Short and Effective: A Reasoned Proposal for Organizational Climate Measurement

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Abstract

Generally, organizational climate research does not focus on the work environment because the mindset and emotions of employees are often mistaken for organizational culture. Additionally, surveys to evaluate the organizational climate tend to be long, and therefore, organizational climate studies are conducted only once a year—that too if an organization is concerned about its employees. This research proposes a methodology to evaluate organizational climate; the methodology has the following characteristics: it is a short evaluation named "pulse"; it is oriented toward specific elements of culture that influence the organizational climate and its variability; and it considers organizational contexts. The study was conducted in three organizations encompassing three sectors (N=3,331 employees). The survey included three questions regarding employees' feelings and climate perception at the individual, group, and organizational levels. Additionally, it had 56 questions related to the elements of organizational culture, grouped into six components after an exploratory analysis: Structure, Recognition, Leadership, Accountability, Work Team, and Ethics. The results showed significant differences between organizations based on the organizational climate perception, its strength, and the behavior of the variables associated with the organizational culture that impacts the climate. Additionally, cultural elements were reduced because of their relationship with the organizational climate. This research suggests that organizational climate studies should be conducted for specific organizational contexts. Additionally, it proposes a methodology to reduce the duration of organizational climate studies by focusing on specific cultural dimensions associated with the climate, which can be applied longitudinally throughout the year to monitor climate changes.

1- Introduction

1-1- Organizational Climate

Even though the organizational climate is an element that has been the subject of multiple investigations, there is still no consensus about its definition, making it difficult to comprehend and measure [1, 2]. The organizational climate can be defined as the psychological component of the work environment, which influences the attitudes and behaviors of people in their organization [3]. Clissold [4] also identifies the organizational climate as the set of beliefs and perceptions employees have concerning their organization [4, 5].

Lau (1976) [6] associated two models in which the climate can be studied. The first refers to a model with multiple organizational attributes, where the work environment is studied as a synonym of working conditions. For this reason, aspects such as structure, values, and people processes are considered a part of the climate. This logic of work environment studies has been used to this day, identifying components of the work environment that can be generalized to various contexts [6–8].

Another approach to the work climate has been made from the model of individual attributes, where the climate results from people's interaction with different events. In this case, the work environment is identified as a psychological element rather than an organizational one. The effects may be identified in a group of people but not necessarily in the entire organization [1, 8]. As it is known, the psychological climate has focused on the positive or negative assessment that organizational attributes have for the person, which reinforces the notion of climate study based on the psychological impact of these attributes [9, 10]. Thus, Denison [7] explains the existence of the work environment as a consequence of the influence of aspects of the environment that the employee consciously perceives.

1-2- Impact of Culture on the Organizational Climate

The organizational climate has generally been related to culture and/or confused with it [7]. Such is the case of the definition of work environment given by several authors [2, 11, 12], where they refer to the climate as the perception of the forms of recognition of organizational policies and practices. Likewise, the climate is identified with those lasting elements that are shared among the members of an organization and that include aspects such as innovation, autonomy, trust, recognition, and justice [3]; these elements aspects are part of the structure of the organizational culture. To achieve differentiation, authors such as Peterson & Spencer (1990) [13] indicate that culture is concerned with aspects of shared meanings, values, and beliefs, which result in behaviors, while the climate is oriented to the perception and attitudes of people about the dimensions of culture [14].

James et al. [9] explain that the work environment is an individual perception that may or may not be shared, which makes it essentially different from the organizational culture. In this way, the climate refers to how employees feel and defines their work environment, while the culture is the result of the interaction of the organization as a system; therefore, it is the result of the employees' exchange, their relationships, and the way they shared their thoughts and beliefs [7, 9, 10, 15, 16]. These elements have been identified in research by Ramos & Tejera [5], who explain that in studies considering the work climate, there has been an emphasis on aspects of culture that impact the climate. Still, these studies have not necessarily considered the climate itself.

1-3- Organizational Climate Strength

Work environment studies have focused on understanding the common elements in employees' perceptions of their organization [4]. However, the climate is not always homogenous. In fact, the climate strength has been determined as the consensual result of these perceptions but not as the sum of them [2, 15]. The strength of the organizational climate is one of the elements related to the variability of the climate and allows measuring the degree of dispersion that the answers of the employees have when they are asked about their perception concerning how they feel about their environment [11, 17]. The knowledge of the climate strength implies recognizing to what extent employees are or are not aligned with organizational practices [11]. However, there is still little research that relates the strength of the work environment with cultural attributes and its impact on other elements such as the employee's well-being and job satisfaction [9, 17, 18].

1-4- Organizational Climate Measurement

Work environment studies have identified various ways of measuring it, taking into account dimensions to assess the climate, which, as we have previously indicated, references elements of the organizational culture rather than climate. There are several studies with validated and published questionnaires in this regard [1, 12, 19-25]. These studies present questionnaires to measure the work climate according to the degrees of agreement or disagreement that employees may have about the given statements, where all are linked to behaviors and/or cultural dimensions.

