Technical Report 1401

The Impact of Climate Strength on Relationships Between Command Climate and Outcomes

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December 2021

**United States Army Research Institute
for the Behavioral and Social Sciences**

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Research accomplished under cooperative agreement
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Consortium of Universities of Washington

Technical Review by

Kathleen Darbor, U.S. Army Research Institute
Alissa Fleming, U.S. Army Research Institute

DISPOSITION

This Technical Report has been submitted to the
Defense Information Technical Center (DTIC).

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
December 2021	Final	December 2018-April 2020

4. TITLE AND SUBTITLE

The Impact of Climate Strength on Relationships between Command Climate and Outcomes

5a. CONTRACT NUMBER

5b. GRANT NUMBER
W911NF-16-2-0092

5c. PROGRAM ELEMENT NUMBER
622 785

6. AUTHOR(S)
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5d. PROJECT NUMBER
A790

5e. TASK NUMBER
28

5f. WORK UNIT NUMBER
777

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

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Fort Belvoir, VA 22060-5610

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Washington, DC 20005-5493

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

U. S. Army Research Institute
for the Behavioral & Social Sciences
6000 6TH Street (Bldg. 1464 / Mail Stop 5610)
Fort Belvoir, VA 22060-5610

10. SPONSOR/MONITOR'S ACRONYM(S)
ARI

11. SPONSOR/MONITOR'S REPORT NUMBER(S)
Technical Report 1401

12. DISTRIBUTION/AVAILABILITY STATEMENT: Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES
ARI Research POC: Jessica Badger Darrow, Foundational Science Research Unit

14. ABSTRACT
The current research focused on command climate at the Army company level by analyzing the interactions of climate strength and mean climate level to explore under what circumstances climate strength exerts moderating influences. It was hypothesized that climate strength would be more likely to moderate outcomes (i.e., cohesion, affective commitment, and stress) for climate dimensions that are experienced at the individual level and focus on the treatment of individuals (e.g., fairness, bullying, and inclusion) than for dimensions experienced at the group level (e.g., flow of information, autonomy, performance orientation, and professionalism). The hypotheses were partially supported, finding climate strength had a significant moderating effect in six of the nine individual experience models. For the group experience dimensions, climate strength proved to be a significant moderator in only one of 12 models. The results show that the moderating effects of command climate strength depend on the focus of the climate dimensions. Specifically, command climate dimensions that revolve around the treatment of individual Soldiers are more likely to be moderated by the climate strength of the unit than dimensions experienced by the unit as a whole. The findings of this study suggest that the practice of focusing on mean levels of climate and excluding climate strength when reporting command climate survey results may exclude important information.

15. SUBJECT TERMS
Command Climate, Climate Strength, Cohesion, Organizational Commitment, Stress, Statistical Analysis, Teams (Personnel), Group Dynamics, Military Psychology, Company Level Organizations, Questionnaires, Surveys

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Gregory Ruark
Unclassified	Unclassified	Unclassified	Unlimited Unclassified	33	19b. TELEPHONE NUMBER 703-545-2441

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THE IMPACT OF CLIMATE STRENGTH ON RELATIONSHIPS BETWEEN COMMAND CLIMATE AND OUTCOMES

EXECUTIVE SUMMARY

Research Requirement:

Organizational climate is most commonly assessed by aggregating the individual perceptions to the team or unit level, using the average perception to represent all members of the group for a specific organizational goal (Zohar & Luria, 2004). Within the Army, organizational climate is referred to as *command climate*. Mean climate scores, or *climate levels*, are the focus for most research and are typically used when reporting the results of command climate surveys. However, using an average perception to represent all Soldiers within a unit may not always be the most accurate representation of the perceptions of the unit members. This is especially true when there are large variations in the individual Soldiers' perceptions. *Climate strength* refers to the variability of the unit members' responses and represents the degree of agreement for specific facets of command climate (Luria, 2008). Using climate strength as a moderating variable may reveal potential issues within a unit that would be left undetected when relying on mean climate level alone. Using climate strength in concert with climate levels can provide unit leadership with more granular information about the perceptions of their Soldiers, allowing for a better understanding of the unit's dynamics. Additionally, the use of climate strength may allow leadership to take actions to correct potential issues before they become systemic problems.

Approach:

The current study used an existing data set collected for a previous command climate study (see Adis et al., 2020). The climate dimensions of interest were fairness, bullying, inclusion, flow of information, autonomy, performance orientation, and professionalism. Climate level was operationalized using company-level units' mean climate perceptions for each dimension. Climate strength was operationalized using within-group correlation, $r_{wg(j)}$ (James, 1982). The $r_{wg(j)}$ statistic provides an estimate of the interrater agreement of a group measure by comparing observed variance in ratings to a hypothetical expected variance that should be obtained if the raters completely disagreed. Hierarchical regressions tested the hypotheses; main effects for the climate level and climate strength were entered in Step 1, and the interaction term was entered in Step 2.

Findings:

Climate strength was more likely to moderate relationships between climate dimensions and outcomes when the dimensions derived from experiences that occurred at the individual level as opposed to the group level. Overall, climate strength proved to be a significant moderator in one third of the models analyzed. However, when divided into dimensions experienced at the individual and group level, climate strength was found to be a significant

moderator in 66.67% of the individual experience models, explaining significant additional variance in 6 of the 9 models. Climate strength exerted a significant moderating influence in only 1 of the 12 models for the group experience dimensions (8.3%).

Utilization and Dissemination of Findings:

The findings indicate that climate strength may play an important moderating role in the relationships between climate dimensions and their outcomes. This seems to be especially true when those dimensions are experienced at the individual level and revolve around the treatment of individuals. The current research demonstrates the importance of understanding the nature of command climate constructs and using statistics that provide the most suitable and accurate portrayal of Soldiers' perceptions. The findings have implications for the way in which command climate survey results are communicated to leaders in that survey reports should include climate strength indices (i.e., agreement statistics) in addition to mean levels of climate. The addition of these indices may allow for more granular insights on the attitudes, perceptions, and experiences of Soldiers. Additionally, climate strength statistics may reveal issues within the units (e.g., issues pertaining to perceived unfairness and bullying behaviors) closer to their onset, allowing leaders to take corrective action before they become systemic issues. This report describes research that was originally presented at the American Psychological Association convention (Hughes et al., 2019).

