CHILDHOOD ADVERSITY AND SOCIAL SUPPORT AS FACTORS IN STUDENT VETERANS' ACADEMIC OUTCOMES

By

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THESIS ABSTRACT

Childhood Adversity and Social Support

As Factors in Student Veterans' Academic Outcomes

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As veterans enter higher education at great numbers, colleges and universities have struggled to find ways to support them. This study considered factors that may affect student veterans' educational outcomes through two sets of analyses. The first set of analyses addressed three research questions related to the main effects and moderation of childhood adversity, social support, and veteran status on grade point average (GPA). The second set of analyses considered veterans in closer detail, investigating whether social support protects student veterans from worse educational outcomes associated with childhood adversity. I hypothesized that both childhood adversity and veteran status will have independent, negative relations with GPA and that veterans with a history of childhood adversity would have lower GPAs than their civilian peers. I also hypothesized that social support would moderate the relation between childhood adversity and GPA in the sample of student veterans. However, this study did not support these hypotheses. This may suggest that there were other variables involved, such as other lifetime experiences, or protective factors that I did not measure.

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Childhood Adversity and Social Support as Factors in Student Veterans' Academic Outcomes

Veterans and military service members are enrolling in college at a high rate. The Post-9/11 Veterans Educational Assistance Act (2008) provides funding for veterans and their families in higher education, which has contributed to an influx of veterans matriculating at colleges and universities. The National Center for Educational Statistics reported that nearly one million veterans were enrolled in postsecondary education (undergraduate and graduate) in the 2012-13 academic year (Queen, Lewis, & Ralph, 2014). As over five million military service members are projected to transition to civilian life by 2020 (Molina, 2015), it is expected that many will also enroll in college. Colleges and universities, however, have not adjusted to the number of veterans in their midst (Barry, Whiteman, & Wadsworth, 2014), and veterans, in turn, seem to have suffered: they generally have lower grades and are graduating college at a lower rate than their non-veteran peers (Elliott, 2015). There is a need to understand factors that affect student veterans' academic performance to help improve their academic outcomes. This study aims to test two of those factors – childhood adversity and current social support – as predictors of student veterans' academic outcomes. I first considered whether veteran status and level of childhood adversity predicted lower student grade point average (GPA) among a sample of veteran and non-veteran students. I then considered whether the combination of veteran status and childhood adversity score interact to predict student GPA such that childhood adversity has a stronger effect among veterans. Finally, I considered just the subset of student veterans to test whether higher levels of social

support moderate the effects of childhood adversity in a way consistent with a protective effect.

Veterans in College

Over two million Americans have served in Iraq and Afghanistan since 2001 (Belasco, 2014; Institute of Medicine, 2010), and many military personnel have been deployed multiple times over the past 16 years. Large numbers of military personnel are now enrolling in colleges and universities: the Department of Veterans Affairs (VA, 2014) estimated that over one million veterans were enrolled in postsecondary education in 2013. Precise demographic statistics on veterans and active-military servicemembers in higher education are unavailable because many colleges and universities do not track them (NASPA, 2013). Nevertheless, the VA (2014) estimated that 73 to 80 percent of student veterans are male, which indicates that female veterans are overrepresented in higher education as they make up about 15 percent of the military. Eighty-five percent of student veterans are over 25 years old, and 62 percent are first-generation college students. Additionally, many student veterans are married and have children, and about 42 percent work full-time while in school (NCES, 2013). The Student Veterans of America (2016) reported that in their study of approximately 1,300 student veterans, 70.86 percent were white, 8.58 percent were Hispanic or Latino, 8.06 percent were African-American, and 6.78 were bi- or multiracial. This is slightly different from the NCES (2013) study, which reported that 63 percent of student veterans were white, 17 percent were African-American, 14 percent were Latino, and 6 percent were multiracial. The NCES data, however, did not include active-duty, Reserve, or National Guard

personnel. This incongruity points to some of the gaps in the knowledge about student veterans and who they are.

Many factors influence student veterans' ability to succeed in college, including family and work obligations, unfamiliarity with higher education and its processes, quality of prior education, and mental health. Recent research on student veterans bears this out. Elliott (2015) found a number of stressors that affect veterans in college, including socioeconomic status, cultural and political differences, unemployment, family issues, traumatic brain injury, and post-traumatic stress disorder, among others. And while veterans of previous eras – WWII, Korea, Vietnam – generally had higher GPAs and graduation rates than nonveterans (Barry et al., 2014), veterans returning from Iraq and Afghanistan have not seen this type of success. In fact, veterans returning from Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) have a college attrition rate of 30 to 40 percent and lower GPAs than nonveteran undergraduates (Cate, 2013; Durdella & Kim, 2012).

Veterans and Childhood Adversity

On average, men and women in the military have higher rates of adverse childhood experiences than civilians (Katon, 2015; McCauley, Blosnich, & Dietrich, 2015), which may also contribute to the aforementioned disparities in educational outcomes for veterans, as childhood adversity is another factor related to success and retention in higher education (Horan & Widom, 2015; Karatekin, 2017). Blosnich, Dichter, Cerulli, Batten, and Bossarte (2014) found differences in ACE scores of military service members based on the era of service (draft versus volunteer) and also differences between men and women. Men in the volunteer era had much higher rates of sexual

abuse (11.0 percent versus 4.8 percent) than their non-military peers. Male service members also had higher rates of experiencing childhood adversity in four or more categories than non-military men. In both the volunteer and draft eras, women in the military had higher rates of physical abuse, domestic violence exposure, emotional abuse, and sexual abuse than their civilian peers.

Katon et al. (2015) also found that men and women in the military had higher ACE scores than the general population; military women in particular had the highest prevalence of ACEs and higher ACE scores than military men and civilian men and women, reporting three or more types of childhood adversity (Evans, et al., 2017). Meanwhile, McCauley, Blosnich, and Dichter's (2015) study of ACEs and health in military and non-military women found that women in the military had higher ACE scores than civilian women.

Additionally, Montgomery, Cutuli, Evans-Chase, Treglia, and Culhane (2013) found that while active military service acted as a protective factor against childhood adversity for homelessness and physical health, military service members and veterans with a history of childhood adversity reported greater mental health problems. They also found that participants who were veterans had slightly higher ACE scores than the civilians. These results suggest that military service can act as both a risk and protective factor, especially for those with a history of childhood adversity.

Childhood Adversity and Educational Outcomes

Supporting student veterans means understanding how risk and protective factors operate. From a developmental perspective, current and past experiences have the potential to influence individuals' functioning (Luthar, 2006; Masten, Cutuli, Herbers, &

Reed, 2009). Risk factors associated with childhood adversity may signal negative effects of a person's ability to adapt and cope with later experiences, including challenges associated with education (Romano et al, 2015). Meanwhile, individuals can effectively avoid negative effects of adversity through utilizing strengths and assets to cope (Luthar, 2006; Masten & Cicchetti, 2016).

