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INTRODUCTION

The research question of this study is: What are the characteristics of a highly inclusive organization? To resolve this question, this study aims to empirically examine the impact of the inclusive behavior of top management and workplace supervisors on the inclusion climate, which is the central concept of a highly inclusive organization. Specifically, we use a multilevel analysis of the results of a questionnaire survey of 1602 employees at a large Japanese financial company.

The concept of inclusion has emerged in diverse studies. In the early stages of diversity research, negative aspects, such as increased conflicts due to racism and sexism, were studied. In recent years, however, greater attention has been paid to the positive aspects of diversity, such as the innovation it generates, and the focus of research has shifted to ways to reduce the negative aspects and increase the positive aspects while increasing the level of diversity. In this context, inclusion climate has become an important concept in relation to both positive and negative aspects.

Inclusion, according to Shore et al. (2011), refers to a state in which an optimal balance is achieved between the "belongingness" and "uniqueness" of individuals in a group. In a high degree of inclusion, individuals are treated as in-group members and respected as

independent individuals. According to this definition, inclusion climate is a psychological situation and organizational climate that group members have toward inclusion. Nishii (2013) identified three components of an inclusion climate: the degree to which the workplace treats employees fairly, the degree to which individual differences are respected, and the degree to which employees are included in workplace decision-making (Nishii, 2013).

High inclusion climates result in high organizational learning and integration (Ely and Thomas, 2001) and high performance. Nishii (2013), Brimhall and Mor Barak (2018), Hayashi et al. (2019), and others have conducted empirical studies of the effectiveness of high inclusion organizations based on questionnaire surveys. On the other hand, regarding the input of inclusion climate, leadership has an impact on the inclusion climate. In this regard, Fang et al. (2019), Ashikali et al. (2021), and others have reported that inclusive leadership positively affects inclusion climate through empirical studies based on questionnaire surveys. Ushimaru et al. (2021) conducted empirical research based on a questionnaire survey on the relationship between inclusive leadership, inclusion climate, and creative behavior in the workplace, and reported the effectiveness of inclusion climate as a mediator between leadership and creative behavior in the workplace.

One of the reasons that previous research did not consider top management leadership is that most empirical studies are based on questionnaire surveys of randomly selected samples, and there is no consideration of the nested data structure . To overcome this problem, this study administered a questionnaire survey at a large Japanese financial company to obtain the nested data to examine how the inclusive behavior of top management and the inclusive behavior of workplace supervisors affect the formation of an inclusion climate at the workplace and individual levels.

ANALYTICAL MODEL

Pooled Model

In this study, two types of models were analyzed: a pooled model and a multilevel model. The first posits that the sample comprises disparate individuals who are not grouped together by workplace. A multiple regression model is equivalent to this. The results of a questionnaire survey conducted by random sampling do not reflect any hierarchical structures in the sample, so the general multiple regression model must be used for analysis;

in this study, we use the pooled model as the basic model.

The objective variable was the inclusion climate (INCLUSION), and the explanatory variables were the inclusive behavior of top management (TOP), the inclusive behavior of workplace supervisors (BOSS), and their interaction term (TOP × BOSS). The interaction term was set to verify the moderating effect of TOP or BOSS; even if TOP takes an inclusive action, it may be moderated by BOSS, who is closer to the workplace. Similarly, since TOP governs the behavior of the BOSS, even if BOSS takes inclusive action, TOP's influence on subordinates may be weakened if TOP does not take inclusive action. The model is expressed by Equation 1.

$$INCLUSION_i = \beta_0 + \beta_1 \times TOP_i + \beta_2 \times BOSS_i + \beta_3 \times TOP_i \times BOSS_i + r_i \quad (1)$$

r: residuals; *i*: individual

Multilevel Model

A multilevel model is an analytical model suitable for data with a hierarchical structure. Individual data with a hierarchical structure are subject to the influence of the various groups represented. For example, the frequency of internet use is positively related to an individual's income level, but it is also related to the average income level of a country, and even if individuals have the same income level, people in rich countries use the internet more frequently. This effect is called the aggregate effect, which arises from belonging to a certain group and cannot be explained by other individual-level variables (Ishii, 2016). This is also referred to as the context effect.

In response to these characteristics of hierarchical data, it has been pointed out that traditional statistical methods such as analysis of variance (ANOVA), regression analysis, and structural equation models (SEM) cannot handle hierarchical data adequately (Shimizu, 2014: 2). Traditional statistical methods assume independence between samples. However, hierarchical data are assumed to have high correlations within groups (intraclass correlation). This means that the data can be aggregated, and the independence of the data is not maintained. Ignoring this fact and using conventional analysis methods poses a high risk of underestimating the standard errors of the coefficients and falling into the type I error of treating results as significant that in fact are not actually statistically significant. The multilevel model overcomes this problem.

