THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND THE LEADING CAUSES OF DEATH IN ADULTS- THE ADVERSE CHILDHOOD EXPERIENCES STUDY ON CHRISTIAN ADULTS

By

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ABSTRACT

Prior research has examined the varying frequencies, risk factors, and impact of Adverse Childhood Experiences (ACEs) on various populations. There is little to no empirical research, however, on the frequencies, risk factors, and impact of Adverse Childhood Experiences (ACEs) in Christians specifically. As a result, it is uncertain if psychological practices, policies, or existing psychoeducation is applicable to Christians impacted by ACEs. Through a quantitative survey method design, this study examined the relationship between ACEs, health risk factors, disease conditions, and physical health, as studied in the original ACE study, in a sample of Christian adults. Specifically, a sample of 148 adults from a private Christian University electronically completed an anonymous survey, which included demographic, ACE, health risk factors, disease conditions, and a physical health question. Using a two tailed analysis, descriptive and correlational statistics were analyzed using SPSS. Ninety percent of the sample of Christian adults has at least one ACE, 50% reported four or more ACEs, and 64.2% reported three or more ACEs. Participants of this study reported a mean of 4.05 and mode of 3 ACEs (SD= 2.826). There was a statistically significant relationship between ACEs and health risk factors, as well as between ACEs and physical health for this sample, however, there was not a statistically significant relationship between ACEs and disease conditions in the same sample. Studying Christians' exposure to ACEs and the impact of this exposure on Christian individual's health is critical to the field of psychology by showing how a faith-based population demonstrates common outcomes of ACEs. This has implications for future research, public health policy, community and parenting education, and clinical practice that may directly benefit Christians.

Keywords: adverse childhood experiences, Christianity, health risk factors, disease conditions, physical health.

Copyright Page

Dedication

With all my love, I dedicate this dissertation to my sons, Isaiah, Jaiden, and Camden. Follow your dreams… I will support you every step of the way. I love you, stinky face, and am so proud of each of you!

Acknowledgments

Mom- You have called me Dr. Channy for as long as I can remember. Throughout my childhood, you always pushed me to reach higher, and you did it with so much love and grace. Every time I thought about giving up, I would hear the messages you instilled in me, and I pressed on.

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"I have learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel." - Maya Angelou

Table of Contents

List of Tables

List of Figures

CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

The proposed study intends to examine the relationship between ACEs, health risk factors, disease conditions, and physical health from both biblical and secular perspectives through quantitative survey methods on a sample of Christian adults. Guided by scripture, the study examines biblical guidance on parenting, adversity, and resilience. From an academic perspective, the study also considers the philosophical underpinnings of social learning theory.

Background

Adverse Experiences

In the mid to late 1990's, the Center for Disease Control and Kaiser Permanente studied the long-term impact of abuse and household dysfunction during childhood, which would be known as ACEs. ACEs are experiences of child abuse, trauma, and/or dysfunction prior to the age of 18 (Felitti et al., 1998). Through the ACE questionnaire, seven categories of ACEs were studied: psychological, physical, or sexual abuse, violence against mother, and living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned. There are a range of ACEs considered across literature. The original ACE study examined the seven previously mentioned categories. Future studies extended this list to include peer victimization (Afifi et al., 2020), parental illness, sibling death, household domestic violence, poverty, parental divorce, serious childhood illness, physical and emotional bullying, and exposure to community violence (Finkelhor, 2020). These many adverse developmental experiences overwhelm normal coping resources for children, in return, negatively impact the victims' lives well into adulthood (Finkelhor, 2020).

The prevalence of ACEs varies across literature, depending on the population. According to Giano et al. (2020), 57.8% of the US population experiences at least one ACE, but 21.5% experience three or more ACEs. A Canadian study reports 75.1% exposure to ACEs (Afifi et al., 2020), and 66.2% of Chinese participants report at least one ACE and 5.93% reported four or more ACEs (Chang et al., 2019). US data from March 2008 to September 2009 showed that varieties of ACEs exist based on age. Infants referred to child welfare services have an average of 2.96 ACEs, preschool and school age children average 3.5 ACEs, and adolescents' average 4.15 (Brown et al., 2019). As clearly noted here ACEs are common worldwide.

Problem Statement

Experiences of child abuse, trauma, and /or dysfunction prior to the age of 18 are common amongst most individuals (58-75% of population, depending on country) (Felitti et al., 1998; Giano et al., 2020; Afifi et al., 2020; Chang et al., 2019). Research tells us that during childhood, ACEs are correlated to ADHD (Lugo-Candelas et al., 2021) and poor childhood health (Bellis et al, 2018). Children with four or more ACEs have higher odds of nonengagement in school, school absenteeism, and a higher likelihood of repeating a grade when compared to children with less than four ACEs (Crouch et al., 2019). ACEs are also correlated to juvenile detention rates, behavioral problems, childhood mental health disorders, suicidality, physical health problems, and multiple other risk factors (Breedlove et al., 2020). The risks associated with ACEs last long into adulthood. Children grow up to experience health risks such as alcoholism, drug abuse, depression, suicide attempts, smoking, higher sexual intercourse partners, sexually transmitted diseases, severe obesity, heart disease, cancer, chronic lunch disease, liver disease, and mental illnesses (Felitti et al., 1998; Chapman et al., 2004; Schilling et al., 2007; Cavanaugh et al., 2015). Children have better outcomes when they have community resilience assets, especially for those with higher ACE exposure (Bellis et al, 2018).

There is empirical evidence to support that factors such a race (Giano et al., 2020; Schilling et al., 2007; Maguire-Jack et al., 2020), socioeconomic status and health behaviors (Monnat & Chandler, 2015) correlate to the rates of ACEs in children as do parents own experiences with ACEs (Jackson et al., 1999). Since literature examines the health effects, predictors, and resiliency efforts for ACEs, it is important to understand Christians' exposure (prevalence) to ACEs and the relationship between their ACEs, health risk factors, disease conditions, and physical health, which was studied in the original ACE study. The original ACE study resulted in hundreds of subsequent studies, educational and practice funding, and resources tailored to the targeted demographics. The findings of this proposed study will determine if and how Christians are affected by ACEs. The findings will provide a rational for the development and implementation of community resources, future research, practice initiatives, and research focused on Christians.

Purpose of the Study

The purpose of this quantitative survey design study is to examine the relationship between ACEs, health risk factors, disease conditions, and physical health, as studied in the original ACE study, on a sample of at least 134 Christian adults.

Research Question(s) and Hypotheses

RQ 1: What is the relationship between ACEs and health risk factors in a sample of Christian adults?

RQ 2: What is the relationship between ACEs and disease conditions in a sample of Christian adults?

RQ3: What is the relationship between ACEs and physical health in a sample of Christian adults?

Hypothesis 1: There will be a statistically significant relationship between ACEs and health risk factors in a sample of Christian adults.

Hypothesis 2: There will be a statistically significant relationship between ACEs and disease conditions in a sample of Christian adults.

Hypothesis 3: There will be a statistically significant relationship between ACEs and physical health in a sample of Christian adults.

Assumptions and Limitations of the Study

There are a range of limitations and challenges to consider for the proposed quantitative survey design study. These limitations and challenges are evident within the methods and sampling procedures. While the ACE measure is considered reliable, the results, regardless of outcome, will only suggest a potential correlation between factors and not provide evidence of a cause-and-effect relationship. Further, like with any other survey design, responses are subjective. The researcher and audience must trust the accuracy of the self-reports of participants. Likert scale responses may also be interpreted differently participant-to-participant. The difference between options not only varies participant-to-participant, but also may vary based on individual's mood and motivation to complete the survey at that given time. Given the sensitivity of the topic, participants may not feel comfortable providing accurate information, especially related to childhood trauma, abuse, and neglect. Similarly, the study examines events that occurred during childhood, prior to the age of 18, yet the participants will all be adults in which these recalled, or perhaps, even forgotten events, occurred several years to decades prior. Respondent bias is a great concern given the topics. Given that the sample identifies as Christian and attend a Christian university, acquiescence bias may occur due to the perceived "appropriate" or expected response. ACEs may also yield socially desirable bias in which participants report low levels of ACE exposure given the socially unacceptable stigma.

Other limitations and challenges will exist based on the sampling and recruitment methods. The proposed study will utilize convenience sampling techniques. While this technique is inexpensive and efficient, convenience sampling is a non-probability technique that lacks generalizability. In other words, the results of the proposed study cannot be extended to the full

population of Christians, or even the population of students at the sampled University. The recruitment methods also yield bias. One may assume that the topic and study title may influence participation and limit others. For instance, those who knowingly have experienced ACEs may not choose to participate to prevent disclosure or out of fear of the consequences of disclosure. The last challenge may be with data collection and analysis. There may be potential researcher and participant errors. The participant may deliberately or unintendedly omit responses while completing the survey and the researcher may unintendedly cause a mistake when transferring, uploading, or analyzing the data. To prevent these errors, only fully completed surveys will be analyzed and the researcher will ensure the accuracy of data prior to and during analysis.

Theoretical Foundations of the Study

Social Learning

In addition to being guided by biblical principles, this study considers learning theory. In the early to mid-20th century, social scientists gravitated to conditioning theories to explain the learning process. Russian physiologist Ivan Pavlov developed classical conditioning theory, also known as respondent conditioning, explaining that behavior is learned through association of stimuli (Payne & Salotti, 2007; Payne, 2014). American psychologists John B. Watson and B.F. Skinner, on the other hand, developed operant conditioning theory, also known as instrumental conditioning, which states that behavior is the direct result of reinforcement (Payne & Salotti, 2007; Payne, 2014). Later in the 20th century, American Psychologist Albert Bandura suggested that these operant and classical conditioning theories held true but were incomplete. Bandura subsequently developed social learning theory, suggesting that previous relationships exist but learning also occurs by observing others- learning is a cognitive process that takes place in a social context (Bandura & Walters, 1977). Observational learning differs from other learning processes, specifically with locus of response

integration, cognitive functioning, and reinforcement influences (Bandura & Walters, 1977). Social learning theory would suggest that Christianity, everything from scripture to religious rituals, influences our parenting and resilience. Just as the young child in the Bandura experiment observed an adult punch a Bobo doll and imitated the aggressive behavior, one would believe that Christianity provides an influence on behavior.

Philosophical Underpinnings & Essential Components

According to social learning theory, new patterns of behavior can be acquired through direct experience or by observing the behavior of others and observing the rewards and consequences (or lack of both) of behavior (Bandura & Walters, 1977). Although commonly associated with introductory level psychology, this theory is quite complex. In addition to its philosophical underpinnings, social learning theory has essential components that describe the steps for modeling, the influences on the learning process, and even the different forms of models. The steps, in order, for modeling are attention, retention, reproduction, and motivation. Attention suggests learning something requires one to be cognitively aware. This critical component sets the foundation for the learning process. It suggests in order for one to learn the new behavior, one must have an interest in it or regard it as important. Retention is the act of remembering the behavior that you have been paying attention to, another cognitive process. One would then reproduce this behavior. Lastly, motivation is the process of determining just how necessary this learned information is. Motivation is based on both self-guided (past and promised) and external (vicarious) reinforcement and punishment. There are also two concepts that Bandura uses to describe the influences on the learning process- reciprocal interaction and reciprocal causation (Bandura, 1989; 2006). Reciprocal interaction suggests that the person and the environment affect each other. Bandura then goes a step further with reciprocal causation, adding the influences of behavior, environment, and the person on the learning process.

Lastly, social learning theory suggests that learning occurs in three different models or model stimuli: live (an actual person or living creature), verbal instructional (emphasis put on dialogue or instructions given), and symbolic (media or related means) (Cherry, 2011).

Bandura expanded social learning theory to emphasize self-regulation. Self-regulation is the act of controlling our behavior. We do this by self-observation (keeping tabs on our behavior), judgement (competing with ourselves and others), and self-response (giving ourselves punishments and rewards) (Bandura, 1991). This added component shifts social learning theory to its modern form, social cognitive theory. Subsequently, other theorists such as Richard H. Walters, Ronald Akers and John Krumboltz have contributed to this theory, altering its philosophical underpinnings and essential components to describe specific areas of study.

Outcome Studies

The social learning theory was developed after Albert Bandura's 1961 and 1965 *Bobo Doll* experiments. In Bandura and Huston's (1961) study, *Identification as a Process of Incidental Learning*, the researchers studied the aggressive responses of 48 children enrolled in the Stanford University Nursery School. The participants' mean age was 53 months (4 years and 5 months). Other demographic features, such as race, were not included in the research article. Footage from the experiment shows that all the study's participants were of European descent. The children were placed into three groups, aggressive role model, non-aggressive role model, and control group with no model. The children assigned to the aggressive role model group (n=20) witnessed the adult role model display aggressive behavior toward the Bobo Doll. The children assigned to the non-aggressive adult role model group (n=20) did not witness the model display any aggressive behavior toward the doll, and the children assigned to the control group (n=8) did not have an adult role model to observe. The results indicate that the children that observed the adult role model display aggression

toward the doll imitated aggression more than the children assigned to the non-aggressive and control groups. The experiment also revealed sex differences in aggressive attitudes and behaviors. The male children displayed more aggression than the female children. In addition, the children that observed a male in the aggressive adult role model group displayed more aggression than those that observed a female in the aggressive adult role model group.

Recognizing the limitations to the previous study, along with an interest in learning the effects of reinforcement and punishment on behavior, Bandura repeated the previous experiment with alterations. Whereas the initial study simply examined aggression, this study looked for exact modeling or matching responses. In Bandura's (1965) study, *Influence of Models' Reinforcement Contingencies on the Acquisition of Imitative Responses*, Bandura (1965) used a similar sample to study the imitative aggressive responses of 66 (33 boys and 33 girls) children enrolled at Stanford University Nursery School. The participants had a mean age of 51 months (4 years and 3 months). Bandura (1965) hypothesized that reinforcements administered to a model influence the performance but not the acquisition of matching responses. Bandura (1965) believed that an individual's responses and behaviors are developed during childhood as a result of maturation and prior social learning, which draws an interesting connection between social learning during childhood and its impact on adult behaviors alongside experiences of ACEs and the negative impact well into adulthood.

The children were placed into three groups (reward, consequences, and control). All three groups watched, via monitor, an adult display aggressive behavior toward the *Bobo Doll*. Specifically, the adult model displayed four novel aggressive responses each accompanied by a distinctive verbalization. In the reward group, the children witnessed the adult be rewarded for their behavior. In the punishment group, the children witnessed the adult be punished for their behavior. The children assigned to the control group did not witness the adult being punished or rewarded for

their behavior. The results show that both female and male children performed the novel aggressive responses when placed in either the reward or control groups, as compared to the children placed in the punishment groups. In addition, boys performed more of the novel aggressive responses than girls.

There are not many recent empirical articles that accurately capture Social Learning Theory and ACEs or Social Learning Theory and Christianity. For instance Mumo et al. (2023) examined the effectiveness of written materials in the church to counter deviant childhood behaviors such as fighting, stealing, or drug abuse. While the authors referenced social learning theory, they were actually connecting their hypothesis to the underpinnings of classical conditioning theory.

The student researcher initially searched research articles within the last five years on Google Scholar. When expanding the search back to 2015, a study on juvenile delinquency was found. Fox and colleagues (2015) used social learning theory as their framework for understanding ACEs and violent offenses for juveniles. These researchers believed that an individual's association with anti-social peers influences their anti-social behavior. One argument was that this behavior is typically a response to peer influence or peer pressure. Their study found that as a child's ACE score increases, so does their risk for becoming a serious violent offender prior to the age of 35. Therefore, their argument is that ACEs alone are not the direct influence of juvenile delinquency, rather delinquency is a learned behavior that serves as a confounding variable alongside ACEs.

Robinson and Suarez (2015) conducted a qualitative dissertation study to examine students' beliefs about the effects of children witnessing domestic violence. In the study, social learning theory provided a framework to explain how children witness domestic violence and possibility learn the negative behaviors (aggression, defiance, manipulation, acting out). Many of the respondent's statements suggested that children observe vicarious reinforcement in domestic violence situations

and in return model the aggressive behavior observed by their loved ones. This inevitably supports Walker's (1977) cycle of violence theory. Cycle was a common theme in this study. Although this information cannot be generalized because of the threats to external validity, it does provide implications for clinical psychologists and educators working with children affected by domestic violence.

Sung Youl et al. (2014) used a survey to test the relationship between learning outcomes and Social Networking Services (SNS; i.e., Facebook). Demographics were not provided beyond the initial population of 478, 638 students from 64 universities in Gyeonggi-Do province and Korea. The sample was condensed to 900 participants with an 88% return rate on the study's surveys. The researcher's hypotheses are based on social learning theory's symbolic model stimuli, suggesting that symbolic modeling occurs through the internet, especially from the social context of SNSs. Amongst additional results, this research showed that the use of SNS was significantly related to social acceptance and attitudes toward university life. It also showed a direct relationship between SNS use and learning outcomes. The results suggest that student learning may be enhanced by SNS use. This study supports social learning theory as it shows that behavior is a function of personality, cognition and the environment.