In studying risk and resilience, researchers have sought to measure the frequency and depth of childhood adversity. The Adverse Childhood Experiences (ACE) study was designed to measure childhood adversity's prevalence. The survey included questions about childhood abuse (e.g., physical, psychological, or sexual) and household dysfunction (substance abuse, mental illness, incarcerated family members, or mother/stepmother treated violently) before participants turned 18 (Felitti, et al., 1998). Since the first ACEs study, the CDC has continued to collect data about adverse childhood experiences and chronic health problems through the Behavioral Risk Surveillance System (BRFSS). The initial study (Felitti, et al., 1998) found that while 36.1% of respondents (n = 17,337) reported no ACEs, 26% reported one ACE, 15.9% reported two, 9.5% reported three, and 12.5% reported four or more. However, the first wave of respondents was not asked about emotional or physical neglect, which may cause these estimates to be under-representations. The BRFSS data (CDC, 2010) found that of 53,784 respondents, an estimated 40.7% reported no ACEs, while 23.6% reported one, 13.3% reported two, 8.1% reported three, and 14.3% reported four or more.

There also appears to be a strong dose-response relation – i.e., a change in the outcome is associated with change in the levels of exposure (CDC 2016; Felitti, et al., 1998) –between the number of adverse childhood experiences reported and risk factors

for leading causes of death in the United States (heart disease, cancer, emphysema or bronchitis, lung disease, liver disease, and skeletal fractures). Adverse childhood experiences are also linked to other health factors, such as smoking, obesity, depression, suicidality, substance abuse, and alcoholism (Felitti, et al., 1998). Child sexual abuse is particularly associated with a host of long-term problems, including alcohol problems, substance use, depression, and suicidality (Dube, et al., 2005).

While the CDC is focused on health problems, other studies have found a relation between adverse childhood experiences and other outcomes, including educational outcomes (Romano, et al., 2015; Slade & Wissow, 2007). From pre-school through the college years, students with a history of childhood adversity have poorer educational outcomes (e.g., years of educational attainment and grades) than their non-maltreated peers. Children with a history of adversity have been found to have poorer cognitive functioning (Crozier & Barth, 2005) and mental well-being (Romano, et al., 2015). Other studies have shown that childhood maltreatment can alter neurophysiology and associated abilities like impairments in working memory and executive functioning (Phillip, et al., 2015; Teicher, Samson, Anderson, & Ohashi, 2016). In school-age children, this can lead to lower academic performance, grade retention, and behavioral problems (Romano, et al., 2015).

Research suggests that college students with a history of childhood adversity are a significant subset of all college students (Karatekin, 2017). Most of the research on college students and childhood adversity has focused on mental health outcomes, not educational outcomes (e.g., Gress-Smith, et al., 2015; Lindert, et al., 2014). But college students with a history of childhood adversity are more at-risk than their peers for poor

academic outcomes, including lower persistence rates (persisting until graduation at any college or university). Duncan (2000), who conducted one of the only longitudinal studies on maltreated college students, followed over 200 students from their freshman year of college and found that students who reported childhood sexual abuse or multiple forms of abuse had higher dropout rates than their non-abused peers. Additionally, Horan and Widom (2015) found that participants in their study with a history of abuse or neglect had fewer years of overall educational attainment than their non-maltreated counterparts. Students with a history of adversity also have lower grades (Baker, et al., 2016). This is particularly true of students with a history of sexual violence: Jordan, Combs, and Smith (2014) found that college women who had previously been sexually abused or assaulted in childhood or adolescence came into college with lower grades and tended to lag behind their peers in terms of GPA.

Social Support as a Protective Factor

Studies of resilience can aid colleges, universities, researchers, and other practitioners in understanding and promoting wellbeing among student veterans. This includes attention to not just risks associated with veteran status, but also resources and protective factors like social support. Modern research takes a broad view of resilience, looking at it not as a trait but as a process or phenomenon (Masten & Cicchetti, 2016). This includes looking at a person in the context of his or her family and community. Luthar (2006) writes, “Resilience rests, fundamentally, on relationships” (p. 780), and this point has shaped much of the theory and current research on resilience. Resilience is not a trait, as many in the media and in policy would have us think (Fergus & Zimmerman, 2005); rather, it is multifactorial and involves risk, protective, and

promotive factors that exist at multiple levels of an individual and her context. Protective factors, which are factors that work to buffer individuals from the effects of adversity and promote positive outcomes, predict resilience. For student veterans, especially those who have experienced adversity, social support in the form of family, peer and community or institutional relationships may work as a protective factor against poor outcomes in college.

The challenge for colleges and universities is to address issues of retention and academic success by providing robust and extensive support for student veterans. Cohen et al. (2000) defines social support as "resources that persons perceive to be available or that actually are provided to them by nonprofessionals in the context of both formal support groups and informal helping relationships" (p. 4). Gottlieb and Bergen (2010) also posit that rather than being a commodity, social support is often mutual and bidirectional, built into the relationships around a person. In the context of higher education, social support can mean not only family and peers but also the school community. Studies of college students have associated social support with better mental health and academic outcomes in higher education (Banyard & Cantor, 2004; Hefner & Eisenberg, 2009). Banyard and Cantor (2004) concluded that trauma survivors with better social support, secure attachment to family and friends, and a belief that they could control their lives had an easier time adjusting to college than trauma survivors without these protective factors. In other words, they show resilience.

For student veterans, who are generally older than traditional first-year students, family support may include spouses and children as well as parents and siblings. Family support has a positive influence on college students' academic and mental health

outcomes, especially during the first year as students transition to college (Hefner & Eisenberg, 2009; Wintre & Yaffe, 2000). Romero, Riggs, and Ruggero (2015) found that in a sample of 136 student veterans, family support had a negative relation with depression and generalized anxiety disorder, while Wilcox (2010) found that higher family support predicted fewer PTSD symptoms in combat veterans. There are few studies that measure family support and academic outcomes specifically in veterans; however, family support predicts better mental health outcomes, which are related to academic achievement (DeBerard, Spielmans, & Julka, 2012; Eisenberg, Golberstein, & Hunt, 2009).

Peer support for student veterans can be complicated. Because of the gap in age and experience, many student veterans feel isolated from their fellow non-veteran students, and sometimes they do not have any connection to other veterans on campus (Whiteman, Barry, Mroczek, & Wadsworth, 2013). Elliott (2015) found that criticism from peers and family and tension with or criticism from fellow veterans were related to worse outcomes, such as higher rates of PTSD. Still, peer support from friends and from veterans is an important factor in veterans' transition to college, predicting better mental health outcomes, less alcohol misuse, and higher GPAs (Nyaronga & Toma, 2015; Whiteman et al., 2013).

Student veterans also need to be supported by their communities, including their colleges and universities. In general, students who feel connected to their college communities do better in school (Durdella & Kim, 2012; Elliott, 2015). For veterans, support from their institutions may help them adjust to college life, especially as they leave the structured environment of the military to less structured institutions of higher

education (Elliott, 2015). Colleges and universities should understand how to support student veterans; however, many schools have not taken the initiative to do so (Barry, et al., 2014). For example, only 19 percent of institutions enrolling veterans in the 2012-13 academic year reported having a social space dedicated to veterans and their dependents, and only 36 percent had an organization or student group that served veterans specifically (Queen, et al., 2014). Veterans may also experience a campus climate that is hostile toward the military, contributing to a sense of alienation from their peers and the institution (Elliott, 2015). Altogether, family, peers, and the community may protect student veterans from negative educational outcomes, though colleges and universities may need to find ways to better support veterans as they enter institutions of higher education.