In this study, we set up four models: (1) a null model with only the objective variable, (2) Model 1 (random intercept model), which consists of only Level 1 variables (TOP and BOSS) and considers random effects on intercept; (3) Model 2 (random intercept model), which adds Level 2 variables (MTOP and MBOSS) to Model 1 and considers random effects on intercept; and (4) Model 3 (mixed effects model), which considers random effects on explanatory variables in Model 2.

Null Model. The null model estimates the overall mean of the objective variable, the inclusion climate (INCLUSION), as the intercept (γ_{00}) and its error variance (μ_{0j}), with only the objective variable and no explanatory variables entered. The subscript j refers to each workplace, and μ_{0j} is the error variance, which we call the random effect. It follows a normal distribution with mean = 0 and variance = τ_{00}.

Level 1

$$INCLUSION_{ij} = \beta_{0j} + r_{ij}$$

Level 2

$$\beta_{0j} = \gamma_{00} + \mu_{0j}$$

Substituting Level 2 for Level 1, we obtain Equation 2. In practice, this is estimated.

$$INCLUSION_{ij} = \gamma_{00} + \mu_{0j} + r_{ij} \quad (2)$$

Model 1: Random Intercept Model. In Model 1, the inclusion behavior of top management (TOP), which is centered on the mean of the workplace, the inclusive behavior of the workplace supervisor (BOSS), which is centered on the mean of the workplace, and their interaction term (TOP × BOSS) were used as explanatory variables, and a random effect was set only on the intercept β_{0j}. The intercept consists of the mean of the intercept of each group (γ_{00}) and its variance component (μ_{0j}). The intercept consists of the mean value of the intercept of each group (γ_{00}) and its variance component (μ_{0j}). β_{1j} to β_{3j} are set only for the intercept (γ_{10} to γ_{30}) and not for random effects. This allows us to determine the effect of the inclusive behavior of top management and workplace supervisors at the purely individual level, which is not influenced by the group.

Level 1

$$INCLUSION_{ij} = \beta_{0j} + \beta_{1j} \times TOP_{ij} + \beta_{2j} \times BOSS_{ij} + \beta_{3j} \times TOP_{ij} \times BOSS_{ij} + r_{ij}$$

Level 2

$$\beta_{0j} = \gamma_{00} + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

Substituting Level 2 for Level 1 yields Equation 3. In practice, this is estimated.

$$INCLUSION_{ij} = \gamma_{00} + \gamma_{10} \times TOP_{ij} + \gamma_{20} \times BOSS_{ij} + \gamma_{30} \times TOP_{ij} \times BOSS_{ij} + \mu_{0j} + r_{ij} \quad (3)$$

Model 2: Random Intercept Model. Model 1 measures the effect of a pure individual from whom the influence of the group is removed. However, it is not possible to determine the effect of the group from this model alone. Therefore, Model 2 takes into account the effect of the group on Model 1. Specifically, the mean workplace level of inclusive behavior of top management (MTOP) and the mean workplace level of inclusive behavior of workplace supervisors (MBOSS) are put into the intercept (β_{0j}), and the random effects are set only on the intercept. This provides insight into the effects of the inclusive behavior of top management and workplace supervisors at both the individual and group levels.

Level 1

$$INCLUSION_{ij} = \beta_{0j} + \beta_{1j} \times TOP_{ij} + \beta_{2j} \times BOSS_{ij} + \beta_{3j} \times TOP_{ij} \times BOSS_{ij} + r_{ij}$$

Level 2

$$\beta_{0j} = \gamma_{00} + \gamma_{01} \times MTOP_{j} + \gamma_{02} \times MBOSS_{j} + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

Substituting Level 2 for Level 1 yields Equation 4. In practice, this is estimated.

$$\mathrm{INCLUSION}_{ij} = \gamma_{00} + \gamma_{01} \times \mathrm{MTOP}_j + \gamma_{02} \times \mathrm{MBOSS}_j + \gamma_{10} \times \mathrm{TOP}_{ij} + \gamma_{20} \times \mathrm{BOSS}_{ij} + \gamma_{30} \times \mathrm{TOP}_{ij} \times \mathrm{BOSS}_{ij} + \mu_{0j} + r_{ij} \quad (4)$$

Model 3: Random Mixed Model. Whereas Model 2 sets random effects only on the intercept, Model 3 adds random effects to the explanatory variables. The same explanatory variables as β_{0j} are inserted into β_{1j} to β_{3j}. This allows us to measure the interaction effect between Level 1 and Level 2. The model is shown in the following equation:

Level 1

$$\mathrm{INCLUSION}_{ij} = \beta_{0j} + \beta_{1j} \times \mathrm{TOP}_{ij} + \beta_{2j} \times \mathrm{BOSS}_{ij} + \beta_{3j} \times \mathrm{TOP}_{ij} \times \mathrm{BOSS}_{ij} + r_{ij}$$

Level 2

$$\beta_{0j} = \gamma_{00} + \gamma_{01} \times \mathrm{MTOP}_j + \gamma_{02} \times \mathrm{MBOSS}_j + \mu_{0j}$$
$$\beta_{1j} = \gamma_{1j} + \gamma_{11} \times \mathrm{MTOP}_j + \gamma_{12} \times \mathrm{MBOSS}_j + \mu_{1j}$$
$$\beta_{2j} = \gamma_{2j} + \gamma_{21} \times \mathrm{MTOP}_j + \gamma_{22} \times \mathrm{MBOSS}_j + \mu_{2j}$$
$$\beta_{3j} = \gamma_{3j} + \gamma_{31} \times \mathrm{MTOP}_j + \gamma_{32} \times \mathrm{MBOSS}_j + \mu_{3j}$$

Substituting Level 2 for Level 1 yields Equation 5. In practice, this is estimated.

$$\begin{aligned}\mathrm{INCLUSION}_{ij} = {} & \gamma_{00} + \gamma_{01} \times \mathrm{MTOP}_j + \gamma_{02} \times \mathrm{MBOSS}_j \\ & + \gamma_{1j} \times \mathrm{TOP}_{ij} + \gamma_{11} \times \mathrm{MTOP}_j \times \mathrm{TOP}_{ij} + \gamma_{12} \times \mathrm{MBOSS}_j \times \mathrm{TOP}_{ij} \\ & + \gamma_{2j} \times \mathrm{BOSS}_{ij} + \gamma_{21} \times \mathrm{MTOP}_j \times \mathrm{BOSS}_{ij} + \gamma_{22} \times \mathrm{MBOSS}_j \times \mathrm{BOSS}_{ij} \\ & + \gamma_{3j} \times \mathrm{TOP}_{ij} \times \mathrm{BOSS}_{ij} + \gamma_{31} \times \mathrm{MTOP}_j \times \mathrm{TOP}_{ij} \times \mathrm{BOSS}_{ij} \\ & + \gamma_{32} \times \mathrm{MBOSS}_j \times \mathrm{TOP}_{ij} \times \mathrm{BOSS}_{ij} \\ & + \mu_{0j} + \mu_{1j} \times \mathrm{TOP}_{ij} + \mu_{2j} \times \mathrm{BOSS}_{ij} + \mu_{3j} \times \mathrm{TOP}_{ij} \times \mathrm{BOSS}_{ij} + r_{ij}\end{aligned} \quad (5)$$

METHOD

Data

The data analyzed were elicited by a web-based questionnaire survey administered to 1602 employees of Company A, a large scale Japanese financial company. The survey was conducted over a period of one month, from July 1 to July 31, 2021. The questionnaire was designed using Microsoft Forms software. The URL where the questionnaire was stored

was sent to the survey targets via e-mail from the HR department of the insurance company.

The attributes of the respondents are listed in Table 1. The average respondent was between the ages of 45 and 49 years, and most of them were male and female general employees (staff class) working at the office.

TABLE 1 Sample Attributes

Sample Attributes		Numbers	%
Gender	Men	763	48.1
	Women	814	51.3
	Others	9	0.6
Age	Under 24	73	4.6
	25-29	133	8.5
	30-34	94	6.0
	35-39	168	10.7
	40-44	210	13.4
	45-49	263	16.8
	50-54	268	17.1
	55-59	260	16.6
	Over 60	101	6.4
Position	Managemet	237	16.5
	General Employees	1030	71.9
	Others	166	11.6
Section	Head Office	290	19.0
	Regional Offices	1236	81.0

Validity and Reliability of the Measurement Scales

In this study, two types of validity of the measurement scales were examined: content validity and construct validity. First, among the scales used in this study, the Inclusive Behavior of Top Management and Workplace Supervisors was evaluated for content validity by the two researchers because it was self-developed. Conversely, the

inclusion climate scale is an existing questionnaire that we translated into Japanese, so there is a possibility that some respondents interpreted questions differently from their original intent. Therefore, an exploratory factor analysis was conducted to confirm the measurement scale. To minimize the number of items, the analysis was repeated using Promax rotation until the factor loadings were above 0.5.

Next, a confirmatory factor analysis was conducted on the items selected by exploratory factor analysis. A confirmatory factor analysis was conducted to calculate a standard goodness-of-fit index, even when only one factor was extracted in the exploratory factor analysis. GFI, AGFI, CFI, RMSEA, and SRMR were used as goodness-of-fit indices for the model, and judged following the standard values indicated by to Hu and Bentler (1999): GFI > 0.8; AGFI > 0.7; CFI ≥ 0.90; RMSEA ≤ 0.06; SRMR ≤ 0.08.

