Neglect and its Effects on Cognition

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Literature Review

Abstract

The brain is a powerful organ that can be damaged with irreversible consequences. Neglect alongside coexisting factors, such as childhood abuse, can affect the overall development of the brain. The severity and longevity of such adverse childhood effects can impair the cognitive, social, and behavioral progress. This literature review discusses the effects of neglect and coexisting factors, and the negative effects on overall cognition (intellectual, social and behavioral). Results expressed that neglect effects children's ability to thrive in the future. Children who were neglected demonstrated low IQ levels, significantly lower levels of social skills, and troubling behavioral skills.

Keywords: childhood neglect, adverse childhood, cognitive development, neglect, child abuse, abuse, maltreatment

Neglect and its Effects on Cognitive Development

Introduction

The brain is the most complex organ in the body. The way one grows up may affect the overall development of the brain in terms of intelligence, behavioral, and social skills. Stages of development are crucial for future cognitive abilities in adulthood. The purpose of, “Neglect and its Effects on Cognitive Development,” is to discover the ways in which neglect affects cognitive development in childhood and how it affects later adulthood between males and females. Moreover, this review discusses other coexisting factors. This review will also focus on the effects of early stages of neglect (e.g. fetal & infancy stages), differences in gender results of neglect, and external factors that affect cognitive development. Furthermore, this review will discuss limitations of the research and empirical data. Also, it will discuss problems within the categorization of neglect and other factors that contribute to neglect.

The Effect of Neglect on Children’s Brain

The Brain consist of billions of synaptic connections which are also in charge of the central nervous system. The human brain consists of the cerebellum, brain stem, and the cerebrum. It also consists of four lobes in

the cerebral cortex which are: frontal, parietal, temporal, and occipital lobes. Each lobe is specific to a certain function in the brain. The frontal lobe is specific in the understanding of speech. The parietal lobe inputs different senses and orientates spatial skills and navigation. The temporal lobe processes language and sounds, which also include the amygdala and hippocampus which respond to memory and emotion. Finally, the occipital lobe, which is near the back of the skull, record visual input and processes. All these processes form what is known as white matter. Thus, all these systems are considered as white matter, or limbic system. As previously discussed, the brain is a very powerful organ and makes a person who they are. Nevertheless, neglect or abuse, has caused disruptions in the white matter development. According to Mclaughlin et al (2017), *Neglect as a Violation of Species-Expectant Experience: Neurodevelopmental Consequences* neglect is defined as, “inadequate provision for physical needs, poor protection from harm, and failure to provide for emotional or educational needs” (Mclaughlin et al., 2017, p.462). Generally, neglect is defined as parent /caregiver inadequate provisions for basic needs, such as food, water, and shelter. However, there are other aspects include emotional and educational neglect. Emotional neglect is the most detrimental to children whom are exposed to it. Moreover, educational neglect can also lead children to fall behind in the academic area of their peers. Thus, leads to cognitive deficits depending on environmental factors and time and type of exposure. Studies have shown that neglect affects the development of the

brain in terms of cognition, emotional, psychological, and behavioral development.

Interrelationships on the Effects of Neglect on Brain Development

Many studies have indicated the effect of neglect on cognition, emotional, psychological and behavioral development. For example, the article by Winston et al (2016), *The Importance of Early Bonding on the Long-term Mental Health and Resilience of Children,* expresses the importance of parental consistency in a child's life. Also discerns the effects of parental inconsistency and lack of love on a child's overall cognitive development. Repeated interactions and communication leads to a child's cognitive pathways to form and develop. Such interactions lead memory growth and logic development (Winston, 2016, pg. 12). Babies have expressed a genetic predisposition to bond with parent/caregiver. When disruptions occur through the bonding process they can develop severe impairments in forming attachments. Their article further explains how lack of parental care leads to: increased risk for depression, anxiety disorders, learning, and memory impairments (Winston, 2016. pg. 13). Moreover, the absence of a proper caregiver in terms of responsiveness and emotional caregiving has been shown to affect a child's ability to form adequate relationships with adults and peers. Such study conducted by the Bucharest Early Intervention Project expressed the effects of ineffective parenting and the overall intellectual and social behavior development. Fox et al. (2017)

