The Effect of High-Performance Work System on Innovative Behavior: A Review of Mediating and Moderating Variables

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ABSTRACT

This study aimed to test the relationship model of employee experience in a high-performance work system (HPWS) on innovative work behavior (IWB) mediated by social capital (soc-cap) and psychological capital (psy-cap) and moderated by the need for cognition (NFC). The study was conducted at professional service organizations in major cities in Indonesia and data were collected using a questionnaire, including a total of 712 respondents. Factor analysis and internal consistency were used to test the validity and reliability of the questionnaire. The results of the correlation test showed a positive and significant relationship between variables. Furthermore, the relationship model test using structural equation modeling (SEM) with a two-step method showed that soc-cap and psy-cap mediated the influence of employee HPWS experience on IWB. This study also found that NFC moderated the relationship model. Professional service needs to develop HPWS to enhance IWB through soc-cap and psy-cap for employee with high NFC.

Keywords: *HPWS, Innovative behavior, Need for cognition, Psychological capital, Social capital.*

1. INTRODUCTION

HPWS is a comprehensive and integrated concept in human resource management applied from recruitment, selection and job placement, training and development, evaluation, reward, participation, work engagement and participation, and other employee management practices (Escribá-Carda, Balbastre-Benavent, & Canet-Giner, 2017; Kareem & Shahzad, 2022). According to Han, Sun, and Wang (2020). HPWS is an integrated system of management practices, processes, and structures that improves employee knowledge, skills, attitudes, motivation, and flexibility. Employee management practices play an important role in improving attitudes and behavior, improving performance, and reducing turnover rates (Liu & Xie, 2020). However, HPWS requires effort and hard work from employee and leader (Kloutsiniotis & Mihail, 2020) and is needed in organizational development (Escribá-Carda et al., 2017). The self-concept-based theory explains that employee who experiences HPWS tends to exhibit high performance, increased job satisfaction, and internalize co-worker assessments, thereby shaping work-related self-concept (Chan & Chu, 2024).

HPWS creates productive working conditions that increase engagement (Huang, Ma, & Meng, 2018; Karadas & Karatepe, 2019). This concept also promotes hard and smart work from employee to ensure increased performance in the organization. The effect of HPWS on performance was analyzed using social exchange theory (SET) and the norm of reciprocity theory (NRT) (Kloutsiniotis & Mihail, 2020). HPWS will make an employee feel close and attached to the organization, thereby increasing positive results. Previous studies have proven how HPWS affects employee attitudes and behaviors (Jiang & Messersmith, 2018; Kloutsiniotis & Mihail, 2020; Peccei & Van De Voorde, 2019). Synergy in HPWS can have a positive effect on work attitudes and behaviors, thereby improving organization performance (Miao, Bozionelos, Zhou, & Newman, 2021; Muduli & McLean, 2021).

Despite all the advantages, HPWS can have a negative impact on the organization, specifically from the aspect of employee. The lack of preparation of a quality management system can result in counterproductive behavior, conflict, absenteeism, work stress of employee, and even productivity (Escribá-Carda, Canet-Giner, & Balbastre-Benavent, 2023). Based on the job-demand resource model (J-DR model), organizations need to balance the demands and resources of the organization (Kloutsiniotis & Mihail, 2020). Employee development is not only

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needed to improve capabilities but must support improved organization performance (Liu & Xie, 2020). HPWS is a form of job demand that causes fatigue, work stress, conflict, and decreased employee job satisfaction, even employee death (Gonzalez-Mulé & Cockburn, 2017; Mozaffarian et al., 2015). Therefore, there is a need for a balance between the demands and resources of organizations and employee.

HPWS will run as expected when there is harmony between ability, motivation, and opportunity (Zheng, Liu, & Zhou, 2020). Policies and practices in the organization should focus on realizing HPWS, such as job design, work environment, performance appraisal, and recognition or rewards (Wang, Ren, & Meng, 2022). In addition, organizations must pay attention to employee capabilities, work quality, and motivation. The misalignment of HPWS with employee conditions has a negative impact on employee, including fatigue, stress, well-being, and imbalance between employee work and family life (Han et al., 2020). HPWS is at the organizational and individual levels (Jo, Aryee, Hsiung, & Guest, 2020; Zhou, Zheng, Liu, & Zhang, 2024). At the organizational level, HPWS has a positive value for improving organizational performance. Meanwhile, at the individual level, the concept improves performance while increasing stress and the desire to resign when there is no balance. A previous study reported that employees' assessments of HPWS practices had a greater impact on individual than management performance (Kim, Kwon, & Jung, 2023).