Next, construct validity was determined. Convergent and discriminant validity were determined following Fornell and Larcker (1981). Convergent validity was confirmed by average variance extracted (AVE) and composite reliability (CR), where AVE ≥ 0.5, and CR ≥ 0.7 were used as criteria. For discriminant validity, AVE and the inter-factor correlation coefficient were used, with the criterion of AVE greater than square of each inter-factor correlation coefficient. Cronbach's alpha and omega coefficients were calculated for the reliability of each measurement scale, with $\alpha \geq 0.7$ and $\omega \geq 0.7$ as the criterion values.

HAD is an individually developed multivariate analysis tool that runs in Excel. It is widely applied, easy to use, and has many published manuals, and its accuracy is reported to be comparable to that of SPSS and SAS.

Measurement Scales

Inclusion Climate. For inclusion climate, a 15-item measurement scale developed by Nishii (2013) was partially synthesized and reduced to 6 items along three sub-concepts: fair employment practices, integration of differences, and involvement in decision-making, with two items each.

First, an exploratory factor analysis (maximum likelihood method, Promax rotation) was conducted. As a result, one factor with an eigenvalue of 1 or higher was extracted, and the factor loadings of all six items were 0.5 or higher, which is sufficiently high for all items to be adopted as factor constructs. Next, a confirmatory factor analysis was conducted on the six items and one factor extracted by exploratory factor analysis to obtain the goodness-

of-fit indices of the model. The results showed that GFI = 0.937, AGFI = 0.852, CFI = 0.938, RMSEA = 0.142, and SRMR = 0.038. The goodness of fit can be considered good.

The six items extracted were as follows: "The work environment is open and inviting, allowing everyone to show their true selves" (λ = 0.837), "The workplace has an atmosphere that is open to ideas from all levels, jobs, and roles for better problem solving" (λ = 0.799), "The workplace is a place where people can freely express their grievances and complaints" (λ = 0.767), "There is a desire among workplace members to value diversity and individual differences" (λ = 0.760), "The workplace places importance on work-life balance" (λ = 0.676), and "Promotion, advancement, and performance appraisal are fair" (λ = 0.576). These were defined as characterizing "inclusive climates." The total score was used as the representative value (total score range: 6–30), where the higher the score, the more inclusive the climate.

For convergent validity, AVE = 0.549 and CR = 0.878, which were above the standard values, indicating convergent validity. Discriminant validity is not applicable because only one factor was extracted. The reliability coefficients were α = 0.875 and ω = 0.877, which met the criteria.

Inclusive Behavior of Top Management. For the inclusive behavior of top management, three original items were created regarding the extent to which they take actions that place importance on diversity.

An exploratory factor analysis (maximum likelihood method, Promax rotation) was conducted. As a result, one factor with an eigenvalue of 1 or higher was extracted; the factor loadings (λ) of all three items were 0.5 or higher, which is high enough to adopt all items as factor constructs. Next, confirmatory factor analysis was conducted on the one factor and three items extracted by exploratory factor analysis to obtain the goodness-of-fit indices of the model, yielding GFI = 1.000, AGFI = 1.000, CFI = 1.000, RMSEA = 0.000, and SRMR = 0.000, which indicate good fit.

The items were as follows: "Top management is actively involved in diversity-related projects or sends out positive messages" (λ = 0.932), "Top management considers diversity to be an important issue in its management strategy" (λ = 0.886), and "The company has clearly defined common visions, norms, and philosophies to unite diverse human resources" (λ = 0.772). The total score was used as the representative value (total score range: 0–15), where the higher the score, the more inclusive the behavior of top management.

For convergent validity, AVE = 0.750 and CR = 0.900, both above the standard values, indicating convergent validity. As for discriminant validity, only one factor was extracted; therefore, it was not applicable. The reliability coefficients were α = 0.897 and ω = 0.902, which met the criteria.

Inclusive Behavior of Workplace Supervisors. For the inclusive behavior of workplace supervisors, two original items concerning the degree of understanding and practice of diversity were set.

An exploratory factor analysis (maximum likelihood method, Promax rotation) was conducted. As a result, one factor with an eigenvalue of 1 or higher was extracted; the factor loadings (λ) of all two items were 0.5 or higher, which is sufficient to adopt all items as factor construct items. Next, confirmatory factor analysis was conducted on the one factor and three items extracted by exploratory factor analysis to obtain the goodness-of-fit indices of the model. As a result, GFI = 0.940, AGFI = 0.699, CFI = 0.962, RMSEA = 0.241, and SRMR = 0.031, indicating good fit.

