

**U.S. Department of Defense**



# **Appendix A: Methodology Report**

**2018 Department of Defense Civilian Employee Workplace and  
Gender Relations Survey**

**DATA  
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SOLUTIONS  
FOR  
DECISION  
MAKERS**



OFFICE OF PEOPLE ANALYTICS

# 2018 Department of Defense Civilian Employee Workplace and Gender Relations Survey

## Methodology Report

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Policy officials contributing to this survey effort include Mr. Cyrus Salazar (ODEI); Dr. Allison Greene-Sands, Mr. Clarence Johnson, and Mr. F. Michael Sena, (formerly of ODEI); Dr. Nathan Galbreath and Mr. David Griffith (Sexual Assault Prevention and Response Office [SAPRO]); Ms. Melissa Rubenstein (Defense Civilian Personnel Advisory Service [DCPAS]); Mr. Dean Rogers and Dr. Bonita Soley (formerly of DCPAS); and Dr. Elizabeth Van Winkle (Office of Force Resiliency).

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<sup>1</sup> In 2018, the Office of Diversity, Management, and Equal Opportunity (ODMEO) was reorganized and the office now responsible for overseeing this survey effort is the Office for Diversity, Equity, and Inclusion (ODEI) currently under the direction of Director Mr. Cyrus Salazar.

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## 2018 Department of Defense Civilian Employee Workplace and Gender Relations Survey: Methodology Report

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### Introduction

The *2018 Department of Defense Civilian Employee Workplace and Gender Relations Survey (2018 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 *2018 WGRC* was the second survey conducted to meet this statutory requirement and the first to include nonappropriated funds (NAF) civilian employees. 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 (ODEI; formerly the Office of Diversity Management and Equal Opportunity [ODMEO]) enlisted the Office of People Analytics (OPA) to conduct the *2018 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 of 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 *2018 WGRC*, describe how to interpret results, and illustrate how estimates of past year sexual harassment, gender discrimination, and sexual assault rates in the DoD civilian workplace were constructed. All uses and interpretations of the *2018 WGRC* data should be made in light of the information contained in this technical report.

### Statutory Requirement

Per Title 10 USC §481a, the DoD is statutorily required to field biennial Department of Defense Civilian Employee Workplace and Gender Relations Surveys (WGRC) every other fiscal year *“to solicit information on gender issues, including issues relating to gender-based assault, harassment, and discrimination, and the climate in the Department for forming professional relationships between male and female civilian employees of the Department.”* Additional survey content requirements include:

- (1) Indicators of positive and negative trends for professional and personal relationships between male and female civilian employees of the Department of Defense.*
- (2) The specific types of assault on civilian employees of the Department by other personnel of the Department (including contractor personnel) that have occurred, and the number of times each respondent has been so assaulted during the preceding fiscal year.*

- (3) *The effectiveness of Department policies designed to improve professional relationships between male and female civilian employees of the Department.*
- (4) *The effectiveness of current processes for complaints on and investigations into gender-based assault, harassment, and discrimination involving civilian employees of the Department.*
- (5) *Any other issues relating to assault, harassment, or discrimination involving civilian employees of the Department that the Secretary considers appropriate.*

## 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 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).<sup>2</sup> Appendix A contains frequently asked questions (FAQs) that explain the methods employed by government and private survey agencies, including OPA.

The *2018 WGRC* survey was the second in a line of Congressionally-mandated WGR surveys conducted by OPA with DoD civilian employees. The *2018 WGRC* survey methodology is consistent with previous WGR surveys administered to Service members and DoD civilian employees. More details about the statistical and survey methodology can be found below, including sample design, survey details, survey administration, statistical weighting, statistical analyses, and interpretation of results.

### Sampling Design

The target population for the *2018 WGRC* consisted of DoD appropriated fund (APF) and NAF civilian employees (including Senior Executive Service [SES]) present on the Defense Manpower Data Center’s (DMDC) May 2018 *Appropriated Funds Civilian Personnel* or *Nonappropriated Fund Civilian Personnel Data Files*. The files included civilian employees from all Military Departments (i.e., Department of the Army, Department of the Navy [including employees working at Marine Corps locations], Department of the Air Force) and DoD Agencies/Field Activities who were 18 years of age or older, were not political appointees, were

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<sup>2</sup> 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](http://aapor.org/Best_Practices1/4081.htm#best3)). OPA has 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.



not current active duty military members,<sup>3</sup> were U.S. citizens, and had been employed for at least five months.<sup>4</sup> 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.<sup>5</sup>

Single-stage, nonproportional stratified random sampling procedures<sup>6</sup> were used to select APF civilian employees though a census of eligible NAF civilian employees was used. The overall sample consisted of 359,195 civilian employees (APF = 251,924 and NAF = 107,271).

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 June 2018 DMDC files were identified as no longer eligible to participate in the *2018 WGRC*. There were 12,953 (3.6%) 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 1,943 (0.5%) of sample members identified as ineligible to participate in the *2018 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 second WGR survey administered to DoD civilian employees to meet this statutory requirement.<sup>7</sup>

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<sup>3</sup> Active duty members who work part-time as NAF employees in addition to their military duties were excluded since they were sampled for the *2018 Workplace and Gender Relations Survey of Active Duty Members* that was conducted at the same time as the *2018 WGRC*. Reservists were included in the sampling frames, however, including all APF Reservists and the Selected Reserve population for NAF.

<sup>4</sup> The sampling frame was developed approximately five months prior to fielding the survey. Therefore, the sampling population included civilian employees that had at least five months of service at the start of survey fielding.

<sup>5</sup> 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.

<sup>6</sup> In stratified random sampling, all members of a population are categorized into homogeneous groups. For example, members might be grouped by gender, employee type, and Component in one group (e.g., all Female APF Army civilian employees in one group, all Male APF Army civilian employees in another). Members are chosen at random within each group. Small groups are oversampled in comparison to their proportion of the population so there are enough responses from small groups to analyze. Weights are used so that groups are correctly represented in the analyses.

<sup>7</sup> In 2016, the *WGRC* was only administered to APF civilian employees via the Web. NAF civilian employees were included in the *2018 WGRC*.

