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## The impact of chronic poverty on children's behavioral health and learning outcomes

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THE IMPACT OF CHRONIC POVERTY ON CHILDREN'S BEHAVIORAL HEALTH AND  
LEARNING OUTCOMES

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in Partial Fulfillment  
of the Requirements for the Designation  
University Honors

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### Abstract

Chronic poverty is an unfortunate reality many children face every day. The current literature review evaluated the impact poverty has on children's behavioral health and learning outcomes. Research consistently shows that children living in poverty experience higher rates of conduct problems, such as Conduct Disorder (CD), as well as increased learning problems, such as Specific Learning Disorders (SLD) and diminished academic success. There are several theories for this relation, encompassing both environmental and biological influences, which are reviewed herein. The overall conclusion is that living in poverty negatively impacts children's behavioral and learning outcomes.

## The Impact of Chronic Poverty on Children's Behavioral Health and Learning Outcomes

Chronic poverty is a pervasive and impairing reality that many Americans face every day. According to the U.S. Census Bureau, in 2017, 12.3% of the population, or 39.7 million people, were living in poverty (2018). Children under the age of 18 comprise 17.5% of people living in poverty, while those aged 18-64 make up 11.2% (U.S. Census Bureau, 2018). The population of children under age 18 is significantly less than the number of individuals aged 18-64, yet they make up a larger proportion of those in poverty. Consequently, children are overrepresented among the population of individuals living in poverty. Growing up in poverty denies children access to secure living conditions and other vital resources, therefore negatively impacting their development, and behavioral and academic outcomes (Luthar, 1999). For this reason, it is important to understand the reach and characteristics of poverty in childhood, as well as the impact it has on children's development. Therefore, the current literature review will seek to evaluate the relation between family poverty status and behavioral health and learning outcomes among children. Proposed interventions that aim to negate the negative impacts poverty has on children's outcomes will also be reviewed.

Poverty is a complicated concept that can be explained from several different perspectives. In terms of a purely economic definition of poverty, the U.S. Census Bureau establishes a set of income thresholds that vary by family size and composition to determine who is officially under the poverty level. If a family's income is less than the family threshold, then that family and every individual in it is considered to be in poverty (U.S. Census Bureau, 2018). In 2017, the poverty threshold for a two parent, two child household for example, was a total income of \$24,858 or less per year (U.S. Census Bureau, 2018). This threshold changes depending on the number of adults and children in the household. The income level used to

measure poverty status only accounts for food expenditure necessary to meet dietary recommendations, and a small amount is allotted for non-food items (Engle & Black, 2008). Therefore, in order for a family to meet all other basic needs, such as housing and clothing, they typically need an income twice that of the established poverty line (Koball & Jiang, 2018). Families living at or below the poverty line are less likely to have access to other vital resources such as adequate housing, education, healthcare, and better paying jobs to help escape the poverty cycle. As a result, these individuals face exponentially increased disadvantage.

There are many other frameworks through which poverty can be examined. Socioeconomic status (SES), race and ethnicity, homelessness, and neighborhood context are all interrelated with poverty. These are the correlates of poverty that will be analyzed in the current paper; interested readers should reference Yoshikawa, Aber and Beardslee (2012) for a more in-depth analysis.

SES is a measure very similar to poverty status, but encompasses educational attainment, occupational prestige, and subjective levels of social status and social class, in addition to income level (Children, youth, families, & socioeconomic status, 2019). Poverty and SES are directly correlated, with lower levels of SES being associated with lower income levels. The impact on one's mental health due to living at a lower SES and poverty level are multiplied when combined, with both a decreased amount of resources and a lower social class working against these individuals. Research has shown that there is an inverse relationship between SES and emotional and behavioral health. Lower levels of SES are associated with higher levels of behavioral difficulties, including social problems, delinquent behaviors, and attention deficit/hyperactivity disorders among adolescents (Children, youth, families, & socioeconomic status, 2019). Given the strong correlations between SES, poverty, and mental health, it is

important that this factor be considered when evaluating the impact of poverty on behavioral and learning outcomes among children.

Race and ethnicity are also significantly related to poverty. There are a disproportionate number of individuals from racial and ethnic minority groups living in poverty, with black, American Indian, and Hispanic children being the most disadvantaged. Black children make up 13% of children under 18 living in poverty and Hispanic children make up 25% of this group; these percentages that are disproportionate to their distribution in the general population (Koball & Jiang, 2018). Researchers have found that “children and families in these minority groups are also more likely to experience particularly persistent and extreme forms of poverty and live in neighborhoods where institutional supports, such as adequate schools, are meager” (Luthar, 1999, p. 30). As a result of the disadvantages minority children face, due in part to their disproportionate representation among those living in poverty, they are also more likely than their white counterparts to experience deficits in academic performance and exhibit increased levels of externalizing problems (Luthar, 1999). These problems are also shown to increase over time the longer a child lives in poverty (Luthar, 1999).