THE IMPACT OF CLIMATE STRENGTH ON RELATIONSHIPS BETWEEN COMMAND CLIMATE AND OUTCOMES

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THE IMPACT OF CLIMATE STRENGTH ON RELATIONSHIPS BETWEEN COMMAND CLIMATE AND OUTCOMES

Climate refers to the shared perception of a group of individuals towards their environment (Luria, 2008). Specifically, organizational climate is the employees' group-level perceptions of the policies, procedures, and practices put in place and enforced in the organization (Zohar & Luria, 2004). Within the Army, organizational climate is referred to as *command climate.* Currently, the Army requires company commanders to conduct an initial command climate assessment within 60 days of assuming command, and then annually thereafter to establish and maintain a positive command climate (Army Regulation 600-20; U.S. Department of the Army, 2020). Command climate is most commonly assessed by aggregating the individual perceptions of the employees or Soldiers to the unit level. This average perception is then used to represent the unit attitude or perception for specific command climate facets in command climate survey reports. In this context, aggregated climate scores are referred to as *climate levels* (Luria, 2008). Climate levels are typically included in command climate survey reports and are the main indicator used to provide commanders with information about the command climate of their units.

However, while most of the literature regarding the antecedents and outcomes of command climate focuses on climate levels, using the average perception to represent all members of a group may not always result in the most accurate or appropriate conclusions. This is especially true when there is large variation in the individual perceptions. *Climate strength* refers to the variability of the unit members' responses and represents the degree of agreement about a specific facet or dimension of organizational climate (Luria, 2008).

Zohar and Luria (2004) argued that the moderating effects of climate strength are statistically logical; that is, if the aggregated perception of a climate dimension has less variability (i.e., a stronger climate), it should be a stronger predictor of the outcome of interest. Thus, these theoretical implications support the theory that stronger climates will be better predictors as they indicate higher levels of agreement. Stronger climates represent a distribution of reported perceptions that clusters more densely around the mean score, making the mean a more representative statistic. Mischel's (1973) model of situational strength fits well into this framework as this concept stipulates that strong situations (or climates) are formed by clear and easily defined situations that lead all individuals to perceive events and expectations in a similar way. These strong situations thus instill a uniform understanding, or strong climate, of appropriate and necessary behaviors (Dawson et al., 2008). However, Lindell and Brandt (2000) contended that the added effect of climate strength within a predictive model has limited statistical power, because the high or low climate scores are inherently derived from limited variability in the individual scores.

While a growing number of researchers have stated the importance of including climate strength measures when studying climate dimensions and outcomes (Ehrhart et al., 2014), empirical evidence on the main and moderating effects of climate strength is mixed (González-Romá et al., 2002; Luria, 2008). However, Ehrhart and colleagues (2014) showed that climate strength moderated the relationships between climate level and outcomes such as customer satisfaction, commitment, performance, stress, and well-being in a variety of organizations. The

mixed findings within the current climate strength literature necessitate the need for additional research to understand when climate strength makes a difference. It is possible that the circumstances or context surrounding specific climate facets inform the extent to which climate strength will moderate the relationships between climate levels and their outcomes. More specifically, the moderation effect of climate may depend on the perspective of the unit member. If the specific climate dimension revolves around the treatment of the individual or is experienced at the individual level, it would be expected that perceptual variation would be present within a unit. However, if the specific climate dimension is experienced at the group level, little variation within the group perception would be expected.

Climate Strength and Within-Group Agreement

Variability within group-level data may be limited as a side effect of the aggregation process. In order to justify using a single value to represent the group being studied, researchers must demonstrate that a sufficient amount of the variance of the outcome of interest can be explained by the unit. To do this, the current convention is to employ indicators of interrater agreement (IRA) and interrater reliability (IRR; Bliese, 2000). However, using these techniques tends to push researchers to focus on facets and variables that only have high within-group agreement to justify the use of a single mean score representing the group. In practice, researchers would likely report no group-level effect present when presented with large variability (i.e., low climate strength). In these cases, researchers may overlook significant main or moderation effects for climate strength because of differential effects produced by differences in individual reporting. Finally, when employing IRR and IRA to establish justification for the use of aggregation, if the agreement statistics do not justify aggregation, studies in which significant climate strength effects are present may not be published. This practice may lead to an over-simplification of climate research results. Even more troubling, the practice illustrates a systematic problem in the current literature in which potentially significant findings may be left undiscovered and therefore unable to inform future research in the field.

Climate strength is a measure of agreement about a climate dimension; therefore, climate level and climate strength are related. That is, climate level is the calculated mean of the reported perceptions of a specific climate dimension while the statistical representation of climate strength is a mathematical calculation of the agreement level of those same perceptions within that dimension. Within this dyadic relationship, it is impossible to have high or low climate level without high climate strength. That is, while it is possible to have high or low climate strength values for moderate climate level scores, very low and very high climate levels (i.e., mean climate scores) must have a consensus in the individual perceptions to reach these points, resulting in a strong climate (Zohar & Luria, 2004). Lindell and Brandt's (2000) argument that high or low scores are derived from limited variability within the individual scores provides evidence for why climate strength is not an efficient mediator. However, the relationship described by Zohar and Luria (2004) lends itself well to a moderation model. Both Lindell and Brandt's (2000) and Zohar and Luria's (2004) discussions of the bimodal distribution for the relationship between climate strength and climate level leads one to question whether the strength of the climate influences the relationship between climate dimensions and their outcomes.

Theoretically, shared climate perceptions influence a group's collective response (González-Romá et al., 2002). Thus, organizations that have less agreement within their ranks would reflect different perceptions of their environment than organizations that have moderate or high agreement levels. González-Romá and colleagues (2002) stated that climate strength moderates the predictive capabilities of climate dimensions in a direct manner. This is, when climate strength is high (strong climate), the relationships between climate level and outcomes tend to be stronger. Additionally, when climate strength is low (weak climate) the relationships between climate level and outcomes tend to be weaker. These conclusions were illustrated in the authors' findings that climate strength moderated the relationships among innovation climate level and the outcomes of work satisfaction and organizational commitment. This moderating effect followed the hypothesized direction in that stronger innovation climates proved to be better predictors than weak innovation climates (González-Romá et al., 2002). Using González-Romá et al. (2002) as a guide, climate strength should moderate the relationships between climate level and outcomes as these relationships should become stronger or weaker depending on the strength of the climate. Consequently, adding climate strength to the model as moderating variable should provide more explained variance in the model than simply examining the correlation between the level and the outcome.

When Climate Strength Matters

The current research is not only focused on analyzing the interactions of strength and level of various climate dimensions but also on exploring under which circumstances these moderating effects occur. As mentioned previously, it is necessary for unit members' perceptions to vary in order for climate strength to have a statistically significant effect. Ehrhart and colleagues (2014) argue that previous research was often unable to find statistically significant moderation effects for climate strength because the respondents had very uniform agreement across the dimensions being considered. Therefore, the dimensions that are most affected by climate strength are likely not the result of salient external events or actions that would be perceived in the same way at the group level by most workers, as this would limit the variability needed to uncover climate strength effects (Dawson et al., 2008). For example, in an armor company with a commander who emphasizes safety, the garages and work areas may have various safety-related signs posted. Additionally, this company may have weekly safety briefings in which issues regarding Soldier safety are explicitly discussed. Because of the salient external cues and actions of the commander, it is likely that there would not be much ambiguity about the unit's safety climate, thus leading to higher agreement among the Soldiers and a strong safety climate.