The *2018 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 *2018 WGRC* generally aligns with the *2016 WGRC* (Daniel et al., 2018) and the *2018 Workplace and Gender Relations Survey of Active Duty Members (2018 WGRA)*; Breslin et al., 2019). In consultation with policy offices, the *2018 WGRC* survey contains refined questions about the reporting process and policies for civilian employees as well as expanded gender relations climate questions to better understand the workplace and gender relations climate for DoD civilian employees.

The *2018 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. 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 October 12, 2018, the prior year date would be October 12, 2017).

## Survey Administration

The *2018 WGRC* was a confidential survey administered between October 12 and December 18, 2018. The survey was primarily conducted on the Web, though NAF civilian employees who had not responded by November 16, 2018 were mailed a paper survey<sup>8</sup> to their primary mailing address in administrative records. 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 October 12, 2018 when the survey website opened to sample members and the first OPA e-mail announcement was sent to all sample members.<sup>9</sup> The e-mail 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, five additional reminder e-mail

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<sup>8</sup> The paper survey was limited to basic demographic information; the sexual harassment, gender discrimination, and sexual assault metrics; briefer details about the one situations with the greatest effect (e.g., alleged offender demographics and whether it was reported); reporting knowledge, propensity, and climate; leadership climate; and sexual harassment training.

<sup>9</sup> 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.

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 79,289 eligible respondents and the overall weighted response rate for eligible sample members was 27.3% (Table 1).

**Table 1.**  
**2018 WGRC Counts of Respondents and Weighted Response Rates**

Response Groups	Total Population	Sample Size	Number of Respondents	Response Rate
<b>Total DoD</b>	841,958	359,195	79,289	27.3%
APF	734,687	251,924	64,920	29.1%
NAF	107,271	107,271	14,369	14.8%
<b>Gender</b>				
Women	312,974	182,751	39,708	27.4%
APF	241,594	111,371	30,405	31.3%
NAF	71,380	71,380	9,303	14.3%
Men	528,984	176,444	39,581	27.2%
APF	493,093	140,553	34,515	28.1%
NAF	35,891	35,891	5,066	15.6%

*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 2018 WGRC respondent data to be generalizable to the entire DoD civilian employee population. After resolving case dispositions based on eligibility for the survey and completion status, analytical weights were created to account for varying response rates among population subgroups using the industry standard three-stage process. 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.

The three stage process of weighting consisted of the following steps:

- *Adjustment for selection probability.* Probability samples such as the sample for this survey are selected from lists and each member of the list has a known nonzero probability of selection. For example, if a list contained 10,000 members in a demographic subgroup and the desired sample size for the subgroup was 1,000, one in every tenth member of the list would be selected. During weighting, this selection

probability (1/10) is taken into account. The base, or first weight, used to adjust the sample is the reciprocal of the selection probability. In this example, the adjustment for selection probability (base weight) is 10 for members of this subgroup. Because a census of all eligible NAF civilian employees was conducted, the base weight for all NAF respondents was 1.

- *Adjustment for nonresponse.* Some sampled members do not respond to the survey, which must also be accounted for through weighting. Continuing the previous example, suppose only half of sample members, 500, completed and returned a survey. Because the unweighted sample size would only be 500, weights are needed to project the sample up to the subgroup population total (10,000). In this case, the base-weighted respondents would sum to only 5,000 weighted respondents. To adjust for nonresponse, the base weights are multiplied by the reciprocal of the nonresponse rate. In this example, the base weight (10) is multiplied by the reciprocal of the nonresponse rate (2) to create a new weight of 20. The weighted sample sums to the subgroup population total of 10,000. Additionally, 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 NAF civilian employee may have a predicted probability of experiencing sexual assault of 4% while a male APF 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 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 are appropriated fund). 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 characteristics<sup>10</sup> (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 four studies to evaluate NRB for the *2018 WGRC*, including:

1. Comparing the composition of the sample with survey respondents by key demographics,
2. Comparing weighted survey estimates to known population totals,
3. Evaluating the sensitivity of different post-survey adjustments (weighting methods) on survey estimates, and
4. Comparison of response patterns for the *2018 WGRC* to the *2016 WGRC* for APF to determine potential impacts on trending.

Results from the first study show that survey weights effectively eliminated the differences between respondents and nonrespondents as the distribution of weighted survey respondents closely matched the civilian population for APF and NAF. OPA concluded that although the small differences in response rates across subgroups provides some NRB risk, especially when comparing APF to NAF, 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 *2018 WGRC* estimates.

Results from the second study found some estimates were statistically significantly different from known population totals (e.g., pay grade), but the NRB for these statistics was about 1%. OPA considers this a very low NRB level, so the study shows little risk to the estimates.

Results from the third 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 concluded that the *2018 WGRC* estimates were robust to the choice of weighting methods, thus presenting little NRB concern.

Finally, a study of the distributions of respondents and nonrespondents for the *2018 WGRC* showed that response patterns closely followed response patterns from *2016 WGRC* for APF civilian employees. OPA concludes that the direction and magnitude of NRB in the 2018 estimates is likely similar to 2016, and therefore trend comparisons likely have little bias as well.

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<sup>10</sup> 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 *2018 WGRC*.

## Statistical Analyses

The 2018 WGRC survey results were primarily analyzed for the DoD overall, by gender, and by civilian employee type. Trend year analyses were only conducted between 2018 estimates and estimates from 2016 for APF civilian employees where available using the procedures outlined in Appendix B. The definitions for the resulting reporting categories are:

- **Gender:** Women and Men
- **Civilian Employee Type:** APF and NAF

## Interpretation of Results

All results provided should be interpreted as estimates of perceptions or experiences of the overall population. By definition, all survey results are subject to error which should be considered when interpreting data. Using Figure 1 below, this section describes the individual elements of tables compiled for DoD civilian employees and explains how to interpret the tables.

