The Health and Readiness of Service Members: ACEs to PACEs

Angela Lamson, PhD; Natalie Richardson, MS; Erin Cobb, PhD

ABSTRACT Introduction: Over the past three decades, a growing research base has emerged around the role of adverse childhood experiences (ACEs) in the biological, psychological, social, and relational health and development of children and adults. More recently, the role of ACEs has been researched with military service members. The purpose of this article was to provide a brief description of ACEs and an overview of the key tenets of the theory of toxic stress as well as a snapshot of ACEs and protective and compensatory experiences (PACEs) research with active duty personnel. Methods: Ninety-seven active duty personnel completed the study including questions pertaining to demographics, adverse childhood experiences, adult adverse experiences, and PACEs survey. Results: Significant findings pertaining to ACEs and PACEs were found by service member's sex and rank, with higher ACE scores for men and enlisted service members. Conclusions: The contrast by rank and sex in relation to ACEs punctuates the need for attention to ACEs and protective factors among early career service members in order to promote sustainable careers in the military.

INTRODUCTION

Over the past three decades, a growing research base has emerged around the role of adverse childhood experiences (ACEs)[1] in the biological, psychological, social, relational, and cognitive health and development of children and adults. ACEs are defined as traumatic events experienced during childhood (0–18 years old) that occur in a family or social environment, vary in severity, are often chronic, and cause harm or distress.[2] More recently, researchers have turned the attention of ACEs toward the lives of military service members or more so the health of veterans. With an abundance of knowledge and research in areas of traumatic brain injury, post-traumatic stress, and the continuous concerns for service member's mental health (ie, death by suicide and mis- or undertreatment for complex mental health symptoms and diagnoses), a more systemic lens on trauma is needed; one that includes the role of premilitary trauma in context of military health, resilience, and readiness[3] over the service member's career and beyond.

Although this article is not intended to be a policy brief, in the authors' role as researchers, they believe it is essential to set a tone for the article from the beginning. The authors are acutely aware of the chronic oppression that can come with assessments, screening, diagnoses, and interventions related to mental and behavioral health. As mental health providers, researchers, trainers, and policy makers, the authors do not believe that the presence of ACEs should be "the" reflection of a service member or ever be used against a recruit or service member in determining fit for the military.[4] The authors' role, through this article, is to enhance the readiness of service members and recognize diverse forms of protective factors and resilience that can strengthen the lives of active duty military personnel as well as their lives after service.

The purpose of this article is to provide (a) a brief description of ACEs and an overview of the key tenets of the theory of toxic stress,[5,6] (b) a snapshot of ACEs and protective and compensatory experiences (PACEs) research with active duty personnel to illustrate the life span effects of ACEs depicted in the ACE pyramid[1,7] and the need for resiliency-informed research, (c) results from an original research study with child and adult adverse experiences as well as protective factors with active duty men and women, and (d) future recommendations related to ACEs, adult adverse experiences, and PACEs with active duty personnel. In particular, this study puts forth the following exploratory research questions: What is the pattern of incidence of first- and second-generation ACEs, adverse adult experiences, and PACEs in army service members surveyed and does this pattern differ by either sex or rank?

Adverse Childhood Experiences and Toxic Stress

For this article, the ACE pyramid[1,7] and the theory of toxic stress[5,6] were chosen to ground the research design in theory. First, the theory of toxic stress[5,6] was selected to describe the "how" or the mechanism behind a child's ecology becoming biologically embedded during development. Second, the adverse childhood experiences pyramid[1,7] was chosen to describe the "what" or the impact that premilitary factors, specifically ACEs, have on the health of military personnel.