Other Factors in Educational Outcomes

While childhood adversity and social support are important factors in students' educational careers, they are certainly not the only factors. Race/ethnicity and gender are two demographic factors that are salient in academic outcomes. Although access to college has widened, much of the diversity in higher education is at the community college level (Brock, 2010), and Black and Latino students in particular struggle at predominantly white institutions (Strayhorn, 2010). This is especially true for Black men, who are underrepresented at the university level (Cokley & Moore, 2007). Race/ethnicity and gender may be important, then, in looking at students' academic outcomes.

Rutgers-Camden also has a high percentage of first-generation college students, students whose parents never attended or completed college. First-generation students face a number of challenges; because they are the first in their families to go to college,

they may not have anyone to help them navigate the systems of higher education (Atherton, 2014; McCarron & Inkeles, 2006). As they are more likely to be from lower socioeconomic backgrounds, they may also work to support themselves or their families (Lundberg, Schreiner, Hovaguimian, & Miller, 2007).

Employment outside of school is another factor. Research indicates that GPAs, retention, and graduation rates are low for students whose workloads exceed more than 15 hours a week, although students who work five to ten hours a week tend to do better than even students who do not work at all (Dundes & Marx, 2006).

Aims of the Current Study

This study aimed to not only contribute to the literature on childhood adversity and resilience, but also our knowledge of the obstacles that student veterans face and have faced as they enter or return to college. It attempted to answer four questions related to childhood adversity, veteran status, social support, and academic outcomes: a) Does veteran status have a relation with grade point average (GPA)? b) Does childhood adversity have an independent negative relation with GPA? Does social support have an independent positive relation with GPA? c) Is veteran status a moderator between childhood adversity and GPA? d) Does social support protect student veterans from worse educational outcomes related to childhood adversity?

Based on theory and past findings, I hypothesized that a) veteran status will have a negative relation with GPA; b) ACE scores will have a negative relation with GPA, and social support scores will have a positive relation with GPA; c) veteran status will moderate the relation between childhood adversity and GPA, such that veterans with a history of higher childhood adversity will have lower GPAs than non-veterans with a history of higher childhood adversity; and d) social support will moderate the relation between childhood adversity and GPA among the subset of veterans such that student veterans with higher social support and a history of childhood adversity will have higher GPAs than student veterans with lower social support and a history of childhood adversity.

Methods

Participants

I recruited participants through the Rutgers-Camden participant pool as well as the Rutgers-Camden Office of Veterans Affairs. Participants recruited through the participant pool learned about the study in their Introduction to Psychology or Research Methods classes, two required courses for psychology majors at Rutgers-Camden. Students were required to complete research hours for these classes, and they were awarded a research credit if they completed the survey. Student veterans were recruited through a Rutgers-Camden Veterans Affairs presentation or an email sent by the Office of Veterans Affairs. They were offered a chance to win a gift card through a drawing if they completed the survey. The Rutgers Institutional Research Board approved and oversaw this study.

Procedures

Participants completed an online survey about their demographic characteristics, adverse childhood experiences, social support, and education. Student veterans, regardless of how they were recruited, filled out a portion that asks about military and combat experience. While the survey included other measures, here I am only including details relevant to this study.

Along with the consent form, participants signed a Federal Education Rights and Privacy Act (FERPA) release that allowed the researchers access to academic records. I worked with Rutgers-Camden's Office of Institutional Research to obtain educational records, including term and cumulative GPA.

Measures

Demographics. Participants were asked their gender (male, female, transgender, or did not identify as male, female, or transgender), age (continuous), household income in the past year (continuous), first-generation college status, marital status and whether they had children, employment, and race/ethnicity (Asian/Asian-American, Black/African-American, Hispanic/Latino, Native American/American Indian, Native Hawaiian/Pacific Islander, White/European-American, or a member of another group). For race/ethnicity, I created multiracial as a new category for students who checked more than one category.

Academic Outcomes. The dependent variable, academic outcomes, was measured through institution-reported cumulative GPA at the end of the fall 2017 semester. Although the survey asks participants to provide their average grades and GPA, there is often discrepancy between self-reported and institution-reported grades (Kuncel, Crede, & Thomas, 2005). Institution-reported GPA from transcripts is a more accurate indicator of postsecondary grades.

Childhood Adversity. The Adverse Childhood Experiences Survey (CDC, 2016; Felitti, 1998) indexed childhood adversity. The ACE survey is 21 questions; each starts with the phrase, "When you were growing up, before the age of 18..." Questions ask about physical abuse (e.g., whether an adult in the household hit, grabbed, slapped or threw something at the participant), sexual abuse (e.g., whether an older person touched the participant sexually), emotional abuse (e.g., whether or not the participant felt loved), neglect (e.g., whether or not the participant had enough food to eat), and witnessing violence (e.g., whether the participant's mother was grabbed, slapped or had something

thrown at her). Answers are dichotomous: yes/no (with "I prefer not to answer" as an option and treated as "missing" for analyses). This produces a score between 0 and 10, reflecting a sum of the number of adverse childhood experiences endorsed.

Research that considers childhood adversity does not necessarily expect internal consistency in the ACE survey, as it asks questions about discrete events rather than items across the same construct. A history of physical abuse, for example, does not necessarily mean that a participant also had a history of sexual abuse or substance abuse in the household, though risks do tend to correlate to some degree. The ACE survey uses cumulative risk scores, the sums of adversity types endorsed by the participant, which assess risk factors across ecological levels (Horan & Widom, 2015). Although internal consistency in childhood adversity surveys is not expected, test-retest reliability is. Dube, Williamson, Thompson, Felitti, and Anda (2004) examined the test-retest reliability during the second wave of the initial ACEs study and found that for five categories (physical abuse, emotional abuse, sexual abuse, substance abuse in household, and witnessing interpersonal violence), the kappa coefficients were between .55 (physical abuse) and .77 (witnessing IPV).

Social Support. Shortlist of Assets and Resources – Young Adult (SOAR; Masten, 2016) indexed the level of social support. SOAR is an 18-question survey on participants' relationships, support, and personal characteristics. It is scored on a four-point Likert scale (Strongly Disagree/Disagree/Agree/Strongly Agree, coded as 0 to 3). Social support was scored by summing the answers endorsed. The highest a participant could score was 21.

SOAR is a new survey to test protective factors. As such, there is scant data on its reliability and validity. In the current data for the eight social support questions, Cronbach's alpha was .69; for the SOAR survey as a whole, it was .77. When I ran an item analysis, I found that without question #3 ("I have another adult…"), Cronbach's alpha for the social support questions was .70. I removed the item in question and ran the analyses without it. SOAR scores with the item analysis are in table 4.

Data Analysis

Missing data. Although there were 382 participants, I only received GPA data for 312. I reported demographic data for all 382 but used only the 312 in my analyses dealing with GPA. In the ACE and SOAR surveys, I collapsed missing data (coded as -999) with "no" answers (coded as 0). Rates of missing data are shown in the ACE and SOAR tables (tables 3 and 4).

Covariates. I tested each covariate – age, income, race/ethnicity, sex/gender, hours worked, year in school, marital status, children, hours worked, and first-generation status – independently with GPA (tables 8 and 9). Race/ethnicity and hours worked were significant, while first-generation status trended significant. I used these, along with sex/gender, in the models for the research questions.

