# EXAMINING THE CORRELATION BETWEEN CHILDHOOD TRAUMA AND SUICIDAL IDEATION AMONG AIR FORCE AIRMEN

by

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Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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## ABSTRACT

For decades, the United States military has been concerned about high suicide rates. Due to the increasing suicide rate within the armed forces, the need to better understand suicide-associated factors such as childhood trauma exposure is imperative. It is important to identify the research gaps that exist for promoting understanding of suicide and suicidal behavior and to enhance identification of those at risk for suicide. While there have been many published studies on the topic, conspicuously absent are studies that have included U.S. Air Force personnel. This research will examine the correlation between childhood trauma and suicidal ideation among Air Force airmen. The questions addressed in this review are (a) Is there a relationship between types of adverse childhood experiences and suicidal ideation among Air Force airmen? and (2) Is there a relationship between military assignments and suicidal ideation among Air Force airmen? The literature reviewed highlights the association between childhood trauma exposures and the risk of suicidal behaviors and the procedures proposed for the study provide directions for identifying those associations among Air Force airmen.


*Keywords:* trauma, childhood trauma, Air Force, Airmen, suicidal ideation, active-duty, military, veterans

## Copyright Page

## Dedication

This dissertation is dedicated to the more than 114,000 veterans and military service membes who have died by suicide since 2001. It is a reminder to their family and friends that they are not forgotten. As a retired member of the military, my passion to serve remains with the men and women in uniform who have sacrificed so much (to include their life) for the freedom of others. My desire is to add to the research that will potentially help save our military force from this deadly predator of suicide.

## Acknowledgments

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To my daughters, Lia and Lauren, thank you for motivating me to be my best. In the world of so many uncertainties, remember the one thing you can always depend on is the inner voice inside of you that says, “You can do it” regardless of what others say. You all were, are now and will always be my motivation to keep striving to be my best.

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# CHAPTER ONE: INTRODUCTION

## Overview

The world is currently fighting the coronavirus pandemic while, at the same time, our nation continues to fight the devastating silent epidemic of suicide among American service members. The prevalent and increasing rates of suicide in our society have become major concerns of the U.S. military in recent years (Griffith, 2017). This chapter presents information related to a study in which the relationship between childhood trauma and suicidal ideation was explored. This chapter contains background information on the problem, statements of the problem and purpose, the study's significance, and questions guiding the research. Also, definitions of terms that are key to understanding the content of the study are included. The chapter concludes with a summary.

## Background

The severity of suicide in the nation is evident from findings that shows that suicide occurred every 11 minutes somewhere in the United States in 2018 (Centers for Disease Control and Prevention, 2018; WISQARS, 2020). Although there is not a universally accepted definition of suicide, there are several proposed definitions of the term. However, a simple definition of the complex problem that our nation is facing today is the taking of one's own life. The National Institute of Mental Health [NIMH] (2020) provides a more formal definition of suicide as death caused by self-directed injurious behavior with intent to die as a result of the behavior. In 2017, the Department of Defense (DoD) adopted recommendations from the Centers for Disease Control and Prevention (CDC) and the National Center for Injury Prevention and Control on uniform surveillance definitions for self-directed violence and codified these definitions into

policy (CDC, NCIP, 2011). The DoD defines suicide as “death caused by self-directed injurious behavior with an intent to die as a result of the behavior” (Stone et al., 2017, p.7).

Suicide is a highly complex and multifaceted problem that includes multiple risk factors that can be psychosocial, neurobiological, and psychopathological (Bahk et al., 2017). Research has documented a consistent and strong association between adverse childhood experiences (ACEs) and negative health outcomes in adulthood (Afifi et al., 2008; Angelakis et al., 2019). ACEs are commonly reported among military personnel and are relevant health surveillance considerations, even if they are not regularly and systematically assessed. Increasing the understanding of risk factors associated with the epidemiology of traumatic experiences in childhood is critical to targeting preventive measures and anticipating the individual’s service needs (Saunders & Adams, 2014). Sadly, suicide has even taken the lives of millions of adolescents in the world (Curtin & Heron, 2019; Glenn et al., 2020). Reducing veterans’ suicide has been the top priority of the Department of Veterans Affairs (VA) officials for the last few years and a major focus of congressional leaders for at least a decade (Griffith, 2017; Knox et al., 2012; Pruitt et al., 2019).

Suicide is a major public health concern (Turecki & Brent, 2016), and research has shown that exposure to traumatic events negatively affects an individual’s physical and mental health. According to the CDC (2018), suicide was listed as the 10th leading cause of death for all ages in 2013. Despite the many efforts to prevent suicide, suicide rates continued to rise by nearly 25% in the past two decades (CDC, 2018). In 2005, the incidence of suicide deaths in the U.S. military began to increase sharply (LeardMann et al., 2013). In 2016, death by suicide accounted for almost 20% of all military reported deaths (Shen et al., 2016).

The reasons for this increase in suicide rates had initially been assumed to be attributed to factors such as unique stressors, i.e., combat deployments. However, employing Cox (1972) proportional-hazards model, which adjusted for age and sex, LeardMann et al. (2013) found a significant association between specific factors and suicidal risk. These factors included "male sex, depression, manic-depressive disorder, heavy or binge drinking, and alcohol-related problems" LeardMann et al., 2013, p. 496). Some of these factors were consistent with those that Cox et al. (2011) identified when studying notes from before and after a person committed suicide. Common descriptors for factors among the two researchers' findings included depressive behaviors such as hopelessness and loneliness.

The Department of Defense ([DoD], 2019) associated demographic factors of sex and age with rates of suicide. Enlisted males under the age of 30 serving in an active military component overwhelmingly met these demographic factors. Similar to other reports (Ryan et al., 2020; Vincent, 2020), combat or deployment-related factors were not significantly associated with the risk of suicide identified in LeardMann et al.'s (2013) statistical analysis. These factors were "combat experience, cumulative days deployed, or the number of deployments" (LeardMann et al., 2013, p.496).

Historically, the suicide rate has been lower among military personnel when compared to civilians' rates adjusted by age and sex. The age-sex type comparison is essentially a way to make a fairer comparison between the two groups (Ryan et al., 2020). This type-adjusted comparison ensures that the suicide rate comparison is not due to differences in the age and sex of the populations being compared. The military reports that suicide rates have increased steadily since 2005. Since 2008 these rates have exceeded those of the civilian population (Ryan et al., 2020), which have remained elevated over the years (Naifeh et al., 2019). Suicide, which

accounts for more deaths than combat or accidents, has now been identified as the leading cause of death in the U.S. military (Ryan et al., 2020). With the rates of suicide among service members rising (Schoenbaum et al., 2014), understanding the behaviors relating to suicidal behaviors has become increasingly urgent.

Suicide rates differ based on rank and service component. Young adults who are enlisted at the rank of E1 to E5 have been identified as having the greatest risk of suicide within the military (Logan et al., 2016). The study utilized the National Violent Death Reporting System (NVDRS) from 16 states from data years 2005-2012. The NVDRS is an anonymous database that collects facts from death certificates, coroners/medical examiners report, law enforcement records and crime laboratories (Paulozzi et al., 2004). The study identified 2,026 military and veteran decedents from the NVDRS to include in the study.

The DoD (2015) reported 266 deaths by suicide among active component service members in 2015. This correlates to a rate of 20.2 deaths per 100,000 service members. In 2018, the DoD released another report documenting that 541 service members across the military's active and reserve components died by suicide. However, within just the active-duty component, the suicide rate was 24.8 per 100,000 personnel (DoD, 2018). Active component service members are defined as service members who are full-time active duty members, as opposed to the reserve component or National Guard (Reimann & Mazuchowski, 2018). According to the 2019 annual report released by the Department of Defense, approximately 500 service members died by suicide. Oprihory (2020) reported that as early as September 2020, suicide accounted for the deaths of 98 active duty airmen, 8 airmen in the Reserves, and 11 aAirmenirmen in the Air National Guard.

In 2008, the U.S. Department of Defense began a systematic data collection effort following any deaths determined to have been caused by suicide among active duty service members of the military (Pruitt et al., 2019). As a result, a data collection portal, the Department of Defense Suicide Event Report (DoDSER) (Tucker et al., 2019) was created to standardized suicide reporting methods in an effort to determine the rate, precursors, and risk factors associated with suicide (Pruitt et al., 2019). The DoDSER is the official reporting system for suicide events across the different service branches: U.S. Air Force, Army, Marine Corps, and Navy (Tucker et al., 2019). DoDSER also includes suicide information from the Space Force. The DoDSER collects data relating to suicide deaths, suicide attempts, and other suicide-related behaviors.

## Problem Statement

Over the past 16 years, the rate of suicide has steadily increased in the United States, with the 2018 age-adjusted rate of 14.2 per 100,000 individuals being the highest rate of suicide since 1986 (Ryan et al., 2020). As a result of these staggering statistics, there has been a rise in suicide research and adaptation of additional prevention measures. However, a large decline in rates of suicidal behaviors is yet to be seen. Each year, suicide claims the lives of approximately 45,000 people in the United States and nearly one million people worldwide (Ribeiro et al., 2019). For youth ages 10 to 19, suicide is the second leading cause of death and, in 2017, over 3,000 youth died by suicide in this age group (Bridge et al., 2018).

For every suicide, there are even more people who attempt suicide (World Health Organization [WHO], 2014). It is estimated that there are 10 to 25 suicide attempts for every suicide death (Crosby et al., 2011; Ribeiro et al., 2019). Emergency departments recorded 1.4 million discharges for self-inflicted injuries and acute care hospitals recorded an additional

758,000 discharges in 2013 (Ports et al., 2017). Studies show that 4% of Americans reported suicidal thoughts in the past year (Substance Abuse and Mental Health Services Administration [SAMHSA], 2018).

The evidence shows that it is often the influence of multiple factors that lead someone to die by suicide. Studies also conclude that most people who die by suicide (approximately 95%) suffer from mental disorders (Cavanagh et al., 2003). Canadian researchers (Mental Health Commission of Canada [MHCC], 2018; White, 2003) concluded that mental illness, particularly depression, is the most significant risk factor for suicide. Studies revealed that more than 80% of people who die by suicide live with a mental illness or substance use disorder, especially those who range in age from 15 to 29 years (MHCC, 2018). In addition to mental disorders, other determinants of suicide may include marital breakdown, economic hardship, a change in physical health, a major loss, or a lack of social support (MHCC, 2018).

In addition to multiple factors associated with suicide, other characteristics are concerning relating to suicidal rates. Suicide, due to its increased occurrence in recent years, has become a major concern for the U.S. military (Griffith, 2017). Members of military services who die as a result of suicide are disproportionately male (Ramchand et al., 2011). However, Street et al. (2015) found that currently deployed women are 3.1 to3.5 times as likely to die by suicide as never-deployed or previously-deployed women. This finding is in contrast to currently deployed men whose risk of suicide is only 0.9 to 1.2 times the rate of non-deployed men. Additionally, statistics show that service members are more likely to be in their 20s and of Caucasian, non-Hispanic race/ethnicity. A longitudinal study of returning Iraq and Afghanistan War veterans showed high rates of mental health problems and suicidality among returning soldiers (Hoge et al., 2006). Losing service members to suicide not only affects the individual's family and friends,

but it also affects military readiness. Approximately 8,000 military veterans die by suicide every year (Castro & Kintzle, 2014).

The rate of military suicides has implications for advocating readiness to better ensure a healthy workforce. Readiness measures the ability of a military unit to accomplish its assigned mission (Spencer, 2001). DoD defines readiness as "the ability of military forces to fight and meet the demands of assigned missions." (Herrerra, 2020, p. 3). In addition, military readiness depends on the ability to "produce, deploy, and sustain military forces that will perform successfully in combat." (Herrerra, 2020, p.1). Service members who struggle with suicidal thoughts affect military readiness because they are unable to deploy and meet mission requirements. The military's greatest asset is its service members. They are dying by suicide at alarming rates across the different service components. For active-duty military personnel, one service member dies every 36 hours (Castro & Kintzle, 2014). Ensuring the mental wellness among military service members will contribute to the overall success of military readiness by maintaining a fit and healthy force.

A great deal has been learned about the risk factors contributing to suicide including biological changes associated with suicide, links between childhood trauma and suicide, and the impact of social and cultural influences, medical and psychosocial interventions. However, many studies about the relationship between childhood trauma and suicidal ideation in the military are limited to active duty Army (Nock et al., 2014). There is a gap in the literature regarding adverse childhood experiences (ACEs) and their impact on airmen. Therefore, it is not fully understood how the different types of ACEs influence suicidal ideation among active duty airmen. A fundamental understanding of the suicide process remains unknown and it appears that national prevention efforts have not been successful (Institute of Medicine, 2002).

## Purpose Statement

The purpose of this quantitative survey study was to close the gap in the literature about adverse childhood experiences (ACEs) and their impact on active duty Air Force airmen. The study intended to determine whether relationships exist between certain types of ACEs and suicidal ideation among Air Force airmen. The study's population consisted of active duty Air Force airmen, aged 18 and older in the United States, who had experienced suicidal ideation and served in the military on or after September 11, 2001.

The dependent variable was suicidal ideation measured through the Beck Scale for Suicidal ideation, a 21-item self-report questionnaire (Beck & Steer, 1993). The independent variables consisted of adverse childhood experiences (emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect) and military assignment. Childhood trauma (adverse experiences) were identified through the Childhood Trauma Questionnaire, a 28-item screening intended to quantify self-reported childhood trauma history in the home (Liebschutz et al., 2018).

## Significance of the Study

There is a fundamental understanding in the literature that the suicide process is unknown, although suicide is an increasing problem in society (Institute of Medicine, 2002; Ribeiro et al., 2019; Ryan et al., 2020). Additionally, studies have shown that high rates of suicide are prevalent among veteran and active-duty military personnel who have never deployed to warzones (Baca-Garcia et al., 2010). Ursano, Kessler et al. (2016) found that suicide attempt rates appeared to increase during the sixth month of deployment. Additional research is needed to identify risk factors associated with suicide for the United States military segments where limited studies have been conducted. ACEs have been associated with large percentages of

suicide attempts among adolescents and adults in the general public (Blosnich et al., 2014; Dube et al., 2001), but confirmation of ACEs as risk factors has not been established for Air Force personnel.

The study has significance in adding to the limited body of literature regarding the effects of adverse childhood experiences on a segment of military personnel. The study draws from findings that suggest military personnel have a high prevalence of childhood adversity (Duel et al., 2019), and that there is a link between poor mental health and the likelihood of suicide among the active duty and veteran population (Gibbons et al., 2012). The intent of the study was to contribute to an understanding of the role that specific types of ACEs may play in contributing to an airman's vulnerability to developing psychosocial disturbances while serving in the military (Herzog & Schmahl, 2018). The findings may provide military leaders with information that links types of military experiences that trigger the reactivation of ACEs and suicidal ideation; thus, suggest key factors for effective knowledge building for prevention implementation.

## Research Questions

Many studies about the relationship between childhood trauma and suicidal ideation in the military are limited to active duty Army (Nock et al., 2014). There are obvious gaps in the literature about adverse childhood experiences (ACEs) and their impact on airmen. Therefore, it is not fully understood how the different types of ACEs influence suicidal ideation among active-duty airmen. Further, a gap in the literature exists for understanding whether the type of military assignment poses a threat to suicidal ideation. Additional research about these factors and their impact on airmen is needed and may be found through exploring the following research questions and hypotheses that guided the study.

RQ1: Is there a relationship between the types of adverse childhood experiences and suicidal ideation among Air Force airmen?

RQ2: Is there a relationship between military assignments and suicidal ideation among Air Force airmen?

These questions posed in the testable form follow.

H01: There is no statistically significant relationship between types of adverse childhood experiences and suicidal ideation among Air Force airmen.

H02: There is no statistically significant relationship between military assignments and suicidal ideation among Air Force airmen.

## Definitions

### Active Component Service Members

This component of service members is defined as service members who are full-time active-duty members, as opposed to the Reserve component or National Guard members (Reimann & Mazuchowski, 2018).

### Adverse Childhood Experiences (ACEs)

This category of experiences is defined as exposure to childhood abuse (sexual, physical, and emotional), neglect (physical and emotional), and household challenges (e.g., parental incarceration, household mental illness, household substance use, parental divorce/separation, intimate partner violence) during the first 18 years of life (Ports et al., 2017).

### Suicidal Ideation

Suicidal ideation refers to thoughts of committing suicide. These thoughts result from specific childhood adversities which include illness in the household, paternal absence and

divorce prospectively predict suicidal ideation at 45 years even after adjustment for confounding and mediating factors (Stansfeld et al., 2017).

**Veterans**

Veterans are broadly defined as individuals who previously served in the military (Lineberry & O'Connor, 2012).

## Summary

The study explored the problem of high suicide rates among military personnel with the recognition that there are limited studies that identify the influence of factors, such as adverse childhood experiences, on suicidal ideation among active duty Air Force airmen. This chapter provided an overview of the study designed to determine whether there are relationships between types of adverse childhood experiences, suicidal ideation, military work assignments, and suicidal ideation among Air Force airmen. The definitions of terms included providing the reader the appropriate context for understanding the study's variables.

A survey design utilized valid instruments to collect data for the study's variables from a population of Active Air Force personnel. The data provided answers to two research questions related to the independent variables consisting of adverse childhood experiences (emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect) and military assignment and the dependent variable, suicidal ideation. The results may have important implications for developing interventions aimed at decreasing and eliminating suicides among military personnel. The literature reviewed in Chapter Two supports the need for more research leading to this study.

# CHAPTER TWO: LITERATURE REVIEW

## Overview

This chapter is a synthesis of the literature that illustrates suicide as a problem in society with high rates concentrated in the United States military divisions. The chapter begins with a discussion of the theoretical framework guiding the research to build an awareness of the problem and the need for interventions. Discussions of the factors influencing suicidal ideation focus heavily on childhood trauma. Topics also address the military and research regarding adverse effects of childhood trauma in components of the military. The chapter ends with challenges associated with the conduct of studies investigating suicidal ideation and a summary.

