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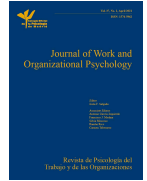
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Moderated Mediation between High Performance Work Systems (HPWS) and Employee Voice Behavior: The Role of Psychological Safety and Supportive Leadership

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ABSTRACT

The objective of this study was to examine the mediating role of psychological safety in the relationship between high performance work systems (HPWS) and employee voice behavior. Moreover, this study examined the moderating effect of supportive leadership on the indirect effect of HPWS on voice behavior through psychological safety. Data were gathered in a survey of middle and lower level bank employees ($N = 261$). Data validity/reliability and estimations were performed by applying the principles of partial least squares structural equation modeling (PLS-SEM). The findings indicate that psychological safety mediates the link between HPWS and voice behavior, and supportive leadership enhances voice behavior by strengthening the effect of HPWS on psychological safety. This study contributes to organizational psychology literature by explaining how supportive leadership affects the indirect effect of HPWS on voice behavior through psychological safety. Study limitations are related to external validity and cross-sectional testing of data.

La mediación moderada entre los sistemas laborales de alto rendimiento y la opinión constructiva de los empleados: el papel que juega la seguridad psicológica y el liderazgo de apoyo

RESUMEN

Este estudio tiene como objetivo analizar el papel mediador que juega la seguridad psicológica en la relación entre los sistemas laborales de alto rendimiento (SLAR) y la opinión constructiva de los empleados. Además, se analiza el efecto moderador del liderazgo de apoyo en el efecto indirecto de los SLAR en la opinión constructiva a través de la seguridad psicológica. Se recogieron datos en una encuesta a empleados de banca de nivel medio y bajo ($N = 261$). Se llevó a cabo la validez/fiabilidad de los datos y las estimaciones aplicando los principios de modelación de ecuaciones estructurales de mínimos cuadrados parciales. Los resultados indican que la seguridad psicológica es mediadora del nexo entre los SLAR y la opinión constructiva, a la par que el liderazgo de apoyo potencia la opinión constructiva al reforzar el efecto de los SLAR en la seguridad psicológica. El estudio supone una contribución a la investigación en psicología organizacional al explicar de qué modo el liderazgo de apoyo contribuye al efecto indirecto de los SLAR en la opinión constructiva a través de la seguridad psicológica. El estudio tiene algunas limitaciones en cuanto a la validez externa y a la comprobación transversal de los datos.

In today's dynamic business environment, organizations need strategic innovation by successfully incorporating information and contributions from their employees (Bansal et al., 2023; Lindskov, 2021). Given that employees "can be problem-solvers, innovators, and change agents" (Hamel, 2006, p. 2), organizations should promote employee voice behavior, which is vital for employees to share knowledge and creative ideas with their organization (de

Azevedo et al., 2021). Employee voice behavior (voice behavior thereafter) refers to "discretionary communication of ideas, suggestions, concerns, or opinions about work-related issues with the intent to improve organizational or unit functioning" (Morrison, 2011, p. 375). It is a kind of voluntary behavior, which works for the collective benefit of organization (Fan & Lin, 2022). Organizations need to promote voice behavior because it is strongly associated

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with employees' innovation performance and organizational performance (Ashiru et al., 2022).

Existing literature informs that voice behavior is an outcome of diverse phenomena such as employee personality (Crant et al., 2011; Elsaied, 2019; Tedone & Bruk-Lee, 2021), employees' moral identity (Liu et al., 2022), psychological safety (Walumbwa & Schaubroeck, 2009; Xu et al., 2019), psychological contract breach (Guo, 2017), leader's personality (Liang, 2017; Walumbwa & Schaubroeck, 2009), leadership styles (Duan et al., 2017; Hsiung, 2012; Kim et al., 2023; Li & Sun, 2015; Peng & Chen, 2022; Song et al., 2021; Zhang et al., 2022), leader trait learning goal orientation (Zhu & Akhtar, 2019), workplace ostracism (Deniz & Çimen, 2022), and social networks (Venkataramani et al., 2016). It is only recently that researchers have focused on studying high performance work systems (HPWS) as an antecedent of voice behavior (Harley, 2020; Jha, 2021; Mowbray et al., 2021; Rasheed et al., 2017).

HPWS refer to human resource (HR) management practices that are aligned with HR activities and organizational strategy (Evans & Davis, 2005). Specifically, the HPWS have been defined as a system of HR practices "designed to enhance employees' skills, commitment, and productivity" (Datta et al., 2005, p. 135). These practices "act in concert to improve employee skills, motivation, and participation in organizations" (Dorta-Afonso et al., 2023). HPWS help organizations to develop a work environment that motivates employees to achieve organizational goals (Whitener, 2001). HR literature has recognized that HPWS as a set of HR practices reinforce voice behavior (Mowbray et al., 2021).

Though the relationship between HPWS and voice behavior is well understood in existing literature, the mechanisms through which this relationship is established are relatively less explored. Previously, a small number of efforts have been made to examine the mediation phenomena between HPWS (or similar concepts) and voice behavior. For example, Liu et al. (2022) found the mediating effect of perceived insider status in the relationship between high performance human resource practices (HPHRPs) and voice behavior. Mowbray et al. (2021) also found an indirect effect of HPWS on voice behavior through line managers' and employees' AMO (ability, motivation, and opportunity). Previously, Zhang, Akhtar, et al. (2019) found the mediating effect of psychological safety in the relationship between high commitment work systems (HCWS, not HPWS) and employee voice. Overall, the lack of studies on the mediators of HPWS and voice behavior requires further inquiry into mediating mechanisms.

Existing literature suggests that HPWS provide an environment that boosts employees' psychological capital and leads to lower tendency to resign and higher creative and extra role performance (Karadas & Karatepe, 2019). The influence of HPWS on employee creative behaviors is strongly influenced by psychological safety (Miao et al., 2020). Psychological safety can be defined as an individual's "perceptions of the consequences of taking interpersonal risks in a particular context such as a workplace... it facilitates the willing contribution of ideas and actions to a shared enterprise" (Edmondson & Lei, 2014, p. 24). Psychological safety develops in organizational members "a common belief that individuals respect and trust each other, and it emphasizes beliefs of safety in interpersonal adventure and risk-taking" (Miao et al., 2020, p. 6). Psychologically safe employees develop in themselves a sense of being accepted by their colleagues, mutual respect for each other's competence, and feel safe to experiment new ideas (Newman et al., 2017).