On the other hand, dimensions that derive from aggregated perceptions of internal processes experienced at the individual level should show greater variability, as each Soldier will vary in the interpretation of their affective state based on their individual personal experiences. For example, individual perceptions of bullying within a unit can vary greatly from one Soldier to the next. As Bond and colleagues (2010) state, bullying in the workplace is characterized by an imbalance of power between the perpetrator and the target. These two sides may perceive, and therefore report, bullying behaviors in differing ways. For instance, the Soldiers in a unit who are the perpetrators of the bullying behaviors may view their actions as harmless or as a rite of passage, and therefore may not report bullying as an issue within the unit. However, the Soldiers

who are the targets of the bullying may feel negatively affected by the actions and report bullying as a major issue within the unit. This individuality and variation in reported levels of bullying from one Soldier to another within a unit may lead to less agreement when aggregating to the group level, resulting in a weaker bullying climate.

Current Study

The current research investigated the moderating effect of climate strength on the relationship between climate level and outcomes of cohesion, affective commitment, and stress. The climate dimensions used as predictors were fairness, bullying, inclusion, flow of information, autonomy, performance orientation, and professionalism. We chose these dimensions because they are clearly experienced at either the individual level (and focus on treatment of individuals) or the group level. The climate dimensions chosen to represent aspects of climate experienced at the individual level (i.e., fairness, bullying, and inclusion) were chosen according to their definitions (see Table 1), as well as their perceptual point of view. For example, the operationalized definition for inclusion was "Unit members feel integrated into unit activities." Using this definition, those who perceive themselves as fully integrated and included should respond with a high inclusion score whereas individuals who have been ostracized or excluded will likely provide lower ratings of the unit's inclusion climate. On the other hand, the climate dimensions chosen to represent group experiences (i.e., flow of information, autonomy, performance orientation, and professionalism) were chosen because of their explicit, leader-driven characteristics. For example, the operationalized definition of performance orientation was, "Leaders and members of the unit encourage and strive for high performance outcomes." The perceptions surrounding this dimension are likely to be the result of explicit instructions and expectations of the unit from their leader, or a lack thereof.

Table 1

Climate Dimension Definitions

Climate Dimension	Definition
Individual-Level Dimensions	
Fairness	Outcomes such as promotions, rewards, and developmental opportunities are distributed to unit members in an objective and impartial manner.
Bullying	Soldiers in the unit exclude or reject other Soldiers through cruel, abusive, humiliating, oppressive, demeaning, or harmful behavior.
Inclusion	Unit members feel integrated into unit activities.
Group-Level Dimensions	
Flow of Information	Information that is important for the unit's success is communicated effectively throughout the unit.
Autonomy	Unit leadership trusts and empowers unit members to make decisions and solve problems when appropriate.
Performance Orientation	Leaders and members of the unit encourage and strive for high performance outcomes.
Professionalism	The unit emphasizes the Profession of Arms, Army and unit standards, and adherence to rules, doctrine, and regulations.

We believed this division of the climate dimensions would clarify under which conditions climate strength is important. While the research was designed as exploratory in nature, we hypothesized that the moderation effects of climate strength would be most common within the dimensions that are experienced at the individual level and focused on the treatment of individuals.

> **Hypothesis 1:** Climate strength will significantly moderate the relationships between fairness, bullying, and inclusion climate level and their outcomes.

We expected that climate strength moderation effects would be less likely for dimensions that are experienced at the group level.

> **Hypothesis 2:** Climate strength will not significantly moderate the relationships between flow of information, autonomy, performance orientation, and professionalism climate level and their outcomes.

Method

Participants

One thousand, six hundred eighty-three United States Army active component Soldiers and officers participated in the survey. Fifty-five units were surveyed across eight United States Army military installations located within and outside the continental United States as part of a larger data collection effort (Adis et al., 2020). Participants were excluded if (a) they completed less than 70% of the survey, (b) their tenure in the company was less than one month, (c) they failed to correctly complete at least 4 of 5 attention check items, or (d) they responded "NA/Don't Know" to more than 25% of the items. Units that did not include at least 10 individual responses were removed prior to analysis. The final sample consisted of 1,342 individual responses (1,249 enlisted, 93 officers) from 51 Army companies. Average tenure within the Army was 4.53 years (*SD* = 4.24), and average tenure within the company was 16.87 months (*SD* = 14.08).

Procedure

The participants were asked to complete the assessment during a 90-minute survey session. The participants completed the surveys in groups of up to 40 individuals from a company, troop, or battery. To ensure confidentiality, the researchers assigned each respondent a participant ID number and asked them to refrain from recording personally identifying information on the response forms.

Measures

Climate dimensions

Measures were developed for several dimensions of organizational climate (see Adis et al., 2020). Each dimension consisted of multiple questions presented in groups as part of a larger command climate survey. The climate items were rated on a 5-point Likert scale with anchors ranging from *Strongly Disagree* to *Strongly Agree*. In addition, an *NA/Don't Know* option was provided. Reliabilities were acceptable, with Cronbach's alphas ranging from .80 to .94. For more information regarding the specific climate dimensions, example items, and Cronbach's alphas, see Table 2.

Table 2

Command Climate Scale Information

Climate Dimension	Example Item	Number of Items	Cronbach's α
Fairness	Leaders are objective in deciding who gets rewards	3	0.88
Bullying	Leaders make it clear that bullying has no place in this unit*	3	0.80
Inclusion	Leaders in my unit ensure members feel included in unit activities	5	0.83
Flow of Information	Members of my unit feel that leaders provide enough information	7	0.92
Autonomy	Unit members are given the opportunity to figure out problems on their own	6	0.92
Performance Orientation	Members of this unit maintain high standards of performance	6	0.91
Professionalism	Members of my unit uphold Army standards	6	0.92

Note. *Item is reverse scored.

Outcomes

Cohesion was defined as "The Soldiers' perceptions of how close the unit is, pride in being a member of the unit, and how well the unit members worked together as a team" (Adis et al., 2020). Army Doctrine Publication (ADP) 6-22, *Army Leadership and the Profession*, emphasizes the essential nature of cohesion for Army units (U.S. Department of the Army, 2019). Cohesion was measured with 10 items adapted from Siebold and Kelly's (1988) Platoon Cohesion Index (PCI) and Carless and De Paola's (2000) version of the Group Environment Questionnaire (GEQ). For example, one item asked Soldiers to rate how much they agreed with the statement, "Members of my unit work together to get the job done." Items were rated on a 5-point Likert scale with anchors ranging from *Strongly Disagree* to *Strongly Agree*. In addition, an *NA/Don't Know* option was provided. The scale had a reliability of .94.

