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Organizational antecedents of employees' positive job attitudes and work-related stress: A latent profile analysis

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Abstract

Research indicates that employees' low morale and work-related stress are common issues facing many Japanese organizations. Given their importance for both employee wellbeing and organizational effectiveness, the current study sought to uncover classes of employees who differ in their levels of job attitudes and work stress. The study also sought to identify the characteristics of organizations that predict employee membership in classes with distinct patterns of job attitudes and stress. The results based on 5,715 employees representing 20 organizations revealed that employees can be reliably classified into three classes with unique patterns of job attitudes and health: 1) the majority with moderate to moderately low levels of positive job attitudes and stress, 2) the second largest group with very high levels of positive job attitudes and low levels of stress, and 3) the smallest group with very poor job attitudes and high levels of stress. Three organizational characteristics were found to influence employee memberships in these qualitatively distinct classes. Employee gender emerged as a moderator that influenced the effects of some organizational characteristics. The theoretical and practical implications of the study findings are discussed.

KEYWORDS: Organizational Characteristics, Meaningfulness of Work, Psychological Stress, Employee Net Promotor Score.

I . Introduction

Cross-national studies suggest that Japanese employees do not compare well with employees in other countries in regard to positive job attitudes and work-related health. For example, Japan had the lowest average score for employees' meaningfulness of work among 16 countries (Japan Ministry of Health and Welfare, 2019). Likewise, the proportion of employees who reported that they were engaged with their work was the second lowest among 129 countries (Gallup, 2022). Furthermore, Japan had the highest average score for employee work stress and the lowest average score for job satisfaction among 37 countries in an international social survey (2017).

From a management perspective, poor employee job attitudes and health are concerns because they are linked to lower job performance (Ricketta, 2008; Feuerhahn, Kühnel, & Kudielka, 2012) and an organization's bottom line (Schneider, Hanges, Smith, & Salvaggio, 2003; Messersmith, Patel, Lepak, & Gould-Williams, 2011). Furthermore, people are becoming more proactive about job

changes to find a better place to work. In fact, the number of career changes has steadily increased over the past 10 years in Japan (Japan Ministry of Internal Affairs and Communications, 2020). As such, organizations that fail to effectively manage employee job attitudes and health run the risks of not only reduced organizational performance but also the inability to retain important talent.

The current study seeks to examine factors that contribute to differences in employees' positive job attitudes and health. More specifically, meaningfulness of work and the employee net promoter score were chosen as job attitude constructs, whereas psychological stress was chosen as an indicator of employee health. *Meaningfulness of work* is defined as work that is experienced as particularly significant and holds positive meaning for the individual (Rosso, Dekas & Wrzesniewski, 2010). The meaningfulness of work has been theorized (Hackman & Oldham, 1976) and empirically shown to affect intrinsic work motivation and job performance, both of which are vital for organizational success (Fried & Ferris, 1987; Grant, 2008). *The employee net promoter score* (hereafter abbreviated as *eNPS*) is a global indicator of employees' positive feelings and attitudes toward their job (Sedlak, 2022). The *eNPS* has been shown to be strongly and consistently associated with global job satisfaction across organizations (Sedlak, 2022). *Psychological stress* refers to adverse affective and cognitive reactions to work stressors such as anxiety, anger, and frustration (Jex & Beehr, 1991). Psychological stress is an important health indicator because it predicts disease (e.g., cardiovascular disease; Kivimaki & Kawachi, 2015), production losses (e.g., Hassard, Teoh, Visockaite, Dewe, & Cox, 2018), and voluntary turnover (Rubenstein, Eberly, Lee, & Mitchell, 2018).

The current study aims to make two contributions to the organizational research literature. First, previous research on job attitudes and health has tended to analyze these constructs separately, ignoring the possibility that these employee experiences may combine to form unique patterns across individuals. For example, one group of employees might be characterized by simultaneously high levels of meaningfulness of work and eNPS and low levels of psychological stress, whereas another group might be characterized by opposite patterns in these constructs. Bearing this possibility in mind, this study aimed to examine whether qualitatively distinct patterns in the three focal constructs exist among Japanese employees. Second, past research on employee job attitudes and health has largely focused on their relationships to either individual-level or team-level constructs, such as leadership styles, pay, task characteristics, individual personalities, and work values (Watanabe, 2012). Because organization-level constructs have received much less empirical attention, we know much less about how and what characteristics of organizations impact employees' positive job attitudes and health. Understanding the effects of organization-level factors on employees' job attitudes and health is important because these factors have implications for organization-wide interventions. Such analyses might inform us about reasons why some organizations have poorer job attitudes and health among employees than other organizations. Accordingly, the current study explored organizational factors and their relationships to membership in subgroups characterized by qualitatively distinct patterns of positive job attitudes and health.

II. Theoretical Background

1. A Person-Centered Approach to Understanding Employee Work Experiences

Methodologically, the extant literature on employee job attitudes and health is dominated by a *variable-centered approach*. A variable-centered approach essentially analyzes how a set of variables operate separately between measurement units (e.g., between employees). In the context of this study, for instance, a researcher with a variable-centered focus might explore the linear and independent relationships between organizational characteristics and employee psychological stress. In contrast, a *person-centered approach* investigates how a set of variables operate conjointly and within measurement units to qualitatively shape unique subpopulations (Zyphur, 2009). This approach has garnered popularity in recent psychological and behavioral research. One reason behind its popularity is its ability to uncover hidden groups or subpopulations with unique patterns in the focal variable(s) that traditional variable-centered analyses cannot detect (Zyphur, 2009). For instance, past research identified subgroups of employees with qualitatively distinct patterns in the three dimensions of organizational commitment (Meyer, Stanley, & Parfyonova, 2012) and in the use of coping strategies (Bravo, Boothe, & Pearson, 2016). Person-centered analyses can also be extended to investigations of how the identified subgroups are differentially related to predictors and outcome variables.

Based on a person-centered approach, the current study aimed to answer the question of whether qualitatively unique patterns exist in employees' meaningfulness of work, eNPS, and psychological stress. Given the inductive nature of this method, formal hypotheses about the numbers and specific characteristics of subgroups are not presented. Instead, similar to previous person-centered research (e.g., Gabriel, Daniels, Diefendorff, & Greguras, 2015; Shockley, Gabriel, & Yuan, 2022), this study was guided by the following research question:

Research Question 1: Do qualitatively distinct subgroups exist among employees in terms of their meaningfulness of work, eNPS, and psychological stress?

