Research Report

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Diversity in U.S. Military Families

An Environmental Scan of the Peer-Reviewed Literature on Race and Ethnic Variation for Select Well-Being Outcomes

Military leadership has increasingly recognized the importance of supporting a diverse workforce and the deficits in efforts to support service members of color (Burns and Baldor, 2021). In a recent memo, former U.S. Secretary of Defense Mark Esper outlined a set of immediate actions to stop discrimination, prejudice, and bias in the ranks of the U.S. armed forces (Esper, 2020). For example, the memo directed the services to remove photographs from consideration by promotion boards, add bias awareness and bystander intervention training, and develop educational requirements about unintentional bias. The memo reflects a growing commitment to diversifying the force and encouraging service members of color and women to pursue positions in higher ranks, which remain dominated by white men.

These efforts are important steps toward supporting diverse service members, but more work is needed to ensure those supports extend to military families, including spouses and children. A service member's family plays a critical role in their ability to serve (Le Menestrel and Kizer, 2019). Family members provide support to services members while they serve and often care for service members as they recover from physical and mental health injuries (Institute of Medicine, 2013). Issues within a family can also cause stress for service members and might interfere with their readiness (Keller et al., 2018; Meyers, 2018; Schneider and Martin, 1994; Sims et al., 2017; Strong et al., 2021). Moreover, family well-being is often a consideration when service members face retention decisions (Keller et al., 2018; Meyers, 2018). Therefore, ensuring the health and well-being of military families must be a priority for the Department of Defense (DoD).

While research on the relationship between race, ethnicity, and family well-being is well developed in the civilian literature (e.g., mental and physical health: Luo and Waite, 2005; Williams et al., 1997; marital satisfaction: Dillaway and Broman, 2001; family violence: Cho, 2012; financial stress:

KEY FINDINGS

- Existing articles on service member well-being lack a focus on R/E in core research questions. Although researchers often recognize that R/E could affect the outcome of interest, the most common approach to addressing this impact is to control for the variation associated with R/E instead of specifically exploring it. This leads to fragmented development of knowledge, which makes it difficult for researchers to consolidate and use that knowledge to develop policies and programs.
- The existing body of research includes a limited variety of analytic methods. Specifically, the work does not include qualitative approaches that could tell us *why* R/E outcome differences occur. An investment in understanding the why behind R/E variation in outcomes is essential to supporting a diverse group of service members and their families and developing effective evidence-based policies and programs.
- A substantial number of articles relied on convenience samples to answer research questions. These articles lacked generalizability to broader service member and family populations and were unable to sufficiently answer questions about R/E. For research designed to address R/E well-being questions, ensuring that quantitative analyses have a broad and representative sample across R/E groups is critical.
- The existing literature on R/E and well-being lacks attention to the spouses and children of service members. Only a handful of articles included children and spouses of service members, and many of those did not separate their findings across these unique groups. This leaves the reader with no appreciation for how R/E might differentially affect children, service members, and spouses.

Al-Bahrani, Weathers, and Patel, 2019), there is a gap in our knowledge about the role of race and ethnicity (R/E) in well-being outcomes among service members and their families. Going forward, military leaders and policymakers need evidence to inform their efforts to support a diverse population of military families. This study begins to fill this gap. Our research objective was to broadly review and synthesize existing literature to better understand what researchers have found about how one specific aspect of diversity—R/E—is related to military family well-being. Specifically, we were interested in (1) whether researchers focused on R/E differences in outcomes as a driving research question (not just as a control variable); (2) the variables used to capture R/E; and (3) the quality of research in terms of design, data, and analysis.

To accomplish this goal, we conducted an environmental scan of the literature across five key components of well-being: mental health, behavioral health, family violence, marital satisfaction, and financial stress.[1] The five domains represent a diverse set of outcomes that have been examined in the peer-reviewed literature on military family well-being. Working with a librarian, we developed a search strategy to facilitate our scan. The review was limited to English-language, peer-reviewed articles and reports published between 2000 and early 2021. The search itself occurred between February and June 2021. For a full account of our review process, see Appendix A.

Summary of Findings

We identified 110 unique articles that met the inclusion criteria for our well-being outcome domains (see Appendix B for the full bibliography). We identified 75 articles that were included in the mental health domain, 54 articles that were included in the behavioral health domain, seven articles that were included in the family violence domain, four articles that were included in the marital satisfaction domain, and one article that was included in the financial stress domain.[2] The remainder of this section describes these articles' most common attributes, including designs, population, outcomes, and investigation of differences by R/E across service members and their families. Table 1 provides a summary of the most common features of these articles, although the examples are not exhaustive.

TABLE 1

Examples of Common Article Features Across Domains

Outcome Domain	Data Sources	Population and Sample	Analytic Approach	Outcomes
Mental health	• Behavioral Health Needs Assessment Survey, the Millennium Cohort Study • Data from existing articles, such as the Study to Assess Risk and Resilience in Servicemembers or Operation Worth Living • Administrative data from the Defense Medical Surveillance System • Original surveys developed by researchers	• Active duty service members from all branches and often targeted based on their base location or deployment history (where they served, their medical condition when they returned) • Air Force Medical Personnel • Children of service members	• Univariate and multivariate regression models • Descriptive statistics (chi-square test, *t*-test)	• Posttraumatic stress disorder (PTSD) symptoms or diagnoses • Depression symptoms or diagnoses • Suicidality • Anxiety symptoms or diagnoses
Behavioral health	• Claims from TRICARE • Data from the Millennium Cohort Study • Data from an outpatient traumatic brain injury (TBI) rehabilitation clinic at a military treatment facility	• Enrollees at the Tripler Army Medical Center	• Univariate and multivariate regression models • Descriptive statistics (chi-square test, *t*-test)	• Smoking • Alcohol use • Sleep
Family violence	• Original survey data • Existing articles for systematic review • TRICARE medical records • Post-Deployment Health Reassessment (PDHRA) Survey • Clinical records from the Army Central Registry	• Married service members • Civilian spouses • Children of service members • Female service members	• Univariate and multivariate regression models • Descriptive statistics (chi-square test, *t*-test)	• Spousal aggression • Social adjustment • Rape knowledge, empathy, rape myth acceptance • Types of child neglect
Marital satisfaction	• PDHRA Survey • Original survey data • The Defense Enrollment Eligibility Reporting System	• Army soldiers who were identified as married • Civilians married to Army men and women • Married couples with at least one spouse serving in the military	• Univariate and multivariate regression models • Descriptive statistics (chi-square test, *t*-test)	• Interpersonal conflict • Spousal aggression • Divorce or risk of divorce • Communication skills • Positive bonding
Financial stress	• American Community Survey	• Participants of the American Community Survey who were members of the National Guard or Reserve, active duty military personnel, or veterans	• Descriptive statistics (chi-square test, *t*-test)	• Supplemental Nutrition Assistance Program (SNAP) use

Despite not focusing on R/E in their work, researchers produced information that sheds light on the association between R/E and well-being outcomes among service members.

Data Sources

The included articles used a variety of data sources. Most commonly, articles drew from large secondary data sets familiar to the fields of military behavioral health research, such as the Millennium Cohort Article (e.g., Ursano et al., 2016), Army Study to Assess Risk and Resilience in Servicemembers (e.g., Ursano et al., 2016, 2018; Ursano, Kessler, Heeringa, et al., 2015), the American Community Survey (e.g., London and Heflin, 2015), and medical or insurance records based on TRICARE usage and diagnoses (e.g., Schmied, Highfill-McRoy, and Larson, 2012). The samples and populations from these sources were often representative of the military population (or statistical methods were used to make them representative). However, many articles also used data from convenience samples. For example, an article by Steele, Germain, and Campbell (2017) used anonymous self-report surveys collected by a U.S. Navy Mobile Care team. These convenience samples were not representative of the broader population of service members and their families.

Sample Populations

Sample populations were largely service members themselves. Six articles focused on children of service members and five articles included spouses. Articles often included individuals from a variety of R/E backgrounds. However, it was not possible to compare across articles because researchers used different levels of specificity when it came to R/E to describe their sample. For example, some researchers provided information only on the percentage of white service members in their population, considering the remaining population "other race," while other articles included a variety of categories for R/E (e.g., Gibbs, Clinton-Sherrod, and Johnson, 2012).

Analytic Approach

Most articles used regression analysis (e.g., logistic, multivariate) and descriptive statistics (e.g., chi-square tests, *t*-tests) to answer their research questions. This is consistent with researchers' focus on large secondary data sources. The one exception was systematic reviews, which used a systematized process for selecting and abstracting data from existing research (e.g., O'Keefe and Reger, 2017; Jones et al., 2020).