## Theoretical Framework

The interpersonal-psychological theory of suicidal behaviors serves as the framework for this study. Thomas Joiner developed the theory and published it in 2005. The theory suggests that suicide only occurs through one having both the desire to die by suicide and the ability to do so (Joiner, 2005). The desire to die is based on two psychological states: perceived burdensomeness and a sense of low belongingness or social alienation. These psychological states work together and incorporate the person's feelings of being insignificant, ineffective, alienated, and a burden on someone that results in negative moods (Joiner, 2005, 2009; Kleiman & Lui, 2013). Joiner observed that as individuals engage these thoughts in their minds over time, they develop the desire to die. Perceived burdensomeness is the fatal misconception that the person's existence is a burden to friends and family (Joiner, 2005, 2009). Similarly, a low sense of belongingness is the idea that the person is isolated or not an integral part of a family or valued group. In addition to the interpersonal factors of perceived burdensomeness and low belongingness, the individual must have also acquired the capability for suicide in order to die by

suicide. According to Joiner (2005), this is a process that develops over time. The theory states that in order for there to be a serious suicide attempt, the individual must desire death and experience fearlessness and pain insensitivity such that suicidal behaviors are no longer alarming.

According to the theory, the capability for suicidal behavior emerges via habituation and opponent processes in response to repeated exposure to physically painful and/or fear-inducing experiences (Van Orden et al., 2010). The ability to commit suicide is associated with one's developing a desire to die resulting from experiences with pain, injury, and abuse, whereby a fearlessness of dying is adopted (Joiner & Orden, 2008). Joiner (2005) surmised that past suicidal behavior will cause individuals to become accustomed to the pain and fear of self-injury, making future suicidality, on average, more likely. Research has shown that a history of suicide attempts is a strong predictor of future suicidal behavior, including death by suicide (Brown et al., 2000; Joiner, 2005).

The theory has been applied in numerous investigations and with diverse populations where different experiences contributed to the desire to die. Studies have identified that physical and sexual abuse and other childhood adversities have been related to suicide attempts (Harford et al., 2014; Sugaya et al., 2012). The results of these studies indicate that childhood physical, emotional and sexual abuse, in addition to a variety of psychiatric disorders, are important risk factors for violent behaviors toward self and others (Hartford et al., 2014).

Angelakis et al. (2019) found that severe types of childhood maltreatment, such as sexual and/or physical abuse, produce a tolerance to pain and fear reduction for death which gradually builds the person's ability to commit suicide. Studies suggest that ACEs are very strong

correlates of adulthood suicide risk (Sher, 2017). A more recent investigation confirmed that ACEs remain threats to suicide (Choi et al., 2017).

Joiner (2009) acknowledged that the ability to die is not always a result of experiencing self-pain but can also result from observing others' pain. Utilizing the theory in the proposed study may lead to an awareness of the rates of suicide in the military where victims showed no signs of stress or physical pain. A recent televised news broadcast entitled "Military Suicides Rise" with Norah O'Donnel (Shaylor, 2020), revealed that 15 military personnel had committed suicide during the year and that the latest individual showed no warning signs. Army personnel indicated that the rate of suicide was up by a third with 30% of suicides occurring among active-duty personnel; the rate of death by suicide is currently three times higher than death by an enemy (Shaylor, 2020). An article published in *USA Today* was titled, “Suicide rate among active-duty troops jumps to six-year high” (Vanden Brook, 2020, para.1). Although the writer suggested that stress associated with COVID-19 could make suicidal ideation even worse, COVID-19 has not been established in the literature as a factor in suicides (Shaylor, 2020). While military officials had been hesitant to positively link the COVID-19 pandemic to the increased suicide rate, Air Force and Army officials say they believe the pandemic is adding additional stress to its service members (Baldor & Burns, 2020). The *Air Forces Magazine* reported that as of September 2020, suicide had claimed the lives of 98 airmen. These numbers are consistent with numbers from the same time last year. Unfortunately, the Air Force reported their worse numbers in three decades in 2019 (Baldor & Burns, 2020). In comparison to 2019, Army suicide has shown an increase of approximately 20% in 2020 (Baldor & Burns, 2020).

One of the research questions in the current study is an inquiry of the relationship between the working assignment of military personnel and the rate of suicidal ideation. Referring

to the broadcast (Shaylor, 2020), military personnel acknowledged that they have to recognize when there is a breaking point, to recognize warnings, and to find out why the suicides are occurring in order to reverse the trend. Similar sentiments have been expressed in publications over a period of three years. In 2017, Nelson et al. reported high rates of suicide in the United States, including in veteran and military populations. In 2018, Stein et al. stressed that the U.S. military must make understanding the factors contributing to suicide a priority. The literature concerning the interpersonal perceived provides guidance in evaluating these observations and exploring whether job roles and assignments are contributing factors of suicidal ideation.

Joiner and colleagues (2005) assessed individuals with a family history of childhood verbal abuse, physical abuse, sexual abuse, or molestation. They found that participants who had been physically or sexually abused were more likely to have a suicide attempt than those who had been verbally abused or molested, even when controlling for numerous covariates. Serious drug abuse may provide another means for habituation to pain and provocation.

## Related Literature

The literature reviewed in this section supports the need for exploring suicidal ideation among Air Force airmen and identifying factors contributing to thoughts about committing suicide. Reporting what is known about topics related to the study's intent illustrates the need for further study regarding the influence of adverse childhood experiences on suicidal ideation among Air Force airmen. Established in the literature is the problem of increasing high suicide rates among military personnel despite intervention plans (Litts et al., 1999; McKnight, 2019; Meadows et al., 2015). It can be implied from the continuing rise in suicides is that additional data is needed to improve prevention efforts. Attention to one factor, childhood maltreatment, is relatively new as it relates to the investigation of suicidal behavior among military personnel

(Bloshnich et al., 2014). The link between childhood maltreatment and suicidal behavior is significantly supported with written evidence in the civilian population. However, the link between the two is less identifiable among military personnel (Stein et al., 2018).

The topics included in this review of the literature related to suicide, suicide attempts, and suicidal ideation. The focus of the review is suicidal ideation, defined as thoughts about or planning for committing suicide. The National Institute of Mental Health (NIMH) Information Resource Center (2020) provides statistics on each of these topics from the Centers for Disease Control and Prevention and other data sources. The fact that death by suicide was the 10th leading cause of death in 2018 in the United States illustrates the severity of factors that influence behavior. Statistics about suicide, as applied to the civilian population and components of the military are threaded throughout discussions. The chapter begins with an overall discussion of suicide rates as they apply to the civilian population in the United States. The literature review then encompasses factors that contribute to these rates with attention to adverse childhood experiences.

**Suicide and Suicidal ideation Statistics**

People of all ages, genders, races, and socioeconomic statuses commit suicide. The statistics for suicide rates for the years 2018 and 2019 illustrate that suicides in the U.S. almost tripled the number of homicides, with firearms being the most frequent method of suicide, followed by suffocation and poisoning (NIMH, 2020). Of over 48,000 suicide deaths in 2018 suicide represented the second and fourth leading cause of death for persons ranging in age from 10 through 34 and 35 through 54, respectively (NIMH, 2020). Suicide rates differ based on gender and age within gender groups.

The rates for suicide by gender for the civilian population show that males outnumber those for females. Calculated by the number of suicides per 100,000 people, the rate of suicide for males was a little less than four times higher than that of females in 2018 (NIMH, 2020). Females aged from 45 to 64 years had the highest rates of suicide, while males aged 75 and older had the highest rates of suicide (NIMH, 2020).

For people within the same age range, the rate of suicidal ideation is higher than the rate of attempted suicide. The 2019 statistics showed that while 12 million individuals aged 18 years and older had serious thoughts of suicide during the year, only 1.4 million had actually attempted suicide in the previous year (NIMH, 2020). According to NIMH (2020), people between the ages of 18 and 25 years represented individuals with the highest rate of reported suicidal ideation and with multiple instances of suicidal thoughts during 2019.

The statistics for military personnel are somewhat similar to those of the civilian population. The Department of Defense (2019) identifies suicide rates according to the number of deaths per 100,000 service members, just as rates for the U.S are identified per 100,000 people. Similarities in demographics for decedents in the civilian population and that of the military population include the age and sex of individuals who commit suicide. For all branches of the military, including the active, reserve, or National Guard, the highest rates of suicide for 2019 were for enlisted males under the age of 30 (DoD, 2019) with 85% of the military consisting of males.

Statistics show that males die by suicide more often than females. Male suicides constituted 91.6% of the active component; the age group of 20-24 years represented 39%, and Caucasian constituted 75.6% (DoD, 2019). Additionally, the 2018 suicide rates for service members' spouses and dependents revealed higher rates for male spouses ranging in age from 18

to 60 years than for female spouses (DoD, 2019). Although the female suicide rate was comparable to that of the general U.S. population, the rate for males in the military exceeded that of the civilian population. However, the rate for male dependents less than age 23 years was lower than that of the general U.S. population (DoD, 2019).

Like the civilian population, firearms constituted the most frequent method of military and veteran suicide. Research shows that approximately 70% of military suicides involved firearms compared to 50% of suicides involving firearms in the civilian population (Tanielian, 2019). Service members who attempt suicide with a firearm are much more likely to die than those who attempt suicide through other means (Tanielian, 2019). For example, 85% of military personnel who attempt suicide with a firearm actually die compared to 2 to 4% who attempt to overdose (Tanielian, 2019).

Suicide rates for components of the U.S. military have some similarities and differences. There were more than 100 suicides recorded for Air Force service members in 2018 (McKnight, 2019). In 2019, the number of suicides for airmen in the active component was 83, exceeding the number for all other divisions of the U.S. military except for the Army. However, the suicide rate based on the service member population was similar between the Marine Corps ($N$ = 47, 25.3) and the Air Force ($N$ = 83, 25.1), according to DoD (2019). For the reserve component, the suicide count of 13 for the Air Force was second to the Army's count of 36 in 2019 (DoD, 2019).

The rate of suicide in the Air Force escalated in 2019. Among the active component, 84 suicides occurred during the year, with 11 deaths for airmen and civilians occurring in January alone (Ferguson, 2019; Moreno, 2020). According to Ferguson (2019), in previous reports of suicides over a 14-year span (1990-2004), there were 642 suicides, and from 2012 to 2018, 387 suicides occurred. Examinations of these deaths show that most suicides were associated with

risk factors other than deployment-related factors (Ursano et al., 2016). Griffith (2012) concluded that most suicides among reserve personnel occur during non-duty time. The suicide and suicidal ideation rates have prompted additional attention to possible factors that need to be addressed in prevention programs (Smith et al., 2019). Most important among those factors are adverse childhood experiences (Smith et al., 2019).

**Adverse Childhood Experiences (ACEs)**

Childhood trauma has been identified as an independent risk factor for past suicidal behavior and future suicide attempts in adolescents and adults (Afifi et al., 2008; Afifi et al., 2016; Angelakis et al., 2019). Adversity in childhood, such as physical and sexual abuse, parental divorce, and depression, predicts increased risks of suicidal ideation and completed suicide in adolescence and early childhood (Agerbo et al., 2002; Fergusson et al., 2000; McLaughlin et al., 2010; Stansfeld et al., 2017). In addition, suicidal ideation is identified as being an increased risk factor for future suicidal behavior and is a significant indicator of distress as well as an opportunity for intervention (Ursano et al., 2020). Traumatic experiences in childhood, also known as adverse childhood experiences (ACEs), have shown strong associations with suicidal behavior throughout an individual's lifespan (Ryan et al., 2020). The Kauai longitudinal study was one of the first studies to clearly link adverse childhood experiences to impaired physical and psychological development (Werner, 2012). According to Afifi et al. (2016), there has only been a limited number of studies examining military samples that identified childhood maltreatment as a risk factor for suicidal behavior. Another study on Canadian service members found an association between childhood physical abuse, sexual abuse, and exposure to domestic violence, and adult suicidal behavior (Afifi et al., 2016).

Empirical research has also shown strong links between several types of childhood maltreatment and adult suicidality among individuals in the community and those diagnosed with psychiatric disorders (Gal et al., 2012). It is estimated that up to 30% of the civilian population has experienced childhood maltreatment (Hussey et al., 2006). Physical, sexual and emotional, or psychological abuse and neglect are among the most common types of maltreatment encountered by children and young people (Finkelhor et al., 2013). Studies conducted with civilian populations suggest that ACEs have a strong positive correlation to adulthood suicide risk (Sher, 2017). Childhood abuse is strongly associated with a diagnosis of posttraumatic stress disorder (PTSD) which is a risk factor for suicidality (Siddaway et al., 2015).

Adverse childhood experiences (ACEs) is defined as exposure to childhood abuse (sexual, physical, and emotional); neglect (physical and emotional); and household challenges (e.g., parental incarceration, household mental illness, household substance use, parental divorce/separation, intimate partner violence) during the first 18 years of life (Ports et al., 2017). Exposure to ACE has been linked to several risk factors such as unhealthy physical, mental, and behavioral health disorders, and premature death (Gilbert et al., 2015). According to Perepletchikova and Kaufman (2010), individuals who experience childhood trauma are more likely to experience suicidal behaviors.

ACE has also been associated with leading causes of adult morbidity, mortality, and premature death (Gilbert et al., 2015). Studies have shown that experiencing traumatic events during childhood, at a time when the individual is most vulnerable, increases the risk of the individual developing psychiatric disorders later in adulthood (Stansfeld et al., 2017). Physical and sexual abuse along with other childhood adversities have been established to be associated with suicidal ideation and attempts (Harford et al., 2014). Research has shown that if a child

experiences adversity in childhood, such as parental divorce and sexual abuse, there is an increased risk of certain mental health disorders, suicidal ideation, and completed suicide in adolescence and early childhood (Agerbo et al., 2002; Stansfeld et al., 2017).

It is unknown whether the relationship between childhood adversity and suicidal ideation extends into midlife, although some studies indicate that this may be the case. Kimonis et al. (2010) researched the relationship between childhood abuse and suicidal behaviors among incarcerated women. They found that childhood abuse is relatively prevalent among women and is an important risk factor for both criminal behavior and suicide-related behavior (Kimonis et al., 2010). Early traumatic experiences can impair adult mental health, perceived well-being, daily activities, and psychological distress (Nurius et al., 2015). There is consistent evidence showing a significant association between reported childhood adversities resulting in suicidal ideation and completed suicide in adulthood. However, according to Ryan et al. (2020), childhood adversities have received much less scientific attention than mental disorders or genetic factors.

There is increasing evidence of a relationship between a history of childhood abuse and difficulty developing and maintaining a network of social support (Rudenstine et al., 2015). There is both empirical evidence and strong theoretical support suggesting that social support may be a protective factor in suicide. These characteristics make it less likely that an individual will consider, attempt, or die by suicide. Protective factors have been found to play a critical role in suicide prevention (Kleiman & Lui, 2013; Rudenstine et al., 2015). Identifying protective factors provides direction on what behaviors to change or promote to reduce the risk of suicide. For example, social support may increase feelings of belongingness, which is negatively

associated with suicide risk within Joiner's Interpersonal-Psychological Theory of Suicidal Behavior (Joiner, 2005; Kleiman & Lui, 2013).

Researchers suggest that military personnel have a high prevalence of childhood adversity (Carroll et al., 2017; Perales et al., 2012). Some research findings revealed that most veterans had experienced several types of adversities during childhood and/or adolescence. More than 80% of veterans reported experiencing at least one childhood trauma or adversity (Carroll et al., 2017). Childhood trauma has been shown to play a role in mental health in combat veterans because it is associated with adult trauma and increased symptomatology (Clancy et al., 2006).

Several studies evaluating the relationship between childhood trauma and suicide have been conducted. A study of a non-clinical sample of 897 participants detected a significant relationship between childhood emotional neglect and emotional abuse and suicidal ideation and suicide attempts (Saraçlı et al., 2015). In another study involving 6,027 participants, childhood trauma and lifelong suicide attempts were associated with suicide plans and intentions (Park et al., 2015). Juang and Yang (2014) found that childhood trauma increased the risk of suicide. Similarly, Passmann et al. (2013) concluded that childhood trauma could trigger and increase the recurrence of psychiatric disorders. According to Dorresteijn et al (2019), several studies have found a graded relationship between the number of childhood traumatic events experienced over time and the increased risks for alcohol and substance abuse, depression, adult diseases, and suicide attempts later in life.

Studies exploring the influence of adverse childhood experiences have evolved. In 2008, Afifi acknowledged that only a few published studies had measured the prevalence of psychiatric disorders and suicidality and its association to adverse childhood experiences. Among the few studies, Dube et al. (2001) found that of 67% of lifetime suicide attempts, 80% of child or

adolescent suicide attempts, and 64% of adult suicide attempts were attributable to having experienced one or more adverse childhood events. In recent studies, Angelakis et al. (2019) demonstrated that all types of childhood abuse are associated with increased risk for suicide attempts and suicidal ideation in adults independent of demographic, clinical, and methodological variations across the studies. Further, Blosnich et al. (2014) concluded that a greater awareness of ACEs and resulting vulnerabilities might also help in understanding health outcomes in current military personnel.

### *Childhood Physical and Sexual Abuse*

Research has shown that biological, psychological, social, and cultural factors impact the risk of suicide. Two of those factors are childhood physical and sexual abuse. Unfortunately, childhood abuse and neglect are common problems. In 2008, an estimated 772,000 children in the U.S. were victims of child abuse, with 120,000 substantiated cases of physical abuse and 70,000 of sexual abuse (Lopez-Castroman et al., 2013). Ten years later, the U.S Department of Health and Human Services, Administration on Children, Youth, and Families (ACYF), Children's Bureau (2020) reported similar numbers with an estimated 700,000 children falling victim to child abuse each year.

