



2016 Department of Defense Civilian Employee Workplace and Gender Relations Survey

Technical Report

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Policy officials contributing to this survey effort include Ms. Beatrice Bernfeld (formerly), Ms. Charmane Johnson, Mr. F. Michael Sena, and Mr. Clarence Johnson (ODMEO); Mr. David Griffith (Sexual Assault Prevention and Response Office [SAPRO]); Ms. Julie Blanks (formerly of Defense Civilian Personnel Policy [CPP]); Mr. Dean Rogers and Dr. Bonita Soley (Defense Civilian Personnel Advisory Service [DCPAS]); and Dr. Elizabeth Van Winkle and Dr. Kelly Mohondro (Office of Force Resiliency).

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¹ In 2018, ODMEO was reorganized and the office now responsible for overseeing this survey effort is the Office for Diversity, Equity, and Inclusion (ODEI).

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2016 DEPARTMENT OF DEFENSE CIVILIAN EMPLOYEE WORKPLACE AND GENDER RELATIONS SURVEY: TECHNICAL REPORT

Executive Summary

The *2016 Department of Defense Civilian Employee Workplace and Gender Relations Survey (2016 WGRC)* fulfills the Congressional mandate outlined in Title 10 USC §481a for a biennial survey assessment of gender relations in the DoD civilian workplace. The *2016 WGRC* was the first survey conducted to meet this statutory requirement. The survey was designed to assess self-reported experiences of and the climate surrounding sexual harassment, gender discrimination, and sexual assault in the DoD civilian workplace.

The Office for Diversity, Equity, and Inclusion (formerly known as the Office of Diversity Management and Equal Opportunity [ODMEO]) enlisted the Office of People Analytics (OPA) to conduct the *2016 WGRC*. OPA conducts both web-based and paper-and-pen surveys to support the personnel information needs of the Under Secretary of Defense for Personnel and Readiness (USD[P&R]). These surveys assess the attitudes and opinions of the entire Department of Defense (DoD) community on a wide range of personnel issues. The Health and Resilience (H&R) Research Division,² under OPA conducts in-depth studies of topics which impact the health and well-being of DoD military and civilian populations.

The purpose of this technical report is to explain the statistical and survey methodology employed on the *2016 WGRC* as well as illustrate how estimates of past year sexual harassment, gender discrimination, and work-related sexual assault rates were constructed. All uses and interpretations of the *2016 WGRC* data should be made in light of the information contained in this technical report.

Statistical and Survey Methodology

OPA conducts cross-component surveys that provide DoD leadership with assessments of attitudes, opinions, and experiences of the population of interest using industry standard scientific methods to ensure validity of results. OPA's survey methodology meets or exceeds survey industry standards used by other government statistical agencies (e.g., the Census Bureau, the U.S. Merit Systems Protection Board, and Bureau of Labor Statistics), private sector survey organizations, and well-known national polling organizations. OPA's scientific methods have been validated by independent organizations (e.g., RAND and the Government Accountability Office [GAO]). Additionally, OPA adheres to best practices in survey methodology promoted by the American Association for Public Opinion Research (AAPOR).³ Appendix A contains

² Prior to Fall 2016, the H&R Research Division resided within the Defense Manpower Data Center (DMDC). In Fall 2016, the Defense Human Resources Activity (DHRA) reorganized and moved H&R under the newly established Office of People Analytics (OPA).

³ AAPOR's "Best Practices" state that, "virtually all surveys taken seriously by social scientists, policy makers, and the informed media use some form of random or probability sampling, the methods of which are well grounded in statistical theory and the theory of probability" (http://aapor.org/Best_Practices1/4081.htm#best3). OPA has

frequently asked questions (FAQs) that highlight the methods employed by government and private survey agencies, including OPA.

This section describes the statistical and survey methodology for the *2016 WGRC*, including (1) the statistical design, (2) sample design, (3) survey details, (4) survey administration, (5) statistical weighting, (6) nonresponse bias analysis (NRB), and (7) statistical analyses and interpretation of results.

Statistical Design

The *2016 WGRC* survey was the first of its kind conducted by OPA with DoD civilian employees. Although OPA applies the same rigorous scientific standards in conducting all of its cross-component surveys, it is important to clarify how OPA's standard scientific practices were applied to this new survey administration and population. OPA started with the survey methodology used on prior Workplace and Gender Relations (WGR) surveys administered to Service members, which were last modified in 2015 to accommodate the updated weighting methodology used in the *2014 Rand Military Workplace Survey (2014 RMWS)*; Morral, Gore, & Shell, 2014). To maintain comparability across WGR surveys moving forward, OPA, in collaboration with Westat, elected to adopt the 2-Stage Boosted Method used by RAND. The 2-Stage Boosted Method adjusts for nonresponse by predicting experiences with key survey measures (e.g., sexual assault) on the survey and then adjusting response propensity based on the predictions in the first stage. Both models rely on gradient boosted decision trees (GBDT). More details about the complex weighting can be found below following a description of the sampling design, survey details, and survey administration.

Sampling Design

The target population for the *2016 WGRC* consisted of DoD appropriated-fund civilian employees (including Senior Executive Service [SES]) from the Department of the Army, Department of the Navy (including employees working at Marine Corps locations), Department of the Air Force, and civilian employees working at DoD Agencies/Field Activities who were 18 years of age or older, were not political appointees, were U.S. citizens, and had been employed for at least four months.⁴ Per DoD regulations, DoD civilian employees who had left the Department after the sample was drawn, but prior to the opening of the survey, were excluded from the survey administration process as they are considered "members of the public" and require additional approvals to include in survey efforts. OPA also excluded civilian employees within its own organization.⁵

conducted surveys of the DoD community using these "Best Practices" for over 25 years, tailored as appropriate for the unique design needs of specific surveys.

⁴ The sampling frame was developed approximately four months prior to fielding the survey. Therefore, the sampling population included those DoD-appropriated-fund civilian employees that had at least four months of service at the start of survey fielding.

⁵ These included DoD civilian employees in the H&R Research Division, Readiness & Retention (R&R) Research Division, and the Joint Advertising Marketing Research & Studies (JAMRS) research groups who work closely with each other. Such exclusions minimized privacy concerns across the organizations and avoided potential conflict of interests.