Organizational investments in HPWS are related to reducing perceptions of psychological contract violations. Employees see these investments as an indicator of good intentions on the part of their organization, reduce disappointments in their expectations (Braekkan, 2012), feel psychologically safe (Agarwal & Farndale, 2017) and, consequently, exhibit voice behavior (Walumbwa & Schaubroeck, 2009). It suggests that employees' psychological safety can be a possible mediator of the relationship between HPWS and

voice behavior because previous research informs that HPWS predict psychological safety (Agarwal & Farndale, 2017) and psychological safety promotes voice behavior (Cheng et al., 2014). Existing research lacks evidence on the mediating effect of psychological safety in the relationship between HPWS and voice behavior. Therefore, this mediating effect needs to be studied.

Examining mediating mechanisms is important to explain relationships between diverse organizational phenomena. However, the mediating effects are hard to determine without examining their boundary conditions (Hayes, 2018; Sarwar et al., 2023). Boundary conditions point out "who, where, and when aspects of a theory" (Busse et al., 2017, p. 574). In other words, "contingencies built into theories increase precision by specifying when and how the relationships predicted by the theory should vary" (Edwards & Berry, 2010, p. 676). In this way, contingencies stipulate the limits of a theory's general application (Whetten, 1989, p. 492).

Existing literature has recognized that "HR [human resource] and leadership are independent players but that their interaction co-determines employee behaviors" (Leroy et al., 2018, p. 253). It suggests that leadership can moderate the effect of HPWS on organizational and employee level outcomes (Chang, 2016). Recent studies have acknowledged the importance of examining the interaction effect of leadership and HPWS on employee outcomes (Ren et al., 2021; Sarwar et al., 2023). However, the scarcity of research in this area suggests "more theoretical and empirical studies are needed to advance our understanding of the complexities involved in the interaction of leadership and HRM [human resource management]" (Zhao et al., 2023, p. 2). The literature suggests that leadership, especially the supportive leadership, can provide boundary condition for the above-mentioned mediating effect as it enhances employees' psychological safety (Singh et al., 2018). Supportive leaders "support their followers through active involvement in resolving difficult situations, being open, honest, and fair in their interactions" (Elsaied, 2019, p. 3). Given that supportive leadership affects employee outcomes by influencing psychological safety (Newman, et al., 2017), it can be stated that supportive leadership may alter the indirect effect of HPWS on voice behavior through psychological safety.

The purpose of this study was twofold. First, this study attempted to examine the mediating effect of psychological safety in the relationship between HPWS and voice behavior. In light of the basic self-determination theory model in the workplace (Deci et al., 2017), this study presumed that HPWS act as need supporting phenomena to provide employees with psychological safety, and subsequently enhance their voice behavior. Second, this research analyzed how supportive leadership moderates the indirect effect of HPWS on voice behavior through psychological safety. Insights from contingency theory's (Drazin & Van de Ven, 1985; Dubin, 1976; Karatepe et al., 2018) law of interaction suggested that the effect of HPWS on voice behavior through psychological safety would be affected by the interaction of HPWS and supportive leadership. In other words, the abovementioned indirect effect will be affected by the level of leadership support to employees.

This study will contribute to work and organizational literature in two ways. First, this study's examination of mediating effect of psychological safety will address the scarcity in the existing literature about the mechanisms through which the relationship between HPWS and voice behavior is explained. Second, the moderated mediation analysis will enrich the existing literature by examining the role of supportive leadership as a boundary condition of the abovementioned indirect relationship.

Theory and Hypotheses

Figure 1 shows this study's theoretical framework where HPWS indirectly affect voice behavior through psychological safety, and

supportive leadership moderates this indirect effect. Particularly, supportive leadership moderates the effect of HPWS on psychological safety. Existing studies vigorously evince the link between HPWS and voice behavior (Ashiru et al., 2022), between HPWS and psychological safety (Agarwal & Farndale, 2017; Mansour et al., 2022), and between psychological safety and voice behavior (Detert & Burris, 2007). Therefore, this study exclusively focused on developing mediation and moderated-mediation hypotheses.

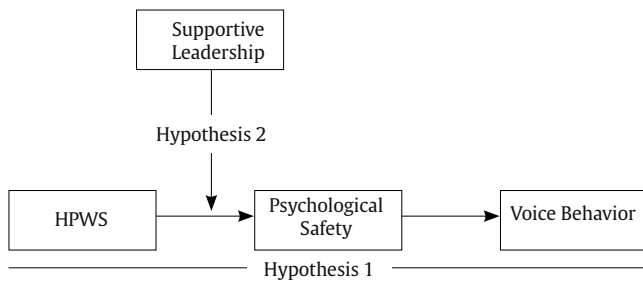


Figure 1. Theoretical Model.

Psychological Safety as a Mediator of the Relationship between HPWS and Voice Behavior

Organizational policies and practices that help employees feel psychologically safe are likely to make them exhibit organizationally desired behaviors (Zhao et al., 2022). This idea is consistent with many theoretical frameworks in existing literature. For example, the norms of reciprocity in the social exchange theory suggest that people favorably payback the acts of kindness (Blau, 1964; Gouldner, 1960). It is because “social exchange tends to engender feelings of personal obligation, gratitude, and trust” (Blau, 1964, p. 94). Employees consider organization’s implementation of HPWS as a benevolent and benign act (Haider, De-Pablos, et al., 2020), and reciprocate by developing positive social exchanges (Zhang, Bal, et al., 2019). The notion of social exchange suggests that “positive, beneficial actions directed at employees by the organization and/or its representatives contribute to the establishment of high-quality exchange relationships that create obligations for employees to reciprocate in positive, beneficial ways” (Settoon et al., 1996, p. 219). These exchange relationships strengthen employees’ perceptions of psychological safety (Newman et al., 2017). Psychologically safe people further reciprocate by developing positive social exchanges, which result in positive employee behavior (Agarwal & Farndale, 2017). Voice behavior is a well-recognized positive employee behavior that perpetuates when employees reciprocate positive social exchanges in organizations (King et al., 2019). This sequence of relationships underpinned by the norms of reciprocity in social exchange relationships indicates that HPWS enhance employee voice by augmenting their perceptions of psychological safety.

