

**Sexual Harassment Retaliation Climate DEOCS 4.1
Construct Validity Summary**



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Introduction

In 2014, DEOMI released DEOCS 4.0 for Department of Defense military and civilian members. DEOMI initiated development of DEOCS 4.1 in May 2016. This effort includes various updates to improve climate factors and individual items on the DEOCS. The following details the work done to develop the factor of *Sexual Harassment Retaliation Climate*.

Developing the *Sexual Harassment Retaliation Climate* factor involved (1) reviewing the April 2016 DoD Retaliation Prevention and Response Strategy, (2) writing items congruent with the DoD Retaliation Prevention and Response Strategy, (3) gaining feedback and input on the questions from subject matter experts (SMEs), (4) gaining feedback and input from DoD Sexual Assault Prevention and Response Office, (5) piloting items on the DEOCS, (6) examining variance and descriptive statistics, and (7) selecting items that demonstrate the strongest scale properties.

Background

For the purpose of DEOCS 4.1, *Sexual Harassment Retaliation Climate* is defined as: Members' perceptions of whether retaliation would occur if a sexual harassment complaint was made in their unit/organization. The DoD Retaliation Prevention and Response Strategy (RPRS; DoD, 2016) defines retaliation as "an umbrella term encompassing illegal, impermissible, or hostile actions taken by the chain of command or peers/coworkers as a result of making or being suspected of making a protected communication (e.g., a report of sexual assault or a complaint of sexual harassment)" (p. 27). There are two main forms of retaliation: *reprisal* and *ostracism*. Reprisal refers to retaliation affecting member's professional opportunities or career. Ostracism refers to retaliation affecting individuals social well-being and acceptance (refer to Appendix B of RPRS to read full DoD Retaliation Prohibitions). The RPRS addresses retaliation as it relates to reports of sexual assault and complaints of sexual harassment; therefore, the *Retaliation Climate* section of the DEOCS focuses on sexual assault and sexual harassment. Additionally, the questions were written to focus on climate rather than prevalence and seek to capture climate factors related to both reprisal and ostracism. The current paper discusses validation efforts for the *Sexual Harassment Retaliation Climate* only; please see *Sexual Assault Prevention and Response Climate DEOCS 4.1 Construct Validity Summary* for details of the sexual assault retaliation questions.

Individual-Level Data Analysis

The *Sexual Harassment Retaliation Climate* questions were piloted on the research blocks of the DEOCS from 30 July 2016 to 4 August 2016. A total of 4,234 responses were

collected. The respondents were randomly placed in one of two samples to allow for both exploratory and confirmatory analysis.¹ There were four goals of data analysis:

- 1) To reduce the number of questions by taking into account psychometric properties and similarity of items via item descriptive, reliability analysis, exploratory factor analysis, and bivariate correlations (sample 1)
- 2) To determine the factor structure of the remaining (final) questions via exploratory factor analysis and determine item descriptive statistics and reliability of scale (sample 1)
- 3) Analyze the factor structure of the measurement model via a confirmatory factor analysis (sample 2)²
- 4) Determine if the factors are appropriate to aggregate to the unit-level (entire sample)

Initial Exploratory Analysis

This section first displays the demographic characteristics of the sample, followed by the item descriptive statistics, reliability analysis, exploratory factor analysis, and bivariate correlations of the prospective *Sexual Harassment Retaliation Climate* questions.

Sample Descriptive Statistics

This section contains the demographic characteristics of the sample ($n = 2,823$), collected from 30 July 2016 to 4 August 2016. The variables are displayed according to the individual respondents' selections (with the exception of branch of service, which is reported by the survey requester). For information regarding the composition of sample, refer to Table 1.

Table 1.
Sample 1 Demographics

	<i>n</i>	%
Branch of Service		
Army	1,150	40.7%
Navy	1,117	39.6%
Marine Corps	248	8.8%
Air Force	139	4.9%
Coast Guard	6	<1.0%
National Guard	101	3.6%
Joint Command	62	2.2%
Component		
Active Duty	1,557	93.8%
Reserve	103	6.2%
Employment Type		
Military	1,766	63.6%
Civilian	1,012	36.4%

¹ The confirmatory analyses are forthcoming, therefore not included in this current licensure paper.