The Effects of Psychological Deprivation on Attachment: Lessons from the Bucharest Early Intervention Program, studied the link between the Bucharest Early Intervention Program and the effects of social and cognitive development. The study consisted of institutionalized children versus adopted, or non-institutionalized children. The results demonstrated that children whom were institutionalized expressed attention deficits disorders, disorganized attachment classifications/abnormal attachment behaviors, and social engagement disorders. Thus, their original hypothesis proved that institutionalized children expressed detrimental effects in cognitive and social skills, in comparison to children whom were adopted, or not institutionalized. Moreover, Fox et al. (2017) expresses the importance of further research and the importance of a stable, secure relationship with a caregiver. Moreover, early adoption from institutionalized children demonstrated no adverse cognitive defects and were deemed as “normal”.

In addition to Fox et al.’s (2017) research Bick’s et al (2017) *Effect of Institutionalized Foster Care on Long Term Effect White Matter Development A Randomized Clinical Trial*, also reviews the effects of the Bucharest Early Intervention Project and reviewed effect of the study on white matter development. They hypothesized that institutionalized children would express abnormalities in the cognitive and emotional regulation. The Bucharest Early Intervention Program research consisted on a study of 136 children whom had spent half their lives in an institution and were randomly

selected. (Bick et al., 2017, p.212). The study also compared children from the same gender and age. The foster care intervention program was facilitated by the Bucharest Early Intervention Project which provided consultation and classes for caregivers/foster parents. Thus, promoted high quality parenting classes that maximized care for children whom were placed with them. Bick et al (2017) utilized White Matter Atlas to identify major white matter structures (Bick et al. 2017, p. 214). The results revealed that severe neglect in the early stages of life was associated with white matter development. Abnormalities in white matter development are correlated with developmental disorders, attention deficits, cognitive, and language developmental delays (Bick et al., 2017, 218).

An important aspect to childhood neglect are coexisting factors, such as child abuse/maltreatment. Polonko's (2006), *Exploring Assumptions About Child Neglect in Relation to the Broader Field of Child* Maltreatment, expresses the coexisting factors that lead to misleading information among effects of childhood adversities. She specified that neglect is the most frequently reported, however, child physical neglect has the most profound effects on cognitive functioning and academic achievement (Polonko, 2006, p. 216). Moreover, she emphasizes the importance of other forms of neglect that are minimized or ignored. Research fails to mention paternal instability, financial, and community neglect. Overestimation of childhood neglect affects the attention on different childhood maltreatment. However, such

forms of neglect and abuse do in fact affect overall development of children. According to Polonko (2006) physical neglect and variables such as race, poverty, residence, economic status has shown lower IQ levels and failure to educational attainment (Polonko, 2006, p. 267). Children also expressed disassociation, PTSD, and high rates of comorbidity (Polonko, 2006, p. 266-269). Furthermore, Polonko (2006) demonstrated that physically neglected children had lower scores on aggression. However, those whom were emotionally neglected demonstrated the highest scores on aggression, and violence. Similarly, a study conducted by Rogeness et al. (1986) *Psychopathology in Abused and Neglected Children*, studies the effects of childhood abuse and neglected children in comparison to children whom had not been abused or neglected. The sample consisted of 42 children who had been abused, neglected, or neither. Thus, results expressed that children whom were neglected and abused had lower scores on all measures of cognitive development (Rogeness et al., 1986, 659). Another important aspect is the increased aggression in abused, or neglected children. Rogeness et al. (1986) implied that among children whom were abused, neglected and were boys, expressed higher rates in juvenile delinquency. Moreover, for this study the abused children also could or may have been neglected, thus both factors are mentioned to express such importance. Furthermore, the results expressed an increased percentage of Mexican/American boys and girls who had a history of neglect. Moreover, the Neglected group in the study had more impaired relatedness. Rogeness et al.

