The mediating role of psychological safety on humble leadership and presenteeism in Japanese organizations[1]

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Abstract.
BACKGROUND: Presenteeism-induced productivity loss is a global concern. This issue is equally serious in Japan. As a "super-aged society," maintaining and promoting Japanese employees' health is an urgent issue. The combination of these factors makes it imperative to identify the factors that affect presenteeism and clarify the mechanisms driving these factors in Japanese organizations.
OBJECTIVE: Only a few extant studies address presenteeism as a performance variable. Presenteeism can create serious productivity losses in Japan, as it is a "super-aged society." Hence, this study aims to clarify the relationships between humble leadership, psychological safety, and presenteeism in Japanese organizations.
METHODS: We hypothesized that psychological safety mediated the effect of humble leadership on presenteeism. The data of 462 employees from 11 companies were analyzed.
RESULTS: The results supported our hypothesis. Additionally, leader humility, as perceived by the followers, was positively correlated with leaders' own psychological safety in their teams.
CONCLUSIONS: Our findings contribute to the existing literature by highlighting the roles of humble leadership and psychological safety in health and productivity management while accounting for cultural influences. The practical implications of our findings and future directions are also discussed.

Keywords: Organizational management, leadership, safety, presenteeism, productivity, culture

1. Introduction

Employees who are present in the workplace but do not fully perform their jobs because of poor health are a potential risk to their organization's productivity. This phenomenon, referred to as presenteeism, hinders individual performance and incurs immense costs to the organization, as studies over the last 20 years demonstrate [1]. Therefore, considering presenteeism as a cause of productivity loss on a wide scale is important. Dewa and McDaid [2] argued that presenteeism negatively affects the gross domestic product (GDP) of the United States. Healthcare is not only an employee's concern, but an organization-wide issue; therefore, organizations should strive to manage employees' health and collective organizational productivity. This approach is called health and productivity management (HPM) [3]. For example,

in large financial corporations, the indirect health-related costs of presenteeism outweigh direct medical costs [4].

Productivity loss owing to presenteeism is a concern internationally. For example, Young et al. discuss how companies worldwide can aim to improve the health and working status of older workers in the United States [5] (cf. [6] for the Netherlands). This issue is also serious in Japan. Nagata et al. [7] estimated the monetary cost of presenteeism in four pharmaceutical companies and demonstrated that presenteeism-caused cost per person per year was $3,055, accounting for 64% of the total cost. This figure exceeded that of absenteeism (i.e., sick-leave) and medical/pharmaceutical expenses. Japan's Ministry of Economy, Trade and Industry [8] promotes HPM via its 2020 Certified HPM Outstanding Organizations Recognition Program, which certifies and qualifies organizations that make efforts to achieve HPM. As of 2021, 2,299 large enterprises and 12,255 small- and medium-sized enterprises were recognized by this program.

As a "super-aged society," maintaining and promoting employees' health is an urgent issue in Japan. Thus, it is imperative to identify the factors that affect presenteeism and clarify the mechanisms of the relations among these factors in Japanese organizations. Some factors determining presenteeism identified in previous research include work environment and individual differences: work environment factors include job type, atmosphere, work location, hours worked, and supervisor behavior, whereas individual factors include age, sex, and poor personal financial situation [5, 9, 10; see 11 for a review].

Leadership, or supervisor behavior, holds the potential to reduce presenteeism because it involves interactions with individuals in a unit. Importantly, the team, and not the individual, is the basic unit of an organization. In an organization, employees engage in work for collective performance. Nonetheless, as Rousseau, Aubé, and Savoie [12] emphasized, assigning employees to teams does not guarantee productive work performance. Communication has been frequently investigated as a factor involved in teamwork behaviors. Communication or interpersonal relationships can include leader–follower relationships. Successful leader–follower relationships at work can benefit the employees regardless of other factors related to presenteeism (e.g., work location). Vänni, Neupane, and Nygård [13] found that perceived leadership has such an association with pre-

senteeism that a poor level of leadership constitutes a great risk factor for presenteeism.

Leadership style has been traditionally researched from the human-related perspective [14]. In today's organizations, where multiple types of knowledge and jobs are complicatedly intertwined, conventional hero-like leadership styles cannot afford effective employee management [15,16]. Likewise, even seemingly supportive leaders may have unidirectional attitudes; that is, the leader unilaterally gives directions to subordinates and tries to control how they carry out their tasks. Owens [17] referred to "self-focus" and distinguished between unidirectional (e.g., transformational, supportive, and empowering leadership) and morality-oriented leadership styles (e.g., humble leadership). A major element of potentially adaptive leadership styles in current organizations is leader humility [18]. Owens, Johnson, and Mitchell [19] proposed the concept of humble leadership and identified three of its aspects: (1) willingness to see oneself accurately, (2) appreciation of others' strengths and contributions, and (3) teachability. Leaders who acknowledge these ideas strive to be open about their capability limitations and own mistakes, appreciate followers' values and contributions, and are open to followers' feedback and ideas. For example, humility expressed by a leader causes an increase in employee work engagement, positive feelings, and performance [19]. Similarly, humble leadership has positive effects at the employee, team, and organizational levels [20–24]. As aforementioned, humble leadership is a morality-oriented leadership style, along with authentic, servant, and ethical leadership. Distinct from the other morality-oriented leadership styles, humble leadership features a connection between team members, appreciation of each other's strengths and weakness, and legitimization of uncertainty [25]. Still, leader humility is a relatively new concept, and most of the literature on this type of leadership is from the United States. Although some studies were conducted in China, research on this concept in Japan is scarce [25].