² The focus of this paper is on exploratory analyses and the confirmatory analyses are forthcoming, therefore not included in this current licensure paper.

	<i>n</i>	%
Gender		
Male	2,118	75.0%
Female	705	25.0%
Seniority		
Junior Enlisted (E1 – E3)	357	20.2%
Non-Commissioned Officer (E4 – E6)	948	53.7%
Senior Non-Commissioned Officer (E7 – E9)	194	11.0%
Junior Officer (O1 – O3)	154	8.7%
Senior Officer (O4 and above)	113	6.4%

Item Descriptive Statistics

This section displays descriptive statistics for the prospective *Sexual Harassment Retaliation Climate* questions. All items were measured on a seven-point scale from *strongly disagree* to *strongly agree*. All scales had a range between 1 and 7. For item descriptive statistics refer to Table 2.

Table 2.
Descriptive Statistics of Prospective Sexual Harassment Retaliation Climate Items

Item	Mean	SD	Skewness	Kurtosis
1. If a coworker filed a sexual harassment complaint, they would be excluded from the social interactions or conversations.	5.47	1.64	-.89	-.20
2. If a coworker filed a sexual harassment complaint, they would be ignored or given “the silent treatment.”	5.67	1.52	-1.07	.26
3. If a coworker filed a sexual harassment complaint, they would be subjected to insulting or disrespectful remarks or jokes.	5.72	1.51	-1.14	.52
4. If a coworker filed a sexual harassment complaint, they would be blamed for causing problems.	5.67	1.54	-1.07	.29
5. If a coworker filed a sexual harassment complaint, they would be blamed for the assault.	5.74	1.49	-1.14	.49
6. If a coworker filed a sexual harassment complaint, they would be denied career opportunities (e.g., denied training, awards, or promotions).	5.75	1.51	-1.20	.64
7. If a coworker filed a sexual harassment complaint, they would be disciplined or ordered other corrective action.	5.84	1.45	-1.29	1.01
8. If a coworker filed a sexual harassment complaint, they would be discouraged from moving forward with the report.	5.78	1.48	-1.22	.73

Note: $n = 2,823$. The Std. Error for Skewness is .05 and Kurtosis is .10 for all questions. The proposed *Sexual Harassment Retaliation Climate* questions were reversed coded prior to analyses.

Reliability Analysis

The reliability analysis was conducted using Cronbach’s Alpha. The reliability coefficient for the scale was adequate, with an alpha of .98 (Nunnally, 1978). Refer to Table 3 for reliability analysis of the prospective *Sexual Harassment Retaliation Climate* scale.

Table 3.
Reliability Analysis of Prospective Sexual Harassment Retaliation Climate Items

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. If a coworker filed a sexual harassment complaint, they would be excluded from the social interactions or conversations.	40.17	96.52	.82	.98
2. If a coworker filed a sexual harassment complaint, they would be ignored or given "the silent treatment."	39.97	96.32	.90	.97
3. If a coworker filed a sexual harassment complaint, they would be subjected to insulting or disrespectful remarks or jokes.	39.92	96.46	.91	.97
4. If a coworker filed a sexual harassment complaint, they would be blamed for causing problems.	39.97	95.33	.93	.97
5. If a coworker filed a sexual harassment complaint, they would be blamed for the assault.	39.90	96.20	.93	.97
6. If a coworker filed a sexual harassment complaint, they would be denied career opportunities (e.g., denied training, awards, or promotions).	39.88	96.21	.92	.97
7. If a coworker filed a sexual harassment complaint, they would be disciplined or ordered other corrective action.	39.80	98.21	.89	.97
8. If a coworker filed a sexual harassment complaint, they would be discouraged from moving forward with the report.	39.86	97.33	.90	.97

Note: $\alpha = .98$

Exploratory Factor Analysis

Following the review of the item descriptive statistics, an item reduction strategy was used to make the scale more parsimonious by eliminating items that loaded across factors. Exploratory factor analysis (EFA) is a tool for consolidating the number of measured variables into a fewer number of factors (Tabachnick & Fidell, 1996). Prior to analyses, the data was tested for normality using the Kolmogorov-Smirnov statistic; the test was significant, indicating non-normality.

