

The role of female managers in enhancing employee well-being: a path through workplace resources

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Abstract

Purpose – Following the job demands-resources theory, this study aims to investigate the role of female managers in enhancing employee well-being in terms of psychological health via workplace resources.

Design/methodology/approach – Based on a large-scale job stress survey of approximately 96,000 employee-year observations ranging from 2017 to 2019, this study applies structural equation modeling to construct latent workplace resources at the task, group and worksite levels and then examines the impact of female managers on employee well-being, including occupational stress, job satisfaction, work engagement and workplace cohesiveness.

Findings – The findings provide supporting evidence for the transformational leadership behaviors of female managers. The presence of women in management is associated with improved workplace resources and employee well-being, particularly workplace cohesiveness, work engagement and reduced occupational stress. These relationships are significantly mediated by workplace resources, which elucidates the underlying mechanisms involved. Notably, the positive indirect effects via workplace resources could counteract the negative direct effects of female managers. Compared with top managers, female middle managers have more substantial impacts.

Practical implications – In practice, it is recommended to promote female representation at the management level and strengthen policies that support female middle managers to ensure favorable effects on workplace resources. In a gender-diverse management team, it is important to share female managers' experiences in improving employee psychological well-being.

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Originality/value – This study provides new empirical evidence to support the transformational leadership behaviors of female managers and elucidates the mechanism of female managers' influence on employee well-being by introducing workplace resources as mediators.

Keywords Employee well-being, Job demands-resources theory, Transformational leadership, Female managers

Paper type Research paper

1. Introduction

With an increasing amount of attention being given to corporate sustainability and socially responsible investment, women's advancement in management teams has become a key indicator in promoting corporate social performance and innovation, leading to better long-term performance (Bennouri *et al.*, 2018; Khushk *et al.*, 2023; Wu *et al.*, 2022). However, it remains unclear how female managers benefit organizations in terms of employee well-being, specifically, what aspects of the benefits are and how they work. Prior studies have suggested that female managers function as agents of change in enhancing gender equality, such as wage gaps and job opportunity inequality (Cotton *et al.*, 2021; Huffman, 2013). Additionally, studies on corporate social responsibility (CSR) have revealed another side of female managers' impact on corporate environmental and social activities (Monteiro *et al.*, 2021; Xie *et al.*, 2020). However, the effect of female managers on employee well-being has seldom been explored in either field.

The specific purpose of this study is to investigate whether female managers can improve employee well-being in terms of psychological health by enhancing workplace resources. Job demands-resources theory suggests that workplace resources can enhance employee well-being in terms of work engagement and commitment (Bakker *et al.*, 2004; Bakker and Demerouti, 2007; Demerouti *et al.*, 2001). Furthermore, workplace resources can be classified into four levels, which provides more specific insights into what working conditions help support happy and productive workers (Nielsen *et al.*, 2017). Following the job demands-resources theory and female manager's extended change agent role argument, workplace resources at multiple levels might be essential mediators between female managers and employee well-being.

Based on a large-scale survey of employee stress in Japanese firms covering nearly 96,000 observations ranging from 2017 to 2019, this study examines the impact of female managers on multiple dimensions of employee well-being, including occupational stress, job satisfaction, work engagement and workplace cohesiveness. We introduce three latent workplace resources at the task, group and worksite levels as mediators between female managers and employee well-being by using structural equation modeling (SEM). Specifically, the task level refers to individual workplace resources for coping with job demands, while the group level pertains to workplace resources provided by leadership. The worksite level encompasses resources between employees and the entire firm, which corresponds to the group and organizational levels in the framework introduced by Nielsen *et al.* (2017). This study aims to elucidate the potential mechanisms through which female managers impact employee well-being by investigating the transformational leadership behaviors of female managers, as reflected by the latent workplace resources of employees. In addition to the indirect channel through workplace resources, we also analyze the direct impact of women in management and discuss the challenges of becoming a female manager in Japan. Furthermore, this study compares the impact of female managers in both top and middle positions, offering practical implications for constructing gender-diverse management teams.

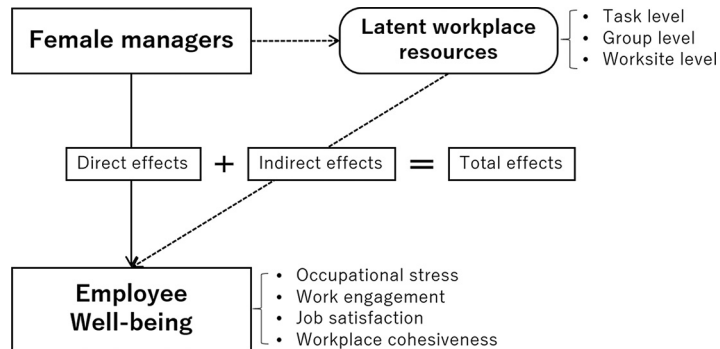
The rest of the paper proceeds as follows. Section 2 provides a brief overview of the relevant literature, and the hypotheses are developed accordingly. The data and hypothesized mediation models are introduced in Sections 3 and 4, respectively. Section 5 presents the results and discussion. Finally, Section 6 concludes the paper.

