4.

Table 4.2

Descriptive Analysis of the Predictors, Control and Outcome Variable, Resilience Skills

		Mean	SD	N
1	Resilience skills	56.73	7.182	375
2	Trauma severity	3.31	2.395	375
3	Age	16.59	2.952	375
4	Income	47806.67	10717.811	375
5	Mother's education	14.40	2.637	375
6	Father's education	14.02	2.874	375
7	Gender	.39	.488	375
8	Race	.71	.455	375
9	Community support	18.58	4.213	375
10	Geographical neighborhood	2.56	1.458	375
11	Teacher engagement	20.85	3.869	375
12	Spiritual well-being (*theistic*)	15.66	4.891	375
13	Spiritual Well-being (*non-theistic*)	15.51	3.731	375
14	School environment	16.80	3.059	375
15	Social support received	15.55	3.818	375

Table 4.3

Bivariate Correlation between the Predictors, Control and Outcome Variable, Resilience Skills

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Resilience skills	1.0														
2 Trauma severity	-.267 ***	1.0													
3 Age	.100 *	-.067	1.0												
4 Income	.030	.003	.324 ***	1.0											
5 Mother's education	.095 *	-.121 **	.268 ***	.199 ***	1.0										
6 Father's education	.180 ***	-.169 ***	.310 ***	.320 ***	.597 ***	1.0									
7 Gender	-.01 1	-.004	-.199 ***	-.235 ***	-.178 ***	-.193 ***	1.0								
8 Race	.161 ***	-.155 ***	.129 **	.159 ***	.171 ***	.207 ***	-.236 ***	1.0							
9 Community support	.371 ***	-.184 ***	.091 *	.028	.203 ***	.241 ***	-.014	.152 **	1.0						
10 Geographical neighborhood	.100 *	-.020	.353 ***	.499 ***	.293 ***	.300 ***	-.302 ***	.136 **	-.032	1.0					
11 Teacher engagement	.473 ***	-.191 ***	.165 ***	.067	.093 *	.213 ***	-.034	.157 ***	.305 ***	.096 *	1.0				
12 Spiritual well-being (*theistic*)	.359 ***	-.157 ***	-.038	-.019	-.016	.005	-.068	.070	.269 ***	.005	.262 ***	1.0			
13 Spiritual well-being (*non-theistic*)	.282 ***	.022	.029	-.104 *	.003	-.036	-.037	.016	.134 **	-.063	.275 ***	.207 ***	1.0		
14 School environment	.455 ***	-.264 ***	.195 ***	.095 *	.212 ***	.283 ***	-.104 *	.216 ***	.340 ***	.165 ***	.539 ***	.171 ***	.138 **	1.0	
15 Social support received	.393 ***	-.160 ***	.054	.066	.052	.082 *	-.064	.127 **	.306 ***	.070	.403 ***	.376 ***	.290 ***	.278 ***	1.0

*$p<.05$; **$p<.01$; ***$p<.001$.

Table 4.4

Hierarchical Regression of Predictors on Resilience Skills

Predictors	B	β	R2	ΔR2	F	ΔF
Step 1			.071	.071	28.538***	28.538***
Trauma severity	-.800***	-.267				
Step 2			.104	.033	6.102***	2.266*
Trauma severity	-.678***	-.226				
Age	.134	.055				
Race	1.744*	.110				
Gender	.566	.038				
Mothers' education	-.100	-.037				
Fathers' education	.355*	.142				
Household income	-0.000022	-.034				
Step 3			.403	.299	17.374***	25.715***
Trauma severity	-.323*	-.108				
Age	-.008	-.003				
Race	.552	.035				
Gender	.987	.067				
Mothers' education	-.137	-.050				
Fathers' education	.135	.054				
Household income	-0.000021	-.031				
Community support	.232**	.136				
Geographical neighborhood	.417	.085				
Teacher engagement	.306**	.165				
Spiritual well-being (*theistic*)	.234***	.160				
Spiritual well-being (*non-theistic*)	.261**	.135				
School environment	.469***	.200				
Social support received	.202*	.107				

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

4.2.2 Testing of Hypothesis 2

Hypothesis 2: An ecological model composed of predictor variables such as community support, teacher engagement, and social support received, determine the positive relational motivation of children, adolescents and young adults between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

A hierarchical regression analysis was run with the same control variables (trauma severity, age, race, gender, education, and income) and three independent variables (community support, teacher engagement, and social support received) to test the second hypothesis. The outcome variable was relational motivation. The same dataset was used and checked for the multiple regression assumption violations. The dependent variable, relational motivation, was computed into a scale by summing the 4-point Likert responses for the three independent variables. The theoretical range ran from a maximum of 12 to a minimum of 4. The descriptive analysis of the variables is presented in Table 4.5.

There were 376 valid cases included in the second hierarchical regression analysis. The average score on the relational motivation scale was 11.22 (N=376, SD=1.437). The bivariate correlational relationships of predictors, control variables, and the dependent variable are presented in Table 4.6. There were no high correlations among the predictors, and all bivariate relationships were under .60. No multi-collinearity was observed (all tolerance values are greater than .10 and close to 1), and no auto-correlation among residuals was noted, as the Durbin-Watson value of the regression analysis was close to 2. Residuals were normally distributed and met the assumption of homoscedasticity.

The first control variable, trauma severity, was entered in the first block to run the hierarchical regression analysis. The demographic control variables (age, race, gender, education, and income) were entered in the second block. The three predictors (community support, teacher engagement, and social support received) were entered in the third block to test the second hypothesis using hierarchical regression analysis.

The outcomes of hierarchical regression analysis indicated that in the first iteration of the analysis, trauma severity was significant in the model and accounted for 2.5 percent of the dependent variable variance [$R^2 = .025$, $R^2_{adj} = 0.023$, $F (1, 374) = 9.769$, $p < .01$]. The second iteration of the hierarchical regression with the addition of control variables (age, race, gender, parents' education, and household income) indicated that the model remained significant, and it accounted for 6 percent of the variance. The model improved by 5.2 percent while controlling for trauma severity [$R^2 = .078$, $R^2_{adj} = 0.060$, $F (7, 367) = 4.435$, $p < .0001$]. In the final iteration, the addition of predictor variables, community support, teacher engagement, and social support received, with the previously included control variables significantly increased the predictive capacity of the model [$R^2 = .241$, $R^2_{adj} = 0.220$, $F (10, 365) = 11.593$, $p < .0001$]. The predictor variables explained 16.3 percent of the variance in the dependent variable while controlling for control variables. The unique contribution of predictor variables, teacher engagement, and social support received was statistically significant, but community support's contribution to the model was non-significant ($p=.131$). The summary of the findings has been presented in Table 4.7.