Fabrigar, Wegener, MacCallum, and Strahan (1999) suggest utilizing principal factor methods if data violates the assumption of normality. Costello and Osborne (2005) recommend utilizing oblique rotation (which assumes correlations among factors) over orthogonal rotation (which does not recognize the correlation between factors) because it more accurately depicts the relationship between variables. Based on these recommendations, EFA was conducted using principal axis factoring with oblique rotation, specifically direct oblimin rotation.

To examine the factorability of the items, the correlations among items were analyzed. All correlations were statistically significant ($p < .01$), suggesting adequate factorability

(Tabachnick & Fidell, 1996). Additionally, The Bartlett Test of Sphericity (BTS) and the Kaiser Meyer-Olkin (KMO) measures were examined to assess the fit between the data and the factor. The BTS hypothesizes that the correlation matrix is an identity matrix. The BTS was significant ($X^2(28) = 29,187.51, p < .01$), therefore allowing us to reject the null hypothesis that the correlation matrix is an identity and to conclude that the factor analysis is an appropriate method to utilize for this data (George & Mallery, 2006). The KMO measure of sampling adequacy was also employed to compare the sum of the squared correlation coefficients and the squared partial correlation coefficients. The obtained statistic was .95. This indicates a very good fit and suggests that a factor analysis is an appropriate statistical method to utilize for analyzing this data.

The exploratory factor analysis yielded a single factor solution. Refer to Table 4 for more information.

Table 4.
Exploratory Factor Analysis Pattern Matrix of Prospective Sexual Harassment Retaliation Climate Items

Items	Factor 1
1. If a coworker filed a sexual harassment complaint, they would be excluded from the social interactions or conversations.	.83
2. If a coworker filed a sexual harassment complaint, they would be ignored or given “the silent treatment.”	.91
3. If a coworker filed a sexual harassment complaint, they would be subjected to insulting or disrespectful remarks or jokes.	.92
4. If a coworker filed a sexual harassment complaint, they would be blamed for causing problems.	.95
5. If a coworker filed a sexual harassment complaint, they would be blamed for the assault.	.95
6. If a coworker filed a sexual harassment complaint, they would be denied career opportunities (e.g., denied training, awards, or promotions).	.93
7. If a coworker filed a sexual harassment complaint, they would be disciplined or ordered other corrective action.	.90
8. If a coworker filed a sexual harassment complaint, they would be discouraged from moving forward with the report.	.91

Note. All items loaded on to one factor.

Bivariate Correlations

Bivariate Pearson correlation among items were examined to identify and reduce questions with overlapping content. Table 5 displays the bivariate correlations.

Table 5.
Bivariate Correlation among Prospective Sexual Harassment Retaliation Climate Items

	1	2	3	4	5	6	7
1. If a coworker filed a sexual harassment complaint, they would be excluded from the social interactions or conversations.							
2. If a coworker filed a sexual harassment complaint, they would be ignored or given “the silent treatment.”	.82**						
3. If a coworker filed a sexual harassment complaint, they would be subjected to insulting or disrespectful remarks or jokes.	.79**	.85**					
4. If a coworker filed a sexual harassment complaint, they would be blamed for causing problems.	.77**	.86**	.88**				
5. If a coworker filed a sexual harassment complaint, they would be blamed for the assault.	.77**	.85**	.87**	.93**			
6. If a coworker filed a sexual harassment complaint, they would be denied career opportunities (e.g., denied training, awards, or promotions).	.74**	.84**	.84**	.89**	.89**		
7. If a coworker filed a sexual harassment complaint, they would be disciplined or ordered other corrective action.	.72**	.80**	.81**	.83**	.87**	.87**	
8. If a coworker filed a sexual harassment complaint, they would be discouraged from moving forward with the report.	.75**	.82**	.83**	.85**	.84**	.87**	.85**