Research Question 1. Does veteran status have a relation with GPA? I tested this hypothesis using an analysis of covariance (ANCoVa) with fall 2017 institution-reported GPA (on a 4.0 scale) as the dependent variable, veteran status as the predictor variable, and controlling for sex/gender, race/ethnicity, hours worked, and first-generation status (table 10).

Research Question 2: Does childhood adversity have an independent relation with GPA? Does social support have an independent relation with GPA? Is social support a moderator between childhood adversity and GPA? I tested these hypotheses using regressions with fall institution-reported GPA as the dependent variable. I ran one regression (table 11) with self-reported ACE scores (centered) as the predictor variable and controlling for sex/gender, race/ethnicity, hours worked, and first-generation status, and another with SOAR scores (centered) as the predictor variable (table 12). Then I used multiple regression to test SOAR scores as the moderator between ACE scores and GPA (table 13).

Research Question 3: Is veteran status a moderator between childhood adversity

and GPA? I tested this hypothesis using multiple regression with fall 2017 institution-reported GPA as the dependent variable, self-reported ACE scores as the predictor variable, veteran status as the moderator variable, and controlling for sex/gender, race/ethnicity, hours worked, and first-generation status (table 14).

Research Question 4 (veterans' subset): Does social support protect student veterans from worse educational outcomes related to childhood adversity? I tested this hypothesis using multiple regression with fall 2017 institution-reported GPA as the dependent variable, self-reported ACE scores (centered) as the predictor variable, social support (centered) as the moderator variable, and controlling for sex/gender, race/ethnicity, hours worked, and first-generation status (table 15).

Results

Demographics. A total of 382 participants (table 1) completed the Umbrella Project Survey. Twenty-five percent identified as male, 73.3% as female, and less than one percent identified as non-binary or neither male nor female. Ages ranged from 18 to 59 (M = 20.68, SD = 5.36), and the majority were first-year students (57.5%).

One hundred seventy-seven participants (44.6%) identified as white or European-American, 65 (16.4%) as Black or African-American, 58 (15.6%) as Latino/Hispanic, 45 (11.3%) as Asian or Asian-American, 36 (9.1%) as multiracial, and 8 (2.1%) as members of another group. This is roughly comparable to the demographics of Rutgers-Camden undergraduates as a whole (n=5,489, 48.7% white; 18% African-American; 15.1% Latino/Hispanic; 10.7% Asian; 4% multiracial; .3% Native American, Native Hawaiian, or Pacific Islander). The average age of undergraduates at Rutgers-Camden is 25, and the average age of the 2018 first-year class was 19. Women make up 59.3% of undergraduates as a whole and 56% of the first-year class. Women were overrepresented in this sample.

Thirty of the participants were student veterans or active military service-members (table 2). Veterans were older (M=29.60, SD=7.78), %), 43.3% were male, and the majority were not first-year students (86.7). Racial and ethnic minority students were underrepresented in the subsample of veterans (63.3% white or European-American). For comparison, among all 219 veterans enrolled at Rutgers University – Camden (4% of the student body) at the time of the study, the population had a mean age of 31, were mostly male (62.1%), and more likely to be from a racial/ethnic minority group (45.2% white).

I ran t-tests and chi-squares (tables 6 and7) to test for differences between veterans and non-veterans. Age, sex/gender, race/ethnicity, marital status and having children were different between the two groups, while hours worked, income, and first-generation status were not.

Descriptive bivariate correlations are shown in table 5**.** Adverse childhood experiences were significantly related to age, sex/gender, and year in school. Social support scores were significantly related to age, income, marital status, and having children. ACE scores and SOAR scores were significantly negatively correlated, and GPA was also significantly correlated with number of hours worked. Total ACE score did have a negative correlation with cumulative GPA (r=-0.055), but the association was not significant at the .05 level (two-tailed).

Adverse Childhood Experiences. The ACE Survey (table 3) had a completion rate of 81.4%. Sixty-seven percent of all participants reported at least one adverse childhood experience, with emotional abuse (46.1%) and neglect (34.3%) being the most endorsed. Participants also endorsed living with someone with a mental illness (28.5%), living with someone who used substances or who was a problem drinker (23.8%), physical abuse (18.8%), living with someone who was incarcerated (10.6%), sexual abuse (12.6%), and witnessing interpersonal violence (9.2%). The mean ACE score was 1.82 (SD=1.91), ranging from zero to eight. Rates of each ACE are shown in table 2.

Among non-veterans, 65.5% reported at least one ACE, compared to 63.3% of veterans; however, there were no significant differences between the two groups. The veterans' ACE score mean was 2.33 (SD=2.45), and non-veterans' ACE score was 1.78

(SD=1.86). There was no significant difference between the two groups (t=0.920, p=.358, CI: -0.301 - 0.830).

Social Support. The SOAR survey (table 4) had a completion rate of 93.2%. With the seven social support questions, participants had a mean score of 15.45 (SD=3.59), with most endorsing Somewhat or Strongly Agree across items. Non-veterans' SOAR mean was 17.61 (SD=3.93), and veterans' mean score was 15.83 (SD=3.70); an independent samples t-test revealed a significant difference between the groups (t= -2.394, p=.017, CI: -3.251 - -0.319).

GPA. Institution-reported GPA was obtained for 312 participants (286 non-veterans, 26 veterans). The mean GPA for all participants was 3.16 (SD=0.688). Veterans' mean GPA was 3.268 (SD=0.678), while non-veterans had a mean GPA of 3.126 (SD=0.704). There were no significant differences in GPA between veterans and non-veterans (t= -0.976, p=.330).

RQ1: Veteran Status and GPA. An ANCoVa, controlling for gender, race/ethnicity, hours worked, and first-generation status, found no significant differences between veterans and non-veterans (F=1.293, p=.257). However, gender (F=4.146, p=.043), race/ethnicity (F=41.562, p=.000), and hours worked (F=9.785, p=.002) were significant in this model.

RQ2: ACES, SOAR, and GPA. I ran regressions to test the relationships between ACE scores and GPA and SOAR scores and GPA, controlling for race/ethnicity and gender. ACE scores were not significantly related to GPA (b=-0.013, SE=0.028, p=.640, CI: -0.042 – 0.068), although race/ethnicity (b=0.537, SE=0.083, p=.000, CI:

0.373 - 0.701) and hours worked (b= -0.011, SE=0.003, p=.002, CI: -0.042 - .068) were significant.

SOAR scores also were not significantly related to GPA (b=-0.001, SE=0.012, p=.906, CI: -0.024 – 0.21) but race/ethnicity (b=0.509, SE=0.083, p=.000, CI: 0.376-0.702) and hours worked (b=-0.007, SE=0.003, p=.034, CI: -0.014 - -0.001) was significant. Social support was not a significant moderator between ACEs and GPA (b=-.001, SE=0.007, p=.911, CI: -.013 - .015), but race/ethnicity (b=0.509, SE=0.084, p=.000), sex/gender (b=-0.201, SE=0.098, p=.042), and hours worked (be=-0.007, SE=0.003, p=.040) were.