The items were as follows: "Diversity management training is provided to direct reports" (λ = 0.896) and "Direct reports understand the meaning of diversity and implement it in their daily management" (λ = 0.789). The total score was used as the representative value (total score range: 0–10), where the higher the score, the more inclusive the behavior of the supervisor in the workplace.

For convergent validity, AVE = 0.733 and CR = 0.889, both above the standard values, indicating convergent validity. Discriminant validity is not applicable because only one factor was extracted. The reliability coefficients were α = 0.912 and ω = 0.914, which met the criteria.

Common Method Bias

Since the analysis in this study concerns human cognitive processes, it is susceptible to common method bias. A typical method to eliminate bias is to conduct separate surveys at different times with the same sample. However, when this method is difficult, Harman's single-factor analysis test (Podsakoff and Organ, 1986) may be applied. In this study, a single factor test was attempted for the questionnaire items (without factor rotation), showing the contribution of the first factor to be 43.6%, and the percentage of variance of all observed

variables to be less than 50%; therefore, it can be concluded that common method bias is unlikely.

RESULTS

Multiple Regression Analysis

To test the pooled model, a multiple regression analysis was conducted with the objective variable as the inclusion climate (INCLUSION) and the explanatory variables as the inclusive behavior of top management (TOP), the inclusive behavior of workplace supervisors (BOSS), and their interaction term (TOP × BOSS). Table 2 shows the basic statistics and correlation table. Table 3 shows the results of multiple regression analysis.

First, a multiple regression analysis was conducted with the inclusive behavior of top management and the inclusive behavior of workplace managers as explanatory variables (Step 1), which showed that both the inclusive behavior of top management and the inclusive behavior of workplace managers had a significantly positive impact on the inclusion climate (R^2 = 0.133; TOP: b = 0.301, SE = 0.030, β = 0.274, t(1579) = 9.968, p < 0.001 ; BOSS: b = 0.202, SE = 0.040, β = 0.137, t(1579) = 5.009, p < 0.001).

Comparing the standard regression coefficients, the inclusive behavior of top management (TOP) was greater than that of workplace supervisors (TOP: β = 0.274; BOSS: β = 0.137), showing the influence of top management to be greater than that of workplace supervisors.

Next, a multiple regression analysis was conducted by throwing the interaction term (Step 2). The results showed that the interaction term was significantly positive (R^2 = 0.144; b = 0.040, SE = 0.009, β = 0.121, t(1578) = 4.594, p < 0.001). For this reason, a simple slope analysis was conducted (Figure 1), indicating that both the high and low inclusive behavior groups of workplace supervisors had a significant positive impact on inclusion climate, but the high group showed a stronger impact than the low group (+1SD: b = 0.505, SE = 0.054, β = 0.459, t(1578) = 9.427, p < 0.001); −1SD: b = 0.238, SE = 0.033, β = 0.216, t(1578) = 7.201, p < 0.001).

TABLE 2　Means, Standard Deviations, and Correlations

	Mean	SD	1	2	3
1 INCLUSION	19.751	4.924	1.000		
2 TOP	9.228	4.997	0.346 **	1.000	
3 BOSS	3.958	3.366	0.280 **	0.521 **	1.000

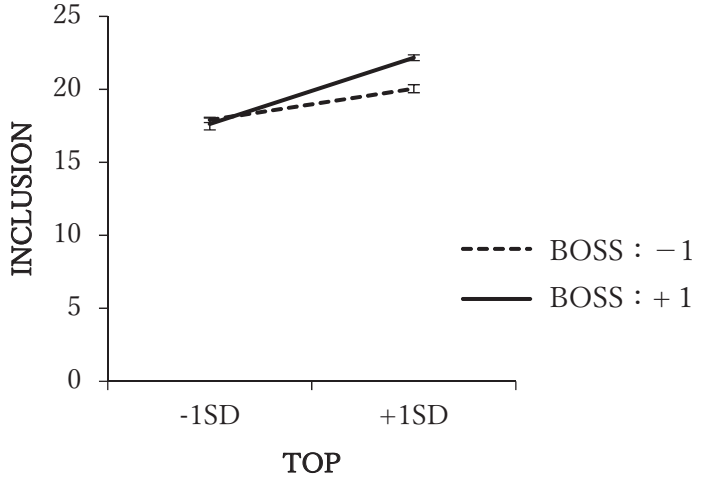
$^{**}p < .01$, $^{*}p < .05$

TABLE 3　Results of Regression Analysis of Inclusion Climate

Variables	Step 1	Step 2	β
Intercept	19.750 **	19.437 **	
TOP	0.301 **	0.371 **	.337 **
BOSS	0.202 **	0.137 **	.093 **
TOP*BOSS		0.040 **	.121 **
R^2	.133 **	.144 **	.144 **