**Figure 1.**  
*Example Table*

		Total DoD			APF Civilian			NAF Civilian			2	
		DoD	Women	Men	APF	Women	Men	NAF	Women	Men		
3	Item text	Satisfied	83	78	85	83	78	86	80	78	84	4
		Neither	14	17	13	14	17	13	15	17	13	
		Dissatisfied	3	4	NR	3	4	NR	5	6	3	
	Item text	Satisfied	82	77	85	82	77	85	79	77	83	
		Neither	15	18	13	15	18	13	16	17	14	
		Dissatisfied	3	5	NR	3	5	NR	5	6	3	
	Item text	Satisfied	79	74	83	80	73	83	77	75	81	
		Neither	16	20	15	16	20	15	17	18	15	
		Dissatisfied	4	7	3	4	7	NR	6	7	4	
5		Margins of error range from ±1% to ±2%										
6		Percent of all civilian employees										
											7	

## Table Elements

Figure 1 above shows a sample data table from the 2018 WGRC that presents weighted estimates for the DoD by gender and employee type for a sample item from the survey. Details on how to read the tables are provided below:

1. **Table Title:** Describes the results for the question/item presented in the table.

2. **Reporting Categories:** Denotes the demographic categories displayed in the table. The wide gray lines separate the groupings within a demographic category.
3. **Question/Item Text and Response Options:** This text identifies what the survey question or item measured is along with their associated labels for the response options. In most cases, these represent the weighted percent of responses for each option on the survey for each reporting category or a collapsed version of the response options for ease of analysis (e.g., “likely” includes survey responses for members who indicated “very likely” and “likely”). Within a set of response options, percentages may not add to 100% due to rounding. Where this is a simple binomial response, such as “Yes” and “No,” only the “Yes” percentage is presented and the text of the item respondents have indicated “Yes” is provided. In these instances, and in instances where respondents were able to select more than one response option, the percentage who marked each item does not sum to 100% across the set. Composite scores are presented as well (for example, Estimated Past Year Sexual Harassment Rate).
4. **Estimates:** The numbers represent population estimates of the percentages within each reporting category who endorsed the particular response option.
5. **Margins of Error:** 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  $\pm 3$ , 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 *2018 WGRC*, variance estimates were calculated using SUDAAN<sup>®</sup> PROC DESCRIPT (Research Triangle Institute, Inc., 2013).<sup>11</sup>
6. **Percent Responding:** Because the results of the *2018 WGRC* are based on weighted data, the reader can assume the results generalize to the entire DoD civilian employee population within the margin of error. All tables and figures should be interpreted in light of the population of 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 experiencing sexual harassment in the past 12 months,” this means only respondents who endorsed past year experiences of

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<sup>®</sup> Registered 2013 by Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC 27709-2194.

<sup>11</sup> As a result of differential weighting, only certain statistical software procedures, such as SUDAAN<sup>®</sup> PROC DESCRIPT, correctly calculate standard errors, variances, or tests of statistical significance for stratified samples.

sexual harassment on earlier questions were eligible to respond to this question so estimates presented only represent the population of civilian employees who experienced sexual harassment in the past 12 months.

7. **Special Notations:** It is possible that a specific result is “not reportable” due to low reliability, which is 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.

## 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 (Morrall, Gore, & Shell, 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 legal definitions of sex discrimination or sexual assault. Subsequently, the *2018 WGRC* uses the same metrics and weighting methods as other WGR surveys, which were originally adapted for the *2016 WGRC* (Daniel et al., 2018) from the *2016 Workplace and Gender Relations Survey of Active Duty Members (2016 WGRA)*; Davis, Griftka, Williams, & Coffey, 2017).<sup>12</sup>

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, including adjustment made to military metrics for 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 *2018 WGRC* rather than indicative of events that would provide a basis for an EEO complaint or sexual assault criminal prosecution in any jurisdiction. Only proper investigations can adjudicate cases of misconduct.

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<sup>12</sup> Since the development of the metrics in 2014, OPA has implemented some modifications in consultation with policy offices and RAND. See Davis et al., 2017 and Van Winkle, Rock, & Hurley, 2016 for a description on how the metrics have changed over time.



## Differences Between Military and DoD Civilian Employee Metrics

The 2016 WGRA (active duty survey; Davis et al., 2017) was used as the basis for the metrics of sexual harassment, gender discrimination, and sexual assault for DoD civilian employees. Minimal changes were made to adapt the metrics to the DoD civilian employee population. A pretest was also conducted to ensure the top line behaviors assessed in the metrics were understandable and relatable to civilian employees prior to fielding the 2016 WGRC (Daniel et al., 2018). 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 which was carried over to the 2018 WGRC. In addition, changes were made to substitute military nomenclature with civilian equivalent language. These minimal changes ensure comparability of estimates generated by the metrics across military and civilian surveys. 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 military survey became “performance appraisal” in the civilian survey. In addition, references to “Service member(s)” in the military survey 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 military surveys 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 may potentially fall under their purview for support and legal services.<sup>13</sup> The estimated past year work-related sexual assault prevalence rate was 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 civilian and military surveys should be made with caution.

### **Construction of Estimated Past Year Sexual Harassment Rate**

Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature that impact one's career or create an ineffective or hostile work environment (sexually hostile work environment and/or sexual *quid pro quo*). The 2018 WGRC assessed DoD civilian employees' self-reported experiences of gender-related behaviors committed by someone from their workplace<sup>14</sup> and the circumstances of those experiences to assess for sexual harassment. OPA used a two-step process to generate estimates of past year sexual harassment following the 2014 RMWS guidelines. To be included in the *Estimated Past Year Sexual Harassment Rate*, civilian 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.