Deci et al.’s (2017) basic self-determination theory (SDT) model in the workplace posits that need supporting workplaces fulfill employees’ basic psychological needs for autonomy, competence, and relatedness. Any organizational phenomena that are supporting to these needs produce psychological safety, and subsequently affect employee outcomes (Agarwal & Farndale, 2017; Deci et al., 2017). The SDT model suggests that need fulfilling work environment makes employees “feel more connected to the organization, and feel more effective” (Deci et al., 2017, p. 23). Consequently, they feel self-determined, perceive themselves psychologically safe, and exhibit positive work behaviors (Chen et al., 2019).

Based on this idea, the current study argues that organizations’ use of HPWS indicates need supporting workplace context (Rubel et al.,

2021; Vatankhah et al., 2017), which acts as a source of fulfilling basic psychological needs (Agarwal & Farndale, 2017; Deci et al., 2017). Consequently, people perceive themselves psychologically healthy and safe (Dollard et al., 2019). It is evident from existing literature that psychologically safe employees exhibit voice behavior (Ge, 2020). HPWS promote voice behavior because employees perceive HPWS as their organization’s psychological safety enhancing act. It puts up the idea that psychological safety, emerging from organization’s use of HPWS, may be important for deciding if any positive employee outcomes appear from the need supporting workplace contexts. That is to say that the rationale for why HPWS promote voice behavior is that they develop employee perceptions of psychological safety (Agarwal & Farndale, 2017).

High performance work practice such as selection/recruitment may enhance psychological safety of employees. Selection is “the process of assessing applicant suitability for the job or the organization through the use of various selection methods (Bryson et al., 2012). An appropriate system of selection creates an organizational climate of learning, performance, trust, and people-organization fit that reinforce voice behavior by developing employee perceptions of psychological safety (Brueller & Carmeli, 2011). Similarly, an organization’s conflict resolution procedures can play an important role in improving employee voice. Conflict resolution procedures are considered “as a form of enacted PSC [psychological safety climate]”, and are used “to address conflict in a timely manner before escalation leads to bullying” (Dollard et al., 2017, p. 846). These procedures increase voice behavior as they promote mutual respect that develops perceptions of psychological safety (Dollard et al., 2017; Haider, de-Pablos, et al., 2020). Performance measurement practice refers to an organization’s evaluation of employee performance based on a set of clear objectives and indicators (Wang et al., 2010). It reflects an organization’s system of accountability for outcomes, and promotes voice behavior as it develops perceptions of psychological safety that facilitates goal sharing and problem-solving communication (Edmondson & Lei, 2014; Gittel et al., 2010).

Performance-based rewards refer to HR practice that “indicate(s) to employees the consequences of certain actions and provide(s) incentives that draw out an appropriate response” (Sanders et al., 2018, p. 1457). This practice encourages voice behavior by developing perceptions of psychological safety because employees feel supported by their organization and discuss work related experiences open mindedly (Chen & Tjosvold, 2012). Similarly, teamwork—defined as an adaptive, dynamic, and episodic process that encompasses the thoughts, feelings, and behaviors among team members while they interact toward a common goal” (Salas et al., 2015, p. 2)—is an important source of voice behavior. Teamwork as well as employee meetings are effective tools that organizations use to stimulate employee voice as they develop perceptions of psychological safety by building interpersonal relationships and encouraging participation, goal sharing, and knowledge sharing (Agarwal & Farndale, 2017; Haider, De-Pablos, et al., 2020; O’Donovan & McAuliffe, 2020). Likewise, job design fosters voice behavior by facilitating greater autonomy and role clarity that develop perceptions of psychological safety (Hans & Gupta, 2018). Job design means “deciding on the actual job structure—that is, identifying the relevant tasks and activities and allocating them across employees in a way that allows the organization to reap benefits from specialization, as well as bundling job tasks to take into account possible synergies between tasks” (Foss et al., 2009, p. 873).

Training and development refer to “systematic processes initiated by (or at the direction of) the organization resulting in the relatively permanent changes in the knowledge, skills, or attitudes of organizational members” (Kraiger, 2003, p. 171). Training and development practices provide employees with an opportunity to develop their learning and allow them to gather career development resources, which satisfy their basic psychological needs (Huang et

al., 2018; Q. Wang et al., 2022). The fulfilment of basic psychological needs reflects employees' psychological safety, which promotes voice behavior (Agarwal & Farndale, 2017; Base, 2022; Deci et al., 2017). Promotion opportunities, defined as an employee's perception of the opportunity "to move upwards within their organizational hierarchy (Kian & Yusoff, 2015, p. 31), are an important source of career growth, and promote voice behavior by affecting psychological safety (Wang et al., 2014). An organization's use of information or knowledge sharing practice refers to "a social interaction culture, involving the exchange of employee knowledge, experiences, and skills through the whole department or organization" (Lin, 2007, p. 315). It develops perceptions of psychological safety characterized by high quality relationships and communication (Carmeli & Gittell, 2009) that "provide an opportunity to participate and voice ideas and opinions" (Agarwal & Farndale, 2017, p. 442).

Our discussion here suggests that the abovementioned practices have potential for fulfilling employees' perceptions of psychological safety, which promotes voice behavior (Agarwal & Farndale, 2017; Ge, 2020). Moreover, the social exchange theory and the self-determination theory provide strong theoretical underpinnings for the effect of HPWS on psychological safety, which subsequently affects voice behavior. It guides us to develop the following hypothesis.

Hypothesis 1: Psychological safety mediates the relationship between HPWS and voice behavior.

Moderated Mediation Hypothesis: The Role of Supportive Leadership

As discussed earlier, leadership can moderate the effect of HPWS on employee outcomes (Chang, 2016). This study assumes that supportive leadership moderates the effect of HPWS on psychological safety, and subsequently affects voice behavior. For supportive leadership to moderate the relationship between HPWS and psychological safety, it must influence psychological safety. Studies have shown that supportive leadership enhances psychological safety because it invigorates a friendly and psychologically supportive working environment (Elsaied, 2019).