Leadership affects employees—both directly and indirectly—through work climate [14]; thus, work climate may affect the leadership–presenteeism relationship [5]. A work climate is "a conglomerate of the attitudes, feelings and behaviors which characterize life in an organization." Notwithstanding, this concept is difficult to be directly defined and measured because it is situation-dependent. In one definition, work climate referred to employees' per-

ceptions of distributive and procedural justice in their workplace, and was investigated for its possible effects on employee performance in Japanese organizations [26]. In her empirical study of employee work engagement in a Japanese organization, Goto [27] addressed work climate as the "life space" based on a traditional psychological theory, where an individual and the environment mutually interact. Another international study conducted in China [28] focused on how employees perceive rewards, which is a competitive aspect of the work climate.

However, recent theoretical refinement efforts now allow researchers to address this vague concept through the idea of "psychological safety." Psychological safety is defined as "being able to show and employ one's self without fear of negative consequences to the self-image, status, or career" [29]. In Project Aristotle, wherein Google studied the efficacy of its engineering and sales department teams, psychological safety was the variable that underpinned successful teams among the multiple variables analyzed (e.g., individual work capability) [30]. These findings suggest that while a team made of highly-productive individuals who have simply been assembled may not work effectively, a team can become an effective performance unit when connected through psychological safety—and this is regardless of individual capacities. Moreover, research exploring different aspects of psychological safety, such as antecedents, functions, and consequences, is increasing internationally (e.g., the United States, Israel, Taiwan) [31]. For example, in a study in Canada, minority employees (i.e., racial or indigenous) in the workplace were more likely than their majority counterparts to feel undermined by their colleagues, leading them to perceive low psychological safety at work [32].

As previously discussed, humble leadership is a possible antecedent to presenteeism, such that humble leadership decreases presenteeism. Still, this relationship may be influenced by other variables. A work climate of psychological safety is affected by leadership (see Edmondson and Lei [31] for a review). The leadership characteristics that help increase psychological safety include "realizing the limits of the knowledge that one has now" and "openly showing that leaders can make mistakes," and these descriptions fit the aforementioned image of a humble leader. Thus, humble leadership is associated with psychological safety. In addition, leadership can indirectly affect performance because leader supervising style can foster psychological safety [33].

Thus, it would be reasonable to expect that psychological safety mediates the relationship between humble leadership and presenteeism. Some previous studies showed that psychological safety mediates humble leadership and creativity [33, 34]. Psychological safety has been mainly investigated in studies that measured innovative behavior and creativity as a performance or outcome variable [30, 31, 33–35]. However, scientific evidence on the relationship between psychological safety and presenteeism (i.e., performance variable) remains lacking. Employees' health and performance should be well managed unless the sustainability of organizational development and maintenance cannot be guaranteed. Thus, the present study focused on presenteeism.

Furthermore, researchers have traditionally developed theories and conducted research based on biased samples from Western, educated, industrialized, rich, and democratic (WEIRD) cultures [36]. Employees in organizations have also often been studied in Western contexts, where employees may exhibit different behavior relative to their counterparts in, for example, Asian contexts. In a traditional categorization of cultures in psychology [37], people in individualistic cultures, like those of the United States and Europe, are driven by the pursuit of uniqueness and autonomy, whereas people in collectivistic cultures, like that of Japan, are driven by the pursuit of group harmony. No wonder we may observe cultural differences in organizational research involving the three concepts of presenteeism, leadership style, and psychological safety. In most cases, Japanese researchers reviewed and investigated these concepts independently [38–44]. In discussions on leadership in Japan, humble leadership is rarely addressed compared to other types of leadership (e.g., servant leadership, secure base leadership) [45, 46]. Based on some case studies, Kumagaya, Kita, and Ayaya [47] suggested a possible association between these three aforementioned concepts. However, no empirical research has been conducted on these three variables in the context of Japanese organizations. Therefore, the present study investigated the mediating role of psychological safety in the relationship between humble leadership and presenteeism in the Japanese context.

Leaders' data are not collected in a typical humble leadership research; thus, the perceptions held by leaders are not clear. The extant literature indirectly suggests that interventions "forcing" leaders to sacrifice themselves for their teams and express humility at the surface level are harmful for the leaders. For example, the degree of humility expressed by leaders

Table 1
Sample characteristics

Socio-demographic data	Sample A	Sample B	Total
Number of organizations	7	4	11
Organization size (number of employees in total)			
3,000+	4	2	6
1,000+	1	2	3
100<	2		2
Job category	Information, Computer Technology	Service, Retail, Information, Administrative	
N	192	270	462
Number of leaders	31	60	91
Number of teams	36	39	75
Number of team members ($M \pm SD$)	5.33 ± 3.24	6.92 ± 6.13	6.16 ± 4.99
Sex	138 men	86 men	224 men
Age ($M \pm SD$)	37.96 ± 9.92	33.34 ± 14.44	35.67 ± 15.56
Experience (year)	7.14 ± 7.09	5.63 ± 5.67	6.26 ± 6.34

who were low on the honesty–humility personality dimension was associated with their emotional exhaustion, and their emotional exhaustion facilitated their turnover intentions and work-to-family conflict [48]. Thus, the present study explored the leader's perceptions of psychological safety and presenteeism by collecting data from the leaders.