Estimated past year rates for the 2018 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

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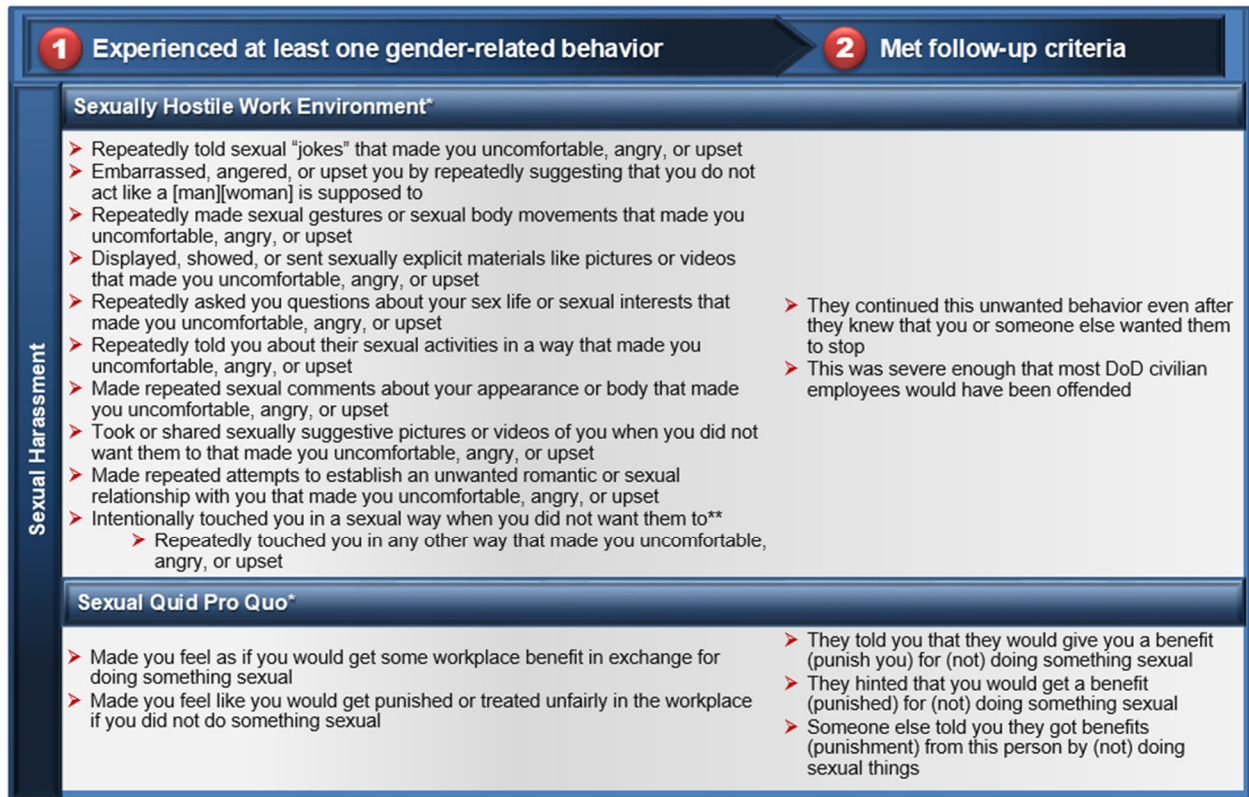
<sup>13</sup> This survey asked respondents to identify whether behaviors experienced were allegedly committed by someone from work as a proxy measure regardless of the context surrounding or where the behaviors were experienced. Only proper investigations can determine whether an alleged offense falls under the purview of the DoD for adjudication.

<sup>14</sup> "Someone from work" was defined for respondents as "any person(s) you have contact with as part of your civilian job duties." "Someone from work" could be another DoD civilian employee, a supervisor, someone above or below you in pay grade/category, a military member, or a contractor. Respondents were further instructed to include experiences regardless of where or when they occurred as long as the person who did them was someone from their DoD civilian workplace.

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.

**Figure 2.**  
*Estimated Past Year Sexual Harassment Rate Construction*



\*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.”

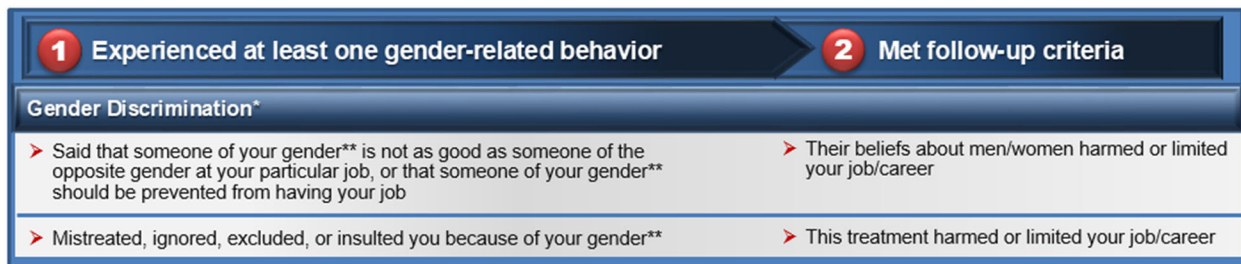
### Construction of Estimated Past Year Gender Discrimination Rate

Gender discrimination refers to comments and/or behaviors directed at someone because of his or her gender that result in harm to the employee’s career. Questions assessed DoD civilian employees’ self-reported experiences of gender-related behaviors committed by someone from

their workplace<sup>15</sup> and the circumstances of those experiences to assess for gender discrimination. OPA used a two-step process to generate estimates of past year sexual harassment and gender discrimination following the 2014 RMWS guidelines. To meet criteria for inclusion in the *Estimated Past Year Gender Discrimination Rate*, civilian 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.

Figure 3 depicts the steps for constructing the *Estimated Past Year Gender Discrimination Rate*.

**Figure 3.**  
***Estimated Past Year Gender Discrimination Rate Construction***



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

\*\*The Web survey used smart logic to program question text based on the respondent’s gender.

### **Construction of the Estimated Past Year Work-Related Sexual Assault Rates**

Work-related sexual assault refers to unwanted contact of a sexual nature committed without someone’s consent by someone from the workplace.<sup>16</sup> Questions assessed whether employees experienced unwanted sexual behaviors allegedly committed by someone from their workplace and the circumstances of those experiences. OPA used a three-step process to construct estimated past year rates of work-related sexual assault following the guidelines<sup>17</sup> set forth in the 2014 RMWS while also ensuring that the reported behaviors had a nexus to the DoD civilian workplace. To meet criteria for inclusion in the *Estimated Past Year Work-Related Sexual Assault Rates*, employees must first indicate experiencing one of the unwanted sexual behaviors that aligned with sexual assault. Second, they must indicate that the behaviors experienced were

<sup>15</sup> “Someone from work” was defined for respondents as “any person(s) you have contact with as part of your civilian job duties.” “Someone from work” could be another DoD civilian employee, a supervisor, someone above or below you in pay grade/category, a military member, or a contractor. Respondents were further instructed to include experiences regardless of where or when they occurred as long as the person who did them was someone from their DoD civilian workplace.