Table 4.5

Descriptive Analysis of the Predictors, Control and Outcome Variable, Relational Motivation

		Mean	SD	N
1	Relational motivation	11.22	1.437	376
2	Trauma severity	3.30	2.397	376
3	Age	16.58	2.954	376
4	Income	47794.95	10705.924	376
5	Mother's education	14.40	2.634	376
6	Father's education	14.02	2.871	376
7	Gender	.39	.489	376
8	Race	.71	.454	376
9	Community support	18.57	4.208	376
10	Teacher engagement	20.85	3.864	376
11	Social support received	15.54	3.818	376

Table 4.6

Bivariate Correlation between the Predictors, Control and Outcome Variable, Relational Motivation

	1	2	3	4	5	6	7	8	9	10	11
1 Relational motivation	1.00										
2 Trauma severity	-.160 ***	1.00									
3 Age	.081	-.062	1.00								
4 Income	.145 **	.004	.324 ***	1.00							
5 Mother's education	.132 **	-.118 **	.269 ***	.199 ***	1.00						
6 Father's education	.176 ***	-.167 ***	.310 ***	.320 ***	.597 ***	1.00					
7 Gender	-.112 *	-.008	-.203 ***	-.236 ***	-.180 ***	-.193 ***	1.00				
8 Race	.188 ***	-.157 ***	.126 **	.158 ***	.170 ***	.207 ***	-.233 ***	1.00			
9 Community support	.249 ***	-.183 ***	.091 *	.028	.203 ***	.241 ***	-.015	.152 **	1.00		
10 Teacher engagement	.399 ***	-.191 ***	.165 ***	.066	.093 *	.213 ***	-.033	.157 ***	.305 ***	1.00	
11 Social support received	.356 ***	-.156 ***	.057	.067	.053	.083 *	-.067	.125 **	.306 ***	.403 ***	1.00

$*p<.05; **p<.01; ***p<.001.$

Table 4.7

Hierarchical Regression of Predictors of Relation Motivation

Predictors	B	β	R2	ΔR2	F	ΔF
Step 1			.025	.025	9.769**	9.769**
Trauma severity	-.096**	-.160				
Step 2			.078	.052	4.435***	3.481**
Trauma severity	-.075*	-.125				
Age	-.006	-.012				
Race	.394*	.125				
Gender	-.133	-.045				
Mothers' education	.014	.025				
Fathers' education	.041	.081				
Household income	0.000012	.088				
Step 3			.241	.163	11.593***	26.173***
Trauma severity	-.029	-.049				
Age	-.023	-.048				
Race	.228	.072				
Gender	-.148	-.050				
Mothers' education	.023	.042				
Fathers' education	.006	.011				
Household income	0.000012	.092				
Community support	.026	.077				
Teacher engagement	.100***	.269				
Social support received	.074***	.198				

*p<0.05; **p<0.01; ***p<0.001.

4.2.3 Testing of Hypothesis 3

Hypothesis 3: An ecological model composed of predictor variables (geographical neighborhood, school environment, and spiritual well-being *non-theistic*) would determine self-reliance of children, adolescents and young adults between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

The third hierarchical regression analysis was conducted with the same control variables (trauma severity, age, race, gender, education, income), and three independent variables, geographical neighborhood, school environment, and spiritual well-being *non-theistic*, to test the hypothesis. Hierarchical regression was run to account for the variance in the dependent variable, self-reliance, by the predictors. The same dataset was used, and the multiple regression assumptions were checked. The dependent variable, self-reliance, consisted of three items measured on a 4-point Likert scale. The dependent variable was computed by summing the three items. This created a theoretic range of values from 3 to 12.

The descriptive analysis of the variables is presented in Table 4.8. There were 378 valid cases included in the third hierarchical regression analysis. The average score in the relational motivation scale was 10.30 (N=378, SD=2.010). The bivariate correlational relationships of predictors, control variables, and the dependent variable are presented in Table 4.6. No bivariate correlation was higher than .60 (see Table 4.9). There was no multi-collinearity (all tolerance values are greater than .10 and close to 1), and no auto-correlation among residuals was noted, as the Durbin-Watson value of the regression analysis was close to 2. Residuals were normally distributed and met the assumption of homoscedasticity.

The first control variable, trauma severity, was entered in the first block to run the hierarchical regression analysis. The demographic control variables (age, race, gender, education, and income) were entered in the second block, followed by the three predictors, geographical neighborhood, spiritual well-being *non-theistic*, and school environment in the third block to test the third hypothesis. The outcomes of hierarchical regression analysis indicated the first iteration of analysis did not indicate trauma severity being a significant contributor in the model [R^2 = .000, R^2_{adj} = -0.003, F (1, 376) = 0.036, p=850].

The second iteration of the hierarchical regression with the addition of control variables (age, race, gender, parents' education, and household income) indicated that the model remained non-significant and the model improved by 1.8 percent while controlling for trauma severity [R^2 = .018, R^2_{adj} = 0.000, F (7, 370) = .973, p= .450]. The final iteration of hierarchical regression analysis with the addition of predictor variables, geographical neighborhood, school environment, and spiritual well-being *non-theistic* with the control variables significantly improved the model [R^2 = .077, R^2_{adj} = 0.052, F (10, 367) = 11.733, p< .001] and predictor variables explained 5.9 percent of the variance in the dependent variable while controlling for all the control variables. The unique contribution of predictor variables, school environment, and spiritual well-being *non-theistic* was statistically significant, but the geographical neighborhood was non-significant (p=.962). The summary of the findings has been presented in Table 4.10.