At the same time, the questionnaires aimed at measuring the work environment have a problem common to several questionnaires, which is the time it is used to fill them out. Since most of the questionnaires that measure work environment generally include several dimensions, the time to fill them out is perceived as very long. Even though we have not identified enough satisfaction studies about the quality of a questionnaire, some reports indicate the relationship between the number of items, the time to fill them out, and the degree of abandonment of the questionnaire, which translates into levels of satisfaction with its quality [26–29]. In this sense, Rolstad et al. [30] identified in their study that there is a decrease in responses in long questionnaires. At the same time, Couper et al. [31] found that long questionnaires have to be accompanied by reminder processes so they can be filled out. Finally, there is also evidence that the level of education of the people influences the time to complete the questionnaire and the degree of comprehension of the surveys [32, 33], which allows us to infer that these aspects must be taken into account in heterogeneous populations.

In conclusion, there are components that we have identified related to work environment studies. In the first place, there is the need to measure the climate from its psychological and perceptual aspects, considering dimensions of the culture but with emphasis on how people perceive how these dimensions affect them. Secondly, climate variability suggests that longitudinal studies of the climate must be carried out so that its behavior can be understood while considering the consensus of the employees' responses. Lastly, the length of the climate surveys is an important factor so that there can be acceptance by the respondents when completing the questionnaires throughout the year.

For this reason, the concept of *work environment pulse* is proposed as the alternative for *longitudinal work environment* studies. According to the Oxford Advanced American Dictionary, *pulse* is "a single vibration or short burst of sound, electric current, light, or other wave" [34]. Another definition in the same document indicates "a rhythmical throbbing of the arteries as blood is propelled through them, typically as felt in the wrists or neck [34]. In this sense, the pulse has two key components: it is rhythmic and short. For this reason, we decided to create the concept of *climate pulse* to refer to short and periodic measurements of the same. Thus, the present study aims to develop a methodological proposal to evaluate the organizational climate that meets the following requirements: it develops as a short evaluation type, oriented to the specific elements of culture that influence the organizational climate and its variability, and it considers organizational contexts.

2- Material and Methods

This is a quantitative study with a correlational scope. This study can be classified as a multiple case study because it compares the results of the impact of culture on the work climate in three different organizations [35]. This type of comparative research between organizations is generally not conducted because it is based on the principle that organizational climate can be measured similarly regardless of the context. Although the first studies on this subject were conducted in the 1970s [36, 37], they have yet to be repeated. For the study, informed consent was obtained from all subjects involved in the study, which was included in the survey applied.

2-1- Participants

The study was conducted using the data from three organizations in Ecuador. These organizations, which have offices in various regions of the country, have a national projection. The first organization operates in the services area, the second in the productive area, and the third in the financial sector ($N_{Organization1} = 415$; $N_{Organization2} = 427$; $N_{Organization3} = 2,489$).

2-2- Measures

A survey was applied to obtain the data based on previous studies about climate strength and cultural impact [38] (see Supplementary Materials). The survey comprised 56 questions related to elements of the organizational culture and three additional questions to identify the perception of the individual, group, and organizational climate. Based on a factorial analysis, the questions were grouped into six climate dimensions, with an explained variance of 67%. The results are shown in Table 1 of the Supplementary Materials.

2-3- Statistical Analysis

To determine the differences between the organizations, means were compared (ANOVA). Additionally, we developed a model of relationships between the organizational cultural dimensions and organizational climate using structural equation modeling. The indices used to verify the model fit included the comparative fit index (CFI), goodness fit index (GFI), parsimony goodness-of-fit index (PGFI), normed fit index (NFI), and the root mean square error of approximation (RMSEA)—the most-used fit indexes [39]. Additionally, descriptive statistics were included. The SPSS and AMOS programs were used [40].

3- Results

The results will be presented by the suggested methodology to conduct an organizational climate study based on identifying its strength and the elements for measuring the pulse.

3-1- Organizational Climate and Climate Strength

The results regarding the perception and strength of the work climate were obtained from survey questions related to these elements. The perceptions of the employees of different organizations were compared to evaluate their differences (see Table 1).

Table 1. Differences between organizations related to the means of perception of the work environment of the position, the group and the organization

	Organization 1	Organization 2	Organization 3	
	Mean	**Mean**	**Mean**	*p-value*
Individual Climate	5.53	5.80[a]	5.80[a]	0,000
Group Climate	5.54	5.79[b]	5.80[b]	0,000
Organization Climate	5.27	5.78[c]	5.82[c]	0,000

Note: [a] indicates values that do not present statistically significant differences. [b] indicates values that do not present statistically significant differences. [c] indicates values that do not present statistically significant differences

The results (Table 1) show that when comparing the mean values of the individual, group, and organizational climate, Organizations 2 and 3 did not show statistically significant differences in the values obtained. However, both organizations had values indicating a better climate perception than Organization 1. This first result affirms that the perception of the work climate could change between organizations, which justifies conducting context-specific climate studies. Additionally, it verifies the organizational climate strength, comparing the mean results for each organization's three climate levels. These results are shown in Table 2.

Table 2. Mean differences related to the perception of the work climate of the position, the group and the organization, for the identification of the strength of the climate

Pairing	Organization 1		Organization 2		Organization 3	
	Paired Mean Differences	**p-value**	**Paired Mean Differences**	**p-value**	**Paired Mean Differences**	**p-value**
Individual Climate - Group Climate	-0.010	0.809	0.002	0.943	-0.003	0.845
Individual Climate - Organizational Climate	0.267	0,000	0.016	0.692	-0.021	0.213
Group Climate - Organization Climate	0.277	0,000	0.014	0.754	-0.018	0.305

The results indicate differences in the behavior of climate variability in the three organizations. Organizations 2 and 3 do not show statistically significant mean differences in their three climate levels, indicating a robust work environment. Organization 1 has no difference between the individual and group climate; however, it has statistically significant differences between both climate levels when compared with the organizational climate. This implies that not all organizations have a solid organizational climate. Therefore, it must be considered that the climate will differ depending on the analysis level determined.

