

The Correlation Between Childhood Trauma, Genetics, and Adolescent Mental Health
Issues

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Abstract

The purpose of this study is to compare the prevalence of depression found in adolescence in persons who have experienced childhood trauma, or a singular traumatic event, to those who experienced a traumatic childhood. The study aims to find out if experiencing child trauma can make someone more susceptible to depression in adolescence and what genetic components make someone more susceptible to mental health problems spurred by childhood trauma. The research of this study will be conducted by analyzing several studies on related topics, such as the analysis of the psychopathology of those who experienced maltreatment in childhood. The types of childhood trauma examined in these studies includes acute, complex, and chronic trauma. The findings of this study suggests a positive correlation between those who experienced childhood maltreatment and the development of depression in adolescence. The study also found that genetics can have a strong effect on those who develop depression after experiencing childhood trauma, or a singular traumatic event.

Keywords: Childhood Trauma, Child Maltreatment, Adolescent Depression, Mental Health, Genetics

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Introduction

This study will examine the correlation between experiencing trauma during childhood and the development of depression during adolescence. The study will also investigate the genetic components to the development of mental health issues in adolescence. The research papers examined for this study indicate that childhood trauma has a positive correlation in the likelihood of adolescents developing depression. The change in neurological brain development of individuals in relation to stimuli (in this case traumatic experiences suffered at an early age) relates to the Contextual Perspective on childhood development and the Bronfenbrenner model. The studies examined will include data from individuals suffering from different types of trauma, including: acute, chronic, and complex traumas. Acute trauma results from a single event. Chronic trauma is repeated and prolonged such as domestic violence or abuse. Complex trauma is exposure to varied and multiple traumatic events, often of an invasive, interpersonal nature.

Background

Childhood abuse is something that affects one in four children to some degree. Some of this abuse causes children to suffer from trauma which can make them more susceptible to developing mental health issues in adolescence. The study of this topic is important to further investigate because mental health issues can manifest in many ways, childhood maltreatment has been found to be a risk factor for the development of violent, antisocial and aggressive behavior.

(Leenarts, L., etc., 2013, 270). The more learned about this impetus to mental health issues in adolescence, the more that can be done to help treat or prevent these mental health issues in the future.

Research Question

The original research question chosen at the beginning of this project was asking, “Is childhood trauma and the development of mental illness during adolescence correlated?” which was quickly answered as a yes. To delve deeper into the topic the research question was altered to, “Does experiencing trauma, or a singular traumatic event, during childhood make a person more susceptible to mental health problems during adolescence than if they hadn’t experienced said trauma?” and “How do genetics affect the development of depression in those who have suffered abuse?”.

Search Criteria

The documents used in this study were found through research on the correlation of child abuse and adolescent education. The databases used were found through the Greenwood Library of Longwood University’s website. On the home page of the library’s website is a button labeled “Database & Resources A-Z”. The databases with the chosen articles were called *Child Development & Adolescence* and *Education Research Complete*. The key words used to find the articles for the study included, “*Childhood Trauma*”, “*Child Maltreatment*”, “*Adolescent Depression*”, “*Mental Health*”, and “*Genetics*”. A filter was also applied so the articles were from the last ten years, so the information was relatively recent, peer reviewed, so the

information was accurate, and full text, so the full article could be viewed and all information could be viewed. The documents that were left were looked over for relevance and accuracy and the studies that were similar to the original topic were chosen for further investigation.

Literature Review

Behavioral Issues

Childhood maltreatment can cause behavioral issues that can be violent or aggressive that the child might not have had otherwise. These behavioral issues are looked for in children for markers for which adolescents are more likely to develop mental health issues. As hypothesised in the beginning of this study, the research confirmed that there is a positive correlation between childhood trauma or childhood abuse and the development of depression and other mental health issues in adolescence (Leenarts, L., etc., 2013, 270). The research also confirmed a positive correlation between childhood maltreatment and impaired brain development (Teicher, M.H., & Samson, J.A., 2016, 241).

Genetic Impacts on the Development of Mental Health Issues in Adolescence in Relation to the Experience of Childhood Maltreatment

Although traumatic childhood experiences are correlated with adolescent mental health problems, there is also a genetic component that increases the likelihood of developing said mental health problems. One of the studies investigated, brought up the relationship between genetics and the posttraumatic adjustment of those who had experienced childhood trauma when

others who experienced the same or similar trauma did not experience the same psychiatric concerns. This meant that not only was there a correlation between childhood maltreatment and the development of depression in adolescence, but also genetics and the trauma experienced by a traumatic event. It also further confirmed that personality and behavioral patterns are a major part in determining the preexposure that an individual might have to developing major mental health issues after being exposed to a traumatic event.

The study showed that molecular genetic studies are beginning to clarify specific genes and the neurobiological consequences that mediate expression of the phenotypes found to increase the likelihood of developing mental health problems due to childhood trauma. (Cisler, J., 2011, 301).