Table 4.8

Descriptive Analysis of the Predictors, Control and Outcome Variable, Self-Reliance

		Mean	SD	N
1	Self-reliance	10.30	2.010	378
2	Trauma severity	3.34	2.417	378
3	Age	16.58	2.942	378
4	Income	47755.56	10696.956	378
5	Mother's education	14.41	2.633	378
6	Father's education	14.02	2.875	378
7	Gender	.39	.489	378
8	Race	.71	.455	378
9	Geographical neighborhood	2.55	1.456	378
10	Spiritual well-being (*non-theistic*)	15.52	3.738	378
11	School environment	16.79	3.075	378

Table 4.9

Bivariate Correlation between the Predictors, Control and Outcome Variable, Self-Reliance

	1	2	3	4	5	6	7	8	9	10	11
1 Self-reliance	1.00										
2 Trauma severity	-.010	1.00									
3 Age	.078	-.067	1.00								
4 Income	.005	-.007	.324***	1.00							
5 Mother's education	.069	-.121**	.265***	.199***	1.00						
6 Father's education	.087*	-.175***	.306***	.321***	.598***	1.00					
7 Gender	-.075	-.005	-.202***	-.234***	-.173***	-.185***	1.00				
8 Race	.074	-.161***	.125**	.160***	.173***	.212***	-.226***	1.00			
9. Geographical neighborhood	.040	-.032	.353***	.501***	.291***	.300***	-.302***	.137***	1.00		
10. Spiritual well-being (*non-theistic*)	.196***	.036	.030	-.108*	-.002	-.044	-.039	.011	-.068	1.00	
11. School environment	.205***	-.253***	.197***	.093*	.200***	.268***	-.113*	.206***	.164***	.145**	1.00

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

Table 4.10

Hierarchical Regression of Predictors of Self-Reliance

Predictors	B	β	R2	ΔR2	F	ΔF
Step 1			.000	.000	.036	.036
Trauma severity	-.008	-.010				
Step 2			.018	.018	.973	1.130
Trauma severity	.012	.014				
Age	.040	.059				
Race	.227	.051				
Gender	-.212	-.051				
Mothers' education	.008	.011				
Fathers' education	.044	.063				
Household income	-0.00001	-.057				
Step 3			.077	.059	3.064***	7.816***
Trauma severity	.034	.040				
Age	.019	.027				
Race	.124	.028				
Gender	-.146	-.036				
Mothers' education	.001	.001				
Fathers' education	.031	.044				
Household income	0.000006	.092				
Geographical neighborhood	.004	.003				
Spiritual well-being *(non-theistic)*	.089***	.166				
School environment	.074**	.198				

*p<0.05; **p<0.01; ***p<0.001.

4.2.4 Testing of Hypothesis 4

Hypothesis 4: An ecological model composed of predictor variables such as social support received, community support, teacher engagement, and spiritual well-being *theistic* would determine impulse control and emotional regulation of adolescents between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

The fourth hierarchical regression analysis was conducted with the same control variables of trauma severity, age, race, gender, education, income, and four independent variables, social support received, community support, teacher engagement, and spiritual well-being *theistic*. The outcome variable was emotional regulation, and a hierarchical regression analysis was conducted to observe the variance caused by the four predictors on the dependent variable, emotional regulation. The same dataset was used, and the multiple regression assumptions were checked. The dependent variable, emotional regulation, was composed of six questions measured on a four-point Likert scale. A scale for the outcome variable was computed, yielding a theoretical range 6 6 to 24. The descriptive statistics of the variables are presented in Table 4.11. In the analysis, 376 valid cases were included in the fourth hierarchical regression. The average score in the emotional regulation scale was 19.04 (N=376, SD=3.883). The bivariate correlational relationships of predictors, control variables, and the dependent variable are presented in Table 4.12. No instances of bivariate correlation were observed higher than .70. No multi-collinearity was observed (all tolerance values are greater than .10 and close to 1), and the Durbin-Watson value of

the regression analysis was close to 2, indicating no auto-correlation among residuals. Errors were normally distributed and met the assumption of homoscedasticity.

The last hypothesis was tested using hierarchical regression analysis. First, the control variable, trauma severity, was entered in the first block, followed by the demographic control variables (age, race, gender, education, and income) entered in the second block and four predictors in the third block of hierarchical regression analysis. The fourth hypothesis has four predictors (social support received, community support, teacher engagement, and spiritual well-being *theistic*). The outcomes of hierarchical regression analysis revealed that the first iteration of analysis, including trauma severity, accounted for 6.5 percent of the variance in the dependent variable and significantly contributed to the model [R^2 = .067, R^2_{adj} = -0.065, $F(1, 374)$ = 26.993, $p<.0001$].

The second iteration of the hierarchical regression with the addition of control variables (age, race, gender, parents' education, and household income) revealed that the model was significant and improved by 2.8 percent (but the F change was not significant, $p=.081$) while controlling for trauma severity [R^2 = .095, R^2_{adj} = 0.078, $F(7, 368)$ = 5.534, $p<.0001$]. The final iteration of hierarchical regression analysis with the addition of predictor variables (social support received, community support, teacher engagement, and spiritual well-being *theistic*) with the control variables significantly improved the model [R^2 = .254, R^2_{ad} = 0.231, $F(11, 364)$ = 11.268, $p< .001$], and the predictor variables explained 15.9 percent of the variance in the dependent variable while controlling for all the control variables. The unique contribution of each predictor variable was statistically significant. The summary of the findings has been presented in Table 4.13.

Table 4.11

Descriptive Analysis of the Predictors, Control and Outcome Variable, Emotional Regulation

	Mean	SD	N
Emotional regulation	19.04	3.883	376
Trauma severity	3.30	2.397	376
Age	16.58	2.954	376
Income	47794.95	10705.924	376
Mother's education	14.40	2.634	376
Father's education	14.02	2.871	376
Gender	.39	.489	376
Race	.71	.454	376
Community support	18.57	4.208	376
Teacher engagement	20.85	3.864	376
Spiritual well-being (theistic)	15.65	4.887	376
Social support	15.54	3.818	376

Table 4.12

Bivariate Correlation between the Predictors, Control and Outcome Variable, Emotional Regulation

	1	2	3	4	5	6	7	8	9	10	11	12
1 Emotional regulation	1.00											
2 Trauma Severity	-.259 ***	1.00										
3 Age	-.056	-.062	1.00									
4 Income	-.075	.004	.324 ***	1.00								
5 Mother's education	-.012	-.118 **	.269 ***	.199 ***	1.00							
6 Father's education	.030	-.167 ***	.310 ***	.320 ***	.597 ***	1.00						
7 Gender	.149 **	-.008	-.203 ***	-.236 ***	-.180 ***	-.193 ***	1.00					
8 Race	.042	-.157 ***	.126 **	.158 ***	.170 ***	.207 ***	-.233 ***	1.00				
9.Community support	.307 ***	-.183 ***	.091 *	.028	.203 ***	.241 ***	-.015	.152 **	1.00			
10. Teacher engagement	.308 ***	-.191 ***	.165 ***	.066	.093 *	.213 ***	-.033	.157 ***	.305 ***	1.00		
11.Spiritual well-being *theistic*	.311 ***	-.155 ***	-.037	-.018	-.016	.005	-.069	.069	.269 ***	.262 ***	1.00	
12.Social support	.295 ***	-.156 ***	.057	.067	.053	.083 *	-.067	.125 **	.306 ***	.403 ***	.377 ***	1.00

