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An Examination of Racial, Ethnic, and Gender Disparities in DON's Personnel Security Program

Celia C. Lo David Ciani Emily Mappin Peraton

Rene Dickerhoof Defense Personnel and Security Research Center Office of People Analytics



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ABSTRACT: The Department of Navy (DON) would like to know if inequities in security clearance outcomes exist for protected classes. If they do, these inequities could affect DON's ability to recruit and retain a diverse workforce. In this report, we examine racial, ethnic, and gender disparities in security outcomes to ensure that DON's Personnel Security Program is operating as intended—without disparate impact on racial/ethnic minorities and women. We focus on five personnel security outcomes: receipt of a statement of reasons (indicating intent to deny or revoke clearance), an eligibility determination (favorable, neutral, or unfavorable determination), a local access suspension, a security incident report, or any of these negative actions. We did not detect any conclusive racial, ethnic, or gender differences in personnel security outcomes using demographic and proxy ethnicity (e.g., birth country region) predictors. We posit that the lack of identifiable relationships could be due to highly standardized vetting processes, which are predominantly blind and always subject to significant legal review. We recommend additional analyses examining this research question (a) in the DoDwide personnel security population and (b) across more nuanced vetting outcomes. This deeper-dive research should consider whether protected classes are more prone to certain adjudicative issues (e.g., criminal disqualifications reflecting criminal justice system bias) or whether their cases take longer to complete. These issues remain problematic for personnel even when outcomes such as final eligibility determinations are ultimately favorable.

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Preface

The Defense Personnel and Security Research Center's (PERSEREC's) mission is to improve the efficiency, effectiveness, and fairness of Federal government and DoD-specific personnel security, suitability, and reliability programs. This research effort honors the latter of these three goals by examining whether marginalized classes are unduly impacted by the personnel security clearance process. Internal analyses of this nature are essential to provide assurances that our vetting programs are operating without disparate impacts on any vulnerable populations and to allow us to address and correct such disparities if they are identified.

Eric L. Lang
Director, PERSEREC

Executive Summary

PERSEREC evaluated racial, ethnic, and gender disparities in Department of Navy's (DON's) Personnel Security Program (PSP) to ensure the clearance process is fair and does not unduly impact these protected classes. The personnel security outcomes under examination include receipt of a statement of reasons (SOR; supporting intent to deny or revoke clearance), an eligibility determination (e.g., favorable, neutral, unfavorable determination), a local access suspension, a security incident report, or any of these negative actions. SORs and eligibility determinations are overseen by the centralized Defense Counterintelligence Security Agency-Consolidated Adjudication Services (DCSA-CAS) process, whereas local access suspensions and security incident reports are handled at the DON level.

Method

To examine racial, ethnic, and gender disparities in personnel security outcomes, we operationally defined several predictor variables: (a) race/ethnicity (non-Hispanic Black, non-Hispanic Asian and Pacific Islander, non-Hispanic American Indian/Alaskan Native, non-Hispanic Multiracial, Hispanic of any Race, non-Hispanic White); (b) gender (female, male); (c) birth country region (Africa, Asia, Europe, Latin America and the Caribbean, North America); (d) high-risk terrorism country of origin (high-risk vs. non-high-risk); (e) Muslim-majority country of origin (majority vs. not); and (f) U.S. citizen at birth (U.S. citizen at birth, not U.S. citizen at birth).

In our Phase 1 analysis, we identified 976,858 personnel (n = 412,422 Active Duty; n = 138,930 Reservists; n = 249,361 civilians, and n = 176,145 contractors) enrolled in DON'S PSP during CY17—CY19. This is a population-level dataset we employed to ensure identification of all possible negative personnel security outcomes, which are rare events. In our Phase 2 analysis, we used a Service-member-specific subpopulation (n = all 551,352 active duty and reservists) for which additional birth country and U.S. citizen at birth data were available. Both Phase 1 and 2 data represent a snapshot in time of the applicable DON populations on whole. We applied crosstabs and multivariate regression analyses to these population-level datasets to examine whether racial, ethnic, and gender disparities exist across the five personnel security outcomes of interest.

Results

Using crosstabs and regression, we found no conclusive evidence of racial, ethnic, or gender disparities in personnel security outcomes across the DON populations. We found this to be the case in both the Phase 1 and Phase 2 data analyses.

- All race/ethnicity groups were equally likely to experience each personnel security outcome.
- Females and males were equally likely to experience each personnel security outcome.
- Gender did not play a role in the relationships between race/ethnicity and each personnel security outcome.
 - In just one instance, Non-Hispanic American Indian/Alaskan Native *females* were more likely than non-Hispanic White *females* to experience any negative security outcome. The finding did not apply to males.

 Service members from different birth country regions, high-risk vs. non-high risk terrorism countries, Muslim majority vs. non-Muslim majority countries, and U.S. citizens at birth vs. non-U.S. citizens at birth were equally likely to experience each personnel security outcome.

Discussion

Given our study findings, we conclude that DON's PSP may be sufficiently standardized, blinded, and legally defensible to discourage against racial, ethnic, and gender disparities. For example, investigation and adjudication processes include legal sufficiency requirements for eligibility determinations. Additionally, neither race nor ethnicity are directly identified anywhere in the PSP data. Indeed, the personnel security interview is the only procedure where personnel security specialists (investigators) come into direct contact with subjects. Although it is encouraging to see that we did not find disparities in the current effort, we also conclude that more research is needed to support our nascent findings. For example, we need to examine whether these equities persist when other services and organizational populations are considered. We also need to examine more nuanced aspects of the PSP where inequities could be generated, even when outcomes such as eligibility determinations are ultimately favorable. These nuanced aspects of the PSP include important procedural- and issue-based data such as investigation/adjudication timeliness and the types of adjudicative concerns that personnel may experience.

Recommendations

We make one targeted recommendation for a next-step DoD-level analysis. This recommendation is to conduct

 a new study capable of answering the research question, "Do the current DON population findings extend to the DoD national security population at large?"

We also recommend that DON and/or DoD undertake additional research intended to answer the following types of questions:

- Do racial, ethnic, and gender disparities exist in the timeliness of the investigation and adjudication process? Between T3 (secret) and T5 (top secret) investigations? In the appeals process and the decisions yielded from it?
- Are racial, ethnic, and gender disparities observable in particular adjudicative guidelines applied to SORs, eligibility determinations, and security incident reports?

Answering questions of this nature will further ensure PSP fairness and equity regarding race, ethnicity, and gender.

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Introduction

The Office of the Deputy Under Secretary of the Navy for Intelligence and Security requested that PERSEREC examine racial, ethnic, and gender disparities in its national security population. These potential disparities cover statements of reasons, eligibility determinations (e.g., denials, revocations), local access suspensions, and security incident reports—all outcomes that can negatively impact career trajectories to include one's ability to perform immediate job duties. To the best of the current authors' knowledge, this is the first study to empirically examine potential racial, ethnic, and gender inequities in the personnel security process of any Federal government or DoD-specific vetting program. This type of analysis helps DON identify such issues to correct them when necessary. Ensuring fairness and equity in the personnel security process allows DON to recruit and retain a highly skilled and diverse military, civilian, and contract workforce.

Background

DON's desire to evaluate potential inequities among marginalized classes is supported by DoD's directives to "obtain and analyze additional data" to address diversity, equity, and inclusion issues (DoD, 2020). DoD Issuance 1020.05, published in September 2020, comprises policy to promote a diverse DoD workforce and inclusive culture and calls for developing empirical data to evaluate DoD's Diversity and Inclusion efforts. Likewise, Executive Order 14035 (2021), *Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce*, affirms the White House's intent to advance diversity, equity, civil rights, racial justice, and equal opportunity for Federal employees. To improve organizational diversity, equity and inclusion, DON also established Task Force One Navy Charter on July 1, 2020 (Phillips & Holsey, 2020). Furthermore, DoD Service departments have begun to employ data-driven research to examine these equity and justice disparities in their processes and policies.