3-2- Impact of Cultural Components on the Work Environment

The organizational culture was grouped into six components based on the factorial analyses. The results reflecting the differences between organizations are shown in Table 3.

Table 3. Differences between organizations taking into account the components of culture

	Organization 1	Organization 2	Organization 3	
Cultural elements	**Mean**	**Mean**	**Mean**	*p-value*
Structure	3.90	4.39	4.24	0,000
Recognition	3.59[a]	3.74	3.63[a]	0.021
Leadership	4.04	4.24[b]	4.15[b]	0,000
Accountability	4.45	4.54[c]	4.52[c]	0.006
Team Work	4.08	4.28[d]	4.20[d]	0,000
Ethics	2.46	2.96	3.78	0,000

Note: [a] indicates values that do not present statistically significant differences. [b] indicates values that do not present statistically significant differences. [c] indicates values that do not present statistically significant differences. [d] indicates values that do not present statistically significant differences.

The results affirm that there are aspects of organizational culture that are common to specific organizations. However, Structure and Ethics had statistically different means in the three organizations studied. Other factors such as Leadership, Accountability, and Teamwork had means that were not statistically different in Organizations 2 and 3, while Recognition had mean values without statistically significant differences between Organizations 1 and 3. This suggests a need for differentiated analyses when studying the organizational culture, as previously happened when considering the climate. The impact of these aspects of culture on the work environment is shown in Table 4.

Table 4. Impact of the components of culture on the different levels of work environment

Organization	Cultural elements	Individual Climate β	Individual Climate p-value	Group Climate β	Group Climate p-value	Organization Climate β	Organization Climate p-value
	Structure	0.160		0.020		0.793	0.000
	Recognition	0.074		0.026		0.292	0.000
Organization 1	Leadership	0.604	0,000	0.316	0,000	-0.110	
	Accountability	0.095		0.127		-0.181	
	Team Work	0.263	0.001	0.735	0,000	0.229	0.002
	Ethics	-0.023		-0.038		-0.088	
	Structure	0.370	0.020	-0.055		0.927	0.000
	Recognition	0.126		0.101		0.289	0,000
Organization 2	Leadership	0.273	0.012	0.416	0,000	0.071	
	Accountability	-0.237	0.070	0.004		-0.588	0.000
	Team Work	0.153		0.295	0.006	0.031	
	Ethics	-0.088	0.031	-0.073		-0.055	
	Structure	0.118	0.032	-0.100		0.764	0.000
	Recognition	0.081	0.003	0.033		0.163	0.000
Organization 3	Leadership	0.378	0,000	0.352	0,000	-0.044	
	Accountability	-0.130	0.008	-0.195	0,000	-0.146	0.002
	Team Work	0.500	0,000	0.804	0,000	0.219	0.000
	Ethics	-0.085	0.001	-0.052	0.038	-0.132	0.000

Note: For a better visualization of the results, the values of p>0.05 were eliminated

As expected, only some of the elements of the organizational culture had the same impact on the work environment, considering each level and for each organization. Table 4 reflects, for example, that Accountability impacted the three levels of climate in Organization 3 and two levels in Organization 2 and had no impact on the climate of Organization 1. This same analysis can be performed with the rest of the culture components, verifying differences not only in the behavior of critical aspects of the organizational culture but also in the impact of these cultural aspects on the level of climate in each organization.

We also considered the impact of the specific items on the different levels of the work environment for each organization; the results are detailed in Table 2 of the Supplementary Materials. Overall, we can reach the conclusions presented in Table 5.

Table 5 shows that not all questions have a statistically significant impact at all climate levels, nor do they have the same behavior in the three organizations analyzed. Additionally, out of a total of 56 questions, considering the questions that have a statistically significant impact on at least one level of climate, there was a reduction of items for each organization according to the following detail: Organization 1 = 10 questions, Organization 2 = five questions; Organization 3 = 23 questions. Thus, the concept of "climate pulse" can be used by focusing climate studies on the elements of the culture with the most significant impact on the climate

3-3- Relationship Model of Climate and Components of Culture

To identify the relationships between all the variables, a model was developed following the logic of structural equations identifying correlations between the elements of culture, levels of work environment, and its strength. This model is illustrated in Figure 1.

This theoretical model was evaluated based on the relationship parameters established. The results are presented in Table 6.

According to Table 6, there were elements whose regression values were not statistically significant; therefore, this relationship was eliminated from the final model. Among the significant elements, Ethics—although it was related to the other elements of the organizational culture—did not impact the climate. Likewise, individual climate was the most significantly impacted aspect of the climate, and group climate was the least impacted. Additionally, the three levels of measurement of the work climate were related to climate strength. Nonetheless, Recognition and Ethics as elements of culture did not have statistically significant impacts on the climate strength. Additionally, the correlations between the variables of the same construct were calculated.