RQ3: Veteran Status as Moderator between ACE and GPA. I ran a multiple regression, controlling for race/ethnicity and gender, to test veteran status as a moderator between ACE scores and GPA. Again, race/ethnicity (b=0.536, SE=0.083, p=.000, CI: -.372 -0.700) and hours worked (b=-0.010, SE=0.042, p=.002, CI: -0.017 - -0.004) was significant, but ACE scores moderated by veteran status was not (b=0.007, SE=0.042, p=0.841, CI: -0.074 – 0.091).

RQ4. Veterans subset. In the veterans' subset, social support was not a significant moderator between ACEs and GPA (b= -0.024, SE= .031, p=..096, CI: -0.053 - 0.005); however, ACE scores were significant (b=-0.198, SE=0.024, p=.005). Race/ethnicity (b=0.541, SE=0.084, p=.009, CI: 0.376 – 0.705) and hours worked (b=0.013, SE=0.006, p=.043) were also significant.

Discussion

This study found that in most of the models, childhood adversity, veteran status, and social support were not significantly associated with GPA, although race/ethnicity and hours worked were significant. The current findings contrast with previous studies that found that childhood adversity and veteran status are negatively associated with academic outcomes, while social support is positively associated with academic outcomes.

Veteran Status and GPA

Veteran and non-veteran students had similar GPAs, on average. This was counter to the expectation that student veterans would have a lower GPA, found in past studies that concluded increased academic risk for veterans, relative to civilian peers (Barry, et al., 2014; Cate, 2013; Durdella & Kim, 2012). Durdella and Kim's (2012) study found that, even controlling for other factors such as race, gender, and socioeconomic status, being a student veteran was associated with lower GPAs. They associated lower academic achievement to a lack of veterans' "sense of belonging" to the college community, while Barry, et al.'s (2014) review of 13 studies on student veterans found that the change of structure from the military to higher education affected veterans' performance in college. Student veterans also often cited age differences between themselves and their peers and conflicts with faculty members who did not appreciate their military service as sources of struggle (Barry, et al., 2014). The current study found no association between veteran status and GPA.

Not only were veteran students' grades similar to non-veterans' in the current study, but veterans had a rather high mean GPA (3.26 on a 4.0 scale). One reason for this

may be the demographics of Rutgers-Camden as a whole. Students at Rutgers-Camden are generally older – the average age of an undergraduate is 25 years old – and transfer students make up 57.4% of all undergraduate students. Student veterans may find that they are not as far off from their peers in terms of age and experience. This could help bridge the gap between student veterans and non-veteran students and contribute to student veterans' "sense of belonging" to the college community, though future research is needed to test this potential contributor.

Barry et al. (2014) also found that active-duty military students' academic performance suffered because of re-deployment; however, since 80% of our sample was not on active duty, this could explain the reason that our student veterans' GPAs do not show a relative deficit. In addition, Montgomery et al. (2013) found that military service acted as a protective factor in the case of homelessness and health. They speculated that veterans may have access to more and, potentially, better health and human services as a function of their service. While they did not look specifically at academic functioning, this could apply to student veterans, who have access to a range of services on- and off-campus, as well.

Childhood Adversity and GPA

ACE scores were not significantly related to GPA for the entire sample, contrasting with the hypothesis of a negation relation. This may seem to be contrary to the literature, as much of the research provides evidence that childhood adversity negatively affects academic performance (Baker et al., 2016; Romano et al., 2015). But some researchers, such as Banyard and Cantor (2004), point out that students with a history of adversity who make it to college may be a more resilient population already,

and so it follows that they would do well academically despite histories of childhood adversity. This may have been the case with this sample of students.

While 67.19% of the participants endorsed at least one ACE, the mean ACE score (M=1.829, SD=1.91) was fairly low, with most students (81.84%) reporting zero to three adverse childhood experiences. This could be another reason for the results of this survey, as much of the research shows that students who experienced multiple types of adversity or sexual abuse do the worst academically (Baker, et al., 2014; Duncan, 2000). Colleges and universities should be aware of the differential effects of adversity on students, as students on the higher end of the ACE scale or have experienced sexual abuse may be in need of more academic support than other students. Additionally, students may have underreported their ACE scores. Reuben et al. (2016) found that individuals who are "healthy" may not remember or report childhood adversity, due to a tendency to "forgive and forget." They also noted that individuals' memory of adverse childhood experiences related more to subjective measures (e.g., self-appraisals) than to objective measures. This study only considered institution-reported (i.e., objective) GPA, but self-report GPA could give further insight into how students believe they are doing.

Social Support and GPA

I hypothesized that social support, indexed by SOAR scores, would be positively related to GPA; however, there was no relation in the current study. Participants had high levels of family support, with 87.7% reporting that they agreed or strongly agreed that they could count on their parents. Additionally, 79.3% of participants said that they felt connected to their school or work communities. But in this sample, social support and GPA were not associated. This is contrary to the research on social support, which posits

that students who feel supported by family, friends, and community have higher grades and generally do better academically (Banyard & Cantor, 2004).

The results of this study indicate that, for this sample of students, social support from family, friends, and community may not be so important when it comes to grades. This could be for a number of reasons, including workload outside of school. Hours worked was significant in all of the models, in that the more hours a student worked, the less likely they would do well academically. In this sample, 9.2% of all participants work full-time and 52.6% work part-time, with a mean of 18.02 (SD=12.63) hours a week. As Dundes and Marx (2007) noted, student who exceed 15 hours a week tend not to do as well as students who work between five and ten hours a week. In our sample, students seem to be supporting themselves, and that may be a factor in their grades. Additionally, it may mean that while they feel supported, there may be a difference here between perceived social support and material support, which could explain the null results of this sample.

Veteran Status as Moderator between ACE Scores and GPA

I hypothesized that veteran status would act as a moderator variable between ACE scores and GPA; however, ACE scores and veteran status had no significant relation with GPA independently, and veteran status did not act as a moderator. This could be for the aforementioned reasons – the demographics of the Rutgers-Camden campus, military service as protective, or college students' resilience in general. The results could also mean that for veterans, childhood adversity is not as salient for academic outcomes as other factors, such as other lifetime experiences (either adverse or protective), outside workload, or previous academic experience.

Veterans Subset: Social Support as Moderator between ACE Scores and GPA

I hypothesized that, in the subset of veterans, social support would be a moderator between ACE scores and GPA, consistent with a protective effect; however, this relation was not significant. But ACE scores were significant in this model, which contrasts with the results from the entire sample. This may mean that for veterans, childhood adversity is a salient factor in GPA, which is consistent with the literature on academic outcomes (Duncan, 2000; Horan and Widom, 2015). On the other hand, it seems that social support did not play a buffering role in student veterans' GPA. Student veterans in this sample may have other factors at work, such as experiences in the military, that compound or exacerbate the impact of childhood adversity.

Additionally, veterans' sense of social support also differed from their civilian counterparts'. This could indicate that they feel that they do not have the type of family or community support that they need. The student veteran sample was generally older than the participant pool. In addition, many had families of their own: 33.33% had children, compared to 6.5% of the entire sample, and 46.6% were either married or living with a partner, compared to 6.5% of the entire sample. The family questions on the SOAR questionnaire focused more on parental support, which may not be a factor in academic functioning if student veterans have their own families and are more independent. Overall, social support as indexed by the SOAR questionnaire may not be applicable to students who are older and "non-traditional."