Those living in poverty are also at increased risk to experience homelessness. According to the American Psychological Association (APA), homelessness exists when people lack safe, stable and appropriate places to live, meaning even those temporarily living with family or friends or in shelters are considered homeless (Health and homelessness, 2019). Those living in poverty must distribute their limited resources among many different necessities, such as food, childcare, and housing. Housing costs typically make up the largest proportion of a family's expenses, and is the first to go if a family experiences an unexpected crisis (Homelessness in America: Why are people homeless?, 2018). No longer being able to afford their place of

residence then forces families to move in with family or friends, into emergency shelters, or even onto the streets. Each year, between 2 and 3 million people in the United States experience at least one episode of homelessness (Health and homelessness, 2019), and children comprise about 20% of this population (Henry et al., 2018). Therefore, homelessness is another important factor to consider in relation to poverty and the behavioral health and learning outcomes of children.

There are many individuals living in poverty that are not homeless but still experience hardship due to the status of the neighborhood they reside in. A significantly low-income level restricts the type of housing families are able to afford, often forcing them to live in dilapidated and unkempt houses. These houses are also more likely to be located in a neighborhood that has an overall lower income level/socioeconomic status, and that features threatening conditions such as drug dealing and drug use, crime, and violence (Aneshensel & Sucoff, 1996). This neighborhood structure in turn influences the experience of youth living within the neighborhood, and the more threatening the neighborhood is perceived, the higher likelihood those children will experience negative mental health outcomes (Aneshensel & Sucoff, 1996). While the threatening conditions of the neighborhood may or may not pose an actual safety risk to the children, the mere perception of being unsafe is enough to cause adverse mental health problems.

Neighborhood context is closely related to SES and race and ethnicity. There is considerable inequality among neighborhoods in terms of socioeconomic and racial segregation. Evidence shows that blacks are more likely than whites to be geographically isolated in neighborhoods with lower SES (Sampson, Morenoff, & Gannon-Rowley, 2002). Neighborhood SES exhibits a bidirectional relationship with race and ethnicity, with SES being contingent upon neighborhood racial and ethnic composition, and vice versa (Aneshensel & Sucoff, 1996). All of



these factors are shown to negatively affect adolescent mental health by increasing exposure to stressors and decreasing access to resources (Aneshensel & Sucoff, 1996).

This discussion highlights the incredibly complex relationship between poverty and a multitude of other factors. These components can lead to negative behavioral health and learning outcomes among children, both independently and when compounded with poverty. There is a well-established causal effect of family poverty on poorer youth mental, emotional, and behavioral health (Yoshikawa et al., 2012). In fact, 57% of youth with mental health problems come from households living at or below the federal poverty level (Stagman & Cooper, 2010). Children's early experiences with poverty negatively affects their development at a critical time. Development during childhood occurs at a rate that is unmatched later in life, and lays the foundation for subsequent growth and learning, proving it to be essential that young children be provided with the best possible start (Gupta, de Wit, & McKeown, 2007). To this end, evaluating the relationship between poverty and behavioral health and learning outcomes among children is of extreme importance.

### **Conduct Problems**

There are several different behavioral and learning outcomes among children that are associated with poverty. The outcomes that will be examined within the current paper are those that cause the most disruption within a school environment: externalizing conduct problems and learning disorders. Behavioral problems that are considered "externalizing", cause significant problems in the classroom and are shown to be consistently correlated with low family income (Shaw & Shelleby, 2014). Externalizing problems are characterized by extroversive behaviors such as aggression, delinquency, and acting out (Webber & Plotts, 2008). Due to the external and

disruptive nature of their behaviors, externalizing problems tend to be the most noticeable within a school setting and cause the most conflict.

Conduct problems are behavioral issues among children that are categorized as externalizing problems and are consistently correlated with poverty. The term conduct problems is an umbrella term used to refer to both Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD). These disorders differ with regard to their specific definition and criteria, but exhibit some similar characteristics of rule-breaking behavior. CD is the more serious of the two.

Conduct Disorder (CD) is defined by the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* as “a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated” (American Psychiatric Association, 2013, p. 469). These disruptive behaviors are characterized by the presence of at least 3 of 15 symptoms, which include aggression to people and animals, destruction of property, deceitfulness or theft, and serious violation of rules. These specific symptoms range from truancy from school to deliberate fire setting to being physically cruel to animals (American Psychiatric Association, 2013).

Oppositional Defiant Disorder (ODD) is a milder form of conduct problems as compared to CD and is defined in the *DSM-5* as “a pattern of angry/irritable mood, argumentative/defiant behavior or vindictiveness” (American Psychiatric Association, 2013, p. 462). ODD is characterized by symptoms in the categories of angry/irritable mood, argumentative/defiant behavior and vindictiveness; a person must display 4 of the 8 symptoms for a diagnosis. Specific symptoms include often being angry or resentful, often arguing with authority figures, or being spiteful or vindictive. Often ODD is considered to be less serious than CD because the behaviors exhibited are much less problematic, and they do not violate major norms or the basic rights of

others (Webber & Plotts, 2008). Both of these disorders present significant challenges in a school environment and have been shown to be significantly associated with poverty status.