Hollis-Sawyer and Cuevas (2013) studied 106 children's picture books to analyze the existence of ageist and sexist attitudes toward older female characters. The researchers found that older adults were portrayed more in children's books between the 1980's to 1990's. Twenty-nine of the books stereotypically portrayed age and gender. Researchers also recognized stereotypical social roles of the elderly female characters such as caregiving roles. Characters were physically portrayed as having stereotypical physical features such as gray hair or no hair, glasses, wrinkles, dentures, fragile posture, lack of mobility, etc. Hollis-Sawyer and Cuevas (2013) used social learning theory to

describe the possible effects of these ageist and sexist stereotypes. These books act as symbolic model stimuli that teach children readers to hold these stereotypical beliefs about elderly women. With a growing number of baby boomers, these researchers raise implications to address these stereotypes.

Christian Perspective of Social Learning Theory

Social learning theory recognizes the influence of the people and things around us. There are varying findings about the impact of Christianity on behavior. Bremner and colleagues (2011) found that prayer, a very important Christian behavior, reduces anger, reduces the effects of provocation on aggressive behaviors, and reverses the effects of anger on cognitive appraisals. On the other hand, Jones and colleagues (2020) studied religious aggression, the idea that people become aggressive in the name of God and found that some Christians were in support of this philosophy to defend or enhance their religious beliefs.

1 Corinthians 15:33 warns “Do not be deceived: “Bad company ruins good morals” (English Standard Version Bible, 2001). We are personally and vicariously influenced by attitude objects. Knowing this, the Bible says, “Do not be conformed to this world, but be transformed by the renewing of your mind” (Romans 12:2). The people that we are around, whether close family or friends, the television shows and social media posts we watch all shape our perspective and influence our decisions. Part of changing our attitudes requires a relationship with Christ, “Have this attitude in yourselves which was also in Christ Jesus” (Philippians 2:5). The relationship holds us accountable and intervenes on our behalf to influence cognitive, affective, and behavioral influence of negative attitudes, “Let us therefore, as many as are perfect, have this attitude; and if in anything you have a different attitude, God will reveal that also to you” (Philippians 3:15).

Definition of Terms

The following is a list of definitions of terms that are used in this study.

Adverse Childhood Experiences: Experiences of child abuse, trauma, and/or dysfunction prior to the age of 18 (Felitti et al., 1998)

Christianity: a monotheistic religion that believes in the life, teaching, and resurrection of Christ.

Health Risk Factors: 10 risk factors that contribute to the leading causes of death in the United States (Felitti et al., 1998, p. 248)

Disease Conditions: Seven factors among the leading causes of mortality in the United States Felitti et al., 1998, p. 248)

Physical Health: Subjective personal belief of one's overall health status. Poor physical health is a strong predictor of mortality.

Significance of the Study

The limitations and challenges are vast, but the benefits outweigh these concerns. There is an evident gap in ACE literature. Literature fails to examine the Christian population. Studying Christians' exposure to ACEs and the impact of this exposure on Christian health is critical to the field of psychology from both a secular and faith-based perspective. This study has implications for future research, practice, and psychoeducation. Future research should determine a cause-and-effect relationship beyond the correlational findings of this proposed study. The information found in this study should be considered by psychologists working with Christians and inform their practice. Finally, the findings may result in Christian based resources for victims of ACEs and the prevention of ACEs.

Summary

Chapter one explores the background of the proposed study. Since the original ACE study, researchers have examined the immediate and long-term effects on the victims' mental and physical

health as well as their social and economic outcomes. While Christian biblical scripture details guidance for raising children and avoidance of adverse experiences, there are gaps and inconsistencies with empirical research. The most important gap is the lack of knowledge on the Christian individuals' exposure to ACEs and the impact. This gap will be closed with the proposed quantitative survey design study which explores the relationship between ACEs, health risk factors, disease conditions, and physical health of Christian adults through biblical and social learning theory perspectives. There are noted limitations such as the subjectivity of survey design studies, potential concerns with the accuracy of self-reports and bias. Sampling and recruitment limitations may limit generalizability and researcher and participant errors must be prevented. The benefits of the proposed study far exceed these assumptions and limitations. The proposed study has implications for future research, public health policy, community and parenting education, and clinical practice. The next session, chapter two, thoroughly examines literature on ACEs. The second chapter details the original ACE study and then transitions into subsequent literature that further explains the varying frequencies of ACEs and the impact social and health impact of ACEs. The next chapter ends with a discussion on the biblical foundation of the proposed study.

CHAPTER 2: LITERATURE REVIEW

Overview

The forthcoming section examines the original ACE study in detail. It is then followed by recent literature that was influenced by this landmark study- studies that intended to detail the varying prevalence of ACEs and its impact on various samples of participants. This section concludes with the biblical foundations of the study, highlighting parallel scriptures to the ACE questionnaire, scriptures for guidance on parenting and scriptures on resilience following adversity.

Description of Search Strategy

The literature search was conducted primarily on Google Scholar. This website allows individuals to search keywords and set specific filters such as year of publication, relevance, and type of publication. Under each result, individuals may save the publication and cite the publication. Most importantly, the website may be linked with the individual's university, which broadens access to otherwise restricted publications. During the current search of literature, keywords such as adverse childhood experiences, childhood trauma, Christian child, adversity, and other synonyms were researched. The most effective search is by selecting the hyperlink beneath the original ACE study, which shows that the publication was cited by 17613 other publications, at the time of the search. The titles, types of publications, and year published determined whether the article was delved into. For the sake of this literature review, parameters were set for literature within five years of the current date. Some articles, such as the original ACE study were included although beyond that span due to its significance, as were studies with significant findings that may not have been explored in more recent years or are still referenced in current literature.

Review of Literature

In the mid to late 1990's, the Center for Disease Control and Kaiser Permanente studied the long-term impact of abuse and household dysfunction during childhood, which would be known as Adverse Childhood Experiences (ACEs). ACEs are experiences of child abuse, trauma, and/or dysfunction prior to the age of 18 (Felitti et al., 1998). This study was based in the Kaiser Permanente San Diego Health Appraisal clinic. Through the ACE questionnaire, seven categories of ACEs were studied: psychological, physical, or sexual abuse, violence against mother, living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned. The ACE questionnaire was developed based on other published surveys. The Conflicts Tactics Scale (Straus et al., 1990) was used to define childhood psychological and physical abuse as well as violence against respondents' mothers. The Wyatt (Wyatt, 1985) was used to define childhood sexual abuse. The National Health Interview Survey (Schoenborn, 1991) defined participants' childhood exposure to alcohol and drug abuse. The ACE questionnaire begins with "While you were growing up during your first 18 years of life . . ." The ACE questionnaire has acceptable reliability and validity, including test–retest reliability (kappa coefficient = 0.61-0.80) and construct validity.

While this study served as a pilot for the ACE questionnaire, its alternative purpose was to understand how ACES impact health outcomes such as disease risk factors and incidence, quality of life, health care utilization, and mortality. These questions were adapted from other health-related questionnaires (Behavioral Risk Factor Surveys, Health and Nutrition Examination Survey, Diagnostic Interview Schedule of the National Institute of Mental Health, and a standardized questionnaire used in the Health Appraisal Clinic). Respondents (n=9,508) were 53.7% women; had an average of 14 years of education; mean age of 56.1 years; and were 83.9% White. Religion was not identified by the research participants. During a clinic visit, respondents had their standardized

medical history completed. Following the visit, respondents were mailed the ACE questionnaire. The response rate was 70.5%, resulting in the sample size of 9,508 (out of 13,494).

A little over 6% of the participants reported that they were raped and/or sexually molested as a child. There was a statistically significant relationship between the number of categories of ACEs and each of the adult health risk behaviors. Participants who experienced four or more ACEs (compared to those who had none) had a four-to-twelve-time health risk for alcoholism, drug abuse, depression, suicide attempt, a two-to-four-time risk of smoking, poor self-rated health, greater than or equal to 50 sexual intercourse partners, sexually transmitted diseases, and a 1.4-to-1.6-time risk of physical inactivity and severe obesity. There is also a graded relationship to ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease.

Frequencies of ACEs

Numerous follow-up studies were conducted because of the Felitti et al. (1998) findings. Subsequent studies examined a deeper understanding of frequencies of ACEs. Brown and colleagues (2019) sought to identify subgroups of children who had experienced multiple forms of maltreatment and associated adversities among four developmental stages. This was a secondary data analysis including 5,870 participants ages birth to 18 years who have had contact with the child welfare system. Information was pulled from the National Survey of Child and Adolescent Wellbeing II (NSCAW II), a national, longitudinal, multi-informant study. The researchers examined ACEs based on dichotomous self-reports and/or caregiver reports of adverse experiences. They also used the Conflict Tactics Scale-2 and Composite International Diagnostic Interview Short-form (CIDI) - for caregivers giving reports. The study found infants average 2.95 (SD = 1.49) ACEs with the most common ACEs being caregiver divorce or separation, which was experienced by over 60% of the sample (.63), followed by caregiver substance abuse (.57), caregiver treated violently (.47), and

physical neglect (.46). Preschool children average 3.50 (SD = 1.59) ACEs with the most common being emotional abuse (.65), followed by caregiver divorce or separation (.54), physical neglect (.53), and caregiver treated violently (.50). School aged children average 3.50 (SD = 1.61) ACEs with the most common being emotional abuse (.70), caregiver divorce or separation (.59), physical neglect (.53), and caregiver treated violently (.41). Lastly, adolescents average 4.15 (SD = 1.73) ACEs with the most common categories being emotional abuse (.87), caregiver divorce or separation (.65), physical neglect (.56), and physical abuse (.51). These numbers suggest exponential growth of ACEs throughout childhood. Given what is known about social learning theory, the types of ACEs based on age is very interesting- the primary ACE for infants, at an age with limited social interaction, is a vicarious experience between the child's parents whereas the experiences become more direct with emotional abuse increasing as the child ages. Although not the intended purpose of this study, a better understating of the social influences of ACEs is needed. In addition, this study did not consider Christian children's exposure to ACEs.

Maquire-Jack et al. (2020) noticed a discrepancy in the report of Adverse Childhood Experiences based on race. There were two aims for their study. The first aim of the study was to describe and compare individual and combination ACE exposure by child race. The second aim of the study was to test for configuration similarity of latent class structure across racial/ethnic groups. The researchers conducted a secondary data analysis from data stored from the 2016 National Study of Child Health (NSCH), collected from the U.S. Census Bureau. ACEs were defined based on nine experiences asked in the NSCH. These experiences are similar to the original ACE but add neighborhood violence and negative treatment due to ethnic or Neighborhood violence and negative, unfair treatment due to ethnic race or discrimination. This study's results conflicted with the original ACE study's results. The current study found that White children had lower exposure to Adverse Childhood Experiences than ethnic minority children (Latin and Black). For race/ACE exposure:

Rao-Scott $X^2 = 197.5$, $p < .001$, was statistically significant. Fifty nine percent White, 49% Latin, and 36% Black children reported no ACE exposure. Thirty four percent Black, 22% Latin, and 14% White reported two or more ACE experiences. While this study addressed the gap in literature based on race, the Christianity gap continued.

During the same time, Giano et al. (2020) also sought to provide updated frequency estimates of ACEs. The Center for Disease Control collected ACE data through the Behavioral Risk Factor Surveillance System (BRFSS), which is a yearly national phone survey (cellular and landline). The sample included adults across the US, from all 50 states, the District of Columbia and U.S. territories. Giano and colleagues found that 57.8% of participants experience at least one ACE prior to the age of 18; 21.5% experience 3 or more ACEs; females reported experiencing higher ACEs than males (1.64 to 1.46); multiracial participants reported higher ACEs (2.39); White individuals had significantly lower mean ACE scores (1.53) than Black (1.66) or Hispanic (1.63); participants ages 25-to-34 age group had a significantly higher mean ACE score than any other group (1.98). Generally, those with higher income/educational attainment had lower mean ACE scores. Sexual minority individuals had higher ACEs than straight individuals, with significantly higher ACEs in bisexual individuals (3.01), which was also shared by Schnarrs and colleagues (2019). These updated frequencies did not include frequencies for the Christian population.

Grest et al. (2021) examined ACEs in a diverse population. Given U.S. born youth have poorer health outcomes than immigrants and increased health risks are associated with ACEs, Grest et al. (2021) examined first, second, and third generation LatinX youth (n=1303; mean age=21.6 years; Hispanic/LatinX; most participants have a Mexican-born parent, grandparent, or great grandparent; the remainder were from Central America). They examined if there are variations in ACEs across immigrant generation among U.S. LatinX youth, if there are differences in ACEs individually versus by domains (maltreatment versus household dysfunction). These research

questions were studied through Project RED, a longitudinal study of Southern California LatinX adolescents from 2005-2006. The study included the original ACE questionnaire (Felitti et al., 1998) with one additional question, whether the respondent had sexual intercourse with any person equal to or less than five years older than the respondent during childhood (per California state law). Results showed that first and second-generation youth were less likely to report household dysfunction than third generation youth. First generation youth had lower odds of reporting living with someone who used alcohol or drugs. First generation youth had twice the odds of reporting sexual abuse compared to third generation. While it is possible that some of the participants identified a Christian, Christianity was not accounted for, therefore these results cannot be generalized to the Christian population.

Bharat et al. (2016) examined whether both sexes suffer from abuse or not and what are their patterns and effects. They used survey methods. The results provided frequencies. Frequency of verbal abuse: 33.57% males and 18.71% females (25.15% overall); Frequency of effects: 36.33% males and 22.66% females (overall effect was 30.66%); Frequency of emotional abuse: 25.42% males and 20.14% females (29.25% overall); Frequency of effects: 29.33% males and 23% females, (28.33% overall); Frequency of physical abuse: 25.71% in males and 14.85% in females (22.8% overall); Frequency of its effects: 39.33% males and 22.66% females (29.33% overall). There was no statistically significant co-relation of effects and types of different abuses with gender, age, socio-economic status and religion ($p<.01$). Although religion was examined, the study was predominately Hindu (85%). This highlighted the first limitation to ACE studies; they fail to capture descriptive statistics for Christians.

Impact of ACEs

Mental Health

Schilling et al. (2007) examined the long-term effects of ACEs. They sought to examine a relationship between exposure to ACEs and mental health outcomes (depressive symptoms, drug abuse, and antisocial behavior). The sample included high school seniors from socio-economically disadvantaged communities from nine public schools. Participants were interviewed in person in 1998 and again via phone over two years. They received a modified 12-item version of the 20-item Center for Epidemiological Studies' Depression (CESD) scale. Researchers also asked the participants to report the number of times in the past 12 months that they had participated in 14 types of aggressive and/or illegal behavior. Participants also completed a self-administered form assessing frequency of (a) illegal drugs used or (b) legal drugs used without a doctor's prescription, in larger amounts than prescribed, or for a longer period than prescribed. Participants were also asked how many times in the past 12 months they had used each drug, from "never" to "more than 10 times," and a summary variable was created indicating the mean frequency of use. The researchers found three mental health outcomes (depressive symptoms, drug abuse, and antisocial behavior) were all strongly associated with ACEs. Boys were more likely to engage in antisocial behaviors, and White individuals experienced a greater impact of ACEs than Blacks and Hispanics, yet data was not collected to determine these findings for Christians.

Chapman et al. (2004) examined the association between the number of abusive experiences (ACE score) and the risk of depressive disorders. Participants (adult health maintenance organization members in a primary care clinic in San Diego, CA) completed a survey addressing a variety of health-related concerns, which included standardized assessments of lifetime and recent depressive disorders, childhood abuse and household dysfunction. Participants who experienced ACEs have an increased risk of developing (and maintaining) depressive disorder decades after the ACE takes place. There is a 23% lifetime prevalence of depressive disorder. Childhood emotional abuse increased risk for lifetime depressive disorders, with adjusted odds ratios (ORs) of 2.7 [95%

confidence interval (CI), 2.3 – 3.2] in women and 2.5 (95% CI, 1.9 – 3.2) in men. These findings may be considered in the results discussion of the proposed study; however, this study could have also captured risks for depression for Christians by asking the participants' religion in the demographic section of the survey.

Haynes and colleagues (2020) examined whether significant difference existed in caregiver ACE exposure by selected child or caregiver characteristics, the prevalence of depression/anxiety among children based on the type of ACE experienced by caregivers, and the roles of caregiver ACE exposure, caregiver depression/anxiety, and other child and caregiver characteristics in their children's experiences of depression/anxiety. Researched analyzed the ACE data from the South Carolina Behavioral Risk Factor Surveillance System and measured the children's depression/anxiety using the Children's Health Assessment Survey (CHAS). Data was pulled from these two measures from 2014 to 2016. The ACEs included those noted in the original ACE questionnaire: household mental illness, household substance use (alcohol and drugs), household incarceration, parental separation/divorce, witnessed violence against parent, victim of household violence, victim of verbal abuse, victim of sexual abuse (touched), and victim of sexual abuse (forced to touch others). Children were categorized as whether they have depression/anxiety, do not have depression/anxiety, or refuse to report. This was assessed through the CHAS questions which asks if they've ever been told by a health care provider that they had the diagnosis.