Affective commitment was defined as "The degree to which a Soldier feels a sense of attachment and belonging to the Army" (Adis et al., 2020). ADP 6-22 stresses the importance of instilling commitment in Soldiers in order to achieve success (Department of the Army, 2019). Affective commitment was measured using Gade et al.'s (2003) 4-item scale. For example, one item asked Soldiers to rate how much they agreed with the statement "I feel emotionally attached to the Army." The items were rated on a 5-point Likert scale with anchors ranging from *Strongly Disagree* to *Strongly Agree*. In addition, an *NA/Don't Know* option was provided. The scale had a reliability of .92.

Stress was defined as "The impact of stress or the degree to which it affects job performance and interpersonal relationships" (Adis et al., 2020). The U.S. Department of

Defense (2011) emphasized the importance of minimizing the impact of stress on Soldiers, as the physical, psychological, social, and behavioral effects can be detrimental to mission readiness, unit resilience, and mission performance. Stress was measured with four items that were rated on 5-point Likert scales with anchors ranging from *None* to *Very High Amount* and *Strongly Disagree* to *Strongly Agree*. For example, one item asked "How much stress, if any, are you experiencing now in your Army job?" The scale had a reliability of .81.

Analysis

We aggregated the reported perceptions of each climate dimension and outcome to the unit level. Climate level was operationalized using the units' mean climate perceptions for each dimension. Climate strength was operationalized using within-group correlation, $r_{wg(j)}$ (James, 1982; James et al., 1984). The $r_{wg(j)}$ statistic provides a measure of the interchangeability of raters by comparing observed variance in ratings to a hypothetical expected variance that should be obtained if the raters completely disagreed; it provides an estimate of the interrater agreement of a group. The use of the $r_{wg(j)}$ statistic to represent climate strength is common in the extant literature (e.g., Dawson et al., 2008; Luria, 2008; Rafferty & Jimmieson, 2010; Zohar & Luria, 2004). Additionally, due to the non-normality of the data, the $r_{wg(j)}$ statistic was adjusted per James et al. (1984). We calculated Z-scores for both climate level and climate strength to center the data, allowing for meaningful interpretation of the variables' interactions. We used hierarchical regressions to test the hypotheses; main effects for the climate level and climate strength were entered in Step 1, and the interaction term (calculated by multiplying of the climate level by the $r_{wg(j)}$ statistic) was entered in Step 2.

Results

Descriptive statistics and correlations among the variables are shown in Table 3. Stress had a non-normal distribution; therefore, we used *z*-scores for this outcome variable.

Table 3

Correlations and Descriptive Statistics

Dimension	*M*	*SD*	1	2	3	4	5	6	7
1. Fairness	3.11	0.39	—						
2. Bullying	2.49	0.36	-.71**	—					
3. Inclusion	3.31	0.28	.77**	-.74**	—				
4. Flow of Information	3.14	0.34	.79**	-.67**	.74**	—			
5. Autonomy	3.05	0.42	.84**	-.73**	.69**	.82**	—		
6. Performance Orientation	3.61	0.41	.77**	-.72**	.72**	.82**	.77**	—	
7. Professionalism	3.40	0.39	.78**	-.68**	.74**	.83**	.77**	.94**	—

Note. $n = 55$, M = mean, SD = standard deviation, ** denotes significance at $p < .001$, 2-tailed.

Climate Dimensions Experienced at the Individual Level

Hypothesis 1 stated that climate strength would have a significant moderation effect for the climate dimensions of fairness, bullying, and inclusion relationships with the outcomes of cohesion, affective commitment, and stress. This hypothesis was partially supported as climate strength was found to be a significant moderator in 66.67% of the individual experience models, explaining significant additional variance in six of the nine models. The results of the models are listed below by climate dimension. Tables 4, 5, and 6 display the main effects of climate level as well as the interaction effects of climate level and climate strength on the outcomes.

Table 4

Climate Level and Climate Strength Main Effects and Interactions on Cohesion

Climate Dimension	Step 1: Main Effects					Step 2: Interaction				
		95% CI					95% CI			
	B	LL	UL	*β*	R^2	*B*	LL	UL	*β*	ΔR^2
Fairness					.65**	-.083*	-.166	.000	-.21*	.03†
Level	.350**	.273	.427	.80**						
Strength	.018	-.057	.093	.04						
Bullying					.58**	-.025	-.132	.083	-.06	.002
Level	-.343**	-.427	-.259	-.79**						
Strength	-.079	-.162	.044	-.18						
Inclusion					.55**	.058	-.045	.161	.11	.01
Level	.331**	.240	.421	.73**						
Strength	.028	-.057	.113	.07						
Flow of Information					.62**	-.199*	-.388	-.011	.25*	.03*
Level	.363**	.277	.449	.76**						
Strength	.047	-.031	.124	.11						
Autonomy					.68**	.004	-.104	.112	.01	<.001
Level	.359**	.284	.434	.80**						
Strength	.042	-.030	.114	.10						
Performance Orientation					.67**	.001	-.152	.153	.001	<.001
Level	.343**	.270	.416	.80**						
Strength	.040	-.033	.113	.09						
Professionalism					.64**	.036	-.070	.142	.06	.003
Level	.342**	.265	.419	.79**						
Strength	.027	-.050	.103	.06						

Note. $n = 55$, 2-tailed, B = unstandardized regression coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; β = standardized regression coefficient; R^2 reflects explained variance of model for main effects of climate level and climate strength ($r_{wg(j)}$); $^{\dagger}p = .05$; $*p < .05$; $**p < .01$.

Table 5

Climate Dimension Main Effects and Climate Strength Interactions on Affective Commitment

Climate Dimension	Step 1: Main Effects					Step 2: Interaction				
		95% CI					95% CI			
	B	LL	UL	*β*	R^2	*B*	LL	UL	*β*	ΔR^2
Fairness					.47**	-.113*	-.209	-.018	-.30*	.06*
Level	.263**	.173	.352	.64**						
Strength	.063	-.025	.150	.15						
Bullying					.56**	-.138**	-.235	-.042	-.34**	.07*
Level	-.313**	-.394	-.231	-.76**						
Strength	-.034	-.115	.047	-.08						
Inclusion					.35**	.146*	.035	.256	.30*	.08*
Level	.255**	.152	.357	.59**						
Strength	.005	-.092	.101	.01						
Flow of Information					.37**	-.099	-.337	.138	-.13	.01
Level	.266**	.162	.370	.59**						
Strength	.035	-.059	.129	.09						
Autonomy					.51**	-.054	-.178	.069	.09	.01
Level	.301**	.214	.388	.71**						
Strength	.014	-.069	.097	.03						
Performance Orientation					.47**	-.043	-.225	.138	-.06	.01
Level	.279**	.192	.365	.69**						
Strength	-.007	-.091	.080	-.02						
Professionalism					.41**	-.006	-.135	.122	-.01	.00
Level	.266**	.172	.359	.65**						
Strength	-.015	-.108	.077	-.04						

Note. $n = 55$, 2-tailed, B = unstandardized regression coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; β = standardized regression coefficient; R^2 reflects explained variance of model for main effects of climate level and climate strength ($r_{wg(j)}$); *$p < .05$; **$p < .01$.