Table 5. Distribution of organizational culture questions with statistically significant impacts by climate level for each organization

	Individual Climate			Group Climate			Organization Climate		
	Org 1	Org 2	Org 3	Org 1	Org 2	Org 3	Org 1	Org 2	Org 3
	p-value	*p-value*	*p-value*	*p-value*	*p-value*	*p-value*	*p-value*	*p-value*	*p-value*
q2								0.023	0.005
q4			0.040			0.019			
q5									0.000
q6			0.000			0.000	0.039		0.000
q7									0.043
q8				0.000		0.000			
q11			0.007						0.012
q13							0.016		0.050
q14	0.019								
q15									0.004
q16			0.001			0.029			
q20						0.000			0.003
q21			0.038						0.000
q22	0.042		0.000			0.000	0.009		
q23		0.004							
q28									0.050
q29							0.003		
q31	0.045						0.012		
q32			0.003						0.000
q33									
q34				0.046			0.002		
q37						0.015			
q40			0.002			0.000		0.005	0.000
q46			0.024						
q47	0.035					0.014			
q48									0.039
q49						0.000			
q50			0.000	0.000	0.010	0.000			
q52			0.021						
q54		0.001	0.025				0.003		

Note: for a better visualization of the results, the values of p>0.05 were eliminated.
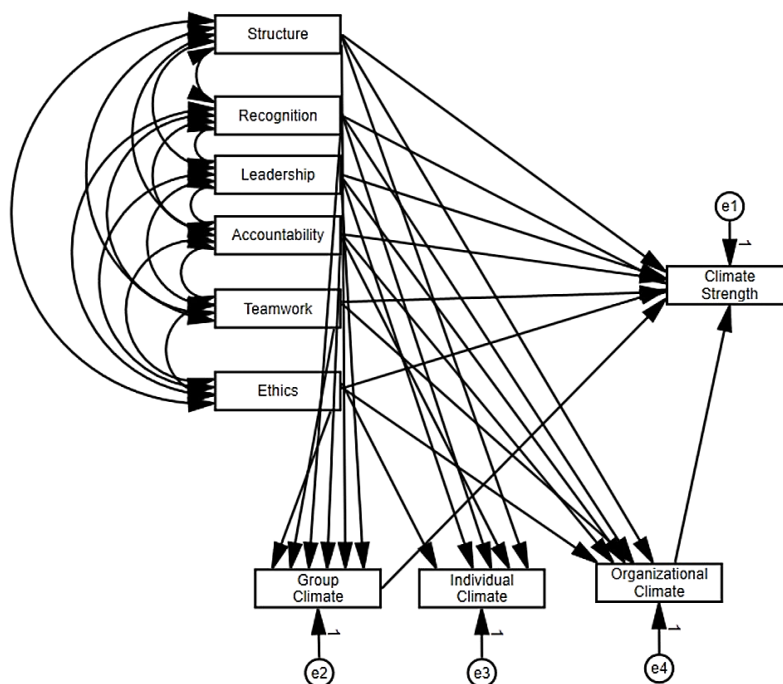
Figure 1. General model of relationships between culture, climate and climate strength

Table 6. Regressions between elements of culture, the climate strength and the work climate at different levels

|			Estimate	p-value
Organization Climate	←	Team Work	0.219	***
Organization Climate	←	Accountability	-0.262	***
Organization Climate	←	Ethics	-0.013	0.409
Organization Climate	←	Structure	0.866	***
Group Climate	←	Structure	-0.03	0.481
Group Climate	←	Recognition	0.015	0.535
Organization Climate	←	Recognition	0.151	***
Organization Climate	←	Leadership	-0.054	0.065
Group Climate	←	Leadership	0.351	***
Group Climate	←	Accountability	-0.172	***
Group Climate	←	Team Work	0.746	***
Group Climate	←	Ethics	-0.012	0.429
Strength	←	Team Work	0.116	0.006
Strength	←	Leadership	-0.164	***
Strength	←	Accountability	0.337	***
Strength	←	Team Work	-0.132	***
Strength	←	Group Climate	-0.074	***
Strength	←	Organization Climate	-0.161	***
Individual Climate	←	Ethics	-0.03	0.06
Strength	←	Ethics	-0.014	0.323
Individual Climate	←	Structure	0.195	***
Strength	←	Recognition	-0.039	0.078
Individual Climate	←	Recognition	0.056	0.021
Individual Climate	←	Leadership	0.406	***
Individual Climate	←	Accountability	-0.163	***
Individual Climate	←	Team Work	0.428	***

Note: ***indicates p-values<0.001

Table 7. Correlations between components of organizational culture according to the Model

			Estimate	p-value
Structure	↔	Recognition	0.379	***
Structure	↔	Leadership	0.319	***
Structure	↔	Accountability	0.162	***
Structure	↔	Team Work	0.257	***
Structure	↔	Ethics	0.052	***
Recognition	↔	Leadership	0.444	***
Leadership	↔	Accountability	0.161	***
Accountability	↔	Team Work	0.146	***
Recognition	↔	Accountability	0.147	***
Recognition	↔	Equipment	0.325	***
Recognition	↔	Ethics	0.055	***
Leadership	↔	Team Work	0.341	***
Leadership	↔	Ethics	0.025	0.028
Accountability	↔	Ethics	0.045	***
Team Work	↔	Ethics	0.004	0.687