In light of Edmondson (1999), a study has described that "supportive, and not controlling, relation should foster perceptions of safety" (May et al., 2004, p. 16). Their argument is mainly based on the tenets of self-determination theory, which assumes that supportive workplace phenomena develop perceptions of psychological safety as they fulfill employees' basic psychological needs for autonomy, competence, and relatedness, and subsequently promote employee wellbeing and healthy work behaviors (Agarwal & Farndale, 2017; Deci et al., 2017). Supportive leaders are likely to "enhance employee self-determination" (May et al., 2004), which develops in employees "a sense of choice in initiating and regulating" their own behaviors (Deci et al., 1989, p. 580). Consequently, they perceive themselves psychologically safe (Agarwal & Farndale, 2017; May et al., 2004).

The notion that supportive leaders promote psychological safety has been also supported by social learning (Bandura & Walters, 1977) and social exchange (Blau, 1964) perspectives. The social learning perspective argues that "by listening, forwarding support, and providing clear and consistent directions to subordinates, the leader is able to model to subordinates that it is safe to take risks and engage in honest communication" (Newman et al., 2017, p. 525). The social exchange perspective proposes "social exchange processes may underlie the relationship between supportive leadership and psychological safety, arguing that when followers are supported by the leader, they will reciprocate with supportive behaviors themselves, creating a psychologically safe environment for the rest of their team" (Newman et al., 2017, p. 525). Given that supportive leaders develop employee perceptions of psychological safety, it can be expected that they are likely to change the effect of HPWS on

psychological safety, and subsequently on voice behavior. It reflects a moderated mediation phenomenon, which indicates that leadership support sets the boundaries and the intensity of an indirect effect is determined.

Previous research has demonstrated the boundary effect of supportive leadership on the relationships between diverse organizational phenomena. For example, Sürücü et al. (2022) found that the indirect effect of "transformational leadership on job performance through self-efficacy" was affected by the level of leadership support (p. 467). Hauff et al. (2022) found substitutive rather than reinforcing effect of supporting leadership on the indirect relationship between HPWS and employee health through job satisfaction and engagement. Jansen et al. (2016) found the contingency role of supportive leadership in the team cohesion-ambidexterity relationship, and team efficacy-ambidexterity relationship. The findings of Blomberg and Rosander (2022) indicated that "a possible boundary condition of when this risk [poor health] is at hand, as the association between health and bullying was highly dependent on the extent of a supportive leadership style" (p. 493).

The law of interaction in contingency theory of organizational design (Drazin & Van de Ven, 1985) delineates that "boundary conditions specify the ranges over which a relationship is expected to hold" (Bashir et al., 2020, p. 5). This law proposes a change in organizational and employee outcomes when one organizational phenomenon interacts with other (Karatepe et al., 2018; Sarwar et al., 2023). In light of the law of interaction, this study argues that supportive leadership enhances voice behavior by strengthening the effect of HPWS on psychological safety. In other words, the psychological safety enhancing effect of HPWS is magnified when it interacts with supportive leadership.

This idea is consistent with the "positive synergistic effect" of leadership and HPWS when they interact with each other (Ehrnrooth et al., 2021). It supports McClean and Collins' (2019) argument that leadership's congruence with human resource (HR) practices encourages organizationally desired employee behaviors. On the contrary, the interaction of HR practices and non-supportive leadership may aggravate the relationship between HPWS and voice behavior through psychological safety. It suggests that variance in leadership support counts for shaping the effect of HPWS on psychological safety, and subsequently on voice behavior. The voice-promoting effect of HPWS can be augmented by providing leadership support for psychological safety. This discussion leads us to develop the following hypothesis.

Hypothesis 2A: Supportive leadership moderates the relationship between HPWS and psychological safety.

Hypothesis 2B: Supportive leadership moderates the indirect relationship between HPWS and voice behavior through psychological safety.

Method

Procedure and Sample

This study used a deductive approach to test the hypotheses. A paper-pencil based survey obtained subjective ratings of the participants. Data were gathered from employees and their respective supervisors in private commercial banks of district Vehari (Pakistan). The reason for conducting survey in banks was that Pakistani banks have a well-established leader-follower mechanism and a well-developed institutional culture led by educated bankers (Khan et al., 2011). Employees have an appropriate level of qualification to understand research surveys. Therefore, the employees of these organizations are capable enough to respond the questionnaires used in this study.

This study's multiple source data contained employee ratings

for HPWS, voice behavior, psychological safety, and supportive leadership. Supervisors rated their respective subordinates' voice behavior. In light of [Bormann and Rowold \(2016\)](#), a two-wave survey was conducted to reduce common method bias ([Podsakoff et al., 2012](#)). Supervisors' ratings were obtained one month after the employee self-ratings were received. In order to match supervisor-subordinate responses in both waves, each respondent was assigned a unique code before initiating the survey.

Sample size was decided by using [Cohen's \(1992\)](#) table, which suggests a sample size by looking into the maximum number of arrowheads pointing at a construct (latent variable) in a path model, and by considering the required levels of significance and coefficient of determination (R^2). In this study, maximum five arrowheads, including control variables, point at the dependent variable. In this case, the [Cohen's \(1992\)](#) table recommends a sample size of 217 at 99% significance level and minimum 1% R^2 . However, we randomly selected 300 respondents so that the recommended sample size could be achieved after looking for missing values and supervisor-subordinate matched responses.

Sample was randomly selected from 740 employees working in 93 bank branches in the district. After looking for missing values, 261 supervisor-subordinate matched responses were considered for data analysis. This sample represents 75 (29%) female and 186 (71%) male. The mean experience and age of subordinates were, 5.5 and 24 years, respectively.

Measures

This study used the survey instruments from existing research. As the respondents were sufficiently qualified to understand English, the questionnaires were composed in English. [Table 1](#) shows the values of Cronbach's alpha and other reliability indicators for all the constructs.