Given limited extant literature regarding estimates of unwanted gender-related behaviors in the DoD civilian employee population, a conservative sampling strategy was employed to ensure OPA's ability to derive baseline estimates for hypothesized infrequently occurring behaviors (e.g., sexual assault) across reporting domains (e.g., gender and Component). Specifically, the sample for the *2016 WGRC* was a census of all eligible DoD civilian employees at the time of survey fielding. Given that a census was conducted, minimal restrictions were placed on eligibility for the *2016 WGRC* other than those described previously. The resulting sample for the *2016 WGRC* consisted of 730,161 appropriated-fund DoD civilian employees identified in the *June 2016 DoD Appropriated-Fund Civilian Personnel Master File* from Defense Manpower Data Center (DMDC).

After defining the population, OPA performed an additional check to confirm sample member eligibility at the time of survey fielding. Sample members who were not in the *September 2016 DoD Appropriated-Fund Civilian Personnel Master File* from DMDC were identified as no longer eligible to participate in the *2016 WGRC*. There were 23,275 (3.2%) sample members determined to be no longer eligible for survey participation from this process. Additionally, sample members who indicated via survey responses or communications regarding the survey that they were ineligible to participate were also removed from the survey sample. This resulted in an additional 1,895 (0.3%) of sample members identified as ineligible to participate in the *2016 WGRC*.

Survey Details

The WGR surveys have historically been conducted with military members dating back to 1988 for active duty members and 2004 for Reserve Component members. Section 1073 of the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act (NDAA) for Fiscal Year 2015 extended the WGR survey requirement to DoD civilian employees to yield a total force picture of gender issues, including experiences of unwanted gender-related behaviors. This was the first WGR survey administered to DoD civilian employees to meet the new statutory requirement.

The *2016 WGRC* was designed to meet the statutory requirements outlined in Title 10 USC §481a which required the Department to develop a survey that 1) provides indicators of positive and negative trends for professional and personal relationships between male and female employees; 2) estimates the prevalence of unwanted gender-related behaviors for DoD civilian employees within the preceding fiscal year; 3) examines the effectiveness of policies designed to improve professional relationships between male and female employees; and 4) examines the effectiveness of current processes for complaints and investigations concerning unwanted gender-related behaviors, including sexual assault, sexual harassment, and gender discrimination. The content of the *2016 WGRC* generally aligns with the *2016 Workplace and Gender Relations Survey of Active Duty Members (WGRA)*.

The *2016 WGRC* was a confidential web-based survey. It used "dynamic text" in the sections for sexual harassment and gender discrimination to tailor question stems by respondent gender. In descriptions of metrics and survey questions, we use "[]" to indicate questions and descriptions where dynamic text was used for specifying gender. Dynamic text was also used to ask questions regarding the past 12 months. The prior year's date was inserted based on when

the respondent started the survey (for example, if the respondent started the survey on September 29, 2016, the prior year date would be September 29, 2015).

Survey Administration

The 2016 WGRC was a confidential survey administered on the web between September 29 and December 22, 2016. All survey procedures used were reviewed by a DoD Human Subjects Protection Officer as part of the DoD survey approval and licensing process. Additionally, OPA received a Certificate of Confidentiality from the Health Resources and Services Administration (HRSA) at the Department of Health and Human Service to further ensure the protection of respondent survey data. This Certificate was obtained to provide an additional layer of protection to prevent compelled disclosure of information that may identify individual sample members and/or their responses in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings.

The survey administration process began on September 29, 2016 when the survey website opened to sample members.⁶ The first OPA e-mail announcement to all sample members began on September 29, 2016 and were sent over three days.⁷ This announcement explained the purpose of the survey, how the survey information would be used, why participation was important, and opt-out procedures for those who did not wish to participate. Throughout the administration period, three additional reminder e-mail communications were sent to sample members who had not completed nor opted-out of the survey to encourage survey participation.

Completed surveys were defined as answering at least one of the survey questions asked of all respondents and providing at least three valid responses on critical items, which were defined as the sexual assault behaviors. Completed surveys were received from 224,893 eligible respondents and the overall weighted response rate for eligible sample members was 32% (Table 1).

⁶ Given the novelty of this research area with civilian employees, OPA developed a public affairs plan for stakeholders and DoD leaders to apprise civilian employees of the upcoming survey. This plan also contained the link to the OPA ticket lookup site where sample members could identify their ticket number at any time throughout the survey administration process.

⁷ Because of the volume of e-mail messages to be sent and server processing limitations, OPA submitted the e-mail messages to batches of respondents to ensure deliverability. It took approximately three days to send messages to the entire sample.

Table 1.
2016 WGRC Counts of Respondents and Weighted Response Rates

Response Group	Number of Respondents (n)	Weighted Response Rate (%)
Total DoD Civilian Employees	224,893	32
Army	73,045	30
Navy	64,367	32
Air Force	53,671	33
DoD Agencies & Activities	33,810	34
Total Civilian Women	80,256	35
Army	28,198	34
Navy	20,508	38
Air Force	16,594	37
DoD Agencies & Activities	14,956	32
Total Civilian Men	144,637	31
Army	44,847	29
Navy	43,859	30
Air Force	37,077	32
DoD Agencies & Activities	18,854	35

Note: For the purposes of this table, civilian employees without valid data on “gender” in administrative records used to draw the sample were coded as “men” in the calculation of response rates.

Data Weighting

OPA scientifically weighted the 2016 WGRC respondent data to be generalizable to the entire DoD appropriated-fund civilian employee population. After resolving case dispositions based on eligibility for the survey and completion of the critical items, analytical weights were created to account for varying response rates among population subgroups using the 2-Stage Boosted Method. Within this process, statistical adjustments were made to ensure respondents accurately reflect the population characteristics and provide a more rigorous accounting to reduce nonresponse bias in estimates. This ensures that varying response rates of certain population subgroups do not impact the total force estimates and that population totals, proportions, and means derived (as well as other statistics) are representative. Unweighted survey data, in contrast, are likely to produce biased estimates of population statistics because of varying response rates among population subgroups.