(1986) discussed the importance of gender in relation to neglect and cognitive impairments. Thus, children whom have been neglected boys and girls expressed conduct disorders and concentration symptoms (Rogeness et al., 1986, p. 664). A further study conducted by Glaser (2000), *Child Abuse and the Brain-A Review* discerned the effects of child abuse and neglect on the brain and excludes physical injury. Glaser (2000) implies a coexisting factor in child abuse and neglect from previous research. Thus, children that were abuse/neglected high rates of hyperarousal in stress, disassociate reactions, difficulties expressing executive function, and low educational attainment (Glaser, 2000, p.110). Moreover, Glaser (2000) implies the importance of research on abused and neglected children, and further developments in aiding those children. Furthermore, Kavanaugh et al. (2017) *Neurocognitive Deficits in Children and Adolescents Following Maltreatment: Neurodevelopmental Consequences and Neuropsychological Implications of Traumatic Stress*, express biological responses to childhood trauma and neglect. Thus, Kavanaugh et al. (2017) discerns that childhood trauma repeated activation of biological stress response systems can be harmful. Which, may in turn, contribute to decreases in brain growth factors, pruning, delays in neurogenesis, and risk for abnormal brain development (Kavanaugh et al., 2017, p. 71). Moreover, such impairments can be life- long deficiencies.

As we know childhood neglect is one of the most extreme forms of stress in young children that in turn, develop social, emotional, and intellectual impairments. Vela et al. (2014) *The Effects of Severe Stress on Early Brain Development, Attachment, and Emotion*, explains the five limbic structure of the brain and how they compare to children whom been exposed to childhood neglect or abuse. Moreover, they express the importance of sensitive periods of development form which children's development is most crucial. Thus, Vela (2014) concludes that severe stress in the form of child neglect or abuse during infancy, can in turn affect a child's future manifestations; such as negative emotions, maladaptive behaviors, and disordered attachments (Vela, 2014, p. 531).

Furthermore, Vela (2014) implies the need for further research to enable protective advances to treat patients more effectively. Furthermore, mental disorders such as PTSD, dissociative disorders, and depression have all been linked to childhood adverse effects. Another prevalent disorder in neglect and abused children is bipolar disorder. Marshall et al. (2016) *Deficient Inhibitory Control as an Outcome of Childhood Trauma*, review the effects of childhood maltreatment and neglect in the cognitive approach. Marshall et al. (2016) predicted that the effects of trauma and bipolar disorder can lead to the most severe inhibition deficits. The sample constituted about 233 individuals with confirmed BD. The Childhood Trauma Question was self-report questionnaire that participants answered. Results

determined those that had experienced trauma/neglect had poorer accuracy on inhibition trials compared to the normal non- BD group (Marshall et al., 2016, 9). However, those that had experienced neglect had more memory deficits than inhibitory responses.

Long-Term Consequences

Teicher and Parigger's study on *The 'Maltreatment and Abuse Chronology of Exposure'(MACE) Scale for the Retrospective Assessment of Abuse and Neglect During Development* (2015) studied up to ten types of maltreatment using the MACE scale to assess overall exposure in a phone screening study. Participants were asked MACE scale questions and other forms of question regarding any type of maltreatment such as physical, mental, or sexual abuse. Moreover, the sample were from predominantly white, middle-class, and well- educated participants. The results expressed that maltreatment like neglect and abuse (differing variations) and type exposure lead to psychiatric and medical disorders. Another study reviewed by Teicher et al. (2016), *Annual Research Review: Enduring Neurobiological Effects of Childhood Abuse and* Neglect, indicates the effects of neglect and childhood abuse, and its effects on cognition. Survivors of childhood neglect/ abuse/ maltreatment had shown a higher prevalence in depression, anxiety, substance abuse, eating disorders, suicidal symptomatology, and personality disorders (Teicher et al. 2016, p. 241). Thus, stress experienced with other forms of disorders causes harmful effects on the brain. It was also reported

that males compared to females, had a greater reduction in white matter development. Females, expressed to have higher resilience towards neglect due to potential neuroprotective effects of oestrogen (Teicher et al. 2016, p. 244). Moreover, Teicher et al. (2016) expresses the importance of post-maltreatment or history into account.