This study integrates three important concepts in organizational research by refining our knowledge of their relationships, something that had not yet been addressed in scientific research. In addition, it features a team-specific sample from across multiple job types in actual work organizations, a feat that previous studies on Japanese organizations did not undertake because of difficulties in obtaining the cooperation of organizations. Although some organizational studies conducted in Japan collected data from employees who work in teams, studies that identify teams and their members in the same organization are scarce [49]. This study leveraged the opportunity to collect data in some organizations in naturalistic settings by corresponding followers to leader(s) in the same team. This data collection methodology enabled a clearer understanding of the leaders' perceptions of psychological safety and presenteeism, and their followers' evaluations of the humility expressed by the leaders. Thus, this study presents a significant addition to organizational research.

In summary, this study aimed to test whether psychological safety mediates the relationship between humble leadership and presenteeism among Japanese employees who work as followers in team. Further, this study explored the leader's perceptions of psychological safety and presenteeism by collecting

data from the leaders. This study represents a novel attempt to explicate the psychological processes involving the concepts of presenteeism, leadership style, and psychological safety in a non-WEIRD culture, and responds to the need for empirical research in today's diverse organizational contexts.

2. Methods

2.1. Participants

This study included 462 participants (224 men, $M_{age} = 35.67$) from different companies. We recruited participants via our webpage and through a consulting service, yielding two datasets representing the former (Dataset A) and the latter (Dataset B) samples. The samples consisted of employees of different companies who engaged in teamwork on a daily basis. We define teamwork as working in teams consisting of at least two people to attain common objectives [12]. Sample A comprises employees of seven IT-related corporations, including physically- and mentally-challenged employees. Sample B comprised employees of four corporations with different job types (i.e., IT-related, administrative, sales, and service jobs), including physically- and mentally-challenged employees. The sample covered small- and medium-sized enterprises and large organizations. The participants were all Japanese and working in Japan. Table 1 provides a summary of the sample.

All responses were collected anonymously via an online survey. We administered the three measures described below, as well as requested participants

to provide information on their age, sex, and work experience in their companies.

2.2. Measures

2.2.1. Psychological Safety Scale (PSS)

The seven-item PSS was originally developed by Edmondson [50]. It has been widely used in previous studies. We used the Japanese version of this scale, which was validated using a Japanese sample across diverse job categories with a very good model fit (Appendix) [51]. Sample items are "if you make a mistake on this team, it is often held against you" and "working with members of this team, my unique skills and talents are valued and utilized." The respondents rated the items following a seven-point Likert-type scale ranging from 1 (not at all) to 7 (strongly agree), with total scores ranging from 7–49. The Cronbach's alpha of the scale in this study was 0.78.

2.2.2. Expressed Humility Scale (EHS)

The EHS was originally developed by Owens et al. [19]. The scale consisted of 9 of the most prevalent items to measure leader humility [25]. We used the Japanese version of this scale, which was validated using a Japanese sample across diverse job categories with a very good model fit (Appendix) [51]. Sample items are "this person actively seeks feedback, even if it is critical" and "this person is open to the advice of others." Items are rated on a seven-point Likert-type scale ranging from 1 (not at all) to 7 (strongly agree), with total scores ranging from 9–63. This scale aims to rate leaders' humility from the team members' perspective; thus, only the followers ($n = 371$) responded to this scale in this study. The Cronbach's alpha of the scale in this study was 0.93.

2.2.3. Presenteeism

While presenteeism has been measured via different items generated by various researchers and using various scales [1, 5, 9], we used the reliable and concise Single-Item Presenteeism Question (SPQ) [52]. We used this scale because it was developed in Japanese, the question is easy to understand, and it is convenient to use because it contains only one item. The item is as follows, "On a scale from 1% to 100%, where 100% is the best job performance you could have at your job if unimpeded by sickness or injury, how would you rate your overall job performance on the days you worked during the past four weeks (28 days)?" This item was responded by

indicating 0–100%, with a higher SPQ presenteeism score indicating a greater degree of productivity loss; the figure [100 - (one's response)] was used in the analysis following the recommendation of the original authors.

3. Results

The means and standard deviations for all variables are presented in Table 2.

