

Analysis of Cross-Sectional Study in Adverse Childhood Experiences

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Abstract: Adverse Childhood Experiences (ACEs) are a burgeoning issue that has gained increasing attention from scientists. The general traumatic effect of ACEs can be found all over the world. With the serious potential effect, public health scientists are now devoted to mitigating its adverse effects by uncovering its relationship with various health issues and trying to mitigate its negative effects. This article has discussed how scientists, use Cross-Sectional Study as an analysis approach. The Cross-Sectional Study allows public health scientists to reveal the relationship between ACEs and various health problems. The findings of the research have provided crucial information for public health strategy and promote the mitigation of ACEs' negative effects within communities. This research uses a cross-sectional study to analyze how ACEs affect different populations, allowing for the collection of large-scale population data at a specific time and facilitating the examination of associations between different variables. This method is particularly well-suited for analyzing ACEs. By gathering and analyzing data on ACEs from a diverse population, the correlation between ACEs and health problems across different demographic groups can be uncovered. ACEs will cause significant mental health for people and remain even when they become adults. Thus, it is necessary for public health organizations to mitigate the effects of ACEs.

Keywords: Adverse Childhood Experiences, Cross Sectional Study, Public Health, Statistics analysis, Trauma.

1. Introduction

Adverse Childhood Experiences (ACEs) are the manifestation of family dysfunction, trauma events, ignorance, and either physical or emotional abuse before the age of 18, which may significantly affect childhood development and have lasting effects into adulthood. Based on the research, ACEs are correlated to a wide range of health problems, including physical illness, mental health problems, and chronic illness. This definition was conducted by the Centers for Disease Control (CDC) and Kaiser Permanente in the 1990s and has germinated from public health for only a short time. However, the universality of ACEs has illustrated its wide range of effects on public health, particularly in areas such as public mental health, self-esteem, and stress-related issues, which demand urgent attention. Researching and analyzing ACEs enables prevention of the subsequent impact of ACEs, improving public health and social well-being. Since Cross-Sectional Studies can observe a large group of people and collect gregarious data quickly, it is beneficial to analyze how ACEs can impact people's health in public.

This research is devoted to analyzing how the Cross-Sectional study, an observational study, are practically significant in public health research. The research introduces the cross-sectional study to discuss its general application to ACEs and examine its role in mitigating secondary traumatic stress and identifying potential causes of ACEs. The discussion of the practical use of Cross-Sectional Study in each part of ACEs provides a comprehensive understanding of their broad applicability, which may underscore their potential value in conducting primary analyses in the field of public health.

2. Introduction to Cross-Sectional Study

At present, the statistical approach is significantly connected to the research of public health. Because it is a brief statement of the purpose and overall goal of a research study, which can guide the development of a research plan, and clarify the research problem during analysis. The statistical approach can also help public health scientists to calculate the incidence rate, mortality rate, and risk factors beneath the health problem[1]. Public health is devoted to improving the health condition of the whole community instead of curing an individual's disease. And statistical approach can be applied to collecting, tidying, and analyzing health data, which helps public health scientists to calculate the incidence rate, and mortality, and discover the risk factors hidden beneath the disease. With the proper public health prevention, the negative effects of diseases can be significantly reduced, thereby improving overall community health. Cross-sectional studies and observational studies can be ideally applied in this ACEs research. Cross-sectional studies are usually used at the beginning of the research. Instead of tracing data for a long time, they collect data for a specific time, which can be highly efficient and convenient when the researcher wants to analyze the correlation between multiple variables and discover their association. Especially in ACEs, its unique advantages allow researchers to collect large amounts of data for analysis simultaneously. Despite the Cross-sectional studies do not establish the causation between variables, and only reflect the situation at a specific time, their ubiquity still makes them the best choice for analyzing ACEs at the early stage.

3. The application of Cross-sectional study in ACEs

A large amount of research has illustrated that people who have experienced ACEs will be more likely to have various mental health issues when they grow up. Shattnawi has demonstrated how the prevalence of ACEs will affect the self-esteem among those school-age children in Jorda[2]. Focusing on students in grades 7–11 in public schools in Irbid, Shattnawi employed a stratified random sampling method to select 559 students for the study[2]. Participants who consented to the study have filled in an Adverse Childhood Experiences International Questionnaire (ACE-IQ) and the Rosenberg Self-Esteem Scale. The ACE-IQ has covered the potential violence and pressure children might encounter, including abuse, neglect, and violence by parents or caregivers, peer violence, witnessing of community violence, and exposure to collective violence[2]. The Rosenberg's Self-Esteem Scale has presented a positive correlation between the score and students' self-esteem level.

After collecting data, Shattnawi utilized statistical analysis to conduct further study, as a result, he concluded that ACEs were prevalent among Jordanian students, 59.6% of participants had experienced ACEs before. The study found that male students were more likely to experience physical abuse and neglect, while female students were more frequently exposed to household violence. Students who had experienced ACEs generally had lower self-esteem levels compared to those who had not[2]. The cross-sectional study was crucial in this research, allowing Shattnawi to collect extensive data from the target population using questionnaires, providing a solid foundation for further analysis of school-age students in northern Jordan. This finding evokes local public health organizations to develop viable prevention strategies to protect children from ACEs and emphasizes the necessity of conducting further study on this topic.