Measuring Race and Ethnicity

Measures of R/E lacked consistency and varied widely across articles. The least detailed definition of race was simply minority versus nonminority (or white versus non-white) while the most detailed measure included a "select all that apply" race item (e.g., Black/African American, white/Caucasian, Asian, Pacific Islander, Native American) and a separate item for Hispanic ethnicity, usually indicated by a yes or no. This more-detailed measure of race allowed authors to include multiracial and "other" as derived categories. Although rare, some articles measured only race and did not measure Hispanic ethnicity. Generally, when "Hispanic" was included in analyses, the other racial groups were defined as "non-Hispanic." That is, hierarchically, Hispanic ethnicity took precedence over all other racial categories. The most commonly used R/E measures in analyses were Black/white/Hispanic/other and Black/white/Hispanic/Asian and Pacific Islander/other. The ability to disaggregate the "other" race category was largely a function of sample size, but

in most cases, authors did not explicitly explain why they collapsed certain groups.

Outcomes

Researchers focused on a variety of outcomes within each domain; however, some outcomes were more common than others. The most common outcomes studied across domains were PTSD and suicidality, including both risk and ideation. Other outcomes included general measures of mental health (e.g., Waitzkin et al., 2018), interpersonal conflict between service members and spouses (e.g., Gibbs, Clinton-Sherrod, and Johnson, 2012), substance use (e.g., Chaudhary et al., 2019), and sleep (e.g., Hill et al., 2020). Some articles also included measures of military readiness, such as unit cohesion (Dickstein et al., 2010), resilience (Vyas et al., 2016), and retention (Taylor, Hernández, and Clinton-Sherrod, 2021).

Findings by Race and Ethnicity

To understand how this body of literature addressed R/E, we also abstracted whether articles included a specific research question about R/E. While most articles presented some findings by R/E (e.g., summary statistics for independent or control variables by R/E, dependent variables or outcomes by R/E) or model results (e.g., R/E treated as a control variable, separate models by R/E group, interaction terms using R/E), only a small number included a research question about R/E (e.g., does R/E mediate the impact of treatment on outcomes?). This distinction is important because articles that asked specific research questions about R/E were more likely to produce clear findings about the association between R/E and well-being outcomes.

As shown in Table 2, of the 75 mental health articles, ten (13 percent) included specific research questions that investigated the R/E difference in outcomes for military service members and their families. Among 54 articles in the behavioral health domain, five articles (9 percent) included R/E as part of a central research question. Of the seven articles in the family violence domain, no article included a specific research question about the role of R/E in outcomes. In the marital satisfaction domain, one article (25 percent) focused on R/E. Finally, one article in our sample examined financial stress, and R/E was not an explicit focus of this article.

Findings by Race/Ethnicity: Service Members

Despite mostly *not* focusing on R/E in their work, researchers produced information that sheds light on the association between R/E and well-being outcomes among service members. However, the findings from this work are largely inconclusive, either because the findings diverge or because there is not enough information to correctly contextualize them. Table 3 provides a summary of significant findings across domains.[3] A subsequent section summarizes key takeaways. Note that, because definitions of R/E differed among articles, we use the terminology used by the authors when describing article findings. If we refer to a finding as *by R/E*, the authors included *both*

TABLE 2

Percentage of Total Articles That Investigated R/E in Mental Health

Outcome Domain	Total Articles	Articles That Specifically Investigated R/E
Mental health	75	10
Behavioral health	54	5
Family violence	7	0
Marital satisfaction	4	1
Financial stress	1	0

TABLE 3

Findings by Race and Ethnicity Among Service Members, by Domain and Outcome

Outcome	Findings
Mental health	
PTSD, depression, anxiety	• Black study participants were more likely to meet the diagnostic criteria for major depressive disorder and PTSD than white individuals, Hispanic individuals, and individuals of other races. Hispanic participants had higher odds of meeting the criteria for generalized anxiety disorder (Taylor et al., 2014). • White service members were associated with less posttraumatic growth (Mitchell et al., 2013). • Nonwhite service members reported higher anxiety than white service members (Muse, Lamson, and Cobb, 2019). • A study found higher rates of PTSD among Black service members compared with white service members (Taylor et al., 2014). • Studies found lower rates of PTSD among Black service members compared with white service members (Mustillo et al., 2015; Mayo et al., 2013) and non-white service members compared to white service members (Levin-Rector et al., 2018). • After controlling for deployment group, researchers found that medics who did not identify as Black or white were significantly more likely to screen for depression (Chapman et al., 2014). • Six articles in a meta-analysis reported significant positive associations between minority ethnic status and posttraumatic growth (Mark et al., 2018). • Odds of PTSD for Black male service members were higher than white male service members after controlling for combat, demographic characteristics, branch, and months deployed (Mustillo and Kysar-Moon, 2017). • Black women were not at uniquely higher risk of PTSD than white women, but women were at a higher risk than men when they experienced combat (Mustillo and Kysar-Moon, 2017). • Race was not found to have a significant correlation with PTSD checklist scores (using a cutoff of a score of 30) and did not differentiate between the two groups (Steele, Germain, and Campbell, 2017). • Compared with non-Hispanic white parents, parents from "other" races (i.e., American Indian/Alaska Native, Asian, Native Hawaiian/other Pacific Islander, and other races) were significantly more likely to be depressed (Nicosia et al., 2017). • When broken down by gender and civilian versus military, "other" race military parents, and especially military mothers, were more likely than their white counterparts to report depression (Nicosia et al., 2017). • Black service members had significantly lower odds of use of purchased care for anxiety disorder, suicide ideation, and bipolar disorder compared with white service members (Wooten et al., 2018).
TBI	• Compared with white service members, Black service members were found to have lower odds of screening positive for TBI (Kysar-Moon and Mustillo, 2019). • The odds of having a TBI in the deployed setting were significantly higher among non-Hispanic white than among non-Hispanic Black service members (Regasa, Agimi, and Stout, 2019). • Compared with those who retired after a TBI, those who returned to duty were more likely to be Black (Schneider et al., 2021). • Researchers found no statistically significant differences in race or ethnicity between the concussion and nonconcussion group (Giza et al., 2021).
Suicide	• White race was significantly associated with suicidal ideation (Ursano et al., 2020). • White race was significantly associated with increased suicide risk (Schoenbaum et al., 2014). • Non-Hispanic Black new soldiers had significantly lower odds of preenlistment suicide ideation, plans, and attempts than those who were non-Hispanic white (Ursano, Heeringa, et al., 2015). • Among never-deployed soldiers, Black, Hispanic, and Asian service members had significantly lower odds of suicide attempts than white soldiers did (Ursano et al., 2016). • Black and Asian previously deployed soldiers had significantly lower odds of suicide attempts than white soldiers did (Ursano et al., 2016). • Among deployed soldiers, Black, Hispanic, and Asian soldiers had significantly higher odds of suicide attempts compared with white soldiers (Ursano et al., 2016). • Soldiers who identified as having other R/E had significantly higher odds of suicide ideation and plans than non-Hispanic white soldiers did (Ursano, Heeringa, et al., 2015). • Soldiers of other R/E had statistically significantly lower odds for suicide attempts compared with white, non-Hispanic solders (Ursano et al., 2018). • Officers of other race had significantly higher odds of suicide attempts than white officers did (Ursano, Kessler, Stein, et al., 2015). • There was no significant relationship between a suicidal ideation measure and race (Bush et al., 2011).