Humble leadership and psychological safety are considered team variables; thus, the intraclass correlation coefficient ICC 1, ICC2, and Design Effect (DE) for each scale were calculated to determine whether multi-level analysis was necessary. The ICC1, ICC2, and DE values for EHS were 0.21, 0.54, and 1.76, respectively; the ICC1, ICC2, and DE values for PSS were 0.11, 0.38, and 1.43, respectively. These values demonstrated that a multi-level analysis was not feasible, so the individual-level analysis was conducted [53–61].[1] Using R (Ver.4.2.2) [62] and HAD (Ver.18.0) [63], mediation analysis was conducted to examine the mediating role of psychological safety on the relationship between humble leadership and presenteeism (see Table 3 and Fig. 1). The total effect of humble leadership on presenteeism was a non-significant trend (ß = 0.09; $p = 0.09$). Positive path coefficient and regression coefficient between humble leadership and psychological safety were added (ß = 0.44; $p < 0.01$). The indirect effect (Indirect effect = –0.08) between humble leadership and presenteeism was statistically significant. The confidence interval was 95% (LL-0.30, UL-0.06), and the number of bootstrap samples was 5000. This study did not find multicollinearity between independent variables with the variance inflation factor values ranging from 1.00 to 1.24.

Further, we conducted an exploratory analysis on the relationship between humble leadership and leader's psychological safety. The correlation between the mean of humble leadership score of each team (i.e., the ratings only from followers) and the mean of leader's psychological safety score of each corresponding team (e.g., the mean of humble leadership scores from team1 followers and the team1 leader's psychological safety rating corresponded) was statistically significant ($r = 0.36$, $p < 0.01$).

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[1]The practical standards for the feasibility of multi-level analyses are 0.1 for ICC1 (albeit at a low level of reliability), 0.7 for ICC2, and 2.0 for DE.

Table 2
Correlation matrix for psychological safety, expressed humility, and presenteeism ($n = 371$; excluding leaders)

Scale	Psychological Safety	Expressed Humility
Psychological Safety ($M = 36.81$, $SD = 6.60$)	–	–
Expressed Humility ($M = 48.13$, $SD = 9.48$)	0.44**	–
Presenteeism ($M = 20.08$, $SD = 18.13$)	–0.19**	–0.09†

Note. **$p < 0.01$.

Table 3
The mediating role of psychological safety in the relationship between humble leadership and presenteeism ($n = 371$)

	Psychological Safety		Presenteeism	
	β	SE	β	SE
Humble Leadership (c way)			–0.09	0.10
R^2			0.01†	
Humble Leadership (a way)	0.44	0.03		
R^2	0.19**			
Humble Leadership (c way)			–0.03	0.11
Psychological Safety (b way)			–0.19	0.16
R^2			0.04**	
Indirect effect			–0.08** (95%CI: LL-0.30, UL-0.06)	

Note. **$p < 0.01$, †$p < 0.1$. CI = confidence intervals; LL = lower limit; UL = upper limit.
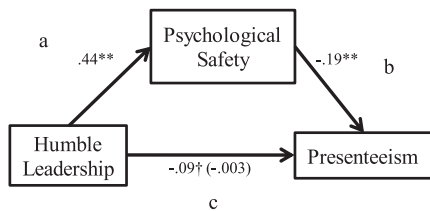

Fig. 1. Mediation model of the effect of psychological safety and humble leadership on presenteeism.

4. Discussion

The present study aimed to investigate the effect of psychological safety on the relationship between humble leadership and presenteeism. Based on the indirect effect in our analysis, psychological safety was found to play a potential mediating role in the relationship between humble leadership and presenteeism. The authors have reviewed some studies that independently investigated the relationship between humble leadership and presenteeism, and between humble leadership and psychological safety. The present study organized and clarified the relationships among the three important concepts—expressed humility, psychological safety, and presenteeism—for the first time. The mediating role of psychological safety implies that a humble leadership style facilitates the creation of a work environment wherein followers perceive that they can take the risk of expressing their ideas and opinions. This type of environment may have an important influence in Japanese organizations because, as Ochiai and Otsuka [64] discussed, the Japanese people tend to be hesitant to speak up in order to protect collectivistic harmony.

Our finding can extend the extant literature by differentiating humble leadership from other styles of leaders' support. Mori, Nagata, Nagata, Odagami, and Mori [65] reported that perceived supervisors' support, specifically for health, affects followers' presenteeism. Vänni, Neupane, and Nygård [66] found that the perceived supportive supervisors' behavior is associated with presenteeism (see also [67]). Shan, Wang, Wang, Zhang, Guo, and Li [68] identified an association between authoritarian leadership and presenteeism. Although the present study is an important addition to the literature, studies on humble leadership remain scarce, and future researchers may further focus on humble leadership.

The preliminary analysis of this study showed that the follower-determined level of humble leadership and leaders' perceived psychological safety in their teams was positively correlated. This correlation has bidirectional implications. On the one hand, when followers perceive their leaders as humble (i.e., leaders tend to be humble), the leaders may be motivated to present themselves honestly, which shapes the leaders' perception of the environment as psychologically safe. On the other hand, when leaders perceive the work environment as psychologically safe, the followers perceive their leaders as humble because the leaders can express their weaknesses and ask the followers for help in the areas that are unfamiliar to

the leaders. Prior studies revealed that the expression of humility at a surface level by the leaders who were low on the honesty-humility personality dimension can cause stress [48]. Yang et al. [48] discussed leaders' behavioral change through intrinsic motivation after realizing the importance of humility in their work and family life. In general, our findings suggest that psychological safety may help increase leader humility. This possibility might be a clue to seek an effective intervention for fostering humble leadership after intensive investigation of humble leadership and psychological safety from the leader's perspective.