More than mental health suffrage, Wanxin's research also reveals that Adverse Childhood Experiences can also influence physical health, like the incidence rate of cardiovascular disease[3]. By using the cross-sectional study, Wanxin has designed a format that defined three domains of ACEs, which measured the household dysfunction domain, neglect and abuse domains, and additional ACE domain. These indicators were used to survey 28 Chinese provincial residents aged 45 and older. Each indicator's score was dichotomized and summed[3]. The result illustrates that there is a dose-response manner relationship between ACEs and the risk of cardiovascular disease.

4. The Application of Cross-sectional Study in Designing Prevention for Secondary Traumatic Stress

More than affecting children's self-esteem, ACEs seem to result in a wide range of trauma on mental health and engender negative impacts on their lives. However, a study by Joshua has proposed that promoting well-being, resilience, and the ability to engage in self-care may help students overcome the effects of ACEs or traumatic stress[4]. The study developed a series of questionnaires to discover the correlation between ACEs and multiple variables related to self-recovery. Joshua focused on MSW students between May 2018 and December 2019 from two public Midwestern universities in the United States. By stratified students into two strata: students who attend the normal MSW programs and students who attend the MSW programs with specialized trauma courses. The trauma courses are intended to educate students on useful ways to treat trauma individually. Students were invited to complete a pretest before the course and a posttest at the end of the course anonymously. The questionnaires applied in this research have measured the potential trauma, stress, personal well-being index, and the perception of self-care. Joshua analyzed the data gathered through the cross-sectional study using Pearson correlations, one-way ANOVA with Tukey's post-hoc test, and multiple linear regression models[4]. The study revealed that MSW students have a noticeably high prevalence of ACEs and a fairly high level of Personal Well-being. Through bivariate analysis, Joshua came to the conclusion that the ACEs were negatively connected to personal well-being but positively connected to secondary traumatic stress. This cross-sectional study underscores the importance of developing effective strategies to help students mitigate the impact of ACEs and calls on departments to promote education reform.

5. The Cross-sectional study on parental aspect

The Cross-sectional study can also be considered as a tool used to investigate how parents' actions could affect children's behavior. In this study, Siri explored whether parental alcohol problems are associated with children's ACEs and how these might lead to adverse outcomes in children's adulthood[5]. In this study, 28,047 responders' data was collected and adopted with a cross-sectional study to discover the correlation between alcohol abuse from parents and ACEs[5]. By randomly selecting participants to finish the Children of Alcoholics Screening Test, asking to answer questions related to difficult childhood experiences, and the Alcohol Use Disorders Identification Test(AUDIT) from the World Health Organization(WHO), Siri has utilized the chi-square tests and multivariable logistic models to examine the possible association between parental alcohol problems and the ACEs outcome[5]. As a result of the study, Siri concludes that people exposed to parental alcohol problems are more likely to struggle with abuse, neglect, violence, and growing up in a dysfunctional family compared to those who are not exposed to such problems. Thus, the Cross-sectional study also provides the capability to trace back to the prior level of ACEs and find a correlation of what parental characteristics may correlate to the ACEs in their descendant.

Beyond alcohol abuse, which may be considered a parental ACEs factor, Zhaowen has dived into the influence of adverse parenting on ACEs by observing the magnetic resonance imaging on their

brain[6]. By applying the cross-sectional study, the researcher has collected 125 patients and divided them into AP and OP groups. Each group was administered 4 self-rating scales to evaluate the depressive severity, the symptoms of depression, and parental style. After that, a magnetic resonance imagining will be analyzed together with the rating scales. The Cross-Sectional study allows researchers to compare the differences between each scale, enabling them to examine the correlations within the data using statistical approaches.

6. Discussion

By discussing the various aspects of the application of Cross-sectional study in ACEs, we can discover the complex correlations between variables and ACEs in outstanding advantages. Cross-sectional studies reveal that ACEs not only affect childhood development but also have a persistent and profound impact on both physical and mental health in adulthood. Additionally, ACEs have a broader and more widespread impact than initially understood, affecting populations globally. The ability of cross-sectional studies to collect large amounts of data in a specific time and analyze correlations between multiple variables makes this method particularly suited for early-stage ACEs research. Insights gained from such studies can help assess the effectiveness of interventions and guide public health organizations in developing strategies to mitigate the negative impacts of ACEs. Besides, cross-sectional studies enable researchers to observe how parental characteristics may affect the ACEs for childhood.

7. Conclusion

The extensive application of cross-sectional studies in ACEs research demonstrates its substantial potential in public health. In summary, the cross-sectional study can be widely applied in each part of ACEs analysis. They provide valuable contributions to understanding possible preventive measures for trauma caused by ACEs and identifying potential origins of ACEs. Its unique advantages allow researchers to obtain large amounts of population data for a specific time. However, the current research is limited by its selection of specific examples and may benefit from additional references to enhance its persuasiveness. Expanding the scope of research and including more diverse references could strengthen the conclusions drawn about the effectiveness of cross-sectional studies in analyzing ACEs.

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