$^{**}\ p < .01$, $^{*}\ p < .05$, $^{+}$

FIGURE 1　Interaction between Top Management and Supervisor



Multilevel Analysis

The results of the multiple regression analysis show that the inclusive behavior of top

management has a larger positive effect on the inclusion climate in the workplace than that of workplace supervisors, and that the effect of top management on the inclusion climate is larger when the inclusive behavior of workplace supervisors is high than when it is low. However, this analytical model assumes that the groups to which individual respondents belong are completely distinct. In reality, individuals are tied to their work groups and may be influenced by their workplaces; therefore, a multi-level analysis was conducted.

First, to determine the necessity of multilevel analysis, the intra-class correlation (ICC), design effect (DE), and reliability of the inclusion climate were tested (Table 4). The intraclass correlation coefficient was significant at 0.034 ($p < 0.001$). The DE value was higher than the standard value of 2. The reliability coefficient was also not low at 0.638. Based on the above, it was concluded that multilevel analysis was applicable.

TABLE 4 ICC and DE

Variables	N	ICC	DE	Reliability	*F*-value	*p*-value
INCLUSION	1602	.034	2.670	.638	2.765	.000

Next, a multilevel analysis was performed. Table 5 summarizes the results. The variables used are as follows: The objective variable is inclusion climate (INCLUSION), the explanatory variables for Level 1 (individual level) are the inclusive behavior of top management (TOP) and the inclusive behavior of workplace supervisors (BOSS), and the explanatory variables for Level 2 (workplace level) are the workplace mean of inclusive behavior of top management (MTOP) and the workplace mean of inclusive behavior of workplace supervisors (MBOSS). The variables for Level 1 were the workplace mean of inclusive behavior of top management (MTOP) and the workplace mean of inclusive behavior of workplace supervisors (MBOSS). The variables at Level 1 were centered within clusters (CWC). Level 2 variables are used in Model 3, centered on the overall mean.

The null model is a model with no explanatory variables. This model contrasts with other models. The intercept is the overall mean of the inclusion climate, and a random variable effect is set on the intercept. The analysis showed that the variance component of the intercept was $\tau_{00} = 0.731$, with a reliability of 0.571. The residual was 23.623, yielding an intra-class correlation of ICC = 0.731 / (0.731 + 23.623) = 0.030.This intraclass correlation is different from the value of 0.034 in Table 4, but this reflects a different calculation method,

which is not a major problem (Shimizu, 2014: 29). Raundenbush and Bryk (2002) stated that if the reliability coefficient of a variance component is greater than 0.05, it is more desirable to assume a random effect. Therefore, Models 1 to 3 assume random effects.

Next, the goodness-of-fit of Models 1 through 3 were compared. First, the −2LL (−2 log likelihood) is 9520.6 for the null model, while it is smaller for Models 1 to 3, with Model 3 having the smallest. For the Akaike information criterion (AIC), Model 2 has the lowest value and the best fit. For the Bayesian information criterion (BIC), Model 2 has the lowest value and the best fit. Model 2 was thus the best fit for two of the three indicators, and the variance component τ of the intercept and regression coefficients showed that Model 3 was not significant for either the intercept or the coefficients. Therefore, in this study, Model 2 (random intercept model), which assumes that there is variation only in the intercept, is the central model for reading the results.

Model 2 incorporates the effects of Level 2 (workplace level) variables of workplace mean of inclusive behavior of top management (MTOP) and workplace mean of inclusive behavior of workplace supervisors (MBOSS) at the intercept, and assumes a random effect at the intercept only. This makes it possible to compare both individual- and group-level effects. This is a random intercept model because it assumes a random effect only for the intercept.

In terms of fixed effects, (1) the inclusive behavior of top management (TOP); (2) the inclusive behavior of workplace supervisors (BOSS); (3) the workplace mean of top management's inclusive behavior (MTOP); and (4) the interaction term between top management and supervisors (TOP × BOSS) had significantly positive effects on inclusion climate: (i) TOP: $b = 0.348$, $p < 0.01$; (ii) BOSS: $b = 0.135$, $p < 0.01$; (iii) MTOP: $b = 0.988$, $p < 0.01$; (iv) TOP × BOSS: $b = 0.041$, $p < 0.01$). This result is consistent with the results of Models 1 and 3. On the other hand, the workplace mean of the inclusive behavior of workplace supervisors (MBOSS) was not significant (b = −0.049, p = *n.s.*).

The above results indicate the following.

(1) The more inclusive the top management's behavior, the more the employees feel an inclusion climate.