There was a final sample of 1,515 respondents. The sample was fairly split between male and female children with approximately half the sample being between ages 13 and 17. Most of the sample did not report anxiety or depression and a quarter of the sample's parents had exposure to four or more ACEs. Compared to the caregivers with no reported ACEs, the caregivers who reported having four or more ACEs were more likely to be unmarried, have no college education, report

children with anxiety/depression, or were uncertain/refused to provide information about their children's depression/anxiety. Additionally, caregivers who reported having four or more ACEs self-reported having depression and/or anxiety between the ages of 18 and 29. For children who were determined to have depression/anxiety, the caregivers' exposure to sexual abuse was the highest, followed by alcohol and drug abuse, witnessing violence against a parent, household mental illness, verbal abuse, and sexual abuse where they were forced to have sex with someone. This study did not consider Christianity.

Schneider et al. (2020) set objectives to identify groups/classes of ACEs experienced in childhood, determine the degree these different ACE classes are associated with health and mental health outcomes in adulthood, and determine whether supportive and stressful social relationships moderate this association. The researchers examined data from a previous, non-related cross-sectional study. The sample from the original study included 254 adults seen in 10 primary care clinics in the state of Texas as part of the Residency Research Network of Texas. The participants completed measures during their primary care visit. The 106-item questionnaire measured ACEs, quality of social networks, current health, and sociodemographic information. Unlike other ACE-related studies, which uses the 10-item ACE questionnaire, this study used a 17-item version but measured the same themes of adverse experiences. Quality of social networks was examined through the Duke Social Support and Stress Scale (Parkerson et al., 1991). Adult health was assessed through the RAND Short Form Health Survey-36 (SF-36) (Stewart et al., 1988). Depression was measured using the Patient Health Questionnaire-8 (American Psychiatric Association, 1994). Anxiety was measured during the Beck Anxiety Inventory-Primary Care (Mori et al., 2003). Covariates were also examined.

The confounds for health outcomes and ACEs were pain severity, comorbid health conditions, and sociodemographic characteristics. Pain was measured as a self-report ranging from 0 to 10 with 0

being no pain and 10 being severe pain. Comorbid health conditions were assessed based on respondents' selection of up to 18 boxes for common health concerns reported during primary care visits. Sociodemographic covariates included self-reports of age, gender, race, marital status, education, employment, and monthly income. Through latent class analysis, Schneider and colleagues (2020) assigned the participants to one of four ACE classes: (a) minimal childhood abuse (56%), (b) physical/verbal abuse of both child and mother with household alcohol abuse (13%), (c) verbal and physical abuse of child with household mental illness (12%), and (d) verbal abuse only (19%). All classes had adult mental health outcomes. Respondents who witnessed physical abuse of their mother during childhood had compromised mental health during adulthood. Respondents with supportive social networks as adults were less likely to report current poor health even if exposed to ACEs. On the flip side, as stressful social relationships increased, as did adverse mental health outcomes. This study did not consider Christianity.

Physical Health

The original ACE study started the conversation on the potential impact of ACEs on an individual's health. As discussed in the start of this chapter, individuals who experience four or more ACEs (compared to those who had none) have a four-to-twelve-time health risk for alcoholism, drug abuse, depression, suicide attempt, a two-to-four-time risk of smoking, poor self-rated health, greater than or equal to 50 sexual intercourse partners, sexually transmitted diseases, and a 1.4-to-1.6-time risk of physical inactivity and severe obesity (Felitti et al., 1998). Subsequent studies tested the accuracy of these findings with other samples.

Sonu et al. (2019) also examined ACEs and chronic health through the BRFSS (nine states from years 2011-2012) on a sample of 86, 968 respondents. Surveys completed via phone by the researchers. They asked the ACE questions alongside questions about the respondents' chronic health

conditions such as cancer, depression, prediabetes/diabetes, cardiovascular disease, and pulmonary disease. Respondents were grouped into three age groups- 18-34, 35-54, and 55 or older. The youngest respondents, compared to the other two age groups, had higher reports of 4 or more ACEs (19% of group) with a two-to-four-time risk of chronic disease and poor health compared to their peers who reported no ACEs. Although the proposed study does not have age requirements other than being an adult at least 18 years of age, the researcher of the current proposed study expects the sample to have a similar age range of 18-34 given the fact that participants are being recruited at a university.

Chang et al. (2019) studied the relationship between ACEs and physical and mental health in adults in Macheng, China through a cross-sectional design study. As previously mentioned in chapter one, through the ACE International Questionnaire, 66.2% of the sample reported at least one ACE, and 5.93% reported four or more ACEs (Chang et al., 2019). In addition to frequencies, they examined alcohol abuse, smoking, chronic disease, depression, and posttraumatic stress disorder. Chang and colleagues found that as the number of ACEs increased, as did the risk of alcohol abuse, chronic disease, depression, and posttraumatic stress disorder. Although a different ethnic sample than what was studied in the original ACE study, these findings also supported the negative impact of ACEs on health outcomes. This study did not consider Christianity.

Schroeder and colleagues (2021) conducted a systematic review of literature on the association between ACEs and childhood obesity. Of the 24 studies that met their inclusion criteria, they found a consistent outcome that ACEs are associated with childhood obesity. Obese female children are more likely to have higher ACEs than their male peers, which is expected given that females tend to report higher rates of ACEs than males (Giano et al., 2020). In addition to gender, sexual abuse increases the association with obesity as does co-occurrence of multiple ACEs.

Interestingly, the researchers found that the development of obesity takes time, approximately two to five years from the ACE exposure. As previously noted, Felitti and colleagues (1998) found that severe obesity carried well into adulthood. This study did not consider Christianity.

Baldwin et al. (2021) also examined the relationship between poor health outcomes and ACEs. While the study's primary focus was to test the accuracy of ACE screening for health problems, the dual-longitudinal study found that as ACEs increase, so do physical and mental health problems. These findings were dependent of any other factor such as sex, socioeconomic status, and history of health problems which usually serve as confounds. The study revealed that ACE screening, which is now commonly completed as a result of the original ACE study, may be ineffective in preventing poor health outcomes. But the association between poor health and ACEs is consistently evident in research. While preventing poor health outcomes may be ineffective, implications that target preventing ACEs may be most beneficial. This study did not consider Christianity.

Many of these studies are non-experimental designs that cannot yield a cause-and-effect relationship, but Miller et al. (2011) believed that ACEs impact the stress response system and neurological responses. He and colleagues reported the impact of dysregulation on human's stress-response process and how it leads to inflammation and neurodevelopmental changes, thus impacting chronic health outcomes.

Incarceration, Substance and Alcohol Abuse

Eaves et al. (2020) examined the relationship between ACEs and substance and alcohol use in individuals 30 days prior to their incarceration based on participant self-reports. The researchers used social determinants of health framework, informed by eco-social theory. In 2017-2018, 199 individuals participated in the study (10.4% age 18-24; 40.6% 25-34; 26% 35-44; 17.7% age 45-54; 5.2% age 55 or older; 26% female; 58.3% American Indian or Alaskan Native; 14.6% Hispanic; 24%

White; 3.1% other). Participants were recruited from a County Detention Center using a stratified sampling strategy. Given the difference in this study's sample, compared to national averages based on race, more details on the geographical location and recruitment efforts would have been helpful. Participants completed a cross-sectional health survey and the Behavioral Risk Factor Surveillance System (BRFSS) ACE module (Ford et al., 2014). The BRFSS is a phone survey data collection method by the Center for Disease Control and Prevention.

Participants who reported methamphetamine, heroin, and/or other opiate and cocaine use had higher ACE scores. There was a statistically significant relationship between methamphetamine use and having lived with someone who served time in a jail or prison and having a history of someone having them touch them sexually. Opiate use had a statistically significant association with living with someone who was depressed, mentally ill or suicidal. Opiate use was also associated with living with someone who used illegal drugs (street or prescription), as well as being touched by an adult sexually. Lastly, the participants' binge drinking was associated with living with someone who exhibited those same behaviors. This study did not consider Christianity.

Considering a life course stress process perspective. Fleming and colleagues hypothesized that ACEs contribute to adult mental health disorders and substance use; specifically, they believed these adverse experiences during childhood increased the likelihood of incarceration, low-income status, and negative behavioral outcomes in adulthood, such as substance abuse and poor mental health. Data from 14,001 respondents (18 years or older; reside in household with landline phone; 60% female; 87% White; 1% Black or African American; 5% Hispanic; 3% multiracial; 4% other race) from Washington State's BRFSS survey were assessed. Household and personal adult incarceration were both assessed with separate dichotomized (yes/no) items. ACEs were calculated totaling the "yes" responses to seven ACE questions. Low income considered four dichotomous

items consistent with socioeconomic and living standard indicators: income less than $25,000; currently out of work or unable to work; not seeing a healthcare provider due to costs; and food insecurity. Adult adversity was assessed with a summed index of up to five stressful experiences or risk of poor behavioral health. Supportive resources were assessed with four items. Substance abuse was captured with an index (0-90) of frequency of use of binge drinking, marijuana use, and the recreational use of painkillers. Mental health impairment was assessed based on the number of days a mental condition or emotional problem impacted their daily routines as well as the number of days they felt they had poor mental health. Additional questions were based on the Kessler Psychological Distress Scale (Kessler et al., 2003). The researchers found both direct and indirect paths of ACEs through all mediators, indirect pathways of household incarceration through adult incarceration and low income, to adult mental health impairment and substance use. Most of the respondents (60.7%) had one or less than one ACEs, 23.6% had 2 or three, 15.7% had four or more. ACEs and incarceration (household and adult) were positively associated with mental health impairment and each other. Supportive resources were negatively associated with the other variables. Respondents who had a household member incarcerated had a three-time prevalence of their own incarceration and double the ACEs, compared to the respondents who did not report household incarceration. Those with reported incarceration experiences had significantly lower levels of supportive responses but higher levels of other variables. This study did not consider Christianity.

Donadio and colleagues (2021) sought out to examine the attachment styles of formerly incarcerated Black and Latino men, the association between childhood traumatic experience, attachment style, and relationship status and whether childhood traumatic experiences and attachment style impact their alcohol use. The study included secondary data on formerly incarcerated Black and Latino males (n=248; 61.3% single/never married; <$10,000 annual income; 60.9% served most recent incarceration in state prison). The original study included standardized questionnaires on

cognitive processing, substance use, medical mistrust, attachment, participant knowledge about research ethics, cancer fatalistic beliefs, perceived susceptibility to cancer, and perceived health status. Measures included a demographic questionnaire, the Experiences in Close Relationships-Revised measure for attachment styles, the Alcohol Use Disorder Identification Test, and the Traumatic Experiences Checklist. Descriptive and regression models showed that most respondents scored above average in attachment anxiety and attachment avoidance. Approximately 23% had hazardous drinking behaviors. Although respondents reported minimal trauma, they demonstrated high rates of insecure attachment, predicted based on traumatic childhood experiences. This study did not consider Christianity.

Basto-Pereira et al. (2016) used the ACE questionnaire to explore the role of adverse experiences on young adults' juvenile justice involvement, persistence in crime, and psychosocial problems. Their sample included young adults with a history of juvenile criminal offenses (official record of juvenile criminal offenses; ORJC; n=75) and a control group (n=240). The ORJC group was young adults with sentences in 2010 and or 2011, which were committed by the participant while they were ages 12 to15. The sample came from 28 Portuguese juvenile justice and probation offices where they served their sentences. The control group was recruited from high schools, universities, workplaces, social welfare organizations, and sports organizations. Data was analyzed from different measures: a sociodemographic questionnaire, ACE questionnaire, brief symptom inventory (evaluates psychological distress), EUROHIS-QOL-8 (measure of perceived quality of life), D-CRIM (self-report of delinquency and crime), a review of official criminal records, persistence in crime (classification of non-persistent versus persistent in crime; based on self-report of offenses in the last 12 months), and self-report of illicit drug use. The researchers found that ACEs are related to juvenile justice involvement, persistence in crime, and psychosocial problems. Child sexual abuse was the strongest predictor of juvenile justice involvement and criminal persistence. The adverse experiences

of emotional maltreatment and mental illness in the household predicted psychosocial problems. This study did not consider Christianity.

Sexual Abuse

In a qualitative study, Katz and colleagues (2021) studied the sibling dynamics from intrafamilial child sexual abuse (IFCSA). The researchers reviewed 60 forensic interviews with children aged 10–14 from different families in Israel. The sample included 48 girls, 58 of the 60 interviews involved a father perpetrator, and the households ranged from 2 to 7 children. Researchers pulled from 1,800 interviews conducted in Israel in 2015. These interviews took place while the children were in the abuse home just prior to the intervention. Thematic analysis was used to test (1) How is the sibling subsystem organized and shaped in the context of IFCSA?; (2) How do the siblings perceive their relationships with each other in the context of IFCSA?; and (3) How do children perceive the disclosure of the abuse in the context of the IFCSA and the sibling subsystem? The interviews were conducted by social workers with pediatric forensic interview experience. They followed the National Institute of Child Health and Human Development (NICHD) protocols (Lamb et al., 2018). According to Katz et al. (2021), NICHD includes a three-phase interview process. During the first phase, the interviewer establishes a rapport with the children. During the second phase, the interviewer guides the child to maintain memory of the non-aggressive experiences. During the final stage, the interviewer uses open-ended questions about the abuse, which is followed up with direct questions to expand the child's memory. The researchers found three domains: normal routines, abusive routines, and disclosure process. The two themes were that the perpetrator ruled in terror and the sibling unit became unified, despite the consequences, and the abusive parents joined with abusive sibling, negatively affecting the sibling dynamics. This study did not consider Christianity.

Through semi structured interviews, Halvorsen et al. (2020) explored barriers to disclose sexual abuse from the perspective of adult survivors of child sexual abuse (CSA). Twelve participants, ages 18-57, in Norway participated in the qualitative study. The study was conducted in a study recognized by the researchers as focusing on disclosure of sexual abuse. They found three common themes from their hermeneutic-phenomenological approach: fear of reprisals; CSA stains – Negative implications for self-representation; and the complicated effect of ambiguity. This study did not consider Christianity.

Reminiscent of the Halvorsen et al. (2020) study, Stige et al. (2020) conducted a qualitative study to learn how adult survivors of child sexual abuse came to understand that they were in fact sexually abused. To recruit participation, the researchers placed posters at support centers for survivors of sexual abuse and mental health out-patient clinics. The eleven participants were between the ages of 18 and 58, 8 women and 3 men participated in the study. Semi-structured interviews using a hermeneutic-phenomenological approach to thematic analysis revealed three themes, ambiguity of memory, the language of the body, and encountering an observant other. This study did not consider Christianity.

Parenting

ACE research also examines the parental influence of ACEs. Crouch and colleagues (2019) examined the relationship between parenting stress and their child's exposure to ACEs. They conducted a cross-sectional study from the 2016 National Survey of Children's Health (NSCH), which measured ACES such as parental separation or divorce, parental death, witnessing household violence, witnessing neighborhood violence, household mental illness, household incarceration, household substance abuse, racial/ethnic mistreatment, and economic hardship. Although the topics are similar, the survey differs from the original ACE questionnaire and study. In addition to the ACE

questionnaire, participants (caregivers with at least one child 0-17 years; n=45, 831) were also asked to respond to three survey questions with the responses never, seldom, usually, and always: 1) how often during the past month have you felt it was much harder to care for your child than most children of the same age, 2) how often during the past month have you felt your child did things that bothered you, and 3) how often during the past month have you felt angry with the child. Demographic information was only collected for the participants' children. The children's characteristics were 50.9% male; 67.4% between the ages of 6 and 17; 53.6% non-Hispanic white; 19.3% special healthcare needs; 13.6% household where English is not the primary language; 64.3% mother caregiver; 72.4% caregiver with some college education; 67.6% married two parent household; and 20% below federal poverty line. The researchers found that children with caregivers who reported high parenting stress experienced four prevalent types of ACEs: economic hardship (44%); parental separation/divorce (35.4%); household mental illness (21.25); and household substance abuse (20.9%). These children were more likely to report four or more ACEs, as were children with special healthcare needs. Contrary to other studies, there was no significant correlation between race/ethnicity for those with four or more ACEs. This study did not consider Christianity.

McWhirter and McIntyre (2021) explored the associations between religious/spiritual involvement (RSI), family characteristics including parent age, education, and income, parent mental health including depression and parenting stress, and child problem behaviors among parents of preschool aged children with developmental delay (DD). This was a mixed methods study which included in home interviews and questionnaires (family demographics, children's adaptive skills and behaviors, and parent levels of depression, stress, and RSI. Over half of the parents in the sample (51.7%) reported no RSI. One third of parents (30.6%) scored at or above the clinical cutoff score for depression, while 38.9% of parents were at or above the clinically significant range for parenting stress. RSI was not significantly associated with parent depression ($r = -.13$, $p = .073$). RSI was

significantly negatively correlated with parenting stress ($r = -.22$, $p = .001$) in that parent(s) with no RSI reported higher levels of parenting stress. Fewer child problem behaviors were slightly associated with higher parental RSI ($r = -.19$, $p = .011$). No differences in RSI for parents at or above the clinically significant range for depression or below this range (X^2 (1, n = 180) = 0.70, $p = .403$). Parents in the RSI group reported significantly lower levels of parenting stress than parents in the non-RSI group (t (178) = 2.94, $p = .004$). Although this study considered religiosity, its focus was not on Christianity and therefore cannot be generalized to the Christian population.