High-performance Work Systems (HPWS)

HPWS was measured by estimating employees' self-ratings of their organization's extent in using the following work practices: selection, conflict resolution, performance measurement, rewards, meetings ([Gittell et al., 2010](#)), teamwork ([Agarwal & Farndale, 2017](#); [Haider, De-Pablos, et al., 2020](#); [O'Donovan & McAuliffe, 2020](#)), job design ([Hans & Gupta, 2018](#)), training and development ([Huang et al., 2018](#); [Wang et al., 2022](#)), promotion opportunities ([Wang et al., 2014](#)), and information/knowledge sharing ([Carmeli & Gittell, 2009](#)). The questionnaire contained one item for each work practice. Respondents were asked one question about the use of each practice by their organization. A sample item is "To what extent does your organization use an appropriate system of employee selection?. A five-point Likert scale was used where 1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *often*, and 5 = *always*.

Psychological Safety

Psychological safety was measured by estimating employee self-ratings for [Edmondson's \(1999\)](#) seven-item scale. A sample item is "If you make a mistake during work, it is often held against you". A five point scale was used where 1 = *very inaccurate*, 2 = *moderately inaccurate*, 3 = *neither inaccurate nor accurate*, 4 = *moderately accurate*, and 5 = *very accurate*.

Supportive Leadership

Subordinates rated their supervisor's supportive leadership style through a three-item scale used in [Rafferty and Griffin's](#)

(2004). A sample item is "My supervisor considers my personal feelings before acting." This questionnaire used a five point Likert scale with 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, and 5 = *strongly agree*.

Voice Behavior

Voice behavior was measured by obtaining supervisors' rating on a six- item scale by [Van Dyne and LePine's \(1998\)](#). A sample item is "This subordinate develops and makes recommendations concerning issues that affect this organization". A five point Likert scale was used where 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, and 5 = *strongly agree*.

Control Variables

Previous research indicates that employees' age ([Artistic et al., 2003](#)), sex ([Wang et al., 2016](#)), and job tenure ([Takeuchi et al., 2012](#)) affect their voice behavior. Therefore, this study controlled for the effects of age (in years) these variables both in the mediation and moderated mediation models. The respondents' age and job tenure were measured in years, and a categorical variable (0 = male, 1 = female) was used to measure the sex.

Analytical Approach

Data were analyzed by using partial least squares structural equation modeling (PLS-SEM) in SmartPLS 3.2.7 software. PLS-SEM "is a component based procedure of estimation with iterative algorithms of least squares regressions" ([Haider, Fatima, et al., 2020](#), p. 6). PLS-SEM is a preferred estimation technique as it exempts data normality assumption, manages small sample size, and minimizes measurement errors and biases in data ([Hair et al., 2021](#)). The PLS-algorithm validates data in measurement model, and bootstrapping procedures test the statistical inferences in structural model.

Results

Evaluation of Measurement Model

The rules of thumb for evaluating a reflective measurement model suggest testing internal consistency reliability, convergent validity, and discriminant validity. Internal consistency reliability is analyzed "based on item correlations" ([Hair et al., 2014](#), p. 45). This reliability is established when the values of Cronbach's alpha (α) and composite reliability (CR) are equal to or higher than .70. However, the CR values "above .90 (and definitely > .95) are not desirable because they indicate that all the indicator variables are measuring the same phenomenon and are therefore unlikely to be a valid measure of the construct" ([Hair et al., 2014](#), p. 102). [Table 1](#) indicates that the α and CR values are at a desirable level.

Convergent validity is "the extent to which a measure correlates positively with alternative measures of the same construct" ([Hair et al., 2014](#), p. 102). This validity is established when the values of factor loadings and average variance extracted (AVE) are greater than or equal to .708 and .50, respectively. The PLS-SEM rules suggest "Indicators with very low outer loadings (below .40) should always be eliminated from the scale" ([Hair et al., 2014](#), p. 103). Therefore, one item from the psychological safety construct (PS7 with factor loading .32) and another from voice behavior (VB2 with factor loading .29) construct were removed due to their factor loadings less than .40. Insights from [Jarvis et al. \(2003\)](#) suggest "Dropping an indicator from the [reflective] measurement model does not alter the meaning of the construct" (p. 201). As shown in [Table 1](#), factor loadings of some

indicators were slightly lower than .708, which are acceptable (Hair et al., 2014). Overall, the factor loadings and AVE values in Table 1 indicate that convergent validity has been established in our data.

Table 1. Scale indicators, Cronbach's Alpha, Composite Reliability, and AVE

Scale	Indicators	λ	α	CR	AVE
High performance work system (HPWS)	HPWS1	.687	.898	.915	.519
	HPWS2	.722			
	HPWS3	.685			
	HPWS4	.789			
	HPWS5	.727			
	HPWS6	.678			
	HPWS7	.736			
	HPWS8	.747			
	HPWS9	.754			
	HPWS10	.674			
Supportive leadership (SL)	SL1	.907	.784	.860	.673
	SL2	.801			
	SL3	.745			
Psychological safety (PS)	PS1	.740	.880	.910	.627
	PS2	.788			
	PS3	.848			
	PS4	.841			
	PS5	.794			
	PS6	.733			
Voice behavior (VB)	VB1	.76	.765	.837	.507
	VB3	.76			
	VB4	.67			
	VB5	.68			
	VB6	.70			

Note. λ = outer loadings; α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted; VB = voice behavior; HPWS = high performance work systems; PS = psychological safety; SL = supportive leadership.

Discriminant validity verifies that “a construct is truly distinct from other constructs” in a model (Hair et al., 2014, p. 104). This validity is established by cross loading of items, Fornell and Larcker's (1981) criterion, and heterotrait-monotrait ratio of correlations (HTMT). This study used the HTMT as it is considered a more sensitive criterion for establishing discriminant validity among a study's constructs (Henseler et al. (2015). HTMT “is the average of the heterotrait-heteromethod correlations (i.e., the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-heteromethod correlations (i.e., the correlations of indicators within the same construct)” (Henseler et al., 2015, p. 121). The value of HTMT between two latent constructs should less than .85 (Haider et al., 2018; Henseler et al., 2015). Table 2 shows the presence of discriminant validity because all the values are less than .85.

Table 2. Hetrotrail-Monotrait Ratio (HTMT)

	HPWS	PS	SL	VB
HPWS				
PS	0.353			
SL	0.092	0.224		
VB	0.254	0.277	0.157	

Note. VB = voice behavior; HPWS = high performance work systems; PS = psychological safety; SL = supportive leadership.