OPA uses a three-step process to weight survey data to the sample population. Typically, the first step of weighting is to adjust for selection probability when stratified samples are used by creating base weights. Because the 2016 WGRC was a census, every eligible DoD appropriated-fund civilian employee had access to the survey. Thus, the base weight for all respondents was 1. The second and third steps of weighting are outlined below:

- *Adjustment for nonresponse.* This adjustment develops models of possible correlates of nonresponse, including predicting outcomes to critical questions. OPA used gradient boosted decision trees (GBDT) to model the propensity that each sample member experienced six unwanted gender-related behaviors (i.e., sexually hostile work

environment, sexual *quid pro quo*, gender discrimination, penetrative sexual assault, non-penetrative sexual assault, and attempted penetrative sexual assault). For example, a female Army DoD civilian employee may have a predicted probability of experiencing sexual assault of 4% while a male Navy DoD civilian employee has a predicted probability of 2%. Next, OPA used GBDT to model the response propensity of each sample member using the propensities from the six characteristics modeled after assigning the base weight of 1 and several key administrative variables such as Component, pay plan/grade, and age. The best models in all cases were selected using 5-fold cross validation (Ridgeway, 2009a; Ridgeway, 2009b; Morral et al., 2014; Morral, Gore, & Shell, 2015).

- *Adjustment to known population values.* After the nonresponse adjustments from step two are made to survey data, weighted estimates may differ from known population totals (e.g., number of DoD civilian employees who work for the Army). It is standard practice to adjust weighted estimates to known population totals to reduce both the variance and bias in survey estimates in a process called “raking.” To accomplish this, OPA performed a final weighting adjustment raking that exactly matched weighted estimates to known population totals for important demographics. For example, suppose the population for the subgroup was 8,500 men and 1,500 women, but the nonresponse-adjusted weighted estimates from the respondents were 7,000 men and 3,000 women. To reduce this possible bias and better align with known population totals, we would adjust the weights by 1.21 for men and 0.5 for women so that the final weights for men and women applied to the survey estimates provide unbiased estimates of the total population of men and women in the subgroup.

Nonresponse Bias Analysis

Survey nonresponse has the potential to introduce bias into survey estimates. To the extent that nonrespondents and respondents differ on observable characteristics⁸ (e.g., gender, age, etc.), OPA uses weights to adjust the sample so the weighted respondents match the full population on key observable characteristics. This eliminates the portion of nonresponse bias (NRB) associated with those characteristics. When all NRB can be eliminated in this manner, the missingness is called *ignorable* or *missing at random* (Little & Rubin, 2002). Conditioning the weights on a very high number of observable demographics, which OPA uses for surveys, increases the likelihood that weighting effectively reduces NRB. OPA conducted three studies to evaluate NRB for the 2016 WGRC, including:

1. Comparing the composition of the sample with survey respondents by key demographics,
2. Comparing weighted survey estimates to known population totals, and
3. Evaluating the sensitivity of different post-survey adjustments (weighting methods) on survey estimates.

⁸ All possible reasons for survey nonresponse outside of observable characteristics cannot be fully accounted for by standard nonresponse bias analyses, including those conducted for the 2016 WGRC.

Results from the first study show that survey weights effectively eliminate the differences between respondents and nonrespondents as the distribution of weighted survey respondents closely matches the civilian population. OPA concluded that although the small differences in response rates across subgroups provides some NRB risk, the abundant frame data on DoD civilians allows complex weighting adjustments to account for a large number of observable characteristics, and therefore this study provided little NRB concern regarding the *2016 WGRC* estimates.

Results from the second study found some estimates were statistically significantly different from known population totals for respondents versus nonrespondents (e.g., basic pay), but the NRB for these statistics is about 1%. OPA considers this a very low NRB level.

Results from the third and final study found little differences in NRB based on type of weighting method used (e.g., OPA's standard weighting methodology versus the 2-Stage Boosted weighting method). OPA concludes that the choice of weighting methods did not substantially alter the level of NRB in *2016 WGRC* estimates.

Statistical Analyses and Interpretation of Results

All results provided should be interpreted as estimates. By definition, all survey results are subject to error which should be considered when interpreting estimates. When data are weighted to represent population estimates, margins of error should be calculated to convey the uncertainty or error surrounding the population estimate presented. The margin of error represents the precision of the estimate, and the confidence interval coincides with how confident we are that the interval contains the true population value being estimated 95% of the time. For example, if it is estimated that 55% of respondents selected an answer and the margin of error was ± 3 , we are 95% confident that the interval 52% to 58% contains the unknown "true" population value being estimated. Due to the weighting strategy employed, conventional formulas for calculating the margin of error may overstate the reliability of the estimate. For the *2016 WGRC*, variance estimates were calculated using SUDAAN[®] PROC DESCRIPT (Research Triangle Institute, Inc., 2013).⁹

The *2016 WGRC* survey results were analyzed by gender and Component. The definitions for the resulting reporting categories are:

- **Gender:** Civilian Women and Civilian Men
- **Component:** Army, Navy (including Marine Corps), Air Force, and DoD Agencies/Activities

Because the results of the *2016 WGRC* are based on weighted data, the reader can assume the results generalize to the entire DoD appropriated-fund civilian employee population within the margin of error. All tables and figures should be interpreted in light of the population of

[®] Registered 2013 by Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC 27709-2194.