Multiple research studies have demonstrated a relation between CD, ODD, and family poverty status. Among all mental health outcomes, child conduct problems are the most consistently associated with poverty (Shaw & Shelleby, 2014). An evaluation of data from the Minnesota Family Investment Program produced some of the strongest support for a causal relation between income level and conduct problems (Gennetian & Miller, 2002). Welfare recipients with young children were randomly assigned into a treatment group, within which they received employment training and financial supplements intended to increase family income, or a control group that received normal aid. Children in families in the treatment group exhibited moderate reductions in conduct problems compared to those in the control group (Gennetian & Miller, 2002). This decline in problematic behaviors once family income is increased demonstrates a clear correlation between poverty status and conduct problems

Even more research supports this causal relation between poverty and conduct problems. A longitudinal study conducted by Schonberg and Shaw (2007) evaluated boy's trajectories for conduct problems and neighborhood and family SES. This study specifically evaluated how boy's trajectories of conduct problems varied across different neighborhood SES groups between the ages 5 and 12. It was identified that risk factors that contribute to the manifestation of conduct problems are unequally distributed among different neighborhoods based on SES, thus it would be important to elaborate on the extent to which the unequal distribution actually contributes to increased rates of conduct problems. The specific hypotheses being evaluated in this study were first that boys exposed to prolonged neighborhood poverty would be at greatest risk for developing CP and second that this same group of boys would have been exposed to

greater risk factors associated with the neighborhood SES. Some of the risk factors that were included in the evaluation were difficult temperament, ADHD symptoms, maternal depression, rejecting parenting, and attitudes about physical punishment. Both of the author's hypotheses were confirmed; results showed that boys from poorer neighborhoods and families were more likely than their more prosperous peers to follow a chronic conduct problem trajectory (Schonberg & Shaw, 2007). In other words, boys from lower SES neighborhoods and families were more likely to exhibit problematic behaviors severe enough to warrant a clinical diagnosis of CD or ODD. The longer boys were exposed to neighborhood and family poverty the more deleterious effect it had on their conduct problem trajectories (Schonberg & Shaw, 2007). Another evaluation of longitudinal data from the National Longitudinal Survey of Youth showed significant links between family income and child conduct problems (D'Onofrio et al., 2009). More specifically, the lower a family's income level, the greater likelihood children in these families will develop conduct problems. Lastly, a study done by Boden, Fergusson & Horwood (2010) assessed the relation between a variety of risk factors, including SES, and CD and ODD diagnoses. Significant correlations were found between all of the risk factors, but family socioeconomic disadvantage was the second greatest predictor of conduct problems among boys, behind deviant peer affiliations (Boden et al., 2010). Results from all of these studies support the claim that there is an inverse relation between poverty status and conduct problems: the lower a family's income the more likely children in that family, most often boys, will develop conduct problems such as CD or ODD. Overall, the research summarized in this section provides evidence that poverty has a negative impact on children's behavioral outcomes.

### **Theoretical Models and Etiology**

Two of the leading social/cultural theories that are commonly used to explain the relationships between these factors and poverty and conduct problems are the Family Stress Model and a Cultural Norm Model.

The Family Stress Model of economic hardship was first developed by Elder in 1974. This theory emphasizes the direct contribution of poverty on parent psychological outcomes and subsequently child behavioral outcomes (Shaw & Shelleby, 2014). There are numerous chronic stressors associated with poverty, such as life stress and financial worry, that compromise parenting quality by increasing levels of distress for the parents. Parent's maladaptive methods of coping with this stress can then cause adverse psychological outcomes within themselves. Parental psychological distress negatively impacts their relationship with their child by increasing parental conflict and causing them to use harsher and less consistent discipline with children (Shaw & Shelleby, 2014). This negative sequence between poverty and parent psychological outcomes consequently increases a child's risk for developing conduct problems.

Several other studies have demonstrated support for the Family Stress Model. Parental maladaptive behavior such as parental alcoholism, illicit drug use, and criminality are significant risk factors for conduct problems in children (Boden et al., 2010). Rejecting parenting styles and more lenient attitudes about physical punishment are also positively correlated (Schonberg & Shaw, 2007). The degree of parent involvement, parent-child conflict management, and again inconsistent discipline and physically aggressive punishment are all related to negative behavioral outcomes (Burke, Loeber, & Birmaher, 2002). The relationship between parenting behavior and child conduct problems is also reciprocal in nature. Negative child behaviors can cause parental psychological distress, adversely impacting their parenting behaviors and turning back around to increase risk for conduct problems within the child.