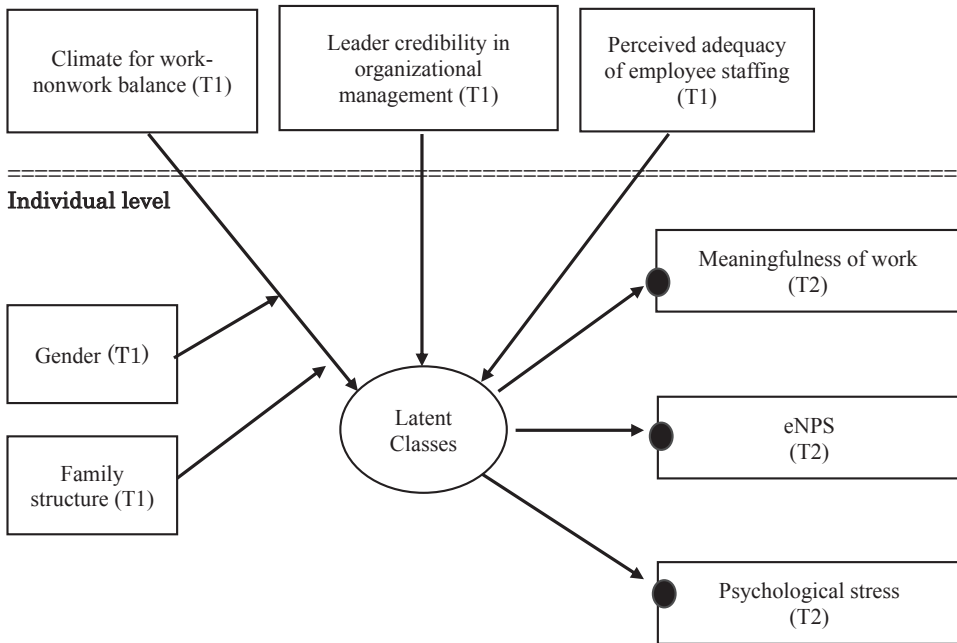
2. Organizational Characteristics and Employee Job Attitudes and Psychological Stress

The three focal outcomes of this study are conceptualized to be simultaneously influenced by three organizational characteristics (see Figure 1). Below, the definitions of each organizational characteristic and the theoretical bases for their associations with the focal outcomes are provided.

2.1. Perceived Adequacy of Staffing Perceived adequacy of staffing in this study is defined as employees' shared perceptions that their organization adequately staffs job positions with personnel possessing task-related competency. The organizational practices of staffing involve recruiting, selecting, training, and placing personnel to meet the task-related demands of each job position. Previous studies have shown that organizational differences in employee staffing (e.g., selectivity in hiring) predict between-organizational differences in employee task-related competency (Kamna & Ilkhanizadeh, 2022) and productivity (Kim & Ployhart, 2014). In light of employees' work

Figure 1. A proposed latent profile model of employee job attitudes and health.

Organizational level



Note: T1 = measured at the first wave. T2 = measured at the second wave. Rectangular and circle figures indicate observed and latent variable, respectively. Filled circles indicate that the mean scores differ between latent classes. Control variables (age and organizational size) were omitted for simplicity.

experiences, adequate staffing is important because the compatibility between one’s job capabilities and the demands of the job impact how well a person succeeds in and gains satisfaction from the job (Kristof, 1996). Furthermore, being able to successfully perform the job enhances feelings of competency and self-efficacy, which in turn promote the perceived meaningfulness of one’s work (Rosso et al., 2010). On the other hand, when organizations fail to adequately staff personnel, such as placing them in incompatible job positions and understaffing work units, employees are likely to suffer from exhaustion (Hudson & Shen, 2018) and high levels of work stress (Kristof-Brown, Zimmerman, & Johnson, 2005).

2.2. Perceived adequacy of staffing as an organization-level construct. Perceived adequacy of staffing is conceptualized as an organization-level construct. This means that within-organizational consensus exists among organizational members. Theoretically, employees within the same organization are expected to share perceptions of the adequacy of employee staffing because they go through a common set of staffing procedures, including recruitment, selection, training, and job assignments (Ployhart, 2014). Moreover, job reassignments are common in Japanese organizations (e.g., Sano, Yasui, Kume, & Turu, 2019), which means that employees frequently observe how well each job position and work unit is staffed by the organization. Thus, this study conceptualizes the

perceived adequacy of staffing aggregated as an organization-level construct and explores its relationships to the three outcomes. Due to the inductive nature of the person-centered approach, no formal hypothesis is presented; instead, their relationships are tentatively analyzed based on the following research question.

Research Question 2: Does perceived staffing adequacy influence employee membership in subgroups characterized by qualitatively distinct patterns in meaningfulness of work, eNPS, and psychological stress?

3. Leader credibility in organizational management

Credibility is a general term that describes the quality of an individual with respect to his or her perceived trustworthiness and reliability. In organizational research, the concept of credibility has been associated with leadership (Bass & Bass, 2008; Yukl, 1998). Bass and Bass (2008), for example, suggested that leaders' credibility is a prerequisite for effective leadership because it affects followers' willingness to commit and contribute to the organization's mission (Bass & Bass, 2008). Nonetheless, a review of subsequent research on leader credibility indicates that scholars have not reached a consensus on its formal definition (Williams, Raffo, Clark, & Clark, 2022 online first).

The construct of leader credibility requires at least some reference criteria. That is, followers need criteria by which to assess the leader's trustworthiness and reliability (i.e., trustworthiness and reliability in terms of what?). This also implies that leader credibility is likely a multidimensional construct. For example, a leader can be evaluated by followers as highly trustworthy and reliable in one aspect (e.g., ability to manage the organization) but not in others (e.g., ethical conduct). Indeed, based on thousands of employee interviews, Kouzes and Posner (2011) identified distinct attributes of credible leaders, including competency, honesty, and the ability to inspire (Kouzes & Posner, 2011). Of these, competency might be particularly vital because it pertains to the most fundamental and practical aspect of organizational leadership. Leader competency involves organizational management roles such as vision setting, strategy development, change and crisis management, and communicating organizational missions and policies (Ruben, 2019).