Researchers indicate that physical and sexual abuse and other childhood adversities are related to suicide attempts (Harford et al., 2014; Sugaya et al., 2012). Studies have found that children who are sexually abused have more social and psychological problems later in life (Allen et al., 2014). According to several studies (Byran et al., 2014; Griffith, 2014) presented at the American Psychological Association’s annual convention, trauma experienced by military service members and veterans before entering military service may contribute to the high rates of suicide while on duty. At the same convention, experts from the National Center for Veterans

Studies (NCVS) of the University of Utah reported that experiencing child abuse is a significant risk factor for service members and veterans who attempt or commit suicide (Byran et al., 2014).

Researchers have examined the association of various adverse childhood experiences to include physical and sexual abuse and adult suicidal behaviors. Thompson et al. (2019) applied logistic regression analysis to the ACE variables of physical, sexual, and emotional abuse, neglect, parental death, incarceration, alcoholism, and family suicidality to determine their impact on suicidal ideation and attempts among a large national adult sample. Logistic regression analysis of these variables "indicated that physical, sexual, and emotional abuse, parental incarceration, and family history of suicidality each increased the risk by 1.4 to 2.7 times for suicidal ideation and suicide attempts in adulthood" (Thompson et al., 2019, p. 121).

Child abuse and neglect have been identified as serious public health concerns that account for 4.3 million referrals to child protective services involving approximately 7.8 million children in 2018. Nationally, there is an estimated 678,000 victims of child abuse and neglect. This equates to a national rate of 9.2 victims per 1,000 children in the population (U.S. Department of Health and Human Services, 2020). Exposure to child sexual abuse and child physical abuse leads to a significant increase in the occurrence of various poor mental health outcomes, including suicidal ideation and behavior, experienced between ages 16 and 25 (Fergusson et al., 2008).

In a study conducted by Joiner et al. (2007), researchers found that childhood physical and violent sexual abuse should be seen as greater risk factors for future suicide attempts than molestation and verbal abuse. Data collected from the National Comorbidity Study led to the conclusion that men who reported childhood rape were 11 times more likely to report a serious suicide attempt compared to men who were not raped (Molnar et al., 2001). In another study,

Cash and Bridge (2009) found that exposure to child sexual abuse had a more harmful effect on mental health outcomes than exposure to only child physical abuse. Research shows that severe sexual abuse, such as vaginal or anal penetration in childhood, is associated with higher rates of suicidal ideation and attempts than are seen with other types of sexual abuse (Lopez-Castroman et al., 2013).

Little is known about the importance of sexual and physical abuse compared to other severe childhood adversities regarding chronic suicidal behavior (Ystgaard et al., 2004). Studies seem to indicate that, among depressed individuals, the earlier the age at onset of sexual abuse, the greater suicidal intent reported for suicide attempts. Joiner et al.'s (2007) study showed a significant relationship between sexual abuse and suicide attempt and intention.

The literature also demonstrates a relationship between different forms of childhood abuse and suicide or suicide attempts. In one study, Bruffaerts et al. (2010) found that a history of childhood sexual abuse was associated with a 10.9-fold increase in the odds of an attempt between the ages of 4–12 years, a 6.1-fold increase in the odds of an attempt between the ages of 13 and 19 years, and 2.9-fold increase among those between the ages of 20 and 29 years. Veterans who reported physical neglect as a child were significantly more likely to report a history of attempting suicide (Sher, 2017). Crawford and Fielder (1992) found that 40% of U.S. Air Force basic trainees being discharged had a history of childhood sexual or physical abuse.

### *Adolescent Depression*

Child abuse is associated with numerous negative long-term consequences, including depression. Although studies have not found that combat or deployment-related factors were not significantly associated with the risk of adults who commit suicide, a study conducted by the California Department of Education found that adolescents with parents or siblings serving in the

military and who have been on multiple deployments are at increased risk for suicidal ideation and depression (Jackson, 2013). The study found that teens from military families have similar mental health concerns as other teens. However, teens with a deployed parent or sibling who deployed once are 40% more likely to experience feelings of sadness, hopelessness, depressive symptoms, and increased suicidal ideation. For those deployed twice overseas, the percentage increased to 56% (Jackson, 2013). Depressive disorders increase the risk of suicidal behavior (Kalin, 2020; Sher, 2017). Depressive symptoms have been shown to be strongly linked to suicidal ideation and suicidal behavior and represent an important and potentially modifiable risk factor for suicide (Fiedorowicz et al., 2021).

Recent research findings suggest that abuse is more damaging. High levels of depression were more frequent among children who were abused in the first five years of their life (Lopez-Castroman et al., 2013). Conclusions from a meta-analysis of the long-term health consequences of childhood abuse noted that childhood physical abuse is associated with the increased odds of a depressive disorder in adulthood (Norman et al., 2012). Although studies support a causal relationship between trauma onset during childhood and its psychobiological effects, little research has been conducted on the temporal coincidence of developmental stages and trauma consequences (Ehlert, 2013).

Prior history of childhood trauma is an important risk factor for depression. Certain types of childhood trauma continue to constitute risk factors for depression in old age, outweighing more proximal causes. A recent study conducted by Applewhite et al. (2016) identified major depressive disorders as risk factors for new soldiers who may attempt suicide.

According to Lopez-Castroman et al. (2013), no studies have examined the relationship between the age at onset of abuse and the risk for suicidal behavior in later life. A study by

Surtees et al. (2006) found a strong relationship between childhood events and recent episodes of major depression. Based on a study of an elderly cohort, Ritchie et al. (2009) suggested that adverse childhood events may continue to constitute a significant risk factor for depression throughout the life span. The researchers observed that exposure to traumatic events in childhood doubled the risk of late-life depression and increased the risk of repeated episodes. They concluded that certain types of early childhood trauma continue to constitute risk factors for depression in old age and their effect outweighs more recent life events and other proximal causes of depression (Ritchie et al., 2009).

### *Parental Divorce*

Studies reveal that parental divorce negatively influences a child's mental health. One study found that children of broken homes are at more of an increased risk of suicidal behaviors, with boys being the most vulnerable (Fuller-Thomson & Dalton, 2011). Many studies (Afifi et al., 2008; Fuller-Thomson & Dalton, 2011; Stansfeld et al., 2017) that examined the effects of childhood parental divorce on adult well-being have identified links between parental divorce and suicidal behaviors. Research has shown that adults who experienced childhood parental divorce are more likely to have mental health disorders in adulthood and a greater risk for suicidal attempts and suicidal ideation than peers with non-separated parents (Fuller-Thomson & Dalton, 2011). Stansfeld et al. (2017) confirmed that specific childhood adversities, which include illness in the household, paternal absence, divorce, recalled parental sexual, and physical abuse, predict suicidal ideation.

The research on parental divorce includes its effects based on the gender of their children. For example, a study conducted at the University of Toronto (Fuller-Thomson & Dalton 2011) found that men from divorced families had more than three times the odds of suicidal ideation

compared to men whose parents had not divorced. In contrast, Haimi and Lerner (2016) reported findings that men and women were more likely to attempt suicide when compared to their peers whose parents did not separate or divorce. Findings of another study revealed that adult daughters of divorced parents had 83% higher odds of suicidal ideation than their female peers who had not experienced parental divorce (Fuller-Thomson & Dalton, 2011).

The influence of parental divorce has varying results. In an early study, Afifi et al. (2008) found that parental divorce was a childhood adversity that significantly contributed to poor mental health outcomes, especially when combined with child abuse. However, a more recent study revealed that among respondents who experienced parental divorce and child abuse, less than 25% had posttraumatic stress disorder and only 34% had any mood disorder (Afifi et al., 2016).

**Military Service and Adverse Outcomes**

There is evidence to suggest that military service influences some outcomes associated with childhood adversity (Duel et al., 2019). Studies have shown that U.S. military veterans with adverse childhood experiences are more likely to experience homelessness, health problems, or mental health problems in adulthood (Duel et al., 2019). Reference to the veterans in this paper is generally associated with individuals who have previously served in the military (Lineberry & O'Connor, 2012).

The results of studies by Blosnich et al. (2014) and Afifi et al. (2016) indicate that some people join the military service to replace a dysfunctional home environment with a more structured environment. A study conducted by Afifi et al. (2016) of Canadian Armed Forces personnel concluded that individuals with a history of child abuse might be more likely to join the military. The Kauai Study also found that joining the military may serve as a means to escape

from a difficult social environment to establish a more stable lifestyle (Applewhite et al., 2016). On the contrary, a study by Woodruff et al. (2006) concluded that most people enlist in the United States military for positive motives such as patriotism, altruism, and self-improvement.

Studies have shown that military service may expose persons with a history of trauma to additional trauma (e.g., combat and military sexual trauma), which may increase the risks of poor mental health contributing to suicidality (LeardMann et al., 2010). The fact is that the prevalence of childhood adversity among the military population is largely unknown. Research on mental health and suicide risk among active-duty personnel and military veterans focuses on traumas related to the military service (Sher, 2017). However, focusing on traumas relating strictly to military service is not adequate in defining the crucial and causal role of childhood trauma in military suicide.

**Childhood Trauma in U.S. Active-Duty Military**

Suicides and suicide attempts continue to be problems in the military with each active duty service showing an increase in suicide-related deaths (Armed Forces Health Surveillance Center, 2012; Lineberry & O'Connor, 2012). The Department of Defense has reported a steady rise in suicide-related cases over the past five years (Griffith & Bryan, 2018). According to a JAMA Network Open study (Ursano et al., 2020), a history of exposure to traumatic events indicates future suicidal ideation in deployed soldiers. Even so, it is important to note that child sexual abuse does not always lead to suicide. However, documented research demonstrated consistent support for a strong link between childhood trauma and suicidal ideation or suicide completion (Blosnich et al., 2014).

According to Schultz et al. (2006), veterans report experiencing a higher prevalence rate of childhood trauma than civilians. As individuals with a history of childhood abuse continue to

be recruited into the military, it is not surprising that some recent evidence indicates a high prevalence of child abuse exposure among U. S. veterans (Afifi et al., 2016). Lapp et al. (2005) found that 96% of male veterans experienced some form of victimization during their lifetime. Although the number of suicides indicates that many similarities exist between the different branches of the military (Air Force, Navy, Marine Corps, and the Army), in terms of suicide rates, substantial differences related to service branch size, mission, and culture should be taken into account (Lineberry & O'Connor, 2012).

Blosnich et al. (2014) compared the prevalence of childhood adversities among persons before the age of 18 with and without a history of military service in the United States. As a result of findings, Blosnich et al. (2014) concluded that men with a history of military service had a higher prevalence of ACEs than men who did not serve in the military. Afifi et al. (2016) also found that child abuse exposure may increase the likelihood of suicide-related outcomes.

The U.S. Army consists of approximately 500,000 active-duty members and represents the largest, oldest, and most senior military branch (Griffith, 2017). Within the DoD, the suicide rate climbed from just over 10 per 100,000 in 2001 to almost 16 per 100,000 in 2008, and the increase stems largely from a statistically significant increase in the suicide rate in the Army. The suicide deaths in the Army increased from 8.7 per 100,000 in 2001 to 21.5 per 100,000 in 2011, surpassing the adjusted civilian rate for the first time in 2008 (Lineberry & O'Connor, 2012). Since 2010, more U.S. soldiers have died from suicide than in combat (Armed Forces Health Surveillance Center, 2012; Mitchell et al., 2012). The suicide rate in 2010 was reported as 33 per 100,000 Army National Guard soldiers. Although evidence has shown links between combat exposure and suicidal ideation, nearly half of suicides among active-duty personnel have been

among persons who have never deployed to war zones (Mitchell et al., 2012), leading to the need for further research of suicide risk factors.

Suicide among Army soldiers has been linked to childhood trauma. For example, findings from Ryan et al.'s (2020) study revealed that, of U.S. Army soldiers, 43% of those who died by suicide and 65% of those who made a suicide attempt had experienced some form of childhood trauma. Similarly, Stein et al. (2018) found that nearly 1 out of 5 soldiers had experienced childhood maltreatment from a study of 38,237 soldiers from 2011 to 2012. This same study reported childhood trauma was prevalent among 43% of active-duty soldiers who died by suicide. The researchers concluded that childhood maltreatment was strongly associated with suicidal behaviors among new soldiers reporting for basic combat training.

Suicide mortality rates in the Army and Marine Corps have increased since the beginning of Operations Enduring Freedom and Iraqi Freedom (Armed Forces Health Surveillance Center, 2012). A report from the U.S. Marine suicide prevention program indicated a record number of 172 Marines attempted suicide in 2011. This is more than double the number of Marines who attempted suicide in 2002. About 75 Marines across active and reserve Marine forces ended their own lives in 2018 (Snow, 2019). In one study, Gradus et al. (2012) found that pre-military stress and trauma variables were strong predictors of suicide attempts in a sample of U.S. Marines over 10 years of follow-up.

Stressful and traumatic events occurring during childhood, particularly sexual abuse, had a strong association with subsequent suicide attempts, as did sexually traumatic experiences during recruit training. This is consistent with early research that found that a history of abuse, neglect, or rejection is associated with an increased likelihood of suicide attempts or completed suicide among Marines (Gradus et al., 2013). However, recent reports suggest that there was a

decline in the Marine Corps suicide rate for the calendar year of 2019 (Department of Defense, 2018). There was a recorded suicide rate of 25.3 per 100,000 active-duty Marines, a decrease from the rate of 30.7 per 100,000 active-duty Marines in 2018 (Department of Defense, 2018).

The Navy has seen a rise in suicides among active-duty personnel. In 2019, the Navy's active-duty suicide rate increased to 22.3 per 100,000 active-duty personnel, from the 2018 suicide rate of 20.1 per 100,000 active duty service members (Werner, 2020). The year 2018 was a sad and troubling year for the military-related to the military suicide rate. In 2018, the military reported the highest number of suicides among active-duty personnel than in the previous six years. A DoD report indicates that 68 sailors committed suicide in 2018, up from 65 in 2017. A survey of female Navy recruits found that 56% of women had some form of unwanted sexual contact before entering the military (Stander et al., 2007). Studies support that sexual trauma in the military is among factors of suicidal ideation (Monteith et al., 2019).

There has been little research conducted by the U. S. Air Force regarding evaluating the relationship between childhood trauma and suicidality. The Air Force focuses on the implementation of prevention measures to combat suicidal behaviors. The Air Force developed a suicide prevention program aimed to reduce risk factors, strengthen social support and social skills, and modify social norms to encourage the individual to seek help (Knox et al., 2012). Knox et al. evaluated the Air Force program and found it to be associated with a 33% reduction in the suicide rate. In a study conducted by Crawford and Fielder (1992), researchers found that 40% of U.S. Air Force basic trainees being discharged had a history of childhood sexual or physical abuse.

**Air Force Airmen: Suicide Incidence and Prevention Efforts**

Historically, rates of suicide have been concerning among Air Force airmen. According to the Department of the Air Force (2001), airmen died during the 1980s through the 1990s with engagement in such conflicts as the Gulf War, Bosnian War, and others. However, death by suicide, basically among enlisted males, represented the second cause of death. The report revealed that only a third of these individuals had received mental health services (Department of the Air Force, 2001). From 1990 to 1994, suicide rates increased among active-duty U.S. Air Force and represented 23% of deaths, or 16.4 suicides per 100,000 service members (Litts et al., 1999). Prevention measures were implemented in 1996 focused on a comprehensive, community-oriented strategy. After the launch of this program, the rate of deaths by suicide decreased from 16.4 per 100, in 1994 to 9.4 per 100,000 members in 1998 (Litts et al., 1999).

An analysis of suicides from 1990 to 2004 revealed there were 642 cases among active-duty Air Force airmen, with enlisted airmen accounting for 95% of the deaths (Yamane & Butler, 2009). The Defense Suicide Prevention Office (2018) reported a similar trend that showed that 387 suicides occurred over a period of six years from 2012 through a portion of 2018. However, recent years have seen an upsurge in rates, reaching a 30-year high in 2019, with 84 instances occurring (Moreno, 2020; Vincent, 2020). The annual totals of suicides among Air Force airmen have typically ranged from 60 to 64, with the highest number of cases in this century being 64 in 2015 and 100 in 2018 (McKnight, 2019; Vincent, 2020).

The Air Force has been consistent in exploring possible reasons for these rates of suicides and prevention measures. Members of a team engaged in research for designing a comprehensive plan considered the following:

- Airmen feared losing their jobs and avoided seeking professional help because of the stigma associated with mental health problems and their treatment.
- Many airmen perceived that commanders and supervisors routinely viewed mental health records, which reinforced the barriers due to stigma.

The Air Force was losing one of its defining qualities, a supportive interconnectedness that was best described by an old, though oft-repeated slogan: “The Air Force takes care of its own.” (Department of the Air Force [DAF], 2001, p. 7).

Risk factors identified with some suicides included legal problems, financial problems, and relationship problems. In 1993, the decision to use a survey to screen for behavioral risks resulted in developing and incorporating the Behavioral Health Survey (DAF, 2001). The survey administration provided information regarding "alcohol use frequency, emotional distress, lack of cooperation with a partner, psychological stress and job dissatisfaction" (DAF, 2001, p. 28).

The Suicide Prevention Program has undergone revisions since its origination. The Air Force has relied on the expertise and recommendations of agencies such as the Centers for Disease Control and Prevention and the Rand Corporation (McKnight, 2019; Meadows et al., 2015). According to Ferguson (2019), recent changes in the program were initiated through a memorandum entitled "What Can I Do Today," which provided tips for identifying signs of suicide. The memo called for a change in the Air Force’s culture, which encouraged airmen to seek help. The focus on changing Air Force culture would result in a common response to preventing suicide entailing airmen supporting others (Ferguson, 2019). This cultural change supports the observations of the team that facilitated developing the comprehensive prevention plan in 1996. The DAF's (2001) report indicated that the team identified social support and interconnectedness as one category of protective risk factors. This category suggests that airmen

with suicidal tendencies may benefit from the support of fellow airmen. This form of social support may be especially relevant to reducing the fear of losing a job or being stigmatized.

