

CALIFORNIA STATE UNIVERSITY SAN MARCOS

THESIS SIGNATURE PAGE

THESIS SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE

MASTER OF PUBLIC HEALTH

THESIS TITLE: ADVERSE CHILDHOOD EXPERIENCES AMONG OEF/OIF VETERANS AND  
SUSCEPTIBILITY TO POST-DEPLOYMENT PTSD

AUTHOR: NATALIE ESTER MORALES

DATE OF SUCCESSFUL DEFENSE: NOVEMBER 26, 2018

THE THESIS HAS BEEN ACCEPTED BY THE THESIS COMMITTEE IN  
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER  
OF PUBLIC HEALTH.

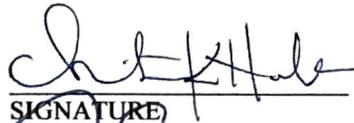
Dr. Deborah Morton  
THESIS COMMITTEE CHAIR



SIGNATURE

11/26/18  
DATE

Dr. Christina Holub  
THESIS COMMITTEE MEMBER



SIGNATURE

11/27/18  
DATE

Dr. Asherlev Santos  
THESIS COMMITTEE MEMBER



SIGNATURE

11/26/18  
DATE

**Adverse Childhood Experiences Among OEF/OIF Veterans  
and Susceptibility to Post-Deployment Posttraumatic Stress Disorder**

**Natalie Ester Morales  
California State University, San Marcos**

### **Abstract**

***Introduction-*** Adverse childhood experiences (ACEs) have only recently been introduced into public health research, as the area of expertise has been commonly explored in psychology and sociology departments. Researchers Felitti and Anda from Keiser Permanente in San Diego conducted the first ACE study in 1998 and discovered nearly two-thirds of San Diegans were exposed to one ACE and one in five participants had three or more ACEs. Dr. Jodie Katon (2015) and colleagues evaluated the prevalence of ACEs and the impact ensued as adults in military service members relative to civilians, and determined men and women with history of military service had higher ACE scores. Furthermore, Dr. Blosnich (2014) and colleagues sought to compare the prevalence in ACEs among service members categorized by military service, service era, and gender. Dr. Blosnich found men in the all-volunteer era had double the odds of reporting forced sex prior to the age of 18 and may use enlistment as an escape.

***Purpose / Study Objectives-*** The purpose of this study was to examine the associations between ACEs and posttraumatic stress disorder among veterans who deployed during Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF). Objective (1) to determine if veterans with higher scores of adverse childhood experiences are at a greater risk for the development of post-deployment posttraumatic stress disorder (PTSD). Objective (2), to evaluate the differences in veterans' combat experiences and coping mechanisms after OEF/ OIF deployment(s). Lastly, objective (3), to examine the health behaviors of veterans who have deployed in support of OEF/OIF.

**Methods-** Veterans who deployed in support of OEF/OIF were recruited to participate in a research study through California State University San Marcos. Qualitative and quantitative data were collected with a survey questionnaire consisting of demographic questions, military service criteria, PCL-5, ACE questionnaire, and ACEs currently present within the household. Participants' (n=56) responses were analyzed using IBM SPSS Statistics Version 25.

**Results-** Veterans who screened positive for PTSD had higher mean ACE scores (4.67) than their non-PTSD counterparts (3.00) ( $p = .019$ ). No differences were observed in susceptibility to PTSD between genders, or number of times deployed. Not all veterans who deployed developed PTSD, nevertheless, those who screened positive for PTSD had seen trauma. Veterans with PTSD had a smaller support system of people whom they could openly discuss deployment experiences with in comparison to their non-PTSD counterparts.

**Conclusion-** Veterans with PTSD were less likely to discuss traumatic experiences which increases the risk for social-emotional and cognitive impairment. This study confirmed Blosnich's theory that some veterans may use enlistment as an escape, however, significance was not found due to limited sample size after stratification. Further research should include a prospective veteran population-based study focusing on ACEs as motivators for enlistment in the armed services and the impact of ACEs within a population of military children during wartime.

### **Acknowledgments**

This research study is dedicated to my husband Saul Morales and our beautiful and intelligent children Carolina and Isaiah Morales.

Saul, I am eternally grateful for your continued support and countless sacrifices along my educational journey. I have never met a man more willing to accommodate for the needs of his wife and family. I have been truly blessed to have married a man who is tolerant of my ambitious nature and embraces my successes as if they were his own. Carolina and Isaiah, thank you for your patience and understanding while completing this degree. I will forever strive to limit the amount of adverse experiences you are exposed to and to encourage you to always follow your dreams.

Thank you to my thesis committee members Dr. Deborah Morton, Dr. Christina Holub, and Dr. AsherLev Santos for your guidance and knowledge in formulating my ideas into a research worthy thesis. Your advice, feedback, and mentorship throughout the past year have been invaluable to my growth as a public health professional.

Last, but certainly not least, thank you to all my brothers and sisters in arms who have proudly served in the United States military. It is with my utmost gratitude that I thank the generations before and those yet to come for their faithful service in protecting our nation. It has been a true privilege in serving alongside you. May research continue to focus on the health and wellbeing of our nations heroes and their families.

**List of Tables**

**Table 1:** Sample Characteristics of Veterans (n=56) Stratified by PTSD Status, San Diego California, 2018

**Table 2:** Health Risk Behaviors Stratified by PTSD Status (n=56), San Diego, California, 2018

**Table 3:** Prevalence of Adverse Childhood Experiences (n=56) Stratified by PTSD Status, San Diego California, 2018

**Table 4:** ACEs as Reasons for Enlistment and ACEs Reported as a Child (n=56) Stratified by PTSD Status, San Diego California, 2018

**Table 5:** Perceived Barriers to Care (n=56) Stratified by PTSD Status, San Diego California, 2018

**Table 6:** Support System for Deployment Experiences (n=56) Stratified by PTSD Status, San Diego California, 2018

**Table 7:** Effects of Gender, Total ACE Score, Total Number of Deployments, Experiencing Trauma and Probability of PTSD, San Diego, California 2018.

**Table of Contents**

Abstract.....2-3

Acknowledgments.....4

List of Tables.....5

Chapter 1: Introduction.....8

    Gap in Knowledge.....9

    Study Design.....10

Chapter 2: Methods.....12

    Recruitment.....12

    Study Participants.....13

    Exclusions.....14

    Obtaining Consent.....14

    Data Collection.....14

Chapter 3: Measures.....16

    PCL-5 (PTSD Questionnaire) .....16

    ACE Questionnaire.....17

    ACE Questionnaire Modifications.....18

    Statistical Analysis.....19

Chapter 4: Results.....20

    Sample Characteristics.....20

    Health Risk Behaviors.....21

    Prevalence of Adverse Childhood Experiences .....21

ACEs as Reasons for Enlistment and ACEs Reported as a Child.....	22
Perceived Barriers to Care .....	22
Support System for Deployment Experiences.....	23
Effects of Gender, Total ACE Score, Total Number of Deployments, Experiencing Trauma and Probability of PTSD.....	24
Chapter 5: Discussion .....	25
Chapter 6: Conclusion.....	27
Strengths.....	27
Limitations.....	28
.	
Implications and Recommendations for Continued Research.....	28
References.....	30-32
Tables 1-7 .....	33-41
Appendix A-H.....	42-60

## Chapter 1: Introduction

Adverse childhood experiences are various forms of maltreatment brought on by acts of commission or omission by a parent, step parent, family member, or other adult, resulting in harm, potential harm, or poses a threat to harm a child (Centers for Disease Control and Prevention, 2018). Acts of commission are deliberate and intentional and include physical, sexual, and psychological abuse regardless of the perpetrator's intentions to harm the child. Children who are exposed to adverse childhood experiences are at greater risk of developing social, emotional, and cognitive impairments as well as adopting health risk behaviors (Felitti et al., 1998). As the number of adverse childhood experiences increase, the child becomes more susceptible to ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease as an adult (Felitti et al., 1998).

Adverse childhood experiences (ACEs) have only recently been introduced into public health research, as the area of expertise have been commonly explored in psychology and sociology departments. Prior studies have focused on abused children and the mental health implications ensued as adults. Researchers from Keiser Permanente in San Diego conducted the first ACE study to determine the associations of adverse childhood experiences and health risks in adults (Felitti, 1998). The study determined nearly two-thirds of the participants were exposed to one ACE and one in five participants had three or more ACEs. According to Felitti (1998), there was a graded dose-response relationship between exposure to abuse and household dysfunction to varying health risks in adults leading to increased mortality. Research has confirmed the commonality of adverse childhood experiences and the long-term associations with adopted health risk behaviors in adults (Felitti et al., 1998, Campbell, J. A., Walker, R. J., & Egede, L. E., 2016).