Table 6

Climate Dimension Main Effects and Climate Strength Interactions on Stress

Climate Dimension	Main Effect					Interaction				
		95% CI					95% CI			
	B	LL	UL	*β*	R^2	*B*	LL	UL	*β*	ΔR^2
Fairness					.09	-.060	-.152	.032	-.27	.04
Level	-.042	-.100	.017	-.21						
Strength	-.035	-.086	.017	-.19						
Bullying					.13*	.075*	.008	.141	-.37*	.09*
Level	.059*	-.002	.119	.30*						
Strength	-.021	-.074	.032	-.12						
Inclusion					.19*	-.059*	-.115	-.003	.29*	.08*
Level	-.040*	-.091	-.012	-.21*						
Strength	-.059*	-.109	-.010	-.34*						
Flow of Information					.07	-.062	-.196	.072	-.19	.02
Level	-.033	-.095	.030	-.16						
Strength	-.033	-.084	.019	-.19						
Autonomy					.05	-.034	-.125	.057	.12	.01
Level	-.047	-.114	.019	-.21						
Strength	-.006	-.057	.045	-.03						
Performance Orientation					.05	-.014	-.125	.096	.05	.002
Level	-.025	-.083	.034	-.13						
Strength	-.028	-.079	.023	-.16						
Professionalism					.03	-.039	-.115	.036	-.16	.03
Level	-.017	-.075	.041	-.09						
Strength	-.021	-.073	.031	-.12						

Note. $n = 55$, 2-tailed, *B* = unstandardized regression coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; *β* = standardized regression coefficient; R^2 reflects explained variance of model for main effects of climate level and climate strength ($r_{wg(j)}$); *$p < .05$; **$p < .01$.

Fairness

The results showed a significant moderating effect of climate strength for fairness on cohesion (see Figure 1). The main effect of the climate level (i.e., mean climate perceptions) was significantly correlated with cohesion ($\beta = .80$, $p < .001$). Yet, adding climate strength, fairness $r_{wg(j)}$, to the model explained an additional 3% of the variance above and beyond that of the main effect of the climate level ($\Delta R^2 = .03$, $\Delta F(1,47) = 4.04$, $p = .050$). This moderation showed that while companies with higher fairness climate strength (i.e., strong agreement for fairness climate) showed a positive relationship between fairness level and cohesion, companies with lower climate strength had a stronger positive relationship between fairness climate level and cohesion (see Table 4). Further, as seen in Table 5, while fairness level significantly predicted affective commitment ($\beta = .64$, $p < .001$), fairness climate strength significantly explained an additional 6% of the variance when added to the model ($\Delta R^2 = .06$, $\Delta F(1,47) = 5.68$, $p = .021$). While companies with both high and low climate strength exhibited positive relationships between fairness level and affective commitment, the relationship was stronger in companies with lower climate strength (see Figure 2). Finally, neither fairness level nor the interaction of fairness level and climate strength significantly predicted stress (see Table 6).

Figure 1

Moderating Effect of Climate Strength for Fairness on the Relationship between Fairness Climate Level and Cohesion

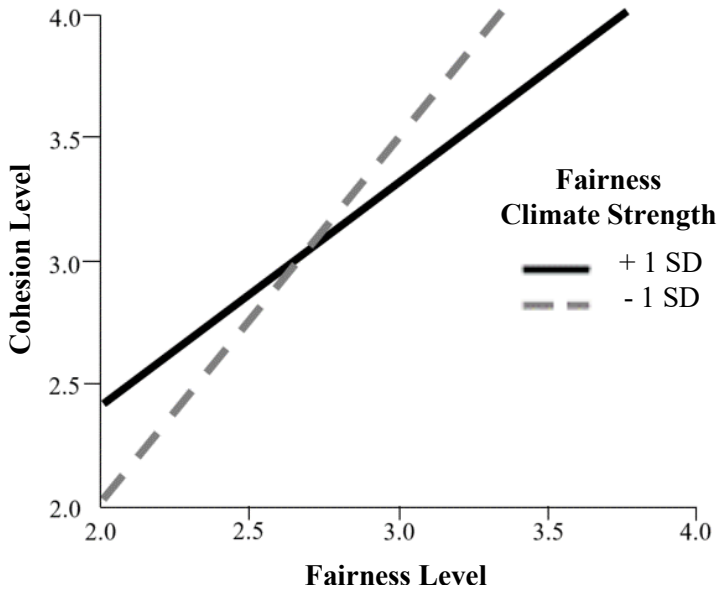
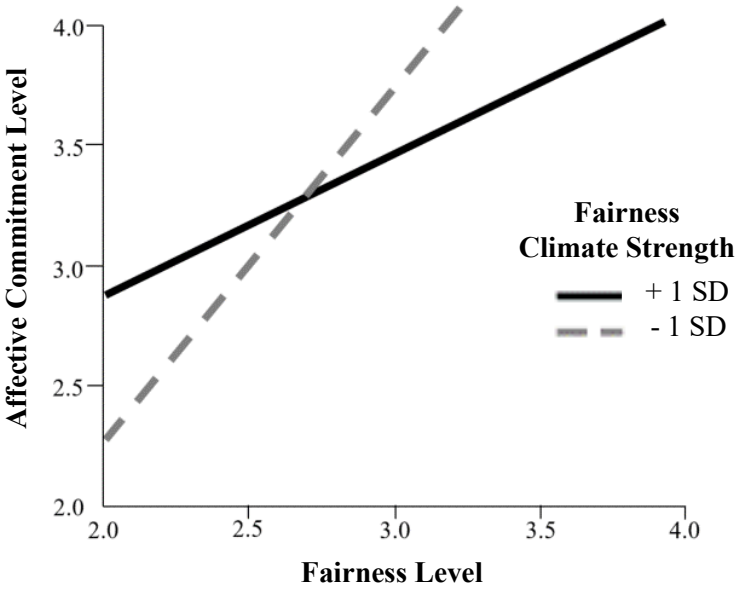


Figure 2

Moderating Effect of Climate Strength for Fairness on the Relationship between Fairness Climate Level and Affective Commitment