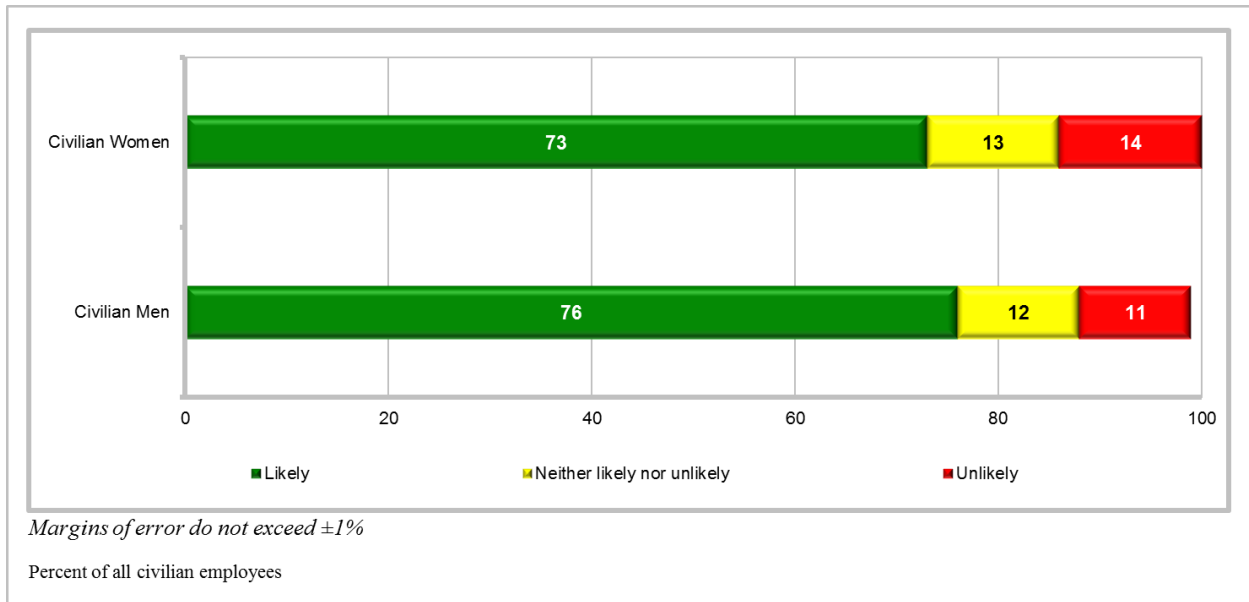
⁹ As a result of differential weighting, only certain statistical software procedures, such as SUDAAN[®] PROC DESCRIPT, correctly calculate standard errors, variances, or tests of statistical significance for stratified samples.

respondents who were eligible to answer the question and responded, which is referred to as the *percent responding*. For example, when a table footnote indicates “percent of all civilian employees,” that means all respondents were eligible to answer the question and estimates presented represent the total population of DoD civilian employees. Similarly, when a table footnote indicates “percent of civilian employees who indicated receiving sexual assault training in the past 12 months,” this means only respondents who indicated receiving sexual assault training in the past 12 months on an earlier question were eligible to respond to this question so estimates presented only represent the population of DoD civilian employees who received training on sexual assault in the past 12 months.

It is possible that a specific result is “not reportable” due to low reliability, annotated as “NR”. Unstable estimates usually occur when only a small number of respondents contribute to the estimate or the estimate is associated with a large amount of error. An “NR” designation protects the Department, and the reader, from drawing incorrect conclusions or potentially presenting inaccurate findings due to instability of the estimate.

Elongated bar charts using 2016 WGRC data may not extend to the 100% end of the scale. This may be due to a few factors including rounding and “NR” estimates. As shown in the example below (Figure 1), there is a small space between the bar chart and the end of the chart for civilian men. This is due to rounding. In cases where there are combinations of reportable data and non-reportable data for a reporting category, the bar chart may appear incomplete as only reportable data are shown.

Figure 1.
Example Figure



Construction of Estimated Past Year Sexual Harassment, Gender Discrimination, and Work-Related Sexual Assault Rates

All WGR surveys are designed to solicit information on gender issues, including estimated prevalence rates of unwanted gender-related behaviors (i.e., sexual harassment, gender discrimination, and sexual assault), and the climate for forming professional relationships between male and female members within the Department (10 USC §481). OPA has adopted the 2014 RMWS metrics for sexual harassment, gender discrimination, and sexual assault (Morral et al., 2014) for its WGR surveys. Although the RAND metrics were designed for military members and created with military laws and policy in mind, the Department elected to use the same metrics with DoD civilian employees to yield a total force picture of the state of sexual harassment, gender discrimination, and sexual assault in the DoD. This approach allows the Department to use a consistent nomenclature for comparison purposes, but is not intended to imply that behaviors experienced by DoD civilian employees meet the complex civilian legal definitions of sex discrimination or sexual assault. Subsequently, the 2016 WGRC uses the same metrics and weighting methods as other WGR surveys, including modifications made to the RAND metrics that were fielded in the 2016 Workplace and Gender Relations Survey of Active Duty Members (2016 WGRA; Davis, Grifka, Williams, & Coffey, 2017).¹⁰

This section describes the metrics and methods used to construct past year estimates of sexual harassment, gender discrimination, and work-related sexual assault in the DoD civilian employee population. References to “gender discrimination,” “sexual harassment,” and “sexual assault” in the metrics do not necessarily imply meeting legal definitions and, in cases of sexual assault, the definition of sexual assault varies across jurisdictions. Thus, survey data are to be interpreted as providing estimates of unwanted gender-related experiences as reported by DoD civilian employees in the DoD civilian workplace using the metrics employed by the 2016 WGRC rather than indicative of events that would result in a favorable or unfavorable ruling for an EEO complaint or sexual assault in any jurisdiction.

Differences Between the 2016 WGRC and 2016 WGRA

The 2016 WGRA (active duty survey) was used as the basis for adapting the metrics of sexual harassment, gender discrimination, and sexual assault for DoD civilian employees. Minimal changes were made to the 2016 WGRC (DoD civilian survey) to adapt the metrics to the DoD civilian employee population. A pretest was conducted to ensure the top line behaviors assessed in the metrics were understandable and relatable to civilian employees. Results from the pretest indicated the topline behaviors were understandable to the DoD civilian employees surveyed although some concerns were raised regarding the anatomical (graphic) language in the sexual assault metric. OPA sought to alleviate some of these concerns by providing stronger advisory language in survey communications and instruction text for the 2016 WGRC. In addition, changes were made to substitute military nomenclature with civilian equivalent language. These

¹⁰ Since the development of the metrics in 2014, OPA has implemented some modifications in consultation with policy offices and RAND. See Davis et al., 2016 and Van Winkle, Rock, & Hurley, 2016 for a description on how the metrics have changed over time.

minimal changes ensure comparability of estimates generated by the metrics across the 2016 *WGRC* and 2016 *WGRA*. The changes are outlined below.