Environmental Factors on the Development of Mental Health Issues in Adolescence in Relation to the Experience of Childhood Maltreatment

Another study from those investigated found that there were environmental factors that could cause genetic alterations to something like long-lasting effects of trauma exposure which would then increase one's preexposure to a mental health issue, such as posttraumatic stress disorder (PTSD) in response to a traumatic event. The study agreed with the other studies investigated that environmental factors could cause genetic alterations, such as certain physical problems during the germinal, embryonic, and fetal stages of child development, but went further suggesting that the maltreatment of children can physically alter the child's brains, making them predisposed to developing mental health issues during their adolescence.

This study also investigated epigenetic modifications, which are stable and heritable alterations in gene expression and cellular function without changes to the original DNA sequence, and how they can occur from environmental factors that can alter genes which can lead to long-lasting effects of trauma exposure (Yehuda, R., & Bierer, L.M, 2009, 427).

Another study discussed a way to monitor and predict mental health symptoms in the population of adolescents that have experienced maltreatment as children. Environmental factors, such as a child's sensitivity to stress, were examined for how they may influence whether adolescents that experience maltreatment as a child develop psychopathy.

They did this by examining the interaction between "HPA-axis reactivity" to an "acute stressor" and exposure to different types of childhood traumas. This was then applied as predictors of mental health symptoms in the population of adolescence that have experienced childhood trauma. It also continued to confirm that children exposed to trauma are associated with increased risk for psychopathology across the lifespan. This study further confirmed a strong association of childhood maltreatment with a broad range of trauma-related psychopathology. It also confirmed that children exposed to trauma are associated with increased risk for psychopathology across the lifespan. (Kuhlman, K.R., 2018, 155).

Mechanisms and Treatment Options in Relation to the Experience of Childhood

Maltreatment Causing the Development of Mental Health Issues in Adolescence

The Mccrory research analyzed several mechanisms that would aid psychiatric vulnerability following maltreatment experienced during childhood so that mental health issues, due to childhood trauma, can be treated properly and effectively. This source discussed the need

to improve the understanding of the mechanisms that will aid psychiatric vulnerability following maltreatment experienced during childhood. It continues that there is a need to develop preventative approaches that can help offset the likelihood of developing mental health issues later in life after experiencing maltreatment in childhood. It goes on to further discuss the need for effective approaches/mechanisms so that mental health issues, due to childhood trauma, can be treated properly and effectively.

This source further confirmed that mental health problems that stem from traumatic childhood experiences can be treated, however the need to be treated effectively. This study discussed functional brain imaging and how it would help treat childhood trauma. The study indicated that “altered neurocognitive functioning” following maltreatment, in childhood, led to “neurocognitive alterations” that “embed latent vulnerability” to the mental illnesses they were observing. This means that the study agreed with the previously mentioned studies that childhood trauma or maltreatment can make an individual more likely to be predisposed to a multitude of mental health issues (Mccrory, E. J., 2017, 338).

In another section of the research, a review was conducted of evidence-based treatments for children exposed to childhood maltreatment and its correlation with a large range of “trauma-related psychopathology” (mental illnesses) and aggressive/ violent behavior. In the Leenart study further confirmed, from twenty-seven studies, evaluated treatments for children and adolescents which were most effective in the use of, “trauma-focused cognitive, behavioral or cognitive-behavioral techniques”. (Leenarts, L., etc., 2013, 270)

Findings, Revisit Research Question

The research done confirmed that childhood maltreatment has a severe effect on brain development and can make a person more susceptible to mental health problems during adolescence than if they hadn't experienced said trauma. The research also showed that although traumatic childhood experiences are positively correlated with adolescent mental health problems, there is also a genetic component that increases the likelihood of developing said problems. It was also found that personality and behavioral patterns are a major part in determining the pre-exposure that an individual might have to developing major mental health issues after being exposed to a traumatic event. This research also further confirmed that Molecular genetic studies are beginning to clarify specific genes and the neurobiological consequences that mediate expression of the phenotypes found to increase the likelihood of developing mental health problems due to childhood trauma, which would in turn, aid in the treatment of mental health issues caused by childhood trauma.

Future Studies

Future studies should narrow down the topic and further examine the relationship between genetics and traumatic events experienced in childhood. The future studies should do this in order to further analyze the link between genetics and predisposition to forms of post traumatic stress disorder (PTSD), and other psychopathological issues as well as impairments in brain development. The narrowed focus of the relationship between genetics and traumatic events experienced in childhood would make the direction of the study clearer and more specified. The narrowing of the topic would make the ability to find more specific studies easier as more specific key words could have been chosen in order to get more directly related studies.

Conclusion

The main findings of the study confirmed that the change in neurological brain development of individuals in relation to traumatic experiences suffered at an early age relates to the Contextual Perspective on childhood development. The study further confirmed that although traumatic childhood experiences are positively correlated with adolescent mental health problems, there is also a genetic component that increases the likelihood of developing said problems. It was also found that personality and behavioral patterns are a major part in determining the preexposure that an individual might have to developing major mental health issues after being exposed to a traumatic event. Overall the study was conclusive in confirming its goal of answering what effects does genetics and childhood maltreatment have on their development of mental illness.

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