Bullying

Climate strength significantly moderated the relationship between bullying and affective commitment (see Figure 3). Bullying level significantly predicted affective commitment (β = -.76, $p < .001$), but this relationship was significantly moderated by climate strength, which added 7% explained variance ($\Delta R^2 = .07$, $\Delta F(1,47) = 8.30$, $p = .006$). The results showed that companies with low bullying climate strength (i.e., companies low in agreement for the level of bullying climate) had a negative relationship between bullying level and affective commitment; however, units with high climate strength (i.e., companies that had higher agreement) showed a much stronger negative relationship (see Table 5). Climate strength also significantly moderated the bullying climate level and stress relationship. As seen in Table 6, the relationship between bullying level and stress approached but did not achieve significance (β =.30, $p = .057$), but adding in the moderating effect of climate strength explained a significant additional 9% of variance ($\Delta R^2 = .09$, $\Delta F(1,43) = 8.30$, $p = .030$). For companies that had low climate strength (i.e., weak bullying climate), bullying level and stress had a negative relationship. However, for companies that had high climate strength for bullying (i.e., strong climates), a stronger positive relationship was found between bullying level and stress (see Figure 4). Finally, bullying level was significantly related to cohesion (β = -.79, $p < .001$), but climate strength did not significantly moderate this relationship (see Table 4).

Figure 3

Moderating Effect of Climate Strength for Bullying on the Relationship between Bullying Climate Level and Affective Commitment

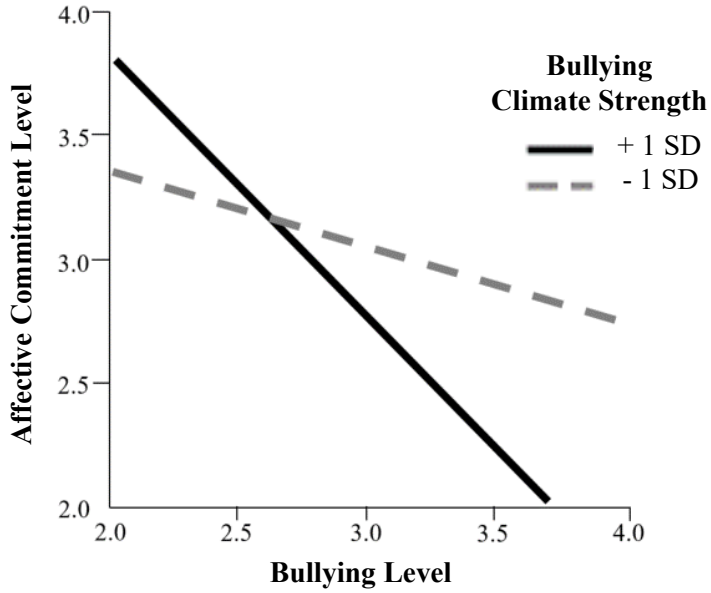
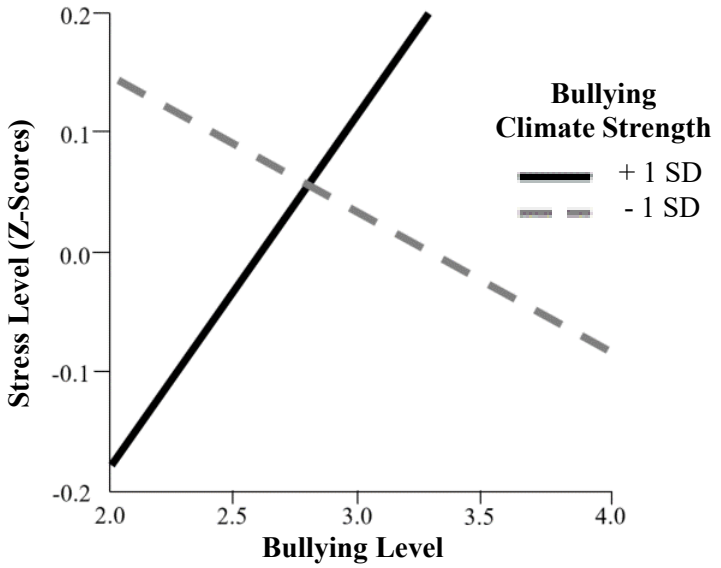


Figure 4

Moderating Effect of Climate Strength for Bullying on the Relationship between Bullying Climate Level and Stress



Note. Z-scores were used to address the non-normality of the stress score distribution.

Inclusion

Inclusion climate level was a significant predictor of affective commitment (β =.59, p < .001). As seen in Table 5, climate strength significantly moderated this relationship, as the model explained an additional 8% variance after adding climate strength (ΔR^2 = .08, $\Delta F(1,47)$ = 7.01, p = .011). Companies with high climate strength for inclusion (i.e., companies with high agreement on inclusion climate) had a much stronger positive relationship to affective commitment than companies with low climate strength (see Figure 5). Inclusion level did not significantly predict stress (β = -.21, p = .131), but a significant moderating effect of climate strength explained an additional 8% of the variance (ΔR^2 = .08, $\Delta F(1,43)$ = 4.52, p = .039). This moderation greatly influenced the magnitude and strength of the relationship between inclusion level and stress. That is, companies with strong climates showed a negative relationship between inclusion and stress; however, companies with weaker climates displayed a strong positive relationship (see Figure 6). Inclusion level was significantly correlated with cohesion (β = .73, p < .001), but this relationship was not significantly affected by adding the moderator of climate strength (see Table 4).

Figure 5

Moderating Effect of Climate Strength for Inclusion on the Relationship between Inclusion Climate Level and Affective Commitment