1. *Survey Instructions*. Modifications to the survey instructions and items were made to ensure the references pertained to the DoD civilian employee environment rather than a military environment (e.g., “unit” was changed to “organization,” “someone from work” was updated to reflect the types of employees DoD civilians may work with). Additional instruction text ensured that DoD civilian employees would not confuse responses on the survey with a formal report to the Department and additional civilian reporting resources were provided for those who wanted to make formal complaints. In the sexual assault section, additional advisory text was included regarding the use of graphic, anatomical language and the rationale for such.
2. *Reasonable Person Referent*. The “reasonable person” referent in the sexually hostile work environment follow-up criteria was changed from “most Service members” to “most DoD civilian employees.”
3. *Terms Used*. Some of the terms used throughout survey items were modified slightly to capture the DoD civilian employee equivalent term as appropriate. For example, “evaluation/fitness report” in the 2016 *WGRA* became “performance appraisal” in the 2016 *WGRC*. In addition, references to “Service member(s)” in the 2016 *WGRA* were generally changed to “DoD civilian employee(s)” to capture the appropriate reference population.
4. *Harm to Career Follow-up Item*. The examples of types of career harm one could experience in cases of gender discrimination were modified from “[hurting] your evaluation/fitness report, affect your chances of promotion or next assignment” to “[hurting] your performance appraisal, affect your chances of promotion, or limit your opportunities for professional development.”
5. *Calculation of Sexual Assault Rates Based on a Nexus to the DoD Civilian Workplace*. The sexual assault rates constructed for the 2016 *WGRA* are based on the self-reported experiences of unwanted sexual behaviors in the past 12 months regardless of where they occurred or who was involved. That means experiences endorsed could be related and unrelated to the member’s military service, but this is important for the Department to assess to ensure military members receive appropriate support and legal services to preserve the readiness of the all-volunteer force. Because the nature and terms of work differ between military members and DoD civilian employees, however, the Department is primarily concerned with assessing and understanding self-reported sexual assault experiences among DoD civilian employees with a nexus to the work environment. Determining the relation of the alleged offender(s) to the civilian employee’s work environment is crucial to allow the Department to assess whether those who indicated experiencing sexual assault may¹¹ potentially fall under their purview for support and legal services. The estimated past year work-related sexual assault prevalence rate was

¹¹ This survey asked respondents to identify whether behaviors experienced were allegedly committed by someone from work as a proxy measure regardless of the context surrounding or where the behaviors were experienced. Only proper investigations can determine whether an alleged offense falls under the purview of the DoD for adjudication.

created by identifying whether employees met criteria for sexual assault in the past year and identified at least one alleged offender as someone from work. Because of this, comparisons across sexual assault rates generated from the 2016 WGRA and 2016 WGRC should be made with caution.

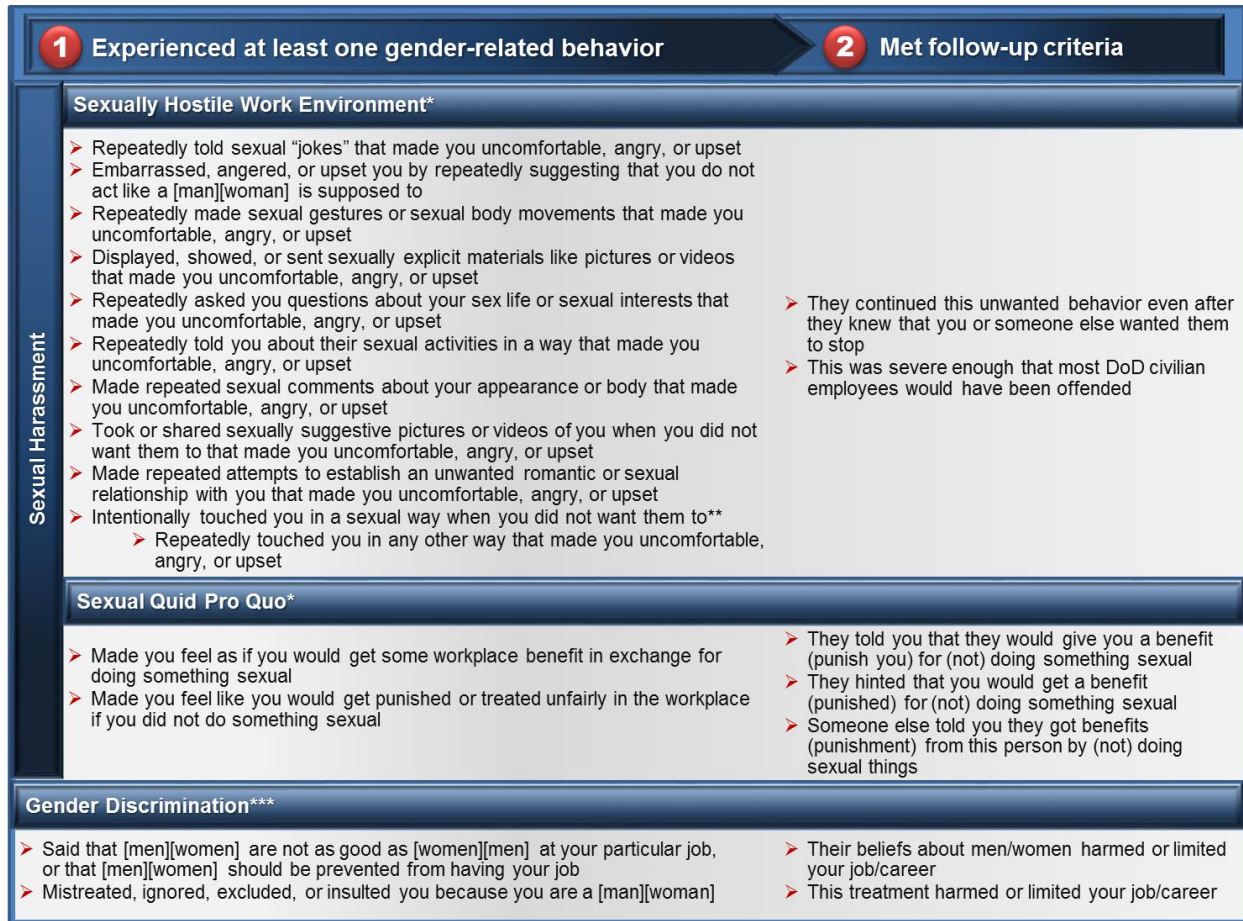
Construction of Estimated Past Year Sexual Harassment and Gender Discrimination Rates