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

Table 4.13

Hierarchical Regression of Predictors of Emotional Regulation

Predictors	B	β	R2	ΔR2	F	ΔF
Step 1			.067	.067	26.993***	26.993***
Trauma severity	-.420***	-.259				
Step 2			.095	.028	5.534***	1.892
Trauma severity	-.403***	-.249				
Age	-.054	-.041				
Race	.365	.043				
Gender	1.129**	.142				
Mothers' education	-.054	-.037				
Fathers' education	.076	.056				
Household income	-0.000016	-.045				
Step 3			.254	.159	11.268***	19.370***
Trauma severity	-.265***	-.163				
Age	-.074	-.056				
Race	-.056	-.007				
Gender	1.167**	.147				
Mothers' education	-.046	-.031				
Fathers' education	-.007	-.005				
Household income	-0.000012	.092				
Community support	.154***	.167				
Teacher engagement	.161**	.160				
Spiritual well-being *Theistic*	.132***	.166				
Social support received	.111*	.109				

*p<0.05; **p<0.01; ***p<0.001.

Chapter 5: Discussion

The purpose of this quantitative study was to investigate how ecological community-oriented variables help strengthen resilience-building processes of adaptive abilities and skills in children, adolescents, and young adults. Four models of ecological variables were investigated for their ability to buffer risks of trauma, adversities, and setbacks. In this chapter, the study's major relevant findings are discussed with reference to the study's purpose, proposed conceptual model, and the existing literature. Implications for theory, research, and social work practice are presented in the light of current findings. The limitations of the study have been contextualized, and recommendations for future research are discussed. Finally, the conclusions are drawn and examined critically for research and social work practice.

The study's research question on resilience was drawn from the conceptual model based on psychosocial development, behavioral, cognitive, and motivational approaches. Subsequently, four hypotheses were tested to understand the four models' predictive capabilities of resilience-building processes of skills and abilities in children, adolescents, and young adults using varying ecological variables (community support, geographical neighborhood, teacher engagement, spiritual well-being *theistic* and *non-theistic*, school environment, and social support received). The four hypotheses' outcome variables were computed variables of resilience-building involving adaptive skills, relational motivation, self-reliance, and emotional regulation. The outcome variables were analyzed while controlling for trauma severity and demographic variables, such as age, gender, race, income, and education.

5.1 Interpretations of the results

Hypothesis 1: An ecological model composed of the predictor variables of community support, geographical neighborhood, teacher engagement, spiritual well-being, school environment, and social support received will determine reliance-building adaptive ability/skills (a composite variable composed of impulse control, emotional regulation, relational motivation, and self-reliance) of children, adolescents, and young adults between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

The first hypothesis's outcome variable, resilience-building adaptive ability, was a computed score of four variables (impulse regulation, emotional regulation, relational motivation, and self-reliance). A confirmatory and reliability test was conducted to determine the composite scale structure and its reliability, and the composite scale was found to be highly reliable. Its predictors were community support, geographical neighborhood, teacher engagement, spiritual well-being *theistic,* spiritual well-being *non-theistic*, school environment, and social support received. The results of the first hypothesis indicate that the overall model was statistically significant, and each predictor made a statistically significant unique contribution to the model to strengthen the resilience-building adaptive skills in children, adolescents, and young adults. Although all predictors except geographical neighborhood made statistically significant contributions in the model, the contribution of the school environment, spiritual well-being *theistic*, and teacher engagement were noted to have higher partial correlations compared to spiritual

well-being *non-theistic* and social support received. No demographic control variables were significant predictors. Trauma severity was negatively correlated with the outcome and remained a significant contributor to the model; however, its contribution decreased significantly in the final model, as indicated by the partial correlation values. The result of the hypothesis testing indicates that trauma severity had a significant negative correlation with the outcome and made statistically significant contributions in all the iterations of model analysis, but it was significantly moderated by the inclusion of independent variables, community support, geographical neighborhood, teacher engagement, spiritual well-being *theistic,* spiritual well-being *non-theistic*, school environment, and social support received. The overall variance accounted for by this model was very strong (38 percent), and the model's predictors' unique contributions after controlling for control variables were also very high (29.9 percent).

Hypothesis 2: An ecological model composed of predictor variables such as community support, teacher engagement, and social support received, determine the positive relational motivation of children, adolescents and young adults between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

The second hypothesis' predictors, community support, teacher engagement, and social support received accounted for significant variance in the outcome variable, relational motivation, while controlling for control variables. Trauma severity, which was negatively and significantly associated with relational motivation in the first and second iteration of the hierarchical regression, became non-significant when predictor variables

were introduced in the third iteration of regression analysis. No control variables were significant predictors of relational motivation in the third model. Community support had a non-significant negligible contribution in the third model.

The result indicates that teacher engagement was comparatively more highly correlated than social support received with the expected change in the outcome variable, relational motivation. Teacher engagement was operationalized as receiving 'care,' 'support,' and 'comfort' from teachers, teachers not yelling when upset, perceived good relationship with teachers, teachers' interest in student education, future, and well-being. The social support received was clustered around receiving 'help,' 'support,' and 'comfort' from 'someone' during 'hard times.' The predictor, community support, a non-significant contributor in the model, was operationalized as people talking, helping, and supporting each other in the community when needed, children feeling supported and valued in the community, and children having community resources to entertain themselves. It is worth noting that relational motivation was significantly correlated with specific person(s) actions and/or activities rather than the general perceived and/or actual help received from people in the community.

Hypothesis 3: An ecological model composed of predictor variables such as geographical neighborhood, school environment, and spiritual well-being *non-theistic* would determine the self-reliance of children, adolescents and young adults between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

The third hypothesis was an ecological model comprising the predictors of the geographical neighborhood, school environment, and spiritual well-being (non-theistic), and the outcome variable, self-reliance. The overall model was significant, but the variance explained by the model was weaker (accounted for 5 percent variance). Two independent variables, school environment and spiritual well-being *non-theistic* were significant predictors in the model. Trauma severity and control variables were non-significant in all iterations of the hierarchical regression models. School environment (students heard by teachers, good school ambiance, teachers being fair, small classes of less than 30, and the school environment perceived to be a good learning place) and spiritual well-being *non-theistic* (felt connections with 'nature,' the 'universe,' 'earth,' 'living things,' and feeling peaceful when outside) are associated with environmental factors which help students feel comfortable, connected, and responsive to their perceived needs. Although the variance accounted for by the model was not very high compared to other models in three different tests of hypotheses, the overall model was significant with the expected change in self-reliance. Self-reliance in victimized children is found to be associated with the parent, peer, and school support, and the relationships between these different support systems and resilience were high among non-victimized children (O'Donnell, Schwab–Stone, & Muyeed, 2002). Furthermore, peer support may need to be reexamined, as it is also associated with delinquent behaviors, substance use, and other behavioral disorders (Haynie, 2001; Luthar, & Zigler, 1991).