2. Literature review and hypotheses

Regarding whether female managers matter, two controverting views prevail in the literature, namely, females as agents of change and cogs in the machine (Cohen and Huffman, 2007). The “change agent” view argues that female managers function as agents of change in a male-centered organization that can improve gender inequality (Huffman, 2013). In contrast, the “cogs in the machine” view argues that women in powerful organizational positions have little impact, especially in the case of few female managers working within a male-dominated management team (Kanter, 1977). Many studies have highlighted the change agent role of female managers. For instance, studies on Japanese firms have noted that companies with greater opportunities to promote female employees as managers tend to use highly educated female employees and enhance their productivity and competitiveness (Yamaguchi, 2019). However, these discussions have focused mainly on female managers’ role in improving gender inequality issues and relevant consequences while seldom investigating the impacts on the entire organization. Against this point, Fuwa (2021) found that both female and male subordinates with female managers are more likely to take parental leave than male managers, suggesting that beyond gender inequality issues, female managers can bring more fundamental changes to a gendered organization.

Gender difference studies on managers support this extended argument of female managers’ role as change agents. Many prior studies have discussed gender differences at the managerial level, such as differences in management skills (Burke and Collins, 2001), prosocial characteristics (Rao and Tilt, 2016) and leadership styles (Eagly, 2007; Eagly *et al.*, 2003). In particular, leadership style is supposed to significantly differ between female and male managers, leading to varying consequences in the workplace. Compared with their male counterparts, female managers are more likely to manifest the features of transformational leadership by giving subordinates idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Eagly, 2007; Eagly *et al.*, 2003). Post (2015) suggested that female leadership can improve team cohesion, cooperative learning and participative communication. Studies of Japanese firms have also indicated that women managers tend to conduct employee-oriented communication that leads to an open and friendly work environment while motivating their employees to collaborate as a team to achieve their professional goals (Sueda, 2018). On the other hand, Hannah *et al.* (2020) proposed a series of leader influences related to transformational leadership and enhanced workplace psychological well-being. Given the transformative leadership style of female managers, the presence of female managers is supposed to be positively associated with employee well-being. Some studies have argued that the “female advantage” enhances subordinates’ mental health and work-life balance, mainly at the manager level. For example, Moore *et al.* (2005) reported that managers with female supervisors experience higher levels of mastery and social support at work, lower work-to-family conflict and depression, greater job autonomy and work absences. Nevertheless, there is little direct evidence of female managers’ impacts on employee well-being.

To fill this void, this study develops the following research framework to link female managers, workplace resources and employee well-being. As shown in Figure 1, employee well-being refers to psychological health, including occupational stress, work engagement, job satisfaction and workplace cohesiveness. Workplace resources consist of task, group and



Source: Authors' own work

Figure 1. Research framework

worksite levels, proxied by latent variables. Our primary aim is to examine the mediating effects of workplace resources on the relationship between female managers and employee well-being, referring to female managers' indirect effects through workplace resources. The direct effects indicate the direct impact of female managers on employee well-being, excluding the influences of other factors. Finally, the total effects reflect whether female managers improve employee well-being, combining direct and indirect effects. Thus, we hypothesize that the percentage of female managers is positively related to employee well-being in terms of psychological health, as shown below:

H1. The percentage of female managers is positively related to employee well-being in terms of occupational stress, work engagement, job satisfaction and workplace cohesiveness.

Workplace conditions directly affect employees' well-being and productivity (Day and Nielsen, 2017). According to job demands-resources theory, workplace resources are critical in determining employee well-being. Here, workplace resources are defined as those that help employees complete tasks and goals, thereby enhancing their well-being and performance as happy and productive workers (Bakker *et al.*, 2004; Bakker and Demerouti, 2007; Demerouti *et al.*, 2001). In addition to the positive impact of workplace resources, employee well-being is also determined by adverse conditions and consequences at work (Yoon *et al.*, 2021), namely, job demands, such as physical or emotional burdens.

The link between female managers and workplace resources could result from the transformational leadership style of female managers. Bakker and Demerouti (2017) reported that transformational leadership behavior provides abundant job resources for subordinates, leading to greater work engagement and more productive outcomes (Bakker and Demerouti, 2008). Transformational leadership is positively associated with workplace quality of life, leading to less employee burnout, greater organizational commitment and greater life satisfaction (Kara *et al.*, 2013). From the perspective of the change agent role of female managers, the "female advantage" noted above is expected to bring about this fundamental organizational change.

Furthermore, Nielsen *et al.* (2017) introduced an integrated framework to classify workplace resources into four levels: individual, group, leader and organizational (IGLO).

They found that all four levels of workplace resources are positively related to employee well-being and performance. However, the effect of leader-level workplace resources has seldom been discussed in the literature. Given the possible nexus between female managers, workplace resources and employee well-being discussed in previous studies, this study develops a framework to test whether female managers provide more working resources that benefit employee well-being and how this relationship works at different resource levels. Thus, we propose *H2* about the mediating effects of workplace resources at different workplace resource levels:

- H2.* The relationship between the female manager rate and employee well-being is mediated by workplace resources at various levels.