Table 3—Continued

Outcome	Findings
	• There was an increased risk of all suicide outcomes among those who were non-Hispanic white compared with other R/E groups (Ursano, Kessler, Heeringa, et al., 2015). • Roger et al. (2015) reported higher rates of suicide among Native Americans compared with other R/E groups (O'Keefe and Reger, 2017). • Schoenbaum et al. (2014) found that the highest suicide death rate was among Native American active duty soldiers who served between 2004 and 2009 (O'Keefe and Reger, 2017). • In a sample of service members and veterans enrolled in undergraduate classes, Bryan and Bryan (2014) found that Native Americans were most likely to report engaging in lifetime nonsuicidal self-injury than any other races (O'Keefe and Reger, 2017). • African Americans were at lower risk for suicide than Caucasians were (Black, Gallaway, and Bell, 2011).
Behavioral health	
Sleep	• Hispanic or Latino service members were more likely than all other races to report sufficient sleep (Hill et al., 2020).
Substance use	• Minorities had significantly lower odds of chronic opioid use compared with white service members (Nelson et al., 2018). • Being Hispanic and of other race were both associated with significantly lower levels of nicotine dependence compared with white service members (Brown et al., 2018). • Compared with white service members, Black service members had more than twice the odds of being treated for nondependent cocaine abuse but reduced odds of being treated for alcohol use disorder, tobacco use disorder, opioid/combination opioid dependence, and nondependent mixed/unspecified drug abuse (Wooten et al., 2018). • Hispanic and other race service members also had lower odds of purchased care for tobacco use disorder than white service members did (Wooten et al., 2018). • Service members who identified as other race had lower odds of treatment for nondependent mixed/unspecified drug abuse compared with white service members (Wooten et al., 2018). • Hispanic service members had lower odds of receiving treatment for substance use disorder compared with white service members (Wooten et al., 2018). • Service members of Black, Hispanic, and other race were associated with increased odds of prescription pain reliever misuse compared with white service members (Jeffery et al., 2013). • Caucasian and Hispanic/other R/E were independently associated with at-risk drinking, after adjusting for covariates (Byrne et al., 2019). • AUDIT (Alcohol Use Disorders Identification Test) scores were significantly higher among white, non-Hispanic service members (Jeffery and Mattiko, 2016). • Soldiers who reported drinking for pleasure-seeking or enjoyment reasons were more likely to be non-Hispanic white (Jeffery and Mattiko, 2016). • Being of American Indian or Alaskan native race was observed to be negatively associated with prolonged opioid use (Anderson, Grazal, et al., 2020). • In univariate analyses, Black, non-Hispanic race was a statistically significant predictor of early attrition because of drug use (White et al., 2016). • In multivariate analyses, other race was negatively associated with early attrition because of drug use (White et al., 2016). • Compared with non-Hispanic white service members, non-Hispanic African American service members, Hispanic service members, and service members who identify as other race were statistically significantly less likely to be former smokers (compared with being a never smoker) (Ulanday et al., 2017). • Black or Asian/Pacific Islander service members were associated with higher odds of a positive drug test in active duty members relative to white service members (Larson et al., 2016). • Among active duty members, those with other/unknown race had significantly lower odds of a positive drug test compared with white service members (Larson et al., 2016). • Asian/Pacific Islander members in the reserves were associated with lower odds of a positive drug test relative to white members in the reserves (Larson et al., 2016). • Black, Hispanic, and other race service members were all significantly associated with less intense smoking (light versus moderate and heavy) compared with white service members (Brown et al., 2018). • Hispanic and other race service members were both associated with significantly lower levels of nicotine dependence compared with white service members (Brown et al., 2018). • Over time, airmen of racial minorities decreased their use of hookah/pipe and cigars/little cigars/cigarillos faster than white airmen did but increased their use of e-cigarettes faster than white airmen did (Little et al., 2021). • White airmen were more likely to report regular use of tobacco than their nonwhite peers (Little et al., 2021).

Table 3—Continued

Outcome	Findings
Family violence and marital satisfaction	
Interpersonal conflict	• Black and Hispanic soldiers were more likely to report interpersonal conflict concerns than white soldiers were (Gibbs, Clinton-Sherrod, and Johnson, 2012). • Minority couples who participated in a couple relationship education program were far less likely to divorce than minority couples who did not participate, even though minority status did not moderate the impact of the intervention on communication skills, marital satisfaction, bonding, or divorce risk (Stanley et al., 2014). • White women, relative to nonwhite women, exhibited significantly higher levels of rape knowledge and rape survivor empathy and lower levels of rape myth acceptance (Rau et al., 2011).
Financial stress	
Financial security	• High rates of SNAP use were found among Black service members, Native American service members, persons reporting other race, and persons reporting multiple races (London and Heflin, 2015). • Persons of Hispanic ethnicity had higher rates of SNAP use than did non-Hispanic persons, in all military service statuses (London and Heflin, 2015). • Minority R/E groups in the sample had higher odds of SNAP use compared with white service members (London and Heflin, 2015). • Among active duty service members, only Black service members had higher odds of SNAP use compared with white service members (London and Heflin, 2015).
Other outcomes across domains	
Discrimination	• R/E minorities reported more sex-based discrimination, poorer social support, and poorer physical health than white persons (Foynes, Smith, and Shipherd, 2015). • Sex or R/E did not moderate associations between sex-based and race-based discrimination (Foynes, Smith, and Shipherd, 2015). • There were no significant effects of sex or R/E on physical health after accounting for baseline levels of physical health, self-esteem, mental health, and social support taken at the beginning of the study (Foynes, Smith, and Shipherd, 2015). • Race-based discrimination was found to be a significant predictor of physical health: Higher levels of race-based discrimination predicted lower physical health functioning (Foynes, Smith, and Shipherd, 2015). • Race-based discrimination was a significant predictor of self-esteem (greater race-based discrimination equated to lower self-esteem) (Foynes, Smith, and Shipherd, 2015).
Military outcomes	• Nonwhite service members in the Navy reported greater intentions to continue in their Navy career (Taylor, Hernández, and Clinton-Sherrod, 2021). • Black/African American race was a significant predictor of resilience (Lutz et al., 2017). • In a sample of help-seeking members, white service members had significantly higher scores on the Response to Stressful Experiences Scale (RSES) (a measure of resilience) than non-white service members (Vyas et al., 2016). • Hispanic service members reported lower military stress compared with white service members (Kim et al., 2017). • Black U.S. Marines were more likely than their white peers to not be recommended for reenlistment (Schmied, Highfill-McRoy, and Larson, 2012). • Unit cohesion did not differ by race (Dickstein et al., 2010).
General well-being and help seeking	• Asian/Pacific Islander service members were more likely to report postdeployment wellness than Hispanic and other race service members were (Bagnell et al., 2013). • Having no perceived need for treatment was significantly less likely for Hispanic soldiers than Non-Hispanic white soldiers (Naifeh et al., 2016). • Attitudinal barriers to help seeking were more likely to be reported by Hispanic soldiers relative to non-Hispanic white soldiers (Naifeh et al., 2016). • Asian/Pacific Islander service members had one-third the risk of hospitalization compared with American Indians (Freeman and Woodruff, 2011). • Race was not significantly associated with health-promoting behaviors (Padden, Connors, and Agazio, 2011). • Compared with the high health literacy group, the low health literacy group contained significantly more R/E minorities (Hahn et al., 2020).

Table 3—Continued

Outcome	Findings
Other	• Black service members were more likely to be optimistic than were white (but not Asian) service members. This might translate into lower risk of hypertension (Kubzansky et al., 2020). • Black enlisted men were more likely to marry earlier than similar Black civilians (Karney, Loughran, and Pollard, 2012). • Hispanic enlisted men were more likely to be married than Black enlisted men, though at older ages; Hispanic enlisted men were less likely to be married than Black enlisted men (Karney, Loughran, and Pollard, 2012). • Nonwhite service members and their civilian counterparts had larger differences in marriage rates than white service members and their civilian counterparts. This was especially true among the enlisted men (Karney, Loughran, and Pollard, 2012). • African American participants were more likely than other participants to report a history of "childhood physical and sexual abuse," whereas white participants were more likely to report "childhood physical abuse only" than the rest of the participants (Seifert, Polusny, and Murdoch, 2011). • Service members who were non-Hispanic Black and Hispanic had the highest risk for both the overweight and obesity categories compared with people who belonged to "non-white other" races (Reyes-Guzman et al., 2015). • Race was significantly associated with thwarted belongingness (Khazem et al., 2015). • The Adult ADHD (attention deficit hyperactivity disorder) Self-Report Scale scores were higher among participants who identified themselves as non-Hispanic Caucasian (Hanson et al., 2012). • Hyperactivity/impulsivity scores were higher among participants who identified themselves as non-Hispanic Caucasian (Hanson et al., 2012).

race and ethnicity in the analysis. However, some authors looked only at race, whereas others separated the analysis by ethnicity; our summary of the findings reflects these choices.

Mental and Behavioral Health

Across mental and behavioral health–focused articles, the most commonly reported outcomes were PTSD, anxiety, depression, TBI, suicide, and substance use. Articles on PTSD focused on the prevalence of PTSD or the relationship between PTSD and other outcomes and reported findings by R/E. However, the findings from these articles often contradict each other. For example, some articles' prevalence estimates indicated a higher rate of PTSD among Black participants (Hourani et al., 2016; Mustillo and Kysar-Moon, 2017; Taylor et al., 2014), whereas others found that the annual incidence rates of PTSD were lower in participants who identified as Black (Cameron, Sturdivant, and Baker, 2019; Levin-Rector et al., 2018; Mayo et al., 2013; Mustillo et al., 2015). Another six articles found no difference between individuals from different racial groups (Aronson et al., 2018; Bush et al., 2011; Dickstein et al., 2010; Koenig et al., 2018; Nash et al., 2019; Stanley et al., 2019).