Another theory that helps explain the relation between poverty and conduct problems is the Cultural Norm Model. This theory provides valuable insight on intersection of culture and parenting styles on child behavioral outcomes. The Cultural Norm Model suggests that socioeconomic disadvantage influences cultural norms and expectations about parenting and child behaviors (Shaw & Shelleby, 2014). For example, higher-income parents are more likely to view their parenting role as being actively involved in their child's life, whereas low-income parents view themselves as relatively uninvolved (Shaw & Shelleby, 2014). Specifically, they feel their child's development will progress on its own and does not require any intervention on their part besides providing basic needs (Shaw & Shelleby, 2014). This belief is shared and perpetuated within disadvantaged communities, increasing the risk for the development of conduct problems.

Together with the Family Stress Model and the Cultural Norm Model, there are other environmental risk factors that contribute to conduct problems that can be characterized as an adverse childhood environment. They include family instability (i.e. divorce) and exposure to abuse or neglect (Boden et al., 2010). Community factors such as community disorganization, availability of drugs, presence of neighborhood adults involved in crime, exposure to violence and racial prejudice are also environmental risk factors (Burke et al., 2002). Children from lower SES neighborhoods and families are exposed to a greater number of these risk factors compared to their more affluent peers, and therefore experience significantly higher levels of stress. These children are also less likely to use adaptive coping strategies, consequently increasing their chance of developing conduct problems (Burke et al., 2002).

In addition to the Family Stress Model, the Cultural Norms Model and the above factors, which all speak to environmental causes, there is also evidence of a genetic cause in the

development of conduct problems. Research has shown a high genetic liability for both ODD and CD that predispose children to demonstrate patterns of maladaptive behaviors (Burke et al., 2002; Shaw & Shelleby, 2014). These issues tend to run in families and conduct problems exhibit an approximately 50% heritability rate (Mash & Wolfe, 2001). Parents and children in low-income families may be more likely to exhibit this genetic predisposition, and when combined with other environmental causes, increases the chances of developing clinically significant conduct problems. In sum, it is evident that a variety of factors, both environmental and genetic, contribute to the development of negative behavioral outcomes among children.

In general, these risk factors pertain to both CD and ODD due to the similarities between the two disorders, yet there are some differences. For example, correlations between CD and socioeconomic disadvantage are typically stronger than those between ODD and SES (Boden et al., 2010). Specifically, a study done by Aneshensel and Sucoff found that ODD was actually least common in working class communities and most common in middle-class or more affluent neighborhoods, unlike CD which was most common in the underclass cluster (1996). These results are contradictory of the already established argument that poverty status is significantly correlated with conduct problems. A possible explanation for this phenomenon is that upper-class neighborhoods present their own unique risk factors that may be more correlated with the symptoms and behaviors of ODD than CD (Aneshensel & Sucoff, 1996). Therefore, while both disorders exhibit some of the same risk factors, they are also impacted by their own unique risks related to poverty status and neighborhood context, thus skewing the prevalence of CD and ODD among different economic groups.

As was mentioned before, this discrepancy may be a result of the number and nature of the risk factors children at different income levels are exposed to. Risk factors associated with

poverty are unequally distributed across middle and low-income families and communities, with lower income groups exhibiting significantly more risks than higher income groups (Schonberg & Shaw, 2007). ODD is often seen as a less serious form of CD, and therefore possibly requires fewer risk factors to lead to the manifestation of the disorder. The cumulation of experiencing more risks related to poverty and socioeconomic disadvantage could then push children to developing the more serious CD, thus supporting the notion that ODD would be more common in higher-SES neighborhoods with fewer risk factors, and CD being more common in lower-SES neighborhoods with significantly more risk factors (Wiesner et al., 2014).

Children living in more affluent neighborhoods also often experience a variety of protective factors that enhance their chances for positive mental health outcomes. Characteristics such as collective socialization and positive institutional practices are more apparent in lower-middle to upper-class neighborhoods and serve as a type of protection against the development of behavioral problems (Aneshensel & Sucoff, 1996). Often these protective factors that are more common in higher-SES neighborhoods are the opposite of the risk factors found in lower-SES neighborhoods (Burke et al., 2002). For example, more affluent neighborhoods experience higher levels of social cohesion and parents in these families take a more active role in their child's development. Both of these characteristics, in combination with many others associated with higher income levels, serve as protection against the development of conduct problems among children. These neighborhood-wide resilience factors cannot fully prevent CD in the face of other risks, but can lead to fewer cases, and milder cases. In sum, CD is more common in low SES neighborhoods, and ODD, while still related to poverty, is more common in middle and upper SES groups (Aneshensel & Sucoff, 1996).