Note: ***indicates p-values<0.001

Table 7 shows no statistically significant correlation between Teamwork and Ethics. Therefore, this relationship was eliminated from the final model, and modification indexes were considered (Figure 2).
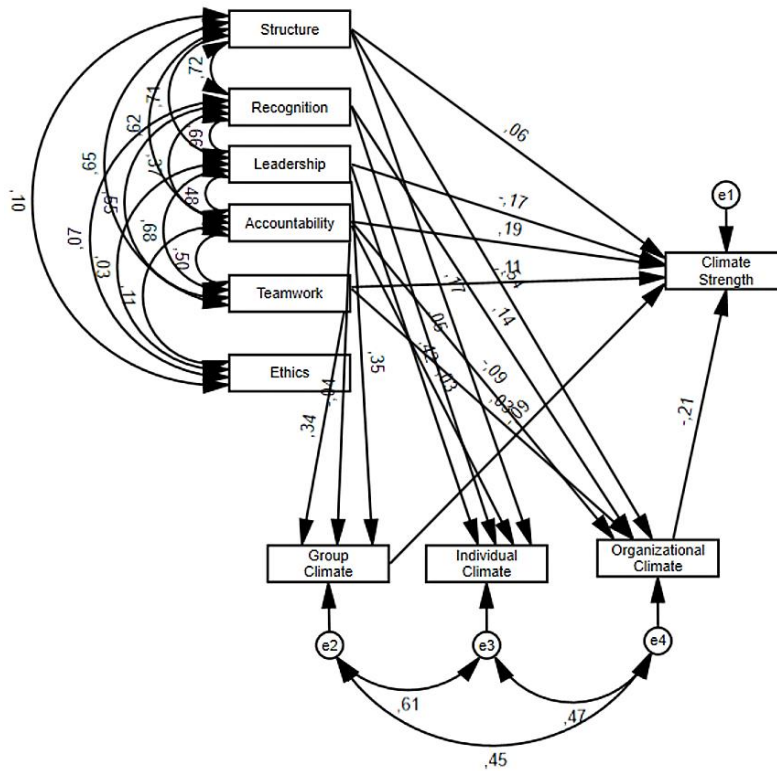
Figure 2. Final model of relationships between components of culture, the work environment and the strength of the work environment

The values of the fit indices of the model presented in Figure 2 were: CFI = 1.000, PCFI = 0.222, GFI = 0.999, NFI = 0.999, RMSEA = 0.011, PGFI = 0.182), χ^2/df = 1.39. The relationships detailed in the figure were statistically significant.

3-4- Differences in the Model's Behavior Depending on the Organization

The final model was tested in the three organizations in the study. The results of the model for each organization are presented in Table 8.

The difference between the models was statistically significant, assuming the model unconstrained to be correct (p<0.01), assuming the model structural weights to be correct (p<0.01), and assuming the model structural covariance to be correct (p<0.01).

4- Discussion

4-1- Main Findings of the Present Study

The results lead to conclusions regarding climate studies, the strength of the climate, and organizational culture, which can help develop a methodology to determine the pulse of the work climate in organizations. The primary outcomes of this research are as follows: 1) the work environment is confirmed to be variable, 2) there are differences between organizations when studying the work climate, 3) there are differences in the cultural elements that impact the work climate based on the context, and 4) pulse can be identified by considering specific items that impact the work environment at its different levels of analysis, and must be defined for each organization. These elements are discussed below.

4-2- Comparison with other Studies

Our results present differences considering other similar studies. One of these results is associated with the concept of work climate strength [11, 17, 41], which suggests a need for longitudinal studies of the work environment within the same organization and at different time-points throughout the year. Additionally, there were differences between organizations when studying the work climate. This is a significant result as there are differences between organizations concerning the perception of the work environment and the strength of the work environment. Therefore, researching the work climate requires an approach specific to the reality of each company [11]. Our results suggest that the study of

the work climate requires an approach specific to the reality of each organization, which contradicts the vision of climate as an aspect that can be generalized to various contexts [4, 20, 42] and investigations where the need to make generalizations is suggested [14, 17]. Additionally, we identified differences by considering which cultural elements impact the work climate according to the context.

Table 8. Regression results and correlations of the model variables for each organization

			Organization 1		Organization 2		Organization 3	
			Estimate	*p-value*	Estimate	*p-value*	Estimate	*p-value*
Organization Climate	←	Team Work	0.219	0.001	0.21	***	0.091	0.378
Organization Climate	←	Structure	0.773	***	0.797	***	0.99	***
Organization Climate	←	Recognition	0.257	***	0.126	***	0.24	***
Group Climate	←	Leadership	0.37	***	0.355	***	0.423	***
Organization Climate	←	Accountability	-0.173	0.105	-0.215	***	-0.599	***
Group Climate	←	Accountability	0.139	0.205	-0.258	***	-0.028	0.793
Group Climate	←	Team Work	0.736	***	0.787	***	0.355	***
Strength	←	Structure	0.059	0.652	0.069	0.12	0.175	0.109
Strength	←	Leadership	-0.089	0.371	-0.209	***	-0.1	0.188
Strength	←	Accountability	0.663	***	0.304	***	0.067	0.472
Strength	←	Team Work	-0.536	***	-0.037	0.264	-0.074	0.365
Strength	←	Group Climate	-0.065	0.343	-0.115	***	0.165	***
Strength	←	Organization Climate	-0.14	0.052	-0.133	***	-0.343	***
Individual Climate	←	Structure	0.35	***	0.336	***	0.52	***
Individual Climate	←	Recognition	0.232	0.002	0.135	***	0.086	0.124
Individual Climate	←	Accountability	0.162	0.187	-0.17	***	-0.227	0.059
Individual Climate	←	Team Work	0.461	***	0.642	***	0.3	0.002
Structure	↔	Recognition	0.394	***	0.357	***	0.427	***
Structure	↔	Leadership	0.318	***	0.302	***	0.343	***
Structure	↔	Accountability	0.135	***	0.15	***	0.214	***
Structure	↔	Team Work	0.21	***	0.242	***	0.318	***
Structure	↔	Ethics	-0.083	***	0.039	***	-0.004	0.853
Recognition	↔	Leadership	0.419	***	0.435	***	0.474	***
Leadership	↔	Accountability	0.139	***	0.149	***	0.225	***
Accountability	↔	Team Work	0.122	***	0.135	***	0.208	***
Recognition	↔	Accountability	0.149	***	0.129	***	0.219	***
Recognition	↔	Team Work	0.306	***	0.304	***	0.419	***
Recognition	↔	Ethics	-0.064	0.027	0.071	***	0.117	***
Leadership	↔	Team Work	0.316	***	0.335	***	0.371	***
Leadership	↔	Ethics	-0.026	0.285	0.029	***	0.012	0.613
Accountability	↔	Ethics	-0.043	0.008	0.051	***	0.042	0.036
e2	↔	e4	0.251	***	0.251	***	0.359	***
e3	↔	e2	0.404	***	0.346	***	0.486	***
e3	↔	e4	0.237	***	0.265	***	0.434	***
e3	↔	Leadership	0.183	***	0.084	***	0.039	0.004