Dr. Jodie Katon and colleagues (2015), evaluated the prevalence of ACEs and the impact ensued as adults in military service members relative to civilians. Using secondary data analysis through the Behavioral Risk Factor Surveillance System (BRFSS), the study determined men and women with history of military service had higher ACE scores, however, associations with adult health-related quality of life were weaker among men with military service (Katon et al., 2015). Also, using BRFSS data, Dr. Blossnich (2014), and colleagues sought to compare the prevalence in ACEs among service members categorized by military service, service era, and gender. Veterans in the study also displayed higher ACE scores than civilians, yet Blossnich found men in the all-volunteer era had double the odds of reporting forced sex prior to the age of 18 (Blossnich, Dichter, Cerulli, Batten, & Bossarte, 2014).

### ***Gap in Knowledge***

The aforementioned studies determined a graded relationship between ACEs and negative health outcomes as adults, higher ACE scores in veterans than their civilian counterparts, and how veterans may use enlistment as an escape from adverse childhood experiences (Felitti, 1998, Katon, 2015, & Blossnich, 2014). The 2010-2012 BRFSS data used by Katon (2015), and Blossnich (2014), were collected through telephone surveys from U.S. residents who self-report health-related risk behaviors and military service. The BRFSS data does not contain questions related to military trauma nor does it verify symptoms associated with PTSD (BRFSS, 2014). Furthermore, Felitti, Katon and Blossnich did not evaluate ACEs within an all-volunteer, war-era population, with health-related risk behaviors associated with susceptibility to PTSD.

### *Study Design*

This study was designed to examine the associations between adverse childhood experiences and posttraumatic stress disorder among veterans who deployed during Operation Enduring Freedom / Operation Iraqi Freedom (OEF/OIF). The first study objective was to determine if veterans with higher scores of adverse childhood experiences were at greater risk for the development of post-deployment posttraumatic stress disorder. Veterans from the start of the Gulf War era in 1990, to the present, are all volunteer enlistees who were not called upon to be drafted. This veteran population was selected to determine if exposure to adverse childhood experiences could be used as motivation to join the armed services or serve as an escape from an adverse childhood to confirm Blosnich's theory (Blosnich et al., 2014). This study examined the effects of abuse, neglect, and household dysfunction selected as motivation for enlistment stratified by PTSD contingency scores to determine susceptibility of developing PTSD.

The second objective was to evaluate the differences in veterans' combat experiences and coping mechanisms after OEF/OIF deployment(s). Understanding the coping mechanisms behind veterans who were exposed to combat and/or trauma will help guide research on ways to approach ACEs and PTSD. Not all veterans who deploy experience combat or are exposed to traumatic military events, however associations between ACE scores and PTSD symptoms can assist in the evaluation of resilience built as a learned behavior from childhood. Additionally, stratifying veterans' support system among provisional PTSD diagnosis will help tailor future treatment methods within primary care and mental/behavioral health departments.

The final objective was to examine the health behaviors of veterans who have deployed in support of OEF/OIF. ACEs not reported as a child were stratified against veterans who do not report post-deployment PTSD symptoms as an adult. Veterans often do not seek medical

treatment due to stigma and the perception of weakness associated with seeking care (Campbell, Bonner, Bolkan, Lanto, Zivin, Waltz, ...Chaney, 2016). This objective focuses on treatment utilization and barriers to care surrounding veterans who screen positive for PTSD versus their non-PTSD counterparts.

The purpose of this study was to examine the associations between adverse childhood experiences and posttraumatic stress disorder among veterans who deployed during OEF/OIF. Using the three objectives, one could hypothesize that OEF/OIF veterans with higher ACE scores would be at increased risk for developing post-deployment PTSD and veterans with PTSD would have less coping mechanisms and more negative health behaviors than their non-PTSD counterparts.

## **Chapter 2: Methods**

The Institutional Review Board at California State University, San Marcos approved this research study project on May 8, 2018. This study collected primary qualitative and quantitative data through survey distribution.

### ***Recruitment***

For this study, the term veteran included active duty, reserve, and prior enlisted members from all branches of service. Veterans were recruited from the California State University, San Marcos Campus from May 8, 2018 – September 30, 2018. Flyers were posted throughout California State University, San Marcos' main campus as well as the corresponding Temecula campus. Research study recruitment opportunities were also displayed on social media websites such as Facebook and Linked In to reach a larger veteran population. The principal investigator created mass communication emails to contact CSUSM students, staff, and faculty members to convey recruitment specifications. The recruitment announcements were distributed through the Office of Communications News Center and remained published for three consecutive weeks starting August 28, 2018 through September 18, 2018. Individuals with questions regarding the study could contact the researcher in person, through email, phone and text message. The research study flyer has been added to Appendix A and the mass communication email is provided in Appendix B.

### *Study Participants*

To qualify for participation in the study, participants were required to be 18 years' old or older and fluent in English. Participants must have been United States veterans who deployed to Iraq or Afghanistan in support of Operation Enduring Freedom or Operation Iraqi Freedom (OEF/OIF). Veterans from all United States branches of service were included in the study. Deployments in support of OEF/OIF included veterans on active duty, reserve, and prior military service. The following questions were presented to participants to determine military and deployment status:

- *In what branch of service have you served? (mark all that apply)*
- *Please indicate whether your service was/is: active, reserve, or both?*
- *Did you deploy in support of Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF)?*
- *How many deployments have you been on where you were physically present in Iraq or Afghanistan in support of OEF or OIF?*

To be eligible, veterans were required to show proof of military service as well as proof of deployment in support of OEF/OIF. Proof of military service was assessed through military ID, valid driver's licenses with *veteran* annotated, certificate of release or discharge from active duty (DD214), or verification through CSUSM. Proof of deployment was verified through (DD214), documentation in Service Record Book (SRB), or an official administrative list of campaign medals received.

### *Exclusions*

Veterans were excluded from the study if they were not fluent in English, could not provide proof of active duty, reserve, or veteran status, and proof of deployment in support of OEF/OIF (n=6). Participants who gave partial responses or had missing data (n=2) were re-contacted to complete missed questions. All participants (n=56) completed the survey in its entirety.

### *Obtaining Consent*

Eligible veterans who were interested in participating were first provided with a consent form describing the study purpose, objectives, study procedures, risks and inconveniences, safeguards, confidentiality, as well as benefits of participating. Veterans were not provided an incentive to participate in the study. The research study consent form is provided in (Appendix C).

### *Data Collection*

Participants answered questions through a survey (Appendix D), taking approximately 20 minutes to complete. Questions included demographic information, health-risk behaviors, military experience, brief medical history, adverse childhood experiences, post-deployment coping mechanisms, and treatments for PTSD received. Participants were allowed take the survey online alone or in paper format with the primary investigator present. Online data collection methods were conducted using Qualtrics software, allowing the participant to answer questions discretely without perceived stigma. Each veteran received their own personal link to

the survey. Veterans were allowed to take the survey one time, however, reopening of the partially completed survey was permitted if the participant needed to stop at any given time.

Settings were adjusted in Qualtrics to prevent participants from completing the survey more than once. Veterans were given a thank you card with a list of resources inside the San Diego area and telephone numbers to national VA resources. The front and back of the thank you card can be viewed in Appendix F.

### Chapter 3: Measures

#### *PCL-5 (PTSD Questionnaire)*

Settings were adjusted in Qualtrics to prevent participants from completing the survey more than once. Veterans were given a thank you card with a list of resources inside the San Diego area and telephone numbers to national VA resources. The front and back of the thank you card can be viewed in Appendix F.

Not at all	A little bit	Moderately	Quite a bit	Extremely
0	1	2	3	4

The PCL-5 was included in this study to account for participants who experience symptoms of PTSD however may not have been diagnosed by a medical professional. A conditional diagnosis of PTSD can be calculated using the Likert scale of “Moderately”- “Extremely” as basis for positive symptom inclusion. The DSM-5 requires at least 1 Criterion B item (questions 1-5), 1 Criterion C item (questions 6-7), 2 Criterion D items (questions 8-14), and 2 Criterion E items (questions 15-20) (American Psychiatric Association, 2013). A cut point score of 33 was used for provisional diagnosis of PTSD. An example of an administered PCL-5 questionnaire with a score of 30 and criteria not met is provided below in Appendix E.