Anxiety, depression, and TBI articles also found significant differences across R/E groups. Individuals from non-white R/E groups appear to be more at risk for anxiety and depression but at lower risk for TBI. For example, one article found that non-white service members reported higher anxiety levels than white service members (Muse, Lamson, and Cobb, 2019), and another found Hispanic participants had higher odds of meeting the criteria for generalized anxiety disorder than white participants (Taylor et al., 2014). One of these articles also found that Black participants were more likely to meet diagnostic criteria for major depressive disorder than white and Hispanics participants (Taylor et al., 2014). Looking at TBI, researchers found that, compared with white service members, Black service members had lower odds of screening positive for TBI (Kysar-Moon and Mustillo, 2019). Another article found that the odds of having a TBI in a deployed setting were significantly higher among non-Hispanic white service members than among non-Hispanic Black service members (Regasa, Agimi, and Stout, 2019).

Several papers in the mental and behavioral health domains focused on outcomes related to suicide. Like the findings in mental health–focused articles on PTSD, the findings by R/E were decid-

edly mixed. Several articles found that white race was significantly associated with increased suicide risk or attempts (Bachynski et al., 2012; Schoenbaum et al., 2014; Ursano, Heeringa, et al., 2015; Ursano, Kessler, Stein, et al., 2015; Ursano et al., 2016; Ursano et al., 2018), whereas other findings indicated that non-white service members, once deployed, had a higher risk of suicide attempts (Ursano et al., 2016). Another article found no difference in suicide attempts among active duty service members (LeardMann et al., 2021).

Another outcome that demonstrated significant differences across R/E groups was substance use. Again, the findings were mixed. Whereas some articles reported that minority service members were more likely to have higher rates of substance use than white service members (e.g., more likely to be treated for cocaine abuse; Wooten et al., 2018), the majority of articles found the opposite. For example, in one article, African American service members were significantly less likely to be at-risk drinkers than Caucasian race or Hispanic/other service members (Byrne et al., 2019). Another found that people identified as minorities in the population had significantly lower odds of chronic opioid use compared with those identified as white (Nelson et al., 2018). Yet another article found that Hispanic ethnicity and selecting other race were both associated with significantly lower levels of nicotine dependence compared with white service members (Brown et al., 2018).

Family Violence

Of the articles that studied family violence, six reported differences in outcomes by R/E. The article findings suggest that white children might be at higher risk of maltreatment among military families (Cozza et al., 2015; Strane et al., 2017; Trautmann, Alhusen, and Gross, 2015). However, because no articles investigated how R/E might interact with the risk of maltreatment, further investigation is needed to clarify the meaning of this finding. These results are discussed further in the Findings by R/E: Spouses and Family Members section.

Marital Satisfaction

Researchers found significant R/E differences in interpersonal conflict and the effect of a relationship education program. One article found that Black and Hispanic soldiers were more likely than white soldiers to report interpersonal conflict concerns (Gibbs, Clinton-Sherrod, and Johnson, 2012). Another article found that an intervention designed to improve relationships was more effective for non-white couples than white couples (Stanley et al., 2014).

Financial Stress

In the one article focusing on financial stress, R/E was not an explicit focus (London and Heflin, 2015). However, the authors did include race as a control variable and reported findings by race. The article found significant differences in the perception of military members' use of SNAP across race groups; Black and Native American participants and individuals reporting other or multiple races were more likely to use SNAP.

Military Outcomes

A few articles provided information on R/E variation in constructs related to military readiness by R/E. These outcomes do not fit neatly into any of the five outcome domains. However, as in those domains, it is difficult to draw any clear conclusions from the work because some of the findings are contradictory. For instance, one article found Black/African American race to be a significant predictor of resilience (Lutz et al., 2017), whereas another found that, among a sample of help-seeking service members, white service members had significantly higher scores on the RSES than non-white service members, suggesting that white service members have higher rates of resilience (Vyas et al., 2016). One article found that R/E did not have a significant association with unit cohesion (Dickstein et al., 2010). Another article found that non-white service members in the Navy reported greater intentions to continue in their Navy career (Taylor, Hernández, and Clinton-Sherrod, 2021). Black Marines were also found to be more likely than their white peers to be not recommended for reenlistment (Schmied, Highfill-McRoy, and Larson, 2012). Finally, one

article looked at military stress and found that Hispanic service members reported less military stress than their white peers (Kim et al., 2017).

Findings by R/E: Spouses and Family Members

Very few articles focused on outcomes of family members of service members by R/E; however, those that did typically focused on the children of service members. Only one article reported outcomes by R/E for spouses, and its outcomes applied to the couple (not just the service member). However, articles did produce findings for children across R/E groups. We outline these findings in Table 4.

TABLE 4
Findings by Race and Ethnicity Across Articles Focused on Family Member Outcomes

Outcome	Findings
Mental and behavioral health	
PTSD, depression, and anxiety	• Race was not a significant predictor of current or historical depression or anxiety among college students with military parents (Johnson, Vidal, and Lilly, 2018). • Compared with non-Hispanic white adolescents, non-Hispanic Black adolescents had significantly lower odds of increased fear or anxiety (Nicosia et al., 2017). • Following a parent's deployment, non-white youth had lower odds of increased fear and anxiety than white youth (Nicosia et al., 2017).
Social and behavioral outcomes	• Race was not significantly associated with health-promoting behaviors among service members' spouses (Padden, Connors, and Agazio, 2011).
Family violence	
Abuse	• In a systematic review of articles on the impact of a parents' deployment on young children, articles consistently found higher rates of maltreatment among non-Hispanic white families during deployment (Trautmann, Alhusen, and Gross, 2015). • The child's *sponsor's race* (i.e., the soldier's race) was significantly associated with the odds of maltreatment; Hispanic and other races were associated with lower odds compared with the odds for white race (Strane et al., 2017). • The majority of the children represented in each type of neglect were white males younger than 12 years of age (Cozza et al., 2015). • Compared with their peers, soldiers whose children had a maltreatment episode were more likely to be white or Black and less likely to be Hispanic or other race (Strane et al., 2017).
Family cohesion	• Non-white youth were more likely to report negative outcomes due to deployment, such as lower levels of "being responsible" and "closeness to family members," than white youth (Nicosia et al., 2017). • Compared with white non-Hispanic people, people of other races (including American Indian/Alaska Native, Asian, and Native Hawaiian/other Pacific Islander) were more likely to report a decrease in closeness to family members during deployment (Nicosia et al., 2017).
Other	
Academic achievement	• Minority race/ethnicity was correlated with low academic achievement and poor mental health outcomes among children of service members (Lucier-Greer et al., 2014).
Other	• Articles on behavioral health interventions for military-connected youth inconsistently reported sociodemographic characteristics, including race, in evaluation results (Moore et al., 2017).

Mental and Behavioral Health

Articles found differences across R/E groups in rates of depression, anxiety, and other mental and behavioral health outcomes among children of service members. However, the findings were once again mixed. One article found that race and Hispanic/Latino ethnicity were not significant predictors of current or historical depression or anxiety among college students with military parents (Johnson, Vidal, and Lilly, 2018), whereas another found that, compared with non-Hispanic white adolescents, non-Hispanic Black adolescents had significantly lower odds of increased fear or anxiety (Nicosia et al., 2017). Finally, one article found that non-white youth whose parent deployed had lower odds of increased fear and anxiety than white youth did (Nicosia et al., 2017).

Family Violence

Several articles found differences in maltreatment by R/E. In general, these articles found that white children of service members were at higher risk of neglect and maltreatment than non-white children of service members. In one systematic review, articles found higher rates of maltreatment among non-Hispanic white families during deployment (Trautmann, Alhusen, and Gross, 2015). Another article found that the race of a child's sponsor (i.e., the parent or guardian affiliated with the military) was significantly associated with odds of maltreatment; Hispanic ethnicity and other races were associated with lower odds compared with white race (Strane et al., 2017). Similarly, an article found that the majority of the children represented in each type of neglect were white males younger than 12 years of age (Cozza et al., 2015). However, one article found that the risk was higher for Black children: Compared with their peers, soldiers whose children had a maltreatment episode were also more likely to be white or Black and less likely to be Hispanic or other (Strane et al., 2017).