The present study configures a valuable step toward advancing organizational science, as it investigated in Japan concept relationships that had been primarily measured in Western contexts. In so doing, it contributes with related evidence from non-Western cultures. Indeed, in most prior related studies, the main research targets were located in WEIRD cultures. However, culture has an important influence [69, 70] and can play a significant role in science [37]. Indeed, findings from studies focused only on the West are not necessarily generalizable to other regions of the world [64]. This showcases the current need for researchers to account for the effects of culture on research-related concepts and to look beyond WEIRD cultures. Specifically, with respect to the Japanese culture, voice behavior (i.e., expressing change-oriented ideas and opinions) is worth exploring because Japanese workers often remain silent owing to fear of disturbing collective harmony and being socially excluded [64]. Ochiai and Otsuka [64] argue that the conceptualization of psychological safety described by Edmondson [50] reflects the characteristics of Western cultures. Meanwhile, in Japan, speaking behavior may be considered as a risk-taking behavior because Japanese people tend to be hesitant to speak as this is similar to voice behavior, which elicits fear in them. More specifically, the fear that Japanese workers feel might be stronger than that of their Western counterparts because abusive leadership and inequality owing to the power distance between supervisors and subordinates are traditionally accepted in Japan [71]. Hu et al. [33] also found that power distance affected the relationship between leader humility and psychological safety. Thus, future studies on power distance should examine the culturally-unique dynamics underlying relationships in organizations.

In terms of cultural influence, issues about conceptual differences in psychological safety and knowledge sharing may have emerged in this study.

The Japanese culture encourages people to pursue collective harmony by sacrificing themselves; therefore, Japanese people tend to interpret psychological safety as being in a friendly environment. In this atmosphere, they can express their opinions about work-related and personal issues based on trust. Indeed, Kokubu [72] identified a positive relationship between psychological safety and trust among Japanese workers. Though the concept of psychological safety is relatively prevalent in Japan, as about 50% of Japanese workers know the concept [44], Japanese people may not understand it as people in Western countries do, and instead might interpret it based on the Japanese context. Nonetheless, as Edmondson [73] stated, psychological safety and trust are different. Furthermore, exchanging personal (i.e., work-irrelevant) issues is theoretically a part of the knowledge sharing concept [68]. Thus, Japanese culture may cause confusion in correctly identifying these two concepts.

In recent years, people's lifestyles and work flexibility have dramatically changed because of major societal shifts, such as the development of information technology and the COVID-19 pandemic. Amid these changes and given the current prevalence of remote work, the notions of "present" and "absent" at work became ambiguous. In these remote work environments, leadership style no longer necessarily includes face-to-face communication. Existing leadership theories must be updated and new leadership theories must be developed that reflect the current work environment. For example, Banks et al. [74] proposed the concept of digital leadership, which incorporates digital-related ideas and tools (e.g., Big Data, social media, virtual space). Future research on such new leadership frameworks in response to societal changes is therefore warranted.

Our results should be interpreted with consideration for the limitations of this study, which suggest directions for additional research. For example, this study was based on a one-time cross-sectional survey. Future research, especially involving interventions, should collect data at multiple periods to identify and trace the effects of different variables [64]. Furthermore, future works can consider additional variables possibly relevant to the three concepts dealt with in this study, such as knowledge sharing [34, 35]. In addition, whether our findings are applicable to other areas requires testing because the sample was recruited from companies exclusively in the business/private sector. The differentiation and generalizability of prior findings to different orga-

nizations relate to diversity and inclusion because modern teamwork is global and diverse in terms of the nature of the work and team members [75]. For example, in academia, PhD students face different kinds of pressure associated with presenteeism [76]. In terms of culture, Kageyama [77] argues for the critical role of psychological safety in diversity and inclusion in Japanese organizations. Thus, identifying the relevant factors and mechanisms involved in successful teamwork can clarify how diversity and inclusion is accomplished through teamwork. Given these limitations, future researchers should pay attention to a wide range of organizational types and global backgrounds of employees, using both cross-sectional and longitudinal methods, when conducting organizational research on leadership and psychological safety.

5. Conclusion

Overall, the present study relates to research not only on employees' behavior in organizations but also on HPM by focusing on leadership and psychological safety. Further, the present study contributes to the accumulated literature by considering a non-Western cultural context, as this perspective is relatively lacking in the existing research. The present study provides evidence that developing a psychologically safe work environment by fostering humble leadership can be a key to successful HPM. Future research should consider an international perspective, account for situational factors and other potential variables to understand the complex mechanisms that facilitate HPM, and conduct interventions for leaders' humility based on their intrinsic motivation.

Ethical approval

All procedures were approved by the Research Ethics committee of the University of Tokyo (#22-68 and #21-399), and conducted according to the standards specified in the 1964 Declaration of Helsinki.

Informed consent

We explained the study purpose to all participants, that they were free to drop out of the study at any time and would not face any adverse consequences for doing so, and obtained their informed consent before participation.

Conflict of interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

References

[1] Aronsson G, Gustafsson K, Dallner M. Sick but yet at work. An empirical study of sickness presenteeism. J. Epidemiology & Community Health. 2000;54(7):502-9.