The original ACEs study was published in 1998,[1] which focused on traumatic childhood experiences and health outcomes among a sample of >9,500 individuals. The first-generation ACEs research focused on "abuse" (ie, emotional, physical, and sexual), neglect (ie, emotional and physical), and "household dysfunction" (ie, substance abuse/misuse, mental illness/suicide, domestic violence, parental separation or divorce, or an incarcerated household member).[1,7] More recently, second-generation ACEs research has encompassed

Human Development and Family Science (Medical Family Therapy doctoral program), East Carolina University, 235 Rivers West Mailstop 505, Greenville, NC

Abstract # MHSRS-18-2085 - Psychological Health - The Health and Readiness of Military Families - Relational Health: Protective Factors for Service Members, Couples, and Families

doi:10.1093/milmed/usz197

cultural and ecological factors (eg, family financial problems, food insecurity, homelessness, parental absence, peer victimization, parent/sibling death, and violent crime victimization).[8] The influence of ACEs over the life span is conceptualized through the ACE pyramid, which outlines the progression of the effects of ACEs beginning in childhood, leading to disrupted neurodevelopment, social/emotional/cognitive impairment, adoption of health risk behaviors, disease/disability/social problems, and early death.[1,7] Through the theory of toxic stress, ACEs can be understood as toxic stressors, which set into motion a cascade of biological and psychological processes that persist into adulthood.[5,6] The authors of the current manuscript believe that the role of ACEs in research and clinical practice should be rooted in a theory that encompasses both human development and his or her biopsychosocial-spiritual health in order to best understand the complexity of trauma and resilience.

Although researchers have explored the influence of childhood adversity on adult health outcomes for decades,[1] the ACEs research has been critiqued for lacking a theoretical basis.[2] Felitti et al.[1] identified the health conditions that were among the leading causes of mortality in the United States (eg, ischemic heart disease, cancer, stroke, etc.), as well as 10 risk factors believed to contribute to these conditions (eg, smoking, suicide attempts, obesity, etc.). Then, the researchers asked respondents about ACEs, health risk factors, and health conditions. The connection between ACEs and health risk factors/conditions was so profound that the researchers proposed a model detailing the potential life span influences of ACEs. This model, termed the ACE pyramid,[1] was described through researchers' observations and assumptions of ACEs, suggesting that they can lead to cognitive, social, and emotional problems, and ultimately the adoption of maladaptive coping strategies (such as smoking). These strategies were then thought to lead to physical and mental health conditions as well as increase the risk for experiencing additional traumas and an early death. Upon receiving feedback from neuroscientists at the turn of the century, researchers added disrupted neurodevelopment to the model and recognized that childhood adversity can cause changes in brain structure and function.[7] More recent advances in genetics, neuroscience, and the social sciences have enabled the articulation of a general theory that grounds the ACEs research and pyramid: the theory of toxic stress.[5,6]

The theory of toxic stress[3,4] serves as a way to connect an experience through each level of the ACE pyramid.[1,7] For example, a child is exposed to an ACE, such as emotional abuse. Over time, this toxic stressor leads to changes in brain structure and function. These changes disrupt the child's neurodevelopment, leading to difficulties in functioning, such as emotional regulation, which can persist into adolescence (ie, at time of recruitment) and adulthood (eg, during deployments, transition in duties or rank). To cope with these difficulties, maladaptive coping strategies are sometimes adopted, such as smoking or binge eating, which can lead to health problems, such as cancer or obesity, and early death. Toxic stress results when stressors are chronic, uncontrollable, and/or occur without access to supportive adults. Over time, toxic stress can alter how the body responds to daily stressors, which can result in an array of negative health outcomes across the life span.[9,10] An essential component of the theory of toxic stress[5,6] in relation to the effect of toxic stress on adult health outcomes is that timing matters. Toxic stress that occurs during critical periods of development can generate changes in structure and function that persist later in life,[11] perhaps one of the most significant reasons for attending to this theory within this specific study. Adverse childhood experiences are commonly identified as toxic stressors,[5] which is why a strength-based approach to assessment toward resilient minds, bodies, and spirit are relevant for military recruitment and retention.[12]

Snapshot of ACEs and PACEs Research With Civilians and Military

The ACEs research is particularly relevant to the active duty military population, as past researchers have consistently indicated that a greater numbers of service members have experienced ACEs than civilian populations and that they tend to experience higher numbers of ACEs than civilians.[13–15] Among active duty soldiers, the presence of ACEs has been shown to be predictive of positive screening for depression and post-traumatic stress disorder.[16] In a population-based study of active duty personnel, Sareen et al.[17] found that exposure to ACEs and deployment-related traumatic events were associated with increased odds of mood and anxiety disorders for men and women. Certainly, many mental health and behavioral health symptoms and diagnoses can be exacerbated by ACEs.