Nevertheless, the current study does not seek to develop a comprehensive definition of leader credibility but instead focuses on assessing leader credibility specifically in terms of organizational management competency. More formally stated, *leader credibility in organizational management* is defined as employees' trust and confidence in the leader's competency in applying relevant knowledge, skills, and abilities to effectively manage the organization. This tentative definition follows the three-dimensional conceptualization of leader credibility by Posner and Kouzes (1998) and work on leader organizational management competency by Ruben (2019). As Figure 1 shows, this aspect of leader credibility is posited to influence employees' meaningfulness of work, eNPS, and psychological stress. Theoretically, leader credibility in organizational management should relate positively to employees' meaningfulness of work because leaders high in organizational management competency communicate organizational missions and purposes effectively, instilling meaning to their followers' work (Bono & Judge, 2003). Furthermore, leader credibility in organizational management

might relate positively to eNPS because employees understand that the top leader makes key organizational decisions. Additionally, the leader is the most visible figure that employees symbolically equate with the organization. As such, an organization led by a leader who is perceived as trustworthy and reliable to effectively manage the organization and its people would likely be viewed favorably by employees. Furthermore, given that organizational management involves the effective management of human resources, high levels of leader credibility in organizational management might also relate negatively to employee stress.

As with the perceived adequacy of staffing, leader credibility in organizational management is conceptualized as an organization-level construct (i.e., employees' shared perception). Empirically, research on whether perceptions of leader credibility are shared among followers is rather scarce. Conceptually, however, employees might share similar perceptions because the leader's roles involve influencing employees' attitudes toward the job and the organization through communications and making strategic decisions (Shin, Sung, Choi, & Kim, 2015). Thus, the relationships between leader credibility in organizational management and the three focal outcomes are tentatively explored.

Research Question 3a: Does employees' collective perception of leader credibility in organizational management influence employees' membership in subgroups characterized by distinct patterns in meaningfulness of work, eNPS, and psychological stress?

Research question 3a assesses the relationships between the levels of credibility in leaders' organizational management (e.g., high, medium, and low) and the three outcomes. However, it is possible that the extent of disagreement among employees about leader credibility impacts their attitudinal and health outcomes as well. High levels of disagreement about the leader imply that employees have different opinions about the decisions made by the leader, such as business strategies and organizational policies. Such differences in opinion potentially become sources of discord among employees.

Research Question 3b: Does within-organization heterogeneity in leader credibility in organizational management influence employees' membership in subgroups characterized by distinct patterns in meaningfulness of work, eNPS, and psychological stress?

4. Climate for work-nonwork balance

Work-nonwork balance is defined as the perception that activities in work and nonwork domains are compatible and promote growth in accordance with one's current life priorities (Kalliath & Brough, 2008). In practice, employee work-nonwork balance is supported by both labor laws and human resource (HR) systems. For instance, the Japan Revised Labor Standard Act provides legal bases for flex-time systems and partially mandated annual paid leave. Some organizations go beyond such legal obligations and offer HR systems that support work-nonwork balance, such as refresh holidays and telework. Nonetheless, a survey of over 5,000 organizations by the Japan Cabinet Office (2021a) found that approximately 40% of paid leave days are unused in Japan. Furthermore, another recent whitepaper reported that a large proportion of Japanese employees could not use HR work-nonwork balance systems despite their wishes (Japan Cabinet Office, 2021b).

The infrequent use of work-nonwork balance systems is likely attributed to the highly interdependent nature of work tasks in Japanese organizations and their associated psychosocial pressures on employees. More specifically, because employment contracts in Japan typically do not contain formal job descriptions, there are often no boundaries that limit one's job responsibilities (Hamaguchi, 2011). Job responsibilities or tasks are thus shared, typically among employees within the same work units (e.g., departments). Under this employment practice, the use of work-nonwork balance systems (e.g., paid leave and telework) can increase workloads for the other unit members. Indeed, a survey of 5,000 employees indicated that the top reason why they hesitated to use law- or HR-based work-nonwork balance systems was because they were concerned about dragging their colleagues and superiors down (Japan Ministry of Health and Welfare, 2021). Thus, the highly interdependent nature of job tasks in Japanese organizations and psychosocial pressures that stem from this organizational context are key factors that hinder employee access to work-nonwork balance systems.

This study aimed to assess employees' shared perceptions regarding the use of work-nonwork balance systems offered by their organization. This collective perception is termed the *climate for work-family balance* and is defined as employees' collective perception that they can willingly and proactively use work-nonwork balance systems offered by their organization. Here, work-nonwork balance systems refer broadly to both law- and HR-based systems that are intended to support employees in fulfilling work and nonwork roles.

The climate for work-family balance might relate positively to both the meaningfulness of work and eNPS because it is essentially a resource that helps employees balance responsibilities or needs between work and nonwork domains. Indeed, a fairly large number of studies have shown that work-family balance, although not the use of work-nonwork balance systems per se, promotes favorable employee attitudes toward the job and the organization (Allen, Herst, Bruck, & Sutton, 2000). In contrast, low levels of work-nonwork balance are associated with time spent on family activities, which in turn relates to family dissatisfaction (Liu, Peng, & Rubenstein, 2022). Thus, low levels of work-nonwork balance are a form of work stressor that should relate to employee stress reactions. The current study examined the relationships between the climate for work-nonwork balance and the three focal outcomes as guided by the following research question. The climate for work-nonwork balance is conceptualized as an organization-level construct because employees are nested within the same organization, and most law- and HR-based systems for work-nonwork balance should apply to employees across organizational hierarchies.

Research Question 4a: Does the climate for work-nonwork balance influence employees' membership in subgroups characterized by distinct patterns in the meaningfulness of work, eNPS, and psychological stress?

5. Moderators of the Relationships Between the Climate for Work-Nonwork Balance and Outcomes

Because the demands of nonwork roles and responsibilities likely differ depending on one's family structure (i.e., marital status and the presence of a child or children), this study explored whether

these demands impact the relationship between the climate for work-nonwork balance and the outcome variables. Japan still has gender equality issues with respect to family roles (Japan Cabinet Office, 2021b). Therefore, this study also explored whether gender impacts the relationships between the climate for work-nonwork balance and the outcome variables.