Note. ** $p < .01$

Conclusion (Item Reduction)

After analyzing the item descriptive statistics, reliability analysis, exploratory factor analysis and bivariate correlations among the prospective *Sexual Harassment Retaliation Climate* questions, items 2 and 5 were removed from the scale. These items exhibited high correlations with other questions (correlations ranged from .77 to .93). Further, SMEs reviewed the items and concluded that item 1 adequately reflects the content of item 2. Additionally, SMEs preferred item 4, which focuses on being blamed for causing problems within the unit, as opposed to item 5 which places focus on being blamed for the assault. Items 1, 3, 4, 6, 7, and 8 were retained.

Testing the Psychometric Properties of the Final DEOCS 4.1 Sexual Harassment Retaliation Climate Items

Based on the previous section, items 1, 3, 4, 6, 7, and 8 were chosen to comprise the *Sexual Harassment Retaliation Climate* Scale. This section displays the exploratory factor analysis, descriptive statistics, and reliability analysis of the final set of questions.

Exploratory Factor Analysis

An EFA with principal axis factoring was used to examine the dimensionality of the final set of *Sexual Harassment Retaliation Climate* questions. See *Sample Descriptive Statistics* section for a description of the sample. The results of the initial EFA (see previous Exploratory

Factor Analysis section), suggest that a single factor structure will be found. The remainder of this section will discuss the results of the EFA on the final *Sexual Harassment Retaliation Climate* questions. An EFA revealed a single factor structure to the *Sexual Harassment Retaliation Climate* scale, with this factor accounting for 85% of the variance.³ Each item exhibited strong primary loadings on the factor (see Costello & Osborne, 2005, for recommended factor loading strengths). Table 6 displays the factor matrix.

Table 6.
Exploratory Factor Matrix of Sexual Harassment Retaliation Climate Items

	Factor 1
1. If a coworker filed a sexual harassment complaint, they would be excluded from the social interactions or conversations.	.82
2. If a coworker filed a sexual harassment complaint, they would be subjected to insulting or disrespectful remarks or jokes.	.92
3. If a coworker filed a sexual harassment complaint, they would be blamed for causing problems.	.94
4. If a coworker filed a sexual harassment complaint, they would be denied career opportunities (e.g., denied training, awards, or promotions).	.94
5. If a coworker filed a sexual harassment complaint, they would be disciplined or ordered other corrective action.	.90
6. If a coworker filed a sexual harassment complaint, they would be discouraged from moving forward with the report.	.92

Descriptive Statistics

The descriptive statistics for the *Sexual Harassment Retaliation Climate* questions are presented in Table 7 and the reliability analysis is presented in Table 8.

Table 7.
Descriptive Statistics of Sexual Harassment Retaliation Climate Items

Items	Mean	SD	Skewness	Kurtosis
1. If a coworker filed a sexual harassment complaint, they would be excluded from the social interactions or conversations.	5.47	1.64	-.89	-.20
2. If a coworker filed a sexual harassment complaint, they would be subjected to insulting or disrespectful remarks or jokes.	5.72	1.51	-1.14	.52
3. If a coworker filed a sexual harassment complaint, they would be blamed for causing problems.	5.67	1.54	-1.07	.29
4. If a coworker filed a sexual harassment complaint, they would be denied career opportunities (e.g., denied training, awards, or promotions).	5.75	1.51	-1.20	.64
5. If a coworker filed a sexual harassment complaint, they would be disciplined or ordered other corrective action.	5.84	1.45	-1.29	1.01
6. If a coworker filed a sexual harassment complaint, they would be discouraged from moving forward with the report.	5.78	1.48	-1.22	.73

Note: $n = 2,545$. The Std. Error for Skewness is .05 and Kurtosis is .10 for all items. The *Sexual Harassment Retaliation Climate* questions were reversed coded prior to analyses.

³ Due to the single factor solution, the solution could not be rotated.