Racial and Gender (In)Equality in the Navy

Today's military is more diverse than ever (Office of Under Secretary of Defense, 2019); however recent data continues to suggest that race, ethnicity, and gender play a role in the opportunities available to military Service members (Bear et al., 2017; Horvat et al., 2022). According to the 2019 Population Representation in the Military Services report (Office of Under Secretary of Defense, 2019), today's enlisted ranks are racially and ethnically diverse; however, this level of diversity does not hold among officer populations. Additionally, this report offers evidence that females remain underrepresented in the nation's military.

Recent Navy research has identified racial/ethnic and gender disparities in multiple domains (Horvat et al., 2022; Government Accountability Office, 2020; Golan et al., 2021). In the military, so-called common goods¹ include, but are not limited to, (a) admission into the enlisted ranks, (b) promotion rates, (c) administration of military justice, (d) risk of death in combat, and (e) care for wounded veterans (Burk & Espinoza, 2012). Horvat et al. (2022) examined Navy junior officers' (JO) promotion rates and fitness report ratings for Aviation and Surface Warfare JOs commissioned since 1993. They attributed White JOs' higher likelihood of promotion—compared to counterparts of Asian/Pacific

¹ Common goods refer to goods that are shared and beneficial to most of the community members.

Islander, Black, or "other" ethnicity—to the latter group's less favorable fitness reports. Indeed, Horvat and colleagues found no systematic bias between fitness outcomes and ultimate selection for promotion, underscoring that identifiable racial inequity could be directly attributable to these written fitness reports.

In 2020, the United States House of Representatives acknowledged the presence of racial disparities at multiple stages of the military's judicial process (Government Accountability Office, 2020). During FY13–FY17, Black and Hispanic sailors and Marines were more likely than White sailors and Marines to have been involved in a recorded investigation or a court martial (whether general or special) and more likely to be disciplined for violating the Uniform Code of Military Justice.

Golan et al. (2021), in their research among all enlisted sailors with pay grade E3–E7, from January 1997 to May 2008, confirmed lower promotion rates among women and racial/ethnic minorities, especially during wartime. The racial/ethnic and gender disparities were in large part attributable to comparatively negative subjective evaluations given to minority personnel in contrast to White males (Golan et al., 2021).

Finally, research evidence suggests immigrants (naturalized citizens or noncitizens) perform equally well or better in the military than their native-born citizen counterparts (Strader et al., 2021). According to Strader et al., among Army enlisted personnel in 2002–2009, rates of termination due to poor performance were higher among native-born citizens than among immigrants. Those not holding U.S. citizenship earned promotions at higher rates than their counterparts who were native-born citizens. To date, there appears to be no similar analysis of a birthplace-promotion link among individuals serving in the Navy.

Current Study

The purpose of the current study is to determine whether racial, ethnic, and gender disparities exist in DON's PSP and the DoD's personnel security eligibility determinations made on DON personnel. We conducted two distinct analyses (Phase 1 and Phase 2) to examine the role that race, ethnicity, and gender play on our selected personnel security outcomes of interest.

In the Phase 1 analysis, we included all CY17–CY19 DON personnel (Service members, civilians, and contractors) and matched race, ethnicity, and gender variables to five personnel security outcomes: (a) receipt of a SOR, (b) receipt of an eligibility determination, (c) receipt of an access suspension, (d) receipt of a security incident report, and (e) receipt of any negative personnel security outcome. In this analysis, we examined whether (a) race/ethnicity was related to each personnel security outcome, (b) whether gender was related to each personnel security outcome, and (c) whether any relationship between race/ethnicity and one of the personnel security outcomes differed by gender.

In the Phase 2 analysis, we narrowed the population to include only CY17–CY19 DON Service members and matched proxy ethnicity factors to our five personnel security outcomes. These proxy ethnicity factors included birth-country origin and U.S. citizen at birth. We assessed the relationship between these proxy factors and each personnel security outcome in DON's Service member population.

This research is important because (a) this is the first known systematic research study to examine potential racial, ethnic, and gender disparities in Federal government PSP data; (b) this work helps ensure a fair and effective PSP supporting equity and protection of marginalized classes; and (c) this work demonstrates that continuous monitoring of PSP internal operational metrics might be an effective first step to enhance public trust and confidence in the department's vetting process.

Method

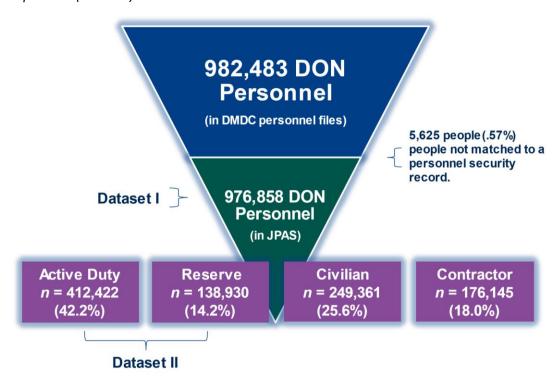
In this section, we first identify the specific populations for our Phase 1 and Phase 2 analyses. We then describe our data sources and variables used for each analysis, as well as our analytic strategy and planning.

Population

The Phase 1 analysis includes all DON personnel on record in official DoD files during CY17–CY19. This data included 982,483 members of the Navy and Marine Corps, as well as civilians and contractors affiliated with DON. We were able to match all but 0.57% of this population (5,625 individuals)² to a DoD personnel security record resulting in an analytic dataset of 976,858 DON persons. Of this population, 412,422 were active-duty Service members (42.2%); 138,930 were reservists (14.2%); 249,361 were civilians (25.6%); and 176,145 were contractors (18%). The Phase 2 analysis was limited to active-duty Service members and reservists due to data availability issues; this analysis covered all 551,352 active duty and reserve personnel previously noted. Figure 1 shows the final DON population for data analyses.

Figure 1

DON Population (CY17-19)



Phase 1 and 2 data analyses represent a snapshot in time of personnel at various stages in their career, to include a variety of years in service. Given this, opportunities to experience each

² Further analysis showed that the 5,625 cases are more likely to be classified in an unknown category of race, as a non-Hispanic, as a contractor, and to be older (mean age 44 vs. 35).

personnel security outcome were not equivalent within persons (e.g., some personnel were not under adjudication during this timeframe and could not experience a SOR or an eligibility determination). This issue made it necessary to derive an occurrence rate for each personnel security outcome and to identify three distinct subpopulations (*Ns*) for each analysis. That is, we limited our Phase 1 analysis to 420,600 personnel who were in a position to receive SORs and eligibility determinations, 688,399 personnel who were in a position to experience security incident reports and access suspensions, and 819,157 personnel who were in a position to experience any of these outcomes during the 3-year period. We limited our Phase 2 analysis to 237,315 Service members able to experience access suspensions and security incident reports, and 462,522 Service members able to experience any of these outcomes.

Data Sources

We used two DoD data sources to address our study's research questions. First, we identified the entire CY17–CY19 DON population using the Defense Manpower Data Center's (DMDC's) Defense Enrollment Eligibility Reporting System point-in-time extract. For our Phase 1 analysis, these files provided race, ethnicity, gender, age, and personnel type. For our Phase 2 analysis, these files additionally provided Service members' birth country of origin and U.S. citizen at birth. Second, we linked the DMDC demographic and personnel characteristics to our personnel security outcomes of interest using the Joint Personnel Adjudication System (JPAS).³ We based our matching process between these two data repositories on the use of social security numbers.