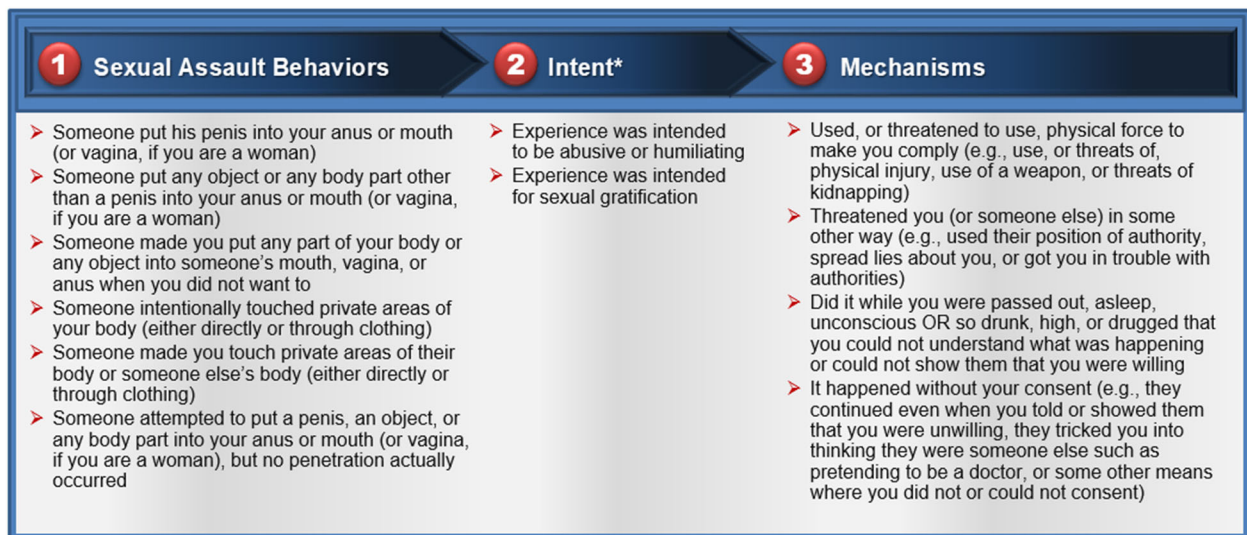
<sup>16</sup> “Someone from work” was defined for respondents as “any person(s) you have contact with as part of your civilian job duties.” “Someone from work” could be another DoD civilian employee, a supervisor, someone above or below you in pay grade/category, a military member, or a contractor. Respondents were further instructed to include experiences regardless of where or when they occurred as long as the person who did them was someone from their DoD civilian workplace.

<sup>17</sup> Metric modifications were made in consultation with policy offices and were described earlier in this technical report.

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, which could include other DoD civilian employees, supervisors, military members, contractors, or any other individuals they come into contact with while performing their DoD civilian job duties.<sup>18</sup>

The estimated past year work-related sexual assault rates were derived from items on the *2018 WGRC* are depicted in Figure 4.

**Figure 4.**  
*Estimated Past Year Work-Related Sexual Assault Metric*



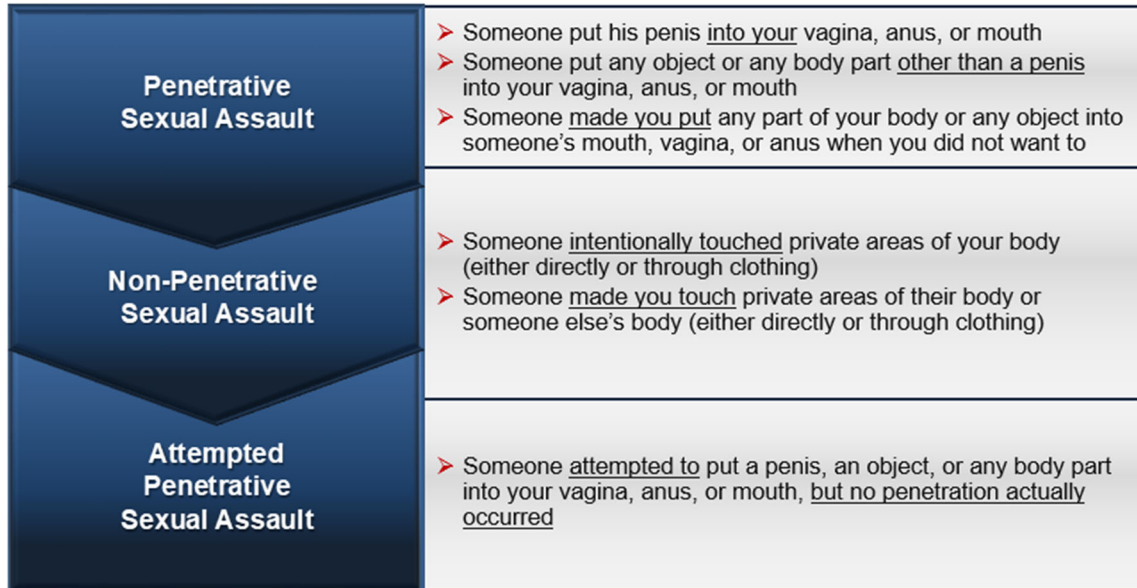
\*Intent items were not a requirement for “someone put his penis into your anus or mouth (or vagina, if you are a woman).”

<sup>18</sup> 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.

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 5.