Hypothesis 4: An ecological model composed of predictor variables such as social support received, community support, teacher engagement, and spiritual well-being *theistic* would determine impulse control and emotional regulation of adolescents between the ages of 10 and 21 years while controlling for age, gender, race, education, income, and trauma severity.

The fourth hypothesis' outcome variable was emotional regulation (abilities to modify affect using skills, humor, 'joking around,' not letting intense emotions overpower and ruin the entire day). The ecological model consists of predictors, social support received, community support, teacher engagement, and spiritual well-being *theistic* (sense of 'well-being,' 'inner peace,' 'feeling good' with closeness to 'higher power,' or 'God,' 'perceived help' from 'God' during hard times, and connection to 'religious group'). The overall model was significant and accounted for 23 percent of the variance. All predictors made statistically significant contributions to the expected change in emotional regulation. Community support and spiritual well-being *theistic* had almost equal and higher unique contributions in the model while controlling for other predictors, followed by teacher engagement and community support.

5.2 Interpretation of the overall findings

The study's main findings are consistent with the emerging definition of resilience in the literature that it is an interactive and dynamic process of adaptation in overcoming stress or adversity and not just positive outcomes, such as social competence and positive mental health (Luthar et al., 2000; Masten, 2014; Rutter, 1987, 2006). Additionally, the

results of this study's analyses reveal that ecological variables, community support, teacher engagement, spiritual well-being *theistic* and *non-theistic*, school environment, and social support received (relatively) are important antecedent factors in the human-environment to help mitigate stress, trauma, and adversity risks in children, adolescents, and young adults by enhancing the process of resilience-building adaptive abilities. Results of this study are consistent with Unger's (2011) claims that resilience draws from the environment opportunities in social and physical ecologies for developing adaptive abilities through protective, responsive, and relatively sensitive environmental factors more than from children's personalities.

Comparing all the hypothesis testing results indicates that although community support received was a significant predictor in the first hypothesis, its contribution to the model of hypothesis 3 was not statistically significant. The geographical neighborhood representing geographical areas (such as rural, urban, and population density) was not statistically significant in any tested ecological models, which may be due to the lack of human relationships and connections. Evidence in neurosciences and attachment theory indicate that self-regulation is associated with human relationships, and geographical neighborhood does not have significant protective influences on resilience-building abilities. Community support denoted people helping each other in the community, children feeling supported, valued, and having interesting and meaningful ways of spending time. The community support measure used in this study is a reliable and valid scale (Hamby et al., 2018b), but the operationalization of the variable appears similar to measures used in different studies depicting neighborhood characteristics (DuMont, Widom, & Czaja, 2007) and neighborhood support network (Chen et al., 2016).

Geographical neighborhood and community support received compared to other predictors in different ecological models, such as teacher engagement, spiritual well-being *theistic* and *non-theistic*, school environment, and social support received, do not correspond to Vygotsky's zone of proximal development (ZPD- the zone of a particular task or activity) where assistance from a More Knowledgeable Other (MKO) can help enhance the task achievement (Vygotsky, 1973), which indicated the importance of teachers and caregivers assistance in different environments. Taylor, Oberle, Durlak, and Weissberg (2017) projected in their meta-analysis of program evaluation the importance of the child-teacher relationship. Additionally, there are several indications in the literature that teacher engagement and social support positively influence students' academic and emotional well-being (Post, Grybush, Elmadani, & Lockhart, 2020; Sciaraffa, Zeanah, & Zeanah, 2018; Taylor et al., 2017), but more research may be needed to test the functional strengths of relational motivation to promote adaptation rather than promoting relational skills to self-regulate as a protective factor to build resilience.

There are some major themes in different predictors significantly correlating with variance in outcome measures, such as problem-solving skills, self-regulation skills, and strategies to deal with psychosocial, emotional, or environmental problems (self-efficacy), which corresponds with some of the moderators identified by Masten (2011). Themes prominent in strengthening resilience-building adaptive skills, which can be used for further research and interventions, are trust in people and the immediate environment, perceived fairness, fair treatment by teachers and others, strong spiritual connection with higher power and environment, teachers' genuine interest in students' well-being, education, and success, students feeling heard (validation of feelings), attention and

comfort from adults, quality relationship with teachers/others, safety and sense of safety in different environments, assistance in affect regulation, and resources to feel good and safe from actual or perceived threats.

These identified themes may work as positive and negative reinforcers in conjunction with modeling in the environment to create and sustain children's motivation and aspiration to adapt successfully to adversities and risk factors. The emergent themes are modifiable and can help promote resilience-building adaptive skills in children, adolescents, and young adults. The identified ecological variables through this study, if mediated by guided resilience-building strategies, policies, and practices, may enhance and empower children's developmental trajectory.

5.3 Implications

Resilience is a dynamic process of adapting through recovering and overcoming new challenges and adversity. Resilience is often confused with endurance, but resilience is the process of how one faces setbacks, relaxes, recovers, recharges, and sustains motivation. All significant predictors in the different ecological models can be used in conceptualizing implications for policy and practice interventions.

5.3.1 Policy implications

Knowledge of bivariate relationships between protective and risk factors is not sufficient to enhance resilience-building social, educational, and/or community environment. The interdependence of micro-, mezzo-, and macro-level systems and macrosystem (including culture and policies) have influences on nested microsystems and

indicate that without adequate policies, certain protective factors, such as community support, social support, school environment, and resources in the community may not have a sustainable impact on human behavior and development (Bronfenbrenner, 2005). A just, trusting, and fair education system with adequate resources and teacher training for attunement to resilience-building adaptive strategies may help improve the effects of ecological variables in supporting and enhancing resilience-building adaptive abilities, such as impulse control and self-reliance in children, adolescents, and young adults.