Predictor Variables

We included gender, race/ethnicity, age in 2017, and personnel type as predictor variables in our Phase 1 analysis. We measured gender dichotomously, indicating male and female. We categorized race and ethnicity by combining these variables into six groupings: (a) Hispanic of any race, (b) non-Hispanic Black, (c) non-Hispanic Asian or Pacific Islander, (d) non-Hispanic American Indian or Alaskan Native, (e) non-Hispanic multiracial, and (f) non-Hispanic White. Age in 2017 was a continuous variable indicating how old each member of the population was on the day after their birthday in that year. Finally, we used four categories to denote personnel type: (a) active-duty Service member, (b) reservist, (c) civilian employee, (d) and contractor.⁴

We included birth country and U.S. citizen at birth in our Phase 2 analysis. To examine birth country, we created four categorical predictor variables from the original DMDC data: (a) birth-country region (Africa, Asia, Europe, Latin America and the Caribbean, and North America); (b) high-risk terrorism country of origin (high vs. low risk); (c) Muslim-majority country of origin (Muslim-majority

³ As of 2020, the Defense Information System for Security is the system of record for all such data. Since we were analyzing events occurring in CY17–CY19; however, we sourced data from JPAS rather than the Defense Information System for Security for this effort.

⁴ Categories as determined and provided by DMDC, which used each person's most current personnel category "open" for each person to classify people with multiple personnel categories.

country vs. non-Muslim-majority country)⁵, and (d) U.S. citizen at birth (U.S. citizen at birth vs. non-U.S. citizen at birth [naturalized citizen, derived citizen, not U.S. citizen]).

Outcome Variables

We included five personnel security outcomes that can negatively impact personnel in both our Phase 1 and 2 analyses:

- We based two personnel security outcomes on the formalized adjudication process:
 - issuance of a SOR from DCSA CAS (Y/N)
 - a final eligibility determination from DCSA CAS (Favorable⁶, Neutral⁷, or Unfavorable⁸ [unfavorable meaning eligibility was denied or revoked]).
- We based two personnel security outcomes on actions taken in the DON field:
 - an access suspension (Y/N)
 - a security incident report (Y/N)
- The final outcome represented the experience of any of the above negative outcomes (SOR, unfavorable eligibility determination, access suspension, or security incident report).

Data Analysis Strategies

We produced descriptive statistics for our predictor variables (e.g., race, gender) and our outcome variables (i.e., our personnel security outcomes). We did this to better understand and familiarize ourselves with these data. Our analyses incorporated approaches such as descriptive summaries in crosstabs (with chi-square statistic for statistical significance and Cramer's V for association measure), logistic regression, and multinomial logistic regression (to include odds ratios). We used crosstabs to examine the relationships between race/ethnicity and each of the outcomes and between gender and each of the outcomes. For each gender, we then used logistic regression to evaluate the four dichotomous outcome variables (i.e., receipt of a SOR, access suspension, security incident report, any negative outcome), and multinomial logistic regression to evaluate the experience of an eligibility determination. Multinomial logistic regression was applied to this outcome because it possesses three categories (i.e., favorable, neural, unfavorable). We handled missing cases by using case wise deletion. We chose this deletion approach because we lacked justification for substituting or imputing values into substantive variables, such as gender,

⁵ We consulted the 2018 Office of the Director National Intelligence World Wide Threat Assessment (Coats, 2018) report to categorize countries' terrorism risk. We consulted the webpages of the World Population Review to categorize those countries having Muslim-majority populations (World Population Review, 2022).

⁶ The following eligibilities in JPAS were coded as a "Favorable" determination: Secret, Sensitive Compartmented Information (SCI)-Director of Central Intelligence Directive 6/4, Favorable, Interim Secret, Interim Top Secret, Interim SCI, Position of Trust, Limited Access Authorization Secret, and Confidential.

⁷ The following eligibilities in JPAS were coded as a "Neutral" determination: Loss of Jurisdiction, No Determination Made, Eligibility Administratively Withdrawn, Eligibility Pending, Interim Declination, Ineligible for SCI, and Action Pending.

⁸ The following eligibilities in JPAS were coded as an "Unfavorable" determination: Revoked and Denied.

⁹ Case wise deletion means the removal from the analysis of the data for any participant for whom there is no measure for one or more of the variables of interest.

race/ethnicity, and age.¹⁰ While our two-phase analytic strategy already featured very large populations, we did perform power analysis¹¹ to ensure the ability to detect effects.

¹⁰ As contractors were more likely than other personnel groups to be associated with missing data in the race/ethnicity variable, we ran the same analyses conducted for the whole DON population among the Service member only sample. The results, which do not appear in this report, concur with the results found among the whole DON population during FY17-19.

¹¹ We conducted power analysis to determine how large our subgroup populations would need to be to detect effects of interest, whether we tracked the effect via bivariate statistical relationships or multivariate statistical relationships. Our power analysis showed that we would need 385 to 1,835 participants for the correct observation of relationships between race/ethnicity and each personnel security outcome in bivariate relationships using crosstabs, as well as relationships between gender and each outcome, taking the same analytic approach. A recent publication also recommended a minimum sample of 600 participants for multivariate logistic regression akin to the analyses we propose here (Bujang et al., 2018).

Results

Our two-phase analysis examines whether racial, ethnic, and gender disparities exist in DON's PSP using CY17–CY19 data. The Phase 1 analysis includes all personnel (active duty, reservists, civilians, and contractors); the Phase 2 analysis includes only Service members. Across both phases, we focus on personnel security outcomes, including SORs, eligibility determinations, access suspensions, security incident reports, and any of these negative outcomes.

Phase 1 Analysis

The 976,858 persons included in our Phase 1 population represented all DON-affiliated personnel during CY17–CY19 whom we could match with requisite personnel security data. This population is predominantly male, non-Hispanic White, and under age 40. Table 1 presents the frequency distributions for our variables describing gender, race/ethnicity, age, and personnel type. Our final analyses excluded all other and unknown data.

Table 1 *Predictor Descriptive Statistics*

| Characteristic | N = 976 ,858 | % |
|--|--------------|------|
| Gender | | |
| Male | 743,571 | 76.1 |
| Female | 233,278 | 23.9 |
| Unknown/Other | 9 | 0.0 |
| Race | | |
| American Indian or Alaskan Native | 15,815 | 1.6 |
| Asian or Pacific Islander | 70,413 | 7.2 |
| Black | 140,289 | 14.4 |
| Multiracial | 53,454 | 5.5 |
| Other | 5,923 | 0.6 |
| Unknown | 110,135 | 11.3 |
| White | 580,829 | 59.4 |
| Ethnicity | | |
| Hispanic | 99,482 | 10.0 |
| Non-Hispanic | 877,376 | 90.0 |
| Race/Ethnicity Group | | |
| Hispanic of any Race | 99,482 | 10.2 |
| Non-Hispanic American Indian or Alaskan Native | 12,020 | 1.2 |
| Non-Hispanic Asian or Pacific Islander | 67,095 | 6.9 |
| Non-Hispanic Black | 130,923 | 13.4 |
| Non-Hispanic Multiracial | 44,200 | 4.5 |
| Non-Hispanic White | 512,454 | 52.5 |
| Other & Unknown | 110,684 | 11.3 |
| Personnel Category | | |
| Active Duty | 412,422 | 42.0 |
| Reserve | 138,930 | 14.0 |
| DoD Civil Service | 249,361 | 26.0 |
| DoD Contractor | 176,145 | 18.0 |
| Age | | |
| <20 | 25,872 | 2.7 |
| 20-29 | 336,435 | 34.4 |
| 30-39 | 260,283 | 26.6 |
| 40-49 | 151,295 | 15.5 |
| 50-59 | 127,424 | 13.0 |
| 60-69 | 65,533 | 6.7 |
| 70+ | 9,987 | 1.0 |
| Unknown | 29 | 0.1 |

As explained in the Method section, the Phase 1 analysis determined (a) how many members of the population experienced each personnel security outcome and (b) how many were ultimately able to experience each outcome during the 3-year study window. Table 2 shows descriptive statistics for all five personnel security outcomes, rendering each as a proportion of the total number of possible cases.