Participants were not officially diagnosed with PTSD as part of the study since PTSD requires further evaluation by a medical professional (American Psychiatric Association, 2013). Individuals who exhibited high PCL-5 scores and did not meet criteria according to the DSM-5 (n=1), were further evaluated and considered for PTSD since a previous diagnosis of PTSD had

been given by a medical professional and the participant was actively taking medications for PTSD.

***ACE Questionnaire***

To determine the exposure of adverse childhood experiences, an ACE questionnaire from the Massachusetts Department of Elementary and Secondary Education was utilized and can be found in Appendix D (Massachusetts Department of Elementary and Secondary Education, 2015). The ACE questionnaire consists of 10 questions regarding the veterans’ exposure to abuse, neglect, and household dysfunction prior to their 18th birthday. The three exposure categories are then broken down into 10 subcategories.

<b>Exposure Category</b>	<b>Exposure Subcategories</b>
Abuse	Psychological, Physical, and Sexual
Neglect	Emotional and Physical
Household Dysfunction	Parents Separated/ Divorced, Parental Violence, Substance Abuse by Household Member, Parent with a Mental Illness,

Individuals who respond as the experience occurred answer the question as yes. Each yes response adds 1 point to the individuals ACE score. The cumulative sum of yes responses then concludes the exposure of ACEs.

### *ACE Questionnaire Modifications*

Modifications were made to question 7, altering the word *mother*, to *parents or step parents*, to indicate if the veteran experienced household violence among all parents and not solely the mother. The final version of question 7 was:

- *Were either of your parents or step parents: often or very often pushed, grabbed, slapped, or had something thrown at them? Or sometimes, often or very often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?*

Two additional questions followed the ACE questionnaire:

- *Did any of your negative experiences as a child have an impact on your decision in joining the armed services?*
- *Did you report any of the above negative experiences as a child to someone you believed would help you?*

The first question was created to determine if participants had reported any of the adverse experiences as a child to someone who would believe them and would help them out of the adverse situations they were in. The second additional question examined if any of the participant's adverse experiences as a child were used as motivation to join the armed forces or to escape from an adverse childhood. The two questions will assist in further determining if seeking or not seeking help for adverse life experiences is a learned behavior or a coping mechanism.

*Statistical Analysis*

Qualitative and quantitative data were collected and analyzed using IBM SPSS Statistics Version 25. Data collected were not adjusted for analysis unless otherwise specified within the tables. The research study questionnaire was coded using 5 separate sections labeled A-E. Each section comprised of its own corresponding numbered questions to assess each variable category.

<b>Coding Section</b>	<b>Numbered Questions and Category Assessed</b>
Section A	(1-13) Demographic Questions
Section B	(14-25) Military Service
Section C	(26) PCL-5 - PTSD Questionnaire
Section D	(27-29) ACE Questionnaire
Section E	(30-37) ACEs within present household

## Chapter 4: Results

### *Sample Characteristics*

Provisional diagnosis of PTSD was used to stratify veterans who screened negative (n=25) and positive for PTSD (n=31). Mean age was compared using a One-Way ANOVA and a Chi-Square Test was utilized to compare both PTSD and No PTSD groups (Table 1).

Demographic characteristics included age (mean age, yrs.), gender, race/ethnicity, marital status, prior divorces, and annual income were categorized accordingly with each veterans' PTSD diagnosis. A total of n=56 veterans were included in the study, (n=40 males, n=15 females, and n=1 transgender). Male and female veterans were similar in age and ranged between 26 and 56 (mean age yrs., 35), with no difference in PTSD diagnosis based on gender (p=.586). Racial and ethnic percentages included 51.8% White, 33.9% Hispanic / Latino, 12.5% Black / African American, and 8.9% other (mixed races). Married veterans accounted for 66.1% of the sample but displayed no significance (p=.083) among PTSD diagnosis, however 53.6% of the of the study population had prior divorces accounting for 71% of veterans with PTSD (p=.004). Annual income displayed no significant difference among the two groups (p=.189), however overall veterans with PTSD earned less money annually than those without.

Similarly, veterans' military characteristics continued in Table 1, depicted no significant difference in branch of service enlisted. The sample population included 57.1% Marines followed by 21.4% Army, 12.5% Navy, 7.1% Air Force, and 4% National Guard respectfully. Many of the veterans surveyed (82.1%) serve(d) on active duty, while 12.5% have served in both active and reserve components (p=.912). Combined years served was categorized by traditional enlistment terms of every 4 years with a significant p value of .026. The majority (38.7%) of

those with PTSD had served an average of two enlistments however the number of deployments the veteran conducted displayed no significance ( $p=.314$ ) in PTSD diagnosis. While not all veterans who had seen trauma developed PTSD, in the sample surveyed, all veterans that screened positive for PTSD had seen trauma.

### ***Health Risk Behaviors***

A One-Way ANOVA was utilized to determine mean sexual partners, all other health risk behaviors depicted in Table 2 were calculated using a Chi-Square Test. For total sexual partners, participants were asked: Throughout your lifetime, how many sexual partners have you had?

Answers were input using a scale format. Responses not including a number e.g. “several”, “hundreds”, or “I’m on the last one and that’s all that matters”, were imputed with the population mean response to not improperly report or skew data. Within the sample population, mean sexual partners was 15.70. Statistical significance was found between the two PTSD groups ( $p=.000$ ). Veterans with PTSD had more than double the sexual partners (20.65) than those not diagnosed with PTSD (9.56). All other health risk behaviors including smoking habits, alcohol consumption frequency, and consumption quantity had no statistical significance.

### ***Prevalence of Adverse Childhood Experiences***

A One-Way ANOVA was used to determine the total mean ACE score between veterans with and without PTSD, followed by a Chi-Square Test to stratify ACE responses. Veterans without PTSD reported an average of 3 ACEs, similarly to the average found among San Diegans in the original ACE study (Felitti et al., 1998). Conversely, veterans with PTSD reported

a mean score of 4.7, providing a statistical significance between the two groups at the  $p < .05$  level. Veterans with PTSD reported more ACEs in all 10 subcategories with significance in exposure to parental domestic violence ( $p = .004$ ).

### ***ACEs as Reasons for Enlistment and ACEs Reported as a Child***

Table 4 stratifies the responses of veterans who reported ACEs as a reason for enlistment as well as the ACEs they reported to an adult, mandated reporter, or an individual who would help them avoid experiencing adverse exposure. A One-Way ANOVA was used to categorize the responses between the PTSD groups. Veterans with PTSD reported more ACEs as reasons to enlist. Specifically, psychological and physical abuse, parental separation/divorce, household substance abuse and a person in the household having a mental illness. Veterans with PTSD also specified having reported more ACEs as a child to someone who would help them. The analysis confirms Dr. Blosnich's theory of some veterans using ACEs and enlistment to escape adversity (Blosnich et al., 2014). However, due to the small sample of veterans who responded as having ACEs as a motivation for enlistment and those who reported ACEs to a person who would help them as a child, a p-value was not included in Table 4. A larger sample size would be needed to determine the significance and reliability of a Chi-Squared Test.

### ***Perceived Barriers to Care***

Participants were asked about their perceptions surrounding reasons to not seek care for mental health. A list of 12 possible barriers to care were provided. A One-Way ANOVA was used to determine the significance of the responses, results are displayed in Table 5. Veterans with PTSD had more perceived barriers to care with fear of looking weak, command's perception, family

issues, career ender, and not being ready for treatment significant at the  $p = <.05$  level. Between the two groups, veterans with PTSD selected the doctor's inability to relate to them or their experiences ( $p=.003$ ) as a perceived barrier to care. Of the 20 respondents who selected not needing treatment, 15 did not screen positive for PTSD in the study ( $p=.001$ ). However, 5 veterans who met criteria for PTSD also chose not needing treatment as a response.

### ***Support System for Deployment Experiences***

Table 6 demonstrates the support system for veterans who do not have PTSD in comparison to their PTSD counterparts. To determine the veteran's support system, the following question was asked: *Select which people you can openly talk to about your experiences while deployed during OEF/OIF. (Mark all that apply)*. Responses included: spouse, significant other, friends, family, veterans peer, command, medical professional, and other. Veterans without PTSD selected more individuals whom they could openly discuss their deployment experiences with in nearly all the given choices. Conversely, veterans with PTSD had three prominent selections: spouse, veteran peer and medical professional. Among both groups, veterans selected their command the least as a means of support for deployment experiences. A p-value is not displayed due to lack of responses within the command option. Veterans without PTSD were significantly more likely to select their friends ( $p=.004$ ) and their family ( $p=.045$ ) as part of their support group than their non-PTSD peers.