- *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 5.**  
***Hierarchy of Past Year Work-Related Sexual Assault Types***



## Conclusion

The *2018 WGRC* fulfills the requirements outlined in Title 10 USC §481a for biennial survey assessment of gender relations in the DoD civilian workplace. The *2018 WGRC* was the second survey conducted by OPA at the request of ODEI 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 DoD continues to diligently pursue policies and programs that support its goal of eliminating unwanted gender-related behaviors in the DoD civilian workplace. These efforts focus on strategies to achieve prevention (a reduction in the prevalence of these behaviors) as well as strategies to improve response for victims of these behaviors. To this end, the *2018 WGRC* also performs a critical surveillance function by providing insights regarding the prevalence of sexual harassment, gender discrimination, and work-related sexual assault; the characteristics of these offenses; experiences with reporting or decisions not to report these offenses; and descriptions of the culture and climate of the organizations in which DoD civilian employees operate.

The purpose of this technical report is to explain the statistical and survey methodology employed on the *2018 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 *2018 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 may be substantiated.





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# Appendix A. Frequently Asked Questions

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## Frequently Asked Questions

The H&R Research Division within the Office of People Analytics (OPA) has been conducting surveys of gender relations among military members since 1995. OPA uses scientific state of the art statistical techniques to draw conclusions from random, representative samples of DoD populations. To construct estimates for the *2018 Department of Defense Civilian Employee Workplace and Gender Relations Survey (2018 WGRC)*, OPA used complex weighting procedures to ensure accuracy of estimates to the DoD 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 *2018 WGRC* specifically.

### 1. *What is the DoD Civilian Employee Workplace and Gender Relations Survey?*

The *2018 WGRC* survey is a Congressionally-mandated gender relations survey conducted by OPA with DoD civilian employees to meet the statutory requirement of 10 USC 481a for DoD civilian employee biennial assessments of workplace and gender relations. The Department is committed to eliminating unlawful discrimination and harassment within the DoD and seeks to estimate past year rates of these experiences among members as part of this effort. The *2018 WGRC* was designed with input from the DoD Office for Diversity, Equity, and Inclusion (ODEI)<sup>19</sup> representatives. The first survey of this nature was conducted by OPA in 2016 though it was only administered to appropriated fund (APF) civilian employees.

### 2. *What was the population of interest for the 2018 WGRC?*

The target population for the *2018 WGRC* consisted of APF and nonappropriated fund (NAF) 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, not current active duty members, and not political appointees.

The overall DoD civilian employee sample consisted of a census of the 107,271 NAF civilian employees and a sample of 251,924 appropriated fund civilian employees. Data were collected between October 12, 2018 and December 18, 2018. The weighted response rate for the *2018 WGRC* was 27.3%.

### 3. *Was the 2018 WGRC anonymous?*

The *2018 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.

<sup>19</sup> Formerly the Office of Diversity Management and Equal Opportunity (ODMEO).

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.

4. *The 2018 WGRC uses “sampling” and “weighting.” What does this mean?*

Simply stated, sampling and weighting allows for data, based on a sample, to be accurately generalized to the total population. In the case of the 2018 WGRC this allows OPA to generalize to the full population of DoD civilian employees that meet the criteria listed above.

OPA uses accurate administrative records (e.g., demographic data) for the DoD 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., race/ethnicity, Service, paygrade). OPA uses this information to accurately estimate the optimum sample sizes needed to obtain sufficient numbers of respondents within key reporting groups (e.g., Hispanic Army members). After the survey is complete, OPA makes statistical weighting adjustments so that each subgroup (e.g., Hispanic female Army appropriated fund civilian employee) contributes toward the survey estimates proportionally to the known size of the subgroup.

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.

5. *Are survey estimates valid with only a 27.3% weighted response rate?*

Response rates to the 2018 WGRC are consistent with response rate levels and trends for the previous 2016 WGRC and DoD civilian employees surveys conducted by other agencies. In particular, this rate is in line with the observed DoD civilian employee responses rates for the annual Federal Viewpoint Survey (FEVS) conducted by the Office of Personnel and Management (OPM) in 2018 (30% response rate), 2017 (30% response rate), and 2016 (26% response rate). A notable difference is the 2018 WGRC included NAF civilian employees who are not typically surveyed in surveys of the civilian employee population because they are subject to different federal regulations and paid by different funds. They are harder to reach given the settings in which they work, and their response rate was much lower (14.8%) than APF (29.1%) on the 2018 WGRC.

Response rates have decreased over time. However, 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.

In addition, OPA routinely conducts “Nonresponse Bias Analyses” on its military 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. OPA rarely finds substantive evidence of nonresponse bias in analyses of their military surveys, and thus, contends that estimates produced are reliable and valid for the DoD civilian employee population.

6. *How does OPA determine the sample size for a survey?*

OPA uses administrative records (e.g., demographic data) for the DoD civilian employee population both at the sample design stage as well as during the statistical weighting process to account for survey non-response and post-stratification to known distributions for key characteristics. Prior OPA surveys provide empirical results showing how response rates vary by many characteristics (e.g., minority status and component). OPA uses this information to accurately estimate the optimum sample sizes needed to obtain sufficient numbers of respondents within key reporting groups (e.g., Black Air Force member). After the survey is complete, OPA makes statistical weighting adjustments so that each subgroup (e.g., Black male appropriated fund civilian employee) contributes toward the survey estimates proportional to the known size of the subgroup.

In general, this technique has a proven record of providing accurate estimates for total populations. National election polls have used responses from a small sample of individuals, typically around 2,000 or less, to accurately estimate activity by the U.S. voting population as a whole. A quick reference for this is on the website for the National Council on Public Polls Evaluations of the 2010 and 2012 elections.<sup>20</sup> In contrast, OPA collected approximately 79,289 survey responses to accurately estimate to the eligible DoD civilian employee population of 841,958.

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<sup>20</sup> Poll information can be found here for 2012: <http://www.ncpp.org/files/Presidential%20National%20Polls%202012%200103%20Full.pdf>. The surveys which contain margins of error (MOE) were scientifically conducted and typically had lower error despite often having fewer respondents compared to the other surveys.

7. *Some of the estimates provided in the tables show “NR” or “Not Reportable.” What does this mean?*

The estimates become “Not Reportable” when they do not meet the criteria for statistically reliable reporting. This can happen for a number of reasons including high variability or too few respondents. This process helps ensure that the estimates we provide in our analyses and reports are accurate and precise.