Prior to the two aforementioned studies, and during the time of the ACE pilot study, Jackson et al. (1999) sought to examine the factors that place parents at risk of abusing their children by predicting parents' use of discipline practices and attitudes that may bias parents towards abusive behaviors. Although not a recent study, this study most aligns with the current studies' variables of interest. One thousand parents were selected using random digit dialing. In two parent households, one parent was randomly selected. In households with more than one child, the child referend in the interview was selected using the same computer random selection technique. The questionnaire included 75 ordinal and Likert scale questions on the following topics: attitudes toward children; discipline practices; anger mismanagement, history of childhood physical abuse; history of childhood sexual abuse; history of witnessing partner violence; and demographic information. Two factors emerged accounting for variance in parents' attitudes. One factor was attitudes towards physical discipline. For instance, parents supported "Parents who spare the rod will spoil the child" *(Proverbs 13:24).* Another factor was attitudes that devalue children. In this category, parents agreed with the statement "As a general rule, children should be seen and not heard." There were three disciplinary factors- nonphysical discipline (i.e., time out) accounted for 32% variance (M=145; SD=5.76; range 0-24), physical discipline (i.e., spanking) accounted for 12% of variance (M=6.09; SD=5.25; range 0-24), and verbal abuse (i.e., swearing at the child). And verbal abuse accounted for 10% of variance

(M=1.31; SD=2.25; range 0-12). Although there was biblical reference, this study did not report descriptive data on Christianity.

Biblical Foundations of the Study

With little empirical knowledge on Christians' exposure to ACEs, the literature review then shifted from secular knowledge to biblical. The Bible gives numerous examples of parenting guidance and the categories of ACEs (psychological, physical, or sexual abuse, violence against mother, living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned). The ACE questionnaire examines addiction, incarceration, domestic violence, abuse, etc., all of which were first examined in the Bible. As a Christian, the Bible serves as life's guidebook. Whether the story of Joseph and Mary, Abraham and Isaac, Eunice and Timothy, Noah and Naamah, or Hannah and Samuel, the Bible teaches us that parenting goes beyond the father-mother pair. Raising children requires the Holy Spirit to direct our parenting and Jesus' grace and forgiveness.

In the same regard, the same grace and provision is offered to children who experience childhood trauma and dysfunction. As we've seen in this literature review, ACEs are correlated to poor health and social outcomes during childhood and adult years. Yet, God's grace has the intention to counter those outcomes with success and victory when we keep His commandments and walk in His ways. The blessing of obedience is "the Lord will make you the head and not the tail, and you shall only go up and not down" (Deuteronomy 28:13). The story of Daniel reinforces the faithfulness of God during times when it outwardly appears that everything is over- even when placed in the Lion's den, you will receive the victory. Or, the story of Joseph, a child who was sold as a slave but elevated to the second highest position of his land due to his faithfulness to God.

The ACE questionnaire is divided into 10 questions, each question can be tied to a relevant scripture (see Table 1). The ACE questionnaire's first question is related to physical and/or mental abuse. The Bible gives direction on how to effectively discipline a child without the use of physical or mental abuse. For instance, Proverbs 13:24 reads, "He who spares the rod hates his son, but he who loves him is careful to discipline him." The key word in this scripture is "loves." We know from 1 Corinthians 13:4-7 that "Love is patient, love is kind… it is not easily angered, it keeps no record of wrongs. Love does not delight in evil but rejoices with the truth. It always protects, always trusts, always hopes, and always perseveres." So, even discipline should be handled with patience and not anger. This scripture also captures the impact of the absence of love, which is an ACE described in the fourth question. The second ACE question, like the first question, mentions physical abuse. Proverbs 23:13, "Do not withhold discipline from a child; if you punish him with the rod, he will not die" is referenced alongside this question. This justifies the importance of context for scripture. Reading this scripture alone, one may justify corporal punishment, but this scripture is a continuation from Proverbs 13:24, which sets the expectation of effective discipline. The third ACE question is related to sexual abuse. This question was paired with Galatians 5:19-21, which makes clear that those who commit such a heinous act against a child will not inherit the Kingdom of God. The fifth question is a multilayered question related to a caregiver's alcohol and/or drug abuse, and their inability to meet the child's basic needs. This question was paired with 1 Timothy 5:8, "But if anyone does not provide for his relatives, and especially for members of his household, he has denied the faith and is worse than an unbeliever." Parents have a responsibility to provide for their children and failing to do so is held to the same regard as disbelief in our Lord and Savior Jesus Christ. The sixth question pertains to divorce and/or marital separation. This ACE question is tied to 1 Corinthians, specifically 1 Corinthians 7:39. This book was also referenced in another ACE question. This is a very important book related to ACEs because it pertains to issues impacting the church. Paul provides

guidance to the church on how to handle these sinful problems. 1 Corinthians 7:39 provides guidance for appropriate divorce and marital separation, “A woman is bound to her husband as long as he lives. But if her husband dies, she is free to marry anyone she wishes, but he must belong to the Lord.” The seventh question pertains to domestic violence against the child’s mother or stepmother. This ACE question was paired with Numbers 10:9 to offer a sense of peace and protection, “When you go to war in your land against the adversary who attacks you, then you shall sound an alarm with the trumpets, that you may be remembered before the Lord your God, and be saved from your enemies.” The eighth question pertains to drug and/or alcohol abuse in the home. It was paired with Ephesians 5:18 with very direct guidance, “And be not drunk with wine, wherein is excess; but be filled with the Spirit.” The ninth question pertains to mental illness. It was paired with Jeremiah 29:11, the promise that our current situation does not define us and the Lord will see us through with prosperity and hope, “For I know the plans I have for you, declares the Lord, plans for welfare and not for evil, to give you a future and a hope.” The tenth and final question pertains to prison and is paired with Hebrews 13:3, “Remember those who are in prison, as though in prison with them, and those who are mistreated, since you also are in the body.”

There are also very relevant stories of ACE exposure written throughout the Bible. Even with exposure to trauma and dysfunction, God’s purpose prevails. For instance, many are familiar with the story of Noah, but many may not know he was an alcoholic father and grandfather. Noah’s sons were Shem, Ham and Japheth and his grandson was Canaan (Genesis 9:18). In Chapter 6 of Genesis, God gives Noah instructions on how to build the ark. A few chapters later, Noah became drunk, “And Ham, the father of Canaan, saw the nakedness of his father and told his two brothers outside” (Genesis 9:22). Also, in the book of Genesis, Lot, a social drinker, fathered two daughters who committed incest with him, “Come, let us make our father drink wine, and we will lie with him, that we may preserve offspring from our father” (Genesis 32). Unlike the ACEs of sexual abuse, incest, or

alcoholism, incarceration in the Bible is typically a result of faith and not sin. The apostle Paul, although not the biological father to Timothy, is recognized as his fatherly figure. Paul was arrested in the book of Act, "Then the tribune came up and arrested him and ordered him to be bound with two chains" (Acts 21:33). As seen in these examples, ACEs were prevalent in the Bible.

The biblical foundation is critical for this study. Given the clear examples of ACEs in the Bible, it is predicted that Christians will report ACEs as others have. Knowing this, it is important to know the relationship between ACEs, health risk factors, disease conditions, and physical health on a sample of Christian adults and subsequently apply the implications for future research, policy development, and education specific to the Christian population.

Table 1: ACEs and Relevant Scriptures (*English Standard Version Bible*, 2001)

ACE Questions: While you were growing up, during your first 18 years of life:	Relevant Scripture
Did a parent or other adult in the household often: Swear at you, insult you, put you down, or humiliate you? Or Act in a way that made you afraid that you might be physically hurt.	*He who spares the rod hates his son, but he who loves him is careful to discipline him. (Proverbs 13:24)*
Did a parent or other adult in the household often: Push, grab, slap, or throw something at you?	*Do not withhold discipline from a child; if you punish him with the rod, he will not die. (Proverbs 23:13)*

Or Ever hit you so hard that you had marks or were injured?	
Did an adult or person at least 5 years older than you ever: Touch or fondle you or have you touch their body in a sexual way?	*Now the works of the flesh are evident: sexual immorality, impurity, sensuality, idolatry, sorcery, enmity, strife, jealousy, fits of anger, rivalries, dissensions, divisions, envy, drunkenness, orgies, and things like these. I warn you, as I warned you before, that those who do such things will not inherit the kingdom of God. (Galatians 5:19-21)*
Did you often feel that: No one in your family loved you or thought you were important or special? Or Your family didn't look out for each other, feel close to each other, or support each other?	*Love is patient, love is kind. It does not envy, it does not boast, it is not proud. It does not dishonor others, it is not self-seeking, it is not easily angered, it keeps no record of wrongs. Love does not delight in evil but rejoices with the truth. It always protects, always trusts, always hopes, always perseveres. (1 Corinthians 13:4-7)*

Did you often feel that: You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? Or Your parents were too drunk or high to take care of you or take you to the doctor if you need it?	*But if anyone does not provide for his relatives, and especially for members of his household, he has denied the faith and is worse than an unbeliever. (1 Timothy 5:8)*
Were your parents ever separated or divorced?	*A woman is bound to her husband as long as he lives. But if her husband dies, she is free to marry anyone she wishes, but he must belong to the Lord. (1 Corinthians 7:39)*
Were any of your parents or other adult caregivers: Often pushed, grabbed, slapped, or had something thrown at them? Or Sometimes or often kicked, bitten, hit with a fist, or hit with something hard? Or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife.	*When you go to war in your land against the adversary who attacks you, then you shall sound an alarm with the trumpets, that you may be remembered before the Lord your God, and be saved from your enemies. (Numbers 10:9)*

Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?	*And be not drunk with wine, wherein is excess; but be filled with the Spirit (Ephesians 5:18)*
Was a household member depressed or mentally ill, or did a household member attempt suicide?	*For I know the plans I have for you, declares the LORD, plans for welfare and not for evil, to give you a future and a hope. (Jeremiah 29:11)*
Did a household member go to prison?	*Remember those who are in prison, as though in prison with them, and those who are mistreated, since you also are in the body. (Hebrews 13:3)*

Summary

As seen throughout this literature review section, ACE prevalence varies by population sampled as does the ways in which people are impacted by ACEs. Overall, it has been shown that ACEs impact most people and are correlated to factors that negatively affect people well into adulthood and may even lead to mortality. Most of the population, worldwide, has experienced ACEs. Females report higher ACE exposure than males. White individuals report lower exposure than racial minorities and immigrants, and sexual minorities (i.e., homosexual, bisexual, gay) report having greater ACEs than individuals who identify as heterosexual. ACEs negatively impact individuals' mental and physical health as well as social outcomes. ACEs are positively correlated to

higher rates of depression, anxiety, suicide, comorbid and chronic health conditions, sexual promiscuity, sexually transmitted diseases, incarceration, and lower socioeconomic status. While much is known about ACEs worldwide, literature fails to examine ACEs for the Christian population, but the Bible provides an interesting foundation. This study is intended to fill that gap in secular literature that is thoroughly examined in biblical text, by examining ACEs, health risk factors, disease conditions, and physical health on a sample of Christian adults, allowing for a comparison of the original ACE findings to that of the current study. While the literature review may have examined research beyond the variables of the proposed study, the social effects of ACEs are important to capture. It is important to capture the full scope of the impact that ACEs have on individuals. Chapter three will now detail the proposed methods of the study, outlining the research questions and hypotheses, research design, information on participants, details about the study variables and proposed measures, study procedures, the data analysis plan, limitations, and other relevant information for successful execution of the study.

CHAPTER 3: RESEARCH METHOD

Overview

This quantitative survey design study will examine the relationship between ACEs, health risk factors, disease conditions, and physical health on a sample of Christian adults at a private Christian University through the ACE questionnaire and health and disease questions that mimic that of the original ACE study. The results are expected to show a statistically significant relationship between the factors.

Research Questions and Hypotheses

RQ 1: What is the relationship between ACEs and health risk factors in a sample of Christian adults?

RQ 2: What is the relationship between ACEs and disease conditions in a sample of Christian adults?

RQ3: What is the relationship between ACEs and physical health in a sample of Christian adults?

Hypothesis 1: There will be a statistically significant relationship between ACEs and health risk factors in a sample of Christian adults.

Hypothesis 2: There will be a statistically significant relationship between ACEs and disease conditions in a sample of Christian adults.

Hypothesis 3: There will be a statistically significant relationship between ACEs and physical health in a sample of Christian adults.

Research Design

This study is a quantitative survey design. This design was selected as the most effective approach to address the proposed research questions and hypotheses. Survey designs will allow data to be collected remotely from a large number of respondents. Electronic surveys will allow efficient data collection that minimizes respondent errors such as skipped questions or multiple answer selections. It will also permit respondents to respond at their convenience, during the allotted window

for completion and submission. It also will support a smooth transfer of data from the selected survey platform to the data analysis software. A quantitative design was selected as the most appropriate for analysis of the nominal, ordinal and ratio data that will be collected from the survey. As a non-experimental research method, correlational research is most appropriate. The researcher will assess the relationship between variables without influencing or manipulating the variables. Correlational research also yields either a positive or negative direction as proposed with the research questions.

Participants

The participants of this study will be adult Christians from a private Christian university, Liberty University in Lynchburg, Virginia. Participants must be at least 18 years of age, identify as Christian, and speak English as a primary language. Exclusion criteria includes individuals less than 18 years of age during the time of the data collection, identification of any other religion other than Christian, and/or individuals who do not speak English as a primary language. These inclusion and exclusion criteria are expected to be met based on sampling procedures.

The student profile for students at the sampled university is 47% male and 53% female; students are originally from all 50 states (to include Washington, DC) and over 70 countries outside of the United States (Liberty University, 2021). According to College Simply (2021), the university has 46% White; 13% Black; 5% Hispanic; 1% Asian; 0% American Indian; 0% Hawaiian/Pacific Islander; 2% two or more races; 2% other international races; and 31% race unknown/undisclosed. Due to the use of convenience sampling, the researcher does not expect the sample to be representative of the student body nor the Christian population.

Study Procedures

Following a thorough review of literature on ACEs and biblical scripture, evident gaps in literature lead to the proposed study's research questions and hypotheses. These research questions will be examined through the developed survey (see Appendix A). Data collection will begin

following Liberty University's Institutional Review Board (IRB) approval. Following approval, the researcher will submit a written request via email to the Dean of the School of Behavioral Sciences at Liberty University requesting permission to recruit undergraduate and graduate students from the psychology, human services, psychology, and social work programs for participation in the study (see Appendix B).

Sampling Procedures

Following all necessary approvals, participants will be recruited via email through program announcements. The announcement will request their participation in an online survey intended to assess the relationship between the study's variables (see Appendix C). Participants of this study will be selected through convenience sampling up to the determined sample size. In other words, those who respond to the email recruitment and who self-identify as a Christian adult at least 18 years of age who speak English as a primary language may voluntarily participate in the study. The recruitment announcement includes a link to the survey, detailed instructions, and relevant consent documents. The informed consent document (Appendix D) outlines important information necessary to make an informed decision about participation in the study. As noted in the form, participation is voluntary. This means, participants may accept or deny participation with no consequences for their decision. In addition, should a participant choose to participate in the study, they may withdrawal at any time by exiting the survey and closing the internet browser, if needed. The survey is anonymous, and all responses will remain private. Participants are encouraged to complete the survey in a private area to ensure responses are not seen by others. All research records, both electronic and hard copy, are securely stored in either a password protected laptop or locked file cabinet. Up to seven years of completion of the study but no less than three years, research records will be deleted and/or shredded as applicable. Participants may not receive direct benefits from participation other than awareness of

exposure to ACEs. Benefits to society include potential advancement to resources available to Christians who experience Adverse Childhood Experiences, future research, advances in education and psychoeducation, advancement in community and clinical practices, funding and policy changes that may directly benefit Christians. As noted in the informed consent document, participation in the study is considered to have minimal risks. This means there is no greater risk than what is expected during everyday life. Due to the sensitivity of questions and the asked throughout the survey and the need to recall ACEs, participants may experience psychological stress. To reduce risk, participants may contact Liberty University's Student Counseling Services by phone at [redacted], email [redacted]. Emergency support is also available by contacting the Suicide and Crisis Lifeline on phone number 988. The informed consent document also details how personal information will be protected. Participants are encouraged to review the Informed Consent document in detail prior to participation.

This study includes a single point of contact via email announcement. Once the participants select the link, they will be automatically taken to a survey, via Survey Monkey, which will include demographic questions, the ACE questionnaire questions, and health related questions (see Appendix A). Survey Monkey is a cloud-based application that is secure and accessible on smartphones, laptops, and desktops. The survey is expected to take five minutes to complete. Each participant who responds to the research survey may be entered into a drawing for one of three electronic $50.00 Visa gift cards by providing their preferred email address at the conclusion of the survey. The winners of the drawings will be selected by random sampling techniques. Gift cards will be delivered electronically to the winners of the drawing without any direct reference to participation in the study. The gift message may read "Thank you for contributing to my doctoral success. You won the drawing!" The email will be sent to the recipient from Chantel Smith.