Based on these two poles of view, more studies on the effect of HPWS on performance are required with mediating variables. The results of a study conducted by Javed, Khan, Michalk, Khan, and Kamran (2023) showed that increasing HPWS through human (hu-cap), social (soc-cap), and organization capital (org-cap) can improve performance. In addition, various variables mediate the relationship between the two views (Jyoti & Rani, 2017). In other words, the influence of HPWS on IWB is indeed not direct. Based on signaling theory, positive employee attitudes towards HPWS will increase performance (Elrehail et al., 2026). HPWS can increase positive employee attitudes in the form of optimism in working as well as persistence and resilience in facing difficult conditions (Chen, Lin, & Wu, 2016). Employee optimism and resilience can improve work performance or achievement. Based on SET and resource-based view (RBV) theory, HPWS increases soc-cap because positive organization treatment is reciprocated with positive treatment between employee (Ali, Freeman, Shen, Xiong, & Chudhery, 2024). Soc-cap also increases trust among employee, thereby improving performance (Arshad, Hassan, & Azam, 2024).

HPWS is often associated with employee performance assessments. Based on the transactional theory of stress, the response of individuals to HPWS positively or negatively impacts the contribution to employee and organization performance (Liu & Xie, 2020). Employees' willingness to engage in challenging activities, obtain information, and participate in problem-solving (Need for Cognition, NFC) influences the implementation of HPWS (Wang et al., 2022). This study uses NFC to moderate the influence of HPWS on employee performance, namely IWB.

Previous studies have shown that HPWS influenced innovative behavior, specifically in manufacturing organizations (Kloutsiniotis & Mihail, 2020). However, this influence was carried out by developing hu-cap and soc-cap (Fu, Flood, Bosak, Morris, & O'Regan, 2015). Several studies on human resource management practices and innovative behavior have been conducted in both private and government organizations (Escribá-Carda et al., 2023). HPWS can motivate employee both intrinsically and extrinsically (Fullwood, Rowley, & McLean, 2019). This concept can also help the learning process by sharing knowledge through soc-cap and psy-cap (Han et al., 2020; Zheng et al., 2020). Therefore, this study aimed to examine the effect of HPWS in professional service firms on employee's IWB, which was serially mediated by soc-cap and psy-cap and moderated by NFC. The results are expected to strengthen the RBV that employee is the main resource of the organization, as well as the SET and J-DR models. These models suggested that positive treatment from the organization was reciprocated with good attitudes and performance from employee, showing the importance of achieving a balance between demands and resources.

2. THEORETICAL STUDIES AND HYPOTHESIS DEVELOPMENT

Human resources constitute the most valuable key resources in an organization due to the inimitable nature. Strategic and systematic management is absolutely necessary for employee to become a competitive advantage for the organization (Kareem & Shahzad, 2022). The influence of employee management practices on organization performance has been widely studied (Chen et al., 2021). HPWS is a comprehensive employee management concept with high participation and commitment starting from recruitment, selection, placement, training,

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evaluation, rewarding, work engagement, and various other practices to develop a balance between work and life (Barrick, Thurgood, Smith, & Courtright, 2015). Furthermore, HPWS combines practices, structures, and work processes in employee management that can optimize skills, commitment, motivation, and performance (Kloutsiniotis & Mihail, 2020). This system is designed by organizations to recognize the existence of employee which will then be reciprocated by positive work attitudes and behaviors.