*Effects of Gender, Total ACE Score, Total Number of Deployments, Experiencing Trauma and Probability of PTSD*

A Binary Logistic Regression was performed to illustrate the differences in gender, total ACE score, total number of deployments, and exposure to trauma for the probability of developing PTSD. The Omnibus Test of Model Coefficients calculated a Chi-Square of 27.659 with 5 degrees of freedom and a p-value  $<.001$ . A Nagelkerke R<sup>2</sup> accounted for 52.2% of the variance in positive PTSD diagnosis when controlling for confounding variables. Furthermore, the model correctly classified 75.0% of all cases. Using the model, gender, number of deployments and whether trauma was experienced did not significantly predict a veteran being diagnosed with PTSD. However, total ACE score showed a significant predictive value ( $p=.033$ ) with the addition of each adverse childhood experience increasing the likelihood of a positive PTSD diagnosis by 42.0% (95% CI: 1.029, 1.960).

## Chapter 5: Discussion

In the study, Veterans without PTSD had a mean ACE score of 3, which is consistent with the mean ACE scores of San Diegans in the original ACE study (Felitti, 1998). Conversely, veterans who screened positive for PTSD had a higher mean ACE score (4.67) than their non-PTSD counterparts ( $p$ -value=.019). When comparing veterans' demographic characteristics, no difference in susceptibility to PTSD were found between genders, branch of service, military status, or number of deployments. While 66% of the veterans in the study were married, 53.6% of the overall study population had been divorced at least once before, 71% of those with prior divorces had PTSD ( $p$ =.004). Not all veterans who have seen trauma develop PTSD, in the sample all veterans that screened positive for PTSD had seen trauma.

When evaluating health risk behaviors, no statistical significance was found within smoking habits, alcohol consumption, or alcohol consumption quantity. Health risk behaviors may be attributed to the norms or customs and courtesies within the military services glorifying substance use as far back as the 16th century with smoking lamps aboard vessels, celebratory mess nights, and the birthplace of the Marine Corps in Tun Tavern (Gibowicz, 2007, & Krulak, 2013). Despite this, total mean sexual partners (15.70) proved significant ( $p$ <.001). Veterans with PTSD had double (20.65) the number of sexual partners than their non-PTSD counterparts (9.56). The cross-sectional data analysis simply provides a current view of the health risk behaviors and does not account for promiscuity before developing PTSD or after. However, this study suggests veterans with PTSD may use sexual intercourse as a coping mechanism.

Veterans with PTSD exhibit higher perceived barriers to care when seeking mental health services. Major findings between the two groups suggest veterans perceive they will have repercussions in relation to looking weak, their command's perception of them, and believing receiving mental health services would be a career ender. Furthermore, only veterans with PTSD chose family issues ( $p=.020$ ) as a barrier to care. Family issues may associate with the high rates of veterans with PTSD who are divorced not wanting a mental health diagnosis to complicate parental rights or dissolution of marriage agreements. More than a third of veterans reported the doctors' inability to relate to deployment experiences, specifically veterans with PTSD ( $p=.003$ ).

These findings suggest the need for more veterans to work within the health care industry to assist in establishing trust with service members seeking mental health treatment. The perceived barrier with the highest significance included veterans who thought they didn't need treatment. Most responses came from veterans who were not diagnosed with PTSD in the study. However, the latter could indicate that nearly 10% of those who exhibit PTSD symptoms believe they do not need treatment or are unaware they do. Veterans who have not seen combat and/or were not diagnosed with PTSD, had a larger support group of people they could openly communicate with openly about their deployment experiences. Many of those with PTSD selected their spouse, veteran peer, or medical professional as the select few in their support system.

## Chapter 6: Conclusion

The study examined the associations between adverse childhood experiences and PTSD among (n=56) veterans who deployed in support of OEF/OIF. Further evaluation of ACEs determined veterans with PTSD had higher ACE scores ( $p=.01$ ) were at greater risk of developing post-deployment PTSD, and had less coping mechanisms than their non-PTSD counterparts supporting my hypothesis. The study also confirmed Blosnich's theory of some veterans using enlistment as an escape (Blosnich, 2014). Veterans with PTSD reported more ACEs as reasons for enlistment and ACEs reported as a child. However, significance was not found due to the limited sample size after stratifying responses amongst the PTSD groups.

Veterans with PTSD had higher prevalence of ACEs in all categories with significance in exposure to parental domestic violence ( $p=.004$ ) and are more likely to experience intimate partner violence. Veterans with PTSD had more divorces, physically abusive relationships, and twice as many sexual partners.

### *Strengths*

Only veterans from the all-volunteer era were chosen to participate in the study and the sample population included veterans from active duty, reserve and national guard. Veterans were not excluded if they were still serving in the armed services. All participants gave proof of military service and deployment history prior to being included in the study. Previous literature mentioned as references for the study used secondary data collected through BRFSS, which had not included information on military trauma (Blosnich, 2014, & Katon, 2015). Other studies

focused research on comparing veterans to civilians while this study stratified veterans based on PTSD screening.

### ***Limitations***

Funding for this study was exclusively provided by the principal investigator and a research assistant, data analyst, or statistician, were not hired to aid in this research. Veterans who participated in this research study were only given a provisional diagnosis of PTSD. Further assessment by a medical professional would have been needed for an official diagnosis. Lastly, data collection was limited to IRB regulations for CSUSM and the time available for recruitment was restricted to the summer months when veteran enrollment rates were lower than the spring and fall semesters.

### ***Implications and Recommendations for Continued Research***

Further research should include a prospective veteran population-based study focusing on ACEs as motivators for enlistment in the armed services. Recruitment measures should take place at various military enlistment sites with medical professionals screening before and after deployments as well as prior to continued enlistments. Symptoms of PTSD are often delayed and can become more severe overtime (Van Voorhees et al., 2012). All service members who deploy for longer than 30 days are currently required to undergo a series of pre-and post-deployment health screenings to assess for physical and mental health concerns including, but not limited to, PTSD (Navy Marine Corps Public Health Center, nd.) Not all veterans in the study reported pre-and/or post- deployment screenings, nonetheless most knew where to seek mental health services. Veterans who have symptoms of PTSD are less likely to discuss their traumatic

experiences putting them more at risk for social-emotional and cognitive impairment leading to higher rates of disability and inevitably costing the government more money.

Some ACEs can be part of a cycle of learned behaviors or predisposed health conditions. Military children are a prime example of a population at risk for having high ACE scores. Children of veterans with PTSD in this study were exposed to more ACEs than their non-PTSD military family counterparts e.g. household member with a mental illness, parental separation/divorce, substance use, and parental violence. When a child's brain is not fully developed and they are exposed to abuse, neglect or household dysfunction they become susceptible to depression, substance abuse, multiple sexual partners, intimate partner violence, and suicide attempts (Van Voorhees et al., 2012). Adverse childhood experiences are often the most prevalent kept secrets within a family, and children deserve to be afforded the opportunity to live long and fulfilling lives without the added expense of adversity.

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing (pg. 271-812).
- Behavioral Risk Factor Surveillance System. Annual survey data, 2010-2012. Atlanta, GA: USDHHS, CDC. (2018, January 18). Retrieved November 14, 2018, from: <https://www.cdc.gov/brfss/questionnaires/index.htm>
- Blosnich, J. R., Dichter, M. E., Cerulli, C., Batten, S. V., & Bossarte, R. M. (2014). *Disparities in adverse childhood experiences among individuals with a history of military service*. *JAMA Psychiatry*, *71*(9), 1041–1048. <https://doi.org/10.1001/jamapsychiatry.2014.724>
- Campbell, D. G., Bonner, L. M., Bolkan, C. R., Lanto, A. B., Zivin, K., Waltz, T. J., ... Chaney, E. F. (2016). *Stigma Predicts Treatment Preferences and Care Engagement Among Veterans Affairs Primary Care Patients with Depression*. *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine*, *50*(4), 533–544. <https://doi.org/10.1007/s12160-016-9780-1>
- Campbell, J. A., Walker, R. J., & Egede, L. E. (2016). *Associations Between Adverse Childhood Experiences, High-Risk Behaviors, and Morbidity in Adulthood*. *American Journal of Preventive Medicine*, *50*(3), 344–352. <https://doi.org/10.1016/j.amepre.2015.07.022>

Centers for Disease Control and Prevention, (2018, April 10), *Violence Prevention, Child Abuse and Neglect Prevention*. Retrieved October 30, 2018, from:

<https://www.cdc.gov/violenceprevention/childabuseandneglect/index.html>

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., ...