Evaluation of Structural Model

Evaluation of structural model mainly involves examining the hypothesized relationships in a research model. However, “the path coefficients might be biased if the estimation involves significant

levels of collinearity among the predictor constructs” (Hair et al., 2014, p. 168). The collinearity issue arises when two or more constructs highly correlate with each other. Existing literature recommends testing a path model for collinearity issues before hypotheses testing (Hair et al., 2014). The variance inflation factor (VIF) is often used for testing collinearity among each set of predictor variable in a model. For each set of predictor variables, a VIF value less than five stipulates the absence of collinearity issue. The VIF values in Table 3 indicate that this study's data have no collinearity issues.

Table 3. Collinearity Assessment (Inner VIF Values)

	VB	HPWS	PS	SL
VB				
HPWS	1.126		1.007	
PS	1.126			
SL			1.004	

Note. VB = voice behavior; HPWS = high performance work systems; PS = psychological safety; SL = supportive leadership.

Hypotheses Testing

Mediation Test (Hypothesis 1)

Mediation was tested in two-steps explained by Zhao et al. (2010), Nitzl et al. (2016), and Hair et al. (2021). The first step examines the indirect effect of predictor on criterion through mediator. The significance of indirect effect indicates mediation in an indirect path model. The second step involves testing direct effect of predictor on criterion. A significant indirect effect but a nonsignificant direct effect indicate that the “mediator fully complies with the hypothesized theoretical framework” (Hair et al., 2017, p. 234).

The significance of abovementioned effects was tested by using bootstrapping with 10,000 subsamples under bias-corrected bootstrap confidence interval method. The indirect effect was examined in light of Preacher et al. (2007), who suggested multiplying “coefficients of paths from independent variable to mediator and from mediator to dependent variable” (Sarwar et al., 2023, p. 657). The estimated mediation model in Figure 2 shows that the magnitude of indirect effect is .065 = (.350 * .186). Bootstrapping results indicate that the indirect effect of HPWS on voice behavior through psychological safety is significant ($\beta = .065, t\text{-values} = 2.227, p < .05$). The direct effect of HPWS on voice behavior is also significant ($\beta = .177, t\text{-values} = 2.302, p < 0.05$).

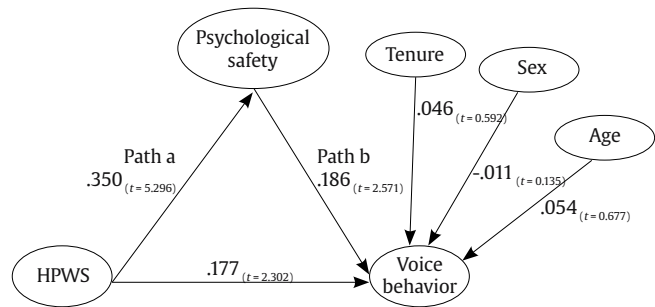


Figure 2. Estimated PLS Path Model for Mediation. HPWS = high performance work systems.

Moderated-mediation Test (Hypothesis 2)

This hypothesis was tested in light of Hayes' (2015) first stage moderated-mediation model where the predictor-mediator relationship is moderated by a third variable. In such models, “a

formal test of moderated-mediation based on a quantification of the relationship between the proposed moderator and the size of the indirect effect is required to determine whether the indirect effect depends on the moderator” (Hayes, 2015, p. 9). It suggests that rather than testing moderation of predictor-mediator relationship, the indirect effect from predictor to mediator to criterion should be moderated (Shakoor et al., 2023). However, testing the significance of moderating effect on the predictor-mediator relationship is a tradition among researchers (Haider, Fatima, et al., 2020). Therefore, we also tested the moderating effect of supportive leadership on the relationship between HPWS and psychological safety. The significance of this effect was tested by using bias-corrected bootstrap confidence interval method in a bootstrapping with 10,000 subsamples. Figure 3 shows that supportive leadership significantly moderates the relationship between HPWS and psychological safety ($\beta = .258$, t -values = 5.271, $p < .01$). It supports our Hypothesis 2A.

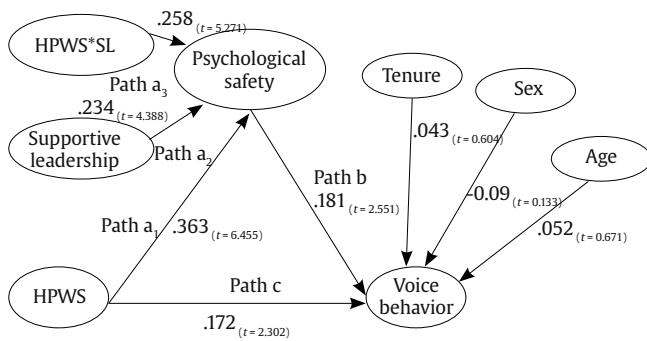


Figure 3. Estimated Moderated-Mediation Model. HPWS = high performance work systems; SL = supportive leadership.

A slight change in the path coefficients of moderated mediation model in relation to these paths in the mediation model may be due to the addition of interaction term in the moderated mediation model (Friedrich, 1982).

Figure 4 shows the chart for the abovementioned moderating effect at low and high levels of support from leadership (± 1 standard deviation). The central (blue) line represents supportive leadership at mean, which indicates zero effect of supportive leadership on the relationship between HPWS and psychological safety. The upper (green) line, when compared with the central line, indicates one standard deviation point increase (+1 SD) in supportive leadership, which means that an increase in leadership support is related to a greater psychological safety resulting from HPWS. The lower (red) line, when compared with the central line, indicates one standard deviation decrease (-1 SD) in support from leadership, which means that psychological safety increases at a lower rate for the same increase in HPWS when leadership support is low.

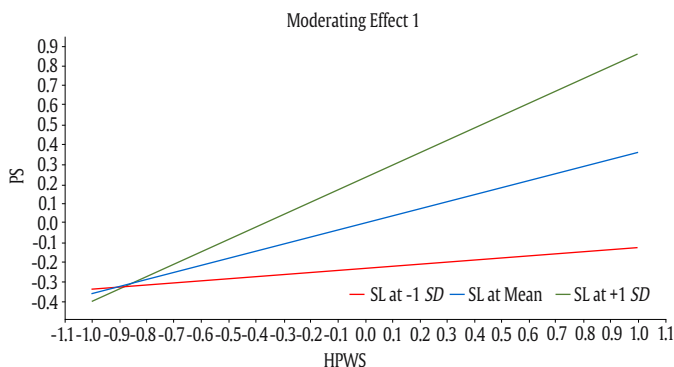


Figure 4. Interaction Chart for High and Low (± 1 standard deviation) Levels of Supportive Leadership.