[2] Dewa CS, McDaid D. Investing in the mental health of the labor force: Epidemiological and economic impact of mental health disabilities in the workplace. In; Work accommodation and retention in mental health. New York: Springer; 2011:33-51.

[3] Goetzel RZ, Ozminkowski RJ. Health and productivity management: Emerging opportunities for health promotion professionals for the 21st century. Am. J. Health Promot. 2000;14(4):211-4.

[4] U.S. Chamber of Commerce of the United States. Workplace Wellness. 2021 [cited 2023 September 13]. Available from: https://www.uschamber.com/health-care/workplace-wellness.

[5] Yang T, Shi H, Guo Y, Jin X, Liu Y, Gao Y, et al. Effect of work environment on presenteeism among aging American workers: The moderated mediating effect of sense of control. Int. J. Environ. Res. Public Health. 2020;17(1):245.

[6] Sips AS, Severeijns NR, Kraneveld AD, Garssen J, Verster JC. Reduced immune fitness and job performance: Absenteeism, presenteeism, and associated costs for the Dutch economy. Int. J. Environ. Res. Public Health. 2023;20(3):1761.

[7] Nagata T, Mori K, Ohtani M, Nagata M, Kajiki S, Fujino Y, et al. Total health-related costs due to absenteeism, presenteeism, and medical and pharmaceutical expenses in Japanese employers. J. Occup. and Environ. Med. 2018;60(5):e273.

[8] Ministry of Economy Trade and Industry. Enhancing Health and Productivity Management. 2022 (in Japanese) [cited 2023 January 30]. Available from: https://www.meti.go.jp/policy/mono_info_service/healthcare/downloadfiles/kenkokeiei_gaiyo.pdf.

[9] Ruhle SA, Breitsohl H, Aboagye E, Baba V, Biron C, Correia LC, et al. "To work, or not to work, that is the question"–Recent trends and avenues for research on presenteeism. Europ. J. of Work and Org. Psych. 2020;29(3):344-63.

[10] Wang PS, Beck A, Berglund P, Leutzinger JA, Pronk N, Richling D, et al. Chronic medical conditions and work performance in the health and work performance questionnaire calibration surveys. J. Occup. and Environ. Med. 2003;45(12):1303-11.

[11] Mori K, Nagata M, Nagata T. Work-related factors affecting the occurrence of presenteeism-recent research trends and future directions. J. UOEH. 2021;43(1):61-73.

[12] Rousseau V, Aubé C, Savoie, A. Teamwork behaviors: A review and an integration of frameworks. Small Group Res. 2006;37(5):540-70.

[13] Vänni KJ, Neupane S, Nygård CH. Associations between perceived leadership and presenteeism in an industrial population. Occup. Med. 2017;67(9):672-7.

[14] Sellgren SF, Ekvall G, Tomson, G. Leadership behaviour of nurse managers in relation to job satisfaction and work climate. J. Nurs. Manag. 2008;16(5):578-87.

[15] Marion R, Uhl-Bien M. Leadership in complex organizations. Leadersh. Q. 2001;12(4):389-418.

[16] Uhl-Bien M, Marion R, McKelvey B. Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era. Leadersh. Q. 2007;18(4):298-318.

[17] Owens BP. Humility in organizational leadership. Seattle: University of Washington; 2009.

[18] Nielsen R, Marrone JA. Humility: Our current understanding of the construct and its role in organizations. Int. J. Manag. Rev. 2018;20(4):805-24.

[19] Owens BP, Johnson MD, Mitchell TR. Expressed humility in organizations: Implications for performance, teams, and leadership. Org. Sci. 2013;24(5):1517-38.

[20] Ali M, Zhang L, Shah SJ, Khan S, Shah AM. Impact of humble leadership on project success: The mediating role of psychological empowerment and innovative work behavior. Leadersh. & Org. Dev. J. 2020;41(3):349-67.

[21] Ou AY, Seo J, Choi D, Hom PW. When can humble top executives retain middle managers? The moderating role of top management team faultlines. Acad. Manag. J. 2017;60(5):1915-31.

[22] Ou AY, Waldman DA, Peterson SJ. Do humble CEOs matter? An examination of CEO humility and firm outcomes. J. Manag. 2018;44(3):1147-73.

[23] Owens BP, Hekman DR. How does leader humility influence team performance? Exploring the mechanisms of contagion and collective promotion focus. Acad. Manag. J. 2016;59(3):1088-111.

[24] Rego A, Owens B, Leal S, Melo AI, e Cunha MP, Gonçalves L, et al. How leader humility helps teams to be humbler, psychologically stronger, and more effective: A moderated mediation model. Leadersh. Q. 2017;28(5):639-58.

[25] Kelemen TK, Matthews SH, Matthews MJ, Henry SE. Humble leadership: A review and synthesis of leader expressed humility. J. Org. Behav. 2023;44(2):202-24.

[26] Kobayashi Y. The effects of high-involvement HRM systems on organizational commitment among Japanese employees: Tests of multilevel mediation models of justice climate. Faculty of Liberal Arts Rev., Tohoku Gakuin Univ. 2018;179:37-48 (in Japanese).