Note: ***indicates p-values<0.001

4-3- Implication and Explanation of Findings

This other element identified in the study affirms two essential aspects: the study of climate must differentiate it from culture [13, 38, 41, 43-45], and not all elements of culture have the same impact on the work environment, considering different contexts [46, 47]. This result contradicts publications where organizational climate measurement tools were validated because the study of climate has to be specific; therefore, the elements of culture that affect climate cannot be generalized. Our final finding is that climate can be measured using the pulse concept because specific items have been identified because of their impacts on the work climate at different levels of analysis. The pulse should be designed specifically for the organization studied.

4-4- Strengths and Limitations

The main conclusion of the research is the need for longitudinal studies owing to climate variability and monitoring the behavior of changes within the organizational culture. Additionally, different elements of culture impact the climate at each level studied and within each organization. Finally, pulse measurements, where an emphasis is placed on significant impacts of culture in the work environment, facilitate more efficient monitoring of the entire process. Using generalized work climate models limits our knowledge of organizations' culture and climate. Our research shows differences between organizations regarding the variability of the work climate and the need to identify the level at which the climate is being considered in these studies because of the differences in the individual, group, or organizational climate perceptions.

5- Conclusion

The main conclusions of our study suggest a need to continue research—but in a novel manner—on the work environment. On the one hand, it demonstrates the significance of considering the climate from the perceptual and emotional perspectives of the worker, which is verified as variable from person to person and over time. Therefore, work environment studies should be conducted longitudinally and at various levels. On the other hand, the same elements of culture should only be considered for some organizations because just as culture varies, so does how culture impacts the work climate. Therefore, the climate is an element to be specifically studied in each context.

Additionally, not all aspects of culture impact in the same manner. In our research, we obtained 10, 5, and 23 questions for the three organizations studied. This indicates that future evaluations of the work climate should consider something other than the original 54 questions and focus on the most significant elements of culture that impact the work environment. Moreover, shorter evaluations will increase employee engagement. Therefore, the concept of climate pulse appears as a short measurement that could be developed longitudinally to monitor the behavior of the work environment, based on an initial study focused on climate strength and the cultural differences analyzed.

One of the main limitations of this study is the small number of organizations studied. It would be interesting to replicate the study in more organizations and include qualitative elements. Another limitation is regarding the questionnaire used. Although it was designed to measure the most frequent dimensions used in organizational culture studies, it could be supplemented with items from other culture questionnaires. Additionally, multiple longitudinal studies could be conducted to validate the proposed model.

For future research, it is necessary to apply the methodology and evaluate its impact, considering whether or not there were changes related to the perception of the work environment. Likewise, plans could be designed to change the organizational culture and evaluate any concomitant change in the work environment. Finally, the most significant result of this study is that climate should be studied contextually, just as culture. Therefore, this represents a significant change when approaching organizational climate studies.

6- Declarations

6-1- Author Contributions

Conceptualization, V.R. and P.P.; methodology, V.R. and P.P.; software, V.R.; validation, C.R.; formal analysis, V.R.; investigation, V.R. and P.P.; resources, V.R. and E.T.; data curation, C.R.; writing—original draft preparation, V.R.; writing—review and editing, V.R. and C.R.; visualization, E.T.; supervision, P.P.; project administration, V.R.; funding acquisition, V.R. and E.T. All authors have read and agreed to the published version of the manuscript.

6-2- Data Availability Statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to confidentiality agreements with the participating organizations. These organizations provided sensitive information under the condition that it would be used exclusively for the purposes of this research and not disclosed in a manner that could be traced back to them or their employees. This confidentiality is crucial to maintain the trust between the researchers and the organizations, and to uphold the ethical standards of research in corporate settings. However, the data can be made available to qualified researchers under conditions that ensure the continued protection of this confidential information and adherence to the ethical principles of the study.