Race/Ethnicity and Gender

Race/ethnicity was significant in every model. Research suggests that structural issues in higher education, a lack of a sense of social belonging, and pre-college academic experiences contribute to poor academic outcomes for students of color (Walton & Cohen, 2011). This is especially true for Black students, as Black men are underrepresented in colleges and universities (Cokley & Moore, 2007).

There was also a significant difference for gender, but not for race/ethnicity, in mean ACE scores, suggesting that women across races experienced more types of childhood adversity than men. The results of this study should be an indicator for colleges and universities that they should be paying more attention to the academic success and the history of adversity in marginalized groups.

Employment

The number of hours worked was also significant in all of the models, which means that students who work outside of school may not being doing as well as their peers who do not work as much. This indicates that, even above social support, financial support for students is a factor that could be essential for students' academic success.

Limitations

This study has a number of limitations that may have contributed to the pattern of null associations. One limitation to this study was the sample. The veteran students who participated primarily did so without the need to complete a research credit, although they did have the chance to win a gift card. This may have contributed to the low participation rate among veterans (13.69% of the entire student veteran population), which in turn may have affected the outcomes of this study because of a lack of power. Observed power

(.551) for the veterans' sample was a limitation, as only 30 veterans participated, and only 26 were included in the analyses with GPA.

The low number also indicates that the veteran sample may not be representative of Rutgers-Camden's veteran population as a whole. Future studies focusing on veterans at Rutgers and other universities need to better recruit veteran participants. Even then, however, Rutgers-Camden veterans may not be representative of student veterans in the United States. Rutgers-Camden has been named a "Purple Heart" university, a designation given to universities that have a high level of support for student veterans (Comegno, 2017). Unlike many colleges and universities (Barry, et al., 2014; Queen, et al., 2014), Rutgers-Camden has a Veterans Affairs office, a dedicated space for veterans to study, and numerous orientation programs and other services. Student veterans at Rutgers, then, may do better academically because they find support through the university; however, the SOAR questions may have been too broad to find this effect. Understanding social support at the university level, specifically academic support, may be a next step in understanding veterans' academic outcomes.

The participant pool was mostly first-year students and female, which was not representative of the university as a whole. Over half of the students who participated were first-year students whose cumulative GPA only included one semester (Fall 2017). This may be the reason for the relatively high GPAs, even for students with high ACE scores, at this juncture; however, other work has found evidence of a "slump" during the sophomore year that often results in more frequent absences and lower academic performance (Gump, 2007). Following these first-year students into their second year and beyond may produce different data and results, including results on retention and

persistence; this would allow us to see long-term effects of childhood adversity on academic functioning.

Even though they were mostly not first-year students, veterans' retention and grades may also be important to examine longitudinally, as research has shown a relation between veteran status and retention rates (Cate 2013; Durdella & Kim 2012). This may be particularly important for students who are still on active duty, since interruptions in enrollment can lead to poorer grades and higher drop-out rates overall (Barry et al., 2014).

The measures used also could have contributed to the results of this study. The ACE survey is a retrospective survey, and the time lapse between childhood and adulthood could affect memory (Hardt & Rutter, 2004). Stress also can cause some memory impairment (Dube, et al., 2004), and there are social taboos surrounding abuse and household dysfunction that could prompt people to not tell the truth in the survey. Other researchers have suggested that child abuse and neglect are underreported, especially in the case of childhood sexual abuse (Della Femina, Yaeger, & Lewis, 1990; Hardt & Rutter, 2004; Putnam, 2003). In addition, ACE scores have been critiqued for not taking into account the heterogeneity of childhood adversity and the way that different experiences may result in different outcomes (Cavanaugh, Petras, & Martins, 2015; Masten & Cicchetti, 2016).

Childhood adversity is multidimensional and complex. Studies of cumulative childhood risk have shown a relation between childhood abuse and health outcomes, psychological outcomes, and adulthood functioning (Appleyard, Egeland, Van Dulmen, & Sroufe, 2005; Evans & Cassellls, 2014; Felitti, et al., 1998). There are, however,

concerns about using a cumulative risk model. Scott-Storey (2011) points out that the conceptualization of cumulative abuse, in which "more is worse," is too simplistic and glosses over the heterogeneity of abuse and its effects. Masten and Cicchetti (2016) also note that using a cumulative "risk gradient" or, in the case of protective factors, an "asset gradient" can mask the variation in both high and low levels of risk; in other words, some people at high levels of risk do better than predicted by the risk gradient model, and some people at low levels do worse than predicted. Additionally, a risk gradient can also obscure the ways in which different experiences of adversity have different effects, especially in cases of severe adversity, such as disasters or exposure to war.

Childhood adversity also usually does not occur in isolation, and where one risk factor is found, more may be present (Duncan, 2000; Evans, Li, & Whipple 2013; Scott-Storey, 2011). Robbins, Stagman, and Smith (2010) found that 41 percent of American children under six years old were exposed to one or two risk factors, while 20 percent were exposed to three or more. Additionally, Duncan (2000) found that multiple risk factors were associated with higher college dropout rates. Evans, Li and Whipple (2013) also point out that studies using a single risk factor may overestimate the effects of that factor, especially if it is highly correlated with other risk factors. There is also the matter of practicality. While focusing on one risk factor – for example, sexual abuse – may have helped to pin down some of the heterogeneous effects of different risks, it was uncertain if the incidence would have been high enough to permit looking at any single risk factor in isolation.

However, in using childhood adversity as a predictor variable, this study also did not take into account other factors that may affect academic outcomes, such as other

adverse lifetime experiences (beyond childhood adversity), mental health, past academic performance, and other protective factors, such as family support outside of parents, use of university resources, and peer and faculty support. Mental health in particular could have been a factor that was not accounted for, especially as childhood adversity is associated with poor mental health (Kessler, et al., 2010; Cecil, et al., 2017). College students also are generally at risk for mental health problems (Auerbach, et al., 2016; Blanco, et al., 2008; Karatekin, 2017), and student veterans may be more so (Tanelian, et al., 2008). Mental health is also a predictor of college grades (Eisenberg, Golberstein, & Hunt, 2009) and persistence rates (Arria, et al., 2013) and is therefore a factor for many students in their educational lives.

Future Directions

There are a variety of directions that future research on adversity and academic outcomes could take. One is to expand the definition of "academic outcomes" beyond grades. GPA alone is generally not a good measurement for academic achievement. Volkwein and Yin (2010) point to three reasons that this is the case: grade inflation over the past twenty years, inconsistent standards among schools and faculty members, and differences among majors (e.g., students in the most difficult majors may get the lowest grades). Using other measures of academic achievement, such as retention rates, graduation rates, or non-cognitive factors (e.g., emotional intelligence, attitude and motivation, conscientiousness), may provide a better picture of how adversity and social support relate to academic functioning (Sparkman, Maulding, & Roberts, 2012).

We should also deepen our understanding of effects of gender and race/ethnicity on academic and other functioning, especially considering that both factors were

significant in this study. Understanding rates of lifetime adversity and social support in relation to gender and race is important to understanding how to help students succeed in college; this is especially true for Black and Latino students, who, on average, drop out of college at higher rates than their white peers (Museus & Ravello, 2010).