HPWS is a quality employee management system, that has a positive impact on the organization. Several studies have tested the effect of HPWS on improving performance (Kaushik & Mukherjee, 2022; Shin, Jeong, & Bae, 2018; Weller, Süß, Evanschitzky, & von Wangenheim, 2020). Özçelik, Aybas, and Uyargil (2016) also found that HPWS affects performance. Various performance metrics are used to evaluate employee contributions, including both in-role and extra-role activities. In addition, HPWS can improve organizational performance (Kareem & Shahzad, 2022; Park, Ok, & Ryu, 2023; Shin & Konrad, 2017). This concept generally promotes the desire of employee to innovate (Escribá-Carda et al., 2023). IWB refers to the ability or creativity to generate new ideas through the development of certain knowledge and behaviors in workplace (Escribá-Carda et al., 2023). According to reports from previous stories, there is a relationship between HPWS and IWB (Costantini et al., 2017; Easa & Orra, 2021; Shahzad, Arenius, Muller, Rasheed, & Bajwa, 2019).

Based on the job-demand resource model (J-DR model), organizations need to ensure a balance between demands and organizational resources (Kloutsiniotis & Mihail, 2020). Employee development is essential not only for enhancing individual capabilities but also for driving organizational performance improvement (Liu & Xie, 2020). HPWS is a form of job demand that can have an impact on fatigue, work stress, conflict, and decreased employee job satisfaction, even employee death (Gonzalez-Mulé & Cockburn, 2017). This requires a balance between the demands and resources of the organization and employee.

The pluralist opinion states that an employee must have abilities, interests, goals, and capacities that cannot be equated to one team (Han et al., 2020). HPWS based on teamwork will not be successful when using an individual performance appraisal system (Sun & Mamman, 2022). Furthermore, organizations must have goals and targets that exceed the goals and targets of employee. To effectively implement this concept, organizations must consider equalizing demands by providing education and training, thereby leveraging HPWS as both a resource and a potential demand for corporate sustainability.

The theory underlying HPWS is the RBV theory regarding the framework of ability, opportunity, and motivation related to hu-cap. RBV influences strategic human resource management and provides a competitive advantage (Özçelik et al., 2016). The HPWS concept shows valuable employee, management, and independent control of those who are oriented towards improvement and enhancement. HPWS is a very valuable organization resource to be wasted. On the other hand, HPWS becomes a threat or demand for employee who are not well prepared as valuable and inimitable resources.

The results of a study conducted by Park et al. (2023) showed that the two sides of HPWS have a positive impact on employee performance. Meanwhile, Wang et al. (2022) found two different perceptions of HPWS. In a scenario where HPWS is perceived as a challenge, then system will have a positive effect on employee performance. However, when it is perceived as an obstacle, HPWS will have a negative impact on employee experience in workplace. According to Ding and Liu (2022) there are three components of HPWS, namely career growth, career calling, and inclusive leadership. Career growth includes organizational resources to improve employee abilities, skills, and knowledge in work. Career calling increases the meaning, passion, and mission of work. Inclusive leadership contributes to employee by accepting the opinions and views. The results of the study found that HPWS was related to organization support (Kim et al., 2023). Based on RBV and hu-cap theory, HPWS can increase organization competitive advantage (Kehoe & Collins, 2017; Kim et al., 2023) and performance (Zhu, Gao, & Chen, 2022).

Many studies have found that HPWS increases the success of organizational innovation (Eniola et al., 2023; Shahzad et al., 2019). Furthermore, HPWS has effect on the IWB OF employee (Ding & Liu, 2022; Escribá-Carda et al., 2023; Kim et al., 2023). Innovation capability is a way to gain organization flexibility in response to environmental changes and achieve competitive advantage (Hou, Hong, Zhu, & Zhou, 2019; Lei, Gui, & Le, 2021; Liu, Simonyan, & Yang, 2018). IWB is the use and application of new working methods to improve individual and organization performance (Kim et al., 2023). According to Zhu et al. (2022). WB occurs when individuals are given

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autonomy and work flexibility. Autonomy and flexibility increase interaction, trust, and social relationships between employee (Donate, Ruiz-Monterrubio, Sanchez de Pablo, & Peña, 2020; Wang, Lyu, & Cheng, 2023).