Table 2 *Personnel Security Outcome Descriptive Statistics*

| | Under Adjudication Duri Timeframe | | In Access Du Timefram | | Under Adjudication and/or In Access During Timeframe | | | |
|----------------------------------|--------------------------------------|------|--------------------------|-----|--|-----|--|--|
| Personnel Security Outcomes | N = 420,600 | % | N = 688,399 | % | N = 819,157 | % | | |
| Statement of Reasons (SOR) | 5,825 | 1.4 | | | | | | |
| Eligibility Determination | | | | | | | | |
| Favorable | 393,271 | 93.5 | | | | | | |
| Neutral | 25,077 | 6.0 | | | | | | |
| Unfavorable | 2,252 | 0.5 | | | | | | |
| Access Suspension | | | 4,219 | 0.6 | | | | |
| Security Incident Report | | | 17,613 | 2.6 | | | | |
| Any Negative Outcome | | | | | 24,122 | 2.9 | | |

Table 3 provides crosstabs from our pairings of race/ethnicity to personnel security outcomes. In our crosstabulation tables, we display cases and percentages only for DON personnel with a documented SOR, access suspension, security incident report, or any negative outcome. Our team used three categories: (a) favorable, (b) unfavorable, and (c) neutral, to evaluate eligibility determination. We present the cases and percentages for all three in the table. All other outcomes were dichotomous 'Y/N' in nature. The tabular chi-squares and significance levels provide the basis for determining whether statistical relationships do or do not exist with confidence (at least 95% confidence; p-value < .05). Cramer's V, in turn, indicates the effect sizes (degree of association) for the identified relationships.

As an example, the first row of Table 3 concerns the SOR outcome across racial/ethnic groups. This row shows, as a percentage, the number of DON personnel who experienced a SOR within each racial/ethnic category. For example, 753 (1.3%) non-Hispanic Black personnel received a SOR, as did 363 (1.3%) non-Hispanic Asian/Pacific islander personnel. We note that, across racial/ethnic groups, the percentage of SORs remains similar. Likewise, the chi-square and associated p-values indicate no significant relationship between race/ethnicity and receipt of a SOR. Furthermore, the Cramer's V effect size statistic is extremely small. Indeed, as is the case for the SOR outcome, no significant relationships were found between race/ethnicity and any of the examined personnel security outcomes (i.e., eligibility determination, access suspension, security incident report, or any negative outcome).¹²

¹² The totals appearing in Tables 3–9 should differ from the total number of cases for each negative outcome in Table 2 because we excluded all missing cases during the final data analyses.

 Table 3

 Relationships Between Race/Ethnicity and Each Personnel Security Outcome

| Outcome | Non-Hi Bla | • | Non-Hi Asian oi Islar | Pacific | Non-Hi America or Ala Nat | n Indian askan | Non-Hi Multii | • | Hispanio Ra | • | Non-His Whi | • | Ove | rall | N | X² | p- value | Cramer's V |
|------------------------------------|---------------|------|-----------------------------|---------|------------------------------------|-------------------|------------------|------|----------------|------|----------------|------|---------|------|---------|------|-------------|---------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | _ | | | |
| Had Adjudication N = | 56,177 | | 28,799 | | 5,288 | | 18,861 | | 42,858 | | 220,898 | | 372,881 | | | | | |
| SOR | 753 | 1.3 | 363 | 1.3 | 83 | 1.6 | 255 | 1.4 | 589 | 1.4 | 3,113 | 1.4 | 5,156 | 1.4 | 372,881 | 6.54 | 0.3 | 0.004 |
| Eligibility Determination | | | | | | | | | | | | | | | 372,881 | 3.82 | >0.9 | 0.002 |
| Neutral | 3,299 | 5.9 | 1,724 | 6 | 306 | 5.8 | 1,125 | 6 | 2,568 | 6 | 13,178 | 6 | 22,200 | 6 | | | | |
| Unfavorable | 294 | 0.5 | 153 | 0.5 | 25 | 0.5 | 109 | 0.6 | 215 | 0.5 | 1,209 | 0.5 | 2,005 | 0.5 | | | | |
| Favorable | 52,584 | 93.6 | 26,922 | 93.5 | 4,957 | 93.7 | 17,627 | 93.4 | 40,075 | 93.5 | 206,511 | 93.5 | 348,676 | 93.5 | | | | |
| Had Access N = | 92,160 | | 47,364 | | 8,418 | | 31,127 | | 70,273 | | 361,045 | | 610,387 | | | | | |
| Access Suspension | 579 | 0.6 | 300 | 0.6 | 50 | 0.6 | 193 | 0.6 | 420 | 0.6 | 2,165 | 0.6 | 3,707 | 0.6 | 610,387 | 1.77 | 0.9 | 0.002 |
| Security Incident Report | 2,424 | 2.6 | 1,229 | 2.6 | 230 | 2.7 | 761 | 2.4 | 1,766 | 2.5 | 9,221 | 2.6 | 15,631 | 2.6 | 610,387 | 5.4 | 0.4 | 0.003 |
| Had Adjudication and/or Access N = | 109,561 | | 56,315 | | 10,052 | | 36,952 | | 83,562 | | 429,934 | | 726,376 | | | | | |
| Any Negative Outcome | 3,268 | 3 | 1,662 | 3 | 315 | 3.1 | 1,052 | 2.8 | 2,439 | 2.9 | 12,664 | 2.9 | 21,400 | 2.9 | 726,376 | 3.25 | 0.7 | 0.002 |

Table 4 presents our crosstabulation results for pairings of gender and our five personnel security outcomes. Like Table 3, the first row in Table 4 shows similar percentages for SORs between gender categories, the chi-square and p-value indicate non-significance, and the Cramer's V effect size is extremely small (no association). These findings hold across all other outcomes demonstrating no significant relationships between gender and any of the personnel security outcomes.

Table 4Relationships Between Gender and Each Personnel Security Outcome

| Outcome | Fem | ale | Ma | le | Ove | rall | N | X ² | p-value | Cramer's V |
|------------------------------------|---------|------|---------|------|---------|------|---------|----------------|---------|---------------|
| | n | % | n | % | n | % | _ | | | |
| Had Adjudication N = | 319,862 | | 100,738 | | 420,600 | | | | | |
| SOR | 1,402 | 1.4 | 4,423 | 1.4 | 5,825 | 1.4 | 420,600 | 0.045 | 0.8 | 0.001 |
| Eligibility Determination | | | | | | | 420,600 | 0.39 | 0.8 | 0.001 |
| Neutral | 6,006 | 6 | 19,071 | 6 | 25,077 | 6 | | | | |
| Unfavorable | 552 | 0.5 | 1,700 | 0.5 | 2,252 | 0.5 | | | | |
| Favorable | 94,180 | 93.5 | 299,091 | 93.5 | 393,271 | 93.5 | | | | |
| Had Access N = | 164,263 | | 524,136 | | 688,399 | | | | | |
| Access Suspension | 988 | 0.6 | 3,231 | 0.6 | 4,219 | 0.6 | 688,399 | 0.46 | 0.5 | 0.001 |
| Security Incident Report | 4,189 | 2.6 | 13,424 | 2.6 | 17,613 | 2.6 | 688,399 | 0.061 | 0.8 | 0 |
| Had Adjudication and/or Access N = | 195,447 | | 623,710 | | 819,157 | | | | | |
| Any Negative Outcome | 5,753 | 2.9 | 18,369 | 2.9 | 24,122 | 2.9 | 819,157 | 0.001 | >0.9 | 0 |

We used multivariate regression to evaluate gender's role in the relationship between each personnel security outcome and each race/ethnicity variable. Tables 5–9 show, by gender, our multivariate regression results for each personnel security outcome (five in all) and race/ethnicity to include personnel type and age as control variables. Each of our regression models included three predictor variables, including control variables: (a) five race/ethnicity categories (non-Hispanic White providing the reference), (b) age, and (c) three personnel-type categories (active duty providing the reference).