3. Data

We construct a database from three sources to test the above hypotheses: a stress check program survey from 2017 to 2019, the Toyo Keizai Corporate Social Responsibility (CSR) survey and Refinitiv Eikon. The stress check program is a national occupational health policy launched by the Japanese Government and is mandatory for all workplaces with 50 or more employees (Kawakami and Tsutsumi, 2016). Employees in the firms that conduct the stress check program need to complete the stress check survey at least once a year. A third-party company, PEACEMIND, Inc., implements the stress check program that provided the occupational stress check data used in the current study. The individual-level study design was approved by the appropriate legal and ethics review board of PEACEMIND, Inc. The stress check survey data was provided with informed consent without targeting personal health information, and any personal information provided was nonidentifiable. All the methods were performed under ethical guidelines and approved by the ethical committee of PEACEMIND, Inc. The stress check survey asks about employees' occupational stress, other well-being indicators and related workplace environment, including workplace burdens and resources, which makes it possible to investigate how workplace resources affect employee well-being. The Toyo Keizai CSR survey provides a database of Japanese firms' nonfinancial information in three categories: workforce, overall CSR and environment. The financial data of public firms were obtained from Refinitiv Eikon, which provides historical and recent financial information. The stress check survey data covers various industries, such as services (48.87%), manufacturing (25.28%) and wholesale and retail (12.11%), during the investigated period. The sample in this study consists of 50 firm-year observations and approximately 96,000 employee observations ranging from 2017 to 2019. The firms were selected based on the availability of both CSR and financial data.

3.1 *Dependent variables*

This study uses four dependent variables – occupational stress, job satisfaction, work engagement and workplace cohesiveness – as indicators of employee well-being. Occupational stress measures employees' mental health at work in recent months, covering five aspects: vigor, irritability, fatigue, anxiety and depressed mood. Work engagement refers to whether employees feel energized when working and are proud of their work. Job satisfaction asks whether employees are satisfied with their work. Workplace cohesiveness indicates whether colleagues understand and respect each other. These indicators are all measured on a four-point Likert scale, based on which standard scores ranging from 0 to 100 are used in the analysis (see detailed stress check questionnaire in [Appendix Table A1](#)). A higher score indicates better employee well-being. [Table 1](#), Panel A shows that the average

Table 1. Descriptive statistics of the main variables

	Mean	SD	Min	Max
<i>Panel A</i>				
Occupational stress	51.09	9.11	19.59	69.01
Work engagement	49.59	9.21	30.29	69.30
Job satisfaction	50.90	9.17	31.23	66.43
Workplace cohesiveness	50.64	9.18	28.30	67.44
Workload quantity	49.99	8.87	35.08	74.35
Workload quality	48.29	8.32	33.71	75.73
Physical burden	54.14	8.55	36.12	64.02
Emotional burden	49.66	8.80	32.69	64.06
Firm size	9.70	1.03	7.31	12.30
Capital intensity	2.87	1.03	-2.95	4.66
Financial leverage	4.11	6.25	0.22	22.44
Historical growth	46.44	22.50	10.47	148.79
<i>Panel B</i>				
Middle female manager rate (%)	6.34	6.79	0.00	25.20
Top female manager rate (%)	3.97	4.66	0.00	18.20

Source: Authors' own work

occupational stress, work engagement, job satisfaction and workplace cohesiveness are 51.09, 49.59, 50.90 and 50.64, respectively.

3.2 Independent variables

We use the percentage of female middle managers and top managers as independent variables. The female manager rate is collected from the Toyo Keizai CSR survey. The top managers consist of board members and chief officers, and the middle managers include all the managers except for the top managers. As shown in Table 1 Panel B, the average percentage of female middle managers is 6.34%, ranging from 0% to 25.20%. The average percentage of the top female managers is 3.97%, ranging from 0% to 18.20%, which is lower than that of the middle managers.

3.3 Mediating variables

The mediators contain latent workplace resources at three levels. The stress check questionnaire categories classify workplace resources into task, group and worksite levels, which is consistent with the framework of workplace resources introduced by Nielsen *et al.* (2017). Since workplace resources are not directly observable, we estimate latent workplace resources using the following manifest indicators. Work resources at the task level are constructed from six manifest indicators: *job control, job match, skill utilization, job meaning, role clarity and opportunity for growth*. The resource at the group level is constructed from support from seven manifest indicators: *support from managers, rewards of respect, job stability, manager's leadership, manager's fairness, workplace that encourages praising and workplace where mistakes are recoverable*. Resources at the worksite level are constructed from seven manifest indicators: *trust in management, adaptability to change, respect for individuals, fairness in evaluation, approach to diversity, career development and work-life balance*. The latent variables are estimated by confirmatory factor analysis, and the mediating effects at each level are tested separately.

3.4 Control variables

We control for a series of job demands, workload quantity, workload quality, physical burden and emotional burden, which are vital factors determining employee well-being (Bakker and Demerouti, 2007; Demerouti et al., 2001). We further control for employees' age, gender and whether they report receiving psychological counseling services. Age is coded into ten-year intervals from 10 to 80 years. Additionally, firm characteristics determine the ability to provide workplace resources physically and psychologically. Therefore, this study further controls for firm size, financial leverage, capital intensity and historical growth. Firm size is the logarithm of the number of employees. Financial leverage is proxied by the liability ratio. Capital intensity is the ratio of net fixed assets to the number of employees. Historical growth is the annualized revenue growth rate in the past three years. Given various firm settlement periods, we use the financial data reported prior to the date of the stress check survey within one year. The descriptive statistics are shown in Panel A of Table 1.