[27] Goto RA. longitudinal study on the cross-over effect of work engagement in a Japanese work organization [Master's Thesis, Kyushu University]. Kyushu University Institutional Repository. 2018 [cited 2023 January 30]. Available from: https://catalog.lib.kyushu-u.ac.jp/opac_download_md/4061045/4061045_fulltext.pdf (in Japanese).

[28] Ye BH, Tung VWS, Li JJ, Zhu H. Leader humility, team humility and employee creative performance: The moderating roles of task dependence and competitive climate. Tourism Manag. 2020;81:104170.

[29] Kahn WA. Psychological conditions of personal engagement and disengagement at work. Acad. Manag. J. 1990;33(4):692-724.

[30] Google. Guide: Understand team effectiveness. 2012 [cited 2023 January 30]. Available from: https://rework.withgoogle.com/print/guides/5721312655835136/

[31] Edmondson AC, Lei Z. Psychological safety: The history, renaissance, and future of an interpersonal construct. Annual Rev. Org. Psychol. and Org. Behav. 2014;1(1):23-43.

[32] Automatic Data Processing Canada. Canadian employers still have work to do when it comes to creating psychologically safe workplaces - ADP Survey. 2022 [cited 2023 January 30]. Available from: https://www.newswire.ca/news-releases/canadian-employers-still-have-work-to-do-when-it-comes-to-creating-psychologically-safe-workplaces-adp-survey-810250188.html

[33] Hu J, Erdogan B, Jiang K, Bauer TN, Liu S. Leader humility and team creativity: The role of team information sharing, psychological safety, and power distance. J. Appl. Psychol. 2018;103(3):313.

[34] Wang Y, Liu J, Zhu Y. Humble leadership, psychological safety, knowledge sharing, and follower creativity: A cross-level investigation. Front. Psychol. 2018;1727.

[35] Jin X, Qing C, Jin S. Ethical leadership and innovative behavior: Mediating role of voice behavior and moderated mediation role of psychological safety. Sustain. 2022;14(9):5125.

[36] Henrich J, Heine SJ, Norenzayan A. Most people are not WEIRD. Nature. 2010;466(7302):29.

[37] Markus HR, Kitayama S. Culture and the self: Implications for cognition, emotion, and motivation. Psychol. Rev. 1991;98:224-53.

[38] Hashimura M. Implementation of health and productivity management system and its effects on human resource management. Jpn J. Hum. Resour. Manag. 2020;21:37-47 (in Japanese).

[39] Kokubo M. The new trends of leadership research. Ritsumeikan Bus. Rev. 2007;45:23-34 (in Japanese).

[40] Ogata H. The present situation and problems in health and productivity management by Japanese organizations. Life Welfare: Meiji Yasuda Seimei Research Institute Report. 2018;95:25-41 (in Japanese).

[41] Yamaguchi H. Pathways to building organizational "psychological safety." Jpn J. Qual. and Saf. Healthc. 2020;15:366-71 (in Japanese).

[42] Yokota E, Sato Y, Yoneyama S, Senoo T. A survey of leadership styles in Japanese companies. Mita Bus. Rev. 2012;54:115-36 (in Japanese).

[43] Kurosawa T, Ihara Y, Takizawa R. Workers' mental health and productivity: Review of research on presenteeism. Univ. of Tokyo Grad School of Edu. Div. of Clinical Psych. Bulletin. 2020;43:78-84 (in Japanese).

[44] Recruit Management Solutions (2017, November). Psychological safety in Japanese organizations for productivity and leaning. RMS Message; 28:7-29 (in Japanese).

[45] Ikeda H, Nawata K, Aoshima M, Yamaguchi H. The expansion of secure base leadership theory. Org. Sci. 2022;56:49-59 (in Japanese).

[46] Suzuki T. How do leaders become "servant"? Leader-follower dynamic interaction of servant leadership making process in a case of Papua New Guinean Seafood Company. Doshisha Bus. Rev. 2020;71:767-815 (in Japanese).

[47] Kumagaya S, Kita K, Ayaya S. Research on the effects of Tojisha-kenkyu on the workplace. Econ. Anal. 2021;203:28-58 (in Japanese).

[48] Yang K, Zhou L, Wang Z, Lin C, Luo Z. The dark side of expressed humility for non-humble leaders: A conservation of resources perspective. Front. Psychol. 2019;10:1858.

[49] Nawata K, Yamaguchi H, Hatano T, Aoshima M. Investigation of team processes that enhance team performance in business organization. Jpn J. Psychol. 2015;85:529-39 (in Japanese).

[50] Edmondson A. Psychological safety and learning behavior in work teams. Adm. Sci. Q. 1999;44:350-83.

[51] Matsuo A, Tsujita M, Kotoko K, Ayaya S, Kumagaya S. Developing and validating Japanese versions of psychological safety scale, knowledge sharing scale, and expressed humility scale. Management and Labour Stud. 2023. DOI: 10.1177/0258042X231191871 (Online first).

[52] Muramatsu K, Nakao K, Ide H, Furui Y. Testing the construct validity and responsiveness of the single-item presenteeism question. J. Occup. and Environ. Med. 2021;63(4):e187-e196.

[53] Hox JJ, Maas CJ. The accuracy of multilevel structural equation modeling with pseudobalanced groups and small samples. Struct. Equ. Model. 2001;8(2):157-74.