Marks, J. S. (1998). *Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults*. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14(4), 245–258.

Gibowicz, C. J. (2007). *Mess Night Traditions*. AuthorHouse. Bloomington, IN. ISBN: 978-1-4259-8447-2.

Katon, J. G., Lehavot, K., Simpson, T. L., Williams, E. C., Barnett, S. B., Grossbard, J. R., ...

Reiber, G. E. (2015). *Adverse Childhood Experiences, Military Service, and Adult Health*. *American Journal of Preventive Medicine*, 49(4), 573–582.

<https://doi.org/10.1016/j.amepre.2015.03.020>

Krulak, V. H. (1999). *First to Fight: An Inside View of the U.S. Marine Corps*. Bluejacket Books, Naval Institute Press, Annapolis, Maryland ISBN: 13 978-1-61251- 161-0.

Massachusetts Department of Elementary and Secondary Education, (2015, September 1)

Complex Childhood Trauma and Its Impact on Learning, Special Education. Retrieved  
March 22, 2018, from: [http://www.doe.mass.edu/sped/ta/presentation-  
materials/?section=TRAUMA](http://www.doe.mass.edu/sped/ta/presentation-materials/?section=TRAUMA)

Navy Marine Corps Public Health Center, Home. Deployment Health Assessments, (n.d.).

Retrieved October 18, 2018, from: [https://www.med.navy.mil/sites/nmcphc/epi-data-  
center/deployment-health-assessments/Pages/default.aspx](https://www.med.navy.mil/sites/nmcphc/epi-data-center/deployment-health-assessments/Pages/default.aspx)

U.S. Department of Health & Human Services, Administration for Children and Families,

Administration on Children, Youth and Families, Children's Bureau. (2018). Child  
maltreatment 2016, from: [https://www.acf.hhs.gov/cb/research-data-technology/statistics-  
research/child-maltreatment](https://www.acf.hhs.gov/cb/research-data-technology/statistics-research/child-maltreatment)

Van Voorhees, E. E., Dedert, E. A., Calhoun, P. S., Brancu, M., Runnals, J., & Beckham, J. C.

(2012). *Childhood Trauma Exposure in Iraq and Afghanistan War Era Veterans:  
Implications for Posttraumatic Stress Disorder Symptoms and Adult Functional Social  
Support*. *Child Abuse & Neglect: The International Journal*, 36(5), 423–432.

<https://doi.org/10.1016/j.chiabu.2012.03.004>

**Tables 1-7**

Table 1. Sample Characteristics of Veterans (n=56) Stratified by PTSD Status, San Diego, California, 2018

	Total		No PTSD		PTSD		<i>p-value</i> <sup>a</sup>
	<i>n=56</i>	(100%) (SD)	<i>n= 25</i>	% (SD)	<i>n=31</i>	% (SD)	
Mean Age (yrs.) <sup>b</sup>	35.52	(6.55) (SD)	36.08	(6.35) (SD)	35.06	(6.77) (SD)	.569
Gender							.586
<i>Male</i>	40	(71.4)	19	(76.0)	21	(67.7)	
<i>Female</i>	15	(26.8)	6	(24.0)	9	(29.0)	
<i>Transgender</i>	1	(1.8)	0	(0)	1	(3.2)	
Age Group							.788
26-34	28	(50.0)	12	(48.0)	16	(51.6)	
35+	28	(50.0)	13	(52.0)	15	(48.4)	
Race / Ethnicity							.827
<i>White</i>	29	(51.8)	15	(60.0)	14	(45.2)	.269
<i>Hispanic /Latinos</i>	19	(33.9)	7	(28.0)	12	(38.7)	.400
<i>Black /African American</i>	7	(12.5)	3	(12.0)	4	(12.9)	.919
<i>Other</i>	5	(8.9)	2	(8.0)	3	(9.7)	.827
Marital Status							.083
<i>Single</i>	11	(19.6)	4	(16.0)	7	(22.6)	
<i>Married</i>	37	(66.1)	20	(80.0)	17	(54.8)	
<i>Divorced</i>	8	(14.3)	1	(4.0)	7	(22.6)	
Prior Divorces	30	(53.6)	8	(32.0)	22	(71.0)	.004**
Annual Income (USD)							
<i>\$10,000-\$29,999</i>	5	(8.9)	1	(4.0)	4	(12.9)	.189
<i>\$30,000-\$49,999</i>	13	(23.2)	3	(12.0)	10	(32.3)	
<i>\$50,000-\$74,999</i>	9	(16.1)	5	(20.0)	4	(12.9)	
<i>\$75,000-\$99,999</i>	12	(21.4)	5	(20.0)	7	(22.6)	
<i>\$100,000-\$150,999</i>	16	(28.6)	10	(40.0)	6	(19.4)	
<i>\$151,000 +</i>	1	(1.8)	1	(4.0)	0	(0)	

Continued Table 1. Sample Characteristics of Veterans (n=56) Stratified by PTSD Status, San Diego, California, 2018

	Total		No PTSD		PTSD		<i>p-value</i> <sup>a</sup>
	<i>n=56</i>	<i>100%</i>	<i>n=25</i>	<i>%</i>	<i>n=31</i>	<i>%</i>	
<b>Branch of Service</b>							.475
<i>Army</i>	12	(21.4)	5	(20.0)	7	(22.6)	
<i>Navy</i>	7	(12.5)	2	(8.0)	5	(16.1)	
<i>Marine Corps</i>	32	(57.1)	14	(56.0)	18	(58.1)	
<i>National Guard</i>	1	(4.0)	1	(1.8)	0	(0)	
<i>Air Force</i>	4	(7.1)	3	(12.0)	1	(3.2)	
<b>Military Status</b>							.912
<i>Active</i>	46	(82.1)	21	(84.0)	25	(80.6)	
<i>Reserve</i>	3	(5.4)	1	(4.0)	2	(6.5)	
<i>Active &amp; Reserve</i>	7	(12.5)	3	(12.0)	4	(12.9)	
<b>Combined Years Served</b>							.026*
<i>3-4 Years</i>	7	(12.5)	5	(20.0)	2	(6.5)	
<i>5-8 Years</i>	13	(23.2)	1	(4.0)	12	(38.7)	
<i>9-12 Years</i>	16	(28.6)	8	(32.0)	8	(25.8)	
<i>13-16 Years</i>	9	(16.1)	4	(16.0)	5	(16.1)	
<i>17+ Years</i>	11	(19.6)	7	(28.0)	4	(12.9)	
<b>No. of Deployments</b>							.314
<i>1 Deployment</i>	26	(46.4)	11	(44.0)	15	(48.4)	
<i>2 Deployments</i>	18	(32.1)	8	(32.0)	10	(32.3)	
<i>3 Deployments</i>	8	(14.3)	3	(12.0)	5	(16.1)	
<i>4 Deployments</i>	3	(5.4)	3	(12.0)	0	(0.0)	
<i>5 Deployments</i>	1	(1.8)	0	(0.0)	1	(3.2)	
<b>Exposure to Trauma</b>							.000***
<i>Not Exposed</i>	9	(16.1)	9	(36.0)	0	(0)	
<i>Exposed</i>	47	(83.9)	16	(64.0)	31	(100.0)	

Analyses are unadjusted

<sup>a</sup> Chi-Square Test

<sup>b</sup> One-Way ANOVA

\* *p* value significant at the <.05 level

\*\* *p* value significant at the <.01 level

\*\*\* *p* value significant at the <.001 level

Table 2. Health Risk Behaviors Stratified by PTSD Status, San Diego, California, 2018