4. Method

We apply SEM to test the hypothesized mediation models. Both partially and fully mediated models are examined, and the chi-square difference test determines which model fits better (Finch and French, 2015). The partially mediated model is shown in equations (1) and (2). Employee well-being is denoted by four indicators: occupational stress, work engagement, job satisfaction and workplace cohesiveness. The indicators of the female manager rate are one-year lagged variables. *Job demand_{it}* consists of workload quantity, workload quality, physical burden and emotional burden. *Individual Characteristics_{it}* consists of employees' gender, age and the psychological counseling service dummy variable. *Firm Characteristics_{it-1}* denotes a vector of firm characteristics, including firm size, financial leverage, capital intensity and historical growth:

$$\begin{aligned} Well - being_{it} = & \beta_0 + \beta_1 Female\ manager\ rate_{it-1} + \beta_2 Workplace\ resource_{it} \\ & + Job\ demand_{it}\beta_{job} + Individual\ Characteristics_{it}\beta_{individual} \\ & + Firm\ Characteristics_{it-1}\beta_{firm} + \varepsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} Workplace\ resource_{it} = & \beta_0 + \beta_1 Female\ manager\ rate_{it-1} \\ & + Individual\ Characteristics_{it}\beta_{individual} \\ & + Firm\ Characteristics_{it-1}\beta_{firm} + \varepsilon_{it} \end{aligned} \quad (2)$$

In the partially mediated model, the direct effects are the coefficient of the female manager rate β_1 in equation (1). A fully mediated model will drop this item. Indirect effects are calculated as the product of the coefficient of the female manager rate in equation (2) and the coefficient of workplace resources in equation (1). The total effects are the sum of the direct and indirect effects of the female manager rate. The models are estimated using the R package "lavaan" (Rosseel, 2012).

5. Results

5.1 Model comparison

We estimate the partially and fully mediated models at each workplace resource level. As shown in Table 2, the following indices are used to assess the model fit: the comparative fit

Table 2. Goodness of fit and model comparison

	CFI (≥ 0.95)	TLI (> 0.95)	RMSEA (≤ 0.05)	SRMR (≤ 0.08)	AIC	BIC	χ^2
<i>Task workplace resources as the mediator</i>							
Partially mediated model	0.980	0.963	0.056	0.039	6,479,667	6,480,775	38,253
Fully mediated model	0.980	0.964	0.055	0.039	6,479,934	6,481,004	38,527 ***
<i>Group workplace resources as the mediator</i>							
Partially mediated model	0.984	0.973	0.046	0.038	7,037,892	7,039,019	31,446
Fully mediated model	0.984	0.974	0.045	0.038	7,038,096	7,039,185	31,658 ***
<i>Worksite workplace resources as the mediator</i>							
Partially mediated model	0.970	0.948	0.064	0.044	7,104,956	7,106,083	60,867
Fully mediated model	0.969	0.95	0.063	0.044	7,105,151	7,106,240	61,069 ***

Notes: Model fit indices include the CFI, TLI, RMSEA, and SRMR, and the goodness of fit criterion is shown in parentheses. The chi-square difference test results show that partially mediated models fit better than fully mediated models

Source: Authors' own work

index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR). Here, the chi-square goodness-of-fit test is not used to assess model fit since the test is too restrictive and almost rejected when the sample size is sufficiently large (Bollen, 1990). According to the goodness-of-fit criterion (Hu and Bentler, 1999; Kline, 2015), although the RMSEA of the model using worksite-level workplace resources as a mediator is slightly greater than the cutoff value, all the other indices suggest that the models fit the data well. The Akaike information criterion (AIC) and Bayesian information criterion (BIC) are used to compare the partially and fully mediated models. The results of the chi-square difference test show that at all three levels, the partially mediated models fit better than the fully mediated models. Thus, the following discussion is based on the results of the partially mediated models.

5.2 Estimation results

First, the latent workplace resources at three levels are estimated in each mediation model. Table 3 summarizes the factor loadings on the latent variables of workplace resources at three levels. The standard score is used for all the manifest indicators, which are the same as the employee well-being indicators. Therefore, a higher score indicates a better situation for specific workplace indicators. In this framework, workplace resources at the task level help employees complete work more smoothly and efficiently, leading to better productivity. Specifically, better workplace resources at the task level make employees feel meaningful in and suitable for their current job, with growth opportunities and discretion possible in their job tasks, similar to the individual-level workplace resources in the IGLO framework (Nielsen *et al.*, 2017). To be consistent, we use the original terms of workplace resource levels from the official stress check survey. Workplace resources at the group level focus on the organizational environment and employees' relationships with managers. A better workplace resource at the group level indicates a good and effective relationship with managers within a stable and flexible working group, similar to the leader-level workplace resource in the IGLO framework. For instance, employees could receive support from managers regarding work skills, respect and rewards. Workplace resources at the worksite level focus on the entire workplace environment in each independent branch, covering both management and individual factors. The worksite level in this study is close to the group and organizational-level workplace resources in the IGLO framework. We use the terms task, group and worksite levels throughout the discussion to maintain consistency with the original survey questionnaire.