Sample Size

According to Abu-Bader (2011), there is not a required number of participants when using correlational statistics; however, the larger the sample size, the greater the generalizability of the results to the population. The following formula for determining the sample size is recommended: 50+8m, in which m is the number of factors. There are a total of four factors being considered in this study- ACEs, health risk factors, disease conditions, physical health. Therefore, the study will seek a minimum of 50+8(4) = 82 participants. Given a two tailed analysis, with a 0.71 effect size, 0.05 alpha probability and .95 Power, the proposed sample size will be 134. The researcher will use the greater of the two analyses to determine sample size. Therefore, the sample size will be 134 participants.

Measurement

Participants of the study will receive a link through an electronic survey website. The survey will include a brief demographic questionnaire (six items) which will ask the participants their religion and denomination. The demographic section also mirrors the original ACE study with questions on gender, race, age, and education level. The participants will then complete the ACE questionnaire (10 items), health risk factor questions (11 items), disease condition questions (7 items), and a single Likert scale physical health question (1 item). The ACE questionnaire has acceptable reliability and validity, including test–retest reliability (kappa coefficient = 0.61-0.80) and construct validity. Dube et al. (2004), found an overall weighted kappa of .64, suggesting moderate stability, but there was variation among types of ACEs. For instance, physical, emotional, and sexual abuse ranged from .55 to .69, but household dysfunction ranged from .46 to .86. Based on the sampling techniques (convenience sampling of college students), the researchers examined the test-retest reliability of the ACE questionnaire based on the findings of Zanotti and colleagues (2017), who studied a sample of college athletes. They found a modest test-retest coefficient, $r=.71$, $p < .001$ (household dysfunction, $r= .65$, $p < .001$ and abuse and neglect items, $r =52$, $p <.001$). Additional

research and analysis are needed on the psychometric properties of this questionnaire for Christian adults.

Adverse Childhood Experiences

The Adverse Childhood Experiences questionnaire (Felitti et al., 1998) assesses participants' history of abuse and neglect. The Adverse Childhood Experiences questionnaire is a 10-item survey with scores ranging from 0-10. Lower scores represent lower exposure to adverse experiences during childhood. These questions are included in numbers 1 through 10 of the study survey. Scores for this section will be totaled with possible scores ranging from 0 to 10.

Health Risk Factors:

Health risk factors are factors that may contribute to the leading causes of death in the United States (Felitti et al., 1998, p. 248). Felitti and colleagues (1998) have identified 10 factors: smoking, severe obesity, physical inactivity, depressed mood, suicide attempts, alcoholism, any drug abuse, parenteral drug abuse, a high lifetime number of sexual partners (at least 50), and a history of having a sexually transmitted disease. Scores on this section will range from 0 to 10. Lower scores represent lower health risk factors. These questions are included in numbers 11 through 21 of the study survey. Scores for this section will be totaled with possible scores ranging from 0 to 10. Although there are 11 items, questions 12 and 13 are related to Body Mass Index (BMI). Participants are asked to report their height in inches and their weight in lbs. In the original ACE study, BMI was calculated by dividing height overweight (kg/meters^2). Since the current study collects height in inches and weight in pounds, BMI is calculated by multiplying the weight in pounds by 703 and dividing that answer by the height in inches. That total is then divided by height in inches again. The responses will be converted and calculated by the student researchers. Questions 12 and 13 will count as a single "yes"

response if the BMI is equal to or greater than 35, which suggests severe obesity. For this section, each "yes" response equals 1 point, and each "no" response equals 0 points.

***Disease Conditions*:**

Felitti and colleagues (1998) have identified factors among the leading causes of mortality in the United States. These disease conditions include a history of ischemic heart disease, cancer, stroke, chronic bronchitis and/or emphysema, diabetes, hepatitis and/or jaundice, and skeletal fractures. Scores in this section range from 0 to 7. Lower scores represent lower disease conditions. These questions are included in numbers 22 through 28 of the study survey. Scores for this section will be totaled with possible scores ranging from 0 to 7.

Physical Health:

Subjective personal belief of one's overall health status, poor physical health is a predictor of mortality. This item is captured with a single Likert scale question which asks the participant to rate their physical health- excellent, very good, good, fair, or poor. Fair or poor selections will equal a 1-point response, keeping this response in line with the previous scoring. Score on this single item may range from 0 to 1.

Operationalization of Variables

Adverse Childhood Experiences (variable one) - This variable is a ratio variable with scores ranging from 0 to 10, with 0 indicating an absence of ACEs. A "yes" response equals 1 point, and each "no" response equals 0 points.

Health Risk Factors (variable two) - This variable is a ratio variable with scores ranging from 0 to 10, with 0 indicating an absence of health risk factors. Please note, obesity is a two-part question that asks the participant their weight and height. The student researcher will then calculate the

participants' body mass index (BMI). These questions will count as "yes" if the BMI is equal to or greater than 35, which suggests severe obesity. A "yes" response equals 1 point, and each "no" response equals 0 points.

Disease Conditions (variable three) - This variable is a ratio variable with scores ranging from 0 to 7, with 0 indicating an absence of health risk factors. A "yes" response equals 1 point, and each "no" response equals 0 points.

Physical Health (variable four) - This single question is presented as an ordinal scale question, but the answer will be converted to a nominal yes or no response. Fair or poor selections will equal a 1-point response, keeping this response in line with the previous scoring.

Delimitations, Assumptions, and Limitations

There are a range of limitations and challenges to consider for the proposed quantitative survey design study. These limitations and challenges are evident within the methods and sampling procedures. While the ACE questionnaire is considered reliable, the results, regardless of outcome, will only suggest a potential correlation between factors and not provide evidence of a cause-and-effect relationship. Further, like with any other survey design, responses are subjective. The researcher and audience must trust the accuracy of participants' self-reports. Likert scale responses may also be interpreted differently participant-to-participant. The difference between options not only varies participant-to-participant, but also may vary based on individual's mood and motivation to complete the survey at that given time. Given the sensitivity of the topic, participants may not feel comfortable providing accurate information, especially related to childhood trauma, abuse, and neglect. Similarly, the study examines events that occurred during childhood, prior to the age of 18, yet the participants will all be adults in which these recalled, or perhaps, even forgotten events, occurred several years to decades prior. Respondent bias is a great concern given the topics. Given

that the sample identifies as Christian and attend a Christian University, acquiescence bias may occur. ACE questions may also yield socially desirable bias in which participants report low levels of ACE exposure and may not provide honest response to their health risks, disease conditions, or physical health questions given the socially unacceptable stigmas.

Other limitations and challenges will exist based on the sampling and recruitment methods. The proposed study will utilize convenience sampling techniques. While this technique is inexpensive and efficient, convenience sampling is a non-probability technique that lacks generalizability. In other words, the results of the proposed study cannot be extended to the full population of Christians, or even the population of students at the sampled University. The recruitment methods also yield bias. One may assume that the topic and study title may influence participation and limit others. For instance, those who knowingly have experienced ACEs may not choose to participate to prevent disclosure or out of fear of consequences of disclosure.

The last challenge may be with data collection and analysis. There may be potential researcher and participant errors. The participant may deliberately or unintendedly omit responses while completing the survey and the researcher may unintendedly cause a mistake when transferring, uploading, or analyzing the data. To prevent these errors, only fully completed surveys will be analyzed and the researcher will ensure the accuracy of data prior to and during analysis.

Delimitations that narrow and set clear boundaries for the study are essential for the study's success. With a focus on Christianity, the recruitment efforts are critical. While individuals of the Christian faith can be found world-wide, the religion (Christianity) requirement for participation will be ensured by recruiting participants in a faith-based environment. Other participation requirements such as age and English language will also be safeguarded by recruiting individuals at an American university. Having to secure a sample size of at least 134 students, recruitment was expanded to

include both undergraduate and graduate students. Given the sensitivity of the topics covered in the survey, keeping the survey short is important to prevent psychological distress or disingenuous responses.

Data Analysis

Data will be analyzed using Pearson's Product-Moment Correlation Coefficient (Pearson's r) with version 28 of IBM SPSS statistical software as all relevant assumptions are expected to be met with the proposed study. Variables of the first and second research question are continuous and measured at interval or ratio level of measurement. The third research question, however, has a nominal variable (physical health), therefore this correlation will be analyzed using point biserial analysis. The variables include paired observations that will be collected from the same research participant at the same time. The shape of the distribution must be a normal curve. This is referred to as the assumption of normality. Additionally, the same size will be sufficient as described in the sample procedures section of this chapter. The computational formula for Pearson's Product-Moment Correlation Coefficient is:

$$r = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{N}}{\left(\sqrt{\sum X^2 - \frac{\sum X^2}{N}}\right)\left(\sum Y^2 - \frac{\sum Y^2}{N}\right)}$$

Alpha will be set at .05. Pearson's r correlation is the most used correlation coefficient for variables that are measured on an interval or ratio scale. The study will utilize a two tailed analysis because the hypothesis is nondirectional. Simple regression analysis will be used to predict an individual's score on the ACE variable based on knowing health risk factors, disease conditions, and physical health of the participants. Post hoc analysis comparing the pairs of mean ranks for differences will also be conducted. Correlational designs are necessary as it is ethically and practically impossible to assign ACEs and health concerns to participants. The study is intended to

report whether a relationship exists. Once that information is gathered the type of strength of the relationship (weak, moderate, strong) can also be determined. No-to-weak relationships range from +/- .00-.29 correlation coefficient. Moderate relationships range from +/- .30-.69 and strong relationships span from +/- .70 to 1.0. A perfect correlation is considered +/- 1.00. Scatterplots will also be utilized to represent the relationship graphically. The positive indicates the variables increase or decrease together. The coefficient of determination will also be reported, indicating how much of the variation in one variable is accounted for by the variation in the next variable (i.e., ACE and health risk factors; ACEs and disease conditions; ACEs and physical health). This is obtained by squaring the correlation coefficient and will be reported in percentages.

Summary

This study is intended to mimic the original ACE study by examining Christian adults' exposure to ACEs and then gathering information on their health risk factors, disease conditions, and physical health through a quantitative survey methods design. Through convenience sampling, a target sample of 134 Christian adults (at least 18 years of age or self-identify as Christian and speak English as their primary language) will be recruited from a private Christian university. These participants will complete the same questionnaires as the original ACE study, but electronically (accessible via phone, computer, or laptop) through Survey Monkey. Descriptive and correlational statistics will be analyzed using SPSS. The original ACE study yielded a positive correlation between the studied factors, which is also expected in this study. The ACE study questionnaire has acceptable reliability and validity, including test–retest reliability. The findings from this study will fill an important gap in understanding ACE exposure for Christians. The study has implications for future research, policy development, and education specific to the Christian population. Chapter 4,

following successful defense of this proposal, IRB and relevant approvals, recruitment, data collection, and data analysis will include the results of the proposed study.

CHAPTER 4: RESULTS

Overview

The purpose of this quantitative survey design study was to examine the relationship between ACEs, health risk factors, disease conditions, and physical health as studied in the original ACE study, on a minimum sample of 134 Christian adults. Through convenience sampling, participants of the study voluntarily completed an anonymous electronic questionnaire through Survey Monkey. Participants self-identified as a Christian, at least 18 years of age, and spoke English as a primary language. After reading the informed consent, participants completed demographic questions, ACE questions, questions regarding health risk factors, and questions related to disease conditions and physical health. At the conclusion of the questionnaire, participants could voluntarily click a link, which took them to a separate questionnaire to enter their email address to be included in a drawing for one of three $50 gift cards for their participation.

This study included three research questions, RQ 1: What is the relationship between ACEs and health risk factors in a sample of Christian adults?; RQ 2: What is the relationship between ACEs and disease conditions in a sample of Christian adults?; and RQ3: What is the relationship between ACEs and physical health in a sample of Christian adults? This chapter is intended to provide the descriptive results of the study. It includes a description of the sample based on information provided from the demographic section of the questionnaire. It also details the study's findings.

Descriptive Results

The participants of this study included undergraduate and graduate students at a private Christian university. Each research participant self-identified as a Christian adult at least 18 years of age who speak English as a primary language. Given a two tailed analysis, with a 0.71 effect size, 0.05 alpha probability, and .95 Power, the proposed sample size was 134 participants. This ensured

the results could be generalized to the population. Survey Monkey was set to receive 150 responses. An additional 16 participant responses were included to cover omitted responses or errors. In lieu of imputations, of the 150 responses, two participants' responses were not included because of errors they typed when manually entering their height and weight. Height and weight for each participant was converted by the student researcher to calculate their BMI, an indicator of health risk factors. One participant provided a weight range of "170-175", which was averaged by the student researcher during data cleaning. Averaging the weight or selecting any weight within the range provided by the participant would not have changed their score for obesity. This participant is not considered obese. This participant received a "no" response for obesity which equals 0 points. This participant was not removed from the study. The final sample size was 148 participants.

Options for demographics were selected to align with the original ACE study, previously detailed in chapter two of this dissertation. Of the current study's participants, 27.7% identified as Baptist; 3.4% Methodist; 2.0% Presbyterian; 40.5% Nondenominational; 0.7% Episcopal; 5.4% Catholic; .7% Lutheran; 2.0% Reformed; 6.8% Spirit-filled; and 10.8% Other. The participants who selected "other" as their Christian denomination, entered the following descriptions: Christian (3); Holiness; Pentecostal (4); Presbyterian/Bible-based/Methodist; Wesleyan; Alliance; Mennonite (2); Church of Jesus Christ of Latter-day Saints (2); and Nondenominational. The sample included 11.5% males and 88.5% females; 73.6% White; 13.5% Black; 5.4% Hispanic; 1.4% Asian; and 6.1% Other. The participants who selected "other," described their race as: multiracial; Native American (2); Filipino and White; White/Asian/Hispanic; White/Hispanic; Native Hawaiian; and two or more races/White and Black. The ages also varied amongst participants with 58.1% between the ages of 18-34; 29.1% 35-49; 12.2% 50-64; and 0.7% 65 or older. The sample ranged in education level with 4.1% selecting high school graduate as their current education level; 56.8% some undergraduate

college; 10.8% undergraduate degree; 6.1% some graduate education; 18.2% master's degree; and 4.1% doctorate or equivalent.

Variables of the first and second research question are continuous and measured at interval or ratio level of measurement. The third research question, however, has a nominal variable (physical health), therefore this correlation will be analyzed using point biserial analysis. The variables include paired observations that were collected from the same research participant at the same time. The shape of the distribution must be a normal curve. This is referred to as the assumption of normality, which were all met. Additionally, the same size will be sufficient as described in the sample procedures section of this chapter.

Nearly 90% of the sample of Christian adults reported having at least one ACE and 50% reporting four or more ACEs. Participants of this study reported a mean of 4.05 and mode of 3 ACEs (SD= 2.826). Two ACEs were reported within the 25th percentile, 3.5 within the 50th percentile, and 6 within the 75th percentile (see Table 2). Specific frequencies and percentages per ACE are shown in Table 3.