In addition to Teicher et al (2016) a study by Schalinski et al. (2016) *Type and Timing of Adverse Childhood Experiences Differentially Affect Severity of PTSD, Dissociative, and Depressive Symptoms in Adult Outpatients*, conducted an experiment the timing and type of neglect/abuse in female adults. Patients were from Psychiatric Centers and were surveyed using the MACE scale. The results expressed about 89% of surveyed female patients met criteria for one or more ACE types (Schalinski et al, 2016, p. 5). Thus, further exposure to maltreatment/neglect concluded with higher symptom severities. So, overall there was a positive association between childhood adversities and psychopathology. Schalinski et al. (2016) expresses the importance of the effects of adversities and adaptive effective treatment outcomes.

Furthermore, many studies indicated that childhood abuse and neglect is associated with cycles of violence. Widom (1989) *The Cycle of Violence*, examines empirical reviews that determine childhood abuse and neglect cause criminal behavior and delinquency. The study expressed how other researchers' obscure results that can affect overall validity of its arguments.

It expresses the importance of considering neglect as distinct from abuse since those that have been reported to express dysfunctional attitude (Widom, 1989, 161). Widom's et al. (1989) findings indicated that male abused children and neglected children have a higher risk of becoming delinquents and violent criminals. However, correlation does not equal causation. The findings do not determinate that every neglected and abused child will become a delinquent (Widom, 1989, p. 244). Also, females tended to suffer from depression and undergo psychiatric institutions as a consequence of childhood abuse and neglect. Widom (1989) expresses the need for further examinations that act to mitigate against early negative experiences.

Moreover, a recent study suggests that early life neglect can have higher risks for mental disorders. A study conducted by Caldwell et al (2013), *The Role of Val66Met Polymorphism of the Brain Derived Neurotrophic Factor Gene in Coping Strategies Relevant to Depressive Symptoms*, research was on how Brain derived neurotrophic factor (BDNF) is affected by recent stressors such as neglect experienced early in life. The Val66met genotype might influence how early-life events can affect those later in by how they cope, their cognitive flexibility, and symptoms of depression. This research determined that neglected and maltreated children were at high risk for depressive symptoms. The study consisted of 124 undergraduate females and males. Such study was conducted in the Carrolton University through first and second year students. This study was somewhat diverse within the

participants who were white (53.2%), Arab (13.7), black (12.9%) and others (20.6%*). Moreover, the study consisted of several questionnaires and genotyping. Those that expressed to have Val/Val factor tended to have higher symptoms of depression. Overall the study conveyed that those whom had the Val/Val allele and whom were neglected, expressed higher rates of depression. Those that had the Val/Val individuals with neglect had increased emotion-focused coping styles thus higher depressive symptoms (Caldwell, 2013, pg. 6).

Conclusion: Limitations of Culture, Race, Gender, Neglect, and Resilience

Overall, most studies did have general limitations such as, self-report bias is a huge limitation as well as those who reported to have been abused/ neglected. Important influential factors were not considered those such as, cultural and gender factors. Polonko (2007) also infers a correlation between parental neglect and pre-disposition. In other words, parents who neglected their children also had a history of neglect, low IQ scores, low educational attainment, mental disorders, high levels of anxiety, aggressiveness/defensiveness prior to having their child (Polonko, 2006, p. 273). Thus, expressing that childhood neglect is passed down from generation to generation. Moreover, she implies the importance of involved loving parent figure, support from certain relationships, and therapy can all help break the cycle of neglect (Polonko, 2006, p. 275). Neglect in families

can cause further cognitive underdevelopment. A study indicated that Asian American adults in the context of culture, are less likely to receive mental health intervention, compared to Caucasians. Cohen et al. (2001) *The Importance Culture in Treating Abused and Neglected Children: An Empirical Review*, discussed how culture, socioeconomic status, and ethnicities perceive adverse childhood effects. Cohen et al. (2001) discerns the impacts of perspective and how it can affect the outcome of children whom have been neglected or abused. Thus, the need for education and ethnic diversity in treatment plans can help young adults cope with childhood neglect or abuse.