**Resilience and Military Suicide**

Research has shown that for the past 15 years, the prevalence of suicide among service members has increased with rates now exceeding the rates of suicide among the civilian population. In response, the military began implementing strategic approaches to reduce, prevent, and stop suicide among its members. One of these approaches is providing resiliency training for its service members. Liu et al. (2014) defined resilience "as a set of stable individual traits in the mastery of self-esteem, which allows the individual to cope with changes in the environment and within the individual themselves" (p. 2). The Air Force's definition of resilience is "the ability to withstand, recover and/or grow in the face of stressors and changing demands" (Meadows et al., 2015). Accordingly, the Department of Defense (DoD) began implementing programs aimed at enhancing the resilience of military personnel to mitigate traumatic stress; thereby, reducing suicide risks (Kemplin et al., 2019; Meredith et al., 2011).

Interest in building and maintaining resilience is evident in military training programs. However, the rate of suicide continues to increase despite concerted efforts to educate service members, increase access to mental health care, and reduce the stigma related to seeking help for treatment (Meadows et al., 2015). Scientific interest in resilience seeks to understand why some children raised in poverty or under great adversity continue to grow and live successful lives, whereas others struggle mentally, physically, and economically (Simmon & Yoder, 2013). For the military, interest in understanding resilience is based on the continuous stressful conditions which provoked the military to study resilience among their members. Some service members

overcome stressful problems in their lives while others cannot effectively cope and struggle mentally or physically as a result of their stressful situations (Meadows et al., 2019).

Meredith et al. (2011) noted that there is not a standard definition for the term resilience. This makes it difficult for leaders to understand their mission and provide clear guidance for those developing program outcome measures. However, the DoD and different branches of the military have begun to be more proactive in defining the concept of resilience. They continue to focus on looking at ways in which service members can build and maintain resilience in the face of their military-related struggles and other outside stressors relating to military service in hopes of reducing or preventing suicide among U.S. service members (Meadows et al., 2019).

**Challenges Related to Reducing Suicidal Ideation**

The reduction and prevention of suicides entail ways to prevent suicidal ideation and suicidal attempts. Challenges to suicidal ideation include that individuals with thoughts about committing suicide may not share them. This is especially the case when a person chooses not to disclose the suicidal ideation to family members (Ohtaki et al., 2019). Reports of suicide among military personnel also reveal that family or others did not observe any suicidal behaviors prior to the individual committing suicide (Shaylor, 2020). However, some individuals with high suicidal behavior use other avenues to discuss their distresses, such as crisis hotlines and communications through social media platforms.

Crisis hotlines have shown promising and not so promising interventions for suicidal ideation. Ohtaki et al. (2019) noted that hotlines had reduced the risk of suicide, especially among individuals below age 20 with family problems. Hotlines for Japanese callers resulted in a lower suicidal ideation rate for those with family problems except for problems related to "abuse, family breakdown, and domestic violence" (Ohtaki et al., 2019, p.1). These and other problems,

including trauma, depression, and sexual abuse are frequently identified as predictors of suicidal ideation among youth (Stokes et al., 2015). Interventions through hotlines include counseling with the individual caller, making follow-up calls to individuals, and teletherapy (Mousavi et al., 2014; Ohtaki et al., 2019).

Characteristics of callers to telephone hotlines with suicidal ideation vary. Although daily behaviors may not suggest suicidal ideation, the gender of the caller, the time of year, repeated calls, and discussions about family problems are among characteristics associated with hotline callers. Callers with increased suicidal ideation called more frequently during the winter in a study that Doki et al. (2016) conducted. Findings also revealed that single males represented the most frequent callers and that a small percentage of callers had previously attempted suicide. However, the majority of callers discussed their lives and the idea of committing suicide.

The Military Crisis Line (n.d.) offers services such as text messaging and online chat for service members. The website includes services for each branch of the military. These services include suicide prevention programs that aid military personnel and their families. Branches also provide links to crisis hotlines, including the National Hopeline Network for counseling services in various centers, the National Suicide Prevention Lifeline, TALK (8255) that contains a site for military service members and veterans, and Veterans Chat, an online counseling service that permits veterans, service members and their families to engage anonymously (United States Coast Guard, n.d.). Crisis hotlines such as TALK are available to military personnel and their families 24 hours daily at no cost.

Studies of the effectiveness of crisis lines in suicidal prevention have identified results based on immediate and distant outcomes. Hoffberg et al. (2020) reviewed 33 studies of crisis and chat lines for their proximal and distant effects. Proximal effects referred to immediate

outcomes from calls such as changes in the mood of the caller, referrals for assistance, and changes in suicidal ideation. Measures of distant effects or outcomes were similar to proximal measures and included mood and satisfaction of the caller, referrals, utilization of services, and helper approaches (Hoffberg et al., 2020). These outcomes ranged from a week to four years after the initial crisis line call. Hoffberg et al.'s review included proximal effects for three U.S. Veterans crisis line studies and one U. S. crisis line study for distant effects. The researchers concluded that although most studies reported effective outcomes, there was a high risk of bias was associated with 80% of the studies. In some instances, findings revealed mixed outcomes from callers where about half indicated they followed through on decisions made on the call and about the same indicated that they did not follow-up on their promises. Also, Hoffberg et al. reported findings of one study where suicide rates among crisis line callers were significantly high. However, Hoffberg et al. pointed out that this did not constitute ineffectiveness of crisis lines but shows there is an increased risk of suicide among crisis line callers.

Crisis hotlines provide services for individuals who may not seek counseling in traditional settings. Knox et al. (2012) investigated the effectiveness of the National Suicide Hotline in which the clinical staff of Veterans Affairs served as hotline counselors. According to Knox et al., the hotline’s creation responded to the need for interventions for individuals with suicidal behaviors who may demonstrate a reluctance to receive mental services in other settings. The study mostly involved male callers to the 24-hour hotline. The number of initial referrals for assistance in one year (4,000) and the number of increases in referrals over a three-year period (16,000) determined the effectiveness of the crisis hotline (Knox et al., 2012).

The evaluation of crisis hotlines investigates their effectiveness based on the nature of the staff. Crisis hotlines are either staffed with volunteers and/or professionals. Volunteer-staffed

call centers often are identified as more effective than professionally-staffed centers. Mishara et al. (2016) compared the performance of centers in the United States staffed with volunteers only, professionally paid staff, and a mixture of the two. Assessments revealed that the volunteer-staffed "centers more often conducted risk assessments, had more empathy, were more respectful of callers, and had significantly better call outcome ratings" (Mishara et al., 2016, p. 577). In general, the research showed that changes from the beginning to the end of telephone calls were frequently improved concerning the urgency to commit suicide.

A more recent study supported findings that volunteer-staffed crisis hotlines are effective in reducing suicide (Willems et al., 2020). However, the effectiveness of volunteers in helping individuals with suicidal ideation can contribute to the volunteer experiencing trauma. Willems et al. (2020) reviewed empirical studies related to these volunteers' well-being because they are often challenged with the callers' detailed accounts about abuse and suicidal ideation. Although their efforts to decrease suicide rates are gratifying, Willems et al. determined that influences on crisis line volunteers' well-being included stress, burnout, vicarious trauma, and psychiatric disorders. The quantitative studies reviewed showed that factors associated with the negative influences on their well-being resulted from their work when they encountered multiple urgent, stressful, and lengthy calls. Additional factors involved the nature of the call. In addition to the complexity of the topics discussed on calls and callers who were mentally ill and depressed, callers also used abusive language.

Several recommendations appeared in the study in support of enhancing the well-being of crisis line volunteers. In addition to training, Willems et al. (2020) recommended that volunteers receive support from the organization and co-workers that would result in a more positive work environment. Recommendations for support included recognizing the efforts of the volunteers.

Willems et al. also noted the limitation of studies investigating crisis line volunteers specifically and concluded the need for conducting additional studies.

**Strengths and Weaknesses**

The study of childhood trauma has methodological limitations. These limitations have implications for efforts to understand the relationship between early childhood trauma and later suicidal behavior (Institute of Medicine, 2002). The state of knowledge for suicidality is relatively lacking (VanOrden, 2010). This may be based on the fact that suicidal behavior is difficult to study for several reasons. First, extensive samples are needed because the base rates of suicide attempts and deaths are low in the civilian population (Moscicki, 2001). Second, individuals with suicidal behaviors are often excluded from clinical trials due to safety concerns on the part of researchers (Rudd et al., 2001). Finally, individuals who die by suicide are not available for psychological assessments, limiting methods researchers can employ.

There are limitations concerning estimates of the incidence and prevalence of childhood trauma among Air Force airmen as most of the studies conducted had Army participants. Suicidal members of the U.S. military often fail to disclose their suicidal urges and behaviors, which prevents an actual representation of suicidal ideation (Knox et al., 2012; Saunders and Adams, 2014). Although studies show that childhood maltreatment predicts suicidal ideation and behavior, the actual role that certain types of childhood maltreatment have on an increased risk of suicide has not been fully investigated (Bahk et al., 2017). Suicidal behavior is a major problem worldwide and, at the same time, has received relatively little empirical attention. According to VanOrden et al (2010), this relative lack of empirical attention may be due in part to a relative absence of theory development regarding suicidal behavior.

There are several areas of concern relating to the validity of the studies. First, there is not a consistent definition of suicidality (suicidal ideation, suicidal attempts, and suicide completion). Additionally, longitudinal studies usually follow individuals over a prolonged period of time, but some of the longitudinal studies compared data over a shorter period of time (Bahk et al., 2017). According to Bahk et al. (2017), the time period of no more than two years cannot account for the effects of maturation that may affect the outcome of the studies. Most studies did not explore more detailed dimensions of abuse history such as type, perpetrator, duration, or age at onset of abuse (Bahk et al., 2017). Brodsky et al. (2001) study indicate that more than physical abuse results in increased suicidal behavior. The specific characteristics of abuse history and their relationship to suicidal behavior warrant further study.

There are some known challenges to consider when examining the relationship between childhood trauma and suicidal ideation among Air Force airmen. First and foremost, there are challenges concerning the case definition of suicide that potentially introduce bias into any study (Knox et al., 2012). For example, states differ on who is mandated to report a death from suicide. Also, since the coding of mortality data changed significantly in 1999 (from ICD-9 to ICD-10), the number of deaths and death rates due to suicide and accidental death before 1999 and after 1999 may not be readily comparable (Anderson et al., 2001).

Second, adverse childhood experiences (ACEs), including exposure to child abuse and neglect, are well-documented risk factors for suicidality and a viable suicide prevention target (Sher, 2017). However, suicide prevention efforts seldom focus on the correlation between ACEs and suicidality (Sher, 2017). Researchers who looked for additional risk factors for suicide found that veterans have greater odds of adversities in childhood than the civilian population (McGuinness & Waldrop, 2015).

According to Saunders and Adams (2014), despite the importance of epidemiologic information, obtaining precise estimates of the prevalence and incidence of different types of potentially traumatic events in childhood is problematic. This difficulty is due to several factors. One factor that presents problems in obtaining precise estimates of potentially traumatic events is the inherent nature of some traumatic events that children experience (Saunders & Adams, 2014). Additional factors related to the assets available to the field for detecting and counting events and confounding methodological issues between studies (Saunders & Adams, 2014).

## Summary

The number of veterans who take their own lives may vary depending upon the different research studies consulted. According to Shane (2019), the VA released a study in 2013 that indicated 22 veterans died by suicide a day, an occurrence of every 65 minutes. In recent years the number that the VA released has decreased from 22 a day to 17 veteran suicides a day (Shane, 2019). Other numbers indicate that veteran suicide has grown worse and that the total number of suicides among veterans continues to increase. From 2007 to 2017, the rate of suicide among veterans increased at a rate of almost 50% (Shane, 2019).

A single cause of suicide has not been established. Suicide deaths reflect a complex interaction of risk and protective factors. Suicidal risk factors include (a) a previous suicide attempt; (b) a diagnosed mental health condition; (c) stressful life events such as the death of a loved one, divorce, or a loss of job; and (d) availability of lethal means. (Bahk et al., 2017; Joiner, 2005). Because of the number of suicide-related deaths, suicide prevention is one of the military's highest priorities. Many U.S. military veterans have experienced the burdens of mental illness and suicide. Studies that describe the potential impact of ACEs in both civilian and military populations are extensive. Although there may be some linkage between combat

exposure and suicidal ideation, approximately one-half of all suicides among active-duty service members (who have served since 2001) occurred among those who never deployed (McGuinness & Waldrop, 2015). There appears to be limited knowledge regarding the role that ACEs may play in contributing to an airman's vulnerability to developing psychosocial disturbances while serving in the military (Herzog & Schmahl, 2018).

The importance of understanding suicidal behaviors has grown over recent years with the increase of suicides in the military. Over a decade, the rise of suicides in the U.S. military was first observed and prevention efforts were first implemented (Griffith & Bryan, 2018). Despite the military's ongoing prevention efforts, the rate of suicides in the military continues to rise. However, a small number of studies support the effectiveness of suicide prevention programs (Harmon et al., 2016).

The foremost problem for the number of suicides in the military is knowing who is at risk. Existing studies found that experiencing childhood trauma increases the risk for suicide and suicide attempts. Additionally, there is a link between poor mental health and suicidality among the active duty and veteran population (Gibbons et al., 2012). Current studies recognize childhood trauma as a risk factor in suicidal ideation; however, it is not fully understood how the different types of adverse childhood experiences influence suicidal ideation.

There does not appear to be a correlation between combat exposure and suicidal ideation among adult service members. Still, there is some correlation between adolescents whose parents have been deployed and increased suicidal risk. Almost half of the suicides among active-duty personnel have been among military personnel who have never deployed to war zones (Baca-Garcia et al., 2010) leading to the need for additional research of other possible suicide risk factors. Blosnich and Bossarte (2016) observed that childhood maltreatment has only been

recently addressed concerning suicidal behavior among military personnel. A study conducted by Youssef et al. (2013) evaluated the effects of childhood trauma and suicidal ideation on military service members and veterans. The study concluded that childhood trauma evaluations are important to the clinical assessment and treatment of suicidal ideation among military service members and veterans.

This literature review aimed to present a concise overview of the present literature related to the impact of ACE on suicidality among Air Force airmen. The review illustrates the need for other studies that describe specific ACE and their effects. The review also supports the need for studies that explore the impact of other forms of psychopathology to better understand Air Force airmen's suicidal ideation.

# CHAPTER THREE: METHODS

## Overview

This chapter is a detailed description of the procedures for conducting this quantitative research study. The study aims to determine whether adverse childhood experiences influence suicidal ideation among Air Force airmen. The chapter contains explanations of the study's design, research questions and hypotheses, participants and the setting, and procedures for data collection and analysis. A summary that emphasizes key points culminates the chapter.

## Design

The research for the study is quantitative with a cross-sectional survey research design. Advantages of using quantitative research methods include that some conditions that apply to the study can be controlled, ensuring a representative sample of the population can occur through random sampling (Creswell & Creswell, 2018). The results can be generalized to the population (Creswell & Creswell, 2018). Also, quantitative research is beneficial to study many conditions through using experimental, quasi-experimental, survey, case study, and other approaches. A major difference in quantitative research from other categories is that data are treated as numbers or attributes that can be ordered in terms of magnitude.

The cross-sectional survey design is non-experimental and means that data are collected at one point in time rather than over a period of time as a characteristic of a longitudinal study (Creswell & Creswell, 2018; Muijs, 2016). In addition to obtaining data to answer the research questions in a survey administered one time, the selection of the design considered its convenience, cost-effectiveness, and appropriateness. The flexibility in ways that the survey can be administered was among the rationale for its selection. In this cross-sectional survey design, a valid and reliable instrument can be administered in various ways, including online, by phone,

mail, or in person. Further, the design is appropriate for this study as the data can be used to analyze for possible relationships between variables and to suggest causality (Creswell & Creswell, 2018; Muijs, 2016). Therefore, the quantitative cross-sectional survey design is appropriate for the purpose of this study in identifying whether adverse childhood experiences are associated with suicidal ideation among Air Force airmen.

## Research Questions

Many studies about the relationship between childhood trauma and suicidal ideation in the military are limited to active-duty Army (Nock et al., 2014). There are obvious gaps in the literature about adverse childhood experiences (ACE) and their impact on airmen. Therefore, it is not fully understood how the different types of ACEs influence suicidal ideation among active-duty airmen. Further, a gap in the literature exists for understanding whether the type of military assignment poses a threat to suicidal ideation. Additional research about these factors and their impact on airmen is needed through exploring the following research questions and hypotheses that guide the study.

RQ1: Is there a relationship between types of adverse childhood experiences and suicidal ideation among Air Force airmen?

RQ2: Is there a relationship between military assignments and suicidal ideation among Air Force airmen?

These questions posed in the testable form follow.

H01: There is no statistically significant relationship between types of adverse childhood experiences and suicidal ideation among Air Force airmen.

H02: There is no statistically significant relationship between military assignments and suicidal ideation among Air Force airmen.

## Participants and Setting

The study participants were drawn from a purposeful sample of active duty Air Force airmen aged 18 and older in the United States military who had experienced suicidal ideation and who served in the military on or after September 11, 2001. Participants were recruited via word of mouth and social media platforms in particular, Facebook. The sample consisted of 100 males and females from a population of active duty Air Force airmen from different military installations and geographical locations throughout the United States. The number in the sample is consistent with recommendations of methodologists and online survey professionals regarding the size needed for cross-sectional survey research that is representative of the population where the results can be generalized and that is adequate for a medium effect size at the .05 alpha level (Dessel, 2013; Eng. 2003; Mills & Gay, 2019).