	Total n=56		No PTSD n=25		PTSD n=31		p-value <sup>a</sup>
	<i>mean</i>	<i>SD</i>	<i>mean</i>	<i>SD</i>	<i>mean</i>	<i>SD</i>	
Total Mean Sexual Partners <sup>b</sup>	15.70	(11.69)	9.56	(7.286)	20.65	(12.31)	.000***
Smoking Habits	n	%	n	%	n	%	
Ever Smoked over 100 cigarettes	33	(58.9%)	16	(28.6%)	17	(30.4%)	.338
Current Smoking Habits							.129
Smokes Daily	10	(17.9%)	2	(3.6)	8	(14.3%)	
Smokes Occasionally	4	(7.1%)	1	(1.8%)	3	(5.4%)	
Not a Smoker	42	(75.0%)	22	(39.3%)	20	(35.7%)	
Alcohol Consumption Frequency							.286
Never	3	(5.4%)	3	(5.4%)	0	(0.0%)	
1-3 Days a Month	20	(35.7%)	6	(10.7%)	14	(25.0%)	
1 Day a Week	6	(10.7%)	3	(5.4%)	3	(5.4%)	
2-3 Days a Week	19	(33.9%)	10	(17.9%)	9	(16.1%)	
4-5 Days a Week	3	(5.4%)	1	(1.8%)	2	(3.6%)	
6+ Days a Week	5	(8.9%)	2	(3.6%)	3	(5.4%)	
Alcohol Consumption Quantity							.374
0	2	(3.6%)	2	(3.6%)	0	(0.0%)	
1 or 2	23	(41.1%)	9	(16.1%)	14	(25.0%)	
3 or 4	23	(41.1%)	9	(16.1%)	14	(25.0%)	
5 or 6	6	(10.7%)	4	(7.1%)	2	(3.6%)	
7 to 9	2	(3.6%)	1	(1.8%)	1	(1.8%)	

Analyses are unadjusted

<sup>a</sup> Chi-Square Test

<sup>b</sup> One-Way ANOVA

\*\*\* p value significant at the <.001 level

Table 3. Prevalence of Adverse Childhood Experiences (n=56) Stratified by PTSD Status, San Diego, California, 2018

	Total n=56		No PTSD n=25		PTSD n=31		p-value <sup>a</sup>
	<i>mean</i>	<i>SD</i>	<i>mean</i>	<i>SD</i>	<i>mean</i>	<i>SD</i>	
Total Mean ACE Score (SD) <sup>b</sup>	3.93	(2.69)	3.0	(2.12)	4.7	(2.9)	.019*
<b>Abuse</b>	<b>n</b>	<b>(%)</b>	<b>n</b>	<b>(%)</b>	<b>n</b>	<b>(%)</b>	
<i>Psychological</i>	29	(51.8)	10	(40.0)	19	(61.3)	.113
<i>Physical</i>	22	(39.3)	7	(28.0)	15	(48.4)	.120
<i>Sexual</i>	12	(21.4)	3	(12.0)	9	(29.0)	.123
<b>Neglect</b>							
<i>Emotional</i>	22	(39.3)	9	(36.0)	13	(41.9)	.651
<i>Physical</i>	15	(26.8)	5	(20.0)	10	(32.3)	.303
<b>Household Dysfunction</b>							
<i>Parental Separation /Divorced</i>	37	(66.1)	17	(68.0)	20	(64.5)	.784
<i>Parental Domestic Violence</i>	18	(32.1)	3	(12.0)	15	(48.4)	.004**
<i>Household Substance Abuse</i>	28	(50.0)	9	(36.0)	19	(61.3)	.060
<i>Household Mental Illness</i>	22	(39.3)	8	(32.0)	14	(45.2)	.316
<i>Household Member Incarcerated</i>	15	(26.8)	4	(16.0)	11	(35.5)	.102

Analyses are unadjusted

<sup>a</sup> Chi-Square Test

<sup>b</sup> One-Way ANOVA

\* p value significant at the <.05 level

\*\* p value significant at the <.01 level

Table 4. ACEs as Reasons for Enlistment and ACEs Reported as a Child, (n=56) Stratified by PTSD Status, San Diego, California, 2018

	Total n <sup>a</sup> 56		No PTSD n=25	%	PTSD n=31	%
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
<b>ACEs as Reasons for Enlistment</b>						
<b>Abuse</b>						
<i>Psychological</i>	10	(17.9)	0	(0.0)	10	(32.3)
<i>Physical</i>	7	(12.5)	0	(0)	7	(22.6)
<i>Sexual</i>	6	(10.7)	2	(8.0)	4	(12.9)
<b>Neglect</b>						
<i>Emotional</i>	11	(19.6)	3	(12.0)	8	(25.8)
<i>Physical</i>	8	(14.3)	4	(16.0)	4	(12.9)
<b>Household Dysfunction</b>						
<i>Parental Separation / Divorced</i>	7	(12.5)	0	(0.0)	7	(22.6)
<i>Parental Domestic Violence</i>	7	(12.5)	1	(4.0)	6	(19.4)
<i>Household Substance Abuse</i>	8	(14.3)	1	(4.0)	7	(22.6)
<i>Household Mental Illness</i>	6	(10.7)	0	(0.0)	6	(19.4)
<i>Household Member Incarcerated</i>	3	(5.4)	0	(0.0)	3	(9.7)
<b>ACEs Reported as a Child</b>						
<b>Abuse</b>						
<i>Psychological</i>	7	(12.5)	3	(12.0)	4	(12.9)
<i>Physical</i>	3	(5.4)	1	(4.0)	2	(6.5)
<i>Sexual</i>	4	(7.1)	1	(4.0)	3	(9.7)
<b>Neglect</b>						
<i>Emotional</i>	2	(3.6)	1	(4.0)	1	(3.2)
<i>Physical</i>	1	(1.8)	0	(0.0)	1	(3.2)
<b>Household Dysfunction</b>						
<i>Parental Separation / Divorced</i>	2	(3.6)	0	(0.0)	2	(6.5)
<i>Parental Domestic Violence</i>	1	(1.8)	0	(0.0)	1	(3.2)
<i>Household Substance Abuse</i>	0	(0.0)	0	(0.0)	0	(.00)
<i>Household Mental Illness</i>	2	(3.6)	0	(0.0)	2	(6.5)
<i>Household Member Incarcerated</i>	0	(0.0)	0	(0.0)	0	(0.0)

Analyses are unadjusted

<sup>a</sup> One-way ANOVA

p-value not included due to small response size

Table 5. Perceived Barriers to Care (n=56) Stratified by PTSD Status, San Diego, California, 2018

Barriers to Care	Total		No PTSD		PTSD		p-value <sup>a</sup>
	n	%	n	%	n	%	
<i>Fear of looking weak</i>	25	(44.6)	7	(12.5)	18	(32.1)	.024*
<i>Command's Perception</i>	22	(39.3)	6	(10.7)	16	(28.6)	.035*
<i>Pride</i>	23	(41.1)	7	(12.5)	16	(28.6)	.074
<i>Fear of Diagnosis</i>	13	(23.2)	7	(12.5)	6	(10.7)	.446
<i>Being on Medication</i>	26	(46.4)	10	(17.9)	16	(28.6)	.386
<i>Family Issues</i>	6	(10.7)	0	(0)	6	(10.7)	.020*
<i>Career Ender</i>	24	(42.9)	7	(12.5)	17	(30.4)	.044*
<i>Schedule Conflicts</i>	23	(41.1)	7	(12.5)	16	(28.6)	.074
<i>Doctor Can't Relate</i>	21	(37.5)	4	(7.1)	17	(30.4)	.003**
<i>Travel Distance</i>	12	(21.4)	3	(5.4)	9	(16.1)	.123
<i>Not Ready</i>	6	(10.7)	0	(0)	6	(10.7)	.020*
<i>Don't Need Treatment</i>	20	(35.7)	15	(26.8)	5	(8.9)	.001***

Analyses are unadjusted

<sup>a</sup> One-Way ANOVA\* p value significant at the <.05 level

\*\* p value significant at the <.01 level

\*\*\* p value significant at the <.001 level

Table 6. Support System for Deployment Experiences (n=56) Stratified by PTSD Status, San Diego, California, 2018

Openly Discuss Deployment Experiences	Total		No PTSD		PTSD		p-value <sup>a</sup>
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
<i>Spouse</i>	24	(42.9)	13	(23.2)	11	(19.6)	.214
<i>Significant Other</i>	6	(10.7)	1	(1.8)	5	(8.9)	.145
<i>Friends</i>	18	(32.1)	13	(23.2)	5	(8.9)	.004**
<i>Family</i>	15	(26.8)	10	(17.9)	5	(8.9)	.045*
<i>Veteran Peer</i>	39	(69.6)	17	(30.4)	22	(39.3)	.810
<i>Command</i>	2	(3.6)	2	(3.6)	0	(0)	n/a <sup>b</sup>
<i>Medical Professional</i>	31	(55.4)	14	(25.0)	17	(30.4)	.931
<i>Other</i>	6	(10.7)	4	(7.1)	2	(3.6)	.251