Another noted factor was gender. It has been mentioned throughout this article the differences between male and female effects on childhood neglect or abuse. Females tend to have a much more resilient factored when it comes to the effects of trauma specifically childhood neglect. Men have been shown to express vulnerability. McGloin et al. (2001) *Resilience Among Abused and Neglected Children Growing Up,* determine that males tend to manifest higher rates of chronic diseases and lower rates of survival. However, the results can also be due to exposure duration that leads to risk. Also, McGloin determines resilience by having at last above average in school, no suicide risks, ad no history of substance use (marijuana, alcohol, tobacco etc.) This article demonstrates when resilience becomes apparent among children who have grown up having been neglected and abused.

Tracked court cases from 1967 to 1971 were analyzed under gender, age, and family social class. The studies reviewed also compared same group with non-abused and non-neglected children. The participants were interviewed voluntarily and were evaluated on 6 domains: employment, homelessness, education, social activity, psychiatric disorder, and criminal violence. The results expressed 22% out of 676 abused/neglected children, were resilient. Also, females expressed to have much more resilient across all domains, than males. It is theorized that such results could be due the genetic vulnerability in men. Men tend to express more vulnerability to maladaptive outcomes than females. McGloin addresses that most research tends to focus on the detrimental effects of abuse and neglect. While it suggests that victims tend to express maladaptive behaviors and serious cognitive effects. Research also needs to focus on victims who show resilience. Express that there can be good outcomes despite research. The article also expresses limitations of their research. Such as, not all domains researched are captured over an extensive period of time since people's lives change significantly throughout the years that may not pertain to their trauma. Case studies were also based on official records thus during late 1900's only a fraction of maltreated cases was actually reported (among those are abused and neglected children). Thus, this research cannot be generalized to those cases that have not been reported. Another limitation is that the mechanisms that differentiate abused/neglected children were not researched to those whom are not resilient.

In addition to McGloin's study, Cohen et al. (2001) *The Importance of Culture in Treating Abused and Neglected Children: An Empirical Review*, reviews the influence of culture on treatment of neglected and abuse/maltreated children. It reviews the extent of cultural issues in the treatment of empirical reviews, and the limitations of those articles. For example, Asian cultural beliefs may feel less comfortable expressing their hostility so therefore they internalize it (p.149). Moreover, evidence suggested that Asian American and Hispanic children were less likely to receive mental health treatment or interventions than Caucasian children (pg.150). Furthermore, cultural factors indicated that there is an influence on how parents respond emotionally and behaviorally to child abuse, and neglect. Which in turn can impact the children's' recovery from maltreatment, thus prove to be detrimental to their mental health. This article also addresses the need for more research on the effect of culture and response to mental health treatment. There needs to be more information on the efficacy of intervention on children who have been physically or emotionally abused, and children who have experienced neglect across all cultural groups. Moreover, having a larger sample size may allow for more extensive examinations on cultural factors.

As the research has expressed neglect causes cognitive, social, intellectual, and behavioral impairments. They also cause multiple forms of disorders such as, attachment disorders, PTSD, depression, dissociative

disorder, aggression, bipolar disorder, and stress impairment. ***Moreover, the effects of neglect as far more damaging if not treated early. Despite the limitations of research, neglect with its coexisting factors provide a range of possible treatment outcomes.*** Early stage of life is dependent on the parent bonding and environmental stimuli. Such deprivations lead to long term consequences in children that can hinder their ability to prosper in their future. Most cases have concluded that neglected, abused, and maltreated children have psychological, sociological, and cognitive disabilities. However, very few studies focused on a compare group of normal children. Furthermore, there were plenty of limitations to the studies. Most studies could not be generalized to the population of children who have been neglected/abused. Moreover, studies did not have cultural or diversity in their sample of participants. In addition, the sample sizes also needed to be larger in order to be generalized and much more extensive than small sample sizes. Overall, there is a need for much more extensive research on factors of neglected children and positive outcomes despite their disadvantages in early life.

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