## Instrumentation

Data for the study was collected through two surveys. Surveys adhere to Muijs' (2016) recommendation that instruments are brief, clear and that each item consists of only one question. The childhood trauma questionnaire: A retrospective self-report (CTQ), created by David P. Bernstein and Laura Fink in 1997, measures recall of childhood trauma. It is a 28-item screening questionnaire intended to quantify self-reported childhood trauma history in the home. The CTQ measures childhood trauma using five subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect and is scored using a scale from 1 to 5 with responses that range from *never true to very often true* (Liebschutz et al., 2018). The original tests of reliability revealed high internal consistency scores with coefficients for each subscale as follows: sexual abuse (.93-.95); emotional neglect (.88-.92); emotional abuse (.84-.89); and physical abuse (.81-.86); also factor analysis tests revealed good reliability based on structural

invariance (Bernstein et al., 1997). Subsequent reliability measures revealed that the CTQ subscale scores have test-retest reliability coefficients ranging from .79 to .86, and internal consistency coefficients ranging from .66 to .92 across initial validation samples (Bernstein et al., 2003).

Examples of the nature of content included in questions posed on the survey are "Did your parents often demean you, devalue you, swear at you or humiliate you?" "Did your parents physically abuse you?" and "Did you feel you were not close to your family, that they did not support you and that they did not love you or regard you as special?" This instrument has been used in more than 1000 recent studies to include an exploration of incarcerated women (Adams, 2007); childhood maltreatment (Maier, 2020); and adult depression (Maj et al., 2020).

The severity of suicidal ideation was measured through the Beck scale for suicide ideation (BSI), a 21-item self-report questionnaire (Beck & Steer, 1993). The BSI is designed for individuals who are 17 years and older. Participants assess their feelings over the previous week by selecting statements that best describe their feelings. The first 19 items assess suicidal thoughts, intents, and plans (Youssef et al, 2013). Items 20 and 21 assess previous suicide attempts. The survey is available in both electronic and pen and paper format.

The instrument's psychometric properties have been established through multiple studies and for individuals in several foreign countries (Beck & Steer, 1993; Beck et al., 1988). A study involving inpatients and outpatients with psychiatric and affective disorders was used to correlate the instruments' self-reported and clinically rated versions. A coefficient greater than 0.90 was found, indicating strong concurrent validity. Coefficients were also 0.90 or above to indicate internal consistency for the instrument's paper and computer versions. Multiple studies have employed the instrument in such studies as suicidal ideation after military sexual trauma

(Monteith et al., 2019); the association of increased exposure of military personnel and suicidal ideation (Brown et al., 2019); and suicidality in male and female adults with autism spectrum disorders (Arwert & Sizoo, 2020).

## Procedures

Data collection procedures began after permission had been granted from the Liberty University's IRB. The study was conducted through an electronic survey which was completed at the participant's home or at a location of the individual's choice. The consent of participants began with recruitment efforts that included fliers and advertisements. Contact information for potential participants was not collected to maintain confidentiality.

The invitation letter provided individuals with the purpose of the study and contact information should they wished to inquire further about the study. Inclusionary criteria were explained for participation. The criteria included that participants must be aged 18 or above, an active-duty member of the Air Force who had served in the military on or after September 11, 2001, and who had experienced suicidal ideation. Conditions were set within Survey Monkey to identify those who met or did not meet the criteria to complete the survey. For Air Force airmen who did not meet these criteria, the survey ended and the participants received a custom message thanking them for their time. Parameters were set to ensure the survey could not be completed more than once. A consent form was included on the first page of the survey in Survey Monkey. The consent form informed participants of the action required for participation: completing the surveys and demographic information related to age, gender, race, number of years of active duty, and military job assignments. The form also informed participants that their participation was voluntary, that they had the right to refuse participation, and that they would not receive direct compensation for participation. After reading the consent form within Survey Monkey,

participants continued to the next section of the survey if they desired to participate in the study. Participants were also assured that their responses would not identify them by name and no identifying personal information would appear in the report or the study. Procedures for protecting their confidentiality included:

- providing them the link to Survey Monkey survey where the privacy procedures were explained
- retaining copies of raw data in a password protected computer
- dismantling the link to the survey after data were received
- destroying all data through shredding after the expiration period of data maintenance that IRB requires

Research flyers were placed conspicuously around Air Force installations (i.e., break rooms, bulletin boards, Base Exchange, Base Commissary and etc.). The participants were able to scan a QR code from either a laptop or cellular phone. The survey invitation link was also shared in military focused Facebook groups. The procedures acknowledged that referrals may consist of individuals currently receiving services through the USAF Mental Health office. As their activities are monitored, they would complete the surveys in the agency in the event that they required assistance.

## Data Analysis

Responses from the survey were analyzed through descriptive and inferential statistics. The analysis identified the frequencies, means, and standard deviations for responses. The descriptive statistics also reported the demographics of participants in terms of age, type of work assignments, and other demographics identified in the study's procedures. The hypotheses were

tested for significant relationships through correlation analysis. Data were uploaded in a software version of the Statistical Package for the Social Sciences.

The Spearman rank correlation, which measures relationships between ordinal, interval, or ratio variables, was employed as appropriate for the variables analyzed. The Spearman correlation coefficient ranges from weak to very strong (Muijs, 2016). The two-tailed test of significance indicated a significant negative or positive relationship between the two variables measured in both hypotheses related to the two research questions posed for the study.

The test also measures the strength of the association. According to Dancey and Reidy (2020), the strength is considered small or weak when the positive or negative coefficients range from 0.20 to 0.29; moderate when the range is 0.30 to 0.39; strong when the range is 0.40 to 0.69; coefficients $\geq 0.70$ represent very strong relationships. Values close to -1 or +1 represent stronger relationships than values closer to zero. The test considers the following assumptions: two variables that are either ordinal, interval, or ratio. The test measures the monotonic relationship between the ranked variables which indicates that as the value of one variable increases, the value of the other variable also increases; or that as the value of one variable increases, the value of the other variable decreases. (Dancey & Reidy, 2020; Green & Salkind, 2014; Muijs, 2016; Warner, 2013).

## Limitations

Participants in this study may not respond to the data collection tools completely or truthfully regarding childhood experiences and the influence of suicidal ideation. Assurances of participant privacy and confidentiality are among approaches to address this potential limitation. The current impact of COVID-19 on society may pose limits on data collection procedures prohibiting any in-person contact or the transfer of tangible materials. The rate of data return

may be limited due to individuals with limited computer or technological skills. Participants were provided access to a video that provided steps in accessing the survey link and following directions to complete the survey to address this possible limitation.

## Summary

The purpose of this study was to determine whether relationships exist between childhood adverse experiences and suicidal ideation among active duty Air Force airmen. The study also questioned whether the influence of the type of position or responsibility the airmen have contribute to the airmen contemplating suicide. Two research questions guided the study, the data were statistically tested through two null hypotheses to answer to the research questions. Tables supported the narrative when appropriate. This chapter has presented the procedures for conducting this quantitative survey research. This study presents the first comprehensive description of the relationship between childhood trauma and suicidal ideation among Air Force airmen, specifically those who currently serve in the military since 2001.

# CHAPTER FOUR: FINDINGS

## Overview

This study's aim was to determine whether adverse childhood experiences influence suicidal ideation among Air Force airmen. Additionally, the study sought implications of the work assignments of Air Force airmen and suicidal ideation. The study was conducted through an electronic survey uploaded in Survey Monkey. Participants constituted a purposeful sample of 100 active duty Air Force airmen. Volunteer participants were aged 18 and older in the United States military who had experienced suicidal ideation and who serve in the military on or after September 11, 2001. The sample included 56 males, 42 females, and 2 non-identified gender. The participants included 18 African Americans, 66 Caucasians, 12 Hispanics and four others. Participants responded to items on two surveys: The childhood trauma questionnaire: A retrospective self-report (CTQ), and the Beck scale for suicide ideation (BSI). The CTQ measured recall of childhood trauma using a 28-item screening questionnaire intended to quantify self-reported childhood trauma history in the home. The BSI, a 21-item self-report questionnaire contains 19 items that assessed participants' suicidal thoughts, intents, and plans over the previous week and two items that assessed previous suicide attempts. An average of 96 of 100 participants responded to all items. The survey allowed for questions to be skipped by survey respondents.

This chapter is a presentation of the findings of this quantitative research study. The chapter contains explanations of the descriptive statistics and tests for the hypotheses. The results from statistical applications are then presented in narrative and tabular form organized according to research questions and hypotheses. The chapter concludes with a summary of the results.

## Descriptive Statistics

The statistics for the first research question reported the frequency and percent of responses for types of adverse childhood experiences. The category of adverse childhood experiences is defined as exposure to childhood abuse (sexual, physical, and emotional), neglect (physical and emotional), and household challenges (e.g., parental incarceration, household mental illness, household substance use, parental divorce/separation, intimate partner violence) during the first 18 years of life (Ports et al., 2017). Three types of adverse child abuse experiences were examined: physical abuse, emotional abuse, and sexual abuse.

Five questions in each of these type adverse experiences elicited the descriptive statistics. Table 1 is a report of the descriptive statistics for physical abuse childhood adverse experiences. These experiences describe direct physical contact on the body of a person. The five items do not describe physical neglect such as lack of food or shelter.

**Table 1**

*Descriptive Statistics for Physical Abuse*

| Item | Valid | | Missing | | Total | |
|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % |
| I got hit so hard by someone in my family that I had to see a doctor or go to the hospital. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| People in my family hit me so hard that it left me with bruises or mark. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| I was punished with a belt, a board, a cord or some other hard object. | 97 | 97.0 | 3 | 3.0 | 100 | 100.0 |
| I believe that I was physically abused. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |

Table 1 shows that an average of 96 of 100 participants responded to five items conveying their experiences with physical abuse. Punishment with a belt generated the highest percentage of responses. Table 2 is a report of descriptive statistics for emotional abuse.

**Table 2**

*Descriptive Statistics for Emotional Abuse*

| Item | Valid | | Missing | | Total | |
|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % |
| People in my family called me things like “stupid,” “lazy” or “ugly." | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| I thought that my parents wished I had never been born. | 97 | 97.0 | 3 | 3.0 | 100 | 100.0 |
| People in my family said hurtful or insulting things to me. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| I felt that someone in my family hated me. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| I believe that I was emotionally abused. | 97 | 97.0 | 3 | 3.0 | 100 | 100.0 |

An average of 96.4% of responding participants responded to each item noting a form of emotional abuse. Items in Table 2 show abuse that does not include neglect or a result of household challenges. Table 3 contains statistics for sexual abuse.

**Table 3**

*Descriptive Statistics for Sexual Abuse*

| Item | Valid | | Missing | | Total | |
|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % |
| Someone tried to touch me in a sexual way or tried to make me touched them. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Someone threatened to hurt me or tell lies about me unless I did something sexual with them. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| Someone tried to make me do sexual things or watch sexual things. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| Someone molested me. | 96 | 96.0 | 4 | 4.0 | 100 | 100.0 |
| I believe that I was sexually abused. | 98 | 98.0 | 2 | 2.0 | 100 | 100.0 |

The statistics reported in Table 3 show that all but two participants (98%) responded to the item indicating the belief of being sexually abused as opposed to 96% responding to the other four items. These items do not refer to sexual abuse from neglect or that result from household challenges such as parental incarceration, household mental illness, household substance use, parental divorce/separation, or intimate partner violence.

The statistics for the research questions reported the frequency and percent of responses for items related to suicidal ideation. Most items required responses that ranged from never true to very often true. The statistics represent responses to categories of physical, emotional, and sexual abuse. The following tables show responses to thoughts about committing suicide for each of the categories previously mentioned on six items of the Beck scale. Table 4 contains descriptive statistics for suicidal ideation items matched with physical abuse items.

**Table 4**

*Suicidal Ideation Wish to Die Related to Physical Abuse Requiring Medical Attention*

| Item | Never | | Sometimes | | Very Often | | Total | |
|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % |
| I have no wish to die | 19 | 21.8 | 2 | 28.6 | 0 | 0 | 21 | 21.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| I have a weak wish to die | 54 | 62.1 | 4 | 57.1 | 0 | 0 | 58 | 60.4 |
| I have a moderate to strong wish to die | 14 | 16.1 | 1 | 14.3 | 2 | 100.0 | 17 | 17.7 |
| Total | 87 | 100.0 | 7 | 100.0 | 2 | 100.0 | 96 | 100.0 |

Table 4 statistics relate to the item, "I got hit so hard by someone in my family that I had to see a doctor or go to the hospital." Choices of wishes to die for this item were "no wish," "a weak wish," or "a moderate to strong wish." The results in this table indicate that 54% of participants who suffered physical abuse that required medical attention responded that they never had a weak wish to die. The closed item choices suggest that a weak wish to die means there is a tendency to want to die as a result of the influence of the abuse, but it is not intense and less than a moderate or strong wish. Although the extent of the medical attention is unknown from the responses, the low frequencies of responses for "sometimes" and "very often" support the lack of suicidal behaviors based on physical abuse requiring medical attention. As observed in the table, of the 96 responses, only two participants indicated that they very often had a moderate to strong wish to die, meaning they ranged from less extreme to an intense wish to die, while one participant responded sometimes, or infrequently having a wish to die. A total of 87 participants indicated having such a wish was never true for the three items. Table 5 contains responses about suicidal ideation of killing self-associated with physical abuse when left with bruises.

**Table 5**

*Suicidal Ideation Wish to Kill Self Related to Physical Abuse with Bruises*

| Item | Never | Rarely | Sometimes | Often | Very Often | Total |
|---|---|---|---|---|---|---|

| | *N* | % | *N* | % | *N* | % | *N* | % | *N* | *%* | *N* | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I have no desire to kill myself | 4 | 9.8 | 3 | 11.5 | 9 | 42.9 | 2 | 33.3 | 1 | 50 | 19 | 19.8 |
| I have a weak desire to kill myself | 30 | 73.2 | 19 | 73.1 | 10 | 47.6 | 2 | 33.3 | 0 | 0 | 61 | 63.5 |
| I have a moderate to strong desire to kill myself | 7 | 17.1 | 4 | 15.4 | 2 | 9.5 | 2 | 33.3 | 1 | 50 | 16 | 16.7 |
| Total | 41 | 100.0 | 26 | 100.0 | 21 | 100.0 | 6 | 100.0 | 2 | 100.0 | 96 | 100.0 |

The data in Table 5 supports that being physically abused with bruises is unlikely to result in suicidal thoughts. Further analysis revealed a weak correlation between suicidal thoughts and this form of physical abuse with the positive or negative coefficient ranging from 0.20 to 0.29. The data show that 41 of 96, less than half of respondents, indicated never true for the three items related to thoughts of killing themselves when physically abused with bruises. Although the frequencies of rarely, sometimes, often, and very often represent more than half of all responses and indicate some tendency toward a desire to kill themselves, the desire is very limited. This limitation is supported through only five participants indicating that they often or very often experienced the desire to kill themselves, 12 sometimes felt this way, and 23 participants rarely had a wish to kill themselves. That 17 participants responded weak suggests that bruises from physical abuse posed some pressure on their ability to withstand having a desire to kill themselves. Responses of moderate to strong suggest participants approached feeling from less to more extreme about killing themselves. Table 6 reports statistics for suicidal ideation related to the belief of being physically abused.

**Table 6**

*Suicidal Ideation Associated With the Belief of Being Physically Abused*

| Item | Never | | Rarely | | Sometimes | | Often | | Very Often | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % | *N* | *%* | *N* | % |
| I rarely or only occasionally think about killing myself | 17 | 27.9 | 8 | 61.5 | 4 | 25.0 | 0 | 0 | 1 | 33.3 | 30 | 31.3 |
| I have frequent thoughts about killing myself | 35 | 57.4 | 4 | 30.8 | 8 | 50.0 | 3 | 100.0 | 0 | 0 | 50 | 52.1 |
| I continuously think about killing myself | 9 | 14.8 | 1 | 7.7 | 4 | 25.0 | 0 | 0 | 2 | 66.7 | 16 | 16.7 |
| Total | 61 | 100.0 | 13 | 100.0 | 16 | 100.0 | 3 | 100.0 | 3 | 100.0 | 96 | 100.0 |

The frequency that responding participants thought about committing suicide is reported in Table 6. These percentages show that more than half of the participants never had suicidal thoughts based on their belief of being physically abused. However, that over one-third of participants indicate having thoughts about committing suicide has implications for the relationship between suicidal ideation and physical abuse. All relationships examined between suicidal ideation and physical abuse resulted in either positive or negative weak correlations with coefficient ranging from 0.20 to 0.29. Of the 96 participants reporting the frequency of suicidal thoughts, 17 rarely or occasionally had thoughts about killing themselves, while 35 had frequent thoughts, and nine had continuous thoughts as associated with the belief that they had been physically abused. Table 6 also shows that six participants often or very often had this thought. Thirteen respondents noted that they rarely had thoughts of killing themselves.

The statistics reported for emotional abuse do not refer to emotional neglect or emotional problems associated with parental divorce or separation. The statistics relate to emotional abuse resulting from negative references from family members, feeling unwanted by parents, feeling hated by family members, and feelings of emotional abuse. Emotional abuse associated with thoughts of committing suicide is reported in Tables 7-9. Table 7 reports suicidal ideation related to emotional abuse based on feeling unwanted by parents.