Finally, we should also consider further study into student veterans' academic functioning. This may include longitudinal studies of student veterans' grades and retention rates, especially as student veterans tend to drop out at higher rates than civilian students (Elliott, 2015). We should also consider other risk factors beyond childhood adversity, including ones that are military-specific, such as combat exposure, military sexual trauma, and post-deployment experiences.

Conclusion

Although this study had null results, there are other directions for this research. We should consider recruiting a larger, perhaps more representative sample of student veterans, which would allow us to more deeply understand issues relating to them and their academic careers. In addition, while mean ACE scores were low, over half of the participants endorsed at least one ACE, indicating that the prevalence of childhood adversity on the Rutgers-Camden campus is high. While this was not negatively associated with grades, we should look to examine other factors, such as mental health and retention rates, which are important in students' academic functioning and general well-being. Overall, there is a need to do more research on childhood adversity and social support, especially in relation to student veterans and their academic outcomes.

Tables

Table 1. Demographic Characteristics
(Entire Sample, n=382)

Race/ethnicity	**N**	**%**
Black/African American	64	16.8
Asian/Asian American	45	11.8
White/European American	172	45
Latino/Hispanic	57	14.9
Multiracial	34	8.9
Other	8	2.1
Sex	N	%
Male	99	26
Female	280	73.5
Does not identify as either	<5	<1
Year in School	**N**	**%**
First-Year	219	57.5
Sophomore	60	15.7
Junior	66	17.3
Senior	28	7.3
Other	8	2.1
Age	N	%
18-20	282	73.8
21-25	64	16.7
26-35	27	7
35+	9	2.3
Mean (SD)	20.68 (5.37)	
Veteran Status	N	%
On active duty in the past	18	4.7
Now on active duty	5	1.4
Initial/basic training only	6	1.3
Never served in the U.S. Armed Forces	351	92.1
Marital Status & Children (N=381)		
Married or Living with Partner	25	6.5
Has children	25	6.5
First-Generation (n=354)		
First-Gen Status	201	56.8
Income (n=333)		
Mean	67345.1	
SD	76424.187	
Hours Worked (n=277)		
Mean	18.02	
SD	12.63	
Cumulative GPA by Fall 2017 (n=312)		
Mean	3.134	
SD	0.701	

Table 2. Demographic Characteristics (Veterans Sample, n=30)

Race/ethnicity	N	%
Black/African American	3	10
Asian/Asian American	2	6.7
White/European American	19	63.3
Latino/Hispanic	4	13.3
Multiracial	1	3.3
Other	1	3
Sex	N	%
Male	13	43.3
Female	17	43.3
Year in School	N	%
First-Year	4	13.4
Sophomore	3	10
Junior	13	43.3
Senior	5	16.7
Other	4	13.3
Age	N	%
18-20	3	10
21-25	7	23.33
26-35	16	53.33
35+	4	13.33
Mean (SD)	29.60 (7.78)	
Veteran Status		
On active duty in the past	18	60
Now on active duty	5	16.66
Basic training only	6	20
Marital Status & Children (n=30)		
Married or Living with Partner	14	46.7
Has children	10	33.3
First-Generation		
First-Gen Status	16	53.33
Income (n=29)		
Mean	48108.52	
SD	36456.89	
Hours Worked (n=24)		
Mean	16.67	
SD	17.40	
Cumulative GPA by Fall 2017 (n=26)		
Mean	3.26	
SD	0.678	

Table 3. Rates of Adverse Childhood Experiences

ACE	**N**	**%**	**Missing**	**Missing %**
Emotional Abuse	176	46.1	4	1
Physical Abuse	69	18.8	15	4
Sexual Abuse, either	48	12.6	15	4
Neglect, either	131	34.3	8	2.7
Witnessing IPV	35	9.2	4	1
Substance Use	91	23.8	3	0.8
Mental Health	109	28.5	4	1
Incarceration	40	10.6	6	1.6
Mean	1.829			
Range	8			
SD	1.91			
100% Completion Rate (no missing)	81.4%			

Table 4. Shortlist of Assets and Resources response descriptions

SOAR Question	**3 (Strongly Agree)**	**2 (Agree)**	**1 (Disagree)**	**0 (Strongly Disagree)**	**Missing**	**Cronbach's alpha if deleted (8 SS questions)**	**Cronbach's alpha if deleted (without item #3)**	**Cronbach's alpha if deleted (all)**
I feel close to my parents.	49.7	33.5	8.9	6.3	1.6	.676	.674	.753
I can really count on my parents.	63.1	24.6	6.5	5	0.8	.664	.666	.754
I have another adult (not a parent) that I can really count on (mentor, relative, teacher, neighbor).	45.3	33	11.5	8.9	1.3	.697	---	.767
I have a close friend I can really count on.	59.2	28	7.1	5.5	0.3	.684	.703	.760
I have opportunities to get ahead (through school, work, or job training).	65.4	27.3	5.8	1.3	0.3	.670	.671	.744
I feel connected to my school or work community.	30.9	48.4	16.9	2.9	1	.646	.638	.734
I belong to a supportive community outside of school or work (religious, cultural, club, team).	31.9	24.9	22	19.9	1.6	.632	.644	.743
My community has many opportunities for people my age.	27.2	42.7	20.7	8.1	1.3	.631	.628	.744
N	356							
Mean	15.458							
SD	3.599							
100% Completion Rate	93.2%							

Table 5. Bivariate Correlations.

	Race	**GPA**	**Age**	**Sex**	**Income**	**Marital**	**Children**	**Year**	**Work**	**First-Gen**	**ACE**	**SOAR**
Race/ethnicity	--	.286**	.083	.112*	.245**	.058	.049	-.122*	.125*	-.073	-.075	.011
Cumulative GPA	.286**	--	.032	-.068	.098	.049	.075	-.061	-.131*	-.101	-.055	.025
Age	.083	.032	--	.083	-.078	.390**	-.621**	-.424**	-.006	.112*	.133	-.124
Sex/Gender	.112*	.068	.083	--	.126*	-.060	.060	.092	-.005	-.138**	-.162**	.087
Income	.245**	.098	-.078	.126*	--	-.051	.090	-.033	.094	-.204**	-.091	.184**
Marital Status	.058	.049	.390**	-.060	-.060	--	-.442	-.221**	.103	.161**	.094	-.149**
Children	.049	.075	-.621**	.060	.060	-.443**	--	.178**	-.128*	-.154**	-.066	.142**
Year in School	-.122*	-.061	-.424**	-.092	-.033	-.221**	.178**	--	.020	-.016	-.103	.051
Hours Worked	.125*	-.131*	-.006	-.005	.094	.103	-.128*	.020	--	.002	.113	-.081
First-Generation	-.073	-.101	.112*	-.138**	-.204**	.161**	-.154**	-.016	.002	--	.046	.072
ACE Score	-.075	-.055	.133**	-.162**	-.091	.094	-.066	-.103*	.113	.046	--	-.320**
SOAR Score	.011	.025	-.124*	.087	.184**	-.149**	.142**	.051	-.081	-.072	-.320**	--