Table 2: Descriptive Statistics for ACEs

Statistics

ACETOTAL

N	Valid	148
	Missing	0
Mean		4.05
Std. Error of Mean		.232
Median		3.50
Mode		3
Std. Deviation		2.826
Range		10
Minimum		0

Maximum		10
Sum		600
Percentiles	25	2.00
	50	3.50
	75	6.00

Table 3: Frequency and Percentages of Total ACEs

ACETOTAL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	15	10.1	10.1	10.1
	1	20	13.5	13.5	23.6
	2	18	12.2	12.2	35.8
	3	21	14.2	14.2	50.0
	4	11	7.4	7.4	57.4
	5	9	6.1	6.1	63.5
	6	19	12.8	12.8	76.4
	7	14	9.5	9.5	85.8
	8	12	8.1	8.1	93.9
	9	6	4.1	4.1	98.0
	10	3	2.0	2.0	100.0
	Total	148	100.0	100.0	

Study Findings

The current study examined the following research questions: RQ 1: What is the relationship between ACEs and health risk factors in a sample of Christian adults; RQ 2: What is the relationship between ACEs and disease conditions in a sample of Christian adults?; and RQ3: What is the relationship between ACEs and physical health in a sample of Christian adults? Based on the first research question, a Pearson's r correlation revealed a statistically significant relationship between ACEs and health risk factors in a sample of Christian adults, $r(146) = .418$, $p < .001$ (two tailed). The

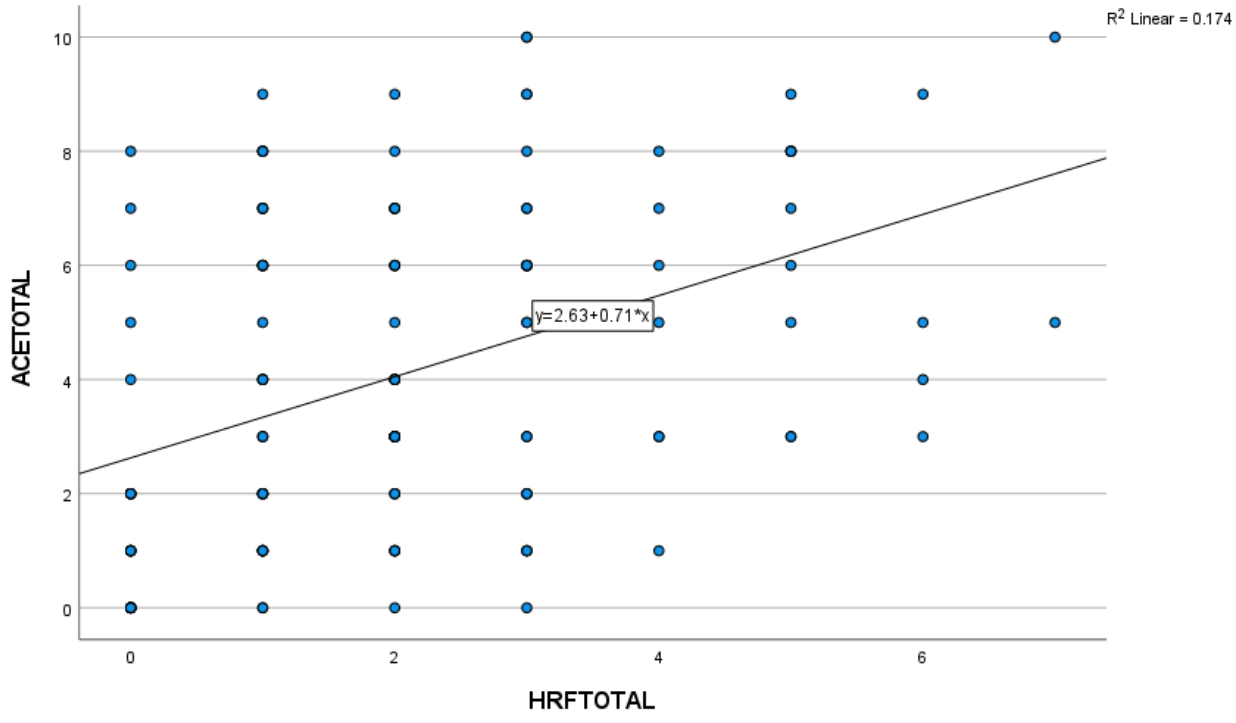
null hypothesis is rejected; 17.47% of the variance in health risk factors is accounted for by ACEs (see Figure 1 and Table 4).

Table 4: Correlations Between ACEs and Health Risk Factors

Correlations

		ACETOTAL	HRFTOTAL
ACETOTAL	Pearson Correlation	1	.418**
	Sig. (2-tailed)		<.001
	N	148	148
HRFTOTAL	Pearson Correlation	.418**	1
	Sig. (2-tailed)	<.001	
	N	148	148

Figure 1: Scatterplot: Relationship between ACEs and Health Risk Factors



Homoscedasticity and linearity were established. Simple Regression analysis was conducted for ACEs and health risk factors, which does not show any outliers. Durbin Watson is 2.073, which means there is no autocorrelation, and we can accept the null hypothesis. There is also a normality of residuals seen in figure 2 and a normal distribution seen in figure 3. A linear regression analysis was conducted to evaluate the prediction for health risk factors given the ACE score and was found to be significant, $F(1, 146) = 30.851$, $p < .001$. The regression equation for predicting the final grade is $y = .245x + 1.012$ (see figure 4). The correlation between ACEs and health risk factors is .418. Approximately 17.4% of the variance in health risk factors was accounted for by its linear relationship with ACEs (see table 5)

Figure 2: Regression Standardized Residuals for ACEs and Health Risk Factors

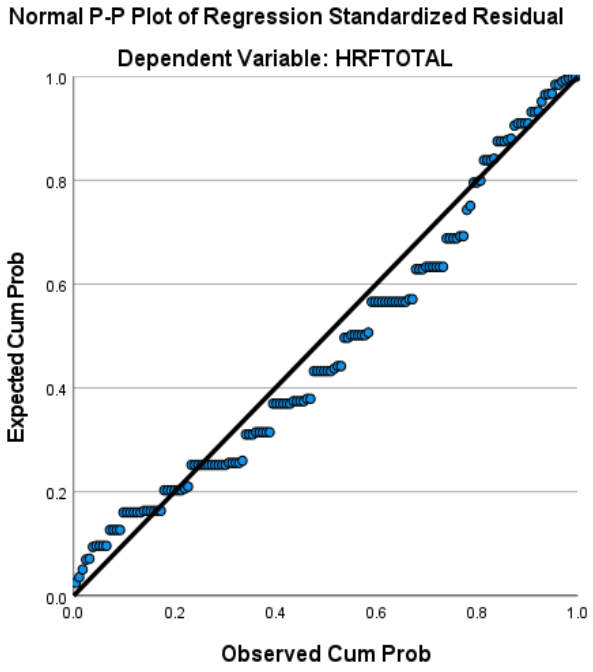


Figure 3: Histogram ACEs and Health Risk Factors

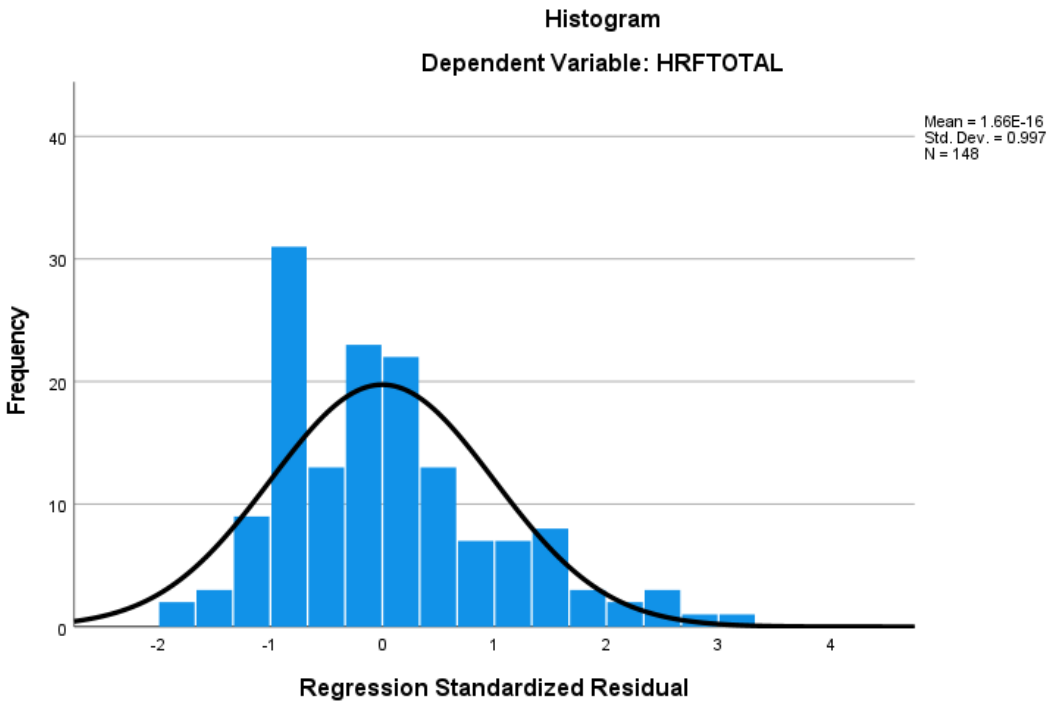


Figure 4: Scatterplot ACEs and Health Risk Factors

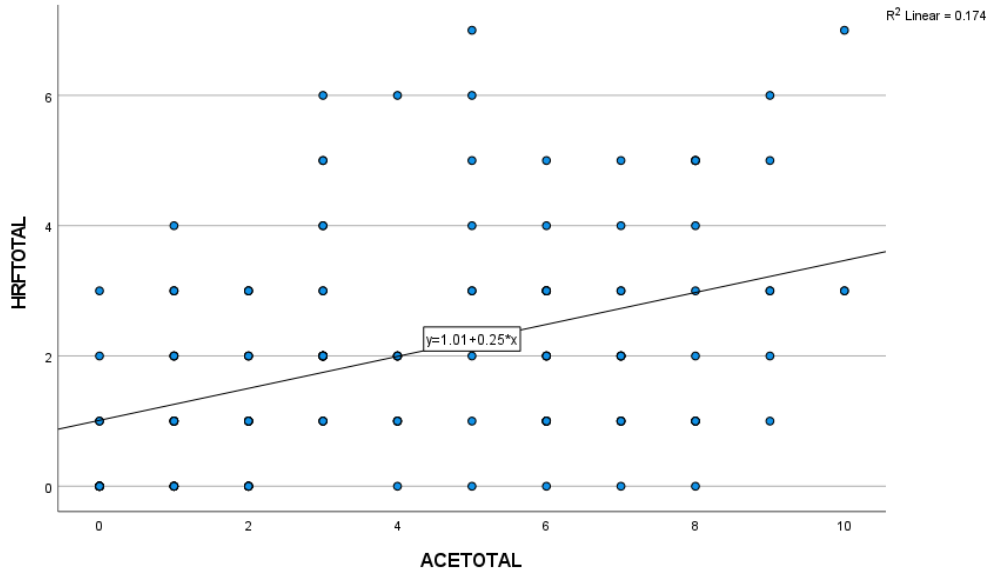


Table 5: ANOVA for ACEs and Health Risk Factors

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	70.650	1	70.650	30.851	<.001[b]
	Residual	334.343	146	2.290		
	Total	404.993	147			

a. Dependent Variable: HRFTOTAL

b. Predictors: (Constant), ACETOTAL

Table 6: Coefficients ACEs and Health Risk Factors

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	1.012	.218		4.641	<.001	.581	1.443
	ACETOTAL	.245	.044	.418	5.554	<.001	.158	.333

a. Dependent Variable: HRFTOTAL

Table 7: Model Summary ACES and Health Risk Factors

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.418[a]	.174	.169	1.513	2.101

a. Predictors: (Constant), ACETOTAL

b. Dependent Variable: HRFTOTAL

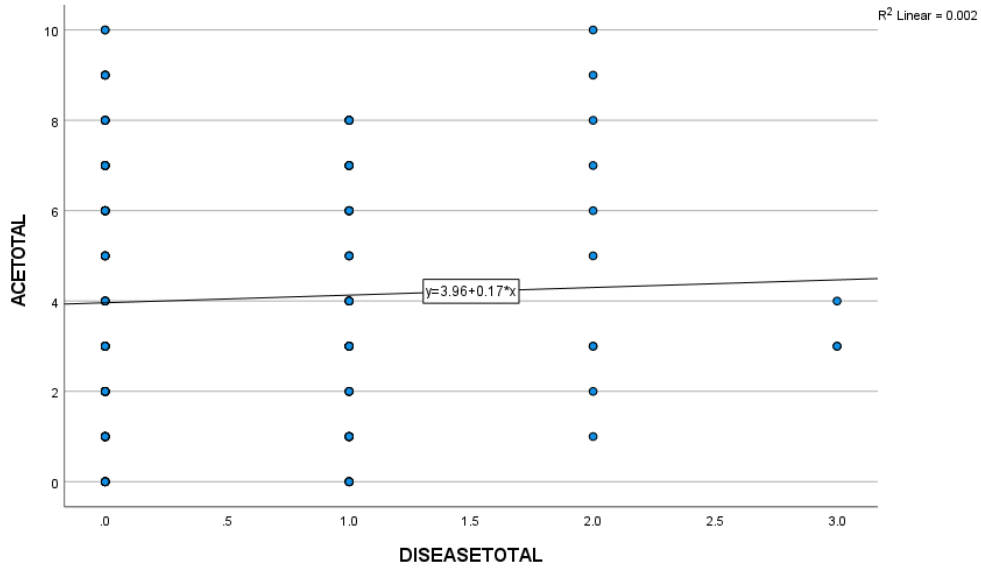
Based on the second research question, Pearson's r correlation revealed a nonsignificant relationship between ACEs and disease conditions, r (146) = .043, p=0.607 (two tailed). Therefore, we fail to reject the null hypothesis (see Figure 5).

Table 8: Correlations Between ACEs and Disease Conditions

Correlations

		ACETOTAL	DISEASETOTAL
ACETOTAL	Pearson Correlation	1	.043
	Sig. (2-tailed)		.607
	N	148	148
DISEASETOTAL	Pearson Correlation	.043	1
	Sig. (2-tailed)	.607	
	N	148	148

Figure 5: Scatterplot ACEs and Disease Conditions



Lastly, based on the third and final research question, a point biserial correlation revealed a statistically significant relationship between ACEs and physical health in a sample of Christian

adults, r_{pb} (146) = .255, p= .002 (two tailed). The null hypothesis is rejected; 6.5% of the variance in physical health is accounted for by ACEs (see Figure 6 and 7).

Table 9: Correlations Between ACEs and Physical Health

Correlations

		ACETOTAL	PHTOTAL
ACETOTAL	Pearson Correlation	1	.255**
	Sig. (2-tailed)		.002
	N	148	148
PHTOTAL	Pearson Correlation	.255**	1
	Sig. (2-tailed)	.002	
	N	148	148

Figure 6: Bar Graph ACEs and Physical Health (Coded)

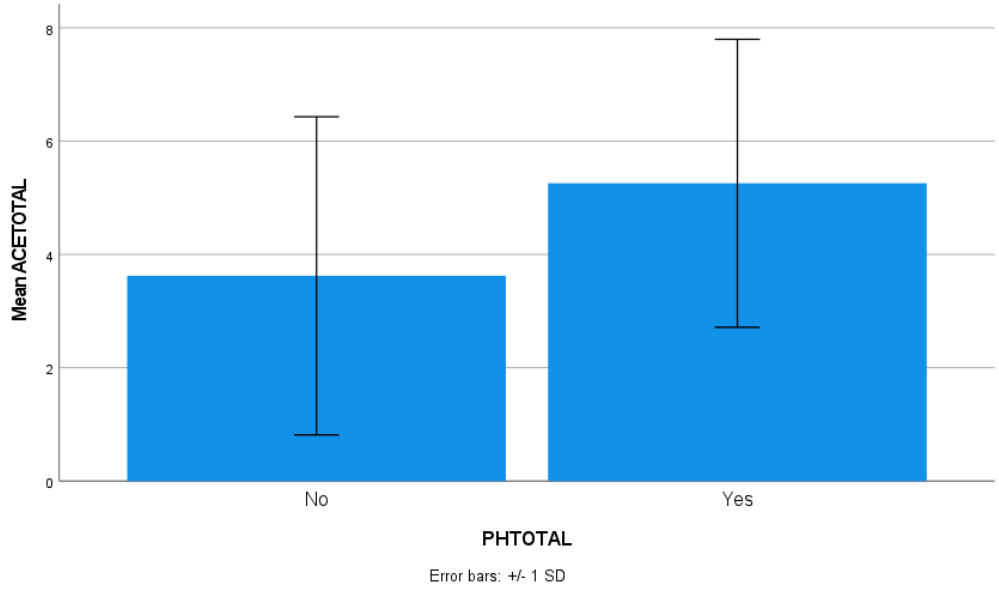
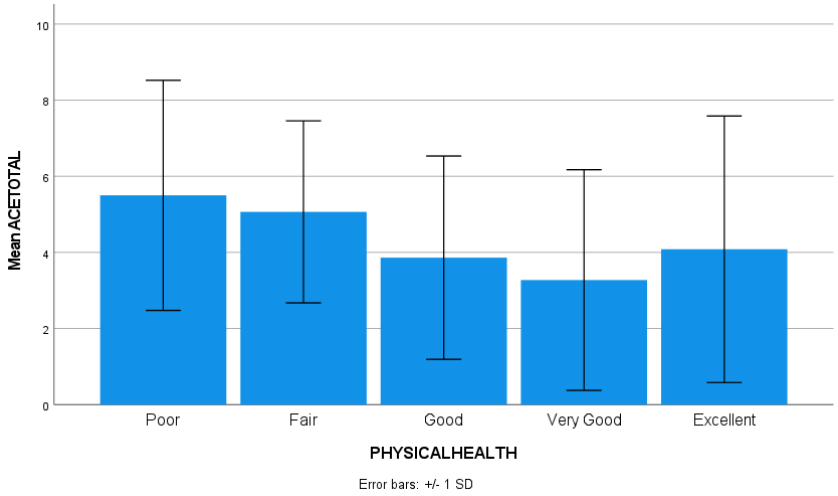


Figure 7: Bar Graph ACEs and Physical Health (Ordinal Self Ranking)



Each of the stated hypotheses aligned with the findings of the original ACE study, that significant relationships between ACEs, health risk factors, disease conditions, and physical health exists. While there was a significant relationship between ACEs, health risk factors and physical health, there was not a significant relationship between ACES and disease conditions. Specifically, there is not a significant relationship between ACEs when considering chronic diseases such as a history of ischemic heart disease (including heart attack or use of nitroglycerin for exertional chest pain), cancer of any kind, strokes, chronic bronchitis or emphysema, diabetes, hepatitis, jaundice, or skeletal fractures.