**Table 7**

*Suicidal Ideation /Parents Wished I had Never Been Born*

| Item | Never | | Rarely | | Sometimes | | Often | | Very Often | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % | *N* | % | *N* | % |
| I rarely or only occasionally think about killing myself | 23 | 30.3 | 5 | 50.0 | 0 | 0 | 1 | 25.0 | 2 | 100.0 | 31 | 32.0 |
| I have frequent thoughts about killing myself | 46 | 60.5 | 2 | 20.0 | 1 | 20.0 | 1 | 25.0 | 0 | 0 | 50 | 51.5 |
| I continuously think about killing myself | 7 | 9.2 | 3 | 30.0 | 4 | 80.0 | 2 | 50.0 | 0 | 0 | 16 | 16.5 |
| Total | 76 | 100.0 | 10 | 100.0 | 5 | 100.0 | 4 | 100.0 | 2 | 100.0 | 97 | 100.0 |

The statistics in Table 7 indicate that participants' feeling that parents wished they had not been born was not very likely to result in thoughts of suicide. Correlation analyses of emotional abuse from thinking my parents wished I was never born resulted in weak and strong relationships. A strong positive relationship with a coefficient of 49 was found between thinking my parents wished I never was born and attempted suicide. However, the statistics in the table

refer to thoughts of suicide, not suicide attempts. Of the 97 respondents, 76 never had thoughts of killing themselves while 6 respondents often or very often had this thought. Table 8 reports suicidal ideation related to name calling.

**Table 8**

*Suicidal Ideation with Family Called Me Things Like "Stupid," "Lazy," Or "Ugly"*

| Item | Never | | Rarely | | Sometimes | | Often | | Very Often | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % | *N* | *%* | *N* | % |
| I have no desire to kill myself | 11 | 18.0 | 3 | 13.6 | 2 | 28.6 | 2 | 40.0 | 1 | 100.0 | 19 | 19.8 |
| I have a weak desire to kill myself | 41 | 67.2 | 16 | 72.7 | 4 | 57.1 | 0 | 0 | 0 | 0 | 61 | 63.5 |
| I have a moderate to strong desire to kill myself | 9 | 14.8 | 3 | 13.6 | 1 | 14.3 | 3 | 60.0 | 0 | 0 | 16 | 16.7 |
| Total | 61 | 100.0 | 22 | 100.0 | 7 | 100.0 | 5 | 100.0 | 1 | 100.0 | 96 | 100.0 |

The frequencies and percentages seen in Table 8 indicates that slightly more than one-third of responding participants have a desire to kill themselves. Although name calling such as stupid, ugly, and lazy resulted in participants never having the desire to kill oneself for 61 of 96 participants, the choice of name calling words may have some bearing on this result due to participants' experiences. The results of correlations reported later in the chapter may offer additional clarity to the frequency counts. Positive but weak relationships between emotional abuse in the form of name calling and suicidal ideation were found with coefficients ranging from 0.22 - 0.24. Twenty-two of the participants rarely had the desire to kill themselves, while

six often and very often had the desire. Table 9 contains statistics for suicidal ideation based on being emotionally abused.

**Table 9**

*Suicidal Ideation Associated With Belief of Being Emotionally Abused*

| Item | Never | | Rarely | | Sometimes | | Often | | Very Often | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % | *N* | % | *N* | % |
| I rarely or only occasionally think about killing myself | 16 | 26.7 | 10 | 62.5 | 1 | 9.1 | 2 | 40.0 | 2 | 40.0 | 31 | 32.0 |
| I have frequent thoughts about killing myself | 38 | 63.3 | 3 | 18.8 | 7 | 63.6 | 1 | 20.0 | 1 | 20.0 | 50 | 51.5 |
| I continuously think about killing myself | 6 | 10.0 | 3 | 18.8 | 3 | 27.3 | 2 | 40.0 | 2 | 40.0 | 16 | 16.5 |
| Total | 60 | 100.0 | 16 | 100.0 | 11 | 100.0 | 5 | 100.0 | 5 | 100.0 | 97 | 100.0 |

The statistics reported in Table 9 show that over one half of the participants did not have thoughts about committing suicide as a result from being emotionally abused. Sixty of the 97 participants who believed they were emotionally abused responded never to the three items in the table. However, these numbers still show a high number of participants who have these thoughts at different time intervals (rarely, sometimes, often, and very often). The statistics included in the analysis resulted in a statistically significant, moderate positive correlation between feeling emotionally abused and attempted suicide with a coefficient of 0.30. Table 9 reveals that for the three items listed, the category of never indicates 16 participants rarely had thoughts of killing themselves as a result of believing they had been emotionally abused. Of the participants

responding rarely, sometimes, often, and very often to the three items, the category of rarely with 16 of 37 responses constituted the highest number of participants having thoughts of killing themselves.

The final category of abuse is sexual abuse. Statistics are reported in Tables 10 - 12 for suicidal ideation related to touching, molestation, and belief of being sexually abused. Table 10 reports thoughts of committing suicide correlated with being touched in a sexual way.

**Table 10**

*Suicidal Ideation Wish to Die Related to Touching in a Sexual Way*

| Item | Never | | Rarely | | Sometimes | | Often | | Very Often | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % | *N* | % | *N* | % |
| I have no wish to die | 12 | 16.2 | 2 | 33.3 | 4 | 57.1 | 0 | 0 | 3 | 60.3 | 21 | 21.9 |
| I have a weak wish to die | 49 | 66.2 | 2 | 33.3 | 3 | 42.9 | 4 | 100 | 0 | 0 | 58 | 60.4 |
| I have a moderate to strong wish to die | 13 | 17.6 | 2 | 33.3 | 0 | 0 | 0 | 0 | 2 | 40.0 | 17 | 17.7 |
| Total | 74 | 100 | 6 | 100 | 7 | 100 | 4 | 100 | 5 | 100 | 96 | 100 |

Table 10 shows that 74 of 96 participants never had a wish to die, whether it was a weak moderate, or strong wish as a result of being touched in a sexual way. Referring to reports in the literature, the variation in statistics may be attributed to the extent to which participants were exposed to being touched in a sexual way. This variation may also have implications regarding the relationship and strength of the relationship between the variables. Relationships examined

between suicidal ideation and sexual abuse through touching in a sexual way revealed significant but weak relationships with coefficients ranging from 0.26 - 0.27. Six participants responded rarely to the question. Nine participants responded often or very often to the question. Table 11 reports suicidal ideation associated with being molested. The statistics in Table 11 show that the second item has the highest load with 54 responses indicating never to neither accepting nor rejecting the idea of killing oneself based on molestation.

**Table 11**

*Suicidal Ideation: Molestation*

| Item | Never | | Sometimes | | Often | | Very Often | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % | *N* | % |
| I do not accept the idea of killing myself | 18 | 22.0 | 2 | 100 | 0 | 0 | 6 | 75.0 | 26 | 27.1 |
| I neither accept nor reject the idea of killing myself | 54 | 65.9 | 0 | 0 | 4 | 100 | 0 | 0 | 58 | 60.4 |
| I accept the idea of killing myself | 10 | 12.2 | 0 | 0 | 0 | 0 | 2 | 25.0 | 12 | 12.5 |
| Total | 82 | 100 | 2 | 100 | 4 | 100 | 8 | 100 | 96 | 100 |

Of the 96 respondents, only 14 indicated responses of sometimes, often, or very often for the three items in the table. The 54 responses to neither accepting nor rejecting the idea of committing suicide pose questions for the researcher regarding the construction of the question for eliciting the participant's actual position. The other two items appear to offer definitive responses that negate the need for the neither accept nor reject item. These statistics resulted in a

significant, weak negative correlation with a coefficient of 0.21. All other correlations for molestation were weak and negative with the exception of a moderate, negative relationship for the expectation to make a suicide attempt with a coefficient of 0.34. Table 12 contains statistics for suicidal ideation and the belief of being sexually abused.

**Table 12**

*Suicidal Ideation Associated With Belief of Being Sexually Abused*

| Item | Never | | Often | | Very Often | | Total | |
|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % |
| I do not expect to make a suicide attempt | 26 | 31.7 | 7 | 100 | 6 | 66.7 | 39 | 39.8 |
| I am unsure that I shall make a suicide attempt | 56 | 68.3 | 0 | 0 | 3 | 33.3 | 59 | 60.2 |
| Total | 82 | 100 | 7 | 100 | 9 | 100 | 98 | 100 |

The statistics in Table 12 indicate the frequency and percentage of intentions of participants to attempt suicide associated with the belief of being sexually abused. The results suggest that attempted suicide attempts will not likely occur based on a total of 82 of 98 participants responding never to the two items. Correlation analysis for the statistics in the table revealed a statistically significant, moderate negative correlation with a coefficient of 0.36. An examination of the strength of all other relationships between suicidal ideation and belief of being sexually abused showed weak, negative relationships with coefficients ranging from 0.20 - 0.28. The highest load of never responses (56) was for the item indicating never to the statement indicating unsure of thoughts of making a suicide attempt. This frequency count representing 68, 3% of the never category for the unsure statement has implications for the strength of the

relationship between this item and the belief of being sexually abused given other frequency counts in the table. Sixteen of the participants responded often and very often to the two items.

This present study aims to identify the individual characteristics associated with incidents of adverse childhood sexual abuse experiences and its correlation to suicidal ideation among Air Force airmen**.** Suicidal ideation refers to thoughts of committing suicide. These thoughts result from specific adverse childhood adversities, which include illness in the household, paternal absence and divorce that prospectively predict suicidal ideation at 45 years even after adjustment for confounding and mediating factors (Stansfeld et al., 2017). The statistics reported refer to thoughts of abuse rather than neglect or other childhood adversities under the umbrella of suicidal ideation. The next section reports the results for the two research questions investigated.

## Results

This study explored two research questions and their associated hypotheses regarding suicidal ideation related to adverse childhood experiences and suicidal ideation regarding occupations of Air Force airmen. These questions and hypotheses are the following:

RQ1: Is there a relationship between types of adverse childhood experiences and suicidal ideation among Air Force airmen?

RQ2: Is there a relationship between military assignments and suicidal ideation among Air Force airmen?

These questions posed in the testable form follow.

H01: There is no statistically significant relationship between types of adverse childhood experiences and suicidal ideation among Air Force airmen.

H02: There is no statistically significant relationship between military assignments and suicidal ideation among Air Force airmen.

The results resulted from an analysis of the Spearman correlation to determine the relationship between the variables to determine whether the correlation between variables was statistically significant. The two-tailed test of significance indicated a significant negative or positive relationship between the two variables measured in both hypotheses. The 0.05 alpha level established whether hypotheses were significant.

The Spearman measured the strength and direction of the association between variables. A positive correlation means that as one variable increases, the other variable also increases, whereas a negative correlation means that as one variable increases, the other decreases (Warner, 2013). According to Dancey and Reidy (2020), the strength is considered small or weak when the positive or negative coefficients range from 0.20 to 0.29; moderate when the range is 0.30 to 0.39; strong when the range is 0.40 to 0.69; coefficients $\geq 0.70$ represent very strong relationships. Values close to -1 or +1 represent stronger relationships than values closer to zero. The test considers the following assumptions: two variables that are either ordinal, interval, or ratio. The test measures the monotonic relationship between the ranked variables, which indicates that as the value of one variable increases, the value of the other variable also increases; or that as the value of one variable increases, the value of the other variable decreases. (Dancey & Reidy, 2020; Green & Salkind, 2014; Muijs, 2016; Warner, 2013).

**Findings for RQ1**

To explore whether a relationship exists between types of adverse childhood experiences and suicidal ideation among Air Force airmen, items related to physical, emotional, and sexual abuse were correlated with 21 suicidal ideation items. Major parts of the stem of suicidal ideation items included (a) wish to live, (b) wish to die, (c) reason for living, (d) desire to kill self, (e) saving my life, (f) periods of thinking about killing self, (g) frequency of thinking about killing

self, (h) accepting the idea of killing self, (i) keeping myself from committing suicide, (j) reasons for killing self, (k) aim of desire to commit suicide, (l) plan for committing suicide, (m)accessible method to kill self, (n) courage to kill self, (o) expectation of suicide attempt, (p) preparations for suicide, (q) written suicide note, (r) arrangements made following suicide, (s) hidden desire to commit suicide, (t) attempted suicide, and (u) wish to die during last attempt was low, moderate, or high.

***Physical Abuse***

Five items indicated adverse childhood physical abuse experiences. These were (a) "I got hit so hard by someone in my family that I had to see a doctor or go to the hospital"; (b) "people in my family hit me so hard that it left me with bruises or mark"; (c) "I was punished with a belt, a board, a cord or some other hard object"*;* (d) "I believe that I was physically abused"; and (e) "I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor." The results of Spearman revealed a relationship for abusive experiences a - e with suicidal ideation. The report of results for these correlations describe the frequency and percentage of respondents for the abuse items.

The physical abuse associated with suicidal ideation showed a significant correlation for the following. For the item "I got hit so hard by someone in my family that I had to see a doctor or go to the hospital,*"* 87 participants responded never true to the first two suicidal ideation items: "I have made no arrangements for what will happen after I have committed suicide" and "I have thought about making some arrangements for what will happen after I have committed suicide." There were not any never true responses to the third item: "I have made definite arrangements for what will happen after I have committed suicide." Nine participants responded sometimes true and very often true to suicidal ideation items two and three.

Ninety-six participants responded to the item indicating that being physically hit resulted in receiving medical attention. Of these respondents 55.2% (*n* = 48) have not made arrangements and 44.9% (*n* = 39) have had thoughts about making arrangements for what will happen after committing neither. There was a statistically significant correlation between being physically hit that required medical attention and not making arrangements for what will happen after committing suicide. A significant correlation was found for the physical abuse item, "I was punished with a belt, a board, a cord or some other hard object." This form of physical abuse was associated with the suicidal ideation items: (a) "I have a moderate to strong wish to live,"(b) "I have a weak wish to live," and (c) "I have no wish to live." There were 32 responses indicating never true for a total of these three items; 33 indicating rarely true; sometimes true had 22 responses; often true had 8 responses; and very often true had 2 responses. Of the total 97 respondents, 68.8% (*n* = 22) noted having a weak wish to live. There was a statistically significant correlation between being punished with an object and never true that I have a weak wish to live.

This same form of physical abuse was assessed with the following suicidal ideation items: "I have no desire to kill myself;" "I have a weak desire to kill myself;" "I have a moderate to strong desire to kill myself." Responses for never true for having no desire to kill myself (*n* = 24; 75%) and rarely true of having a weak desire to kill myself (*n* = 25; 75.8%) had a statistically significant correlation with being physically abused with an object. A significant correlation was found for the physical abuse item, "I believe that I was physically abused." This form of physical abuse was associated with the suicidal ideation items: "I would not kill myself because of my family, friends, religion, possible injury from an unsuccessful attempt, etc."; "I am somewhat concerned about killing myself because of my family, friends, religion, possible injury from an

unsuccessful attempt"; and "I am not or only a little concerned about killing myself because of my family, friends, religion, possible injury from an unsuccessful attempt." These items had 61responses that indicated never true; 13 indicated rarely true; sometimes true had 16 responses; often true and very often true each had three responses. Responses for never true for the item "I am somewhat concerned about killing myself because of my family, friends, religion, possible injury from an unsuccessful attempt" ($n$ = 41; 67.2%) had a statistically significant correlation with the belief of being physically abused.

A significant correlation was found for the physical abuse item, "I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor." This form of physical abuse was associated with the suicidal ideation items: "I have not written a suicide note; I have thought about writing a suicide note or have started to write one, but have not completed it"; and I have completed a suicide note." These items had 85 responses that indicated never true; 4 indicated rarely true; 5 indicated sometimes true; and 2 that indicated very often true. Of the 85 never true responses, the association between the item that "I have not written a suicide note" (68, 80%) and the item "I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor" was statistically significant.

A significant correlation was also found for the physical abuse item, "I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor." This form of physical abuse was associated with the suicidal ideation items: (a) "I have made no arrangements for what will happen after I have committed suicide," (b) "I have thought about making some arrangements for what will happen after I have committed suicide," and (c) "I have made definite arrangements for what will happen after I have committed suicide." There were a total 85 never true responses to items A and B. Four responses of rarely true occurred for the item A with no

responses of rarely true for items B and C. A total of five responses occurred for sometimes true for the three items and two responses for very often true occurred for suicidal ideation item B indicating thoughts of making arrangements. Of the 85 never true responses, the association between the suicidal ideation item that I have made no arrangements (44, 51.8%) and the physical abuse item, "I got hit or beaten so badly that it was noticed" was statistically significant.

The following is a list of all correlations found for physical abuse. Each correlation shows whether it was positive or negative, its strength and value. All correlations were significant at either 0.01 or the 0.05 level of statistical significance established for the study.

There was a statistically significant, weak positive correlation between being physically hit that required medical attention and if they found themselves in a life-threatening situation, $r_s(94) = .216$, $p = .034$.

There was a statistically significant, weak positive correlation between being physically hit that required medical attention and making arrangements for what will happen after committing suicide, $r_s(94) = .285$, $p = .005$.

There was a statistically significant, weak positive correlation between being hit that left bruises and attempted suicide, $r_s(94) = .274$, $p = .007$.

There was a statistically significant, weak negative correlation between being punished with a hard object and desire to kill self, $r_s(94) = -.203$, $p = .046$.

There was a statistically significant, weak negative correlation between being punished with a hard object and reasons for wanting to commit suicide, $r_s(94) = -.234$, $p = .021$.

There was a statistically significant, weak positive correlation between being punished with a hard object and attempted suicide, $r_s(94) = .246$, $p = .015$.

There was a statistically significant, weak positive correlation between belief of being punished and if they found themselves in a life-threatening situation, $r_s$ (94) =.279, $p$ = .006.

There was a statistically significant, weak negative correlation between belief of being punished and expectation to make a suicide attempt, $r_s$ (94) = -.247, $p$ = .015.

There was a statistically significant, weak positive correlation between belief of being punished and attempted suicide, $r_s$ (94) = .292, $p$ = .004.

There was a statistically significant, weak positive correlation between a hit that was noticeable and if they found themselves in a life-threatening situation, $r_s$ (94) = .249, $p$ = .014.

There was a statistically significant, weak positive correlation between a hit that was noticeable and writing a suicide note, $r_s$ (94) = .225, $p$ = .027.

There was a statistically significant, weak positive correlation between a hit that was noticeable and attempted suicide, $r_s$ (94) = .262, $p$ = .010.