Table 5 presents the results of the logistic regressions explaining SOR separately for males and females. Obtained chi-square and Nagelkerke R² results indicate that our regression models did not significantly explain the receipt of a SOR for either gender.¹³ A single control variable, age, demonstrated statistical significance, but only in the model for male gender (this analysis generated an odds ratio of 1.004). This ratio indicates that among males in the study population, the likelihood of receiving a SOR increased by 0.4% for each 1-year increase in age. Ultimately, there was no indication that the relationship between race/ethnicity and the experience of a SOR differs by gender.

¹³ While we may find individual predictors to be statistically significant, a nonsignificant regression model indicates that the overall model does not improve the prediction of the outcome variable.

Table 5Logistic Regression Explaining SOR (No SOR Received as Reference) Among Females and Males

| | İ | Female | | Male |
|--|---------|---------------|---------|---------------|
| | OR | 95%CI | OR | 95%CI |
| Race/Ethnicity (Reference: Non-Hispanic White) | | | | |
| Non-Hispanic Black | 0.874 | 0.749 - 1.019 | 0.988 | 0.898 - 1.086 |
| Non-Hispanic Asian or Pacific Islander | 0.832 | 0.662 - 1.045 | 0.916 | 0.808 - 1.038 |
| Non-Hispanic American Indian or Alaskan Native | 1.259 | 0.811 - 1.954 | 1.08 | 0.838 - 1.393 |
| Non-Hispanic Multiracial | 0.798 | 0.603 - 1.056 | 1.035 | 0.894 - 1.199 |
| Hispanic of any Race | 0.99 | 0.819 - 1.197 | 0.983 | 0.886 - 1.090 |
| Age | 1.002 | 0.996 - 1.007 | 1.004* | 1.001 - 1.007 |
| Personnel Type (Reference: Active Duty) | | | | |
| Reserve | 1.056 | 0.890 - 1.252 | 0.981 | 0.895 - 1.076 |
| DoD Civil Service | 1.013 | 0.853 - 1.203 | 0.936 | 0.853 - 1.026 |
| DoD Contractor | 0.87 | 0.659 - 1.147 | 1.032 | 0.918 - 1.161 |
| Constant | 0.014** | | 0.013** | |
| N | 84,235 | | 288,642 | |
| Chi-Square | 10.513 | | 12.288 | |
| Nagelkerke R2 | 0.001 | | 0 | |

^{*} p<.05; **p<.01

Table 6 shows multinomial logistic regression results explaining the three-category eligibility determination variable. Table 7 presents logistic regression results explaining the access suspension outcome, while Table 8 presents such results explaining the security incident report outcome. We found no significant interactions between gender and race/ethnicity to help explain the eligibility determination, access suspension, or security incident report outcomes.

 Table 6

 Multinomial Logistic Regression Explaining Eligibility Determination (Favorable Adjudication as Reference) Among Females and Males

| | Female | | | | | Male | | | | |
|--|---------|---------------|-------|---------------|---------|---------------|-------------|---------------|--|--|
| • | Neutral | | Uı | nfavorable | 1 | Neutral | Unfavorable | | | |
| | OR | 95%CI | OR | 95%CI | OR | 95%CI | OR | 95%CI | | |
| Race/Ethnicity (Reference: Non- Hispanic White) | | | | | | | | | | |
| Non-Hispanic Black | 0.931 | 0.864 - 1.004 | 0.846 | 0.659 - 1.086 | 1.005 | 0.959 - 1.053 | 1.012 | 0.871 - 1.176 | | |
| Non-Hispanic Asian or Pacific Islander | 1.021 | 0.919 - 1.133 | 0.885 | 0.620 - 1.263 | 0.995 | 0.938 - 1.057 | 0.999 | 0.824 - 1.211 | | |
| Non-Hispanic American Indian or Alaskan Native | 0.898 | 0.696 - 1.160 | 0.939 | 0.416 - 2.118 | 0.986 | 0.864 - 1.124 | 0.852 | 0.540 - 1.344 | | |
| Non-Hispanic Multiracial | 0.966 | 0.849 - 1.098 | 1.196 | 0.817 - 1.750 | 1.013 | 0.941 - 1.090 | 1.028 | 0.813 - 1.299 | | |
| Hispanic of any Race | 0.98 | 0.892 - 1.078 | 1.094 | 0.813 - 1.471 | 1.013 | 0.963 - 1.065 | 0.881 | 0.741 - 1.047 | | |
| Age | 0.999 | 0.996 - 1.001 | 0.997 | 0.988 - 1.006 | 1.002* | 1.000 - 1.003 | 0.999 | 0.995 - 1.004 | | |
| Personnel Type (Reference: Active Duty) | | | | | | | | | | |
| Reserve | 1.052 | 0.967 - 1.144 | 0.929 | 0.701 - 1.231 | 0.987 | 0.944 - 1.033 | 1.031 | 0.890 - 1.194 | | |
| DoD Civil Service | 1.049 | 0.964 - 1.141 | 1.156 | 0.884 - 1.512 | 0.972 | 0.929 - 1.017 | 1.047 | 0.904 - 1.211 | | |
| DoD Contractor | 1.013 | 0.889 - 1.153 | 1.127 | 0.749 - 1.695 | 0.952 | 0.897 - 1.011 | 1.132 | 0.939 - 1.365 | | |
| N | 84,235 | | | | 288,642 | | | | | |
| Chi-Square | 13.151 | | | | 10.561 | | | | | |
| Nagelkerke R2 | 0 | | | | 0 | | | | | |

^{*} p<.05; **p<.01

Table 7Logistic Regression Explaining Access Suspension (No Access Suspension Received as Reference)
Among Females and Males

| | Fe | emale | | Male |
|--|---------|---------------|---------|---------------|
| | OR | 95%CI | OR | 95%CI |
| Race/Ethnicity (Reference: Non-Hispanic White) | | | | |
| Non-Hispanic Black | 1.161 | 0.977 - 1.381 | 1.005 | 0.900 - 1.123 |
| Non-Hispanic Asian or Pacific Islander | 1.168 | 0.913 - 1.494 | 1.033 | 0.899 - 1.188 |
| Non-Hispanic American Indian or Alaskan Native | 0.963 | 0.513 - 1.808 | 0.994 | 0.726 - 1.362 |
| Non-Hispanic Multiracial | 0.895 | 0.644 - 1.245 | 1.066 | 0.902 - 1.261 |
| Hispanic of any Race | 1.036 | 0.823 - 1.304 | 0.971 | 0.861 - 1.097 |
| Age | 1 | 0.994 - 1.007 | 0.997 | 0.993 - 1.001 |
| Personnel Type (Reference: Active Duty) | | | | |
| Reserve | 0.876 | 0.711 - 1.079 | 1.017 | 0.915 - 1.131 |
| DoD Civil Service | 0.921 | 0.752 - 1.128 | 1.012 | 0.908 - 1.127 |
| DoD Contractor | 0.806 | 0.581 - 1.118 | 1.095 | 0.953 - 1.257 |
| Constant | 0.006** | | 0.007** | |
| N | 137,459 | | 472,921 | |
| Chi-Square | 8.037 | | 5.757 | |
| Nagelkerke R2 | 0.001 | | 0 | |