Research Question 4b: Does employees' family structure influence the relationship between the climate for work-nonwork balance and employees' membership in subgroups characterized by distinct patterns in the meaningfulness of work, eNPS, and psychological stress?

Research Question 4c: Does employees' gender influence the relationship between the climate for work-nonwork balance and membership in subgroups characterized by distinct patterns in the meaningfulness of work, eNPS, and psychological stress?

III. Method

The current two-wave study collected data via web surveys between January 2019 and April 2021. The time lag between the two surveys ranged between one and two months. A total of 23 organizations participated in both waves; however, data from two organizations had to be removed because of a low response rate among employees. Additionally, one organization was dropped because the interrater agreement for some focal scales was very low. As a result, a final sample consisting of 20 organizations with 5,715 employees was retained for analyses. The overall response rate across organizations was 64.2%. The industrial types included information and communication ($n = 7$), manufacturing ($n = 3$), administrative support ($n = 3$), human health and social work ($n = 2$), wholesale and retail ($n = 1$), real estate ($n = 1$), education ($n = 2$), and construction ($n = 1$). In regard to employee demographics, the average age was 38.4 years old ($SD = 10.1$), and the majority were men (69%). Family structure included singles (50%), married without children (11%), and married with children (39%). The surveys were voluntary in nature, and I collected no personal identifiers (i.e., names, e-mails, phone numbers, and address) in order to protect confidentiality of respondents.

1. Instruments

1.1. Perceived adequacy of staffing. Three items were used to measure employees' perceptions that the organization adequately staffed job positions with personnel possessing task-related competency. These items were all referenced at the level of the organization following the reference shift consensus model (Chang, 1998; Schneider, González-Romá, Ostroff, & West, 2017). That is, because the aim was to capture organizational practices for employee staffing, phrases that asked for individual opinions or perceptions were avoided (e.g., "I find" and "I like"), and phrases that described characteristics of the staffing practices were used instead (e.g., "the employee staffing at this company is"). Research has demonstrated that such organization-level referenced items tend to yield superior consensus than individual-level referenced items when aggregated (LeBreton & Senter 2008). Items pertaining to the other organization-level predictors were referenced at the

organizational level as well.

Example items for the perceived adequacy of staffing were "In this organization, jobs are assigned to personnel according to their task-related competency" and "In this organization, employee staffing is planned and executed in an adequate manner." The items were rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Unless noted otherwise, all items were measured based on a 5-point Likert-type scale with the same response options. The reliability of the scale as measured by Cronbach's alpha was .81.

1.2. Leader credibility in organizational management. Four items were used to measure leader credibility in organizational management. Example items included "This organization has great vision and business strategies" and "The top leader understands the business circumstances surrounding the firm well." The reliability of the scale was .90.

1.3. Climate for work-nonwork balance. Three items were used to measure the perceived climate for work-nonwork balance. Example items were "This organization offers human resource systems that support diverse work styles" and "Human resource systems that support employees' private life are easy to use at this organization." The internal reliability of the scale was .77.

1.4. Meaningfulness of work. Three items were used to measure the meaningfulness of work. Example items included "I find my job meaningful" and "At work, I have a sense of fulfillment." The scale was rated on a 5-point Likert-type scale ranging from 1 (never) to 5 (always). The internal reliability of the scale was .90.

1.5. Psychological stress. Three items were used to measure individual employees' psychological stress. Example items were "At work, I feel anxious" and "At work, I am free from worries and irritations (reverse item)." The scale was rated on a 5-point Likert-type scale ranging from 1 (never) to 5 (always). The internal reliability of the scale was .67.

1.6. Employee net promotor score (eNPS). A single item, "How much would you recommend your job to persons close to you such as your family members?", was used (Sedlak, 2020). The respondents indicated their answer on an 11-point Likert-type scale ranging from 0 (not at all likely) to 10 (absolutely).

1.7. Control variables. Control variables included employees' age and the organizational size in terms of employee numbers. Age was statistically controlled because age is often positively associated with indicators of employee wellbeing, including meaningfulness of work (Japan Ministry of Health, Labor and Welfare, 2019). Studies also show that older workers might handle work-related stressors better than their younger counterparts (Scheibe, Spieler, & Kuba 2016), which might lead to age differences in the degree of psychological stress. The organizational size was included as a statistical control because people might evaluate larger firms as better places to work due to superior reputations, business stability, and possibly higher salaries.

IV. Results

1. Preliminary analyses

1.1. Confirmatory factor analyses. A confirmatory factor analysis (CFA) was run on all predictor and criterion scales (the eNPS scale was excluded because it is a single item). The results showed that the expected five-factor model fit the data adequately: $\chi^2(df) = 1495.17(94)$, CFI = 0.972, TLI = 0.964, RMSEA = 0.051 (90% CI = 0.049 and 0.053), SRMR = 0.036. Additionally, a series of CFA tests comparing a model against an alternate model with successively one fewer latent factor (e.g., the five-factor model vs. the four-factor model) all resulted in significantly worse fit to the data, indicating discriminant validity of the five scales.

1.2. Data aggregation. Before aggregating individual data into higher-order units, I performed a series of tests as recommended by multilevel scholars. First, I conducted two absolute agreement-based tests: the rwg(j) (James, Demaree & Wolf, 1984) and the average deviation around the mean (AD.M; Burke, Finkelstein & Dusig, 1999). Values above 0.70 (Lance, Butts & Michels, 2006) and below 0.84 (for a 5-point scale; Burke & Dunlap, 2002) are commonly considered the minimal cutoff for the rwg(j) and the AD.M, respectively. As Table 1 shows, the values were within the acceptable range for all three scales. Second, I calculated the relative consistency scores: the ICC(1) and ICC(2) (McGraw & Wong, 1996). The ICC(1) values ranged between 0.09 and 0.15, indicating medium effect sizes of the unit membership in individual scores (LeBreton & Senter, 2008). The ICC(2) values ranged between 0.96 and 0.98, suggesting fairly high consistency in mean ratings. These values are also higher than the ICC(2) score of 0.70 often used in multilevel studies (LeBreton & Senter, 2008).