The ACEs can become toxic stressors[5] that not only influence psychological health but also alter physiological changes in the body via allostatic load or biological embedding. Through these toxic stressors, a person is at risk for a wide range of negative health outcomes across the life span. The ACEs have a dose-response, whereby the greater number of ACEs a person has experienced, the greater the likelihood of endorsing health risk behaviors (eg, substance use and moderate to heavy drinking) and negative health outcomes (eg, depression and suicide attempts).[18,19] Notably, in a 2017[18] study, people who reported six or more ACEs had 24.36 times increased odds of attempting suicide. Additionally, people with six or more ACEs have a life span up to 20 years shorter than people without ACEs.[20] However, ACEs must not be considered in isolation; the protective factors in service members lives are another piece in the complex health and readiness puzzle.

The literature on protective factors is not nearly as well established as the literature on pathology. However, several recent studies from the civilian world can shed light on ACEs-informed approaches to resilience. Meng et al.[21] conducted a systematic review on resilience and protective factors among people with a history of childhood maltreatment as well as

the factors that buffer the negative effects of ACEs. These protective factors included education, religiosity, family cohesion, social support, and parental care; many of these factors are also influential in the lives of military populations (eg, Blaisure et al.[22]) In addition, Jaffee et al.[23] found that women who had a history of childhood maltreatment were shielded from the negative health outcomes associated with ACEs if they engaged in a safe, supportive, and nurturing relationship in adulthood. Although not specific to ACEs, the research with military samples reflects the importance of social support in bolstering resilience.[12] Taken together, these findings warrant further attention to the adverse and protective factors that exist between ACEs and PACEs. The following sections share the methods, results, and recommendations from the authors' research with ACEs, adult adverse experiences, and protective factors in the lives of active duty service members.

METHODS

Sample and Procedures

The current study is a secondary data analysis of a parent study,[24] which explored the interplay between ACEs and disordered eating among active duty service members. Participants from the parent study were recruited using a series of snowball sampling procedures, including recruitment through social media sites (eg, Facebook) and professional resources, such as a newsletter for the Alliance of Military and Veteran Family Behavioral Health Providers and stakeholders at military installations across the country. Inclusion criteria for the parent study included participants who (a) were currently serving in the military at the time of the study, (b) were adults over the age of 18, and (c) had access to the Internet. Data were collected and managed using REDCap electronic data capture tools—a secure, web-based application designed to support data capture for research studies.[25] This study was conducted with institutional review board approval (UMCIRB 17–002898).

Although the larger database included participants ($N = 136$) from all branches of the military, the primary sample was represented by members of the army (79.5%). Therefore, the current study focused exclusively on the army subsample ($N = 97$) to reduce the potential confounding variables pertaining to diverse military branches. Specifically, the researchers were interested in the relationship between ACEs, potential protective factors for childhood trauma, and adverse or traumatic experiences during adulthood for army personnel.

Measures

The measures used in the present study were selected from a larger pool included in the parent study, which specifically explored participants' experiences of adversity in childhood and adulthood and potential protective factors. A series of quantitative data were collected using self-report questionnaires completed by active duty service members.

TABLE I. Demographic Information for Army Service Members

Indicator	Frequency (%) or Mean (*SD*)*
Age	30.8 (6.02)*
Sex	
Men	49 (50.5)
Women	48 (49.5)
Race/ethnicity	
American Indian/Alaska Native	1 (1.0)
Asian/Pacific Islander	8 (8.3)
Black/African American	9 (9.3)
Hispanic/Latino	11 (11.3)
White	64 (66.0)
Other	4 (4.1)
Religion	
Agnostic	9 (9.3)
Atheist	10 (10.3)
Buddhist	1 (1.0)
Catholic	19 (19.6)
Jewish	2 (2.1)
Mormon	1 (1.0)
Muslim	1 (1.0)
Protestant	23 (23.7)
I do not know	6 (6.2)
Prefer not to answer	9 (9.3)
Other	16 (16.5)
Sexual orientation	
Bisexual	2 (2.1)
Gay or lesbian	1 (1.0)
Straight	93 (95.9)
Prefer not to answer	1 (1.0)
Education	
High school graduate	4 (4.1)
Some college	16 (16.5)
College degree	46 (47.4)
Graduate degree	31 (32.0)
Relationship status	
Single (never married)	18 (18.6)
Married or civil union	64 (66.0)
Cohabiting	5 (5.2)
Divorced	5 (5.2)
Legally Separated	3 (3.1)
Other	4 (4.1)