The abovementioned moderating effect “does not quantify the relationship between the moderator and the indirect effect” (Hayes, 2015, p. 9). An examination of moderated mediation requires testing moderation of the whole mediation process. In a first stage moderated mediation (see Figure 3), the indirect effect of predictor (HPWS) on outcome variable (voice behavior) through mediator (psychological safety) is the product of conditional effect (HPWS * supportive leadership) on mediator (path a_3) and the effect of mediator on the outcome variable (path b), after controlling the effect of independent variable (Hayes, 2015). The estimated moderated mediation model in Figure 3 shows that the abovementioned indirect effect is significant ($\beta = .258 * .181 = .047$, t -value = 2.15, $p < .05$). This effect (i.e., .047), is Hayes’ (2015) index of moderated mediation. According to Hayes (2015, p. 3), “the index of moderated mediation is a direct quantification of the linear association between the indirect effect and the putative moderator of that effect.” In the context of this study, Hayes’ (2015) linear function of moderated mediation is shown in Equation (1), where a, b is intercept (the indirect effect of predictor on criterion through mediator), a_3b is slope (the indirect effect of interaction term on criterion through mediator), and SL is supportive leadership. The slope (a_3b), in fact, is the index of moderated mediation (Hayes, 2015).

$$\omega = a_1b + a_3bSL \tag{1}$$

The path coefficients in Figure 3 indicate that the values of intercept and slope are .066 (calculated as $.363 * .181 = .066$) and .047 (calculated as $.258 * .181 = .047$), respectively. Hayes (2015) suggests that a non-zero value of the abovementioned index indicates moderated mediation in a model, and requires no “evidence of statistically significant interaction between any variable in the model and a putative moderator” (p. 3). In this study, the index of moderated mediation (i.e., a_3b) is nonzero. This nonzero effect indicates that the indirect effect of HPWS on voice behavior through psychological safety depends on supportive leadership. In other words, the abovementioned indirect effect is systematically smaller or larger for different values of supportive leadership.

Figure 5 is the graphical representation of linear function in Equation (1). This graph was obtained by using moderator’s arbitrary values (-5 to 5) in Equation (1). The positively sloped line is the index of moderated mediation, which indicates that an increase in leadership support enhances the indirect effect of HPWS on voice behavior through psychological safety.

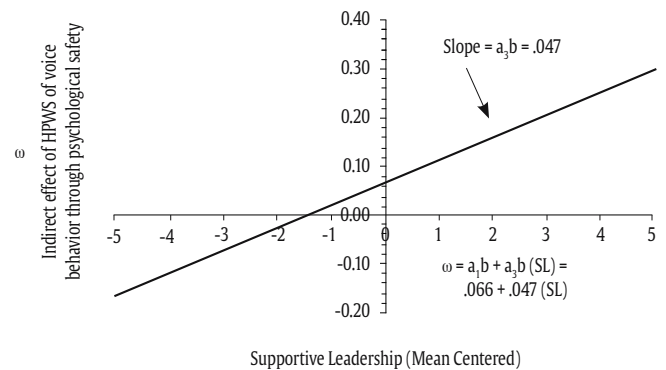


Figure 5. Graphical Representation of Equation (1) at Different Values of Supportive Leadership.

Discussion

This study sought to advance knowledge in understanding the process through which the relationship between HPWS and voice behavior is explained. Specifically, we looked for advancing

research on mediation and moderated mediation phenomena in the abovementioned relationship. This study drew upon the social exchange and self-determination theories to establish that HPWS are likely to develop employee perceptions of psychological safety and, subsequently, the voice behavior (Hypothesis 1). In addition to the abovementioned theories, the social learning theory (Bandura & Walters, 1977) and the law of interaction in contingency theory (Drazin & Van de Ven, 1985) guided that supportive leadership moderates the relationship between HPWS and psychological safety (Hypothesis 2A), and provides boundary conditions for the indirect relationship between HPWS and voice behavior through psychological safety (Hypothesis 2B). The PLS-SEM results support this study's hypotheses.

The results of mediation hypothesis indicate that HPWS significantly affect voice behavior directly and indirectly through psychological safety. The significance of both effects (direct and indirect) indicates a situation of complementary partial mediation when the product of these effects is in the same direction (Hair Hult et al., 2021), which is the case in our study. In light of Hair et al. (2021), the results provide support for our hypothesized mediating effect (Hypothesis 1). However, this situation of complementary mediation "provides a cue that another mediator may have been omitted whose indirect path has the same direction as the direct effect" (Hair et al., 2021, p. 235). This statement is consistent with Rucker et al. (2011). Based on these authors, this study affirms that psychological safety mediates the relationship between HPWS and voice behavior, and there are other possible mediators in this relationship.

The mediation results are consistent with Zhang, Akhtar, et al. (2019). These authors found that "the indirect effect of HCWS [high commitment work systems] utilization on voice sequentially through employee-experienced HCWS and psychological safety was significant and positive" (p. 819). This consistency of results is in a sense that HR practices enhance employee voice through psychological safety. Nonetheless, we surmise that our findings are not just a replication of their work because we measured employee perceptions of HPWS rather than HCWS. Moreover, we used HPWS as a predictor of voice through psychological safety rather than a variable in a mediation sequence. Mowbray et al. (2021) theorized ability, motivation, and opportunity (AMO) framework as a mediator between HPWS and employee voice. Their conceptual framework was more focused on AMO enhancing HR practices rather than psychological mechanisms that explain the relationship between HPWS and voice. Moreover, they did not test their theoretical framework.