Table 8.
Reliability Analysis of Sexual Harassment Retaliation Climate Items

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. If a coworker filed a sexual harassment complaint, they would be excluded from the social interactions or conversations.	28.76	49.43	.80	.97
2. If a coworker filed a sexual harassment complaint, they would be subjected to insulting or disrespectful remarks or jokes.	28.52	49.33	.90	.96
3. If a coworker filed a sexual harassment complaint, they would be blamed for causing problems.	28.56	48.61	.92	.95
4. If a coworker filed a sexual harassment complaint, they would be denied career opportunities (e.g., denied training, awards, or promotions).	28.48	49.07	.92	.95
5. If a coworker filed a sexual harassment complaint, they would be disciplined or ordered other corrective action.	28.39	50.51	.88	.96
6. If a coworker filed a sexual harassment complaint, they would be discouraged from moving forward with the report.	28.45	49.76	.90	.96

Note: n = 2,545; $\alpha = .96$

Unit-Level Aggregation Statistics

This section will describe analysis to determine whether it is appropriate to aggregate the construct to a higher-level of analysis. Surveys, including climate surveys, often measure a construct by obtaining multiple ratings from individuals and aggregating that data to the group-level. The construct of interest is then able to be interpreted at the group-level; this allows for interpretation of the results to shift from saying that Person A and Person B differ on a specific construct to being able to say that Organization A and Organization B differ on a specific construct. The interpretation of the same construct differs at the individual-level versus at the group-level. For instance, displaying a climate factor mean across all individuals within the DoD provides a snapshot of a larger DoD climate, and can provide insight into demographic subgroup differences. Alternatively, these individuals could be considered dependent data points, as they are all observations within units. Therefore, aggregating individuals into unit-level means provides insight into the favorability of the unit climates across the DoD.

Some researchers believe the assessment of agreement is a prerequisite for arguing that a higher-level construct can be operationalized from individual-level data; other researchers believe that the variance of within-group agreement is of theoretical importance and should be studied (see Burke, Borucki & Kaufman, 2002). For exploratory purposes, the aggregation statistics for the SAPR Climate Scales were examined.

Additional unit-level analyses will be conducted after the survey is released. With a more robust dataset, different levels of analysis (e.g., based on sub-UICs or

‘breakouts’/departments) will be explored.⁴ The remainder of this section will discuss the aggregation statistics for the *Sexual Harassment Retaliation Climate* scales by providing (1) sample description, (2) within-group agreement statistics, and (3) between-group differentiation statistics.

Sample Description

This section contains the demographic characteristics of the sample. These individuals come from 37 units, with each unit containing 16 or more individuals ($n = 1,134$). The variables are displayed according to the survey requester’s selections. The personnel classifications of this sample are as follows: 42.3% Army ($n = 480$), 47.5% Navy ($n = 539$), 6.8% Marine Corps ($n = 77$), 1.9% National Guard ($n = 21$), and 1.5% Joint Command ($n = 17$). The majority of respondents within this sample are male ($n = 798$; 70.4%).

Within-Group Agreement

Within-group agreement indices were explored to determine if the *Sexual Harassment Retaliation Climate* that is supposed to be shared at the group-level actually demonstrates agreement among respondents within the same group. Several within-group agreement indices were explored, including: r_{wg} , AD_M , $ICC(1)$, $ICC(2)$.

The r_{wg} compares the observed within-group variances to an expected variance from random responding. This is a consensus measure or index of agreement within-group(s). LeBreton and Senter (2008) suggest interpreting r_{wg} on a continuum of agreement, with values between .00 and .30 indicating a *lack of agreement*, .31 to .50 as *weak agreement*, .51 to .70 as *moderate agreement*, .71 to .90 as *strong agreement*, and .91 to 1.00 as *very strong agreement*. The averaged $r_{wg(j)}$ results for the *Sexual Harassment Retaliation Climate* was .58, indicating moderate agreement.