OPA used a two-step process to generate estimates of past year sexual harassment and gender discrimination following the 2014 RMWS guidelines. Questions assessed DoD civilian employees' self-reported experiences of gender-related behaviors committed by someone from their workplace and the circumstances of those experiences. To meet criteria for inclusion in the past year sexual harassment rate, employees must first indicate experiencing one of the gender-related behaviors in their workplace that aligned with sexual harassment, and second, indicate "yes" to one of the follow-up items that assessed pervasiveness, severity, or career impact of the behavior. Sexual harassment is further broken down into sexually hostile work environment and sexual *quid pro quo*. To meet criteria for inclusion in the past year gender discrimination rate, employees must first indicate experiencing one of the gender-related behaviors in their workplace that aligned with gender discrimination, and second, indicate that they believe this behavior resulted in harm to their career.

Estimated past year rates for the 2016 WGRC represent a continuum of behaviors including sexual harassment (sexually hostile work environment and sexual *quid pro quo*) and gender discrimination. The behaviors comprising each type are described below, with details on prevalence rate construction depicted in Figure 2.

- *Sexual Harassment* includes two types:
 - *Sexually Hostile Work Environment*: Includes unwelcome sexual conduct or comments that interfere with a person's work performance or creates an intimidating, hostile, or offensive work environment. Additionally, these behaviors have to either continue after the alleged offender knew to stop or were so severe that most DoD civilian employees would have found them offensive to meet the criteria for inclusion in the past year rate.
 - *Sexual Quid Pro Quo*: Includes instances of job benefits or losses conditioned on sexual cooperation. Additionally, employees must have indicated having direct evidence of an exchange which changed the terms or conditions of their employment to be included in the past year rate.
- *Gender Discrimination*: Includes comments and behaviors directed at someone because of his/her gender that the employee also indicated harmed or limited his/her career.

Figure 2.
Estimated Past Year Sexual Harassment and Gender Discrimination Metrics



*Employees only needed to endorse at least one of the corresponding follow-up criteria to be included in past year rates for sexually hostile work environment and sexual *quid pro quo*. Those who met criteria for either sexually hostile work environment or sexual *quid pro quo* are included in the past year sexual harassment rate.

**The item “intentionally touched you in a sexual way when you did not want them to” has no additional follow-up criteria to be included in past year rates. Those who indicated “Yes” to this item did not see the item “repeatedly touched you in any other way that made you uncomfortable, angry, or upset.”

***Each follow-up item presented corresponded to the unique gender-related behavior endorsed under gender discrimination.

Construction of Estimated Past Year Work-Related Sexual Assault Rates

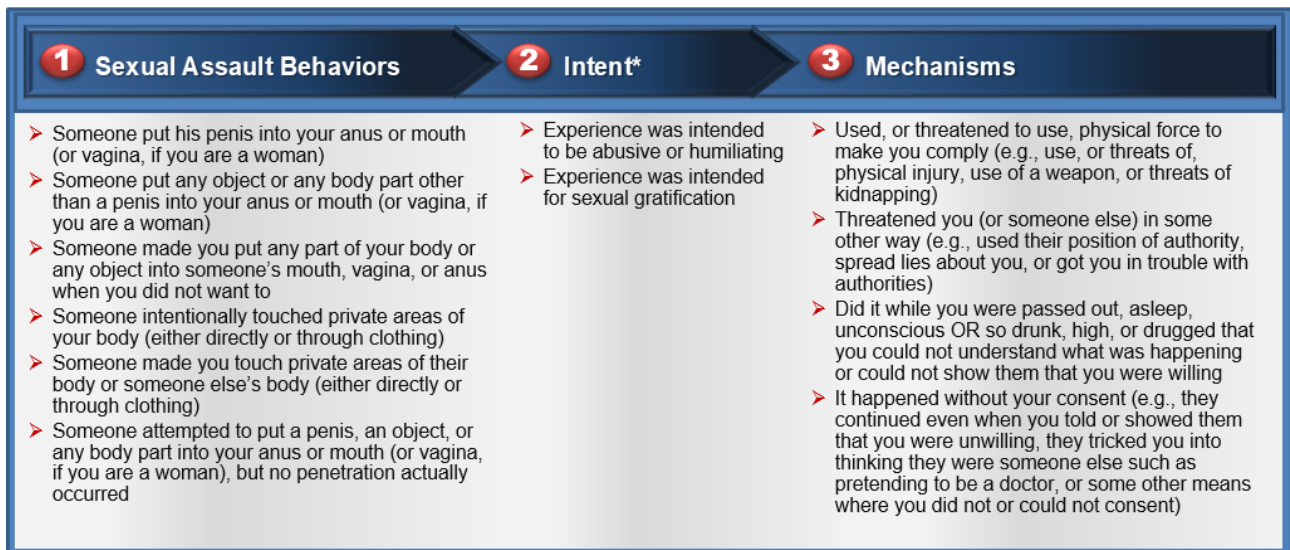
OPA used a three-step process to construct estimated past year rates of work-related sexual assault following the guidelines¹² set forth in the *2014 RMWS* while also ensuring that the reported behaviors had a nexus to the DoD civilian workplace. Questions assessed whether employees experienced unwanted sexual behaviors allegedly committed by someone from their workplace and the circumstances of those experiences. To meet criteria for inclusion in estimated past year rates, employees must first indicate experiencing one of the unwanted sexual

¹² Metric modifications were made in consultation with policy offices and are described later in this technical report.