5.3.2 Practice implications

Resilience is adaptation by overcoming new challenges and adversities. A congenial environment may help facilitate and/or make adaptation sustainable. To make the environment supportive and responsive to children's needs, some emergent themes can be used to develop preventive work and intervention models. Children's thought processes, language, culture, skills to manage self, relating to others, developing sensitivity, inclinations, and motivation could help build resilience (Carr et al., 2008). This study's results indicate that teacher engagement and social support for children can increase children's and adolescents' relational, motivational, and affect regulation abilities. Social support, community support, teacher engagement, and spirituality may promote children's ability to manage affect and remain emotionally stable to sustain competence. These variables' inherent functional strengths make associated skills transferable and modifiable for children to learn and use with assistance from adults in the environment to manage their affect. Learning and practicing relational skills, helping others, practicing spiritual well-being *theistic* and *non-theistic*, participating in social and community

support work as part of developing self-efficacies, and learning problem-solving and self-regulatory skills may help develop sensitivity, inclination, and abilities needed to acquire and sustain motivation (Perkins, Jay, & Tishman, 1993). However, any curriculum focused on children may not yield sustainable results unless separate curriculums are developed to educate and train teachers and caregivers to work with children following Vygotsky's ZPD and MKO theories and Skinner's principles of reinforcement, operant conditioning, and modeling.

Additionally, understanding trauma, resilience, and resilience as a process of adaptation to risk and adversities in a culturally sensitive way may constitute some of the targeted psychoeducation areas for the teachers and caregivers. Also, teachers and caregivers receiving training and practicing skills consistently to act as the MKO may help develop schools as trauma-sensitive and resilience-building educational centers. Such initiatives may be cost-effective in managing children's behavior and avoiding individualized educational plan costs for children with behavioral and emotional problems who demonstrate good cognitive abilities. Children without trauma and adversity experience may benefit from the additive effect of modifications in the school environment, where there is a resilience-building support system, responsive environment, sense of safety, trust, fairness, and relationships with teachers contributing to developing self-reliance, motivation, self-control, and self-regulation. Mindfulness activities can be combined with activities of spiritual well-being *theistic* and/or *non-theistic* to enhance self-reliance and self-regulation in children.

Furthermore, clinicians working with children with trauma may consider using cognitive-behavioral-spiritual interventions to enhance relational motivation, emotional

regulation, impulse control, and self-reliance through teacher engagement, tapping social support, involving community support, and enhancing spiritual well-being *theistic* and *non-theistic*. The brain is social organs, and relationships directly impact it (LeDoux, 1998). The amygdala generates positive or negative responses to sensory information and regulates pain and fear by consolidating conditioned memory to enhance adaptation (Veinante, Yalcin, & Barrot, 2013). To moderate the conditioned negative response and improve resilience-building processes, creating relational motivation may help generate sustainable outcomes in victimized children. Microaggressions in school environments (especially in high school) and through social media are a growing concern as microaggressions cause cumulative stress and limit students' executive functioning and dysregulate them perpetually. Children's cumulative stress precipitate indignities causing insecurity, perceived oppression, low-self-esteem, and accentual self-blame. A formal coordinated effort between school social workers and school personnel to make the school environment sensitive and responsive by providing group work involving students, as well as psychoeducation to teachers and school personnel may help promote resilience-building processes, such as self-reliance and emotional regulation.

5.4 Future directions

Resilience is dynamic and is a process of adaptation to overcome challenges. The process of change is dynamic, and there may be variability in efficiency, effectiveness, and efficacy of predictors of resilience-building abilities in children, adolescents, and young adults. More theory-based resilience-building adaptive abilities need to be mapped to develop a coherent sense of significant predictors underlying resilience processes. A

comparison of resilience-building adaptive skills and abilities may need to be examined at each developmental stage to differentiate the efficacy of the predictors.

Social and emotional learning (SEL) school programs are popular at present and are considered effective in helping students achieve positive goals and learn empathy, positive relationships, decision-making, and managing emotions skills (Anderson et al., 2019; Durlak, & Weissberg, 2007). Social and emotional learning programs have a very strong foundation on resilience-building skills as protective factors (Anderson et al., 2019); however, more studies may be needed to understand how the implementation of relational motivation and spiritual well-being *non-theistic* may help produce more sustainable results among children with traumatic experiences.

Thomas and Reifel (2010) have identified a gap in the literature and a need for developing an understanding of the knowledge and attitudes of child welfare workers about resilience and resilience-building processes. Such understanding can account for designing policy and intervention strategies, which can further the understanding of required support, education, and intervention models for child welfare workers. Equipping child welfare workers with a resilience framework and effective training on assessment and intervention strategies to help support them in making trauma-resilience-informed decisions on cases can help save many children's lives and decrease costs involved with out of home placements.

Furthermore, child welfare workers may find the identified community-level variables through this study helpful in developing prevention and intervention plan. This study has provided a clear indication that community, school, and spiritual domains of child functioning may moderate the risk factors. Social support, community support,

teacher engagement, and spiritual well-being *theistic* and *non-theistic* may be included to enhance family and children's functioning and functional strengths. Some of the emerged common themes, such as the sense of safety, trust, comfort, fairness, responsive environment to children's needs, positive relationships, and spiritual well-being, through the predictor variables' operationalization, may be included as protective or promotive factors to enhance resilience building abilities. Such environmental factors may help enhance children's engagement and participation in interventions and moderate risks among children, adolescents, and young adults (10-21 years). This study indicates that these factors correlate with relational motivation, impulse regulation, emotional regulation, and self-reliance.

5.5 Limitations

This study has some limitations, and it is essential to discuss those limitations to the result. The sample size of the NCJAD dataset used in this study was fairly large (N=440 with missing data); however, it was not large enough to run the statistical analyses for hypothesis 1 with adequate power to check the variance contributed by a set of seven predictors (while controlling for control variables) over each single outcome variables, such as impulse control, emotional regulation, relational motivation, and self-reliance. As a result, a composite variable, resilience-building adaptive ability scale, was computed using impulse control, emotional regulation, relational motivation, and self-reliance measures, and its structure and reliability were tested before running hierarchical analysis for hypothesis 1. The composite scale structure was confirmed, accounting for 58.96% variance by four factors, and its reliability was very high ($\alpha = .84$). Having access to the larger NCJAD dataset, which was not available in the public domain, might have shifted

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the statistical analysis focus to understand ecological variables correlations with children's protective factors compared to young adults.

The NCJAD dataset used for the hypothesis testing of different ecological models has used a convenience sampling method to collect data, which poses threats to this study's external validity and generalizability. The study sample was collected from the four southern states, which reportedly had samples collected from people considered more religious than other parts of the country. As a result, variables used in the study, such as spiritual well-being (theistic), may have some biases and can pose threats to the internal validity of some of this study's results.

Although race, income, education, and gender were not significant predictors in all ecological models, additional research may be required using random sampling to rule out demographic variables' effect in resilience building processes. More studies may be needed to test the positive or negative effects of culture on resilience building abilities to endorse this study's results' validity. Additional research may provide insights by testing the between-group variance in resilience-building processes and compare them with developmental stages of general competencies.