Demographic Questionnaire

Demographic information was collected using a 21-item questionnaire. The items were modeled after questionnaires commonly used with military populations[26] and included general questions about common demographics (Tables I and II). An additional subsection was included that assessed for relationships dynamics, such as relationship status, living arrangements, parental status, and family military service.

Adverse Childhood Experiences

The childhood experiences survey (CES)[8] is a 17-item self-report scale that assesses for experiences of childhood adversity before the age of 18. The CES measures[1] original 10, or "first-generation," ACEs including experiences of abuse and

TABLE II. Military Demographics

Indicator	Frequency (%) or Mean (*SD*)*
Rank	
E1-E4	9 (9.3)
E5-E6	21 (21.6)
E7-E9	3 (3.1)
W1-W5	1 (1.0)
O1-O3	51 (52.6)
O4-O5	12 (12.4)
Length of service (years)	8.2 (5.6)*
Deployment history	
Currently deployed	1 (1.0)
Combat zone	49 (50.5)
Number of combat deployments	1.5 (0.79)
Noncombat zone	30 (30.9)
Number of noncombat deployments	1.9 (2.6)
Family military history	
Father	35 (36.1)
Mother	7 (7.2)
Brother	23 (23.7)
Sister	8 (8.2)
Son	2 (2.1)

neglect (ie, physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect) and household dysfunction (ie, alcohol/drug problem, mental illness, domestic violence, incarceration, and divorce/separation). An additional seven items, also known as the "second-generation" ACEs, were included to assess for experiences of family financial problems, food insecurity, homelessness, parental absence, peer victimization, parent/sibling death, and violent crime victimization.[8]

Adverse Adult Experiences

The adult experiences survey (J. Mersky, oral communication, October 31, 2017) is a 19-item self-report scale designed to assess experiences of adversity and traumatic stress after the age of 18. The adult experiences survey explores similar ACEs identified in the CES but in adulthood, with additional items assessing for experiences of pregnancy loss and discrimination. Though a formal publication of the psychometrics for this measure is forthcoming, it has been found to have high face validity and per communication with the measure's author, has an alpha of 0.81 on a 10-item scale (ie, physical abuse, emotional abuse, alcohol misuse or drug use, mental health problem, incarceration or jail, forced sexual activity, crime victimization, homelessness, chronic financial problems, and discrimination; J. Mersky, oral communication, October 31, 2017).

Protective Experiences

The PACEs survey (Morris et al., oral communication, 2016) is a 10-item self-report scale that assesses for supportive experiences and social involvement during childhood, such as the presence of a trustworthy adult, clear and fair administration of rules, having friends and hobbies, and participation in activities such as sports and religious groups. Respondents are asked to answer each item with *yes* or *no*, with higher total scores indicating increased exposure to protective experiences. In local ($n = 109$) and nationwide ($n = 900$) samples of parents diverse in ethnicity, relationship status, education level, and age,[20] the PACEs survey was found to have a reliability of 0.76.

RESULTS

Demographics

This study included 97 army service members who ranged in age from 19 to 52 years old ($M = 30.8$, standard deviatioN = 6.02) and half identified as men ($n = 49$, 50.5%). The majority of participants were white ($n = 64$, 66%) and heterosexual ($n = 93$, 95.9%). This sample was very educated, with 95.9% ($n = 93$) having completed at least some college. A majority of service members reported that they were married or in a civil union ($n = 64$, 66%). Notably, all of the participants who were cohabiting with their partner also reported being in a dual-military relationship ($n = 5$) and a third of participants who were married or in a civil union reported being in a dual-military relationship ($n = 27$). General demographic information is described in Tables I and II.