Looking more generally at social cohesion within a family, one article found that non-white youth whose parent deployed had higher odds of a decrease in "being responsible" and "closeness to family members" than white youth (Nicosia et al., 2017). The same article found that, compared with white non-Hispanic youth, other races (including American Indian/Alaska Native, Asian, and Native Hawaiian/other Pacific Islander) were more likely to report a decrease in closeness to family members during deployment (Nicosia et al., 2017).

Other

Two other articles found differences by R/E for children of service members. One found that minority R/E was correlated with low academic achievement and poor mental health outcomes among children of service members (Lucier-Greer et al., 2014). A systematic review found that articles that focused on behavioral health interventions for military-connected youth inconsistently reported sociodemographic characteristics, including race, in evaluation results, thus undermining the ability of researchers to draw firm conclusions (Moore et al., 2017).

Conclusion

After looking across five domains of well-being, we found significant gaps in existing research on the relationship between the R/E of service members and their families and well-being outcomes. First, existing articles lack a focus on R/E in terms of their core research questions. Although researchers often recognize that R/E could affect the outcome of interest, the most common approach we observed was to control for the variation associated with R/E instead of specifically exploring it. This approach leads to a fragmented development of knowledge, which makes it difficult for researchers to consolidate and use that knowledge to develop policies and programs. Another product of this approach is a lack of subgroup analyses or interaction terms, which could help researchers understand the factors driving variation in outcomes in specific R/E groups. Lack of consistency in how R/E are measured also makes it difficult to merge the articles we found into a coherent set of findings.

Second, the existing body of research includes a limited variety of analytic methods. Specifically, this work does not include qualitative approaches to data

collection, which could better elucidate the relationship between R/E and outcomes. Scholars who examine how R/E shape the lives of individuals stress the importance of qualitative research for understanding the nuanced mechanisms through which R/E mediate experiences (see Garcia, López, and Vélez, 2018; López et al., 2018; Parker, Deyhle, and Villenas, 2019). While secondary and survey data can tell us *whether* there are differences in outcomes by R/E, qualitative data (e.g., interviews and focus groups) can help us better understand *why* these differences occur. Some articles did build on existing theoretical work on the pathways through which R/E can affect outcomes, but this type of theory-building work remains limited in the military context. An investment in understanding the *why* behind variation in outcomes by R/E is essential to supporting a diverse group of service members and their families.

Third, a substantial number of articles relied on convenience samples to answer research questions. Thus, findings from these articles cannot be easily generalized to broader service member and family populations. The benefit of large data sets is that researchers can be more confident that their findings will be more broadly applicable to their population of interest (e.g., service members, spouses of service members, or children of service members). Large data sets can also support subgroups analyses with enough power to detect differences in variables across R/E groups. For research designed to address R/E well-being questions, ensuring quantitative analyses have a broad and representative sample across R/E groups will be critical.

Finally, we found that the existing literature on R/E and well-being lacks attention to the spouses and children of service members. A small number of articles investigated outcomes of children or spouses of service members. However, most of those articles did not separate children's outcomes by R/E or spouses' outcomes by R/E. This leaves the reader with no appreciation for how R/E might be related to outcomes of spouses and children of service members.

DoD has expressed commitment to improving diversity and inclusion in the military. If leaders seek to do this based on existing evidence, they will find that information about how R/E intersect with the well-being of service members and their families is extremely limited. We recommend that DoD consider developing a deliberate, strategic, and comprehensive research agenda on R/E diversity in service member and family well-being outcomes. This will help DoD identify where differences exist and where policies and programs can address those gaps. To that end, answering the following questions should be a top priority under this broader initiative:

- Do service members and their family members with different R/E backgrounds experience different risks for mental and behavioral health outcomes? If so, why?
- Are there R/E differences in the impact of service members' military careers (e.g., PCS [permanent change of station] moves, deployment) on family members' well-being? If so, why?
- Do military families of different R/E backgrounds need different programs and services? Are there existing programs that could be adapted to fit any unmet needs?

Future work should use as detailed a measure of R/E as possible. Detailed measures, which cover a broad variety of races and ethnicities, can always be aggregated at the time of analysis, if necessary. In addition, race and ethnicity should be measured as two distinct constructs, as recommended by the U.S. Office of Management and Budget (1997). And, to the extent possible, the research world should consider using a consistent measurement of R/E. Doing so will ensure that, going forward, the results of different studies can be compared with one another, and researchers can more carefully investigate subgroups of racial and ethnic communities. Investment in this line of research will strengthen DoD's ability to support a diverse force—including both service members and their families—and ultimately improve military readiness.

APPENDIX A

Methods

Environmental Scan

Using the subject-matter expertise of the research team, we searched for five domains of service member and family outcomes: mental health, behav-

ioral health, family violence, marital satisfaction, and financial stress. The five domains capture a diverse set of outcomes that have been examined in the peer-reviewed literature on military family well-being. Working with a librarian, we developed a literature review process. The review was limited to English-language, peer-reviewed articles and reports published between 2000 and early 2021 to narrow our focus to research published since September 11, 2001. The search itself occurred between February and June 2021.

Databases

We searched seven databases and indexes (see Table A.1).

Search Terms

The review used three sets of search terms (see Tables A.2 and A.3):

- military terms designed to capture articles that use service member and military family samples
- R/E terms designed to capture articles that specifically address racial and ethnic differences in outcomes
- a unique set of search terms associated with each of the five outcome domains.

The military and outcome search terms were limited to titles and abstracts. The R/E term set included title, abstract, and *free text* (i.e., terms anywhere in the record, including the subject heading, periodical title, author-supplied keywords, and keywords). The terms were entered simultaneously (i.e., military terms + race/ethnicity terms + outcome terms) within each database. Some editing of search terms was required given limitations within some of the databases and indexes.

Review Process

Title and Abstract Review

The titles and abstracts were reviewed using data collected in EndNote and exported into Excel with a column for the following details: exclusion reason, year, author, title, journal, abstract, keywords, book title, DOI (digital object identifier), reference type, type of work, search strategy, and database. Two research team members screened the titles and abstracts of articles identified through the environmental scan for inclusion. If any questions arose about inclusion, the team would meet to discuss and decide. Any duplicates (i.e., articles that were identified in multiple databases or indexes) were removed at this stage. Included articles focused on U.S. active duty service members and/or their families and included quantitative or qualitative approaches, literature reviews, meta-analyses, or mixed methods. Six exclusion criteria were used:

- Study population included *only* veterans and families (mixed samples of active duty and veterans were included).
- Study population included *only* U.S. National Guard or Reserve members and families (mixed samples of Guard/Reserve and active duty were included).
- Study population was non–U.S. military.
- Study population was otherwise not relevant (e.g., college student athletes).
- Topic of article was not related to domain (e.g., marine biology and brain biochemistry).
- Article was not peer reviewed (e.g., conference proceedings, introductions to a special journal issue, and commentary).

Inconsistencies between the two screeners were also addressed at this stage.

Limitations

Although we conducted an environmental scan of the literature, it is possible that we did not capture some relevant research because of the use of specific databases or search terms. And although we developed and used inclusion and exclusion criteria, decisions about whether to include or exclude articles, and how to characterize them, were based on researchers' judgments; therefore, a different set of individuals might have made different decisions.

TABLE A.1

Databases and Indexes Used in the Environmental Scan

Health Sciences	Government and Military	Indexes
• American Psychological Association PsycINFO (EBSCO) • CINAHL Plus (EBSCO) • PubMed (National Library of Medicine)	• Military Database (ProQuest) • Military & Government Collection (EBSCO)	• Scopus (Elsevier) • Web of Science (Clarivate)

TABLE A.2

Military and R/E Search Terms Used in the Environmental Scan

Military Search Terms	R/E Search Terms
military OR "military famil*" OR "military spouse*" OR "military parent*" OR "military child*" OR "military personnel" OR "military dependent*" OR "military wife" OR "military wives" OR "military husband*" OR "active duty" OR soldier* OR "service member*" OR servicemember* OR servicemen OR "service men" OR servicewomen OR "service women" OR troops OR "armed service*" OR "armed force*" OR DoD OR "Department of Defense" OR Army OR Navy OR Marine* OR "Air Force" OR "Coast Guard" OR "Space Force"	((race OR racial OR ethnic* OR racism OR Black* OR "African American*" OR "Afro American*" OR Latino* OR Latina* OR Latinx OR Hispanic* OR "Spanish American*" OR Cuban* OR "Puerto Rican*" OR Mexican* OR Chicana* OR Chicano* OR Asian* OR "Native American*" OR Indigenous OR "Pacific Islander*") AND (outcome* OR "health disparit*" OR "healthcare disparit*" OR "health care disparit*" OR "racial disparit*" OR "medical disparit*" OR "health outcome*" OR equity OR inequity))

Full-Text Review

Once the title and abstract review was complete, full text for the screened articles was reviewed for final inclusion in the study. Again, we used an Excel spreadsheet with the same information listed for title and abstract review and the addition of a folder of PDF files for each article's full text. Two researchers reviewed the full text. Questions about inclusion were discussed with the whole team. Exclusion criteria for the full-text review stage overlapped somewhat with those from the title and abstract review stage:

- Study population included *only* veterans and families (mixed samples were included).
- Study population included *only* National Guard or Reserve members and families (mixed samples were included).
- Study population was non–U.S. military.
- Topic of article was not related to domain.
- Article was not peer reviewed.