Table 8Logistic Regression Explaining Security Incident Report (No Security Incident Report Received as Reference) Among Females and Males

| | F | emale | N | //ale |
|--|---------|---------------|---------|---------------|
| | OR | 95%CI | OR | 95%CI |
| Race/Ethnicity (Reference: Non-Hispanic White) | | | | |
| Non-Hispanic Black | 1.072 | 0.984 - 1.167 | 1.013 | 0.960 - 1.070 |
| Non-Hispanic Asian or Pacific Islander | 1.061 | 0.939 - 1.199 | 1.005 | 0.937 - 1.077 |
| Non-Hispanic American Indian or Alaskan Native | 1.239 | 0.948 - 1.621 | 1.028 | 0.882 - 1.197 |
| Non-Hispanic Multiracial | 0.95 | 0.814 - 1.108 | 0.961 | 0.881 - 1.049 |
| Hispanic of any Race | 0.97 | 0.865 - 1.087 | 0.989 | 0.932 - 1.049 |
| Age | 1 | 0.996 - 1.003 | 1 | 0.998 - 1.002 |
| Personnel Type (Reference: Active Duty) | | | | |
| Reserve | 0.955 | 0.863 - 1.056 | 0.992 | 0.941 - 1.046 |
| DoD Civil Service | 1.036 | 0.939 - 1.142 | 0.98 | 0.929 - 1.034 |
| DoD Contractor | 0.939 | 0.805 - 1.095 | 1.028 | 0.960 - 1.101 |
| Constant | 0.026** | | 0.026** | |
| N | 137,459 | | 472,921 | |
| Chi-Square | 10.487 | | 3.638 | |
| Nagelkerke R2 | 0 | | 0 | |

^{*} p<.05; **p<.01

Table 9 shows our logistic regression results explaining the receipt of any negative outcome. Obtained chi-square and Nagelkerke R2 results indicate that our regression models did not significantly explain any negative outcome for either gender. As the table illustrates, the relationship between this fifth outcome and one racial/ethnic category did differ slightly by gender. The category was non-Hispanic American Indian or Alaskan Native, which yielded an odds ratio of 1.215 for females. This odds ratio is significant, indicating that female DON personnel of this race/ethnicity were 21.5% more likely than non-Hispanic White female DON personnel to experience a negative personnel outcome of any kind. We did not obtain any similar statistically significant odds ratio for males from the American Indian or Alaskan Native race/ethnicity category. Overall, however, we did

not find the relationships between race/ethnicity and any negative security outcome significant for either gender.

Table 9Logistic Regression Explaining Any Negative Outcome (No Negative Outcome as Reference) Among Females and Males

| | ı | Female | | Male |
|--|---------|---------------|---------|---------------|
| | OR | 95%CI | OR | 95%CI |
| Race/Ethnicity (Reference: Non-Hispanic White) | | | | |
| Non-Hispanic Black | 1.04 | 0.966 - 1.119 | 1.004 | 0.959 - 1.053 |
| Non-Hispanic Asian or Pacific Islander | 1.036 | 0.932 - 1.151 | 0.994 | 0.936 - 1.055 |
| Non-Hispanic American Indian or Alaskan Native | 1.215* | 0.964 - 1.531 | 1.03 | 0.904 - 1.174 |
| Non-Hispanic Multiracial | 0.939 | 0.822 - 1.072 | 0.981 | 0.911 - 1.057 |
| Hispanic of any Race | 1.008 | 0.916 - 1.109 | 0.99 | 0.941 - 1.042 |
| Age | 0.999 | 0.996 - 1.002 | 1 | 0.999 - 1.002 |
| Personnel Type (Reference: Active Duty) | | | | |
| Reserve | 0.96 | 0.881 - 1.047 | 0.999 | 0.954 - 1.045 |
| DoD Civil Service | 1.043 | 0.959 - 1.134 | 0.99 | 0.946 - 1.036 |
| DoD Contractor | 0.947 | 0.830 - 1.081 | 1.05 | 0.990 - 1.114 |
| Constant | 0.031** | | 0.030** | |
| N | 163,514 | | 562,853 | |
| Chi-Square | 9.285 | | 5.371 | |
| Nagelkerke R2 | 0 | | 0 | |

^{*} p<.05; **p<.01

Note: Bold-faced * indicates application of a one-tailed test

Phase 2 Analysis

In the Phase 2 analysis, we created four proxy measures of ethnicity: (a) birth country origin region, (b) high-risk terrorism country of origin, (c) Muslim-majority country of origin, and (d) U.S. citizen at birth. We explored the relationship between these proxy measures of ethnicity and our personnel security outcomes. As these data were only made available for DON Service members during our study timeframe, this analysis includes only the 551,352 active duty and reservist personnel meeting this description. Tables 10 and 11 present the predictor and outcome descriptive statistics.

Table 10 *Service Member Predictor Descriptive Statistics*

| Characteristic | N = 551,352 | % |
|---------------------------------|-------------|------|
| Birth Country Region | | |
| Northern America | 495,469 | 89.9 |
| Asia | 22,290 | 4.0 |
| Latin America and the Caribbean | 15,137 | 2.8 |
| Europe | 6,862 | 1.2 |
| Africa | 4,926 | 0.9 |
| Unknown | 6,668 | 1.2 |
| High-Risk Birth Country | | |
| Non-High Risk | 540,448 | 98.0 |
| High Risk | 4,236 | 0.8 |
| Unknown | 6,668 | 1.2 |
| Muslim-Majority Birth Country | | |
| Non-Muslim | 543,072 | 98.5 |
| Muslim Majority | 1,612 | 0.3 |
| Unknown | 6,668 | 1.2 |
| U.S. Citizen at Birth | | |
| U.S. Citizen at Birth | 504,150 | 91.4 |
| Not U.S. Citizen at Birth | 40,526 | 7.4 |
| Unknown | 6,668 | 1.2 |

Table 11Service Member Only Personnel Security Outcome Descriptive Statistics

| | Under Adjudica Timefra | • | In Access Di Timefran | • | Under Adjudication and/o in Access During Timefram | | | |
|----------------------------------|---------------------------|------|--------------------------|-----|--|-----|--|--|
| Personnel Security Outcomes | N = 237,315 | % | N = 388,607 | % | N = 462,522 | % | | |
| Statement of Reasons | 3,256 | 1.4 | | | | | | |
| Eligibility Determination | | | | | | | | |
| Favorable | 221,924 | 93.5 | | | | | | |
| Neutral | 14,148 | 6.0 | | | | | | |
| Unfavorable | 1,243 | 0.5 | | | | | | |
| Access Suspension | | | 2,390 | 0.6 | | | | |
| Security Incident Report | | | 9,930 | 2.6 | | | | |
| Any Negative Outcome | | | | | 13,546 | 2.9 | | |

Table 12 provides crosstabs from our pairings of race/ethnicity to personnel security outcomes. In our crosstabulation tables, we display cases and percentages only for DON personnel with a documented SOR, eligibility determination, access suspension, security incident report, and/or any negative outcome. To evaluate eligibility determination, table 12 presents three categories: (a)

favorable, (b) neutral, and (c) favorable. All other outcomes were dichotomous 'Y/N' in nature. The tabular chi-squares and significance levels provide the basis for determining whether statistical relationships do or do not exist *with confidence* (at least 95% confidence; p-value < .05). Cramer's V, in turn, indicates the effect sizes (degree of association) for the identified relationships.

Table 12 shows statistical relationships between birth country region and each personnel security outcome. The first row of Table 12 concerns the SOR outcome across the birth country regions: Africa, Asia, Europe, Latin America and the Caribbean, and North America. This row gives, as a percentage of those able to experience a SOR, the number of DON personnel reportedly born in each region.

We note that, across birth country region categories, the percentage calculated was similar, indicating that the birth country region and SOR variables lack significant relationship; additionally, the chi-square obtained was not of significant size, and the Cramer's V statistic was small. We did not observe a significant relationship between birth-country origin and each of the personnel security outcomes. We illustrate our findings in Tables 13–15 for the three proxy measures, (a) terrorism high-risk country of origin, (b) Muslim-majority country of origin, and (c) U.S. citizen at birth. The tabular data shows that the personnel security outcomes for DON Service members whose birthplaces are high-risk terrorism countries do not differ from outcomes of DON Service members whose birthplaces are Muslim-majority countries differ from those of DON Service members born elsewhere. The Furthermore, we did not find U.S. citizen at birth and not U.S. citizen at birth to differ significantly where the explanation of our five personnel security outcomes was concerned (SOR, eligibility determination, security incident report, access suspension, any negative outcome).