### **Learning Outcomes**



In addition to the evidence suggesting that poverty leads to conduct problems, there is evidence that it impacts learning outcomes among children as well. Research has shown that low SES and exposure to adversity are linked to decreased educational success (Howard, Dresser, & Dunklee, 2009). These negative learning outcomes can include poor school performance or achievement, and the manifestation of specific learning disorders (Specific Learning Disorders, American Psychiatric Association, 2013). Overall poor academic performance substantially limits a child's chance for higher educational achievement and the ability to improve their social and economic status. In other words, "poverty limits the chances of educational attainment, and at the same time, educational attainment is one of the prime mechanisms for escaping poverty" (Engle & Black, 2008, p. 243). Therefore, due to the correlation between poverty status and learning outcomes among children, and the vicious cycle that can result, it is important that this relation be examined as well.

As with conduct problems, research has consistently shown a correlation between low family income and poor learning outcomes. A study done by the National Institute of Child Health and Human Development (NICHD): Early Child Care Research Network (2005) analyzed the cognitive development and performance of children in families characterized by different durations of poverty: never poor, poor during child's infancy, poor only after infancy, and chronically poor. It was found that children in any one of the "poor" categories displayed lower levels of academic performance than those that were never poor, and children in the chronically poor category exhibited the lowest levels of performance (NICHD, 2005). Another study conducted by Lee (2011) used data from the Longitudinal Study of Australian Children to analyze the effects of persistent poverty on children's development in several domains, including learning outcomes. The negative effects of poverty on children's development has been well

documented, but this study aimed to elaborate on the specific impact poverty status has on different outcomes among children such as academic success. In fact, past research has shown that poverty has a greater effect on cognitive development in children than on emotional or physical development; further emphasizing the need to evaluate specifically how poverty impacts learning. This study therefore examined two hypotheses: a) the characteristics of persistently poor families and b) the effects persistent poverty has on children's outcomes, including physical, socio-emotional, and learning outcomes. Learning outcomes were measured in a variety of domains such as language, literacy, numeracy, and approach to learning. The poverty status of families was categorized by "persistently poor", "out of poverty", "fell into poverty", and "never poor". The results of the study showed that children in poor categories were more likely to experience a range of other disadvantages that further negatively impacted their outcomes. Results also showed that children in chronic poverty displayed significantly poorer academic performance than children who had never experienced poverty (Lee, 2011). Many other studies have shown similar results and confirmed the consistent relation between poverty status and poor learning outcomes (Haveman & Wolfe, 1995; Brooks-Gunn & Duncan, 1997; Evans, 2004).

Poor learning outcomes can be characterized in a variety of ways. These can include poor school performance and achievement, such as a) below average standardized test scores, b) lower graduation rates, c) increased rates of expulsion or dropping out and decreased attendance and d) the manifestation of specific learning disorders. Many other indicators are used to classify learning outcomes among children living in poverty and interested readers should reference Bigelow (2006) for a more detailed evaluation.

Children from poorer families have been shown to receive lower standardized test scores than their more affluent peers. In general, children from low income households scored 4-7 percentage points lower on standardized tests in any subject (Hair, Hanson, Wolfe, & Pollak, 2015). They also score approximately 10% lower than the national average on national achievement tests in mathematics and reading (Children, Youth, Families, & Socioeconomic Status, 2019). These youth also exhibit increased dropout rates and consequently decreased graduation rates. These outcomes are often mediated by race and ethnicity, with literature showing that “by high school, poor minority youth are more vulnerable than their white counterparts to dropping out, with Hispanics being at even greater risk than black students (Luthar, 1999, p. 31). One study evaluated the graduation rates among the school districts in the United States’ 50 most populous cities and found striking disparities between urban and suburban schools. It was found that approximately 50% of students from low income families of any background graduate from urban high schools, whereas students in suburban school districts were twice as likely to successfully complete their degree (Swanson, 2008). This striking statistic further emphasizes the notion that poverty negatively impacts student’s success. Socioeconomic deprivation can impair school performance, and chances of graduation, by limiting resources to support school persistence (Luthar, 1999). The less support youth receive to encourage their academic achievement, the less likely they are to follow through, leading to increased chances of dropping out.

Children in elementary school also experience school attendance problems related to their poverty status. About 20% of children from poor families are chronically absent from school, meaning they miss more than 10% of the school year, compared to just 8% of non-poor children (Lamy, 2013). The reason for this poor attendance may be due to a variety of factors directly

related to the family's poverty status. For example, low-income parents are more likely to work during nonstandard hours (nights/weekends) and as a result experience difficulty assisting their child in getting ready for and getting to school, leading to increased absences (Morrissey, Hutchison & Winsler, 2014). Children in low-income families also experience greater rates of family violence instability that hinder their ability to establish a routine that ensures consistent school attendance (Morrissey et al., 2014). As a result, children from poorer families display worse school attendance rates than children from non-poor families. They also exhibit suspension and expulsion rates three times higher than those of their peers (Stagman & Cooper, 2010). Overall, research has shown children from low income families display decreased school performance and poor learning outcomes in a variety of areas, as well as an increased risk for the manifestation of learning disorders.