1.3. Strength of disagreement. I used the AD.M score as the index for the strength of disagreement. Although several indices of disagreement exist (e.g., the intraunit standard deviations), I opted to use the AD.M because of its simplicity in interpretation. For example, a value of 1 is easily interpreted as individual scores that differ by one point from the unit mean on the original rating scale (Dawson, Gonzales-Roma, & West, 2008).

2. Descriptive statistics

Table 2 provides descriptive statistics for all variables. The organizational-level predictors were all correlated with the criterion variables in the theorized directions. For example, leader credibility in organizational management was positively related to the meaningfulness of work and eNPS, whereas

Table 1. Results of inter-rater reliability and inter-rater agreement analyses.

Scale	rwg.j (min.~max.)	AD.M (min.~max.)	ICC(1)	ICC(2)
Perceived adequacy of staffing	.89 (.79~.99)	.59 (.11~.80)	0.13	0.98
Leader credibility in organizational management	.85 (.70~.94)	.64 (.48~.82)	0.09	0.96
Climate for work-nonwork balance	.82 (.73~.92)	.69 (.52~.82)	0.15	0.98

Table 2. *Descriptive statistics and correlations among studied variables.*

		1	2	3	4	5	6	7	8	9	10
1. Age (L1)	38.40 (10.1)										
2. Gender (L1)	0.31 (.46)	-0.28									
3. Employment contract type (L1)	0.23 (.42)	0.24	0.24								
4. Organization size (L2)	5705 (2832)	0.04	0.06	0.10							
5. Leader credibility in organizational management (L2)	3.08 (.40)	-0.05	0.05	-0.62	0.05						
6. Perceived adequacy of staffing (L2)	2.89 (.31)	-0.05	0.05	-0.61	0.11	0.87					
7. Climate for work-nonwork balance (L2)	2.97 (.40)	-0.08	0.20	-0.68	0.00	0.68	0.72				
8. Disagreement of leader credibility in organizational management (L2)	0.73 (.07)	0.12	0.13	0.59	0.01	0.63	-0.61	-0.51			
9. Meaningfulness of work (L1)	3.29 (.85)	0.06	0.01	-0.11	-0.09	0.23	0.24	0.20	-0.14		
10. Psychological stress (L1)	3.18 (.80)	-0.07	0.04	0.16	0.07	0.17	-0.20	-0.21	0.14	-0.58	
11. eNPS (L1)	4.54 (2.58)	0.03	0.07	-0.28	-0.10	0.25	0.29	0.36	-0.20	0.57	-0.53

Note: Correlation coefficients larger than .03 and .04 are statistically significant at $p < .05$ and at $p < .01$, respectively. Gender (Men=0), Employment contract type (0=Full-time)

it was negatively related to psychological stress. In addition, the strength of disagreement about leader credibility in organizational management strength was negatively related to both meaningfulness of work and eNPS and positively related to psychological stress.

3. Analytical approach

The proposed model (Figure 1) was analyzed in two steps. The first step involved determining the number of classes based on latent profile analyses without the inclusion of predictor variables. MLR estimations assuming heterogeneous variances across classes were used. As recommended by Spurk, Hirschi, Wang, Valero & Kauffeld (2020), the final class solution was selected based on both statistical and theoretical considerations. Statistically, progressively increasing numbers of classes were examined until the fit indices no longer improved. Precedence was given to a model that exhibited the most superior fit to the data based on the parsimony criteria (e.g., Bayes information criterion). Additionally, formal tests of competing models were considered, namely, log likelihood difference tests (e.g., VLMR test; Celeux & Soromenho, 1996; Jung & Wickarama, 2008). Theoretically, the decision to retain a larger class solution should be justified based on profile discrimination (Spurk et al., 2020). That is, if increasing the number of classes adds substantial new information relative to the prior solution, then the new solution should be retained. In contrast, if an

Table 3. Fit Indicators for Mixture Regression Models

Classes	n	Parameters	LL	Parsimony Criteria				Clustering Criterion		
				AIC	BIC	CAIC	SBIC	Entropy	VLMR	BLRT
1	5715	6	-27547.78	55107.55	55147.46	55153.46	55128.39	NA	NA	NA
2	5715	13	-25503.93	51033.86	51120.32	51133.32	51079.01	0.702	0.0000	0.0000
3	5715	20	-24797.10	49634.20	49767.22	49787.22	49703.67	0.734	0.0000	0.0000
4	5715	27	-	-	-	-	-	-	-	-

LL=Log likelihood. AIC=Akaike information criterion. BIC=Bayesian information criterion. CAIC=Consistent AIC. SBIC=Sample size adjusted BIC.

VLMR=Vuong-Lo-Mendell-Rubin likelihood ratio, BLRT=Bootstrapped loglikelihood ratio test.

4- and 5-class model resulted in estimation problems.

additional profile is similar (e.g., only minor differences in the mean scores), then the new solution should not be retained for reasons of parsimony (Vermunt & Magidson, 2002). The second step involved predicting the class membership using a multinomial regression model. All research questions except for the first were examined based on this model.

4. Latent profiling: Step 1

Table 3 reports the results of latent profile analyses. The parsimony criteria all indicated that the three-class solution fit the data best. The three-class solution had the highest entropy as well. The entropy value of .73 suggested that the classes could be classified with reasonable accuracy, although the optimal value of .80 or greater was not achieved (Spurk et al., 2020). The loglikelihood difference tests (i.e., VLMR and BLRT with 1,000 draws) also suggested that the three-class solution should be selected over the other solutions. As such, the three-class solution was retained for further analyses.

Figure 2 depicts the characteristics of the three identified classes with respect to their mean outcome scores. The smallest class, which is estimated to constitute 14.1% of the population, was characterized by low levels of meaningfulness of work and eNPS and a high average score on psychological stress. Given these characteristics, this class was called “*disgruntled & distressed.*” The second class (30.3% of the population) was named “*engaged & healthy*” because this class had very high mean scores on meaningfulness of work and eNPS and a low average score on psychological stress. The third class (55.6% of the population) was labeled the “*unenthusiastic majority*” because of its largest proportion as well as its moderate to low mean scores across the three outcomes.