(2) The more inclusive the workplace supervisor's behavior, the more employees perceive an inclusion climate.

(3) Employees in workplaces where the inclusive behavior of top management is perceired

TABLE 5 Results of Multilevel Analysis

Fixed Effect		Null Model	Model 1	Model 2	Model 3
Intercept	γ_{00}	19.886 **	19.632 **	19.454 **	19.408 **
TOP	γ_{10}		0.345 **	0.348 **	0.354 **
BOSS	γ_{20}		0.138 **	0.135 **	0.117 *
TOP × BOSS	γ_{30}		0.039 **	0.041 **	0.041 **
MTOP	γ_{01}			0.988 **	1.141 **
MBOSS	γ_{02}			-0.049	-0.152
MTOP × TOP	γ_{11}				-0.079
MBOSS × TOP	γ_{12}				0.137 *
MTOP × BOSS	γ_{21}				0.033
MBOSS × BOSS	γ_{22}				-0.054
MTOP × TOP × BOSS	γ_{31}				-0.024
MBOSS × TOP × BOSS	γ_{32}				0.017
Random Effect					
Intercept[Variance]	τ_{00}	0.731 **	0.918 **	0.126 *	0.067
TOP[Variance]	τ_{11}				0.008
BOSS[Variance]	τ_{22}				0.013 *
TOP × BOSS[Varicance]	τ_{33}				0.000
Intercept and TOP[Covariance]	τ_{10}				0.023
Intercept and BOSS[Covariance]	τ_{20}				-0.023
Intercept and TOP × BOSS[Covariance]	τ_{30}				-0.003
Residual	σ^2	23.623	20.494	20.478	20.216
Static					
R^2			0.123 **	0.154 **	
ICC		0.030	0.043	0.006	0.003
− 2 LL		9520.6	9303.1	9274.4	9261.9
Null Model		9539.0	9539.0	9539.0	9539.0
AIC		9526.6	9315.1	9290.4	9307.9
BIC		9542.7	9347.3	9333.4	9431.3

1） $^{**}p < .01$, $^{*}p < .05$,

2） The primary level variables TOP and BOSS are centered at the group means.

3） The secondary level variables MTOP and MBOSS are centered at the overall mean in Model 3.

4） Models 1 and 2 are random intercept models. Model 3 is a random mixed model.

as high perceive the inclugion climate to be high.

(4) People who perceive their workplace supervisor's inclusive behavior to be high perceive a higher inclusion climate when top management's inclusive behavior is high.

What is noteworthy in the above results is that (3) employees in workplaces where the inclusive behavior of top management is perceived as high perceive the inclusion climate to be high. This indicates that even if the degree of inclusive behavior of top management is the same, the perception of inclusion climate differs depending on which workplace the employee belongs to. In Model 2, the coefficient of inclusive behavior of top management (TOP) as perceived by individuals was $\gamma_{10} = 0.348$ ($p < 0.01$). This means that an increase of one point in the inclusive behavior of top management as perceived by the individual results in an increase of 0.348 for inclusion climate. On the other hand, the coefficient of the workplace mean value (MTOP) of top management's inclusive behavior was $\gamma_{01} = 0.988$ ($p < 0.01$). This means that a one-point increase in the mean value of top management's inclusive behavior as perceived at the workplace level will result in a 0.988 increase in the inclusion climate. The difference between the effect at the inter-group (between-level) and the individuals within a group (within-level) is called the contextual effect or aggregation effect. The contextual effect cannot be explained at the individual level because it belongs to a certain group (Ishii, 2016). The contextual effect for the target company in this study is 0.64 (0.988 − 0.348), which is large. It can be said that the perception of inclusion climate differs depending on which group one belongs to. It is thus more effective for top management to try to raise the perception of inclusive behavior by one point at the workplace level than by one point at the individual level.

In the null model, the variance component of the intercept was significant at $\tau_{00} = 0.731$ ($p < 0.01$). The standard deviation was 0.854, and the intercept γ_{00} was 19.886. Therefore, we can say that the perception of the inclusion climate varied around 19.886 ± 0.731 among workplaces. Next, in Model 2, the variance component of the intercept was $\tau_{00} = 0.126$ ($p < 0.01$), which was significantly lower. This can be attributed to the fact that the inclusive behavior of the top management (MTOP) as perceived by the work group explains the intercept variation among workplaces. The analysis of the variable effects also shows the importance of the inclusive behavior of top management at the workplace level.

DISCUSSION

This study examined how the inclusive behavior of top management and the inclusive behavior of workplace supervisors affect the formation of an inclusion climate, separating the workplace level from the individual level. A multilevel analysis was performed on the hierarchical data of 1602 individuals obtained from a large financial company.