### **Specific Learning Disorders**

As was stated before, living in poverty has been shown to increase the risk of developing specific learning disorders among children. A study done by Altarac and Saroha (2007) analyzed data from the National Survey of Children's Health and found that a significant proportion of children living in poverty, approximately 15%, were diagnosed with a learning disorder. This data has been consistent for decades, across multiple previous evaluations of data from the National Survey of Children's Health, demonstrating a consistent relation between SLDs and poverty among children.

Specific learning disorder is defined by the *DSM-5* as "difficulties learning and using academic skills" (American Psychiatric Association, 2013, p. 66). Specific symptoms of SLD can include inaccurate or slow reading, difficulties with spelling or written expression, or difficulties with mathematical reasoning (American Psychiatric Association, 2013). There are

three categories within which a learning disorder can fall: specific impairment in reading, specific impairment in written expression, or specific impairment in mathematics. Most research, however, focuses on learning disorders as a whole and tends not to differentiate between each specific type. As a result, the current literature review refers to any category of SLD among children.

Research has established a clear relation between poverty status and the presence of learning disorders in children. An analysis done by Zill and Schoenborn (1990) evaluating various developmental, learning, and emotional outcomes among children showed that learning disabilities were most strongly related to family income; the prevalence of learning problems decreased as income increased. Another study that evaluated the association between learning disorder placements and markers for low SES found similar results. Blair and Scott (2002) analyzed data of children in Florida that indicated various risk factors associated with low SES, such as exposure to violence and drug use, poor-quality child care, and low parental education, and subsequent learning disorder placement in school. It was found that children who experienced any of one the risk factors were 1.2 to 3.4 times more likely to have a learning disability placement by age 12 than children without any of these factors (Blair & Scott, 2002). These findings indicate that a much larger percentage of low SES children are referred for assistance in schools for having a learning disorder than their middle- and upper-class peers (Blair & Scott, 2002). Poor children with learning disorders are also more likely to develop early onset conduct problems and other behavioral issues (Bigelow, 2006). The cumulative risks associated with both conduct problems and learning disabilities further hinders a child's learning outcomes, decreasing their chance for academic success. In sum, the research summarized in this

section provides evidence that poverty has a clear negative impact on children's learning outcomes.

### **Theoretical Models and Etiology**

There are two different theories that can be used to explain the association between poverty and adverse learning outcomes, specifically learning disorders, among children. The Developmental Systems Theory focuses on the psychosocial relation between poverty and learning outcomes, and more specifically the role parents play in this interaction. There is also a biological theory that emphasizes how poverty leads to structural brain differences and subsequent learning problems among children.

First, the Developmental Systems Theory (DST) helps to explain how parents and other environmental influences mediate the relation between poverty and learning outcomes. The Direct Effects Model is a component of DST that focuses on how "poverty influences children's education and development by increasing risk factors and limiting opportunities for stimulation and enrichment" (Engle & Black, 2008, p. 245). One risk factor that is associated with poverty and children's learning outcomes is parental education. Research has shown that parents with low intelligence levels and low educational achievement are more likely to be found among lower income groups (Zill & Schoenborn, 1990). As mentioned earlier, educational attainment is an essential mechanism for escaping poverty, yet living in poverty is also what significantly impairs one's academic achievement. These parents likely grew up in poverty and struggled with the same poor learning outcomes when they were children, resulting in low academic achievement due to the disadvantages they presumably faced, they were unable to advance academically and, as a result, economically. Now, both their poverty status and decreased level

of education increases their child's risk for negative learning outcomes (Gupta et al., 2007; Engle & Black, 2008).

Another risk factor related to poverty and children's learning outcomes that is mediated by parental influence is the exposure to adverse experiences early in life. Children from low income families are more likely to have experienced inattentive parenting and even severe neglect or abuse than those from higher income families (Bigelow, 2006). They are also exposed to an increased number of environmental hazards such as neighborhood violence, illness, overcrowding, and family stress (Zill & Schoenborn, 1990; Engle & Black, 2008). These adverse experiences negatively impact children's cognitive and psychosocial development and as a result are educationally damaging.