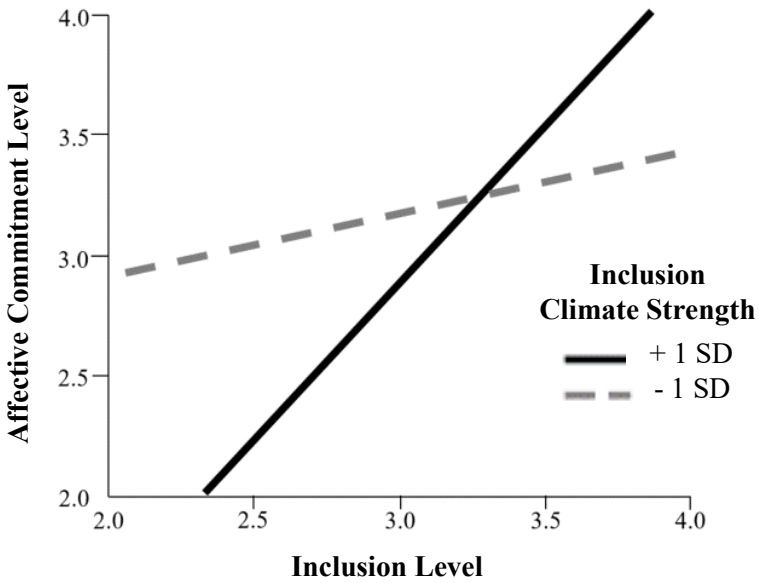
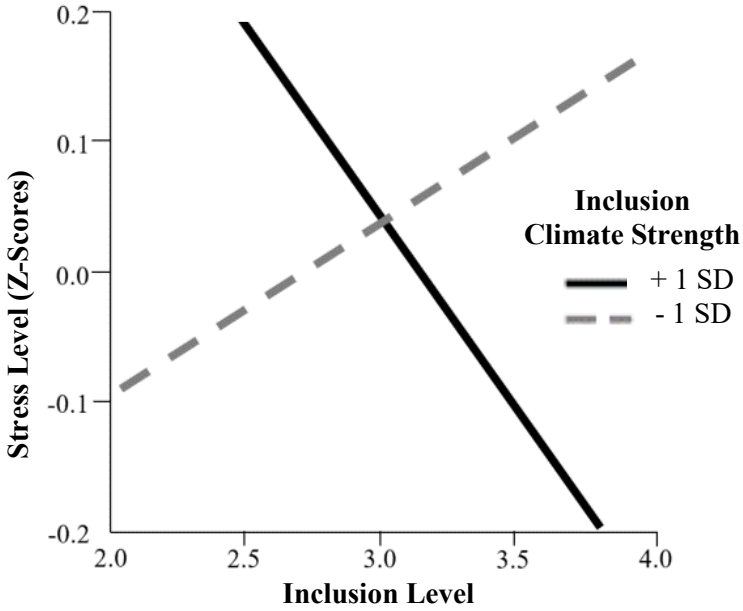


Figure 6

Moderating Effect of Climate Strength for Inclusion on the Relationship between Inclusion Climate Level and Stress



Note. Z-scores were used to address the non-normality of the stress score distribution.

Climate Dimensions Experienced at the Group Level

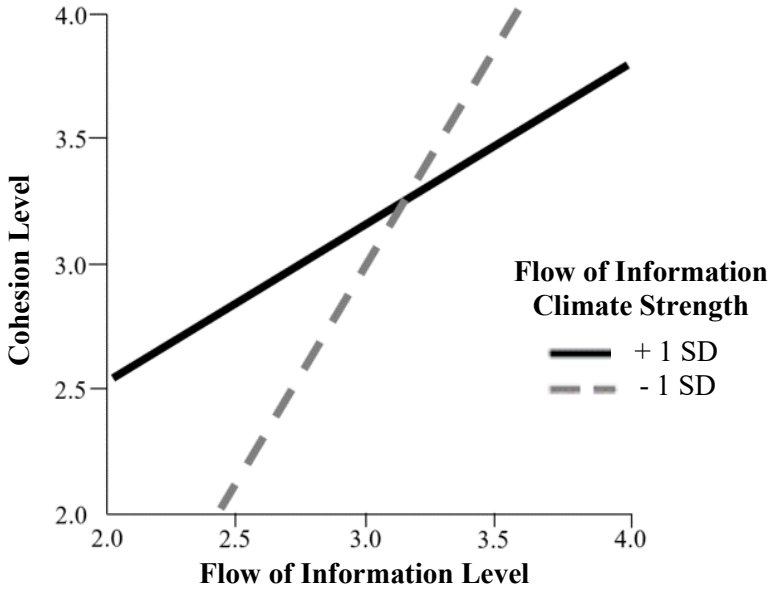
The second hypothesis stated that climate strength would not significantly moderate the relationships among flow of information, autonomy, performance orientation, and professionalism climate levels and their outcomes. This hypothesis was mostly supported as climate strength significantly moderated only one of the 12 relationships (8.3%) for the group experience dimensions. The results of the models are listed below by climate dimension.

Flow of Information

Climate strength only demonstrated one significant interaction effect manifested between flow of information and cohesion. Flow of information level had a significant correlation with cohesion ($\beta = .76$, $p < .001$). This model also found evidence for a significant climate strength effect ($\Delta R^2 = .03$, $\Delta F(1,47) = 4.53$, $p = .039$). As seen in Table 4, while both companies with low and high climate strength showed positive relationships between flow of information level and cohesion, it seems that companies with lower climate strength exhibited a stronger relationship (see Figure 7). Flow of information level was significantly related to affective commitment ($\beta = .59$, $p < .01$), but there was no significant moderation effect of climate strength (see Table 5). In regards to stress, we found neither a significant correlation with flow of information level nor a moderator effect of climate strength (see Table 6).

Figure 7

Moderating Effect of Climate Strength for Flow of Information on the Relationship between Flow of Information Climate Level and Cohesion



Autonomy

Autonomy level had significant correlations with both cohesion (β =.80, $p < .001$; see Table 4) and affective commitment (β = .71, $p < .001$; see Table 5). However, climate strength did not significantly moderate either relationship. We did not find either a significant main effect of autonomy level or a moderator effect of autonomy climate strength for stress (see Table 6).

Performance Orientation

Performance orientation level correlated significantly with the outcomes of cohesion (β = .80, $p < .001$; see Table 4) and affective commitment (β = .69, $p < .001$; see Table 5). Climate strength did not moderate these relationships. For stress, the results indicated neither a significant correlation of performance orientation level nor a climate strength moderation effect (see Table 6).

Professionalism

Like autonomy and performance orientation, professionalism level significantly related to both cohesion (β = .79, $p < .001$; see Table 4) and affective commitment (β = .65, $p < .001$; see Table 5). Additionally, climate strength did not significantly moderate these relationships. Finally, professionalism level did not predict stress, and climate strength did not moderate this relationship (see Table 6).

Summary

Overall, climate strength proved to be a significant moderator in one third of the models analyzed. However, when divided into dimensions experienced at the individual and group levels, climate strength was found to be a significant moderator in 66.67% of the individual experience models, explaining significant additional variance in 6 of the 9 models, supporting Hypothesis 1. In support of Hypothesis 2, climate strength played a significant moderating influence in only one of 12 models for the group experience dimensions (8.3%).

Discussion

As hypothesized, climate strength was more likely to moderate relationships for command climate dimensions experienced at the individual level as opposed to the group level. Specifically, this study found that climate strength is more likely to moderate Soldier's perceptions when climate dimensions are experienced individually and center around the treatment of individuals (i.e., fairness, bullying, and inclusion) than those experienced as a group (i.e., flow of information, performance orientation, and professionalism). These findings support previous findings of González-Romá and colleagues (2002) and Dawson and colleagues (2008). While climate literature usually focuses on the aggregated mean climate scores as a single score to represent an entire group, these results provide evidence that climate strength may provide commanders with a more complete picture of their unit's command climate, thereby helping them maintain a positive atmosphere. Reliance on mean climate levels alone can conceal variability that may be present within unit, which can mask how Soldiers within the unit feel, especially if the perceptual variations are large. This oversimplification may result in overlooking small but meaningful variations.