5. Relationships between organizational characteristics and latent classes: Step 2

Research question 2 asked whether the perceived adequacy of staffing influences employee membership in subgroups characterized by qualitatively distinct patterns in the meaningfulness of work, eNPS, and psychological stress. As Table 4 shows, the perceived adequacy of staffing was

Figure 2. Profiles of the 3 latent classes.

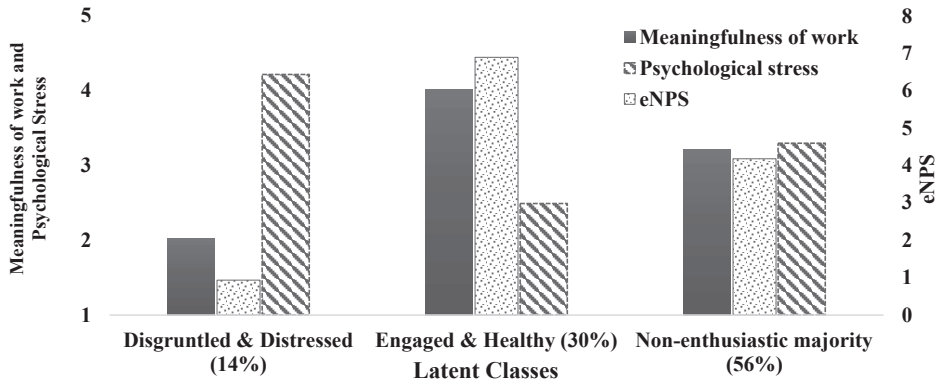


Table 4. Results of multinomial regression analyses for latent classes (without interaction terms).

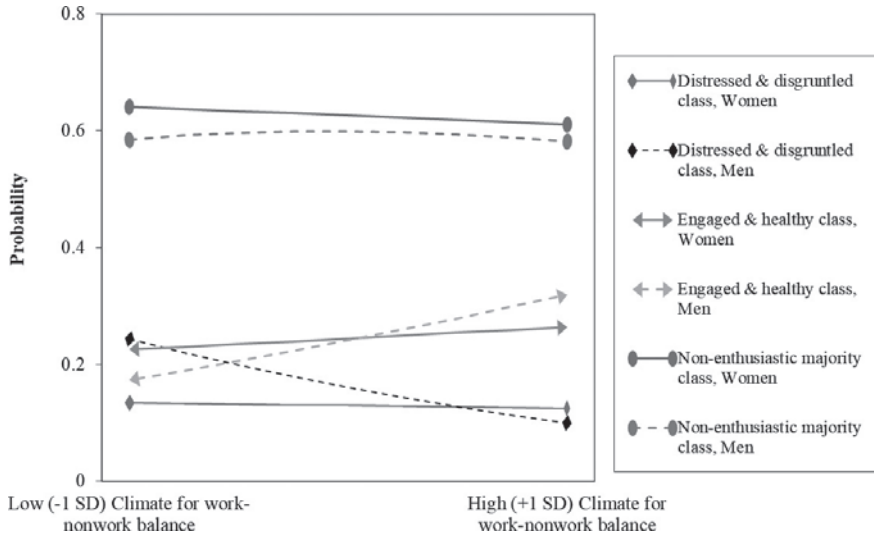
Class	Predictors	Coefficient (B)	SE	Wald	p-value	Exp (B)
Disgruntled & distressed	Intercept	0.80	1.05	0.58	0.446	
	Age	-0.02	0.01	17.23	0.000	0.98
	Gender (Men) ^a	0.40	0.09	19.77	0.000	1.50
	Family structure (married with children) ^b	-0.09	0.09	1.00	0.317	0.91
	Family structure (married without children) ^b	-0.09	0.13	0.52	0.473	0.91
	Organizational size	0.00	0.00	1.20	0.274	1.00
	Leader credibility in organizational management	0.03	0.24	0.02	0.896	1.03
	Perceived adequacy of staffing	-0.22	0.31	0.51	0.475	0.80
	Climate for work-nonwork balance	-0.96	0.19	27.26	0.000	0.38
	Disagreement of leader credibility in organizational management	2.59	1.13	5.28	0.022	13.37
Engaged & healthy	Intercept	-6.18	0.73	71.72	0.000	
	Age	0.00	0.00	0.90	0.342	1.00
	Gender (Men) ^a	0.13	0.08	3.06	0.080	1.14
	Family structure (married with children) ^b	0.14	0.08	2.85	0.091	1.15
	Family structure (married without children) ^b	0.12	0.11	1.17	0.280	1.13
	Organizational size	0.00	0.00	5.15	0.023	1.00
	Leader credibility in organizational management	-0.31	0.16	3.66	0.056	0.74
	Perceived adequacy of staffing	1.08	0.22	23.90	0.000	2.95
	Climate for work-nonwork balance	0.91	0.12	54.55	0.000	2.49
	Disagreement of leader credibility in organizational management	0.48	0.57	0.72	0.398	1.62

Note: a = reference is Women, b = reference is singles. p-values less than .05 are bolded

related to 2.95 times higher odds ($p < .01$) of employee membership in the engaged & healthy class relative to the referent unenthusiastic majority class. It was not related to either lower or higher odds of membership in the disgruntled & distressed class relative to the referent majority class.