Table 6. T-Tests tests to test for differences between veterans and non-veterans

	t	p
Income	1.434	.138
Age	-11.109	.000
Hours Worked	.530	.597

Table 7. Chi-Square Tests to test for differences between veterans and non-veterans

	df	p
Sex/Gender	1	.023
Race/ethnicity	1	.031
Year in School	1	.000
Marital Status	1	.000
Children	1	.000
First-Generation	1	.286

Table 8. T-Test (2-tailed) results between covariates and GPA.

	t	p
Sex/Gender	1.286	.199
Race/ethnicity	-5.646	.000
Year in School	-1.146	.252
Marital Status	0.924	.356
Children	-1.429	.154
First-Generation	-1.908	.057

Table 9. Correlation results between covariates and GPA.

	r	p
Income	.098	.083
Age	.032	.549
Hours Worked	-.131	.034

Table 10. ANCoVA Results and Descriptive Statistics of GPA by Veteran Status

Student Status	**M**	**SD**	**N**
Veteran	3.26	0.678	26
Non-Veteran	3.12	0.704	286
All Participants	3.13	.702	312

	F	**P**
Race/ethnicity	41.462	.000
Sex/Gender	4.146	.043
Hours Worked	9.785	.002
First-Generation	1.029	.311
Veteran Status	1.293	.257

$R^{2 =}$.172

Table 11. Regression Results for ACE Scores Predicting GPA

	Model 1			**Model 2**		
	B	SE	p	B	SE	p
Race/ethnicity	0.533	0.083	.000	0.537	0.083	.000
Sex/Gender	-0.188	0.096	.052	-0.181	0.097	.064
Hours Worked	-.010	0.003	.002	-0.011	0.003	.002
First-Generation	-0.081	0.084	.338	-0.011	0.084	.334
ACE Score				0.013	0.028	.640

R=.409, R^2=.167

Table 12. Regression Results for SOAR Scores Predicting GPA.

	Model 1			**Model 2**		
	B	SE	p	B	SE	p
Race/ethnicity	0.509	0.083	.000	0.509	0.083	.000
Sex/Gender	0.197	0.096	.041	-0.197	0.096	.042
Hours Worked	-0.007	0.003	.034	-0.007	0.003	.034
First-Generation	-0.078	0.084	.353	-0.079	0.085	.353
SOAR				-0.001	0.012	.906

R=.393; R^2=155

Table 13. Regression Results for SOARxACE Predicting GPA

	Model 1			**Model 2**			**Model 3**			**Model 4**		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Race/ethnicity	0.509	0.083	.000	0.508	0.084	.000	0.508	0.084	.000	0.501	0.084	.000
Sex/Gender	-0.197	0.096	.041	-0.199	0.097	.042	-0.200	0.098	.042	-0.201	0.098	.042
Hours Worked	-0.007	0.003	.034	-0.007	0.003	.040	-0.007	0.003	.040	-0.007	0.003	.040
First-Generation	-0.078	0.084	.353	-0.077	0.084	.359	-0.070	0.085	.354	-0.079	0.085	.354
ACE Score				-0.004	0.028	.893	-0.004	0.029	.855	-0.005	0.029	.855
SOAR Score							-0.002	0.012	.864	-0.002	0.013	.864
SOARxACE										0.001	0.007	.911

R=.394;
R^2=155

Table 14. Regression Analysis for Veteran Status and ACE Scores Predicting GPA.

	Model 1			**Model 2**			**Model 3**			**Model 4**		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Race/ethnicity	0.533	0.083	.000	0.537	0.083	.000	0.536	0.083	.000	0.536	0.083	.000
Sex/Gender	-0.188	0.096	.052	-0.181	0.096	.052	-0.191	0.096	.052	-0.192	0.098	.051
Hours Worked	-0.010	0.003	.002	-0.011	0.003	.002	-0.010	0.003	.002	-0.010	0.003	.002
First-Generation	-0.081	0.084	.338	-0.082	0.084	.338	-0.086	0.084	.309	-0.087	0.085	.305
ACE Score				0.013	0.028	.640	0.010	0.028	.709	0.011	0.028	.699
Veteran Status							0.168	0.153	.273	0.177	0.159	.267
VeteranxACE										0.008	0.042	.841

R=.415; R^2=172

Table 15. Regression Analysis for SOAR and ACE scores in a subset of veterans.

	Model 1			**Model 2**			**Model 3**			**Model 4**		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Race/ethnicity	0.568	0.233	.029	0.480	0.183	.021	0.483	0.193	.021	0.581	0.184	.009
Sex/Gender	-0.014	0.215	.948	0.168	0.177	.359	0.176	0.199	.359	0.286	0.192	.165
Hours Worked	0.006	0.007	.413	-0.014	0.006	.028	-0.015	0.006	.028	0.013	0.006	.043
First-Generation	-0.432	0.232	.084	-0.490	0.182	.018	-0.485	0.195	.018	-0.369	0.189	.077
ACE Score				-0.174	0.055	.007	-0.176	0.060	.013	-0.198	0.056	.005
SOAR Score							-0.003	0.026	.921	-0.008	0.024	.756
ACExSOAR										-0.024	0.013	.096

$R=.907$, $R^2=.823$

Appendices

Appendix A. Adverse Childhood Experiences Survey

Answers are yes, no, or I prefer not to answer

When you were growing up, before the age of 18…

Did a parent or other adult in the household swear at, insult, or put you down?

Did a parent or other adult in the household act in a way that made you afraid that you would be physically hurt?

Did a parent or other adult in the household often or very often push, grab, shove, or slap you?

Did a parent or other adult in the household often or very often push, grab, shove, or slap you?

Did a parent or other adult in the household often or very often hit you so hard that you had marks or were injured?

Did an adult at least five years older than you ever touch or fondle you in a sexual way?

Did an adult at least five years older than you ever have you touch their body in a sexual way?

Did an adult at least five years older than you ever attempt oral, anal, or vaginal intercourse with you?

Did an adult at least five years older than you actually have oral, anal, or vaginal intercourse with you?

Did you often feel that your family didn't look out for each other, feel close to each other, or support each other?

Did you feel that you didn’t have enough to eat, had to wear dirty clothes, and had no one to protect you?

Did you often feel that your parents were too drunk or high to take care of you or to take you to the doctor if you needed it?

Was your mother or grandmother sometimes, often, or very often grabbed, slapped, or had something thrown at her?

Was your mother or grandmother sometimes, often, or very often hit with a fist or hit with something very hard?

Was your mother or grandmother ever repeatedly hit over at least a few minutes?

Was your mother or grandmother ever threatened with, or hurt by, a knife or a gun?

Did you ever live with someone who was a problem drinker or alcoholic?

Did you ever live with anyone who used street drugs?

Did a household member go to prison?

Appendix B. Shortlist of Assets and Resources (Social Support Questions)

At the present time, how much do you agree with the following statements about your life? Think about each statement as a whole and rate how much you agree with these statements about your life compared to other people your age.

Answers are Strongly Agree (3), Somewhat Agree (2), Somewhat Disagree (1), Strongly Disagree (0).

I feel close to my parent(s).

I can really count on my parent(s).

I have another adult (not a parent) that I can really count on (mentor, relative, teacher, neighbor).

I have a close friend that I can really count on.

I have opportunities to get ahead (through school, work, or job training).

I feel connected to my school or work community.

I belong to a supportive community outside of school or work (religious, cultural, team, club).

My community has many opportunities for people my age.

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