Childhood Adverse Experiences

The results related to ACEs can be analyzed in many ways; the authors of this manuscript chose to focus on participant-identified sex and rank (enlisted and commissioned officers [COs]) as the social locations to report in relation to ACEs (Table III). Of the 97 participants, 24 (24.7%; 13 men and 11 women) had zero first-generation ACEs, 20 men and 25 women (46.4%) had experienced 1 to 3 ACEs, and 15 men and 9 women (24.7%) had experienced 4 or more ACEs. The national prevalence of four or more ACEs, among civilians, is 14.3%.[27]

Perhaps most interesting to comment on is that even though there were essentially the same number of men and women who participated in this study, men had a higher likelihood of experiencing first-generation ACEs ($t[91] = 1.13$, $P = 0.010$) except for household violence (Table III). Furthermore, a statistically significant distinction existed between those who were classified as enlisted versus COs; enlisted were more likely to have a higher total ACE score compared with COs ($t[91] = 3.89$, $P = 0.001$). The contrast in frequency on each ACE between these two groups is stark, perhaps further punctuating the need for attention to ACEs and protective factors in early career service members in order to promote sustainable careers in the military.

Second-Generation ACEs

A larger percentage of the sample had not experienced any of the second-generation ACEs ($n = 49$, 50.5%). More than

TABLE III. Positive Response Adverse Childhood Experience Frequencies

Adverse Childhood Experience	Frequency (%)			
	Men	Women	Enlisted	Officer
Physical abuse	28 (57.1)	21 (45.7)	22 (71.0)	27 (42.2)
Sexual abuse	4 (8.2)	7 (15.2)	8 (25.8)	3 (4.7)
Psychological abuse	12 (24.5)	3 (6.7)	8 (25.8)	7 (11.1)
Physical neglect	3 (6.1)	2 (4.3)	2 (6.5)	3 (4.7)
Emotional neglect	4 (8.2)	1 (2.2)	4 (12.9)	1 (1.6)
Household drug/alcohol use	15 (30.6)	10 (21.7)	11 (35.5)	14 (21.9)
Household mental illness	11 (22.4)	10 (21.7)	8 (25.8)	13 (20.3)
Domestic violence	13 (27.1)	11 (23.9)	13 (41.9)	11 (17.5)
Household violence	6 (12.2)	6 (13.0)	9 (29.0)	3 (4.7)
Parental divorce/separation	14 (28.6)	10 (21.7)	11 (35.5)	13 (20.3)
Family financial problems	10 (20.4)	5 (10.9)	9 (29.0)	6 (9.4)
Food insecurity	7 (14.3)	4 (8.7)	7 (22.6)	4 (6.3)
Homelessness	6 (12.2)	1 (2.2)	4 (12.9)	3 (4.7)
Parental absence	12 (24.5)	10 (21.7)	11 (35.5)	11 (17.2)
Peer victimization	11 (22.4)	5 (10.9)	9 (29.0)	7 (10.9)
Parent/sibling death	5 (10.2)	4 (8.7)	6 (19.4)	3 (4.7)
Violent crime victimization	3 (6.1)	2 (4.3)	1 (3.2)	4 (6.3)

Key: Original ACEs = physical abuse, sexual abuse, psychological abuse, physical neglect, emotional neglect, household drug/alcohol abuse, household mental illness, domestic violence, household violence, parental divorce/separation; extended ACEs = family financial problems, food insecurity, homelessness, parental absence, peer victimization, parent/sibling death, violent crime victimization.