Parent's poverty status, and lower levels of educational achievement, also impact the environment within which families raise their children. Several studies have shown that children growing up in poverty receive significantly less intellectual stimulation at home (Zill & Schoenborn, 1990; Bigelow, 2006; Engle & Black, 2008). Parents lack sufficient intellectual and emotional resources to model appropriately stimulating behaviors for their children (Bigelow, 2006). This is especially apparent in the language they use with their children, and the impact it has on the child's verbal and linguistic development. Poverty-stricken parents' communication with their children tends to be limited to commands and simple sentences, rather than more elaborate and verbally stimulating conversations (Engle & Black, 2008). This hinders the child's linguistic development, as well as significantly decreases the amount of vocabulary they are able to acquire. Children from poor families are also less likely to be read to than children from more affluent families, an activity that has a substantial influence on the development of phonemic awareness, comprehension skills, and vocabulary (Engle & Black, 2008). Families living in

poverty lack access to books, as well as other educational resources such as different forms of technology that promote learning (Howard et al., 2009). This lack of appropriate stimulation and support has profound adverse long-term effects on intellectual development among children, subsequently leading to poor learning outcomes and potentially the manifestation of learning disorders (Bigelow, 2006). In all, it is evident that parents in poverty are unable to provide an intellectually and verbally stimulating environment for their children, further hindering their chances of academic success.

The above explanations for the relation between poverty and children's learning outcomes are related to the Direct Effects Model and focus on the increased risk factors and decreased opportunities for stimulation children from poor families experience. This model concentrates on the psychosocial processes involved, but research has shown there are biological influences related to poor learning outcomes among children as well. Specifically, parents with low education levels are more likely to be in lower income groups and experience learning difficulties of their own. They then place their children at higher risk of developing learning difficulties by passing on the genetic liability associated with these negative learning outcomes (Dilnot, Hamilton, Maughan & Snowling, 2017). Consequently, the interaction between this genetic predisposition and the aforementioned environmental factors further increases a child's chance of developing a specific learning disorder. Along with an increased genetic predisposition, there are also structural brain differences among children in lower income groups that impact their learning outcomes. A study done by Hair et al. (2015) analyzed this relation between structural brain development in children and household poverty and academic performance. Magnetic resonance imaging (MRI) scans of children from different socioeconomic backgrounds were evaluated and it was found that children from poor families



displayed significant brain differences a compared to children from higher income families. The parts of the brain that were implicated most among poorer children were gray matter in the frontal and temporal lobes (Hair et al., 2015). These regions are particularly important for cognitive development and learning in children. Children living below the poverty line had gray matter volumes in these areas 3-4% below the developmental norm (Hair et al., 2015). As a result, these children experienced impaired academic performance due in part to their structural brain differences related to their poverty status.

The combination of factors related to poverty status, from both a biological perspective and a psychosocial perspective, have been shown to have a negative impact on children's learning outcomes. Children from lower-income households tend to be less prepared for learning and formal schooling because of the increased risk factors and decreased intellectual stimulation they experience early in life (Gupta et al., 2007). This lack of readiness can affect cognitive and psychosocial development and result in low academic achievement and grade attainment, and the development of learning disorders (Gupta et al., 2007). Brain abnormalities in regions involved in cognitive abilities crucial to school readiness and performance also contribute to these negative learning outcomes. Overall, research has demonstrated a definitive negative relation between poverty and academic achievement and the manifestation of learning disorders among children.

### **Summary and Proposed Interventions**

The literature is clear that there is a relation between chronic poverty and behavioral health and learning outcomes in children. Specifically, there is a negative relation between these variables. Namely, living in poverty causes higher rates of behavioral and learning problems, and these rates increase the less money a family makes. There are many correlates of poverty that

contribute to this negative relation as well. Socioeconomic status, race and ethnicity, homelessness and neighborhood context all play a role in perpetuating the negative influence poverty has on children's outcomes.

It has consistently been shown across multiple studies that poverty status has a negative impact on children in a variety of domains. Specifically, children living in poverty have an increased risk of developing conduct problems and experiencing negative learning outcomes. Research has shown that children, most often boys, living in poverty demonstrate higher rates of CD and ODD. These relations can be explained in part by the Family Stress Model, the Cultural Norm Model and also by biological influences. Research has also shown that poverty negatively influences children's learning outcomes. These children experience higher rates of learning disorders, receive lower standardized test scores and grades, and are less likely to finish school than children not living in poverty. The Developmental Systems Theory, specifically the Direct Effects Model, and biological influences help to explain why this correlation occurs. Overall, research has substantiated the argument that poverty status negatively impacts children's behavioral health and learning outcomes. A variety of studies conducted by various research groups have found similar results regarding this correlation. This helps to provide converging evidence emphasizing the nature and strength of this relationship.