Employee conditions and interpersonal relationships act as mediators of the two variables (Javed et al., 2023). In other words, HPWS can increase employee hu-cap, intellectual capital (int-cap), psy-cap, and soc-cap. HPWS is positively related and can easily develop int-cap (Donate, Peña, & Sánchez de Pablo, 2016). According to previous studies, int-cap, which includes hu-cap, soc-cap, and org-cap, can increase innovation capabilities (Sokolov & Zavyalova, 2021; Zotoo, Lu, & Liu, 2021). The three dimensions of int-cap are correlated and can improve skills and work relationships (Shipton, Sparrow, Budhwar, & Brown, 2017). Int-cap also mediates the influence of HPWS on innovation ability (Donate et al., 2016; Javed et al., 2023; Kianto, Sáenz, & Aramburu, 2017). The result of previous studies also showed that int-cap can improve the innovation ability of employee (Asiaei & Bontis, 2020; Delgado-Verde, Martín-de Castro, & Amores-Salvadó, 2016; Lowik, Kraaijenbrink, & Groen, 2017; Ni, Cheng, & Huang, 2021; Ramsey, Aad, Jiang, Barakat, & Drummond, 2001).

Based on SET, when employee perceive HPWS positively, there will be a positive exchange with the organization (Kim et al., 2023). This is what will motivate employee to behave positively and benefit the organization. Employee participation in HPWS promotes creativity and innovative ideas for the advancement of the organization. Based on RBV, social exchange between employee in an organization can improve performance (Ali et al., 2024). Active participation and togetherness are resources that drive employee creativity (Shin & Konrad, 2017). Several studies have reported that the influence of HPWS on employee performance is not direct, but is mediated by other variables, such as engagement, job satisfaction, and perceived organizational support (Li, Naz, Khan, Kusi, & Murad, 2019).

Social Exchange Theory (SET) suggests that including employee in the HPWS system promotes work engagement, satisfaction, and feelings of organizational support (Bos-Nehles, Renkema, & Janssen, 2017). Based on SET, employee who feel the benefits of HPWS will respond with positive attitudes and behaviors, such as satisfaction (Han et al., 2020; Kehoe & Collins, 2017) engagement (Escribá-Carda et al., 2023; Stirpe, Profili, & Sammarra, 2022) justice (García-Chas, Neira-Fontela, & Castro-Casal, 2014) and motivation (Fullwood et al., 2019). In addition to improving performance, HPWS can also reduce the desire to resign due to job dissatisfaction, injustice in the organization, or lack of motivation (García-Chas et al., 2014). Soc-cap is a resource from relationships or networks between individuals or social groups (Javed et al., 2023). It is also the ability of an individual to facilitate cooperation and coordination (Agostini & Nosella, 2017).

Based on signaling theory, the implementation of HPWS provides a positive signal of how an employee is valued and included at work (Xi, Chen, & Zhao, 2021). With this engagement, employee strive to intellectually and emotionally interact positively with others. According to the affective events theory (AET), work environment, such as HPWS can improve employee performance through psy-cap, including optimism and resilience (Weiss & Cropanzano, 1996). This is also supported by RBV which proves the influence of psy-cap on performance and creativity, such as IWB (Grözinger, Wolff, Ruf, & Moog, 2022). Psy-cap is a positive psychological condition related to the process of individual growth and development (Liu & Xie, 2020). This psychological condition includes positive expectations, self-confidence, optimism, and resilience to difficult conditions (Tang et al., 2020). Positive experiences in HPWS have an impact on psy-cap, thereby improving performance (Shi, Van Veldhoven, Kooij, Van De Voorde, & Karanika-Murray, 2024).

Previous studies have shown that psy-cap mediates the influence of HPWS on employee performance and innovative ability (Abubakar, Foroutan, & Megdadi, 2019; Agarwal & Farndale, 2017; Emur, Mufidawati, Andryadi, Pusparini, & Rachmawati, 2023). SET explained that reciprocal interactions between employee and organizations facilitated cooperation, positive attitudes, and behaviors, as well as improved employee and organization performance (Oparaocha, 2016). This theory shows the relationship between HPWS that influences performance achievement through the social exchange process (Hoang, Luu, Du, & Nguyen, 2023; Mustafa, Badri, & Ramos, 2024; Tsamantouridis, Bellou, & Tsameti, 2023; Woods, Mustafa, Anderson, & Sayer, 2018). Based on these various explanations, the following hypotheses were formulated:

H_1: Employee experience in HPWS has a positive effect on IWB.