5.6 Conclusion

Resilience occurs at individual, family, and community levels. This study provides theory and etiology-based models synthesizing ecological variables of community support, social support, geographical neighborhood, teacher engagement, school environment, spiritual well-being (theistic), and spiritual well-being (non-theistic) to predict the resilience-building adaptive abilities in children, adolescents, and young adults

(age 10-21 years). The results reveal that the model comprising all the predictors

mentioned above was statistically significant in influencing the expected variance on a

composite dependent variable representing resilience-building adaptive abilities. The data

also indicate that teacher engagement and social support received were significant

predictors of relational motivation, but community support was not a significant

contributor to the expected relational motivation changes. Additionally, the impact of

geographical neighborhood, school environment, and spiritual well-being *non-theistic* on

children were hypothesized to be good predictors of self-reliance, but only school

environment and *non-theistic* spiritual well-being turned to be significant predictors;

however, the model was significant. Finally, social support, community support, teacher

engagement, and spiritual well-being *theistic* were significant predictors of emotional

regulation in children, adolescents, and young adults. Each predictor was a significant

contributor to the model. All four ecological models remained statistically significant after

controlling for trauma severity, age, race, gender, parents' education, and household

income.

This study demonstrates the importance of ecological variables in promoting

resilience-building adaptive abilities/skills in children, adolescents, and young adults to

overcome challenges and stress, sustain competence, and adapt to foster self-efficacy, self-

regulation, and ability to problem-solve. Additionally, the qualitative importance of the

environment is demonstrated by this study's results. Some of the themes associated with

functional definitions of significant predictors may be important to note for future work,

namely the sense of safety, trust, comfort, fairness, the attention received in the

environment, small class, good opinion about the school, positive relationships with the

teacher, teachers' interest in students' education, career, and well-being. These identified

themes may advance further research initiatives to consolidate further resilience-building

protective and promotive factors in children, adolescents, and young adults to help

compound understanding of children's self-regulation, self-reliance, impulse regulation,

and relational motivation. Additionally, this study's ecological variables can help

clinicians, school professionals, and child welfare workers understand and intervene using

the right framework to minimize harm and promote sustainable outcomes while working

with children, adolescents, and young adults (ages 10-21 years).

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Zimmerman, M. A., & Brenner, A. B. (2010). Resilience in adolescence: Overcoming neighborhood disadvantage. In: J. Reich, A. J. Zautra, & J. S. Hall (Eds.), Handbook of adult resilience (pp. 283-308). New York, NY: Guilford Press.

Zimmerman, M. A., Stoddard, S. A., Eisman, A. B., Caldwell, C. H., Aiyer, S. M., & Miller, A. (2013). Adolescent Resilience: Promotive Factors That Inform Prevention. *Child development perspectives*, *7*(4), 10.1111/cdep.12042. doi:10.1111/cdep.12042

Zolkoski, S. M., & Bullock, L. M. (2012). Resilience in children and youth: A review. *Children and youth services review*, *34*(12), 2295-2303.

Vinod Srivastava, Ph.D., MSW, LCSW

EDUCATION:

Doctor of Philosophy in Social Work	University of Kentucky, Lexington, KY	2020
	Dissertation Title:	Investigating whether ecological models of community-oriented variables improve the prediction of childhood resilience over a set of personal characteristic variables such as impulse control, emotional regulation, relational motivation, and self-reliance.
Master of Social Work	University of Kentucky, Lexington, KY	2006
Graduate Certificate in Gerontology	Sander-Brown Center of Aging, University of Kentucky, Lexington, KY	2006
Graduate Certificate in Developmental Disabilities	Interdisciplinary Human Development Institute, University of Kentucky, Lexington, KY	2008
Post Graduate Diploma in Business Management.	Alagappa University, Karaikudi, Tamil Nadu, India.	2001
M. Phil.	Delhi University, Delhi, India.	1998

	Dissertation Title:	Synthetic a priori with reference to Saul Kripke.
M.A.	Panjab University, Chandigarh, India	1994
B.A.	University of Allahabad, Allahabad, India	1991

COURSES TAUGHT

Fort Hays State University

Fall 2020

SOCW 880	Advanced Clinical Social Work Practice with Individuals*
SOCW 830	Generalist Social Work Practice I: Micro Skills*
SOCW 461	Generalist Practice: Child and Family Systems
SOCW 461	

Spring 2021

SOCW 815	Social Work Research Methods and Data Analysis*
SOCW 835	Generalist Social Work Practice II: Mezzo/Macro Skills*
SCOW 885	Advanced Clinical Social Work Practice with Group and Families*
SOCW 260	Introduction to Social Work

University of Kentucky

SW 450	Social Work Research Methods
SW 400	Social Work Practicum
SW 300	Social Work Practice

*Virtual/online format

TEACHING INTEREST

Social Work Research
Advanced Clinical Social Work Practice
Child Welfare
Human Behavior and Social Work Theories

PROFESSIONAL EXPERIENCE

Aug 2020 - Present	**Fort Hays State University** *Assistant Professor,* Department of Social Work, College of Health and Behavioral Sciences,
2016 - 2020	**KVC Healthcare System Kentucky** *Clinical Assessor/Clinical Specialist*
2014 - 2016	**University of Kentucky** *Teaching Assistant, Research Assistant, Clinician* College of Social Work Center on Trauma and Children (CTAC)
2009-2013	**Susan Wayne Center of Excellence (SWCE) at** **Justice Resource Institute (JRI)** *Clinician*
2008-2009	**Emma Pendleton Bradley Hospital** The Center for Autism and Developmental Disabilities *Clinical Supervisor*
2006-2008	**Family Service of Rhode Island** *Clinician*
2006-2006	**Alzheimer's Association, Kentucky** *Intern*
2005-2005	**University of Kentucky Medical Center** Inpatient Psychiatry *Intern*
2005-2005	**Lexington Fayette Urban-County Government Social Services** *Intern*
2001-2004	**International Metalworkers' Federation South Asia Office** (Now Industri-all Global Union) *Project Officer*
1999-2001	**South Asia Research & Development Initiative** *Program Officer*

DEPARTMENT, COLLEGE, AND UNIVERSITY SERVICES

Member, University Scholarship Committee
Member, BSW Admissions Committee
Member, Clinical Intensive Committee
Member, Cohort Advisory Committee

SERVICE TO COMMUNITY

Coordination, participation and/or facilitation of weekly live online sessions to help people in India deal with the current COVID 19 outbreak by enhancing their physical health and psychosocial well-being utilizing an integrative healthcare perspective.