Table 4 presents the estimation results of the mediation models at three levels. First, we discuss the path from the female manager rate to workplace resources. The female manager rate has positive and significant effects on the mediators in all the models; i.e. a higher percentage of female managers is related to better workplace resources at the task, group and worksite levels. These results are consistent with previous studies that have argued that female managers are more likely to exhibit transformational leadership behaviors (Eagly, 2007; Eagly *et al.*, 2003). Furthermore, in Japanese firms, female managers also present employee-oriented communication styles that lead to a better workplace environment (Sueda, 2018), which is supported by our results.

For the path from workplace resources to employee well-being, all the mediators positively relate to employee well-being, including occupational stress, work engagement, job satisfaction and workplace cohesiveness. These results imply that environmental resources are essential for enhancing employee well-being. A comparison of the magnitudes of the coefficients across the three levels reveals that work engagement benefits more from workplace resources, especially task-level resources. These results are similar to the meta-analysis results of Lesener *et al.* (2020). Specifically, goal clarity and work autonomy are vital in boosting work engagement (Fürstenberg *et al.*, 2021). Our results also show that role clarity and job control influence work engagement.

Table 3. Factor loadings of workplace resources at the task, group and worksite levels

Indicators	Loadings	Descriptions
<i>Task level</i>		
Job control	1.000	I can decide on how and in what order to do my job My opinion is reflected in how the job gets done at my workplace
Job match	1.537	I feel that my job suits me
Skill utilization	0.761	My knowledge and skills are underutilized at work
Job meaning	1.712	I find my work to be meaningful
Roles clarify	0.773	I understand my duties and responsibilities
Opportunity for growth	1.326	I have opportunities to enhance my strength at work
<i>Group level</i>		
Support from managers	1.000	I can get support from my managers
Rewards of respect	0.797	My evaluation from my superior is reasonable
Job stability	0.313	I feel that there is a possibility of losing my job
Manager's leadership	0.923	My manager gives me opportunities to enhance my capabilities
Manager's fairness	0.928	My manager treats me with a sincere attitude
Workplace which encourages praising	0.959	Efforts made are rewarded at my workplace
Workplace where mistakes are recoverable	0.796	My workplace gives second chances to recover from mistakes made
<i>Worksite level</i>		
Trust in management	1.000	Information from management is trustworthy
Adaptability to change	1.091	Employees' opinions are sought after at times of change in the job or workplace
Respect for individuals	1.290	Each employee's values are respected
Fairness in evaluation	1.144	Employee evaluation results are fully explained
Approach on diversity	0.857	Workers are respected regardless of their labor contracts/forms of employment (i.e. full-time employees, contracted employees, part-timers, etc.)
Career development	1.107	Motivation-building or career-enhancing education is conducted at my workplace
Work-life balance (positive)	1.021	My life is enriched by being energized at work

Note: All the loadings are significant at the 0.01 *p*-value level
Source: Authors' own work

The direct effects of female manager rates on employee well-being are mixed. Positive results are found for occupational stress and workplace cohesiveness when mediated by task-level and group-level work resources (see Table 4 Panels A and B). However, adverse effects are found for job satisfaction in all the models. When using worksite-level workplace resources as the mediator (see Table 4 Panel C), occupational stress and work engagement are also negatively related to female manager rates. These negative results are not unexpected. In a male-dominated work environment, the presence of female managers may cause direct conflicts between female supervisors and their subordinates, especially in the cultural context of Japanese firms. The managerial sex role stereotype, i.e. the “think manager–think male” phenomenon, is a significant psychological barrier to promoting women’s management positions (Schein, 2001). Direct adverse effects could affect employees’ job satisfaction. Furthermore, previous studies have noted a high possibility of negative impacts on employees’ job satisfaction, especially when few female managers are