H_2: Soc-cap mediates the effect of employee experience in HPWS on IWB.

H_3: The optimism dimension of psy-cap mediates the effect of employee experience in HPWS on IWB.

H_4: The resilience dimension of psy-cap mediates the effect of employee experience in HPWS on IWB.

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Explaining the impact of HPWS on performance requires moderating variables. A well-implemented HPWS will promote employee's NFC by developing a supportive work environment. Conversely, individuals with high NFC will be more receptive to the system and motivated to perform and be creative in the workplace. HPWS and individual NFC have a reciprocal and multifaceted relationship. Individuals with high NFC always want additional knowledge and skills in doing the jobs (Pan, Shang, & Malika, 2021). Furthermore, NFC affects the knowledge transfer process in HPWS, thereby increasing innovation behavior (Wu, Parker, & De Jong, 2014).
H_5: NFC moderates the effect of HPWS on IWB mediated by soc-cap and psy-cap.

3. METHODS

3.1. Sampling and Procedures

This study was conducted using a survey of employee working in professional service organization, such as education, hospitals, banking, hotels, and tourism in major cities of Indonesia. The survey was conducted using an electronic questionnaire with a Google form distributed to employee domiciled in Jakarta and its surroundings, Bandung, Surabaya, Semarang, and Yogyakarta for 4 months. Respondents who collected and completed questionnaires were 712 people. After collection, the validity and reliability of the questionnaire were tested. Questionnaires that did not meet the valid and reliable requirements were not used in the next testing process. Validity and reliability tests were needed because the measurement indicators are reflective (Khan, 2022). Validity testing used factor analysis with a loading factor above 0.05, which was practically significant (Hair, Black, Babin, & Anderson, 2019). While the reliability test with internal consistency uses Cronbach's Alpha > 0.70 (Zikmund, Babin, Carr, & Griffin, 2013). Correlation testing was carried out between variables studied to ensure the testing of the relationship model. The mediation test of the relationship model was carried out using SEM with a two-step method. Meanwhile, the moderation test of the relationship model was carried out using multi-group SEM (Byrne, 2010).

3.2. Measurement

The questionnaire was adapted from the results of previous studies. The HPWS, soc-cap, and IWB questionnaires were adapted from the results of the study by Arshad et al. (2024). Meanwhile, the psy-cap questionnaire was adapted from Ephrem et al. (2021) and Luo, Tsai, Chen, and Gao (2021). The psy-cap questionnaire uses two dimensions, namely optimism and resilience. All question items were tested for validity and reliability. Construct validity was assessed through factor analysis, while reliability was evaluated using internal consistency with Cronbach's Alpha. All the ten HPWS question items were valid with a loading factor of 0.710 to 0.823, Kaiser-Meyer-Okin (KMO) of 0.948, and Bartlett's Test of Sphericity (BTS) was 2371.331 with a significance of 0.000. The items were found to be reliable with a Cronbach's Alpha (α) of 0.926, showing very good reliability. Similarly, all soc-cap question items were valid with loading factors of 0.631 to 0.818, KMO 0.939, BTS 2260.448, and sign. 0.000, and stated reliable with α = 0.915 which means very good reliability. NFC question items also showed good validity with loading factors of 0.674 to 0.849 KMO = 0.839, BTS = 922.210, and sign. 0.000. The items were found to be reliable with a Cronbach's Alpha (α) of 0.861, suggesting very good reliability. Meanwhile, from 19 psy-cap question items, there are 7 optimism and 10 resilience items that are valid with loading factors of 0.623 to 0.798, KMO = 0.950, BTS = 4110.850, and sign. 0.000. These items were declared reliable with α of 0.902 and 0.893, suggesting very good reliability for the optimism and resilience dimension. All IWB question items are declared valid with loading factors of 0.802 to 0.845, KMO = 0.926, BTS = 1779.338, sign. 0.000, and α = 0.921.