behaviors that aligned with sexual assault. Second, they must indicate that the behaviors experienced were done with the intent to either gratify a sexual desire or to abuse, humiliate, or degrade (with the exception of penetration with a penis where intent is not required per the Uniform Code of Military Justice [UCMJ] to meet the criminal elements of proof). Finally, respondents must indicate a mechanism was used to demonstrate the behavior was against their will, such as use of force or threats, incapacitation of the victim (e.g., happened while the victim was unconscious or drugged), the alleged offender behaved fraudulently, or any other situation where the victim did not or could not provide consent. Once a respondent met criteria to be considered as having experienced sexual assault for any sexual behavior, the survey was programmed so they would only see questions for the remaining behaviors only to minimize burden. Thus, they would not see the follow-up questions assessing intentions or mechanisms used to gain compliance for additional behaviors reportedly experienced. Respondents must also have confirmed that any behavior they endorsed occurred within the past 12 months and that at least one alleged offender was “someone from work” to be included in the estimated past-year work-related sexual assault prevalence rates. “Someone from work” was defined as any person(s) with whom civilian employees came into contact as part of their DoD civilian job duties regardless of the context surrounding or where the alleged offense(s) occurred.

The estimated past year work-related sexual assault rates were derived from items on the 2016 WGRC are depicted in Figure 3.

Figure 3.
Estimated Past Year Work-Related Sexual Assault Metric

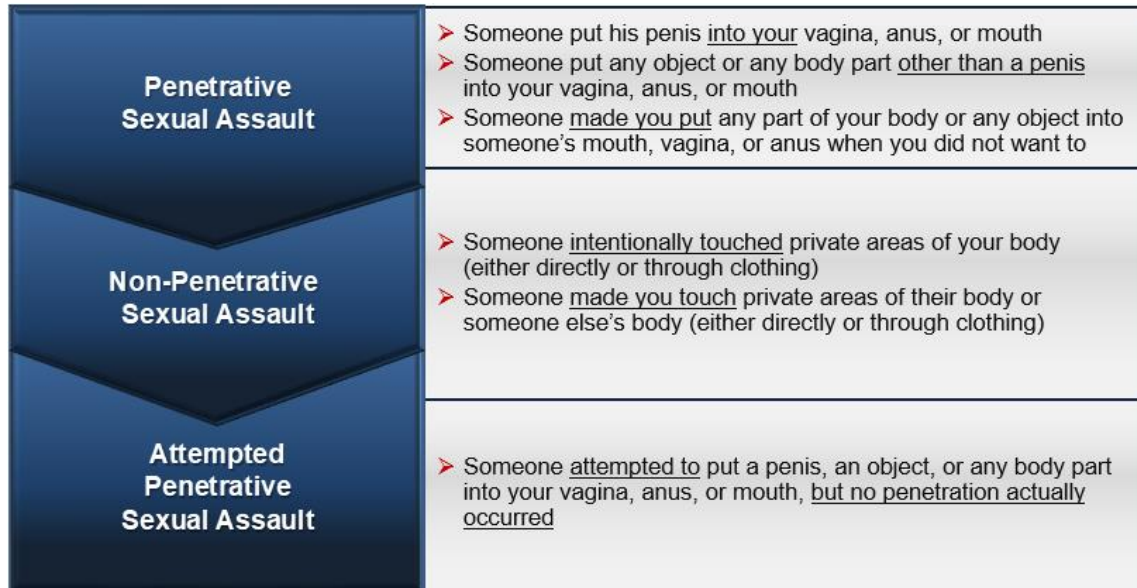


*Intent items were not a requirement for “someone put his penis into your anus or mouth (or vagina, if you are a woman).”

Stepwise criteria were used hierarchically to yield mutually-exclusive estimated past year rates for different types of work-related sexual assault, including penetrative, non-penetrative, and attempted penetrative sexual assault. Penetrative sexual assault includes employees who indicated “yes” to any of the items and follow-up criteria that assessed penetration of the vagina,

anus, or mouth allegedly committed by someone at work in the past 12 months. Non-penetrative sexual assault includes employees who indicated “yes” to any of the items and follow-up criteria that assessed unwanted sexual touching allegedly committed by someone from work in the past 12 months who were not previously counted as work-related penetrative sexual assault. Attempted penetrative sexual assault includes employees who indicated “yes” to the item and follow-up criteria that assessed work-related attempted sexual assault allegedly committed by someone from work in the past 12 months who were not previously counted as having experienced either work-related penetrative sexual assault or work-related non-penetrative sexual assault. The behaviors comprising each type of work-related sexual assault are described below, with details on the hierarchical estimated past year work-related sexual assault rate construction depicted in Figure 4.

- *Penetrative Sexual Assault:* Includes completed unwanted sexual intercourse, sodomy (oral or anal sex), or penetration by an object allegedly committed by someone from work in the past 12 months. Additionally, respondents must indicate that they believe the behaviors meet intent (except in cases of penile penetration) and mechanism criteria required to be considered sexual assault.
- *Non-Penetrative Sexual Assault:* Includes intentional unwanted sexual touching of private areas of one’s body or forced unwanted sexual touching of the private areas of someone else’s body, allegedly committed by someone from work in the past 12 months. Private areas include buttocks, inner thigh, breasts, groin, anus, vagina, penis, or testicles. Additionally, respondents must indicate that they believe the behaviors met intent and mechanism criteria required to be considered work-related sexual assault. Respondents who were previously counted as having experienced penetrative sexual assault were excluded from this estimated rate.
- *Attempted Sexual Assault:* Includes attempted unwanted sexual intercourse, sodomy (oral or anal sex), or penetration by an object where no form of penetration actually occurred, and were allegedly committed by someone from work in the past 12 months. Additionally, respondents must indicate they believe that the attempted unwanted sexual penetration met intent and mechanism criteria to be considered sexual assault. Respondents who were previously counted as having experienced penetrative sexual assault or non-penetrative sexual assault were excluded from this estimated rate.

Figure 4.***Hierarchy of Past Year Work-Related Sexual Assault Types*****Conclusion**

The 2016 WGRC was conducted to fulfill the Congressional mandate outlined in Title 10 USC §481a for biennial survey assessment of gender relations in the DoD civilian workplace. The 2016 WGRC was the first survey conducted by OPA at the request of ODMEO to meet this statutory requirement. The survey was designed to assess the level and associated features of sexual harassment, gender discrimination, and sexual assault.