Research question 3a asked whether leader credibility in organizational management influences employee membership in subgroups with distinct patterns in the focal outcomes. The results showed

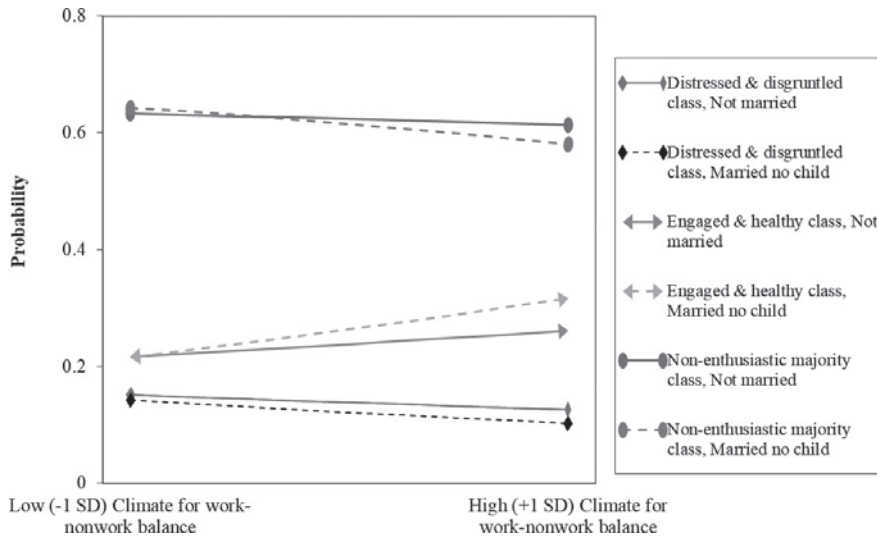
Figure 3. *Estimated probabilities of latent class membership as predicted by gender and climate for work-nonwork balance interaction.*



that it was not a significant factor that distinguished employee membership in the three classes (Table 4). However, employee disagreement regarding leader credibility in organizational management (Research question 3b) was related to substantially higher odds of membership in the disgruntled & distressed class relative to the nonengaged majority class ($OR = 13.37, p = .02$).

Research question 4a asked whether the climate for work-nonwork balance influences employee membership in subgroups characterized by distinct patterns in the focal outcomes. The climate for work-nonwork balance was related to 2.49 times higher odds ($p < .01$) of membership in the engaged & healthy class relative to the referent unenthusiastic majority class. In contrast, it was related to 0.38 times or 62% decreased odds of membership in the disgruntled & distressed class relative to the referent majority class. In regard to Research questions 4b and 4c, only gender was found to significantly moderate the relationships between climate for work-nonwork balance and membership in the three classes (see Table 5 with interaction terms). Figure 3 depicts these moderation effects (in probability scales). As the figure shows, men had a higher probability than women of belonging to the engaged & healthy class when the climate for work-nonwork balance was high (i.e., 1 SD above the mean). Similarly, men had a higher probability than women of belonging to the disgruntled & distressed class when the climate for work-nonwork balance was low (i.e., 1 SD below the mean). Finally, Figure 4 depicts the statistically significant interaction between gender and the climate for work-nonwork balance. The slope of the climate for work-nonwork balance was positively steeper for employees who are married without children than for single employees.

Figure 4. *Estimated probabilities of latent class membership as predicted by family structure and climate for work-nonwork balance interaction.*



V. Discussion

The purpose of the current study was to explore whether subgroups with qualitatively distinct patterns in job attitudes and health exist among Japanese employees. A population estimate based on a sample of 5,715 Japanese employees suggested that there are three such subgroups: 1) the majority (55.6%) with moderately low meaningfulness of work and eNPS and moderately high psychological stress (*unenthusiastic majority*), 2) the second largest group (30.3%) with very high meaningfulness of work and eNPS and low psychological stress (i.e., *engaged & healthy*), and c) the smallest group (14.1%) with very low meaningfulness of work and eNPS and very high psychological stress (i.e., *disengaged & distressed*). This result appears to be consistent with frequently reported overall characteristics of Japanese workers indicating that their attitudes toward the job are rather unfavorable (Japan Ministry of Health and Welfare, 2019) and that they tend to report high levels of work stress (International Social Survey Program, 2017).

The study also sought to determine whether organizational characteristics impact employee membership in the aforementioned subgroups. The results showed that employees in the *engaged & healthy* group were more likely than the *unenthusiastic majority* group to belong to organizations characterized by high levels of perceived adequacy of staffing and climate for work nonwork. In contrast, employees in the *disgruntled & unhealthy* group were more likely than employees in the *unenthusiastic majority* group to belong to organizations characterized by high levels of disagreement in leader credibility. Furthermore, gender moderated the effects of climate on the work-nonwork climate such that men were more likely than women to belong to the *engaged & healthy* group when the climate for work-nonwork balance was high. In contrast, when the climate

Table 5. Results of multinomial regression analyses for latent classes (with interaction terms).

Class	Predictors	Coefficient (B)	SE	Wald	p-value	Exp (B)
Disgruntled & distressed	Intercept	-1.47	1.20	1.50	0.221	
	Age	-0.02	0.01	17.10	0.000	0.98
	Gender (Men) ^a	3.73	0.82	20.94	0.000	41.86
	Family structure (married with children) ^b	0.17	0.89	0.04	0.851	1.18
	Family structure (married without children) ^b	0.10	1.23	0.01	0.934	1.11
	Organizational size	0.00	0.00	0.74	0.389	1.00
	Leader credibility in organizational management	0.03	0.24	0.02	0.903	1.03
	Perceived adequacy of staffing	-0.28	0.32	0.78	0.378	0.76
	Climate for work-nonwork balance	-0.21	0.26	0.67	0.414	0.81
	Disagreement of leader credibility in organizational management	2.90	1.13	6.57	0.010	18.15
	Gender (women) ^a X Climate for work-nonwork balance	-1.17	0.28	17.18	0.000	0.31
	Family ^b (married with children) X Climate for work-nonwork balance	-0.10	0.32	0.11	0.743	0.90
	Family ^b (married without children) X Climate for work-nonwork balance	-0.07	0.43	0.03	0.867	0.93
Engaged & healthy	Intercept	-4.62	0.81	32.52	0.000	
	Age	0.00	0.00	0.93	0.335	1.00
	Gender (Men) ^a	-1.65	0.52	9.94	0.002	0.19
	Family structure (married with children) ^b	-1.10	0.54	4.13	0.042	0.33
	Family structure (married without children) ^b	-0.56	0.78	0.52	0.469	0.57
	Organizational size	0.00	0.00	4.95	0.026	1.00
	Leader credibility in organizational management	-0.29	0.16	3.16	0.075	0.75
	Perceived adequacy of staffing	1.16	0.22	26.86	0.000	3.18
	Climate for work-nonwork balance	0.35	0.18	3.71	0.054	1.41
	Disagreement of leader credibility in organizational management	0.39	0.58	0.45	0.503	1.48
	Gender (Men) ^a X Climate for work-nonwork balance	0.57	0.17	11.62	0.001	1.76
	Family ^b (married with children) X Climate for work-nonwork balance	0.42	0.18	5.55	0.019	1.52
	Family ^b (married without children) X Climate for work-nonwork balance	0.22	0.25	0.80	0.370	1.25

Note: a = reference is Women, b = reference is singles. *p*-values less than .05 are bolded

for work-nonwork balance was low, men were more likely than women to belong to the *disgruntled & distressed* group. In addition, beneficial impacts of the climate for work-nonwork balance stronger for married employees without children relative to single employees.