8. *How were the sexual harassment, gender discrimination, and work-related sexual assault metrics created and validated? How are past year rates created using these metrics?*

The metric for sexual assault was constructed in 2014 by RAND Corp, using a scientific panel, after Congress required the Department to construct a crime victimization metric. Per industry standards, a crime victimization metric is necessarily more graphic in order to align the behaviors and actions with law and the elements of proof. This is similar to how the Centers for Disease Control and Prevention (CDC) measures sexual assault in the civilian population. The new measure was approved by DoD leadership for use in the 2014 survey on the active duty and Reserve Component population and continues to be the metric used to measure prevalence in the military force. In 2016, the Department used the same metric to estimate sexual assault in the DoD civilian population. A pretest was conducted in 2016 with civilian employees to ensure the metrics were understandable and applicable to the civilian population.

To analyze trends overtime, the *2018 WGRC* uses the same metrics. To be included in the *Estimated Past Year Sexual Harassment Rate*, civilian employees must first indicate experiencing one of the gender-related behaviors in their workplace that align with sexual harassment, and second, indicate “yes” to one of the follow-up items that assess pervasiveness, severity, or career impact of the behavior. To meet criteria for inclusion in the *Estimated Past Year Gender Discrimination Rate*, civilian employees must first indicate experiencing one of the gender-related behaviors in their workplace that align with gender discrimination, and second, indicate that they believe this behavior resulted in harm to their career.

To meet criteria for inclusion in the *Estimated Past Year Work-Related Sexual Assault Rates*, civilian employees must first indicate experiencing one of the unwanted sexual 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, employees must indicate a mechanism demonstrating 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. Civilian employees must also have confirmed that any behavior they endorsed occurred within the prior 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 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.

6. *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 2015 National Intimate Partner and Sexual Violence Survey, conducted by the Centers for Disease Control and Prevention, calculated population estimates for sexual violence based on 10,081 completed interviews, reflecting a weighted response rate of 26%.



# **Appendix B. Appropriated Fund Civilian Employee Trend Analyses**

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## Appropriated Fund Civilian Employee Trend Analyses

### Introduction

The purpose of this appendix is to describe the trend analyses conducted for the *2018 Department of Defense Civilian Employee Workplace and Gender Relations Survey (2018 WGRC)* for appropriated fund (APF) civilian employees.<sup>21</sup> All uses and interpretations of the *2018 WGRC* APF civilian employee data presented should be made in light of the methodological information contained in the main report. As a reminder, the results from the *2018 WGRC* 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 DoD or its officials or evidence that the alleged incident occurred. Allegations of sexual harassment, gender discrimination, and sexual assault must be reported and investigated through established channels before allegations may be substantiated.

The APF civilian employee sample consisted of 251,924 members drawn from the sample frame of 734,687 eligible members using Defense Manpower Data Center's (DMDC) *June 2018 Appropriated Fund Civilian Employee Master File*. Completed surveys were received from 64,920 APF civilian employee eligible respondents. The overall weighted response rate for APF civilian employee eligible members, corrected for nonproportional sampling, was 29.1%. OPA scientifically weighted the *2018 WGRC* APF civilian employee respondent data to be generalizable to the entire DoD APF civilian employee population using the methods described in the main report.

### Survey Administration

The *2018 WGRC* was a confidential survey administered between October 12 and December 18, 2018 on the Web to APF civilian employees. 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 October 12, 2018 when the survey website opened and an e-mail announcement was sent to all sample members.<sup>22</sup> The e-mail 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, five additional reminder e-mail communications were sent

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<sup>21</sup> Only APF civilian employees were surveyed in the *2016 WGRC* so trend analyses could only be conducted for the APF civilian employees from the *2018 WGRC*.

<sup>22</sup> 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.

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 64,920 eligible respondents and the overall weighted response rate for eligible sample members was 29.1% (Table B-1)

**Table B-1.**  
*2018 WGRC Counts of Respondents and Weighted Response Rates for APF Civilian Employees*

Response Groups	Total Population	Sample Size	Number of Respondents	Response Rate
<b>Total APF</b>	734,687	251,924	64,920	29.1%
Women	241,594	111,371	30,405	31.3%
Men	493,093	140,553	34,515	28.1%
<b>APF by Service and Gender</b>				
Army	247,955	87,454	24,027	29.0%
Women	85,844	35,253	10,585	31.6%
Men	162,111	52,201	13,442	27.7%
Navy	208,543	58,828	15,973	29.1%
Women	56,377	22,377	7,066	32.9%
Men	152,166	36,451	8,907	27.7%
Air Force	168,169	44,675	10,770	27.7%
Women	46,648	18,667	4,948	29.8%
Men	121,521	26,008	5,822	26.9%
DoD Agencies/Activities	110,021	60,967	14,150	31.5%
Women	52,726	35,074	7,806	30.4%
Men	57,295	25,893	6,344	32.4%

*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.

### Statistical Analyses

The 2018 WGRC survey results for APF civilian employees were analyzed by gender and Component (Army, Navy/Marine Corps, Air Force, and DoD Agencies/Activities). Trend year tests were conducted between 2018 estimates and estimates from 2016 where available. Results are determined significant at an alpha ( $\alpha$ ) level of 0.01 for trend year analyses. The definitions for the resulting reporting categories for appropriated fund civilian employees are:

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

## Interpretation of Results

Industry-standard complex weighting procedures were used to create population-based estimates using survey data. All results provided should be interpreted as estimates of perceptions or experiences of the overall population. By definition, all survey results are subject to error which should be considered when interpreting data. Using Figure B-1 below, this section describes the individual elements of tables compiled for APF civilian employees and explains how to interpret the tables.