Analyses are unadjusted

<sup>a</sup> One-way ANOVA

<sup>b</sup> Small Sample Size

\* p value significant at the <.05 level

\*\* p value significant at the <.01 level

Table 7. Effects of Gender, Total ACE score, Total Number of Deployments, Experiencing Trauma, and Probability of PTSD, San Diego, California 2018<sup>a</sup>

Barriers to Care	p-value	Exp(B)	95% C.I. for EXP (B)	
			<i>Lower</i>	<i>Upper</i>
<i>Gender</i>	.453	N/A	N/A	N/A
<i>Total ACE Score</i>	.033*	1.420	1.029	1.960
<i>No. of Deployments</i>	.312	.706	.360	1.385
<i>Experienced Trauma</i>	.999	.000	.000	N/A

<sup>a</sup> Binary Logistic Regression, controlling for confounding variables  
 Omnibus Tests of Model Coefficients: Chi-Square of 27.659, df 5, sig .000  
 Nagelkerke R Square .522

**Appendix A:**

**Recruitment Announcement Used Through the Office of Communications News Center**

### **OEF/OIF Veterans Needed for Research Study**

Did you deploy to Afghanistan or Iraq in Support of Operation Enduring Freedom or Operation Iraqi Freedom? Have you ever wondered how much of your childhood influenced the way you process trauma? Consider taking part in a research study:

Adverse Childhood Experiences Among OEF/OIF Veterans and Susceptibility to Post-Deployment Post-Traumatic Stress Disorder. The purpose of this study is to examine the associations between adverse childhood experiences and post-traumatic stress disorder in veterans.

For this study, the term veterans include active duty, reserve, and prior enlisted members from all branches of service. Diagnosis of PTSD is not required to participate in the study. To participate in the study please click on the link:

[https://csusm.co1.qualtrics.com/jfe/form/SV\\_1F7AEkFiXbGICrX](https://csusm.co1.qualtrics.com/jfe/form/SV_1F7AEkFiXbGICrX)

If you have any questions please contact Natalie Morales at [moral128@cougars.csusm.edu](mailto:moral128@cougars.csusm.edu) .

**Appendix B:**

**Recruitment Flyer Posted Throughout California State University, San Marcos**

## Did you deploy to Iraq or Afghanistan in support of OEF/OIF?

Have you ever wondered how much of your childhood influenced the way you process trauma?

Consider taking part in a research study:



## Adverse Childhood Experiences Among OEF/ OIF Veterans and Susceptibility to Post-deployment PTSD

..... \*\*Diagnosis of PTSD is not required\*\* .....

The purpose of this study is to examine the associations between adverse childhood experiences and post-traumatic stress disorder in veterans.

Adverse childhood experiences such as physical, emotional, and sexual abuse, neglect and household dysfunction have shown to have a negative impact on overall health outcomes leading to lower life expectancy.

Are those with an adverse childhood more susceptible to PTSD?

The study consists of a 20 minute survey consisting of questions about your childhood and your experience during and after deployment.

Natalie Morales:  
moral128@cougars.csusm.edu  
(214) 830-8652

Natalie Morales  
moral128@cougars.csusm.edu  
(214) 830-8652

**Appendix C:**

**Research Study Consent Form**



California State University  
SAN MARCOS

---

**Adverse Childhood Experiences Among OIF/ OEF Veterans and  
Susceptibility to Post-deployment PTSD.**

**Informed Consent**

Dear Veteran,

My name is Natalie Morales and I am a graduate student in Public Health enrolled in the College of Education, Health and Human Services at California State University San Marcos. You are invited to participate in a research study of Adverse Childhood Experiences and post-deployment PTSD. You were selected as a possible participant because of your previous OIF/OEF deployment history. Please read this form carefully and ask any questions you may have before agreeing to be in the study. You must be 18 or older to participate in the study.

**KEY INFORMATION ABOUT THIS RESEARCH STUDY:**

The following is a short summary of this study to help you decide whether to be a part of this study. Information that is more detailed is listed later in this form.

The purpose of this study is to examine the association between Adverse Childhood Experiences and Post-Traumatic Stress Disorder among veterans who deployed during Operation Iraqi Freedom/ Operation Enduring Freedom (OIF/OEF). You will be asked to complete a survey which will include your demographic information, brief medical history, childhood experiences and post-deployment treatment received. I expect that you will be in this research study for one year. The primary risk of participation may include experiencing emotional or psychological distress in recalling past experiences. The main benefit is to understand the impact adverse childhood experiences have among OIF/OEF veterans and the development of post-deployment PTSD.

**STUDY PURPOSE:**

The purpose of this study is to determine if veterans with increased adverse childhood experiences are at greater risk for development of post-deployment PTSD.

**NUMBER OF PARTICIPANTS:**

If you agree to participate, you will be one of 100 participants who will be participating in this research.

**PROCEDURES FOR THE STUDY:**

If you agree to be in the study, you will do the following: Complete a survey which will include questions on your demographic information, brief overall medical history, childhood experiences and post-deployment coping or treatment received. The survey should take approximately 20 minutes to complete. Any private identifiable information will be removed for the research study and a participant number will be assigned. Participants personal information collected for this research study will not be shared with any other research studies or institutes for further evaluation.

### **RISKS AND INCONVENIENCES:**

There are minimal risks and inconveniences to participating in this study. Examples may include but not limited to:

- Feeling uncomfortable answering survey questions
- Emotional or psychological distress in recalling adverse childhood experiences
- Emotional or psychological distress in recalling events during deployments to OIF/OEF
- Time spent filling out the survey
- Possible loss of confidentiality

### **SAFEGUARDS:**

To minimize these risks and inconveniences, the following measures will be taken:

- Participants may skip questions they feel uncomfortable answering while taking the survey or come back to the question after completion of other sections.
- Participants may take breaks between survey sections to regain composure if necessary.
- Participants may be referred to counseling or emergency personnel will be called in the event the participant is a danger to themselves or others.
- Participants will be provided resources within their community for further assistance with adverse childhood experiences or post-deployment health.
- The surveys may be scheduled at a time that is convenient to the participant and at a place where they feel safe and private.
- Once the survey is completed personal identifiable information will be removed and a number will be assigned to each participant for the remainder of the study.

### **CONFIDENTIALITY:**

Your responses and information will be anonymous and a participant number will be assigned. Consent forms and survey data will be kept in a locked filing cabinet and electronic data will be encrypted for additional confidentiality on a locked laptop computer.

The results of this study may be used in reports, presentations, or publications but your name or other personal identifiable information as applicable will not be used. Access to data will be accessible to the researcher and research team for up to 3 years after the completion of the research study. Paper records will then be shredded and digital files erased.

### **VOLUNTARY PARTICIPATION:**

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty. Your decision to participate in this study will not affect your current or future relations with the researcher or California State University San Marcos.

### **BENEFITS OF TAKING PART IN THE STUDY:**

There are no direct benefits to participation in this study, however, your participation will help researchers understand the associations between adverse childhood experiences and the way they contribute to health disparities within the veteran population.

### **PAYMENT OR INCENTIVE:**

You will not receive payment for taking part in this study.

**CONTACT INFORMATION:**

If you have questions about the study, please call me at (214) 830-8652 or e-mail me at [moral128@cougars.csusm.edu](mailto:moral128@cougars.csusm.edu). To reach the faculty advisor please contact Dr. Morton, Deborah PhD, MA at (760) 750-8497. You will be given a copy of this form for your records. If you have any questions about your rights as a participant in this research or if you feel you have been placed at risk, you can contact the IRB Office at [irb@csusm.edu](mailto:irb@csusm.edu) or (760) 750-4029.

**PARTICIPANT'S CONSENT:**

By signing below, you are giving consent to participate in the study.

Name of the Participant:

Signature of the Participant:

Date:

This document has been approved by  
the Institutional Review Board at  
California State University San  
Marcos **Expiration Date: May 7,**  
**2019**

ID# \_\_\_\_\_

**Appendix D:**

**Research Study Survey**



California State University  

---

SAN MARCOS

**Adverse Childhood Experiences Among OEF/ OIF Veterans  
and Susceptibility to Post-deployment PTSD.**

**Research Study Survey**

Please complete this survey in its entirety. If you have any questions or are unsure what the question is asking please ask the researcher.

The survey asks general information about you. Any information you provide about yourself or your family members will be kept anonymous.