[54] Shieh, G. Choosing the best index for the average score intraclass correlation coefficient. Behav. Res. 2016;48:994-1003.

[55] Kosugi K., Shimizu, H. (eds.) Introduction to structural equation modeling with Mplus and R. Kyoto: Kitaoji Shobo; 2014 (in Japanese).

[56] Shimizu H. Multilevel modelings for individual and group data. Kyoto: Nakanishiya Shuppan Co. Ltd.; 2014 (in Japanese).

[57] Suzuki R, Kitai A. A note on the multilevel analysis of group and organization. Kobe University Grad School of Bus. Admin. Discussion Paper. 2005;45:1-33 (in Japanese).

[58] Schneider B, Ehrhart MG, Macey WH. Organizational climate and culture. Annual Rev. of Psych. 2013;64:361-88.

[59] Peugh JL. A practical guide to multilevel modeling. J. Sch. Psychol. 2010;48(1):85-112.

[60] Ogawa E. Characteristics of multilevel analysis and a review of HRM research: Primarily HLM. Jpn. J. Labour Stud. 2019;705:35-40 (in Japanese).

[61] Koo TK, Li MY. A guideline of selecting and reporting intraclass correlation coefficients for reliability research. J. Chiropr. Med. 2016;15(2):155-63.

[62] R Core Team. R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing; 2022 [cited 2023 July 8]. Available from: https://www.R-project.org/.

[63] Shimizu H. An introduction to the statistical free software HAD: Suggestions to improve teaching, learning and practice data analysis. J. Media, Info., and Commun. 2016;1:59-73 (in Japanese).

[64] Ochiai Y, Otsuka Y. Reliability and validity of the Japanese version of the psychological safety scale for workers. Indust. Health. 2021;60(5):436-46. https://doi.org/10.2486/indhealth.2021-0130

[65] Mori T, Nagata T, Nagata M, Odagami K, Mori K. Perceived supervisor support for health affects presenteeism: A prospective cohort study. J. Occup. and Environ. Med. 2023;65(1):16-21.

[66] Vänni KJ, Neupane S, Nygård CH. Associations between perceived leadership and presenteeism in an industrial population. Occup. Med. 2017;67(9):672-7.

[67] Schmid JA, Jarczok MN, Sonntag D, Herr RM, Fischer JE, Schmidt B. Associations between supportive leadership behavior and the costs of absenteeism and presenteeism: An epidemiological and economic approach. J. Occup. and Environ. Med. 2017;59(2):141-7.

[68] Shan G, Wang W, Wang S, Zhang Y, Guo S, Li Y. Authoritarian leadership and nurse presenteeism: The role of workload and leader identification. BMC Nurs. 2022;21(1):337.

[69] Pitesa M, Gelfand MJ. Going beyond Western, educated, industrialized, rich, and democratic (WEIRD) samples and problems in organizational research. Org. Behav. and Human Decis. Process. 2022;104212.

[70] Schwarzlose RF. Superiority and stigma in modern psychology and neuroscience. Trends in Cogn. Sci. 2022;27(1):4-6.

[71] Peltokorpi V, Ramaswami A. Abusive supervision and subordinates' physical and mental health: The effects of job satisfaction and power distance orientation. Int. J. Human Resour. Manag. 2021;32(4):893-919.

[72] Kokubu S. Considerations of the factors of psychological safety in the workplace. Rikkyo Bull. Bus. 2021;18:65-75 (in Japanese).

[73] Edmondson AC. Psychological safety, trust, and learning in organizations: A group-level lens. In: Kramer RM, Cook KS, ed. Trust and distrust in organizations: Dilemmas and approaches. New York, NY: Sage; 2004:239-72.

[74] Banks GC, Dionne SD, Mast MS, Sayama H. Leadership in the digital era: A review of who, what, when, where, and why. Leadersh. Q. 2022;101634.

[75] Zeng A, Fan Y, Di Z, Wang Y, Havlin S. Fresh teams are associated with original and multidisciplinary research. Nature Human Behav. 2021;5(10):1314-22.

[76] Dietz C, Scheel T. Leadership and presenteeism among scientific staff: The role of accumulation of work and time pressure. Front. Psychol. 2017;8:1885.

[77] Kageyama M. Hiring people with disabilities leads to increased psychological safety and increased labour productivity for companies. Impact. 2021;2021(3):56-7.

Appendix

Scales used in this study

Item	Psychological safety (*indicates reverse item)
1	If you make a mistake on this team, it is often held against you.*
2	Members of this team are able to bring up problems and tough issues.
3	Members of this team sometimes reject others for being different.*
4	It is safe to take a risk on this team.
5	It is difficult to ask other members of this team for help.*
6	No one on this team would deliberately act in a way that undermines my efforts.
7	Working with members of this team, my unique skills and talents are valued and utilized.

Item	Expressed humility
1	This person actively seeks feedback, even if it is critical.
2	This person admits when they don't know how to do something.
3	This person acknowledges when others have more knowledge and skills than oneself.
4	This person takes notice of others' strengths.
5	This person often compliments others on their strengths.
6	This person shows appreciation for the unique contributions of others.
7	This person is willing to learn from others.
8	This person is open to the ideas of others.
9	This person is open to the advice of others.