***Emotional Abuse***

This form of abuse was measured through five items: (a) “people in my family called me things like 'stupid,' 'lazy' or 'ugly' ”; (b) “I thought that my parents wished I had never been born”; (c) “people in my family said hurtful or insulting things to me”; (d) “I felt that someone in my family hated me”; and (e) “I believe that I was emotionally abused.” Results of Spearman correlations found positive and negative relationships for the emotional abuse indicators and suicidal ideation. Of the 16 relationships identified, 12 were positive relationships. This means that as one variable increases, the other variable also increases. Therefore, as the feeling of being emotionally abused increases, so does the feeling of suicidal ideation. The following is a list of all relationships found. The correlations were statistically significant at either 0.01 or the 0.05 level of significance established for the study.

There was a statistically significant, weak positive correlation between family called me stupid, lazy or ugly, and if I found myself in a life-threatening situation, $r_s(94) = .218$, $p = .033$.

There was a statistically significant, weak positive correlation between family called me stupid, lazy or ugly, and attempted suicide, $r_s(94) = .235$, $p = .021$.

There was a statistically significant, weak positive correlation between thinking my parents wished I never was born and if I found myself in a life-threatening situation, $r_s(95) = .275$, $p = .006$.

There was a statistically significant, weak negative correlation between thinking my parents wished I never was born and reasons for wanting to commit suicide, $r_s(95) = -.258$, $p = .011$.

There was a statistically significant, strong positive correlation between thinking my parents wished I never was born and attempted suicide, $r_s(95) = .491$, $p = .001$.

There was a statistically significant, moderate positive correlation between my family said hurtful and insulting things and if I found myself in a life-threatening situation, $r_s(94) = .302$, $p = .003$.

There was a statistically significant, weak positive correlation between my family said hurtful and insulting things and hidden my desire to kill myself from people, $r_s(94) = .210$, $p = .041$.

There was a statistically significant, weak positive correlation between my family said hurtful and insulting things and attempted suicide, $r_s(94) = .239$, $p = .019$.

There was a statistically significant, moderate positive correlation between feeling someone in my family hated me and if I found myself in a life-threatening situation, $r_s(94) = .307$, $p = .002$.

There was a statistically significant, moderate negative correlation between feeling someone in my family hated me and reasons for wanting to commit suicide, $r_s$ (94) = -.311, $p$ = .002.

There was a statistically significant, weak positive correlation between feeling someone in my family hated me and attempted suicide, $r_s$ (94) = .258, $p$ = .011.

There was a statistically significant, moderate positive correlation between feeling emotionally abused and if I found myself in a life-threatening situation, $r_s$ (95) = .315, $p$ = .002.

There was a statistically significant, moderate negative correlation between feeling emotionally abused and reasons for wanting to commit suicide, $r_s$ (95) = -.337, $p$ = .001.

There was a statistically significant, weak negative correlation between feeling emotionally abused and access to a method or an opportunity to kill myself, $r_s$ (95) = -.228, $p$ = .025.

There was a statistically significant, weak negative correlation between feeling emotionally abused and expectation to make a suicide attempt, $r_s$ (95) = -.273, $p$ = .007.

There was a statistically significant, moderate positive correlation between feeling emotionally abused and attempted suicide, $r_s$ (95) = .301, $p$ = .003.

***Sexual Abuse***

Five items on the survey identified adverse childhood experiences related to sexual abuse. These items are the following: (a) "someone tried to touch me in a sexual way or tried to make me touch them," (b) "someone threatened to hurt me or tell lies about me unless I did something sexual with them," (c) "someone tried to make me do sexual things or watch sexual things," (d) "someone molested me," and (e) "I believe that I was sexually abused." All items

were analyzed for significant correlation with the 21 items that described thoughts about committing suicide. There were 17 negative relationships found between the two variables.

The sexual abuse item, "someone tried to touch me in a sexual way or tried to make me touch them" was measured against three suicidal ideation categories. The item was measured against the suicidal ideation category containing the items (a) "having no wish to die," (b) "having a weak wish to die," and (c) "having a moderate to strong wish to die." Of the 96 participants, 74 (77.1% of 97) reported never true to the items in this suicidal ideation category with 49 (66.2%) of this total (74) responding never true to having a weak wish to die. There was a statistically significant correlation between sexual abuse through attempts of being touched or being made to touch others and never having a weak wish to die. This sexual abuse item was also measured against the suicidal ideation category items of (a) not accepting, (b) neither accepting or rejecting, or (c) accepting the idea of killing self. Of the 74 responses of never true, a correlation between neither accepting nor rejecting ($n$ = 48; 64.9%) and "someone tried to touch me in a sexual way or tried to make me touch them" was statistically significant. The third category of suicidal ideation items were (a) "I do not expect to make a suicide attempt," and (b) "I am unsure that I shall make a suicide attempt." Of the 74 never true responses to the two items, the association between "I am unsure that I shall make a suicide attempt" ($n$ = 50, 67.6%) and "someone tried to touch me in a sexual way or tried to make me touch them" was statistically significant.

The sexual abuse item, "I was molested" was measured against the suicidal ideation items (a) "I do not expect to make a suicide attempt," and (b) "I am unsure that I shall make a suicide attempt." Of the 82 never true responses to the two items, the correlation between "I am unsure that I shall make a suicide attempt" ($n$ = 56; 68.3) and "I was molested" was statistically

significant. Molestation was also measured with the suicidal ideation items (a) "I do not accept the idea of killing myself," (b) "I neither accept nor reject the idea of killing myself," and (c) "I accept the idea of killing myself." Of the 82 never true responses to the three items in this suicidal ideation category, there was a statistically significant correlation between "I neither accept nor reject the idea of killing myself" ($n$ = 54; 65.9%) and the sexual abuse item someone molested me.

The belief of being sexually abused was the last item assessed. The item was measured with the suicidal ideation of the expectation to commit a suicidal attempt. Eighty-two of the 96 participants responded never true to the two items in the suicidal ideation category. Of the 82 responses, the correlation between "I am unsure that I shall make a suicide attempt" ($n$ = 56; 68.3%) and "I believe I was sexually abused" was statistically significant.

The results of the Spearman correlation revealed there were no significant relationships for items B ("someone threatened to hurt me or tell lies about me unless I did something sexual with them," and C ("someone tried to make me do sexual things or watch sexual things"). The following are all results of correlations between sexual abuse indicators and suicidal ideation.

There was a statistically significant, weak negative correlation between someone trying to touch me in a sexual way and having the courage or the ability to commit suicide, $r_s(94) = -.267$ $p = .009$.

There was a statistically significant, weak negative correlation between someone trying to touch me in a sexual way and expectation to make a suicide attempt, $r_s(94) = -.255$, $p = .012$.

There was a statistically significant, weak negative correlation between someone molested and a wish to die, $r_s(94) = -.202$, $p = .048$.

There was a statistically significant, weak negative correlation between someone molested and a wish to die, $r_s(94) = -.214$, $p = .037$.

There was a statistically significant, weak negative correlation between someone molested and a desire to kill myself wish to die, $r_s(94) = -.268$, $p = .008$.

There was a statistically significant, weak negative correlation between someone molested and if I found myself in a life-threatening situation, $r_s(94) = -.204$, $p = .047$.

There was a statistically significant, weak negative correlation between someone molested and accept nor reject the idea of killing myself, $r_s(94) = -.206$, $p = .044$.

There was a statistically significant, weak negative correlation between someone molested and having the courage or the ability to commit suicide, $r_s(94) = -.220$, $p = .031$.

There was a statistically significant, moderate negative correlation between someone molested and expectation to make a suicide attempt, $r_s(94) = -.335$, $p = .001$.

There was a statistically significant, weak negative correlation between belief of being sexually abused and a wish to die, $r_s(96) = -.214$, $p = .035$.

There was a statistically significant, weak negative correlation between belief of being sexually abused and a desire to kill myself, $r_s(96) = -.277$, $p = .006$.

There was a statistically significant, weak negative correlation between belief of being sexually abused and if I found myself in a life-threatening situation, $r_s(96) = -.222$, $p = .028$.

There was a statistically significant, weak negative correlation between belief of being sexually abused and accepting nor rejecting the idea of killing myself, $r_s(96) = -.213$, $p = .036$.

There was a statistically significant, weak negative correlation between belief of being sexually abused and keeping myself from committing suicide, $r_s(96) = -.234$, $p = .020$.

There was a statistically significant, weak negative correlation between belief of being sexually abused and having a specific plan about how to kill myself, $r_s(96) = -.208$, $p = .040$.

There was a statistically significant, weak negative correlation between belief of being sexually abused and having the courage or the ability to commit suicide, $r_s(96) = -.257$, $p = .011$.

There was a statistically significant, moderate negative correlation between belief of being sexually abused and expectation to make a suicide attempt, $r_s(96) = -.361$, $p = .001$.

The hypothesis for RQ1 indicated there is no statistically significant relationship between types of adverse childhood experiences and suicidal ideation among Air Force airmen. The results of Spearman correlation revealed statistically significant relationships between adverse childhood experiences and suicidal ideation items measured in the study. Therefore, the null hypothesis is rejected. The alternative, there is a statistically significant relationship between types of adverse childhood experiences and suicidal ideation among Air Force airmen is accepted.

**Findings for RQ2**

The study examined whether there was a relationship between military assignments and suicidal ideation among Air Force airmen as its second research question. The associated hypothesis was tested through Spearman correlation. The hypothesis was stated as there is no statistically significant relationship between military assignments and suicidal ideation among Air Force airmen. The test was based on military assignments identified from responses to survey items and responses to the Beck scale of suicidal ideation.

Ninety-nine of the 100 participants in various military occupations responded to the occupation question. This resulted in 14 participants identified as other, 7 identified as operations, 29 identified as maintenance and logistics, 28 identified as support, 14 identified as

medical, 2 identified as legal and chaplain, and 5 identified as finance and constructions. These occupations were assessed against the 21 indicators of suicidal ideation.

The occupations of maintenance and logistics ($n$ = 22; 75.9%) and support ($n$ = 13; 46.4%) represented the highest number of responses for the suicidal ideation item, neither accepting nor rejecting the idea of committing suicide. Of the military occupations identified, 28 (28.3%) responded "I do not accept the idea of killing myself," and 12 (12.1%) responded that "I accept the idea of killing myself." Of the military occupations identified, 59 (59.6%) neither accepted nor rejected the idea of killing themselves. There was a statistically significant correlation between military occupation and participants responding as neither accepting the idea nor rejecting the idea of killing themselves.

The results of Spearman correlation revealed negative statistically significant relationships resulted for occupations and suicidal ideation items measured in the study. Therefore, the null hypothesis is rejected. The alternative, there is a statistically significant relationship between military assignments and suicidal ideation among Air Force airmen is accepted. Statistically significant correlations existed for the following 12 suicidal ideation items:

There was a statistically significant, weak negative correlation between military occupation and a wish to live die, $r_s(97) = -.224$, $p = .026$.

There was a statistically significant, weak negative correlation between military occupation and a wish to die, $r_s(97) = -.232$, $p = .021$.

There was a statistically significant, weak negative correlation between military occupation and a reason for living or dying, $r_s(97) = -.233$, $p = .020$.

There was a statistically significant, weak negative correlation between military occupation and a desire to kill myself, $r_s(94) = -.225$, $p = .025$.

There was a statistically significant, weak negative correlation between military occupation and periods of thinking about killing myself, $r_s(97) = -.252$, $p = .012$.

There was a statistically significant, weak negative correlation between military occupation and frequency of thinking about killing myself, $r_s(97) = -.215$, $p = .033$.

There was a statistically significant, moderate negative correlation between military occupation and accepting nor rejecting the idea of killing myself, $r_s(97) = -.366$, $p = .001$.

There was a statistically significant, weak negative correlation between military occupation and keeping myself from committing suicide, $r_s(97) = -.228$, $p = .023$.

There was a statistically significant, weak negative correlation between military occupation and having access to a method or an opportunity to kill myself, $r_s(97) = -.204$, $p = .043$.

There was a statistically significant, weak negative correlation between military occupation and having the courage or the ability to commit suicide, $r_s(97) = -.239$, $p = .017$.

There was a statistically significant, weak negative correlation between military occupation and expectation to make a suicide attempt, $r_s(97) = -.251$, $p = .012$.

There was a statistically significant, weak negative correlation between military occupation and arrangements for what will happen after I have committed suicide, $r_s(97) = -.223$, $p = .027$.

## Summary

This chapter contained the results of the analysis of data for the research questions investigated. The analysis employed Spearman correlation to identify relationships between the

two variables suicidal ideation and adverse childhood experiences, and the variables of occupation and suicidal ideation. The analysis identified the strength of the relationships and whether they were statistically significant.

The results of statistical analysis for RQ 1 revealed positive and negative relationships and statistically significant correlations for 12 physical abuse adverse childhood experiences with thoughts of committing suicide. There were not any correlations found for the physical abuse item, "I got hit so hard by someone in my family that I had to see a doctor or go to the hospital" and the category of suicidal ideation items "my wish to die during the last suicide attempt was low," "my wish to die during the last suicide attempt was moderate," and "my wish to die during the last suicide attempt was high."

There were 16 positive and negative relationships identified through the Spearman correlation test that were statistically significant for the emotional abuse items and indicators of thoughts of committing suicide. There were 17 negative relationships between forms of sexual abuse and suicidal ideation that were statistically significant. There were not any correlations found for two sexual abuse items and suicidal ideation. For the sexual abuse item "someone molested me" and the suicidal ideation items "I have not written a suicide note"; "I have thought about writing a suicide note or have started to write one, but have not completed it"; and "I have completed a suicide note," no correlations existed. Similarly, correlations were not found between the sexual abuse item, "someone threatened to hurt me or tell lies about me unless I did something sexual with them" and the suicidal ideation items, "my wish to die during the last suicide attempt was low," "my wish to die during the last suicide attempt was moderate," and my wish to die during the last suicide attempt was high."

The second research question and hypothesis examined the correlation between military occupations and suicidal ideation. The military occupations identified in the study were operations, maintenance and logistics, support, medical, legal and chaplain, finance and constructions, and a category identified as other. Findings from the Spearman correlation revealed negative correlations for the variable military occupations and 12 suicidal ideation items. A negative correlation means that as one variable increases, the other decreases. This principle applied to findings of this study suggests that as the variable military occupation increases, the suicidal ideation variable decreases. Applications of Spearman correlation found a statistically significant correlation between military occupation and Air Force participants neither accepting the idea nor rejecting the idea of killing themselves. The occupations of maintenance and logistics and support represented the highest counts for this correlation. Both null hypotheses were rejected based on the statistical significance found. Chapter Five includes a discussion of these results, their implications, and recommendations based on the study's findings.

# CHAPTER FIVE: CONCLUSIONS

## Overview

The overall goal of this research was to determine whether statistical significant relationships between childhood trauma and suicidal ideation among active duty Air Force airmen. In the previous chapter, the analysis and results of the two research questions guiding the current study were discussed. This chapter includes the discussion of the findings, the implications relating to the study, limitations, recommendations for future research, and the summary. This study had two primary objectives; the first objective was to explore whether there is a relationship between the types of adverse childhood experiences and suicidal ideation among Air Force airmen. The second objective was to determine whether specific military occupations increased the risk for suicidal ideation.

## Discussion

In 2019, the Air Force reported the highest number of suicides in three decades. A 2018 Department of Defense Suicide Event Report (DoDSER) released by the Pentagon showed that 44.6% of military personnel who died by suicide had a documented behavioral health diagnosis. According to the most recent data from the Department of Veterans Affairs, U. S. veterans are 50% more likely to die by suicide as compared to their civilian counterparts after adjusting for age and sex (Department of Veterans Affairs, 2020). The findings of this study are consistent with the finding from previous research that indicated multiple factors, including gender, were associated with an increased risk for suicide risk among veterans (Nichter, 2021). The sociodemographic characteristic of the Caucasian race (Ashrafioun et al., 2016) was associated with suicide attempts among veterans. This study recorded 66% of the participants were Caucasian as compared to 16% African American and 12% Hispanic. Males represented 56% of

the respondents compared to 42% of female respondents. Race and ethnicity were assessed by participants responding to a demographic survey. The participants indicated whether they identified as African American, Caucasian, Hispanic/Latino (a), Native American/Alaskan Native, East Asian/South Asian, Middle Easterner, or other.

The findings in this study differed from previous research identifying the female sex (Bryan & Bryan, 2019) as at higher risk of suicide attempts. In comparison, a study conducted by Griffith (2016) relating to Army soldiers, concluded that males were three times more likely to commit suicide than females. Statistics show that males die by suicide more often than females. Data from a recent report by the DoD concluded that male suicides constituted 91.6% of the active duty military; the age group of 20-24 years represented 39%, and Caucasians constituted 75.6% (DoD, 2019). In addition, data from this study found that almost 60% of males had experienced thoughts of suicide.

Previous research that utilized data from the NVDRS for 2,026 military and veteran decedents concluded that young adults who were enlisted at the ranks of E1 to E5 (Airman to Staff Sergeant) were at the greatest risk of suicide within the military (Logan et al., 2016). The 2020 ASR reported that the demographic profile of service members who died by suicide were mostly enlisted members, male, and under 30 years old. This study utilized 100 human subjects identified as being at an elevated risk of suicide. The study found that over 50% of those at a greater risk for suicidal ideation were mostly enlisted, male, and at the ranks of E5 to E9 (Staff Sergeant to Chief Master Sergeant).