Two new exclusion criteria were included at this stage of the review:

- R/E were not addressed in the article.
- R/E were addressed (e.g., as a control variable in a regression analysis), but no specific findings based on race and ethnic status were included in the article.

Abstraction

All articles identified in this stage were abstracted into an Excel file with the following areas as columns: Author, Year, Title, Limitations, Data Source, Analysis Method(s), Population and Sample, Sample Size (by R/E), Key Outcome(s), Is R/E an explicit focus? (e.g., a research question), Key Outcome: A, Key Outcome: B, Key Outcome: C, Key Outcome: D, Key Outcome: E, and Key Outcome: F. Additional fields were used if there were more than six key outcomes. Four researchers did the first round of abstraction, followed by a quality check by two senior researchers on the team to identify any missing information or incorrect entries.

Figures A.1 through A.5 show the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowcharts for each of the five outcome domains. In total, 110 unique articles were included in our analysis.

TABLE A.3

Domain-Specific Outcome Search Terms Used in the Environmental Scan

Mental Health
"mental health" OR wellbeing OR "well-being" OR "mental status" OR "mental state" OR "social health" OR "self-care" OR PTSD OR "post-traumatic stress disorder" OR "posttraumatic stress" OR "post traumatic stress" OR anxiety OR depression OR "depressive disorder*"
Behavioral Health
"behavioral health" OR "health care psychology" OR "psychological health" OR "medical psychology" OR "behavioral psychology" OR "health psychology" OR psychosomatic OR "alcohol abuse" OR "alcohol use" OR "tobacco use" OR "tobacco abuse" OR "substance abuse" OR "substance use" OR "alcohol misuse" OR "tobacco misuse" OR "substance misuse" OR alcoholic OR drunk OR addict* OR alcohol* OR tobacco OR "excessive drinking" OR "excessive alcohol consumption" OR "drug use" OR "drug abuse" OR "drug misuse" OR "illicit drug*" OR cigar* OR "cigar* use" OR "cigar* abuse" OR "cigar* addict*" OR "cigar* smok*" OR marijuana OR "marijuana use" OR "marijuana abuse" OR "marijuana addict*" OR "marijuana smok*" OR opioid* OR "opioid* use" OR "opioid* abuse" OR "opioid* addict*" OR suicid* OR "self-harm" OR "self-injur*" OR "brain injur*" OR "traumatic brain injur*" OR "TBI" OR "mTBI" OR "blast injur*" OR "bomb blast injur*" OR concuss* OR "post concuss*" OR "post concuss* syndrome" OR "combat blast injur*"
Financial Stress
"financial well-being" OR "financial wellbeing" OR "financial planning" OR "financial strain*" OR "financial stress*" OR "financial problem*" OR "financial instabilit*" OR "family plan*" OR "families plan*" OR "family's plan*" OR finance* OR money OR income OR salary OR employment OR "personal debt*" OR "economic securit*" OR "economic insecurit*" OR "economic disadvantage*" OR "economic advantage*" OR "spous* education" OR "spous* employment" OR "spous* unemployment" OR "spous* underemployment" OR "SECO program" OR "MSEP program" OR "Supplemental Nutrition Assistance Program" OR "SNAP program" OR "Temporary Assistance for Needy Families" OR "TANF program" OR "Women Infants and Children" OR "WIC program" OR "food stamps" OR "food assistance" OR "food insecurit*" OR "food assistance program*" OR "food pant*"
Marital Satisfaction
((famil* OR marital OR marriage OR partner OR spous* OR relationship) AND (adjustment* OR conflict* OR counsel* OR function* OR happiness OR quality OR relation* OR satisfaction OR separat* OR status OR therapy OR terminat*)) OR divorc* OR "interpersonal relationship" OR monogamy OR "marriage attitudes" OR "Prevention and Relationship Enhancement Program" OR "P.R.E.P." OR "Strong Bonds" OR "Strong Bonds program"
Family Violence
((adolescen* OR child* OR domestic OR elder* OR famil* OR "military member" OR "military personnel" OR partner OR servicemember OR "service-member" OR spouse) AND (abandon* OR abus* OR injur* OR intimidat* OR neglect* OR violen* OR welfare)) OR assault* OR coerced OR coercion OR consent OR nonconsenting OR "non-consenting" OR nonconsensual OR "non-consensual" OR "physical injur*" OR "psychological abus*" OR rape* OR stalking OR "verbal* abus*" OR violen* OR "sexual abus*" OR "sexual aggression" OR "sexually aggressive" OR "sexually abusive" OR "sexual violence" OR "sexual harassment" OR "sex* offen*"