Organizing yoga and mindfulness activities and academic seminars in collaboration with the Journal of Integrative Medicine Case Reports, Postgraduate Institute of Medical Education and Research (*PGIMER*), and Svyasa University.

SERVICE TO PROFESSION

Licensed Clinical Social Worker (LCSW, KY)
National Association of Social Worker
Kentucky Association of Social Work Educators
South Asian Social Work Educators' Association (SASWEA)
Editorial board member of *Annals of Neurosciences*
Editorial board member of the *Journal of Integrative Medicine Case Reports* (JIMC)
Reviewer for *Perspective on Social Work*
Reviewer for *Brain and Behavior*
Reviewer for *Research and Clinical Practice*
Reviewer for the *Journal of Medicine and Life*
Reviewer for *Alternative Therapies in Health and Medicine*
Founding member of The First Foundation, a foundation for disseminating and translating advances in molecular and cellular biology and related technologies.

PEER-REVIEWED PUBLICATIONS UNDER REVIEW/REVISION

Mathur, D., Srivastava, V., Patil, S., Singh, A., Rajesh, S. K., Nagendra, H. R., Nagarathna, R. (2020). Depression in high-risk type 2 diabetes adults. (Under review).

Mathur, D., Rout, S., Srivastava, V., and Anand, A. (2020). Use of Ayurvedic Herbs in the Management of Dementia. (Communicated).

Sivapuram, M. S., Srivastava, V., Anand, A., Nagarathna, R., Patil, S., Biman, S., Chander, I., Jyoti, S., Nagendra, H. R. (2020). The role of Yoga Intervention based on Ayurveda personality types. Annals of Neurosciences. (Under review).

Srivastava, V. (2020). Human Ghosting: A person-in-cyber-environment perspective to understand human behavior and change. (Communicated).

PEER-REVIEWED PUBLICATION

Raghuram, N., Bali, P., Srivastava, V., Anand, A., Patil, S., Sharma, G., Manasa, K., Sing, A., and Nagendra, H. R. (2020). Prevalence of diabetes and its determinants in young adult Indian population. *Frontiers in Endocrinology.* (Accepted for publication).

Podder, V., Srivastava, V., Kumar, S., Nagarathna, R., Sivapuram, M. S., Kaur, N., Sharma, K., Singh, A. K., Malik, N., Anand, A., & Nagendra, H. R. (2020). Prevalence and Awareness of Stroke and Other Comorbidities Associated with Diabetes in Northwest India. *Journal of Neurosciences in Rural Practice*, *11*(3), 467–473. https://doi.org/10.1055/s-0040-1709369

Srivastava, V. (2015). Treatment cost audit in medical institutes: Neuroeconomics of affordable healthcare, *Annals of Neuroscience, 22*(4), 1-4. (Editorial)

Srivastava, V. (2014). Euthanasia: A regional perspective. *Annals of Neuroscience, 21*(3), 81-82. (Editorial)

Srivastava, V. (2010). Mind-body dichotomy, *Annals of Neuroscience*, 16(2), 56-57.

Srivastava, V. (1995). The social, political, and economic condition of people of Himachal Pradesh, April 1995, p1-2, Indian Express.

BOOKS

Srivastava, V. (2002). Metal Industries in India – A Survey. IMF Publications. (http://www.imfmetal.org/main/files/indiasurvey2002.pdf)

PEER-REVIEWED PRESENTATIONS

Srivastava, V. K. (2020). *An innovative approach to assess and treat trauma: A neuro-biopsychosocial approach*. Council on Social Work Education, Annual Program Meeting (APM), Denver, CO. (Accepted for Hot Topic, but the entire Hot Topic interactive session for this year was canceled due to COVID 19 outbreak).

Srivastava, V. K. (2019). *The Vulnerability of Young Adults and Females to Media News.* Society for Social Work and Research (SSWR) 23rd Annual Conference, 2019, San Francisco, CA (Communicated).

Srivastava, V. K. (2017). *Factors Associated with Alcohol Abuse among Secondary School Students in the United States: A Path Analysis.* Society for Social Work and Research (SSWR) 21st Annual Conference, 2017, New Orleans, Louisiana.

Srivastava, V. (2016). *A person-in-cyber environment perspective on human behavior and change.* Association of Contextual Behavioral Science World Conference (ACBS), Seattle, WA.

Srivastava, V. (2015). *Human Ghosting: Implications for social work practice and education.* Council on Social Work Education, Annual Program Meeting (APM), Denver, CO.

Srivastava, V. (2014). *Human Ghosting: Implications for social work practice*. KASWE Spring 2014 Conference - Welcome to the future: Social work in the modern world. Bowling Green, KY.

Srivastava, V. (2009). *Social Work Ethics: Boundary Issues*. Susan Wayne Center of Excellence, Thompson, CT.

Srivastava, V. (2007). *Cultural Competency: Working with South East Asian Families*. Family Service of Rhode Island, Providence, Rhode Island.

Anand, A, and Srivastava, V. (2007). *Intellectual Properties Generation and Wealth Creation in India: Opportunities and Challenges*. Atlanta Conference on Science, Technology, and Innovation Policy, Georgia Institute of Technology, Atlanta.

Anand, A, and Srivastava, V. (2006). *Intellectual Property and Technology Transfer in Life Sciences: A North-South Dialogue*. United Nation, Trieste, Italy.

Godlaski, T. M., Kraus, R., Miller, T., Stillner, V., Cockerille, H., and Srivastava, V. (2005). *Alaskan Native Spirituality project and communicating with Native Americans: Lessons Learned.* Presented at Metaneous Foundation, Philadelphia.

Godlaski, T. M., Kraus, R., Miller, T., Stillner, V., Cockerille, H., Srivastava, V. (2006). *Alaskan Native Spirituality project and communicating with Native Americans: Lessons Learned.* Geneva, Switzerland.

RESEARCH ACTIVITY

Grants

Grant proposal (Submitted September 2019, $769,231): A transdisciplinary study for a unified computational model and epistemic status of meditation and yoga with reference to cognitive enhancement and stress, in the framework of embodiment and psychosomatic-somatopsychic reciprocal mechanism. Contribution: Contributed to the development of the concept and developing transdisciplinary linkage.

RESEARCH INTERESTS

Trauma
Resilience
Child Welfare,
Public Health,
Integrative Health

METHODOLOGICAL EXPERTISE

Analytic Tools
Statistical Package for the Social Sciences (SPSS)
Qualtrics Survey Software
EndNote Software for Electronic Reference Management