Our results, however, contradict Zhang et al. (2023), who found a negative indirect effect of performance-oriented HR systems on voice through emotional exhaustion. The indirect effect in their study was negative because they theorized and found a positive link between performance-oriented HR systems and emotional exhaustion. Previously, Zhang et al. (2013) found a positive but insignificant effect of HPWS on emotional exhaustion. The resource depleting effect of performance-oriented HR systems, as theorized in Zhang et al. (2023), contradicts Villajos et al. (2019), who found a strong relationship between performance-enhancing HR practices and job-related wellbeing. Though the mainstream HPWS literature provides evidence on its positive outcomes, the examination of negative outcomes of HPWS is gaining pace, and requires more investigation into the outcomes of this variable (Choudhary & Kunte, 2023).

The moderated mediation results indicate that supportive leadership moderates not only the relationship between HPWS and psychological safety but also the abovementioned indirect effect. The positive slope of Hayes' index of moderated mediation indicates that leadership support enhances voice behavior by strengthening the effect of HPWS on psychological safety. This result is consistent with the notion of supplementary fit between leadership and HR practices, which suggests that aligning leadership and HR practices generates positive employee outcomes (Leroy et al., 2018). Neves et

al. (2018) also provided similar findings where the indirect effect of commitment-based HR practices on intentions to resist future change through affective commitment to change was moderated by ethical leadership. Similarly Ali Ababneh et al. (2021) found that "interactions between transformational leadership behaviors and green HRM [human resource management] practices can foster employee engagement with environmental initiatives" (p. 390). However, our findings are not consistent with Hauff et al. (2022), who found that "the interaction effects between HPWP and supportive leadership were always negative" (p. 19). These contradictory findings endorse S. Zhao et al's (2023) point of view that the process of interaction between HR practices and leadership is complicated as it entails many relationships.

This study's contribution to existing literature, with respect to previous research on the relationship between HPWS and voice behavior, is quite obvious as it examined a mediating phenomenon different from previously studied mediators such as organizational engagement climate (Badru et al., 2022), AMO [ability, motivation, and opportunity] (Mowbray et al., 2021), and insider status (Liu et al., 2022). Furthermore, in relation to previous research, this study examined the moderating effect of supportive leadership on the mediation process between HPWS and voice behavior. It is important because previous research lacks evidence on the moderated mediation phenomena between HPWS and voice behavior.

Specifically, this study's contribution to existing literature is threefold. First, it provides theoretical reasoning for each high performance work practice's effect on psychological safety and subsequent effect on voice behavior. In human resource management literature, "one of the highly debated issues is to understand the mediating processes that explain why HPWS affect employee and organizational outcomes" (Haider, De-Pablos, et al., 2020, p. 11). However, literature lacks empirical studies in this regard. This study contributes to this debate by extending limited research on mediating mechanisms between HPWS and voice behavior. In this way, this study contributes to the social exchange theory by explaining the process of positive social exchanges in organization. Moreover, this study informs the self-determination theory about a need supporting phenomenon (i.e., HPWS) that promotes employee wellness (i.e., voice behavior) by fulfilling their need for psychological safety.

Second, this study draws researchers' attention toward elaborating theories by including additional contingency variables in a relationship explained by these theories. HPWS and leadership styles are rarely comparable across studies. Different types of HR practices and leadership styles may have different effects on social exchanges and reciprocity in organizations. It is because contingency changes may disrupt or improve social exchanges (Molm, 1990). This study provides a set of high performance work practices that when interact with supportive leadership develop positive social exchanges, which make employees feel psychologically safe. It may not be true in case of the interaction of a different set of HR practices and a different leadership style.

Finally, this study extends research on HR practices by integrating HPWS and supportive leadership to enhance our understanding of the mechanisms that explain the relationship between HPWS and employee voice. Specifically, it contributes to HR and organizational psychology literature by examining the boundary effect of supportive leadership on the indirect effect of HPWS on voice behavior through psychological safety. It is important to understand whether an indirect effect "exists or not, or is strong versus weak, or positive versus negative" (Hayes, 2018, p. 4). Organizational contingencies not only disrupt or improve social exchanges but also affect the way basic psychological needs are fulfilled (Deci et al., 2017). Boundary conditions such as level of leadership support affect the process through which social exchanges and basic psychological needs fulfillment explain the effect of organizational phenomena (i.e., HPWS) on employee outcomes (i.e., psychological safety and subsequent

effect on voice behavior). This facet of our study describes the limits of generalizability and ‘who, where, when’ aspects of social exchange and self-determination theories.

Given that voice behavior is vital for employee and organizational performance (Ashiru et al., 2022), this study offers important implications for practice. It suggests organizations to provide a psychologically safe environment to their employees if they want them to reveal voice behavior. In this regard, this study presents some actionable ways of reinforcing employee voice by underscoring the importance of HPWS and their considerable advantage in the presence of leadership support. It implies that organizations must provide supportive leaders to their employees if they want greater benefits from implementing HPWS. The findings of this study make us surmise that organizations can relish the advantage of employee voice (occurring from their psychological safety) by implementing HPWS. However, HPWS will be more effective if organizations can hire or train supportive leaders.

Though the contributions of this study are obvious, it has some limitations too. First, data collection from banking sector may limit the external validity of empirical results. However, future studies may conduct surveys in different organizational settings to extend this research. Our claim that supportive leadership affects employee voice by strengthening the effect of HPWS on psychological safety will be stronger if future researchers endorse the findings of this study. The scope of this study can be increased through replication-extension studies that may offer “a more precise estimate of some effect size measure”, widen “the generalizability of statistical results”, and “may advance non-statistical argument to generalize findings from larger populations of interest” (Bonett, 2012, p. 409). Second, though data were collected in two waves, estimations were made in cross-sectional rather than in autoregressive longitudinal models. It is less suitable for testing causal effects and generalizing research findings in mediation and moderated mediation models. Future researchers may use longitudinal design as it tests true causal relationships and provides greater generalizability of results in relation to cross-sectional designs (Moscoso & Salgado, 2022). Experimental designs can also be used to draw true causal relationships. Finally, this study did not consider other possible elucidation that may emerge from our research model. For example, individuals with higher sense of psychological safety may perceive their organizations supportive in terms of leadership and HPWS.

Regardless of its limitations, this research considerably contributes to existing literature by examining the ‘who, where, when’ aspects of the effect of HPWS on voice behavior. Specifically, it explained how supportive leadership strengthens the effect of HPWS on psychological safety, and subsequently reinforces voice behavior.

Conflict of Interest

The authors of this article declare no conflict of interest.

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