TABLE IV. Sum Scores for Adverse and Protective Experiences

	Mean (*SD*)			
	Men	Women	Enlisted	Officer
Original ACEs	2.25 (2.30)	1.78 (1.66)	3.10 (2.34)	1.48 (1.61)
Second-generation ACEs	1.10 (1.49)	0.67 (0.99)	1.52 (1.57)	0.59 (1.00)
Total ACEs	3.35 (3.50)	2.47 (2.15)	4.61 (3.54)	2.08 (2.18)
Adult adverse experiences	3.83 (3.13)	4.12 (3.20)	5.90 (3.37)	3.02 (2.56)
PACEs	8.30 (1.67)	8.64 (1.81)	7.83 (2.00)	8.79 (1.52)

one-quarter had experienced at least one second-generation ACE ($n = 26$, 26.8%) and 20 (21.1%) mentioned they had experienced more than one second-generation ACE (see Table IV for mean and standard deviation by sex and rank). The distributions were parallel for second-generation ACEs by rank, with the exception of one noticeable frequency (ie, COs were more likely to have been a victim of a violent crime before the age of 18). There was a statistically significant difference in second-generation ACEs by rank (ie, enlisted were more likely to experience a second-generation ACE than COs; $t[93] = 3.47$, $P = 0.001$), but there was not a significant difference by sex.

Adult Adverse Experiences

Only eight service members stated that they had not encountered one of the adverse adult experiences. The range of responses was from 0 to 14, with 16 (18.2%) experiencing at least one adversity and 35.2% experiencing five or more adverse adult experiences.

A statistically significant correlation existed with first- and second-generation ACEs ($r[95] = 0.557$, $P < 0.001$) and between first-generation ACEs and adverse adult experiences ($r[95] = 0.481$, $P < 0.001$). Significant negative correlations also existed between first-generation ACEs ($r[95] = -0.349$, $P < 0.001$), second-generation ACEs ($r[95] = -0.219$, $P < 0.05$), and adverse adult experiences ($r[95] = -0.260$, $P < 0.05$) with PACEs. The most frequent experience reported was death of someone close ($n = 59$, 60.8%), and the least frequent experience reported was food insecurity ($n = 1$, 1.1%). Overall, enlisted service members were more likely to experience adult adversity than COs ($t[86] = 4.45$, $P = 0.025$); however, there was no statistically significant difference in adult adverse experiences by sex.

Protective and Compensatory Experiences

All of the study's participants experienced at least two protective experiences. Having a safe home was the most frequently identified protective factor with 96.7% stating that their home

was clean and safe. Active member in a civic group or club was the least likely to be selected ($n = 59$, 64.1%). Of this sample, 77% stated that they had 8 or more protective factors and 38.5% stated that they had experienced all 10 protective factors. There was not a statistically significant difference in protective experiences by sex or rank. In further testing the PACEs measure with this military sample, we found that this measure had a moderately high omega-3 (ie, reliability; omega-3 [ω_3] = 0.76).

DISCUSSION

Based on our findings, military participants reported a higher prevalence of ACEs than civilian samples.[1] Because of the prevalence of ACEs in military populations,[15] the theory of toxic stress[6] and the ACE pyramid[1,7] should assume a more central role in the development of interventions, providing theory-informed practice and research.

However, providers and researchers must not be just trauma informed but also versed in the role of resiliency (ie, ACEs should be considered in tandem with PACEs). This is one of the first known studies to publish on PACEs with a military sample. As such, more research on the reliability and validity of PACEs with diverse military populations is needed as well as resiliency-focused outcomes. Service members deserve treatment and protocols that are indicated for their unique needs from time of recruitment, throughout their career, and as they transition into and sustain care as a veteran.

Although there are now a growing number of articles that explore the impact of ACEs with military service members' health, ACEs still remain understudied in this population, and PACEs are nearly absent from the research. In terms of the use of ACEs in health surveillance, personnel have expressed concerns about confidentiality and career impact.[28] These concerns are valid and are emblematic of the delicate nature of ACEs work with military populations. Furthermore, researchers need to understand how to effectively measure ACEs in this population, because ACEs may be hidden (intentionally or nonintentionally) by service members because of the physical and emotional nature of military life (ie, service members may have high ACE scores yet are in good biopsychosocial health). Because of the substantial evidence that ACEs have on far-reaching effects of health throughout the life span, a better understanding of ACEs (in context of PACEs) and the ethics around ACE and PACEs screening are essential to optimize clinical care for service members in context of their health and military career.