6-3- Funding

6-4- Institutional Review Board Statement

Ethical review and approval were waived for this study due to the nature of the research focusing on workplace climate, which involved direct collaboration with the participating organizations. These organizations granted explicit

support and access, ensuring that the study was conducted in alignment with their internal ethical guidelines and policies. This approach facilitated a more open and trusting environment, allowing for genuine feedback and participation from employees. The study's design inherently respected the privacy and autonomy of the individuals involved, as it was integrated into the organizations' ongoing efforts to improve their work environment. This unique setup, where the research objectives were closely aligned with the organizations' internal goals, reduced the necessity for external ethical oversight, as the organizations themselves played an active role in monitoring and guiding the ethical conduct of the research.

6-5- Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

6-6- Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

7- References

[1] Glick, W. H. (1985). Conceptualizing and Measuring Organizational and Psychological Climate: Pitfalls in Multilevel Research. Academy of Management Review, 10(3), 601–616. doi:10.5465/amr.1985.4279045.

[2] Schneider, B., Ehrhart, M. G., & MacEy, W. H. (2013). Organizational climate and culture. Annual Review of Psychology, 64, 361–388. doi:10.1146/annurev-psych-113011-143809.

[3] Randhawa, G., & Kaur, K. (2014). Organizational Climate and its Correlates. Journal of Management Research, 14(1), 25–40.

[4] Clissold, G. (2006). Psychological climate: What is it and what does it look like? Monash, 29, 2–12.

[5] Ramos, V., & Tejera, E. (2017). Study of relationships between culture, climate and strength of work environment in Ecuador. Psychological Action, 14(2), 225–240. doi:10.5944/ap.14.2.17046. (In Spanish).

[6] Lau, A. W. (1976). Organizational Climate: A Review of Recent Literature. Western Speech Communication Association, San Francisco, 24 November, 1976.

[7] Denison, D. R. (1996). What is the Difference between Organizational Culture and Organizational Climate? A Native's Point of View on a Decade of Paradigm Wars. The Academy of Management Review, 21(3), 619. doi:10.2307/258997.

[8] Schneider, B., Barbera, K. M., & Mayer, D. M. (2014). A Review of the Literature on Ethical Climate and Culture. The Oxford Handbook of Organizational Climate and Culture, Oxford University Press, Oxford, United Kingdom. doi:10.1093/oxfordhb/9780199860715.013.0022.

[9] James, L. R., Choi, C. C., Ko, C. H. E., McNeil, P. K., Minton, M. K., Wright, M. A., & Kim, K. Il. (2008). Organizational and psychological climate: A review of theory and research. European Journal of Work and Organizational Psychology, 17(1), 5–32. doi:10.1080/13594320701662550.

[10] Toprak, M., & Karakus, M. (2018). Psychological Climate in Organizations: A Systematic Review. European Journal of Psychology and Educational Research, 1(1), 43–52. doi:10.12973/ejper.1.1.43.

[11] González-Romá, V., & Peiró, J. M. (2014). Climate and Culture Strength. The Oxford Handbook of Organizational Climate and Culture, Oxford University Press, Oxford, United Kingdom. doi:10.1093/oxfordhb/9780199860715.013.0026.

[12] Koys, D. J., & Decotiis, T. A. (1991). Inductive Measures of Psychological Climate. Human Relations, 44(3), 265–285. doi:10.1177/001872679104400304.

[13] Peterson, M. W., & Spencer, M. G. (1990). Understanding academic culture and climate. New Directions for Institutional Research, 1990(68), 3–18. doi:10.1002/ir.37019906803.

[14] Al-Kurdi, O. F., El-Haddadeh, R., & Eldabi, T. (2020). The role of organisational climate in managing knowledge sharing among academics in higher education. International Journal of Information Management, 50, 217–227. doi:10.1016/j.ijinfomgt.2019.05.018.

[15] Williams, N. J., Ehrhart, M. G., Aarons, G. A., Marcus, S. C., & Beidas, R. S. (2018). Linking molar organizational climate and strategic implementation climate to clinicians' use of evidence-based psychotherapy techniques: Cross-sectional and lagged analyses from a 2-year observational study. Implementation Science, 13(1), 85. doi:10.1186/s13012-018-0781-2.

[16] Baltes, B. B., Zhdanova, L. S., & Parker, C. P. (2009). Psychological climate: A comparison of organizational and individual level referents. Human Relations, 62(5), 669–700. doi:10.1177/0018726709103454.

[17] Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Climate strength: A new direction for climate research. Journal of Applied Psychology, 87(2), 220–229. doi:10.1037/0021-9010.87.2.220.

[18] Moslehpour, M., Altantsetseg, P., Mou, W., & Wong, W. K. (2019). Organizational climate and work style: The missing links for sustainability of leadership and satisfied employees. Sustainability (Switzerland), 11(1), 125. doi:10.3390/su11010125.

[19] Carrasco, H., Martínez-Tur, V., Peiró, J. M., & Moliner, C. (2012). Validation of a Measure of Service Climate in Organizations. Revista de Psicología Del Trabajo y de Las Organizaciones, 28(2), 69–80. doi:10.5093/tr2012a6.

[20] Weiner, B. J., Belden, C. M., Bergmire, D. M., & Johnston, M. (2011). The meaning and measurement of implementation climate. Implementation Science, 6(1), 78. doi:10.1186/1748-5908-6-78.

[21] Thumin, F. J., & Thumin, L. J. (2011). The measurement and interpretation of organizational climate. Journal of Psychology: Interdisciplinary and Applied, 145(2), 93–109. doi:10.1080/00223980.2010.538754.