The second research question's results did not align with the original ACE study. This sample does not show a relationship between ACEs and disease conditions as the original ACEs study. This may suggest that factors other than ACEs contributed to the original ACE study's disease condition findings or that there are confounding or other extraneous variables to consider. Another factor to consider may be the age of onset of these identified disease conditions. The original ACE study included only 10.1% of adults up to 34 years of age whereas the current study includes over half the participants within this age range (58.1% between the ages of 18-34). The data was reanalyzed to omit this young adult age group, but the findings remained nonsignificant. A Pearson's r correlation

revealed a nonsignificant relationship between ACEs and disease conditions, r (60) = -0.036, p= .780 (two tailed). Therefore, we fail to reject the null hypothesis. This sample size, however, does not support generalizability.

Summary

One hundred and forty-eight adult Christians at a private Christian university were recruited through convenience sampling to voluntarily participate in an anonymous electronic questionnaire study through Survey Monkey. Participants self-identified as a Christian, at least 18 years of age, and spoke English as a primary language. Participants completed demographic questions, ACE questions, questions regarding health risk factors, and questions related to disease conditions and physical health. Nearly 90% of the sample of Christian adults reported having at least one ACE and 50% reporting four or more ACEs, higher than any other populations studied. There is a statistically significant relationship between ACEs and health risk factors in a sample of Christian adults as well as between ACEs and physical health in this sample of Christian adults, however, there was not a statistically significant relationship between ACEs and disease conditions in the same sample. It is uncertain how a population impacted by ACEs at such high rates does not have the same disease conditions reported by others. The next chapter will examine this in greater detail.

CHAPTER 5: DISCUSSION

Overview

The purpose of this quantitative survey design study was to examine the relationship between ACEs, health risk factors, disease conditions, and physical health as studied in the original ACE study. The final chapter of this dissertation summarizes the key findings of the study. This chapter also compares the study's results to literature reviewed in the second chapter and discusses how the results align with social learning theory and the biblical foundation also reviewed in chapter two. The chapter discusses the implications of these findings, limitations of the study, and recommendations for future research.

Summary of Findings

This study examined three research questions: 1) What is the relationship between ACEs and health risk factors in a sample of Christian adults, 2) What is the relationship between ACEs and disease conditions in a sample of Christian adults, and 3) What is the relationship between ACEs and physical health in a sample of Christian adults? This survey design study found that nearly 90% of the sample of Christian adults reported having at least one ACE. Each research question's hypothesis predicted a statistically significant relationship between the set of variables. Fifty percent of the participants reported four or more ACEs, and 64.2% reported three or more ACEs. The findings show a statistically significant relationship between ACEs and health risk factors in the sample of Christian adults, therefore the null hypothesis for the first research question is rejected. There is also a statistically significant relationship between ACEs and physical health in this sample. This null hypothesis is also rejected. Both correlational findings align with the results reported in the original ACE study. There, however, was not a statistically significant relationship between ACEs and disease conditions for this sample of Christian adults, which conflicts with the findings of the original ACE

study. Therefore, we fail to reject the hypothesis that there is a statistically significant relationship between ACEs and disease conditions in a sample of Christian adults. There were interesting comparisons between this study's findings and those of the literature examined in the second chapter. This will be further discussed in the next section.

Discussion of Findings

Chapter two thoroughly discussed the original ACE study. This landmark study revealed a relationship between ACEs and health risk factors, disease conditions, and physical health. Felitti et al., (1998) found that participants who experienced four or more ACEs (compared to those who had none) had a four-to-twelve-time health risk for alcoholism, drug abuse, depression, suicide attempts, a two-to-four-time risk of smoking, poor self-rated health, greater than or equal to 50 sexual intercourse partners, sexually transmitted diseases, and a 1.4-to-1.6-time risk of physical inactivity and severe obesity. There was also a relationship to ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease.

The literature review also examined the frequencies of ACEs across populations. According to Giano et al. (2020), 57.8% of the US population experiences at least one ACE, but 21.5% experience three or more ACEs. A Canadian study reports 75.1% exposure to ACEs (Afifi et al., 2020), and Chinese participants report 66.2% of at least one ACE, and 5.93% reported four or more ACEs (Chang et al., 2019). The literature review then transitioned from a discussion of frequencies to the correlation between ACEs and health and social outcomes.

The results of the current study align with several studies explored in chapter two and conflict with others. Generally, the reported frequencies were not expected given what was learned in chapter two; less ACEs were expected. Chapter two explained that generally, those with higher education attainment have lower mean ACE scores (Giano et al., 2020). Furthermore, individuals with four or

more ACEs were more likely to have no college education (Haynes et al., 2020). Yet, 96% of the participants in the current study have some college education yet reported higher ACE scores than other populations. The frequencies of ACEs reported in this study are higher than any other population reported in the literature review section of this dissertation. The current study reports that 90% of the sample of Christian adults has at least one ACE, 50% reported four or more ACEs, and 64.2% reported three or more ACEs. Participants of this study reported a mean of 4.05 and mode of 3 ACEs (SD= 2.826). This study was a correlational study not intended to provide a cause-and-effect relationship, but these frequencies beg the questions - why and how? This will be discussed later with recommendations for future research.

In terms of the correlation between ACES, health risk factors, disease conditions, and physical health, the student researcher's hypotheses aligned with the results of the Felitti et al., (1998) study, but the results were only partially the same. Based on the first research question, a Pearson's r correlation revealed a statistically significant relationship between ACEs and health risk factors in a sample of Christian adults, $r(146) = .418$, $p < .001$ (two tailed). The null hypothesis is rejected; 17.47% of the variance in health risk factors is accounted for by ACEs. Health risk factors are factors that may contribute to the leading causes of death in the United States (Felitti et al., 1998, p. 248). The Felitti et al., (1998) study also found a statistically significant relationship between these variables. Felitti and colleagues identified 10 factors: smoking, severe obesity, physical inactivity, depressed mood, suicide attempts, alcoholism, any drug abuse, parenteral drug abuse, a high lifetime number of sexual partners (at least 50), and a history of having a sexually transmitted disease. These factors are associated with the ACEs experienced by the current study's participants. A linear regression analysis was conducted to evaluate the prediction for health risk factors given the ACE score and was found to be significant, $F(1, 146) = 30.851$, $p < .001$. The regression equation for predicting the final grade is $y = .245x + 1.012$. The correlation between ACEs and health risk factors is

.418, indicating a medium correlation. Approximately 17.4% of the variance in health risk factors was accounted for by its linear relationship with ACEs.

Based on the second research question, Pearson's r correlation revealed a nonsignificant relationship between ACEs and disease conditions, r (146) = .043, p=0.607 (two tailed). Therefore, we fail to reject the null hypothesis. The Felitti et al. (1998) study, however, found a statistically significant relationship between these variables. Felitti and colleagues have identified factors among the leading causes of mortality in the United States. These disease conditions include a history of ischemic heart disease, cancer, stroke, chronic bronchitis and/or emphysema, diabetes, hepatitis and/or jaundice, and skeletal fractures. Sonu et al. (2019) found that their youngest respondents, 18-34, compared to the older participants, had higher reports of four or more ACEs (19% of group) with a two-to-four-time risk of chronic disease and poor health compared to their peers who reported no ACEs. Yet, there was not a statistically significant relationship between ACEs and disease conditions for the current sample with 58.1% between the ages of 18-34.

Lastly, based on the third and final research question, a point biserial correlation revealed a statistically significant relationship between ACEs and physical health in a sample of Christian adults, r_{pb} (146) = .255, p= .002 (two tailed). Physical health was a subjective personal belief of one's overall health status. Poor physical health is a predictor of mortality. The null hypothesis is rejected; 6.5% of the variance in physical health is accounted for by ACEs. The Felitti et al., (1998) study also found a statistically significant relationship between these variables, thus indicating a potential risk of mortality for the sample.

Chapter two of this dissertation provides a comprehensive discussion of risk factors for ACEs. Some of the studies were included to confirm the results of the original ACE study, other studies expanded on risk factors not covered by the original ACE study. It was important to capture this

literature because the results of the dissertation study can be compared to the results of these studies. Considering the correlations between ACEs and negative health and social outcomes discussed in chapter two, the findings of this study would suggest that this population is at much higher risk for these negative outcomes given the high ACE scores. For instance, based on the arguments raised in chapter two, this sample of participants may have a higher risk of juvenile justice records, mental and physical illnesses, chronic health problems, substance abuse, etc. In the following section, results from the research studies discussed in chapter two are highlighted with an assumption that these outcomes may apply to this study's participants given the statistical correlation of these factors. This will further support the later discussion of implications for the current study.

Mental Health

- There is an increased risk of developing and maintaining depressive disorder decades after ACE exposure, with 23% having a lifetime prevalence of depressive disorder (Chapman et al., 2004).
- Depressive symptoms are all strongly associated with ACES (Schilling et al., 2007)
- Antisocial behavior is strongly associated with ACEs (Schilling et al., 2007)
- Individuals with four or more ACEs reported having depression and anxiety (Haynes et al., 2020)
- Individuals with four or more ACEs (compared to those who had none) had a four-to-twelve-time risk for depression (Felitti et al., 1998).
- Individuals with four or more ACEs (compared to those who had none) had a four-to-twelve-time risk for suicide attempt (Felitti et al., 1998).
- Individuals who witnessed physical abuse of their mother during childhood had poorer mental health during adulthood (Schneider et al., 2020)

- As ACEs increase, risk of depression increases (Chang et al., 2019).
- As ACEs increase, risk of posttraumatic stress disorder increases (Chang et al., 2019).
- As ACEs increase, mental health problems increase (Schroeder et al., 2021).

Physical Health

- Individuals with four or more ACEs (compared to those who had none) had a 1.4-to-1.6 risk of physical inactivity and severe obesity (Felitti et al., 1998).
- Individuals with four or more ACEs (compared to those who had none) had a two-to-four time risk of poor self-rated health (Felitti et al., 1998).
- Respondents ages 18 to 34, compared to those 35 or older, had higher reports of four or more ACEs with a two-to-four time risk of chronic disease and poor health compared to their peers with no ACEs (Sonu et al., 2019).
- As ACEs increase risk of chronic disease increases (Chang et al., 2019).
- As ACEs increase physical health problems increase (Schroeder et al., 2021).

Drug Abuse

- Drug abuse is strongly associated with ACEs (Schilling et al., 2007).
- Individuals with four or more ACEs (compared to those who had none) had a four-to-twelve-time risk for drug abuse (Felitti et al., 1998).
- Individuals with four or more ACEs (compared to those who had none) had a two-to-four-time risk of smoking cigarettes (Felitti et al., 1998).
- Participants who reported methamphetamine, heroin, and/or other opiate and cocaine use had higher ACE scores (Eaves et al., 2020).

- There was a statistically significant relationship between methamphetamine use and having lived with someone who served time in a jail or prison and having a history of someone having them touch them sexually (Eaves et al., 2020).
- Opiate use had a statistically significant association with living with someone who was depressed, mentally ill or suicidal (Eaves et al., 2020).
- Opiate use was also associated with living with someone who used illegal drugs (street or prescription), as well as being touched by an adult sexually (Eaves et al., 2020).

Alcohol Abuse

- Individuals with four or more ACEs (compared to those who had none) had a four-to-twelve-time risk for alcoholism (Felitti et al., 1998).
- As ACEs increase the risk of alcohol abuse increases (Chang et al., 2019).
- Participants' binge drinking was associated with living with someone who exhibited those same behaviors (Eaves et al., 2020).

Sexual Promiscuity

- Individuals with four or more ACEs (compared to those who had none) had a two-to-four-time risk of greater than or equal to 50 sexual intercourse partners.
- Individuals with four or more ACEs (compared to those who had none) had a two-to-four-time risk of Sexually transmitted diseases (Felitti et al., 1998).

Marital Outcomes

- Individuals who reported having four or more ACEs were more likely to be unmarried caregivers (Haynes et al., 2020)

Incarceration

- ACEs are associated with juvenile justice involvement, persistence in crime, and psychosocial problems (Basto-Pereira et al., 2016).
- Child sexual abuse was a strongest predictor of juvenile justice involvement and criminal persistence (Basto-Pereira et al., 2016).
- Emotional maltreatment and mental illness in the household predicted psychosocial problems (Basto-Pereira et al., 2016).

Secular and Biblical Discussion of Results

In addition to the review of literature, chapter two also provided a secular and biblical basis for the dissertation study. Social learning theory was used to explain ACEs and how our experiences during childhood may shape our adult behaviors. For example, there was a discussion of how exposure to ACEs may lead to maladaptive behaviors that negatively impact health outcomes. This will support the first and third research question results. Yet, while the ACE scores were high for this sample, there was not a statistically significant relationship between ACES and disease conditions. According to social learning theory, new patterns of behavior can be acquired through direct experience or by observing the behavior of others and observing the rewards and consequences (or lack of both) of behavior (Bandura & Walters, 1977). This suggests that education (learning new behaviors and observing the rewards and consequences of behaviors) may have been an important factor for this study and support the outcome for the second research question. According to Simonsmeier and colleagues (2022), education is an essential factor to achieve effectiveness and efficiency for patient's health. Using pre- and post-educational attainment indicators, Raghupathi and Raghupathi (2020) found that those with higher education have better health and lifespans compared to those less educated. So, while ACEs may be high for this group, so is their education which may support better health and lifespans.

This dissertation also provides a biblical perspective. Chapter two highlighted ACEs found throughout the Bible and referenced scriptures that align with each ACE question. The discussion of childhood trauma, abuse, dysfunction, and poor health and social outcomes holds a negative tone, which does not align with the Word of God. John 16:33 reads "I have told you these things, so that in me you may have peace. In this world you will have trouble. But take heart! I have overcome the world." We can have peace in Jesus knowing that tribulation is inevitable- trauma and dysfunction are a reality on earth but Jesus forgives and by His wounds we are healed. From the beginning, God ordered Adam and Eve not to eat from the tree of knowledge (English Standard Version Bible, 2001, Genesis 3:3). Adam and Eve disobeyed God, with consequences still impacting mankind today. But God with his love and kindness rescued fallen sinners through the death and resurrection of Jesus Christ.

In addition to the ACEs found throughout the Bible and scriptures that align with each ACE question, the Bible also provides examples of healing:

- "Jesus went throughout Galilee, teaching in their synagogues, proclaiming the good news of the kingdom, and healing every disease and sickness among the people" (Matthew 4:23).
- "When Jesus came down from the mountain, large crowds followed him. A man with a serious skin disease came and bowed down in front of him. The man said to Jesus, 'Sir, if you're willing, you can make me clean.' Jesus reached out, touched him, and said, 'I'm willing. So be clean!' Immediately, his skin disease went away, and he was clean" (Matthew 8:1-4).
- "…because she thought, 'If I just touch his clothes, I will be healed.' Immediately her bleeding stopped, and she felt in her body that she was freed from her suffering" (Matthew 5:28-29)

Implications

Knowing the frequencies of ACEs for a sample of Christian adults and understanding the relationship between ACEs and health risk factors, ACEs and physical health, and ACEs and disease conditions closes a gap in research. When considering these new findings alongside previous research that revealed a relationship between ACEs and poor health and social outcomes, the findings of this study are very concerning and impactful to the scientific community. This Christian sample had more ACEs than the general US population, which research findings suggest put this population at a greater risk for mental health disorders (Felitti et al., 1998; Chapman et al., 2004; Schilling et al., 2007; Chang et al., 2019; Schneider et al., 2020; Haynes et al., 2020; and Schroeder et al., 2021), physical health issues (Felitti et al., 1998; Sonu et al., 2019; Chang et al., 2019; and Schroeder et al., 2021), drug abuse (Felitti et al., 1998; Schilling et al., 2007; Eaves et al., 2020), alcohol abuse (Felitti et al., 1998; Chang et al., 2019; and Eaves et al., 2020), sexual promiscuity (Felitti et al., 1998), and incarceration (Basto-Pereira et al., 2016;).

These results provide a clear rational for the development and implementation of community resources, psychological practice initiatives, and research focused exclusively on the Christian population. From a psychological practice perspective, these results should influence clinical practice. It is recommended that Christian clients and patients all receive ACE questionnaires and trauma informed therapy and medical support given what is now known. Additionally, organizations should invest in the Christian community to explore the additional gaps and provide evidence-based support. There are also implications for research which will be discussed in the recommendations for future research section.

Limitations

There were several limitations discussed in the prospectus prior to the execution of the study. These limitations, if not addressed, had the potential to impact or influence the study's findings. Therefore, these limitations were thoroughly evaluated, and steps were taken to prevent unintended consequences. Some limitations were unavoidable given the utilized methods and sampling techniques, but these limitations provide suggestions for future research.

Sampling and recruitment limitations were thought to limit generalizability. The study used non-probability sampling. In other words, individuals from the population did not have an equal likelihood of being selected to be in the study. Instead, sampling was based on convenience. The first available participants (targeted sample size of 134, but questionnaire closed at 150 responses to leave room for errors) voluntarily completed the study's questionnaire. When using non-probability sampling, the population may not be well represented from the available sample of participants. This was addressed by setting an appropriate sample size for the study. According to Abu-Bader (2011), there is not a required number of participants when using correlational statistics; however, the larger the sample size, the greater the generalizability of the results to the population. The following formula for determining the sample size is recommended: 50+8m, in which m is the number of factors. There are a total of four factors being considered in this study- ACEs, health risk factors, disease conditions, and physical health. Therefore, the study at minimum must have 82 participants [50+8(4) = 82 participants]. Yet, the student researcher decided to use a power analysis to determine the most appropriate sample size. Given a two tailed analysis, with a 0.71 effect size, 0.05 alpha probability and .95 Power, the proposed sample size was 134. The questionnaire was set to receive 150 responses. An additional 16 participant responses were included to cover omitted responses or

errors. Based on the sample size, the student researcher believes the results from the sample may be generalized for the population.