The purpose of this technical report was to explain the statistical and survey methodology employed on the 2016 WGRC as well as illustrate how estimates of past year work-related sexual harassment, gender discrimination, and sexual assault rates were constructed. All uses and interpretations of the 2016 WGRC data should be made in light of the information contained in this technical report. Additionally, the results of this report are based on self-reported experiences. The use of results presented is limited to data that may inform policy and does not constitute actual knowledge of specific offenses by the Department or its officials. Allegations of sexual harassment, gender discrimination, and sexual assault must be reported and investigated through established channels before allegations are substantiated.

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Appendix A. Frequently Asked Questions

DATA
DRIVEN
SOLUTIONS
FOR
DECISION
MAKERS



The H&R Research Division within the Office of People Analytics (OPA) has been conducting surveys of gender issues for military members since 1988. OPA uses scientific state of the art statistical techniques to draw conclusions from random, representative samples of DoD populations. To construct estimates for the *2016 Department of Defense Civilian Employee Workplace and Gender Relations Survey (2016 WGRC)*, OPA used complex weighting procedures to ensure accuracy of estimates to the full DoD appropriated-fund civilian employee population. This approach, though widely accepted as the standard method to construct generalizable estimates, is often misunderstood. The following details some common questions about our methodology as a whole and the *2016 WGRC* specifically.

1. *What was the population of interest for the 2016 WGRC?*

The target population consisted of DoD appropriated-fund civilian employees from the military departments (Army, Navy, Marine Corps, and Air Force) and DoD Agencies/Activities who were over the age of 18, in a pay status, U.S. citizens, and not political appointees.

OPA conducted a census of all eligible DoD appropriated-fund civilian employees at the time of fielding, which consisted of 730,161 employees. Data were collected between 29 September and 22 December 2016. The weighted response rate for the *2016 WGRC* was 32%.

2. *Was the 2016 WGRC anonymous?*

The *2016 WGRC* survey was “confidential,” not “anonymous.” In confidential surveys conducted by OPA, the identifying information of respondents is only used by government and contractor staff engaged in, and for purposes of, survey research (e.g., selecting, contacting, and tracking the participation of respondents).

Individual survey responses received by OPA are kept in separate files from the personally identifiable information of respondents used to solicit survey participation. OPA only tracks survey responses back to an individual if the respondent indicates potential harm to self or others in survey responses or communications about the survey. Otherwise, survey responses are not tracked back to individual respondents by OPA and survey results are only reported in the aggregate so that no individual respondents can be identified.

OPA's use of the word "confidential" is similar to its routine use in privacy statements within the health professions to denote that the information collected can potentially identify the individual respondent, but this information will not be shared with others unless compelled by law or written consent. Additionally, OPA received a Certificate of Confidentiality for the *2016 WGRC* to provide further protections to respondents from compelled disclosure of survey responses.

3. *The 2016 WGRC uses “weighting.” What does this mean?*

Simply stated, weighting allows for data collected on surveys to be accurately generalized up to the total population. In the case of the *2016 WGRC*, this allows OPA to generalize to the full population of DoD appropriated-fund civilian employees that meet the criteria listed above.

OPA uses accurate administrative records (e.g., demographic data) for the DoD appropriated-fund civilian employee population both at the sample design stage as well as during the statistical weighting process to account for survey nonresponse and post-stratification to known key variables or characteristics. Prior OPA surveys provide empirical results showing how response rates vary by many characteristics (e.g., gender, Component, pay plan/grade). OPA uses this information to accurately estimate the optimum sample sizes needed to obtain sufficient numbers of respondents within key reporting groups (e.g., female Army civilian). After the survey is complete, OPA makes statistical weighting adjustments so that each subgroup (e.g., female Army civilian, GS-13) contributes toward the survey estimates proportionally to the known size of the subgroup.

For this inaugural survey, a census was conducted. This means that all 730,161 DoD appropriated-fund civilian employees were invited to participate and the weighting process for the 2016 WGRC accounts for survey nonresponse. Completed surveys were received from 224,893 eligible respondents and the overall weighted response rate for eligible sample members was 32%.

OPA's weighting methodology meets industry standards used by government statistical agencies including the Census Bureau, Bureau of Labor Statistics, National Agricultural Statistical Service, National Center for Health Statistics, and National Center for Education Statistics. In addition, private survey firms including RAND, WESTAT, and RTI use this methodology, as do well-known polling firms such as Gallup, Pew, and Roper.

4. *Are survey estimates valid with only a 32% weighted response rate?*

The weighted response rate for the 2016 WGRC was 32%, which is typical for large DoD-wide civilian employee surveys. This rate falls in between the observed DoD civilian employee responses rates for the Federal Viewpoint Survey (FEVS) in 2016 (26% response rate) and 2015 (35% response rate) conducted annually by the Office of Personnel and Management (OPM).

Experts in the field have found that surveys with similar response rates, or lower, are able to produce reliable estimates. While nonresponse bias due to low response rates is always a concern, OPA has knowledge, based on administrative records, of the characteristics of both survey respondents and survey nonrespondents, and uses this information to make statistical adjustments that compensate for demographic differences in survey nonresponse. This important advantage improves the quality of estimates from OPA surveys that other survey organizations rarely have.

In addition, OPA routinely conducts "Nonresponse Bias Analyses" on the Workplace Gender Relations (WGR) surveys. This type of analysis measures whether respondents to the survey are fundamentally different from nonresponders on a variety of dimensions. If differences are found, this may be an indication that there is bias in the estimates produced. Using a variety of methods to gauge potential nonresponse bias, OPA has found no substantial evidence of nonresponse bias on the 2016 WGRC as stated in this technical report or on other recent WGR surveys (OPA, 2016).

5. *What about surveys that study the total U.S. population? How do they compare?*

Surveys of sensitive topics and rare events rely on similar methodology and response rates to project estimates to the total U.S. adult population. For example, the 2010 National Intimate Partner and Sexual Violence Survey, conducted by the Centers for Disease Control and Prevention, calculated population estimates for sexual violence based on about 18,000 interviews, reflecting a weighted response rate of between 28% to 34%.