A finding of note was that climate strength had differential moderation effects on the relationships between the dimensions and outcomes studied. For example, when examining fairness climate, climate strength moderated the relationships between fairness climate level and cohesion and fairness climate level and affective commitment such that units with weaker climates (i.e., more disagreement on the perception of fairness within the unit) showed stronger positive relationships. These results differed from climate strength's moderating effect on the relationship between inclusion climate level and affective commitment. In this model, stronger climates resulted in stronger positive relationships. Finally, climate strength moderated the relationship between bullying and affective commitment so that units with strong climates showed stronger negative relationships.

These differences show that while the moderating effects of climate strength may increase the predictability within a climate model, the context of the dimension and outcomes are very important. While González-Romá and colleagues (2002) stated that increased climate strength should result in increased predictability, the current research found that this may not always be the case. Instead, it is possible that climate strength is not necessarily valenced; it is neither good nor bad to have high or low agreement scores. Instead, this may depend on the climate dimension being examined. For example, high climate strength for fairness would be

seen as positive if the climate level for fairness is high. However, if the climate level of fairness is very low (indicating that the Soldiers perceive a non-inclusive unit) the climate strength will still be high, meaning most of the Soldiers' agree there is poor inclusion in the unit. Therefore, broader general explanations for the differential effects of climate strength cannot be made without consideration of the context and specific climate facet or dimension in which they are being studied.

Limitations

All data were collected at a single time-point using self-report measures; therefore, single-source bias may have affected the magnitude of the relationships between the command climate dimensions and outcomes. Additionally, the design did not allow for the development of time-order between the variables of interest and therefore did not allow for causal inference. It may be that the outcomes influence the climate dimensions. For example, it is possible for an outcome such as stress to alter the way in which Soldiers perceive their environment. Previous stress research has shown that individuals under stress shift their perceptual processing from top-down to bottom-up processing (Sandi & Pinelo-Nava, 2007). Specifically, individuals in stressful situations are less likely to use their knowledge, experiences, and higher-level social constructs (e.g., Army culture and command climate) to understand their environments. Instead, these individuals are more likely to internalize more of the stimuli and information provided by their surroundings, processing and understanding their environment in a more unique and individual way. Therefore, units that experience high amounts of stress may have larger variation in their group-level perceptions than units that experience smaller amounts of stress. Finally, the group-level sample size was small, which might have led to insufficient statistical power to reveal significant moderating effects.

Future Research

Future research should continue to explore the moderating effects of climate strength. Researchers should use longitudinal paradigms including multiple responses from the same participants at different time points to study changes in climate strength over time. Longitudinal designs could examine questions regarding the stability or volatility of climate strength. The degree to which climate strength fluctuates over time and the rate at which it changes would improve our understanding of how command climate is developed and how quickly interventions can be expected to have effects.

Additionally, researchers should consider the antecedents of climate strength. For instance, to what extent do leader behaviors lead to changes in climate strength? An improved understanding of the role of leaders in the formation of a strong climate would inform interventions to improve command climate. Furthermore, unit member churn may also affect climate strength. If a large number of members are entering or leaving a unit, it is possible the climate strength will be lower until the average tenure increases and new members are socialized into the unit. An improved understanding of the effects of member churn on climate strength would provide useful information about whether high levels of disagreement are due to changing unit membership or more systemic issues that need to be addressed.

Practical Applications

The findings of this study provide initial evidence for the inclusion of climate strength indices when reporting command climate survey results. The prevailing practice of focusing on mean climate level and excluding climate strength from survey reports may omit important information about a unit's command climate. The current results suggest that climate strength (i.e., agreement statistics) should be reported for climate dimensions that focus on the treatment of individual unit members (e.g., fairness, bullying, and inclusion). For these dimensions, climate strength may provide a more holistic, nuanced picture of a unit's command climate and reveal potential issues that might be masked by aggregating individual responses.

The current findings suggest that the most appropriate indicators of command climate may depend on the focality of the climate dimension. For those dimensions experienced at the group level, agreement within the unit is generally high, and therefore the aggregated mean response may be the most appropriate statistic to use. This suggests that when a unit experiences or observes something at the unit level (i.e., as a company), they will likely perceive the information or event in the same manner, strengthening the climate perceptions within the group. For example, when a commander clearly instructs their Soldiers on the expectations of professionalism in garrison, emphasizing the standards, rules, and regulations, the Soldiers may be likely to perceive the expectations of their behavior in a similar manner.

Conversely, for command climate dimensions experienced at the individual level, or those that revolve around the treatment of individuals, agreement within the unit may vary much more drastically. This suggests that when a Soldier or a subgroup within the unit witnesses something, each Soldier may perceive the event in their own way. For example, if some Soldiers are not invited to a social event, they may vary in the extent to which they feel excluded. Some may view the lack of invitation as an oversight, whereas others might see it as a deliberate exclusion. Other unit members may be unaware of the situation and would not be expected to factor it into their perceptions of inclusion. With limited training for leaders on how to interpret the agreement statistic, climate strength may help commanders better understand climate dimensions such as inclusion and better enable them to develop plans to improve their command climate.

Additionally, for units with low climate strength, using an average score may result in missing valuable information about Soldier's climate perceptions. This can be especially important in instances such as bullying. In some cases, it is possible that only a small number of Soldiers experience bullying by their peers. However, even if these individuals report their perceptions of bullying climate, their specific experiences may be lost during aggregation to the company level. Therefore, it may appear that the unit does not have a problem with bullying climate, and the necessary steps to stop bullying behaviors may not be put into place, possibly leading to larger issues over time. For example, when left unaddressed, a continuation of bullying may create the pervasive idea that experiencing bullying is part of being a member of the unit. While at this point it would noticeably affect climate levels, leaders would have to spend much more time and many more resources to address the pervasive bullying issue than it would have if it had been identified earlier. Examining climate strength may allow commanders to take a more granular look at the unit's perceptions. As such, if leaders see that there is a high level of disagreement in the company's perception of bullying (i.e., some Soldiers report high

levels of bullying, whereas other Soldiers report no bullying), they could deduce that bullying is an issue in the unit and take necessary steps in stopping these behaviors. By doing this, leadership would be addressing an issue that could have been overlooked if climate strength were not reported.

Conclusion

The inclusion of climate strength scores provides Army leaders more granular insights to their Soldiers' attitudes, perceptions, and experiences. This information, in turn, is important for accurately assessing the health of the unit. Climate strength may allow Army leaders to uncover effects that may be masked if leaders are focused exclusively on aggregated climate level results. Using climate strength measures in concert with climate levels enable leadership to obtain a more nuanced look at the Soldiers and guide corrective action as needed in order to address budding issues before they become systemic problems, thereby maintaining a positive command climate.

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