Table 4. Estimation results at the task, group and worksite levels

	Workplace resource task-level			Occupational stress			Dependent variables			Workplace cohesiveness		
	Estimate	SE		Estimate	SE		Estimate	SE		Estimate	SE	
<i>Panel A: Task level</i>												
Female manager rate	0.098	0.007***	0.023	0.009**	0.013	0.009	-0.078	0.009***	0.131	0.011***		
Task-level resources	-0.756	0.030***	0.993	0.008***	1.610	0.010***	1.530	0.010***	0.914	0.008***		
Firm size	-0.001	0.000***	0.051	0.041	-0.258	0.038***	-0.073	0.038*	-0.387	0.050***		
Financial leverage	-0.068	0.002***	0.000	0.000	0.000	0.000*	0.001	0.000***	-0.001	0.000***		
Capital intensity	0.040	0.023***	0.513	0.031***	0.021	0.030	0.127	0.030***	0.256	0.038***		
Historical growth	0.909	0.039***	0.006	0.003**	0.017	0.002**	0.011	0.002***	0.026	0.003***		
Male	0.404	0.078***	1.079	0.055***	-0.191	0.052***	-0.173	0.052***	-0.017	0.067		
Consulting service dummy			0.042	0.108	0.175	0.101*	-0.173	0.102*	0.325	0.132**		
Workload quantity			0.189	0.003***	0.031	0.003***	0.085	0.003***	0.034	0.004***		
Workload quality			0.140	0.003***	-0.032	0.003***	0.035	0.003***	-0.013	0.004***		
Physical burden			0.034	0.003***	-0.017	0.002***	0.006	0.002***	0.055	0.003***		
Emotional burden			0.261	0.003***	0.064	0.003***	0.109	0.003***	0.131	0.003***		
Age dummy	Yes		Yes		Yes		Yes		Yes			
Year dummy	Yes		Yes		Yes		Yes		Yes			
Obs	95,703		95,703		95,703		95,703		95,703			
<i>Panel B: group level</i>												
Female manager rate	0.127	0.010***	0.052	0.010***	0.076	0.011***	-0.021	0.010**	0.120	0.011***		
Group-level resources			0.516	0.004***	0.724	0.004***	0.705	0.004***	0.741	0.004***		
Firm size	-1.216	0.045***	-0.092	0.043**	-0.605	0.046***	-0.382	0.045***	-0.230	0.046***		
Financial leverage	-0.001	0.000***	-0.001	0.000***	-0.001	0.000***	0.000	0.000*	-0.001	0.000***		
Capital intensity	0.371	0.035***	0.258	0.033***	-0.338	0.036***	-0.221	0.035***	-0.098	0.036***		
Historical growth	0.069	0.003***	0.010	0.003***	0.031	0.003***	0.023	0.003***	0.013	0.003***		
Male	0.843	0.060***	1.456	0.058***	0.542	0.062***	0.030	0.061	0.014	0.062		
Consulting service dummy	0.346	0.120***	0.271	0.113**	0.595	0.122***	0.216	0.120*	0.431	0.122***		
Workload quantity			0.178	0.003***	0.015	0.004***	0.070	0.004***	0.021	0.004***		

(continued)

Table 4. Continued

	Workplace resource task-level		Occupational stress		Dependent variables		Job satisfaction		Workplace cohesiveness	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Workload quality	0.100	0.003***	-0.102	0.004***	-0.032	0.004***	-0.040	0.004***	-0.040	0.004***
Physical burden	0.032	0.003***	-0.009	0.003***	0.013	0.003***	0.029	0.003***	0.029	0.003***
Emotional burden	0.300	0.003***	0.148	0.003***	0.186	0.003***	0.120	0.003***	0.120	0.003***
Age dummy	Yes		Yes		Yes		Yes		Yes	
Year dummy	Yes		Yes		Yes		Yes		Yes	
Obs.	95,766		95,766		95,766		95,766		95,766	
<i>Panel C: worksite level</i>										
Female manager rate	0.228	0.008***	-0.041	0.010***	-0.080	0.010***	-0.144	0.010***	-0.009	0.011
Worksite-level resources			0.688	0.005***	1.071	0.006***	0.920	0.006***	0.968	0.006***
Firm size	-1.124	0.036***	0.063	0.043	-0.273	0.044***	-0.189	0.045***	-0.021	0.046
Financial leverage	-0.002	0.000***	0.000	0.000	0.000	0.000	0.001	0.000***	0.000	0.000
Capital intensity	0.512	0.028***	0.110	0.033***	-0.605	0.034***	-0.416	0.035***	-0.303	0.036***
Historical growth	0.058	0.002***	0.005	0.003*	0.017	0.003***	0.017	0.003***	0.007	0.003***
Male	0.351	0.048***	1.621	0.057***	0.709	0.059***	0.269	0.061***	0.263	0.062***
Consulting service dummy	0.058	0.095	0.401	0.112***	0.760	0.115***	0.390	0.119***	0.616	0.122***
Workload quantity			0.161	0.003***	-0.012	0.003***	0.048	0.004***	-0.002	0.004
Workload quality			0.103	0.003***	-0.093	0.004***	-0.028	0.004***	-0.035	0.004***
Physical burden			0.041	0.003***	-0.003	0.003	0.026	0.003***	0.043	0.003***
Emotional burden			0.295	0.003***	0.125	0.003***	0.181	0.003***	0.115	0.003***
Age dummy	Yes		Yes		Yes		Yes		Yes	
Year dummy	Yes		Yes		Yes		Yes		Yes	
Obs.	95,785		95,785		95,785		95,785		95,785	

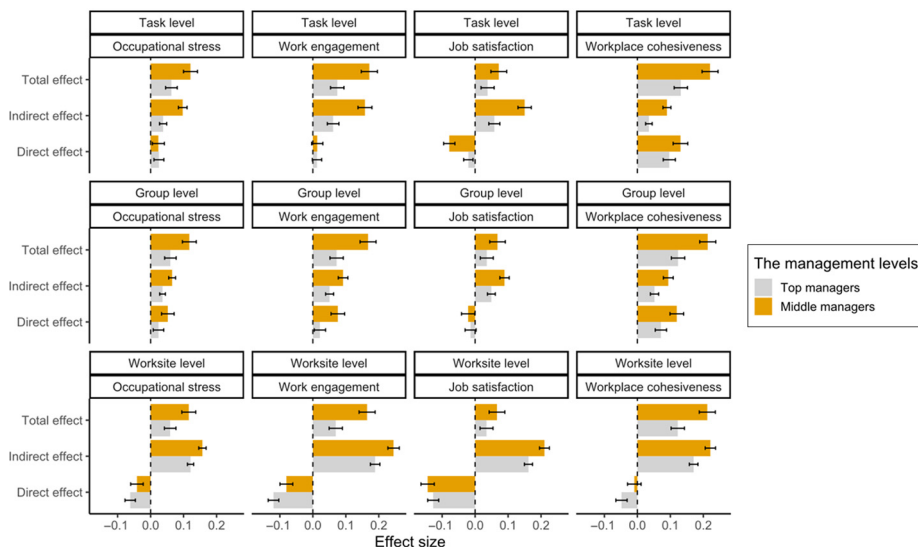
Notes: The significance levels are as follows: *denotes $p < 0.1$; **denotes $p < 0.05$ and ***denotes $p < 0.01$

Source: Authors' own work

involved in management teams (Grissom *et al.*, 2012; Schieman and McMullen, 2008), which is the very situation in Japan.