[22] DeCotils, T. A., & Koys, D. J. (1980). The Identification and Measurement of the Dimensions of Organizational Climate. Academy of Management Proceedings, 1980(1), 171–175. doi:10.5465/ambpp.1980.4976195.

[23] Gershon, R. R. M., Stone, P. W., Bakken, S., & Larson, E. (2004). Measurement of Organizational Culture and Climate in Healthcare. JONA: The Journal of Nursing Administration, 34(1), 33–40. doi:10.1097/00005110-200401000-00008.

[24] Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., Robinson, D. L., & Wallace, A. M. (2005). Validating the organizational climate measure: Links to managerial practices, productivity and innovation. Journal of Organizational Behavior, 26(4), 379–408. doi:10.1002/job.312.

[25] José, L., Villalba, N., & Fonseca, J. R. (2011). Measurement of Organizational Climate in a Coal Company of the City of Santa Marta 2010. Psicogente, 14(25), 122–131.

[26] Chudoba, B. (2011). How long should a survey be? Research-backed best practices. SurveyMonkey, San Mateo, United States. Available online: https://www.surveymonkey.com/curiosity/survey_completion_times/ (accessed on September 2024).

[27] Versta Research. (2011). How to Estimate the Length of a Survey. Chicago, United States. Available online: https://verstaresearch.com/newsletters/how-to-estimate-the-length-of-a-survey/ (accessed on July 2024).

[28] Morrel-Samuels, P. (2002). Getting the Truth into Workplace Surveys. Harvard Business Review, Brighton, United States. Available online: https://hbr.org/2002/02/getting-the-truth-into-workplace-surveys (accessed on September 2024).

[29] Communication Research. (2018). 4 Common Complaints When Taking an Unprofessional Survey and How to Avoid Them. Qlarity Access, Steelville, United States. Available online: https://www.cfrinc.net/cfrblog/complaints-when-taking-survey (accessed on May 2024).

[30] Rolstad, S., Adler, J., & Rydén, A. (2011). Response burden and questionnaire length: Is shorter better? A review and meta-analysis. Value in Health, 14(8), 1101–1108. doi:10.1016/j.jval.2011.06.003.

[31] Couper, M. P., Traugott, M. W., & Lamias, M. J. (2001). Web survey design and administration. Public Opinion Quarterly, 65(2), 230–253. doi:10.1086/322199.

[32] Malhotra, N. (2008). Completion time and response order effects in web surveys. Public Opinion Quarterly, 72(5), 914–934. doi:10.1093/poq/nfn050.

[33] Peytchev, A. (2009). Survey breakoff. Public Opinion Quarterly, 73(1), 74–97. doi:10.1093/poq/nfp014.

[34] Oxford Learner's Dictionaries. (2024). Oxford Learner's Dictionaries: Oxford University Press, Oxford, United Kingdom. Available online: https://www.oxfordlearnersdictionaries.com/ (accessed on September 2024).

[35] Yin, R. K. (2009). Case study research: Design and methods. SAGE Publications, Thousand Oaks, United States. doi:10.33524/cjar.v14i1.73.

[36] Drexler, J. A. (1977). Organizational climate: Its homogeneity within organizations. Journal of Applied Psychology, 62(1), 38–42. doi:10.1037/0021-9010.62.1.38.

[37] James, L. R., & Jones, A. P. (1974). Organizational climate: A review of theory and research. Psychological Bulletin, 81(12), 1096–1112. doi:10.1037/h0037511.

[38] Ramos, V., & Tejera, E. (2017). Study of the relationship between culture, climate and labour force in Ecuador. Accion Psicologica, 14(2), 225-239.

[39] Marôco, J. (2014). Structural equation analysis: Theoretical foundations, software & applications. Análise e Gestão de Informação, Lda.: Pêro Pinheiro, Portugal. (In Portuguese).

[40] IBM. (2019). SPSS statistic (Version 26). IBM, New York, United States.

[41] Schneider, B., Barbera, K. M., Ostroff, C., & Schulte, M. (2014). A Configural Approach to the Study of Organizational Culture and Climate. The Oxford Handbook of Organizational Climate and Culture, Oxford University Press, Oxford, United Kingdom. doi:10.1093/oxfordhb/9780199860715.013.0027.

[42] Dickson, M. W., Resick, C. J., & Hanges, P. J. (2006). When organizational climate is unambiguous, it is also strong. Journal of Applied Psychology, 91(2), 351–364. doi:10.1037/0021-9010.91.2.351.

[43] Byrne, Z. S. (2022). Understanding employee engagement: Theory, research, and practice. Routledge, New York, United States. doi:10.4324/9781003171133.

[44] Wallace, J., Hunt, J., & Richards, C. (1999). The relationship between organisational culture, organisational climate and managerial values. International Journal of Public Sector Management, 12(7), 548–564. doi:10.1108/09513559910305339.

[45] Schneider, B., Ehrhart, M. G., & MacEy, W. H. (2013). Organizational climate and culture. Annual Review of Psychology, 64, 361–388. doi:10.1146/annurev-psych-113011-143809.

[46] Jacobs, S. R., Weiner, B. J., & Bunger, A. C. (2014). Context matters: Measuring implementation climate among individuals and groups. Implementation Science, 9(1). doi:10.1186/1748-5908-9-46.

[47] Varnali, R. (2015). An exploratory study of the cultural context of organisational climate and human resource practices. Asia Pacific Journal of Human Resources, 53(4), 432–447. doi:10.1111/1744-7941.12080.