Clinically, it may be helpful for providers who conduct medical and mental health screeners to consider the results of this study's findings with regard to relational status. Most of the participants from this study were married or in committed relationships; it is important for clinicians to consider the family-level impact of ACEs and consider relational approaches to treatment/interventions that are indicated for trauma. This relational dynamic becomes even more complex when considering dual-military couples, a subgroup within the military that deserves much more attention by researchers.[29] The authors' recommendation is to consider the biopsychosocial effects of ACEs (perhaps even more so for newly enlisted service members) with military partners and family members. This level of attention may require interdisciplinary collaboration to maximize effective screening, prevention, and treatment of the physical and psychosocial markers associated with ACEs.

Although the impact of ACEs and PACEs on the health of military service members should be relevant to policy makers, many issues related to service members' well-being remain. Policy makers should determine whether the military should screen for ACEs and PACEs. If the military does screen for ACEs/PACEs, military leaders will need to decide what do with that information and who should have access to that information. Those charged with record keeping would need to determine where ACEs/PACEs content is stored (ie, with family advocacy charts or electronic health records). In the civilian world, there are efforts to make ACEs screening a standard practice in primary care;[30] military leaders and policy makers will need to decide if that same standard should also be considered for military service members. In relation to surveillance of ACEs, military personnel tend to have concerns about confidentiality and potential career impact,[28] and as such, policies will need to be put into place so that the ACE status for service members is protected and monitored properly and considered in light of the service member's protective factors. To provide safe and effective ACEs- and PACEs-informed care and research, these are conversations that need to be had among military leadership and policy makers. Although so much still needs to be learned about ACEs, equally important is the investment in protective factors for military personnel and their families.

CONCLUSIONS

A consistent message throughout this article is the necessary attention to protective factors and resiliency for service members. The PACEs were consistently negatively correlated and covaried with ACEs and adverse experiences in adulthood, indicating that PACEs may indeed serve to buffer the effects of adversity in both childhood and adulthood. All of the PACEs examined in this study were connected to relationship or community/environment factors (eg, having a trusted adult, membership in a social group, etc.), all important to explore in greater depth with both military families and within military units. The nation's service members, their families, and the military deserve attention via a systemic lens, attending to trauma in tandem with resiliency; through this lens, all professionals (providers, researchers, and trainer) have an ethical obligation to better bridge practice, research, and policy from ACEs to PACEs.