As a result, it was found that inclusive behavior of top management and workplace supervisors at both the individual and group levels is effective in creating an inclusion climate in the workplace. In particular, the inclusive behavior of top management toward the workplace level was found to be effective in creating an inclusion climate. Furthermore, we found that the degree of inclusion climate varied from workplace to workplace, even in the absence of any encouragement from top management to each workplace. Here, as an additional validation, we conducted a test of difference in means (t-test) for inclusion climate between the head office and the regional offices. The results showed that the inclusion climate at the headquarters was significantly higher than at the offices (headquarters: M = 20.748, SD = 4.194, N = 290; regional offices: M = 19.604, SD = 5.058, N = 1236; $t(1524) = 3.574$, $p < 0.001$). This confirms that, perceptions of inclusion climate differ from workplace to workplace. We note that this study found that the level of cognition of the inclusion climate is higher in the headquarters, which is closer to the highest levels of top management, and the level of cognition is lower in the offices, which are farther away.

From the above results, the following practical and theoretical implications can be derived.

As a practical implication, it is important for top management not only to treat all employees uniformly but also to do so at the workplace level. In particular, top management must demonstrate inclusive behavior at the office level.

The theoretical implication of this study is that it confirms the effectiveness of leader-member exchange (LMX) theory in leadership theory. The results of this study showed that the inclusive behavior of workplace supervisors was more effective at the individual level than the workplace level. This indicates that it is important for workplace supervisors to treat individual members equally. This supports the validity of LMX, which focuses on the effectiveness of one-to-one quality exchange relationships between leaders and members.

This study focuses on the role of top management supervisors in the inclusion climate. The results show that the inclusive behavior of top management is very important as a condition for a high-inclusion organization. However, this alone is not sufficient. The explanatory power of Model 2 was $R^2 = 0.154$, indicating that in addition to top management and supervisors, 84.6% of the variance can be explained by other factors. There is thus a need in future research to add more explanatory factors and explore the mechanism to determine the conditions under which an organization has high inclusion. In addition, although this study administered questionnaires targeting the section level, the unit of analysis was a business office or department that is made up of a few sections. Therefore, it is important to bear in mind that the results of the analysis do not necessarily apply to all sections in a workplace.

REFERENCES

Ashikali, T., Groeneveld, S., and Kulipers, B. (2021). The role of inclusive leadership in supporting an inclusive climate in diverse public sector teams. *Review of Public Personnel Administration*, 41(3): 497-519.

Brimhall, K.C., and Mor Barak, M.E. (2018). The Critical role of workplace inclusion in fostering innovation, job satisfaction, and quality of care in a diverse human service organization. *Human Service Organizations: Management, Leadership & Governance*, 42(5): 474-492.

Ely, R.J., and Thomas, D.A. (2001). Cultural diversity at work: The effects of diversity perspectives on work group processes and outcomes. *Administrative Science Quarterly*, 46(2): 229-273.

Fang, Y-C., Chen, J-Y., Wang, M-J., and Chen, C-Y. (2019). The impact of inclusive leadership on employees' innovative behaviors: The mediation of psychological capital. *Frontiers in Psychology*, 10: 1-11.

Fornell, C., and Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1): 39-50.

Hayashi, S., Morinaga, Y., Sato, Y., and Shimanuki, T. (2019). The effect of workplace diversity on cooperation-oriented motivation. *Journal of Business Management* (Japan Academy of Business Administration), 42: 52-62. (in Japanese)

Hu, L.T., and Bentlrer, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A multidisciplinary Journal*, 6(1):1-55.

Ishii, K. (2016). Internet use and culture: An empirical test based on international comparative survey data, *Journal of Media, Information and Communication*, 1:1-14. (in Japanese)

Nishii, L.H. (2013). The benefits of climate for inclusion for gender-diverse groups. *Academy of Management Journal*, 56(6): 1754–1774.

Raudenbush, S.W., and Bryk, A.S. (2002). *Hierarchical Linear Models: Applications and Data Analysis Methods* (2nd ed.). Thousand Oaks, CA: Sage.

Podsakoff, P.M., and Organ, D.W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4): 531-544.

Shimizu, H. (2014). *Multilevel Modelings for Individual and Group Data*, Kyoto: Nakanishiya. (in Japanese)

Shore, L.M., Randel, A.E., Chung, B.G., Dean, M.A., Holcombe Ehrhart, K.H., and Singh, G. (2011). Inclusion and diversity in work groups: A review and model for future research. *Journal of Management*, 37(4): 1262-1289.

Ushimaru, H., Ushio, N., Nagano, S., Takagi, T., Hosoda, M., and Kim, B. (2021). A pilot empirical study on the effectiveness of inclusive leadership, *Journal of Business Science* (Bijinesu Kagaku Gakkai), 10: 31-48.