FIGURE A.1

PRISMA Flowchart: Mental Health Articles

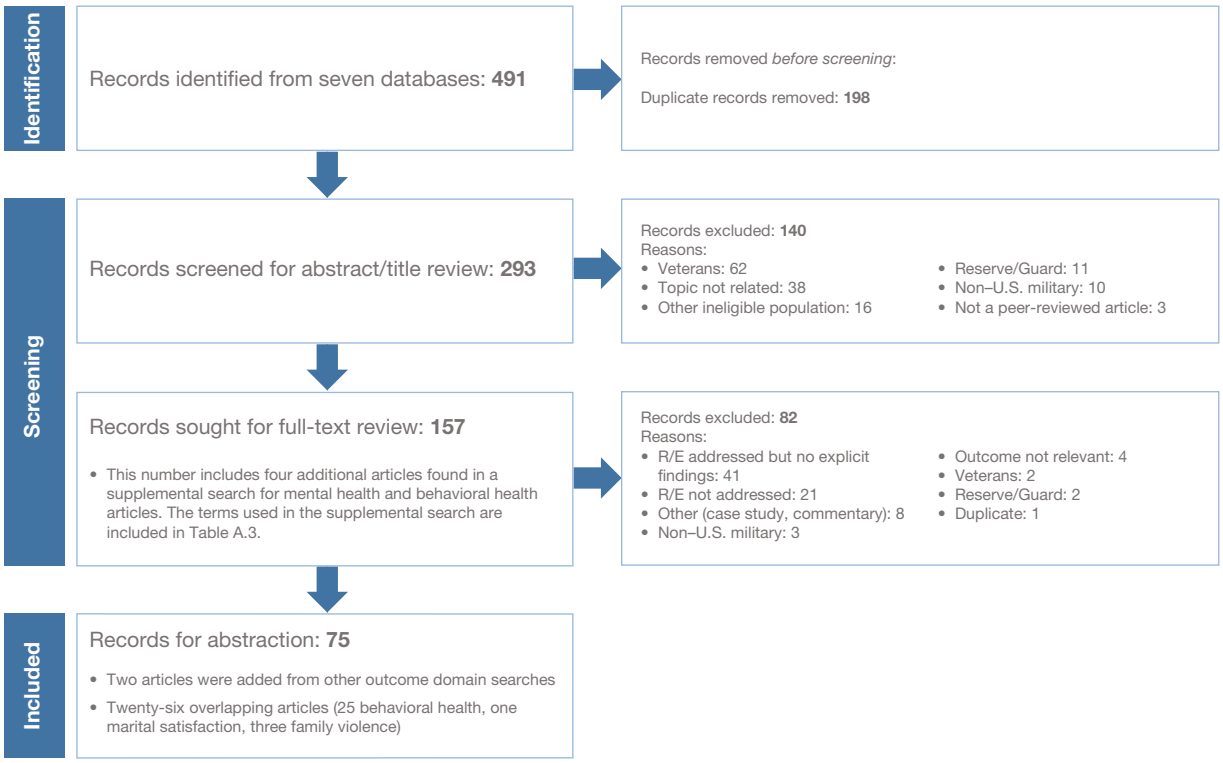


FIGURE A.2

PRISMA Flowchart: Behavioral Health Articles

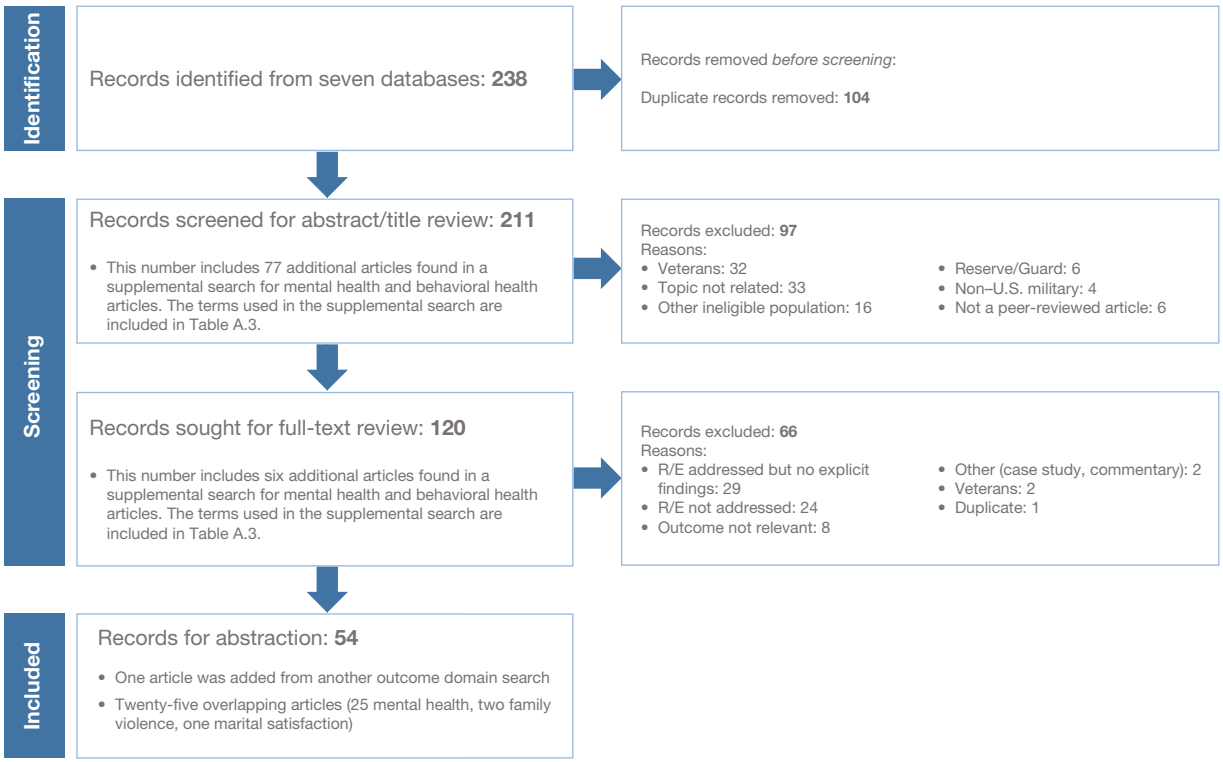


FIGURE A.3

PRISMA Flowchart: Family Violence Articles

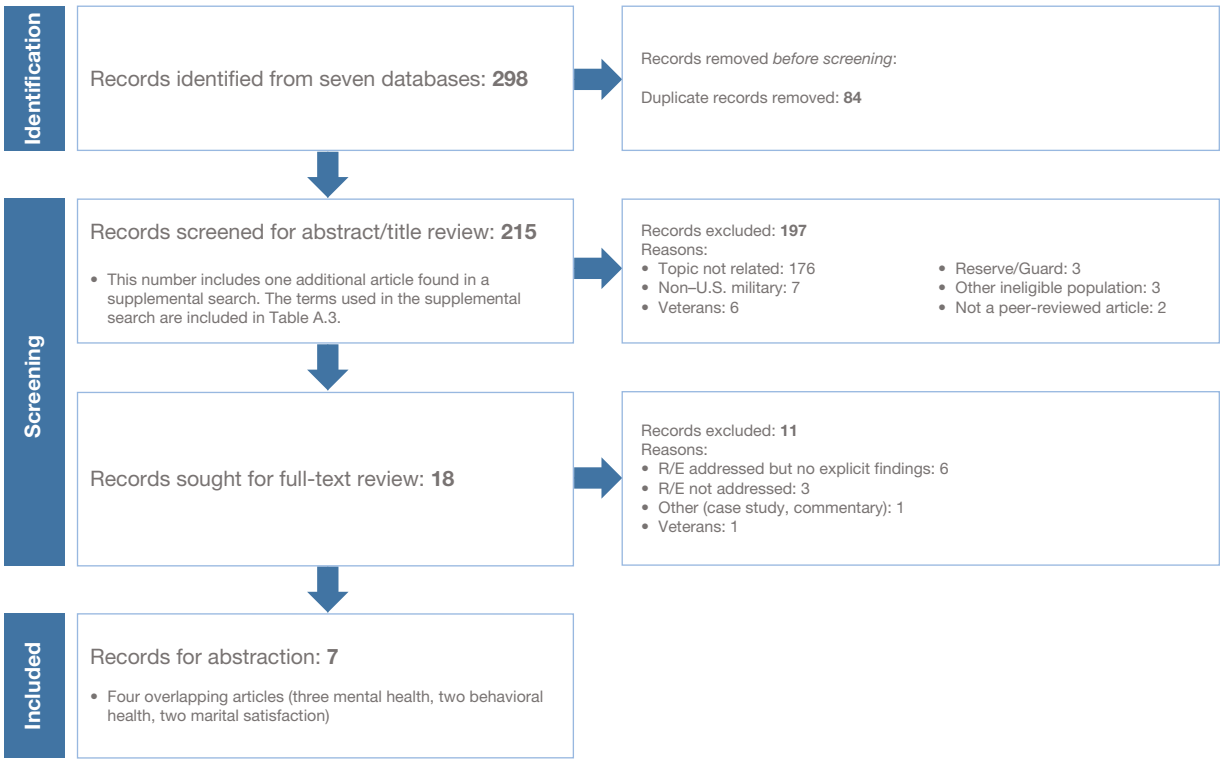


FIGURE A.4

PRISMA Flowchart: Marital Satisfaction Articles

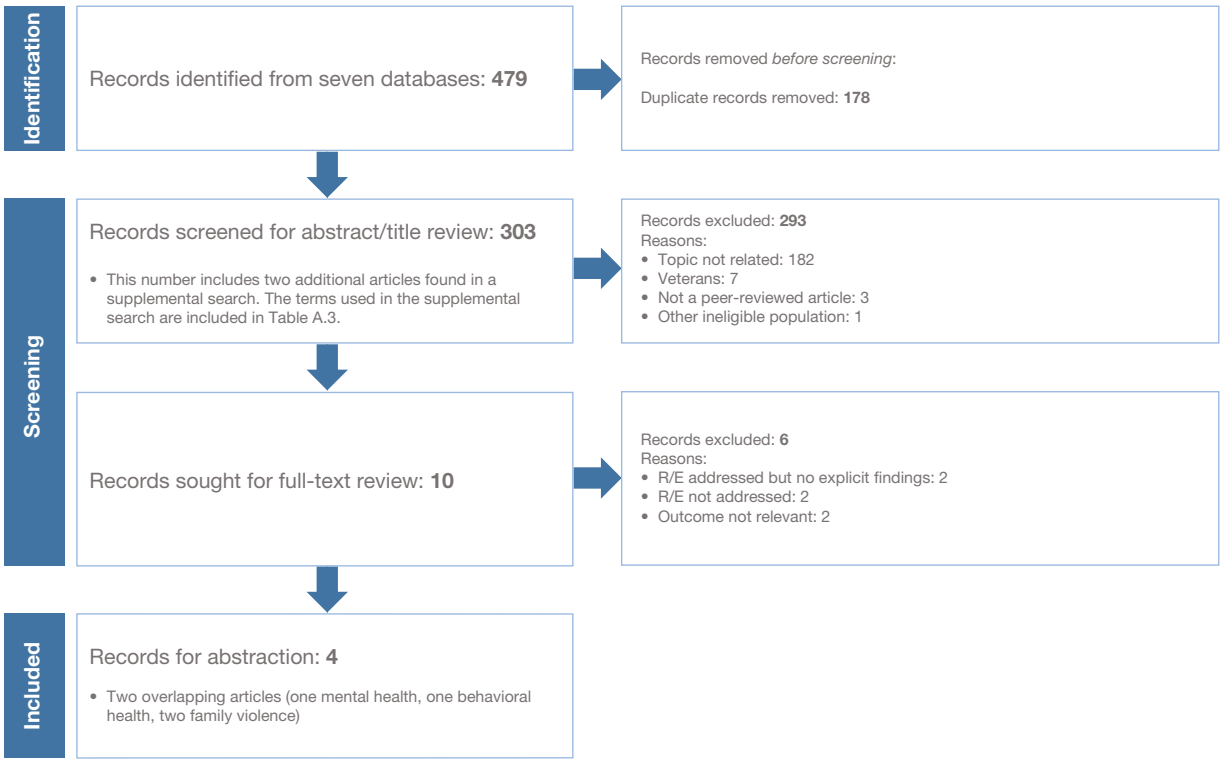
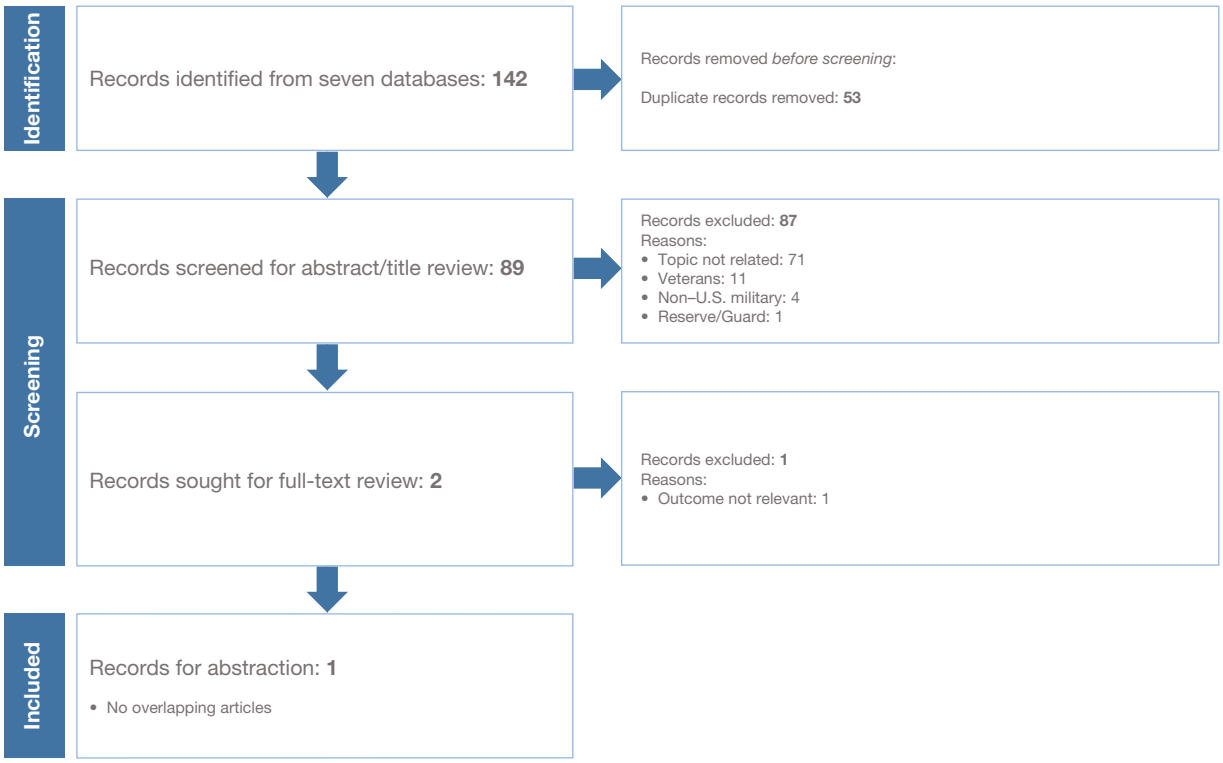


FIGURE A.5

PRISMA Flowchart: Financial Stress Articles



APPENDIX B

Domain Bibliographies

Appendix B presents a full bibliography of the 110 articles that met inclusion criteria, grouped by the five outcome domains: mental health, behavioral health, family violence, marital satisfaction, and financial stress.

[a] Article co-listed in the mental health domain.

[b] Article co-listed in the behavioral health domain.

[c] Article co-listed in the family violence domain.

[d] Article co-listed in the marital satisfaction domain.

Mental Health

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Bagnell, Melissa E., Cynthia A. LeardMann, Hope S. McMaster, Edward J. Boyko, Besa Smith, Nisara S. Granado, and Tyler C. Smith, "The Association of Predeployment and Deployment-Related Factors on Dimensions of Postdeployment Wellness in U.S. Military Service Members," *American Journal of Health Promotion*, Vol. 28, No. 2, November/December 2013, pp. e56–e66.

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Boehler, Jason, "The Efficacy of Cognitive Processing Therapy for PTSD Related to Military Sexual Trauma in Veterans: A Review," *Journal of Evidence-Based Social Work*, Vol. 16, No. 6, November 2019, pp. 595–614.

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[b] Chaudhary, Muhammad Ali, Nizar Bhulani, Elzerie C. de Jager, Stuart Lipsitz, Nicollette K. Kwon, Daniel J. Sturgeon, Quoc-Dien Trinh, Tracey Koehlmoos, Adil H. Haider, and Andrew J. Schoenfeld, "Development and Validation of a Bedside Risk Assessment for Sustained Prescription Opioid Use After Surgery," *JAMA Network Open*, Vol. 2, No. 7, July 2019, pp. e196673.

Cobb, Adam R., Robert A. Josephs, Cynthia L. Lancaster, Han-Joo Lee, and Michael J. Telch, "Cortisol, Testosterone, and Prospective Risk for War-Zone Stress-Evoked Depression," *Military Medicine*, Vol. 183, No. 11/12, November 2018, pp. e535–e545.

Colpe, Lisa J., James A. Naifeh, Pablo A. Aliaga, Nancy A. Sampson, Steven G. Heeringa, Murray B. Stein, Robert J. Ursano, Carol S. Fullerton, Matthew K. Nock, Michael L. Schoenbaum, Alan M. Zaslavsky, and Ronald C. Kessler, "Mental Health Treatment Among Soldiers with Current Mental Disorders in the Army Study to Assess Risk and Resilience in Service Members (Army STARRS)," *Military Medicine*, Vol. 180, No. 10, October 2015, pp. 1041–1051.

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Notes