In addition to sample size, the methods held possible limitations due to the subjectivity of survey designs. The study included a questionnaire, which is a self-report measure. Self-report measures may have concerns with the accuracy of self-reports due to bias. Given the sensitivity of the topic, it was mentioned in the prospectus that participants may not feel comfortable providing honest responses, especially related to childhood trauma, abuse, and neglect. Given that the sample identified as Christian and attended a Christian university, acquiescence bias may have occurred due to the perceived "appropriate" or expected response. ACEs may also yield socially desirable bias in which participants report low levels of ACE exposure given the socially unacceptable stigma. These concerns and limitations were addressed by ensuring voluntary participation and anonymous electronic responses. The participants recruited to participate in the study thoroughly completed the questionnaire with minimal omitted responses and errors. To the contrary, it is possible that the current study attracted participants because of the topic. In other words, it may be possible that participants who have experienced ACEs took the survey while those who have not experienced ACEs did not. This bias would conflict with the other biases previously discussed, which predicted that the topic would prevent participation due to the sensitivity of the topic. Yet, like the current study, all the studies discussed in chapter two should have included informed consent, which also advised the participants of the topic being studied. Also, none of the studies in chapter two mentioned the use of deception and were thought to have reliable results.

Finally, the potential for researcher and participant errors were also noted in the prospectus. To avoid errors during self-report, the survey was administered electronically. Each question only allowed a single response and was listed as "required." While the participant could have stopped

participation at any time, submission of the questionnaire required that each question be answered. If the participant failed to respond to a question, they received an error message alerting them of the issue. To avoid researcher error when handling the data, data was uploaded directly from Survey Monkey. While cleaning the data, the student researcher checked responses multiple times and cross checked all information before running statistical analyses. SPSS also alerts for missing data.

Recommendations for Future Research

The current study closed an important gap in literature. We now know the frequencies of ACEs for a sample of Christian adults. We also know for this sample of Christian adults, there is a statistically significant relationship between ACEs and health risk factors, and ACEs and physical health. There is a non-statistically significant relationship between ACEs and disease conditions for this sample. Now that correlational and descriptive statistics have yielded these findings, new gaps in literature have emerged. The most important question is "why?" It must be noted, the current study was not meant to address Christianity as an influence during each participant's childhood. Rather, it was meant to address Christianity within the participants' adult years and the long-term outcomes of this influence on their ACE exposure. This provides an opportunity for future research to examine Christianity during childhood, Christianity in parenting, and even the influence of ACEs on Christianity.

Another important "why" is based on the high frequencies of ACEs for this studied population. As previously mentioned, this Christian sample had more ACEs than the general US population, which research findings suggest put this population at a greater risk for mental health disorders (Felitti et al., 1998; Chapman et al., 2004; Schilling et al., 2007; Chang et al., 2019; Schneider et al., 2020; Haynes et al., 2020; and Schroeder et al., 2021), physical health issues (Felitti et al., 1998; Sonu et al., 2019; Chang et al., 2019; and Schroeder et al., 2021), drug abuse (Felitti et

al., 1998; Schilling et al., 2007; Eaves et al., 2020), alcohol abuse (Felitti et al., 1998; Chang et al., 2019; and Eaves et al., 2020), sexual promiscuity (Felitti et al., 1998), and incarceration (Basto-Pereira et al., 2016;). Miller et al. (2011) believed that ACEs impact the stress response system and neurological responses. He and colleagues reported the impact of dysregulation on human's stress-response process and how it leads to inflammation and neurodevelopmental changes, thus impacting chronic health outcomes.

This correlational study was not intended to describe a cause-and-effect relationship. But these disturbing findings support the need for probability sampling and a quasi-experimental design. Like a true experiment, quasi-experimental designs seek to establish a cause-and-effect relationship without random assignment. Researchers cannot assign participants based on ACE exposure, instead they will be assigned based on non-random criteria. This type of study may elevate the results from examining relationships to understanding the cause-and-effect; the why or the how. As previously mentioned, there are limitations with self-reports. Future studies may consider analyzing medical files in lieu of self-reports to obtain accurate medical history. It is also recommended that Christians be sampled outside of the educational environment. As mentioned in the discussion of results, education may have been an extraneous variable. The study should be repeated outside of the university setting with other recruiting methods. It may also be beneficial for social science to utilize both qualitative and mixed methods to better understand the individual Christian experience. Future studies may consider sampling a larger sample size.

Based on the discussion of results, the following future research questions are proposed:

Quantitative Studies:

- What is the relationship between education and health risk factors in a sample of Christian adults?

- What is the relationship between education and disease conditions in a sample of Christian adults?
- What is the relationship between education and physical health in a sample of Christian adults?
- Why are the rates of ACEs so high in this sample? This can be achieved by examining possible extraneous variables.
- Why isn't there a statistically significant relationship between ACEs and disease conditions for the sample of Christian adults? Again, this can be achieved by examining possible extraneous variables not yet studied.

Qualitative Studies:

- How are individuals with such high ACE scores overcoming barriers and reaching such high academic achievement?
- If and how does the church influence these results?
- How does the church support its community with such significantly higher experiences of childhood trauma, abuse, and dysfunction?

Summary

Considering both biblical and secular perspectives, this quantitative survey design study examined the relationship between ACEs, health risk factors, disease conditions, and physical health on a sample of Christian adults at a private Christian University through the ACE questionnaire alongside health and disease questions that mimicked that of the original ACE study. The study used non-probability sampling and a self-report measure, which held several potential limitations that were noted and addressed by the student researcher prior to the execution of the study. As a result, the study yielded astonishing results that contribute to psychology research and close a significant gap in

research literature. As a result of this study, we now know 90% of the sample of Christian adults has at least one ACE, 50% reported four or more ACEs, and 64.2% reported three or more ACEs. Participants of this study reported a mean of 4.05 and mode of 3 ACEs (SD= 2.826). There is a statistically significant relationship between ACEs and health risk factors in a sample of Christian adults as well as between ACEs and physical health for this sample, however, there was not a statistically significant relationship between ACEs and disease conditions in the same sample. The frequencies of ACE scores were higher than any other sample from the review of literature in chapter two. Research questions one and two's results aligned with the original ACE study findings, but the second research question's findings were not the same. A non-statistically significant relationship between ACEs and disease conditions may be due to education, a potential extraneous variable that should be studied in future research.

This study fills a gap in literature and has implications for future research, public health policy, community and parenting education, and clinical practice that may directly benefit and support the Christian population. The information learned in this study should be considered by psychologists working with Christians and inform their practice. The findings may result in Christian based resources for victims of ACEs and the prevention of ACEs. It also opens the door of possibilities for future research that samples Christian adults and attempts to make sense of these powerful, yet troubling results.

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APPENDIX A: Adverse Childhood Experiences Study Questionnaire (ACE-SQ)

Adverse Childhood Experiences Study Questionnaire (ACE-SQ)

THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND THE LEADING CAUSES OF DEATH IN ADULTS
THE ADVERSE CHILDHOOD EXPERIENCES STUDY ON CHRISTIAN ADULTS

Background: This Questionnaire is adapted from the Adverse Childhood Experiences (ACE) study (Felitti, 1998). This questionnaire will be asking questions about events that occurred in your life prior to the age of 18 years old along with questions about your health, disease conditions, and physical health. The information you provide will help us to better understand ACEs from a Christian perspective. You may stop the questionnaire at any time. If you wish to speak to a professional about your responses to this questionnaire, you may contact Liberty University's Student Counseling Services by phone at [redacted], email [redacted]. Emergency assistance is also available by contacting the Suicide and Crisis Lifeline on phone number 988.

Directions: For the *demographic* section, select the answer that best applies to you. If you select *other*, please provide your response in the blank area. In the *ACE, health risk factors, and disease conditions* sections, please select and/or enter the appropriate response.
You may stop this questionnaire at any time.

Demographic

1. What is your religious denomination? (Select the response that best applies)
   Baptist Methodist Presbyterian Nondenominational Orthodox Episcopal Catholic Lutheran Reformed Spirit-Filled Other: _____
2. What is your gender? (Select the response that best applies)
   Male Female Other_____
3. What is your race? (Select the response that best applies)
   White Black Hispanic Asian Other: _____
4. What is your age group (Select the response that best applies)
   18-34 35-49 50-64 65 or older
5. What is your current education level: (Select the response that best applies)

No high school diploma high school graduate some undergraduate college undergraduate degree some graduate education master's degree doctorate or equivalent degree

ACE

During your first 18 years of life…

1. Did a parent or other adult in the household often:
   Swear at you, insult you, put you down, or humiliate you?
   Or
   Act in a way that made you afraid that you might be physically hurt
   Yes (1 point) No (0 points)
2. Did a parent or other adult in the household often:
   Push, grab, slap, or throw something at you?
   Or
   Ever hit you so hard that you had marks or were injured?
   Yes (1 point) No (0 points)
3. Did an adult or person at least 5 years older than you ever:
   Touch or fondle you or have you touch their body in a sexual way?
   Yes (1 point) No (0 points)
4. Did you often feel that:
   No one in your family loved you or thought you were important or special?
   Or
   Your family didn't look out for each other, feel close to each other, or support each other?
   Yes (1 point) No (0 points)
5. Did you often feel that:
   You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
   Or
   Your parents were too drunk or high to take care of you or take you to the doctor if you need it?
   Yes (1 point) No (0 points)
6. Were your parents ever separated or divorced?
   Yes (1 point) No (0 points)
7. Were any of your parents or other adult caregivers:
   Often pushed, grabbed, slapped, or had something thrown at them?

Or
Sometimes or often kicked, bitten, hit with a fist, or hit with something hard?
Or
Ever repeatedly hit over at least a few minutes or threatened with a gun or knife

Yes (1 point) No (0 points)

8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?

Yes (1 point) No (0 points)

9. Was a household member depressed or mentally ill, or did a household member attempt suicide?

Yes (1 point) No (0 points)

10. Did a household member go to prison?

Yes (1 point) No (0 points)

Health Risk Factors

11. Are you a current smoker?

Yes (1 point) No (0 points)

12. What is your weight (lbs.)?

Enter: _____

13. What is your height (inches)?

Enter: _____

14. Have you participated in any recreational physical activity in the past month?

Yes (1 point) No (0 points)

15. Have you experienced two or more weeks of depressed mood in the past year?

Yes (1 point) No (0 points)

16. Have you ever attempted suicide?

Yes (1 point) No (0 points)

17. Have you ever considered yourself to be an alcoholic?

Yes (1 point) No (0 points)

18. Have you ever used illicit drugs?

Yes (1 point) No (0 points)

19. Have you ever injected drugs?

Yes (1 point) No (0 points)

20. Have you had 50 or more intercourse partners?

Yes (1 point) No (0 points)

21. Have you ever had a sexually transmitted disease?

Yes (1 point) No (0 points)

Disease Conditions

22. Do you have a history of ischemic heart disease (including heart attack or use of nitroglycerin for exertional chest pain)?

Yes (1 point) No (0 points)

23. Have you ever been diagnosed with cancer of any kind?

Yes (1 point) No (0 points)

24. Have you ever had a stroke?

Yes (1 point) No (0 points)

25. Have you ever been diagnosed with chronic bronchitis or emphysema (COPD)?

Yes (1 point) No (0 points)

26. Have you ever been diagnosed with diabetes?

Yes (1 point) No (0 points)

27. Have you ever been diagnosed with hepatitis or jaundice?

Yes (1 point) No (0 points)

28. Have you ever had a skeletal fracture?

Yes (1 point) No (0 points)

29. Do you consider your physical health to be:

Excellent Very Good Good Fair Poor

Thank you for your participation! If you would like to be included in the drawing for one of three $50 gift cards, please visit this website to enter your email address: https://www.surveymonkey.com/r/YV6YJHS.

APPENDIX B: Permission Request Email

February 22, 2023

Dr. Kenyon Knapp
Dean
School of Behavioral Sciences
Liberty University
[redacted]

Dear Dean Knapp,

As a graduate student in the School of Behavioral Sciences' Department of Psychology at Liberty University, I am conducting research as part of the requirements for a doctorate degree. The title of my research project is “The Relationship Between Adverse Childhood Experiences (ACEs) and the Leading Causes of Death in Adults- The ACE study on Christian Adults” and the purpose of my research is to examine the relationship between ACEs, health risk factors, disease conditions, and physical health in a sample of Christian adults as studied in the original ACE study.

I am writing to request your permission to utilize the School of Behavioral Sciences’ email distribution list (undergraduate and graduate) to recruit participants for my research.

Participants will be asked to complete the attached survey. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on an official letterhead indicating your approval.

Your favorable consideration is greatly appreciated.

Sincerely,

Chantel M. Smith
Doctoral Candidate
[redacted]

APPENDIX C: Recruitment Email

Dear Liberty University Students:

As a graduate student in the School of Behavioral Sciences at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to examine the relationship between Adverse Childhood Experiences (ACEs), health risk factors, disease conditions, and physical health in a sample of Christian adults as studied in the original ACE study. I am writing to invite eligible participants to join my study.

Participants must be 18 years of age or older, identify as Christian, and speak English as a primary language. Participants, if willing, will be asked to complete a single questionnaire, which includes demographic questions, questions related to ACEs, health risk factors, disease conditions, and physical health. It should take approximately five minutes to complete the procedures listed. Participation will be completely anonymous, and no personal identifying information will be collected.

To participate, please click here https://www.surveymonkey.com/r/N38WC5P.

An informed consent document is attached to this email. The informed consent document contains additional information about my research. After you have read the consent form, please click the link to proceed to the questionnaire. Doing so will indicate that you have read the consent information and would like to take part in the questionnaire.

Participants may be entered into a raffle to receive one of three electronic $50.00 Visa gift cards by providing their preferred email address at the conclusion of the questionnaire. The drawing winners will be selected by random sampling techniques. Email addresses will be requested for compensation purposes; however, they will be pulled and separated from your responses by the questionnaire software.

Sincerely,
Chantel M. Smith
Doctoral Candidate
[redacted]

APPENDIX D: Informed Consent

Informed Consent

Title of the Project: The Relationship Between Adverse Childhood Experiences and the Leading Causes of Death in Adults- The Adverse Childhood Experiences Study on Christian Adults
Principal Investigator: Chantel M. Smith, Doctoral Candidate, School of Behavioral Sciences, Department of Psychology, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be at least 18 years of age, identify as a Christian, and speak English as your primary language. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of this study is to examine the relationship between Adverse Childhood Experiences (ACEs), health risk factors, disease conditions, and physical health in a sample of Christian adults as studied in the original ACE study.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following:

1. Complete a single, multi-section questionnaire. The questionnaire should take less than five minutes to complete.

How could you or others benefit from this study?

The direct benefits participants should expect to receive from taking part in this study include awareness of their exposure to Adverse Childhood Experiences.

Benefits to society include potential advancement to resources available to Christians who experience Adverse Childhood Experiences, future research, advances in education and psychoeducation, advancement in community and clinical practices, funding and policy changes that may directly benefit Christians.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life. The risks involved in this study include the possibility of psychological stress from being asked to recall and discuss prior trauma and adverse experiences. To reduce risk, participants may contact Liberty University's Student Counseling Services by phone at [redacted], email [redacted]. Emergency assistance is also available by contacting the Suicide and Crisis Lifeline on phone number 988.

How will personal information be protected?

The records of this study will be kept private. Research records will be stored securely, and only the researcher and dissertation committee will have access to the records. Participant responses will be anonymous. Data will be stored on a password-locked computer. Hard copies of research correspondence will be stored in a locked file cabinet. Up to seven years after completion of the study, but no less than three years, all electronic records will be deleted and all hardcopy records will be shredded. Participants are encouraged to complete the questionnaire in a private area to ensure responses are not seen by others.

How will you be compensated for being part of the study?

Participants may be compensated for participating in this study. Participants may be entered into a random drawing for one of three electronic $50.00 Visa gift cards by providing their preferred email address at the conclusion of the questionnaire. The drawing winners will be selected by random sampling techniques. Email addresses will be requested for compensation purposes; however, they will be pulled and separated from your responses by the questionnaire software. If selected, the gift message may read "Thank you for contributing to my doctoral success. You won the drawing!" The gift card will be sent to the recipient from Chantel Smith.

What are the costs to you to be part of the study?

Participation in the study will require internet and an electronic device (i.e., cellphone, laptop, desktop computer). While no additional costs are anticipated, internet and data fees may apply.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the questionnaire without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the questionnaire and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Chantel Smith. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [redacted] or [redacted]. You may also contact the researcher's faculty sponsor, Dr. Patricia Vann, at [redacted].

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, [redacted]; our phone number is [redacted], and our email address is [redacted]

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and

viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.