¹⁴ In Tables 12–15, we excluded the total number of cases for each negative outcome should differ from totals presented in Table 11 because all missing cases yielded by the proxy measures during the final data analyses.

Table 12 *Relationships Between Birth-Country Region and Each Personnel Security Outcome*

| Outcome | Africa Asia | | Eur | Latin America and Europe the Caribbean | | | North America Overa | | | rall | N | X² | p-value | Cramer's V | | |
|------------------------------------|-------------|-------|--------|---|-------|-------|---------------------|-------|---------|------|---------|-------|---------|------------|------|-------|
| | n | % | n | % | n | % | n | % | n | % | n | % | | | | |
| Had Adjudication N = | 2,155 | | 9,553 | | 2,992 | | 6,441 | | 213,228 | | 234,369 | | | | | |
| SOR | 39 | 1.81 | 116 | 1.21 | 41 | 1.37 | 98 | 1.52 | 2,912 | 1.37 | 3,206 | 1.37 | 234,369 | 5.92 | 0.2 | 0.005 |
| Eligibility Determination | | | | | | | | | | | | | 234,369 | 7.06 | 0.5 | 0.004 |
| Favorable | 1,991 | 92.39 | 8,952 | 93.71 | 2,798 | 93.52 | 6,037 | 93.73 | 199,375 | 93.5 | 219,153 | 93.51 | | | | |
| Neutral | 149 | 6.91 | 553 | 5.79 | 175 | 5.85 | 368 | 5.71 | 12,740 | 5.97 | 13,985 | 5.97 | | | | |
| Unfavorable | 15 | 0.7 | 48 | 0.5 | 19 | 0.64 | 36 | 0.56 | 1,113 | 0.52 | 1,231 | 0.53 | | | | |
| Had Access N = | 3,475 | | 15,726 | | 4,838 | | 10,723 | | 349,199 | | 383,961 | | | | | |
| Access Suspension | 23 | 0.66 | 82 | 0.52 | 33 | 0.68 | 66 | 0.62 | 2162 | 0.62 | 2,366 | 0.62 | 383,961 | 2.82 | 0.6 | 0.003 |
| Security Incident Report | 92 | 2.65 | 392 | 2.49 | 124 | 2.56 | 264 | 2.46 | 8,939 | 2.56 | 9,811 | 2.56 | 383,961 | 0.77 | >0.9 | 0.001 |
| Had Adjudication and/or Access N = | 4,169 | | 18,715 | | 5,756 | | 12,715 | | 415,575 | | 456,930 | | | | | |
| Any Negative Outcome | 133 | 3.19 | 516 | 2.76 | 171 | 2.97 | 366 | 2.88 | 12,196 | 2.93 | 13,382 | 2.93 | 456,930 | 3.14 | 0.5 | 0.003 |

Table 13Relationships Between High-Risk Birth Country and Each Personnel Security Outcome

| Outcome | High Risk | | Non-High Risk | | Overall | | N | X ² | p-value | Cramer's V |
|------------------------------------|-----------|-------|---------------|-------|---------|-------|---------|----------------|---------|------------|
| - | n | % | n | % | n | % | - | | | |
| Had Adjudication N = | 1,851 | | 232,518 | | 234,369 | | | | | |
| SOR | 26 | 1.4 | 3,180 | 1.37 | 3,206 | 1.37 | 234,369 | 0.02 | 0.9 | 0 |
| Eligibility Determination | | | | | | | 234,369 | 0.41 | 0.8 | 0.001 |
| Favorable | 1,737 | 93.84 | 217,416 | 93.51 | 219,153 | 93.51 | | | | |
| Neutral | 104 | 5.62 | 13,881 | 5.97 | 13,985 | 5.97 | | | | |
| Unfavorable | 10 | 0.54 | 1,221 | 0.53 | 1,231 | 0.53 | | | | |
| Had Access N = | 2,970 | | 380,991 | | 383,961 | | | | | |
| Access Suspension | 16 | 0.54 | 2350 | 0.62 | 2,366 | 0.62 | 383,961 | 0.29 | 0.6 | 0.001 |
| Security Incident Report | 71 | 2.39 | 9,740 | 2.56 | 9,811 | 2.56 | 383,961 | 0.33 | 0.6 | 0.001 |
| Had Adjudication and/or Access N = | 3,560 | | 453,370 | | 456,930 | | | | | |
| Any Negative Outcome | 100 | 2.81 | 13,282 | 2.93 | 13,382 | 2.93 | 456,930 | 0.18 | 0.7 | 0.001 |

Table 14The Relationships Between Muslim-Majority Birth Country and Each Personnel Security Outcome

| Outcome | Muslim | | Non-Muslim | | Overall | | N | X ² | p-value | Cramer's V |
|------------------------------------|--------|-------|------------|-------|---------|-------|---------|----------------|---------|------------|
| | n | % | n | % | n | % | | | | |
| Had Adjudication N = | 696 | | 233,673 | | 234,369 | | | | | |
| SOR | 8 | 1.15 | 3,198 | 1.37 | 3,206 | 1.37 | 234,369 | 0.6 | 0.25 | 0.001 |
| Eligibility Determination | | | | | | | 234,369 | | | |
| Favorable | 654 | 93.97 | 218,499 | 93.51 | 219,153 | 93.51 | | | | |
| Neutral | 39 | 5.6 | 13,946 | 5.97 | 13,985 | 5.97 | | | | |
| Unfavorable | 3 | 0.43 | 1,228 | 0.53 | 1,231 | 0.53 | | | | |
| Had Access N = | 1,135 | | 382,826 | | 383,961 | | | | | |
| Access Suspension | 10 | 0.88 | 2,356 | 0.62 | 2,366 | 0.62 | 383,961 | 0.3 | 1.3 | 0.002 |
| Security Incident Report | 36 | 3.17 | 9,775 | 2.55 | 9,811 | 2.56 | 383,961 | 0.2 | 1.74 | 0.002 |
| Had Adjudication and/or Access N = | 1,346 | | 455,584 | | 456,930 | | | | | |
| Any Negative Outcome | 45 | 3.34 | 13,337 | 2.93 | 13,382 | 2.93 | 456,930 | 0.4 | 0.82 | 0.001 |

Table 15 *Relationships Between Citizenship at Birth and Each Personnel Security Outcome*

| Outcome | Not U.S. Citizen at Birth | | Citizen At Birth | | Overall | | N | X² | p-value | Cramer's V |
|------------------------------------|---------------------------|-------|------------------|-------|---------|-------|--------------|-------|---------|------------|
| | n | % | n | % | n | % | - | | | |
| Had Adjudication N = | 17,367 | | 217,013 | | 234,380 | | | | | |
| SOR | 242 | 1.39 | 2,964 | 1.37 | 3,206 | 1.37 | 234,380 | 0.91 | 0.8 | 0.001 |
| Eligibility Determination | | | | | | | 234,380 | 0.53 | 0.8 | 0.002 |
| Favorable | 16,245 | 93.54 | 202,919 | 93.51 | 219,164 | 93.51 | | | | |
| Neutral | 1025 | 5.9 | 12,960 | 5.97 | 13,985 | 5.97 | | | | |
| Unfavorable | 97 | 0.56 | 1,134 | 0.52 | 1,231 | 0.53 | | | | |
| Had Access N = | 28,640 | | 355,344 | | 383,984 | | | | | |
| Access Suspension | 170 | 0.59 | 2,196 | 0.62 | 2,366 | 0.62 | 383,984 | 0.258 | 0.6 | 0.001 |
| Security Incident Report | 718 | 2.51 | 9,093 | 2.56 | 9,811 | 2.56 | 383,984 | 0.287 | 0.6 | 0.001 |
| Had Adjudication and/or Access N = | 34,056 | | 422,897 | | 456,953 | | | | | |
| Any Negative Outcome | 984 | 2.89 | 12,398 | 2.93 | 13,382 | 2.93 | 456,953 | 0.199 | 0.7 | 0.001 |

Discussion

On behalf of DON, PERSEREC examined whether racial/ethnic and gender disparities exist in DON's PSP. We conducted the study analyses in two phases, both focusing on personnel security outcomes as our metrics of interest (i.e., receipt of a SOR, an eligibility determination, a local access suspension, a security incident report, or any one of these outcomes). In Phase 1, we employed a population comprising all DON CY17–CY19 personnel. In Phase 2, we employed a population comprising all active-duty DON Service members and reservists.