1. Theoretical and practical implications

There are several theoretical implications from the study findings. First, organizational characteristics mainly emerged as significant predictors that distinguished between the *unenthusiastic majority* and the *engaged & healthy* group but not between the *unenthusiastic*

majority and the *disgruntled & distressed* group. This pattern is interesting with regard to the two-factor theory of motivation perspectives (Herzberg, 1968). The theory states that hygiene factors (e.g., work conditions and organizational management) influence the extent of employee dissatisfaction and job attitudes. Given that all organizational characteristics would be considered hygiene factors, they should have distinguished employee membership between the *unenthusiastic majority* and the *disgruntled & unhealthy* groups. The results are inconsistent with the theory and thus invite questions of whether the organizational characteristics investigated had motivator-like impacts on employees. For instance, person-environment fit theory (Kristof, 1996) suggests that compatibility between individuals and their jobs is vital not only for successful performance but also for job satisfaction and stress (Kristof, 1996). Thus, in organizations where employees highly evaluate staffing adequacy by their HR department, employees utilize their job abilities more effectively and have favorable work experiences. Future research might consider developing theoretical frameworks to examine how organizational staffing practices bring about positive influences on employees' job attitudes and health through the impacts of the person-job fit. Such frameworks will also need to consider aggregate and disagreement scores of employee perceptions because both seem to impact employee membership in subgroups.

Second and relatedly, the current study identified qualitatively distinct subgroups of employees with respect to their job attitudes and health. However, given the inductive nature of the analytical approach, no formal theoretical frameworks are presented to understand why such subgroups might exist in the population. If future studies can replicate similar population heterogeneity, then this issue might warrant further theoretical consideration. For instance, even though the three focal outcomes of this study (i.e., meaningfulness of work, eNPS, and psychological stress) were treated as distinct constructs, it is important to realize that they all reflect employees' work experiences that are conceptually related. Meaningfulness of work and eNPS both belong to the broader construct of job attitudes (Judge & Kammeyer-Mueller, 2012), and both are concerned with the extent of employees' affect and cognition. Likewise, psychological stress is conceptualized as the extent of employees' affective and cognitive reactions to workplace stressors (Jex & Beehr, 1991). Thus, there might be some common individual and organizational factors that drive these three outcome measures to behave similarly within each subgroup.

In regard to practical implications, organizational practitioners and leaders might consider giving deliberate attention to promoting a climate for work-nonwork balance and staffing adequacy. This should involve a) measuring the perceptions of individual employees across gender and family structures, as well as at different levels of the organizational hierarchy, b) aggregating these scores to determine whether meaningful agreements and disagreements exist, and c) assessing room for improvement. The results of this study indicate that promoting both adequacy of staffing and a climate for work-nonwork balance should lead to an increase in the number of employees with positive job attitudes and health. In passing, I note that these organizational characteristics had rather low mean scores across 20 firms that participated in this study. Organizations should also pay special attention to the climate for work-nonwork balance for men. As mentioned earlier, men were

more likely than women to belong to the *disgruntled & distressed* group when the climate for work-nonwork balance was low. In contrast, the benefits of this climate on positive job attitudes and health were greater for men than women. These results imply that men's use of law- and HR-based support systems for work-nonwork balance are more strongly influenced by the climate. As such, promoting a climate for work-nonwork balance might be effective for increasing positive job attitudes and health for Japanese workers overall. Men's perceptions that they could willingly and proactively use work-nonwork balance systems offered by the organization (i.e., climate for work-nonwork balance) were, in fact, substantially lower than those of women (the averages were 2.85 and 3.15 for men and women, respectively: $t = -10.79$, $p < .01$). It is also worth mentioning that a post-hoc analysis of a three-way interaction between family structure, gender, and climate for work-nonwork balance was not statistically significant. This implies that employees need work-nonwork balance supports not simply because they have responsibilities for children and a spouse at home or because of their gender, as common believed (Japan Ministry of Health and Welfare, 2021).

2. Limitations and future directions

The current study is not without limitations. First, although the use of a longitudinal design has certain advantages, such as the precedence of predictors over the criteria, it is still possible that the study omitted key variables that affect the nature of the relationships between the organizational factors and the outcomes. For example, employees' individual affective traits and department-level factors such as unit managers' leadership styles are possible factors. Thus, future research should consider the effects of such theoretically relevant variables and determine whether they impact the nature of the relationships reported here. Second, this study did not use established scales to measure the key constructs. However, the scales were developed based on a series of focus groups and rigorously tested for psychometric properties in a pilot study. The key variables showed high internal reliability and discriminant validity in the current study as well. As such, it might not be appropriate to discount the results obtained in the current study based solely on the use of newly developed scales. The use of eNPS, however, raises some concerns. Its construct coverage or content validity is a reasonable concern because it is a single-item scale. In addition, there is a question of whether it can be used as a global measure of overall job satisfaction. Nevertheless, past research showed that it correlated highly with items from a global measure of job satisfaction (Sedlak, 2022). The current study also found that it correlated strongly with meaningfulness of work and psychological stress based on a fairly large sample. More research is needed on eNPS to clarify its construct validity as a global measure of job satisfaction and its predictive validity for important employee outcomes. Third, this study found that effects of the climate for work-nonwork balance did not differ between singles and those who are married with children. This is odd because one would expect that both employees' marital status and the presence of children would influence the degree of demands from the nonwork domain. The climate for the work-nonwork climate, which, by definition, is about employees' uses of work-nonwork balance support systems, should exert stronger beneficial effects for married employees with children. Again, the results did not support such an

assumption. Future research should therefore investigate the results and conduct more detailed analyses to identify their underlying mechanisms.

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