Due to the scope and severity that issues such as conduct and learning problems present to a child's overall success, it is important that this topic continue to be evaluated. There are gaps in the existing literature that should be addressed to further improve our knowledge of the negative relation between poverty and children's outcomes. First, a majority of the research evaluating the impact poverty has on conduct problems focuses solely on outcomes among boys. While conduct problems are generally more common among boys, they impact a substantial

population of girls as well. Thus, it is important to expand the research to evaluate poverty status and conduct problems among both girls and boys. Second, research concerning learning disorders and how they are affected by poverty tends not to differentiate between each specific category of learning disorders. Reading, writing and mathematics disorders are typically combined in this line of research. It is important to analyze how poverty impacts each of the specific learning disorders individually. Based on the etiological models presented in this paper, it could be hypothesized that reading in particular might be the most impacted by poverty. Children living in poverty experience a less stimulating household environment, have less access to books and other educational materials, read fewer books, and are spoken to by their parents with much simpler sentences (Howard et al., 2009; Engle & Black, 2008). These factors are more directly related to reading ability, and consequently the development of a reading disorder, than the other two categories of learning disorders. Therefore, it would be likely that if each specific learning disorder was evaluated individually, results would show that specific reading disorder has a greater correlation with poverty status due to the aforementioned factors. Future research should be done to address these gaps in the existing literature and to improve our understanding of the relation between poverty and children's behavioral health and learning outcomes.

While the future may seem bleak for these children, there is hope for their success. Several intervention and prevention strategies and programs have been implemented to improve the outcomes of children living in poverty. The interventions mentioned herein are not exhaustive but highlight a few effective strategies for improving the behavioral health and learning outcomes of children in low-income families.

As was found in this review, poverty appears to be the root cause of a multitude of these negative outcomes among children, and therefore it would seem that reducing the number of families living in poverty would be the most effective solution. While this is a well-intentioned goal, research has shown that its effects are mainly short-term and do not improve the outcomes of children several years down the road. Specifically, an evaluation of data from a program that moved children from low-income families from high-poverty neighborhoods to low-poverty neighborhoods demonstrated this claim. Children in the program showed improvement in their academic performance after 2 ½ years, but the results were not sustained after 5 years (Levanthal, Fauth, & Brooks-Gunn, 2005). Rather, the results were reversed and the children who moved to low-poverty neighborhoods displayed poorer academic performance than children in the high-poverty neighborhoods (Levanthal et al., 2005). This unexpected finding was thought to occur because the stress of moving, as well as the unique risks higher-income neighborhoods exhibit, further hindered the child's ability to learn and resulted in even worse academic performance. However, programs that seek to improve and expand upon resources and education for families in poverty may exhibit more success. Improving parental education, providing skill development training and ensuring adequate wages and benefits are more effective strategies to improve the financial status of low-income families (Gupta et al., 2007). Therefore, prevention strategies for families in poverty prove to be more effective when the responsibility is placed on the family themselves. There are specific intervention strategies targeted for conduct and learning problems as well that are effective once the deleterious effects of poverty have already taken a toll on the children's lives.

Interventions for conduct problems such as CD and ODD that show the most success are those that address multiple risk factors in one comprehensive program (Burke et al., 2002).

Multisystemic Therapy (MST) is one such treatment that has been identified as being successful in reducing antisocial behaviors. MST is “a comprehensive family and community-based treatment originally designed for youth with serious conduct problems who are at imminent risk of out of home placement (i.e., incarceration)” (Henngeler & Schaeffer, 2016). Due to CD and ODDs pervasive nature, it is important that risks be addressed in all aspects and all levels of the child’s life, including the individual, family, peer, school, and neighborhood level. MST addresses these risks in an incredibly intensive and comprehensive treatment program that requires the collaboration of several trained therapists, teachers, community members and immediate and extended family (Burke et al., 2002). A review of various studies proved MST to be a highly effective treatment intervention for reducing conduct problems in children, including those living in poverty (Henngeler & Schaeffer, 2016).

Intervention strategies for learning problems follow the same pattern as those for conduct problems such that comprehensive programs that focus on multiple facets of poverty and learning are proven to be the most successful (Engle & Black, 2008). In order to achieve the best outcomes, it is important to address the child’s nutrition and health, social skills and executive functions as well as promote parent involvement, factors proven to be strongly related to academic performance. The Head Start programs have been identified as being one of the most successful, comprehensive interventions for improving learning outcomes among children in poverty. Head Start and Early Head Start are programs that “promote school readiness of children ages birth to 5 for low-income families by supporting the development of the whole child” (Head Start Programs, 2019). They come in a variety of models to fit the needs of the community and can be implemented in child care centers, schools and other organizations. Their services focus on improving early learning, health and family well-being (Head Start Programs,

2019). Data from the Head Start Family and Child Experiences Survey showed that these programs were increasing children's scores on reading and math measures and overall improving their academic performance (Aikens et al., 2017). Parent involvement in these interventions was crucial as well as it has also been proven they play a vital role in their child's learning outcomes. Parents who participated in family-based services associated with Head Start programs were more emotionally supportive, spent more time reading to their children and were more verbal, helping to further improve their child's academic performance (Engle & Black, 2008).

In all, there are several adverse outcomes associated with poverty, such as conduct problems and learning difficulties. However, there are numerous prevention strategies and interventions being developed and tested that can help mitigate these negative effects. Their circumstances may put them at a disadvantage, but with these interventions in place, children growing up in poverty will have a better chance at success..

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