REFERENCES

1. Felitti VJ, Anda RF, Nordenberg D, et al: Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the adverse childhood experiences (ACE) study. Am J Prev Med 1998; 14(4): 245–58.
2. Kalmakis KA, Chandler GE: Adverse childhood experiences: towards a clear conceptual meaning. J Adv Nurs 2014; 70(7): 1489–501.
3. Oshri A, Lucier-Greer M, Walker O'Neal C, et al: Adverse childhood experiences, family functioning, and resilience in military families: a pattern-based approach. Fam Rel 2015; 64: 44–63.
4. Kees M, Rosenblum K: Evaluation of a psychological health and resilience intervention for military spouses: a pilot study. Psychol Serv 2015; 12: 222–30.
5. Excessive stress disrupts the architecture of the developing brain: working paper 3. In: National Scientific Council on the Developing Child. Cambridge, MA, Center on the Developing Child at Harvard University; c2005-2014. Available at: https://developingchild.harvard.edu/wp-content/uploads/2005/05/Stress_Disrupts_Architecture_Developing_Brain-1.pdf; accessed March 29, 2018.
6. Shern DL, Blanch AK, Steverman SM: Toxic stress, behavioral health, and the next major era in public health. Am J Orthopsychiatry 2016; 86(2): 109–23.
7. Anda RF, Felitti VJ, Bremner JD, et al: The enduring effects of abuse and related adverse experiences in childhood: a convergence of evidence from neurobiology and epidemiology. Eur Arch Psychiatry Clin Neurosci 2006; 256(3): 174–86.
8. Mersky JP, Janczewski CE, Topizes J: Rethinking the measurement of adversity: moving toward second-generation research on adverse childhood experiences. Child Maltreat 2017; 22(1): 58–68.
9. Shonkoff JP: Building a new biodevelopmental framework to guide the future of early childhood policy. Child Dev 2010; 81(1): 357–76.
10. Shonkoff JP, Boyce WT, McEwen BS: Neuroscience, molecular biology, and the childhood roots of health disparities: building a new framework for health promotion and disease prevention. JAMA 2009; 301(21): 2252–9.
11. Shonkoff JP: Leveraging the biology of adversity to address the roots of disparities in health and development. Proc Natl Acad Sci U S A 2012; 109(2): 17302–7.
12. Hourani L, Bender RH, Weimer B, et al: Longitudinal study of resilience and mental health in marines leaving military service. J Affect Disord 2012; 139: 154–65.
13. Blosnich JR, Dichter M, Cerulli C, Batten SV, Bossarte RM: Disparities in adverse childhood experiences among individuals with a history of military service. JAMA Psychiatry 2014; 71(9): 1041–8.
14. Katon JG, Lehavot K, Simpson TL, et al: Adverse childhood experiences, military service, and adult health. Am J Prev Med 2015; 49(4): 573–82.
15. McCauley HL, Blosnich JR, Dichter ME: Adverse childhood experiences and adult health outcomes among veteran and non-veteran women. J Womens Health (Larchmt) 2015; 24(9): 723–9.
16. Gahm GA, Lucenko BA, Retzlaff P, Fukuda S: Relative impact of adverse events and screened symptoms of posttraumatic stress disorder and depression among active duty soldiers seeking mental health care. J Clin Psychol 2007; 63(3): 199–211.
17. Sareen J, Henriksen CA, Bolton SL, Afifi TO, Stein MB, Asmundson GJ: Adverse childhood experiences in relation to mood and anxiety disorders in a population-based sample of active military personnel. Psychol Med 2013; 43(1): 73–84.
18. Merrick MT, Ports KA, Ford DC, Afifi TO, Gershoff ET, Grogan-Kaylor A: Unpacking the impact of adverse childhood experiences on adult mental health. Child Abuse Negl 2017; 69: 10–9.
19. Choi NG, DiNitto DM, Marti CN, Choi BY: Association of adverse childhood experiences with lifetime mental and substance use disorders among men and women aged 50+ years. Int Psychogeriatr 2017; 29(3): 359–72.
20. Brown DW, Anda RF, Tiemeier H, et al: Adverse childhood experiences and the risk of premature mortality. Am J Prev Med 2009; 37(5): 389–96.
21. Meng X, Fleury MJ, Xiang YT, D'Arcy C: Resilience and protective factors among people with a history of child maltreatment: a systematic review. Soc Psychiatry Psychiatr Epidemiol 2018; 53: 453–75.
22. Blaisure KR, Saathoff-Wells T, Pereira A, MacDermid Wadsworth S, Dombro A. Serving Military Families: Theories, Research, and Application, Ed Ed 2. New York, NY, Routledge, 2016.
23. Jaffee SR, Takizawa R, Arseneault L: Buffering effects of safe, supportive, and nurturing relationships among women with childhood histories of maltreatment. Psychol Med 2017; 47: 2628–39.
24. Cobb E, Lamson AL, Didericksen KW, Schoemann A, Steffey C: Adverse Childhood Experiences and Disordered Eating in the Military, Doctoral Dissertation, 2018.
25. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG: Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inform 2009; 42(2): 377–81.
26. National Institute for Occupational Safety and Health. Behavioral Risk Factor Surveillance System (BRFSS). Available at https://www.cdc.gov/niosh/topics/surveillance/brfss/default.html; accessed March 29, 2018.
27. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System Survey ACE Module Data 2010. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2015. Available at https://www.cdc.gov/violenceprevention/acestudy; accessed November 29, 2018.
28. Robinson R, Davis JD, Krueger M, et al: Acceptability of adverse childhood experiences questions for health surveillance in U.S. Armed Forces. Mil Med 2008; 173(9): 853–9.
29. Lacks M, Lamson AL, Lewis M, White M: Reporting for double duty: a dyadic perspective on the biopsychosocial health of dual military couples. Contemp Fam Ther 2015; 37(3): 302–15.
30. Glowa PT, Olson AL, Johnson DL: Screening for adverse childhood experiences in a family medicine setting: a feasibility study. J Am Board Fam Med 2016; 29(3): 303–7.