In both political and economic fields, Japan has a lower percentage of women in managerial positions than other OECD countries (Nakamura and Horimoto, 2021; Tsuji, 2017). The gender role division of labor in the postwar era emphasized men's roles in the labor market and women's roles in the family, which limited women's access to leadership positions (Usui *et al.*, 2003). Thus, becoming a female leader in contemporary Japanese society remains a challenge that requires confronting deep-rooted values and consciousness in inhospitable circumstances. Highly educated Japanese women are less motivated to seek promotions and more likely to leave their jobs due to workplace discrimination rather than solely for the purpose of childbirth and childcare (Oikawa, 2021). Although the global market has brought changes to the role of female leaders and policies aimed at enhancing gender equality in Japan, cultural barriers still exist for women in management (Nakamura and Horimoto, 2021). However, our results of multiple employee well-being indicators provide another lens through which to investigate how employees view the presence of female managers. Although the presence of female managers is linked to lower job satisfaction, it could provide benefits to other aspects (Eagly and Carli, 2007), such as occupational stress, work engagement and workplace cohesiveness. Studies on Japanese female leaders have also noted a positive effect on gender diversity and inclusion climate, as well as employees' task-related positive attitudes (Kim, 2022).

As for the indirect effects of female managers shown in Figure 2, female managers present positive and significant indirect effects on employee well-being in all the mediation models, which partially supports *H2* since no fully mediated models fit well. Finally, the total effects of female managers are positive for all the employee well-being indicators, supporting *H1*. By comparing the magnitudes of the coefficients, the impacts on workplace



Note: The error bar denotes a significance level of $p < 0.05$

Source: Authors' own work

Figure 2. The effect size of female managers on employee well-being

cohesiveness and work engagement are much stronger than those on occupational stress and job satisfaction. The weaker effects on occupational stress and job satisfaction are due to inconsistent mediation, in which direct effects are opposite to indirect effects. These results imply that the mediating effects of workplace resources play essential roles in offsetting the negative direct effects of female managers.

5.3 Comparing the effects of middle and top female managers

We further use top female managers' rates as a predictor to rerun the hypothesized mediation models. Similarly, partial mediation models fit better than full mediation models. The direct, indirect and total effects of the female top manager rate are shown in [Figure 2](#) (see detailed results in [Appendix Tables 2 and 3](#)). Indirect effects on employee well-being are all found to be positive and significant. Thus, similar conclusions can be drawn from these results to support *H2*, which states that workplace resources mediate the relationship between female managers and employee well-being. However, the magnitude of the effects of top female managers is much smaller than that of middle female managers. Transformational leadership behaviors are supposed to be more functional in a workplace where middle managers feel in control ([Nielsen and Cleal, 2011](#)), which is a rare case for top managers.

For total effects, the top female manager rate results show the same direction as that for middle female managers. Similarly, top female managers have much weaker effects on employee well-being than do middle female managers. The magnitude of the total effect on employee well-being is almost half of that of middle-aged female managers. Even though top managers play a pivotal role in deciding firm strategy and influencing firm performance ([Carpenter et al., 2004](#)), middle managers could have more frequent contact with employees during operational and management routines than top managers. Therefore, middle-level female managers are expected to be more vital for employee well-being.

6. Conclusion

This study examines the impact of female managers on employee well-being using a mediation model that introduces the IGLO framework of workplace resources. The results indicate that a greater proportion of female managers are linked to improved employee well-being, including reduced occupational stress, increased work engagement, greater job satisfaction and greater workplace cohesiveness. In a broader sense, female managers can act as change agents by enhancing workplace resources at multiple levels, including the task, group and worksite levels. These effects are more pronounced among middle-level female managers than among top managers.

These findings support our hypotheses and contribute to the literature in several aspects. First, this study provides supporting evidence for the transformational leadership of female managers and extends the argument about the change agent role of female managers in multiple aspects of employee well-being. A heightened female presence at the management level is widely linked to better workplace resources and employee well-being, especially workplace cohesiveness, work engagement and occupational stress. Second, the mediating effects of workplace resources elucidate the mechanism of the change agent role of female managers. Better workplace resources lead to improved employee well-being, which is primarily driven by the indirect effects of female managers. Notably, the positive indirect effects on occupational stress and job satisfaction offset the direct adverse effects of female managers on employee well-being. Workplace resources are effective mediators that enable female managers to contribute to employee well-being, which has rarely been discussed in previous studies. In addition, our findings highlight the importance of middle-level female managers, providing insights into the female presence in decision-making positions and the significant role of female middle managers in employee well-being. Trickle-down effects have been shown to be effective in improving female representation at the level

immediately below senior management, highlighting the pivotal role of top female managers (Gould *et al.*, 2018). However, female representation at the middle management level has a greater positive impact on employee psychological health than does representation at the senior management level. Therefore, it is recommended to establish a top-down management structure that promotes female representation at the management level and strengthens policies that support female middle managers. In a gender-diverse management team, it is important to share managers' experiences in promoting employee psychological well-being, in addition to conducting occupational stress checks and providing counseling services.