This study found that 50% of veterans returning from deployment to Afghanistan and Iraq as part of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) were at increased risk for suicide. This finding coincides with a study conducted by Fanning & Pietrzak

(2013) that concluded that all OEF/OIF veterans have an increased risk of suicide compared to individuals who had not served in the military. In addition, a study conducted by Bullman et al. (2018) concluded that there was an increase risk a suicide among active duty in comparison to veterans in the reserve and National Guard. Previous findings by Griffith (2016) suggest that deployment is generally not related to suicide. To the contrary, the results of this study indicated that 57% of respondents had exposure to combat and deployment compared to 42% of respondents with noncombat experience. The results of this study also coincide with previous findings of Reger et al (2018) who concluded there is growing evidence that suicide risk may be elevated after a deployment.

## Statistical Analysis

One study shows that approximately 30% of the general population experience childhood maltreatment (Hussey et al., 2006).The most common types of maltreatment that children experienced are physical, sexual, emotional, psychological abuse and neglect (Finkelhor et al., 2013). Childhood trauma is identified as a risk factor in suicidal ideation (Bahk et al., 2017). This study found a significant association between childhood physical and sexual abuse and suicidal ideation.

The results of statistical analysis for RQ1 revealed statistically significant correlations for 12 physical abuse adverse childhood experiences with thoughts of committing suicide. Five items indicated adverse childhood physical abuse experiences. These were (a)"I got hit so hard by someone in my family that I had to see a doctor or go to the hospital"; (b)"people in my family hit me so hard that it left me with bruises or marks"; (c) "I was punished with a belt, a board, a cord or some other hard object"; (d) "I believe that I was physically abused"; and (e) "I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor."

The findings of statistical significant correlations between forms of adverse childhood experiences and thoughts of committing suicide have support from other studies.

Adverse childhood experience (ACE) is defined as exposure to childhood abuse (sexual, physical, and emotional), neglect (physical and emotional) and household challenges (e.g., parental incarceration, household mental illness, household substance use, parental divorce/separation, intimate partner violence) during the first 18 years of life (Ports et al., 2017). The investigation focused on abuse as an adverse childhood experience and its findings are consistent with some previous studies. For example, physical and sexual abuse and other childhood adversities have been related to suicide attempts (Hartford et al., 2014; Sugaya et al., 2012); parental sexual and physical abuse show strong associations with suicidal ideation (Agerbo et al., 2002; Stansfield et al., 2017). This study revealed statistically significant correlations for sexual abuse adverse and childhood experiences with thoughts of committing suicide. There were 17 relationships between forms of sexual abuse and suicidal ideation that were statistically significant. Five items were investigated regarding adverse childhood experiences related to sexual abuse. Two items involving someone trying to make one perform or watch sexual things and being threatened to commit a sexual act did not reveal a relationship with suicidal ideation.

Consistent with reports in the literature on the influence of physical abuse and suicidal ideation, this study found a statically significant correlation between neither accepting or rejecting the idea of killing self *(n*=48; 64.9%) and "someone tried to touch me in a sexual way or tried to make me touch them." This finding suggests Airmen may consider suicide resulting from being touched in a sexual way without permission. Additionally, a strong statistically

significant association was found between the item, "I neither accept nor reject the idea of killing myself" (*n*=54; 65.9%) and the sexual abuse item "someone molested me."

Findings are also similar to other studies of childhood maltreatment regarding sexual and emotional abuse. In a study of healthy adults, Bahk et al. (2017) found that childhood sexual abuse was a direct predictor of suicidal ideation whereas childhood emotional and physical abuse were indirect predictors and were associated with anxiety. The results of this airmen study reveal 16 statistically significant associations between emotional abuse and suicidal ideation. The results of this study are consistent with findings from a study conducted by Araujo and Lara (2016) who found for serious suicide attempts, there was an association between severe emotional abuse and suicidal ideation. They concluded that suicidal behavior was strongly associated with emotional abuse in childhood. Emotional abuse in childhood was also a relevant factor in the progression of suicidal ideation to suicide attempts. Studies utilizing the CTQ to assess exposure to different types of childhood abuse found that emotional abuse and neglect are more strongly related to suicidal ideation than sexual abuse (Martins et al., 2014). This study found that emotional abuse emerges as a significant risk factor for suicidal ideation. The results of this study coincides with a Pentagon-funded study by the National Center for Veterans Studies at the University of Utah that identifies emotional distress as the main reason U.S. soldiers commit suicide (Van Dahlen, 2012).

There were 17 statistically significant associations found between forms of sexual abuse and suicidal ideation. Other studies (Bahk et al., 2017; Joiner et al., 2005) have also reported strong associations between sexual abuse and suicidal ideation. Hence, findings in this study are consistent with these studies and found that exposure to childhood sexual abuse is a risk factor for suicidal ideation. For example, these findings are also consistent with views of Bahk et al.

(2017) regarding the influence of sexual abuse on suicidal ideation. Findings of this study are consistent with Joiner and colleagues' (2005) assessment of individuals with a family history of childhood verbal, physical abuse, sexual abuse, or molestation. They found that participants who had been physically or sexually abused were more likely to have a suicide attempt than those who had been verbally abused or molested. However, the results of this study differs from Joiner's findings that indicate a suicide attempt is less likely with molested participants. This study found a statistically significant correlation between the statement, "I am unsure that I will make a suicide attempt" and being molested (*n*=50, 67.6%). Smith (2013) conducted a study that identified childhood sexual abuse as a distinguishing factor of suicide attempters. In a study of adult prisoners, childhood sexual abuse and suicidal behavior were found to be associated with repeated suicide attempts (Mandelli et al., 2011).

The results of Spearman correlation analysis for RQ2 revealed there were negative correlations for the variable military occupations and 12 ideation items. The analysis revealed statistically significant correlations between military assignments and suicidal ideation. The military occupations examined in the study were operations, maintenance and logistics, support, medical, legal and chaplain, finance and constructions, and others consisting of security, instructor, SAPR, command post, civil engineering and Intel. This study found a statistically significant correlation between maintenance and logistics and support respondents and the suicidal ideation of neither accepting the idea nor rejecting the idea of killing themselves. Except for the significant finding for this one occupation, the overall findings in this study are consistent with a report released in 2010 by the Pentagon that found insufficient data to support findings that specific military occupations had a higher rate of suicide (Thompson, 2010).

## Implications

Research continues to show that suicide rates among service members and conclusive reasons for military suicides remain challenges for the Department of Defense (Castro & Kintzle, 2014; Center for Disease Control, 2019; DoD, 2021). The present findings show a clear need for studies that focus on childhood trauma and its relationship to suicide behaviors. The results of both negative and positive correlations identified suggest the need for close attention to the suicidal ideation items as variables in this study. The positive correlations identified can mean that as one variable increases, the other variable tends to also increase. Similarly, the negative correlations found can mean that as one variable increases, the other tends to decrease. All sexual abuse items measured constituted negative relationships; 12 of 16 emotional abuse items constituted positive relationships, and 9 of 12 physical abuse items constituted positive relationships. These positive and negative relationships have implications for predictors of suicidal tendencies; thus, they offer information that may lead to discovering how to reduce suicide rates among military service members.

The Air Force focuses on preventive measures to reduce suicides among service members. Despite a growing rate of suicide among service members, few studies have examined the risks factors associated with childhood trauma in the mental health of military personnel. The prevention of suicide requires additional research to improve the prediction of suicide risk factors among service members, to include understanding factors associated with barriers to seeking mental health treatment. The research that the Air Force has conducted on evaluating the relationship between childhood trauma and suicidality is insufficient. In addition, findings of this study regarding military occupations have implications for leaders in the Air Force to further

address the possible link between specific occupations, childhood trauma, and suicidality to identify plausible preventive measures in early adult years to mitigate the effects of ACEs.

## Limitations

When considering the findings of this study, there are several limitations that must be acknowledged. There are limitations with the study associated with social desirability bias and self-reporting bias. Bias in research can occur as a result of problems in the design, conduct, or analysis of the study (Althubaiti, 2016). Social desirability bias suggests that participants may bias their responses to survey questions based on how they feel others may view their answers. Self-reporting data is data collected directly from the research participants. Examples of self-reporting data research tools include questionnaires, surveys, or interviews.

Bias was present in the areas of collecting data from the study and selecting participants for the study. The collection of data relied on retrospective self-reported information. Therefore, the researcher could not verify participants' personal recollection of information. Since the abuse happened in the participant's childhood, the individual may have difficulty recalling certain events because the outcome was reported after the participants were much older. Additionally, social desirability bias is possible because respondents may not have completely or truthfully answered questions that may have been difficult to remember or that could potentially cause shame to their family. The researcher is unable to verify the accuracy or truthfulness of the reported information. According to Althubaiti (2016), self-reported data is often said to be unreliable, but self-reported data can be valuable in providing a wider range of responses than other data collection means. Demetriou et al. (2015) stated that using self-report assessment is one of the most widely used means of collecting data.

The study is limited in the selection of the participants for the study. Participants for this study were gathered from responses to flyers that were conspicuously posted on bulletin boards around Air Force installations and postings in social media groups. The researcher could not identify the active duty service member since the study was confidential. Another limitation is the number of participants. Individuals responding to this survey consisted of 100 participants. This is a small sample size considering there are approximately 329,000 active duty Air Force service members.

## Recommendations for Future Research

This study offers a wealth of information on the correlation between childhood ACEs and suicidal ideation among active duty airmen. The significance of this study is that it used data from a population of participants with real world suicidal behaviors. Although there has been numerous studies conducted on the relationship between childhood ACEs and suicide, there is limited research conducted with a focus on the active duty branch of the Air Force. Therefore, the Air Force will benefit from additional research that focuses on examining the relationship between childhood ACEs and suicidal ideation. Although research has found that childhood maltreatment is an indicator of suicidal ideation, the particular role of the maltreatment and the mediating variables between childhood maltreatment and suicide, especially among military personnel requires additional research.

This present study did not assess suicidal ideation among siblings who reside in the same household. Therefore, research that focuses on examining the relationship between childhood ACEs and the risk of suicidal ideation among other members of the household is warranted. There is limited research on the role of siblings' similarities with regards to suicidal ideation. Previous studies have identified genes as the reason for about 43% of suicidal behaviors

(Crisafulli et al., 2010). Additional research on the role familial resemblance play in adult suicidal ideation is critical to aiding in tailoring prevention efforts and understanding how family characteristics are associated with suicidal ideation.

The CTQ has excellent psychometric properties; however, trauma interviews in a clinical setting may prove to be a better method of evaluation. This would allow researchers the opportunity to verify the status of the military member, clarify information, and answer questions that the member may have about the screening instruments utilized in the research. However, using the CTQ or other instruments is recommended for large samples to compliment trauma interviews. This study utilized a small sample size. It may be beneficial to explore the relationship between workplace occupations and suicidal ideation with a larger sample size to better understand the increase odds of suicidal ideation due to the increase sample size.

Future research should also focus on the role of military career fields and its relationship to suicide and suicide ideation. This study findings indicated a statistically significant correlation between the occupations of maintenance and logistics and support and neither accepting the idea nor rejecting the idea of killing themselves. Findings in other studies, as well as the findings in this study, have shown that suicidal ideation is related to several factors to include military occupation and deployment. According to Moradi et al (2021), various studies have been conducted to determine whether there is a connection between various career fields and suicidal ideation, but the results of the studies were contradictory. Additional research that examines the correlation between military occupations and suicidal ideation can help determine a more accurate assessment of this problem in order to develop and implement mental health interventions programs that are more Air Force Specialty Code (AFSC) specific.

Data from this study may help mental and public health professionals assess an individual's potential suicide risk by identifying how childhood ACEs have a long-term impact on the risk for suicide attempt. In addition, identifying and treating people who have been affected by childhood ACEs may have substantial value in improving efforts to prevent suicide. Knowledge of risk factors pertaining to ACEs will help clinicians understand the chronic risks associated with suicidal ideation. It would also be important to identify early childhood trauma and adult psychological distress to modify treatment plans that focus on stopping and/or reducing suicidal ideation among active duty Air Force airmen. Understanding the specific issues that our service members' encounter has important implications for intervention and long-term treatment outcomes.

## Summary

The goal of this study was to identify statistically significant relationships between childhood trauma and suicide ideation among active duty Air Force airmen. This current study adds to the research linking adverse childhood experiences to suicidal ideation by testing these associations using a representative sample of active duty Air Force airmen. Adverse childhood experiences examined in this study consisted of experiences of childhood physical, sexual, and emotional abuse. This study also examined the relationship between certain military occupations and suicidal behaviors.

The results of this study appear to confirm the positive effect of ACEs on suicidal ideation. These results demonstrated that ACEs not only directly affected suicidal ideation, but also affected it through emotional, sexual, and physical abuse. In our sampling, those who represented the Caucasian male population exhibited an increased likelihood of engaging in suicidal behaviors. This is not surprising since in previous literature Caucasian individuals

represent the highest suicide rate of suicide in the United States. Statistics show that service members who commit suicide are more likely those in their 20s and of Caucasian, non-Hispanic race/ethnicity. This study does not address factors that may explain the predominance of Caucasians suicidal ideation over other races. However, researchers suggest several reasons for the increase in mortality rates, to include poor mental health, low education, availability of guns and prescription drugs, and financial stress to be among the reasons (Case & Deaton, 2017). The reason is highly complicated and requires additional research.

This present research indicates that 7 of 16 emotional abuse relationships constituted strong and moderate correlations, 2 sexual abuse relationships represented moderate correlations, and all physical abuse represented weak correlations. While physical and sexual abuse have been identified as best predictors of suicidal ideation in previous studies (Joiner, 2005), the current findings suggest that emotional and sexual abuse seem to be the best predictors of suicidal ideation and the acquired capability to commit suicide. This observation is supportive of the interpersonal-psychological theory of suicidal behaviors (Joiner, 2005) that served as the theoretical framework of the study. The frequency of strong and moderate correlations related to emotional abuse may suggest that over a period of time, responding participants experienced a repeated sense of insufficiency, low belongingness or social alienation, pain or fear, and injury or abuse that, according to the theory, can result in the emergence of the capability for suicidal behavior and adopting a fearlessness of dying (Joiner, 2005; Joiner & Orden, 2008; Van Orden et al., 2010).

Previous research has found a correlation between childhood abuse and childhood sexual trauma. A report written by Ursano et.al (2020) indicated that almost three-quarters of first enlistment Army soldiers reported post-service traumatic experiences with childhood abuse

representing one-fifth of those experiences. The results of this research also revealed that participants with a history of childhood emotional and sexual abuse were risk factors for suicidal ideation. This study will have a far-reaching impact beyond the Air Force. All branches of the military will benefit from this study. With rates of suicide increasing among all branches, it will greatly benefit the military services, healthcare entities, and the general population to have scientific evidence to explain suicidal behaviors, identify gaps in prevention measures and identify intervention measures.

This research is important because it is the first study (as far as can be determined) to investigate childhood trauma and its relationship to suicide ideation among active-duty Air Force airmen. This study will provide valuable insight to the pathways leading to suicidal behaviors; thus will assist the military in the development and implementation of effective assessment efforts and suicide prevention programs.

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# APPENDICES

## Consent

**Title of the Project:** Examining the Correlation Between Childhood Trauma and Suicidal Ideation Among Air Force Airmen
**Principal Investigator:** Jennifer Thomas, Doctoral Student, Liberty University

**Invitation to be Part of a Research Study**

You are invited to participate in a research study. In order to participate, you must be 18 years of age or old, an active-duty Air Force airman and have experienced thoughts about suicide. 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 project.

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

The purpose of the study is to determine whether types of adverse childhood experiences and thoughts of suicide are related and whether military assignments and thoughts about suicide are related.

**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 things:

1. Complete an anonymous survey, which should take approximately 20 minutes.

**How could you or others benefit from this study?**

Participants should not expect to receive a direct benefit from taking part in this study. Benefits to society include understanding how childhood experiences and job responsibilities may influence thoughts about suicide, which may help in creating support programs and activities.

**What risks might you experience from being in this study?**

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life. If you experience any anxiety in responding to a question, you may omit the question. Participants will take the survey on their own at the place and time of their choosing. If a participant experiences distress as a result of taking the survey and would like to speak to someone, he or she should contact the researcher at the email address or phone number listed below or contact the Mental Health Office at their installation.

**How will personal information be protected?**

The records of this study will be kept private. Participant responses will be anonymous. Research records will be stored securely, and only the researcher will have access to the records.

- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.

**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 or the United States Department of the Air Force. If you decide to participate, you are free to not answer any question or withdraw at any time 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 survey 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 Jennifer Thomas. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [redacted] You may also contact the researcher's faculty sponsor, Dr. Cynthia Doney, 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 Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu

**Your Consent**

Before agreeing to be a 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/study team using the information provided above.

# Demographics Survey

**This survey is designed to determine your eligibility to participate in the study and to collect demographic information. Please respond to each question.**

1. Are you 18 years or older?

    - Yes
    - No
2. Are you an airman in the United States Air Force on active duty:

    - Yes
    - No
3. Have you ever experienced thoughts of suicide?

    - Yes
    - No
4. Gender:

    - Male
    - Female
    - Other: _____
5. Ethnicity/Race (Primary)

    - African American
    - Caucasian
    - Hispanic/Latino(a)
    - Native American or Alaskan Native
    - East Asian/South Asian
    - Middle Eastern
    - Other: _____
6. Rank

    - E-1 – E-4
    - E-5 – E-9
    - O1 – O3
    - O4 – O6
7. Military Occupation **(Pick one that best applies)**:

    - Operations
    - Maintenance & Logistics
    - Support
    - Medical & Dental
    - Legal & Chaplain
    - Finance & Contracting

- Special Investigations
- Other: _____

8. Previous Deployment Experience:

- Yes
- No

9. If "**YES**", mark all conflicts that apply:

- Not Applicable
- Grenada
- Operations Desert Shield/Desert Storm
- Somalia
- Bosnia
- OEF/OIF
- Other_____

10. Are you currently receiving services through a United States Air Force Mental Health Office?

- Yes
- No

11. Do you have access to a reliable computer and internet to complete an online survey?

- Yes
- No

12. Do you require assistance in using a computer to answer questions on an online survey?

- Yes
- No