[1] An environmental scan is a research technique used to identify the existing landscape of a problem or issue; the results of the scan can then be used to guide future research efforts, develop evidence-based policy, or create new programs or services (see Graham, Evitts, and Thomas-MacLean, 2008).

[2] Several of these articles were included in more than one of the outcome domains; thus, the sum of the number of articles for each domain is higher than the total number of articles included in this review. In the mental health domain, 26 articles were co-listed with other outcome domains (behavioral health: 25; family violence: 3; marital satisfaction: 1). In the behavioral health domain, 25 articles were co-listed with other outcome domains (mental health: 25; family violence: 2; marital satisfaction: 1). In the family violence domain, four articles were co-listed with other outcome domains (mental health: 3; behavioral health: 2; marital satisfaction: 2). In the marital satisfaction domain, two articles were co-listed with other outcome domains (mental health: 1; behavioral health: 1; family violence: 2). No articles were co-listed in the financial stress domain.

[3] Findings presented here should be considered a summary of the findings presented in the article. For instance, if an article

Abbreviations

DoD	Department of Defense
PDHRA	Post-Deployment Health Reassessment
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PTSD	posttraumatic stress disorder
R/E	race and ethnicity
RSES	Response to Stressful Experiences Scale
SNAP	Supplemental Nutrition Assistance Program
TBI	traumatic brain injury

reported seven significant correlations between R/E and risk factors for PTSD, we would report that R/E was associated only with risk factors of PTSD. We also report all results by racial group, which can lead to some mirroring results (e.g., one finding for Black service members and one for white service members that are two sides of the same coin). Finally, we list all significant results here but do not discuss all results in the text because some were outside our specific well-being areas of interest (e.g., marriage rates of service members by race). However, the results are summarized in the report for completeness.

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About This Report

Despite a large and growing body of research on military family health and well-being, there is a dearth of research on the diversity of military families and how this diversity is associated with health and well-being. The authors of this report aimed to complete an environmental scan of the existing literature to better understand how one specific aspect of diversity—race and ethnicity—is related to military family health and well-being across outcomes in five key domains: mental health, behavioral health, financial stress, marital satisfaction, and family violence. Results highlight areas where more investigation might be needed to identify, understand, and address inequalities among military families.

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