The results from both analyses show scant evidence of any concerning disparities across personnel security outcomes, although one exception warrants mention. We observed that female non-Hispanic American Indians or Alaskan Natives were *more* likely to experience any negative personnel security outcome than female non-Hispanic White personnel. This result suggests we should continue to monitor this relationship in particular as we continue to examine racial/ethnic and gender disparities in the military on whole. This finding aside, however, we did not find empirical support for racial/ethnic and gender disparities across our five personnel security outcomes in the DON population. We discuss two potential interpretations for these findings.

First, the general absence of racial/ethnic and gender disparities seen in DON's PSP data suggests that this process is fair and operating as intended—without disparate impacts on race/ethnicity and gender. Indeed, DON's PSP may simply be sufficiently standardized to deter racial/ethnic and gender disparities from arising. For example, most investigation and adjudication processes are blinded (the major exception would be any personnel security interviews), and these investigation and adjudication processes follow formalized procedures that are well documented. Further, legal sufficiency requirements must be met before making any negative decisions (i.e., determinations such as denial or revocations). Additionally, the PSP does not request or use any race or ethnicity data as a component of the program's data collection process. These points, in combination, could all be major contributors to a non-bias-inducing system that does have sufficient protections in place to prevent racial/ethnic and gender disparities from occurring.

Second, the dearth of disparities observed in our study could also indicate that the study population (i.e., the DON PSP population) differs in important ways from the general population of comparable age. Applicants for military service are subject to the DON enlistment standards as well as the National Security Adjudicative Guidelines. These tend to discourage persons with a history of drug offenses or financial debt from applying, which could lead to a population of relatively "clean case" personnel regardless of race, ethnicity, or gender.

Despite our initial optimism and regardless of the reason(s) we did not identify concerning racial/ethnic and gender disparities in DON's PSP, we should conduct further research to promote equity in DoD using different populations and more nuanced outcome metrics to bolster or refute our nascent findings. For example, we do not know if the DON findings here will generalize to the entire DoD to include the Department of Army and Air Force. Although DoD's CAS centrally handles statements of reasons and eligibility determinations for initial and continuing clearance¹⁵, each DoD

¹⁵ DON's Personnel Security Appeal Board or the Defense Office of Hearings and Appeals can channel appeals of these eligibility determinations with their final decisions.

Department, Service, or agency oversees locally established access suspensions and security incidents. Policy and practices related to establishing access suspensions and security incident reports could be particularly prone to variation across DoD Services and components for this reason. As researchers, we urge additional agencies and services to complete their own inquiries seeking to corroborate our DON-specific findings. Additionally, the approach used for this study sets the foundation to continuously assess the DON PSP for any emerging disparities moving forward.

Finally, it is necessary to name a critically important limitation of our study. The data we employed did not speak to sexual orientation or gender identity. Where diversity, equity, and inclusion disparities are concerned, these two factors can be crucial. We advocate for the future collection of these data elements within DoD for use in relevant research. It would be possible to collect, store, and later connect this self-report data to PSP data, as was done here for race/ethnicity and gender variables. Separate collection and access to such information would help ensure privacy protections while allowing DoD researchers to obtain this important information for analytic purposes.

Recommendations

In light of our study results, we recommend a new DoD-wide study addressing racial, ethnic, and gender disparities that could exist in other populations. This study would address the following question:

Research Question 1. Do the current DON findings extend to the DoD population at large?

We also recommend that DON and/or DoD undertake additional research intended to answer the following specific questions:

Research Question 2. Do racial, ethnic, and gender disparities exist in the timeliness of the investigation and adjudication process?

Research Question 3. Do racial, ethnic, and gender disparities exist between T3 (secret) and T5 (top secret) investigations?

Research Question 4. Do racial, ethnic, and gender disparities exist in the appeals process and the decisions yielded by it?

Research Question 5. Are racial, ethnic, and gender disparities observable in particular adjudicative guidelines applied to SORs, eligibility determinations, and security incidents?

Addressing our current research question in the broader DoD population will provide additional support for our DON findings. It will allow us to determine whether these findings persist across the department. Answering any or all of the four specific research questions we call out will allow us to address more nuanced aspects of the PSP—processes that could generate disparate impacts across protected classes even when we do not see disparities in final, higher-order outcomes such as denials and revocations. Any relationships identified among racial/ethnic minorities and women, pertaining to questions 2 through 5, would help us identify where processes require remediation or review. If we find equities here as well under these targeted inquiries, DoD and DON will have additional confidence in the PSP's fairness regardless of race/ethnicity and gender, and public trust in the overarching PSP program will be enhanced.

References

- Bear, J., Cushenbery, L., London, M., & Sherman, G. (2017). Performance feedback, power retention, and the gender gap in leadership. *The Leadership Quarterly*, 28(6), 721–740.
- Bujang, M. A., Sa'at, N., M, I. T., Sidik, A. B., & Lim, C. J. (2018). Sample size guidelines for logistic regression from observational studies with large population: Emphasis on the accuracy between statistics and parameters based on real life clinical data. *The Malaysian Journal of Medical Sciences*, 25(4), 122.
- Burk, J., & Espinoza, E. (2012). Race relations within the US military. *Annual Review of Sociology*, *38*, 401–422.
- Department of Defense. (2020). *Immediate actions to address diversity, inclusion, and equal opportunity in the military Services.*
- Exec. Order No. 14035, *Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce*. 5 C.F.R. (2021).
- Golan, A., Greene, W., & Perloff, J. (2021). Does the US Navy's reliance on objective standards prevent discrimination in promotions and retentions? *Plos One*, *16*(4), e0250630.
- Horvat, J., Kraus, A., & Reese, D. (2022). *Racial differences in Navy officer FITREP outcomes and 0-4 selection*.
- Office of Under Secretary of Defense. (2019). *Population representation in the military Services report*. Office of Under Secretary of Defense, Personnel and Readiness. https://www.cna.org/pop-rep/2019/index.html.
- Phillips, H., & Holsey, A. (2020). Task Force One Navy Charter: Final report. Department of Defense.
- Strader, E., Lundquist, J., & Dominguez-Villegas, R. (2021). Warriors wanted: The performance of immigrants in the US Army. *International Migration Review*, *55*(2), 382–401.
- United States Government Accountability Office. (2020). *DoD and the Coast Guard need to improve their capabilities to assess racial disparities*. Military Justice.
- World Population Review. (2022). *Muslim majority countries 2022*. https://worldpopulationreview.com/country-rankings/muslim-majority-countries

List of Acronyms Used in This Report

CAS Consolidated Adjudication Services

CY Calendar Year

DCSA Defense Counterintelligence Security Agency

DMDC Defense Manpower Data Center

DON Department of Navy

FY Fiscal Year

JO Junior Officer

PERSEREC Defense Personnel and Security Research Center

PSP Personnel Security Program

SCI Sensitive Compartmented Information

SOR Statement of Reasons