**Figure B-1.**  
*Example Table*

		↑ Higher Than 2016 ↓ Lower Than 2016		Total APF		Army		Navy/ Marine Corps		Air Force		DoD Agencies/ Activities	
				Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
4	Item A text	Satisfied	2018	77↓	85↓	82↓	88↓	76↓	83↓	79↓	86↓	68↓	79↓
			2016	83	89	87	91	83	88	85	90	73	82
		Neither	2018	18↑	13↑	15↑	11↑	19↑	15↑	16↑	13↑	25↑	18↑
			2016	14	10	10	8	14	10	12	9	21	15
		Dissatisfied	2018	5	NR	3	NR	5	NR	5	NR	7	4
			2016	4	1	3	1	3	NR	3	NR	6	3
	Item B text	Satisfied	2018	73↓	83↓	78↓	86↓	71↓	80↓	74↓	84↓	66↓	78↓
			2016	79	87	83	89	79	86	80	88	71	81
		Neither	2018	20↑	15↑	17↑	12↑	21↑	17↑	19↑	14↑	25↑	18↑
			2016	15	11	12	9	16	11	14	10	21	16
		Dissatisfied	2018	7	3	5	NR	8	3	7	2	9	4
			2016	6	2	5	2	5	2	6	2	8	3
Item C text	Satisfied	2018	78	86	83	89	77	84	81	87	69	80	
		2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Neither	2018	17	13	14	10	19	14	15	12	24	17	
		2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Dissatisfied	2018	4	2	3	1	4	NR	4	NR	7	4	
		2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
6		Margins of error range from ±1% to ±2%											
7		Percent of all civilian employees											
		8											

### Table Elements

Figure B-1 above shows a sample data table from the 2018 WGRC that presents weighted estimates for APF by gender below for a sample item from the survey. This table contains information about both within year and trend analyses. Details on how to read the tables are provided below:

1. **Table Title:** Describes the results for the question/item presented in the table.

2. **Key:** Describes the statistical comparisons being made within the tables. When comparing results across survey years (e.g., 2018 compared to 2016), statistical tests for differences between weighted averages along a single dimension are used for trend analyses. Results are determined significant at an alpha ( $\alpha$ ) level of 0.01 for trend year analyses.
3. **Reporting Categories:** Denotes the demographic categories displayed in the table. The wide gray lines separate the groupings within a demographic category.
4. **Question/Item Text and Response Options:** This text identifies what the survey question or item measured is along with their associated labels for the response options. In most cases, these represent the weighted percent of responses for each option on the survey for each reporting category or a collapsed version of the response options for ease of analysis (e.g., “likely” includes survey responses for members who indicated “very likely” and “likely”). Within a set of response options, percentages may not add to 100% due to rounding. Where this is a simple binomial response, such as “Yes” and “No,” only the “Yes” percentage is presented and the text of the item respondents have indicated “Yes” is provided. In these instances, and in instances where respondents were able to select more than one response option, the percentage who marked each item does not sum to 100% across the set. Composite scores are presented as well (for example, Estimated Past Year Sexual Harassment Rate).
5. **Estimates:** The numbers represent population estimates of the percentages within each reporting category who endorsed the particular response option in each year where available. Results for trend year analyses are annotated with arrows on the 2018 estimate to denote whether the trend year estimate is significantly higher ( $\uparrow$ ) or lower ( $\downarrow$ ) than the 2016 estimate. No arrow indicates the weighted percent for that 2018 estimates did not differ significantly from the 2016 estimates.
6. **Margins of Error:** 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  $\pm 3$ , 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 2018 *WGRC*, variance estimates were calculated using SUDAAN<sup>®</sup> PROC DESCRIPT (Research Triangle Institute, Inc., 2013).<sup>23</sup>

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<sup>®</sup> Registered 2013 by Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC 27709-2194.

<sup>23</sup> As a result of differential weighting, only certain statistical software procedures, such as SUDAAN<sup>®</sup> PROC DESCRIPT, correctly calculate standard errors, variances, or tests of statistical significance for stratified samples.



7. **Percent Responding:** Because the results of the 2018 *WGRC* are based on weighted data, the reader can assume the results generalize to the entire APF civilian employee population within the margin of error. All tables and figures should be interpreted in light of the population of 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 APF civilian employees. Similarly, when a table footnote indicates “Percent of civilian employees who indicated experiencing sexual harassment in the past 12 months,” this means only respondents who endorsed past year experiences of sexual harassment on earlier questions were eligible to respond to this question so estimates presented only represent the population of APF civilian employees who experienced sexual harassment in the past 12 months.
8. **Special Notations:** Not all tables will contain trend data, so these rows may not be available or, in instances where trend data are not available for a specific trend year, may contain “NA” instead of a percent to note trend results are “not available” for that year. Additionally, it is possible that a specific result is “not reportable” due to low reliability, which is 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.

### **Example Table Interpretation**

The example table at Figure B-1 shows APF civilian employees regardless of gender or Component were *less likely* to indicate they were “satisfied” with items A and B in 2018 than in 2016 as indicated by ↓ on their results in the table for the 2018 results lines. In addition, APF civilian employees regardless of gender or Component were *more likely* to indicate they were “neither” satisfied nor dissatisfied with items A and B in 2018 than in 2016 as indicated by ↑ on their results in the table for the 2018 results line. This means that responses have shifted from “satisfied” to “neither” satisfied nor dissatisfied over time. This table also reveals that item C was not asked in 2016 as indicated by the “NA” designation in the results line for 2016 in the table, and thus, trend analyses were not possible.

### **Conclusion**

The DoD continues to diligently pursue policies and programs that support its goal of eliminating sexual harassment, gender discrimination, and sexual assault in the DoD civilian workplace. These efforts focus on strategies to achieve prevention (a reduction in the prevalence of these behaviors) as well as strategies to improve responses to these behaviors. To this end, the 2018 *WGRC* performs a critical surveillance function by providing insights regarding the prevalence of sexual harassment, gender discrimination, and work-related sexual assault; the characteristics of the alleged offenses; experiences with reporting or decisions not to report the alleged offenses; and descriptions of the culture and climate of the organizations in which appropriated fund civilian employees operate.

The purpose of this appendix is to describe and present trend analyses for the *2018 WGRC*. While Appendix A presents overall DoD findings, results for APF civilian employees by gender and Component, including trend analyses where available, are presented in the tables that follow. All uses and interpretations of the *2018 WGRC* data should be made in light of the methodological information contained in the main report.