The mean average deviation (AD_M) can be interpreted such that 0 indicates complete agreement. Using the seven point response scale, an upper limit cut-off of 1.2 was utilized to determine within-group agreement (Burke & Dunlap, 2002), thus scores that fall under an AD_M value 1.2 represent satisfactory group agreement. Overall, the average of the AD_M indices the *Sexual Harassment Retaliation Climate* scale suggest within-group agreement, with the AD_M falling below the cut-off ($AD_M = 1.17$).

Intraclass correlations were conducted to determine the amount of variance that can be explained by the unit (LeBreton & Senter, 2008). The $ICC(1)$ explains the total variance that can be explained by group membership. Specifically, an $ICC(1)$ of .10 can be interpreted as 10% of

⁴ There are two important caveats specific to the DEOCS methodology and this particular data collection: (1) The DEOCS typically remains open for 21 to 30 days – this data collection is representative of individuals who completed the research blocks of the DEOCS between 30 July 2016 and 4 August 2016; therefore, the sample reflects partial units/organizations. (2) Respondents are aggregated to the unit-level through a grouping variable that can identify who belongs to which unit. These units vary in size. For example, Commanders in the Air Force requesting the DEOCS may oversee a single Squadron, Group, or Wing. Therefore, a unit may comprise multiple commands. Due to these limitations, the fidelity of the aggregation statistics presented in the current paper may attenuate aggregation statistics (Ehrhart, Schneider, & Macey, 2014).

the variability in individual’s responses is explained by group membership (Bliese, 2000). Additionally, *ICC(1)* can be interpreted similarly to effect size, with a value of .01 considered a “small” effect, a value of .10 considered a “medium” effect and a value of .25 considered a “large” effect (LeBreton & Senter, 2008). A small effect was found for the scale, suggesting that 5% of an individual’s responses can be attributed to unit membership (see Table 9).

ICC(2) is an estimate of the reliability of the group means. Thus, an *ICC(2)* indicates whether groups can be reliably differentiated based on the group mean. Although there are no strict standards of acceptability for *ICC(2)* values, Glick (1985) recommended an *ICC(2)* cutoff of .60. The *ICC(2)* score was .58, which is approaching the recommended cutoff.

Between-Group Differentiation

The between-group differentiation for the *Sexual Harassment Retaliation Climate* scale was explored. Between-group analyses help determine if the groups that are expected to differ actually differ. A one-way analysis of variance (ANOVA) was performed to determine if minimal evidence exists for difference across groups.

The discriminant power was assessed for the *Sexual Harassment Retaliation Climate* scale to determine if differences across groups exist. The discriminant power was assessed with the one-way ANOVA procedure. The one-way ANOVAs were run on the *Sexual Harassment Retaliation Climate* scale between the organizations/units. Hays (1981) suggests that an *F* ratio > 1.00 provides the minimal evidence for differences across groups. Within the current sample, the *F* ratio for the *Sexual Harassment Retaliation Climate* scale was greater than one across units, suggesting differences across groups.

Taken together, the within-group agreement and the between group differentiation statistics provide initial support for aggregating this data to the unit-level. Aggregation statistics will be further explored once we have data for complete units.

Table 9.
Aggregation Statistics of DEOCS 4.1 Sexual Harassment Retaliation Climate Scale

Item	<i>r_{wg(j)}</i>	<i>AD_{M(J)}</i>	<i>ICC(1)</i>	<i>ICC(2)</i>	ANOVA
Sexual Harassment Retaliation Climate	.58	1.17	.05	.58	F(36, 998) = 2.35**

Note: **p*<.05; ***p*<.01

Conclusion

For the purpose of DEOCS 4.1, *Sexual Harassment Retaliation Climate* is defined as: Members’ perception of whether retaliation would occur if a sexual harassment complaint was made in their unit/organization. The results from the previous analyses support a six item factor for *Sexual Harassment Retaliation Climate*. Additionally, while there was support that this climate scale can be aggregated to reflect a meaningful unit-level variable, additional unit-level analyses will be conducted when we have data on complete units/organizations. Future analysis will also be conducted to establish correlations with theoretically related items to establish convergent and discriminant validity.

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