**Thank you for your participation!**

ID# \_\_\_\_\_

**1. How old are you**

\_\_\_\_\_ **Age**

**2. What is your gender?**

- Male       Female  
 Transgender

**3. Are you Spanish, Hispanic or Latino?**

- Yes       No

**4. What is your Race? (Mark all that apply)**

- White       Black/African American  
 American Indian Alaska Native       Japanese  
 Chinese       Asian  
 Filipino       Pacific Islander

**5. What is your current marital status?**

- Single       Married  
 Divorced       Widowed

**6. Have you ever been divorced?**

- Yes       No

**7. Which income category best represents the total income of your household from all sources (before taxes and deductions) in the last 12 mo.**

- \$10,000- \$29,999       \$30,000- \$49,999  
 \$50,000-\$74,999       \$75,000-\$99,999  
 \$100,000-\$150,999       \$151,000+

**8. How often do you exercise vigorously enough to work up a sweat?  
(Mark all that apply)**

- Daily      1  day a week  
 2-3 times a week       2-3 times a month  
 4-6 times a week       Rarely / Never

**9. How often do you have a drink containing alcohol?**

- Never       2-3 days a week  
 1-3 days a month       4-5 days a week  
 1 day a week       6+ days a week

**10. How many drinks containing alcohol do you have on a typical day when you are drinking?**

- 1 or 2       7 to 9  
 3 or 4       10 +  
 5 or 6       Don't drink

**11. In your lifetime, have you smoked more than 100 cigarettes, cigars, or pipes?**

- Yes       No

**12. Do you currently still smoke cigarettes, cigars, ecigs or use a pipe?**

- Yes, I smoke daily  
 Yes, but only occasionally  
 No, I don't smoke

**13. Throughout your lifetime, how many sexual partners have you had?**

\_\_\_\_\_

ID# \_\_\_\_\_

**14. In what branch of service have you served?  
(Mark all that apply)**

- Army                       National Guard  
 Navy                         Air Force  
 Marine Corps             Coast Guard

**15. Please indicate whether your service was/is:**

- Active Duty             Reserves

**16. How many years have you served or did serve in  
the military? (please add up all enlistments)**

---

**17. Did you deploy in support of Operation  
Enduring Freedom (OEF) or Operation Iraqi  
Freedom (OIF)?**

- Yes                       No

**18. How many deployments have you been on  
where you were physically present in Iraq or  
Afghanistan in support of (OEF) or (OIF)?**

- 1            2            3            4            5+

**19. While deployed during OEF/OIF did you directly  
experience or were witness to in person, actual or  
threatened death, serious injury, or sexual violence?**

- Yes                       No

**20. After returning from your deployment(s) did you  
receive an evaluation from post-deployment or a  
mental health psychiatrist?**

- Yes                       No

**21. Have you met with a mental health provider  
after your initial post-deployment screening to  
discuss intrusive symptoms associated with a  
traumatic event during an OIF/OEF deployment?**

- Yes                       No

**22. Have you ever been medically diagnosed with  
post-traumatic stress disorder (PTSD) by a  
psychiatrist due to trauma sustained while in the  
military?**

- Yes                       No

**23. Do you know where to get post-deployment  
mental health services when you need them?**

- Yes                       No

**24. Select which people you can openly talk to about  
your experiences while deployed during OEF/OIF.  
(Mark all that apply)**

- Spouse                       Significant Other  
 Friends                       Veteran Peer  
 Family                       Command  
 Medical                       Other  
Professional

**25. Below are some perceptions veterans may have  
for reasons not to seek help. Select any of the  
reasons why you would not seek mental health  
assistance.**

- Fear of looking weak             Family Issue  
 Command's Perception             Career Ender  
 Too much pride                       Schedule Conflicts  
 Fear of diagnosis                       Doctor Can't Relate  
 Being on Medication                 Travel Distance  
 Not Ready                               Don't need treatment

PCL- 5

**26. Instructions:** Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each question carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem **in the past month**.

In the past month, how much were you bothered by:	Not at all	A Little Bit	Moderately	Quite a Bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were happening again (as if you were reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding Memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example people, places, conversations, activities, objects or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "super alert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

**Adverse Childhood Experiences (ACE) Questionnaire**

**27. Instructions:** Below are a list of questions of experiences you may or may not have had as child growing up. Please read each question carefully and if the question applies to you then circle the number 1 to the right of the question. If the question does not apply to you simply skip to the following question.

<b>Prior To Your 18<sup>th</sup> Birthday:</b>	<b>If Yes, Circle 1</b>
<b>Q1.</b> Did a parent or other adult in the household often or very often... swear at you, insult you, put you down, or humiliate you? Or act in a way that made you afraid that you might be physically hurt?	1
<b>Q2.</b> Did a parent or other adult in the household often or very often... push, grab, slap, or throw something at you? Or ever hit you so hard that you had marks or were injured?	1
<b>Q3.</b> Did an adult or person at least 5 years older than you ever... touch or fondle you or have you touch their body in a sexual way? Or attempt or have oral, anal, or vaginal intercourse with you?	1
<b>Q4.</b> Did you often or very often feel that. no one in your family loved you or thought you were important or special? Or your family didn't look out for each other, feel close to each other or support each other?	1
<b>Q5.</b> Did you often or very often feel that... You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? Or your parents were too drunk or high to take care of you or take you to the doctor if you needed it?	1
<b>Q6.</b> Were your parents ever separated or divorced?	1
<b>Q7.</b> Were either of your parents or step parents: often or very often pushed, grabbed, slapped, or had something thrown at them? Or sometimes, often or very often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?	1
<b>Q8.</b> Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?	1
<b>Q9.</b> Was a household member depressed or mentally ill, or did a household member attempt suicide?	1
<b>Q10.</b> Did a household member go to prison?	1

**28. Did any of your negative experiences as a child have an impact on your decision in joining the armed services? If so, please reference the questions above and circle which question(s) that apply to you.**

**Q1    Q2    Q3    Q4    Q5    Q6    Q7    Q8    Q9    Q10**

**29. Did you report any of the above negative experiences as a child to someone you believed would help you? If so, please reference the questions above and circle which question(s) that apply to you.**

**Q1    Q2    Q3    Q4    Q5    Q6    Q7    Q8    Q9    Q10**

**30. Have you ever been in a physically abusive relationship with your spouse or significant other?**

Yes       No

**31. Have you ever been in a sexually abusive relationship with a significant other?**

Yes       No

**32. Do you have children under 18 years of age that live with you in your household?**

Yes       No

**33. If children live with you in the household, how many?**

1       4       7  
 2       5       8  
 3       6       9+

**34. If you are living with children in your household, do you feel as though you are doing all you can to help keep them from adverse childhood experiences?**

Yes       No

**35. If parenting classes or training were available to help with understanding adverse childhood experiences among military families would you be interested in attending?**

Yes       No

**36. Have you ever been prescribed medication for PTSD?**

Yes       No

**37. If you are currently taking medications for PTSD please list the names of the medications in the space provided below.**

**Appendix E:**

**PCL- 5 Example**

In the past month, how much were you bothered by:		No at all	A Little Bit	Moderately	Quite a Bit	Extremely
CAT A (1)	1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
	2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
	3. Suddenly feeling or acting as if the stressful experience were happening again (as if you were actually reliving it)?	0	1	2	3	4
	4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
	5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
CAT B (1)	6. Avoiding Memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
	7. Avoiding external reminders of the stressful experience (for example people, places, conversations, activities, objects or situations)?	0	1	2	3	4
	8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
CAT C (2)	9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is dangerous)?	0	1	2	3	4
	10. Blaming yourself or someone else for the stressful experience or what happened after?	0	1	2	3	4
	11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
	12. Loss of interest in activities you used to enjoy?	0	1	2	3	4
	13. Feeling distant or cut off from other people?	0	1	2	3	4
CAT D (2)	14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
	15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
	16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
	17. Being "super alert" or watchful or on guard?	0	1	2	3	4
	18. Feeling jumpy or easily startled?	0	1	2	3	4
	19. Having difficulty concentrating?	0	1	2	3	4
	20. Trouble falling or staying asleep?	0	1	2	3	4

**Appendix F:**

**Thank You Card with Resources**



Thank you for your participation in the research study. Below are a list of resources available to veterans in need. If you have any questions regarding the study please do not hesitate to contact me at (214) 830-8652 - Natalie Morales

DSTRESS Line: 1-877-476-7734

Homeless Veterans: 1-877-424-3838

Loma Linda VA: 1-877-252-4866

National Suicide Prevention: 1-800-273-8255

San Diego VA: 858-552-8585

Veterans Crisis Line: 1-800-273-8255

Women Veterans Call Center: 1-855-VA-WOMEN

Call 911