However, it is worth noting that the average percentage of female managers in Japanese firms is relatively low, making the results less generalizable when faced with a much higher percentage of female managers. Furthermore, even though previous studies have shown female managers' positive effects, we still need to be cautious in making conclusions in different cultural contexts. In the meantime, there is a significant challenge to increasing the female presence at the managerial level in Japanese firms, given the direct adverse effects on employee well-being, especially occupational stress, and job satisfaction. Specifically, the contradiction between the female gender role and leadership roles that leads to prejudice against women leaders has been a massive obstacle to increasing the number of occupational opportunities for women (Eagly and Karau, 2002). Kobayashi *et al.* (2018) noted that meritocracy opposes gender equality, arguing that promoting female managers should be based on merit rather than "making up the numbers." Foss *et al.* (2021) also documented that the positive impact of female managers on firm innovation is weakened in countries with legally mandated gender quotas. Understanding how female managers benefit organizations is essential for understanding their role. Future research can focus on the changing role of female managers in different cultural contexts and what type of environment helps build a diversified management team and maximize the favorable effects of female managers. Furthermore, future studies could gather more comprehensive profiles of managers to investigate the influence of female managers on employee well-being and productivity.

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Appendix

Table A1. Stress check survey

Scale	Questions
<i>Occupational stress</i>	
Vigor	I have been very active I have been full of energy I have been lively
Irritability	I have felt angry I have been inwardly annoyed or aggravated I have felt irritable
Fatigue	I have felt extremely tired I have felt exhausted I have felt weary or listless
Anxiety	I have felt tense I have felt worried or insecure I have felt restless
Depressed mood	I have been depressed I have thought that doing anything was a hassle I have been unable to concentrate I have felt gloomy I have felt sad I have felt dizzy
<i>Work engagement</i>	I become energized when working I am proud of my work
<i>Job satisfaction</i>	I am satisfied with my work
<i>Workplace cohesiveness</i>	People understand and respect each other at my workplace

Source: This table is adapted from the stress check program survey

Table A2. Direct, indirect and total effects of female managers on employee well-being (middle manager)

	Occupational stress		WE		Job satisfaction		Workplace cohesiveness	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
<i>Task</i>								
Direct effect	0.023	0.009**	0.013	0.009	-0.078	0.009***	0.131	0.011***
Indirect effect	0.097	0.007***	0.158	0.011***	0.150	0.010***	0.090	0.006***
Total effect	0.121	0.011***	0.171	0.012***	0.072	0.012***	0.220	0.012***
Direct effect	0.052	0.010***	0.076	0.011***	-0.021	0.010**	0.120	0.011***
<i>Group</i>								
Indirect effect	0.065	0.005***	0.092	0.007***	0.089	0.007***	0.094	0.008***
Total effect	0.117	0.011***	0.167	0.012***	0.068	0.012***	0.213	0.012***
Direct effect	-0.041	0.010***	-0.080	0.010***	-0.144	0.010***	-0.009	0.011
<i>Worksite</i>								
Indirect effect	0.157	0.006***	0.245	0.009***	0.210	0.008***	0.221	0.008***
Total effect	0.116	0.011***	0.164	0.012***	0.066	0.012***	0.212	0.012***

Notes: The significance levels are as follows: *denotes $p < 0.1$; **denotes $p < 0.05$ and ***denotes $p < 0.01$
Source: Authors' own work

Table A3. Direct, indirect and total effects of female managers on employee well-being (top manager)

	Occupational stress		WE		Job satisfaction		Workplace cohesiveness	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
<i>Task</i>								
Direct effect	0.025	0.008***	0.013	0.007**	-0.021	0.007***	0.097	0.009***
Indirect effect	0.038	0.006***	0.061	0.009***	0.058	0.009***	0.035	0.005***
Total effect	0.063	0.009***	0.074	0.010***	0.038	0.010***	0.132	0.010***
Direct effect	0.024	0.008***	0.021	0.009**	-0.014	0.009	0.071	0.009***
<i>Group</i>								
Indirect effect	0.036	0.004***	0.051	0.006***	0.049	0.006***	0.052	0.006***
Total effect	0.060	0.009***	0.072	0.010***	0.036	0.010***	0.123	0.010***
Direct effect	-0.062	0.008***	-0.119	0.008***	-0.127	0.009***	0.048	0.009***
<i>Worksite</i>								
Indirect effect	0.121	0.005***	0.189	0.007***	0.162	0.006***	0.171	0.007***
Total effect	0.059	0.009***	0.069	0.010***	0.035	0.010***	0.122	0.010***

Notes: The significance levels are as follows: *denotes $p < 0.1$; **denotes $p < 0.05$ and ***denotes $p < 0.01$
Source: Authors' own work

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