4. RESULTS

4.1. Preliminary Analysis

Before testing the relationship model, a preliminary analysis was carried out on the relationship between variables. Question items that have passed the validity and reliability tests are then used in the analysis. To further ensure validity and reliability, the composite reliability (CR) must be more than 0.70 (Hair et al., 2019). Table 1 shows the result of the descriptive analysis and correlation between variables.

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Table 1. Descriptive statistics and correlation between variables.

	μ	Std.dev	CR	HPWS	Soc-cap	Opt.	Resil.	IWB	NFC
HPWS	4.398	0.582	0.963	1.000					
Soc-cap	4.377	0.574	0.959	0.831**	1.000				
Opt.	4.348	0.636	0.952	0.744**	0.690**	1.000			
Resil.	4.371	0.546	0.952	0.708**	0.662**	0.746**	1.000		
IWB	4.324	0.625	0.961	0.763**	0.733**	0.759**	0.792**	1.000	
NFC	4.073	0.785	0.932	0.563**	0.584**	0.608**	0.646**	0.715**	1.000

Note: **p ≤ 0.001.
Source: Primary data processing results.

Table 1 shows that the average of the variables is high (μ > 3.66) and the standard deviation is greater than 0.50. This result shows that employee of professional service organizations in big cities in Java Island have a positive view of HPWS. The soc-cap, psy-cap (optimism and resilience), NFC, and IWB are also high. A standard deviation of more than 0.5 shows that respondents filled out the questionnaire independently. Furthermore, the CR of variables was included in the very good category. The correlation between variables was moderate and strong, as shown by 0.4 < r < 0.89 (Schober, Boer, & Schwarte, 2018).

4.2. Testing the Relationship Model

In this study, the effect of HPWS on innovative behavior mediated by soc-cap and psy-cap on the dimensions of optimism and resilience was examined. The relationship model was tested using SEM with a two-step method, as shown in Figure 1.

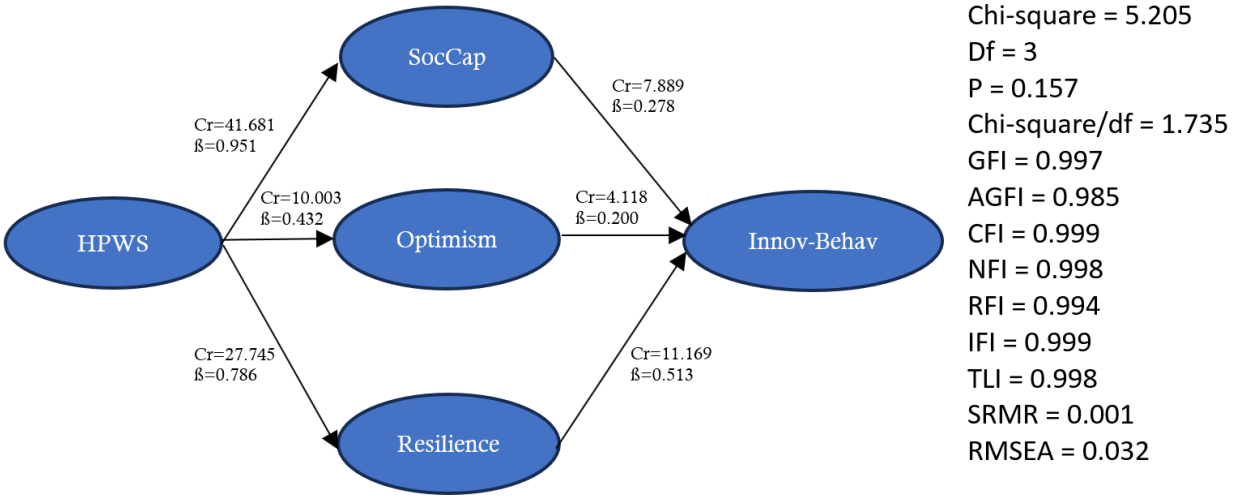

Figure 1. Results of testing the relationship model.
Source: Primary data processing results.

The results of the relationship model test found that soc-cap, optimism, and resilience mediate the effect of HPWS on IWB (H2, H3, H4 are supported). This is evidenced by the critical ratio value of each relationship being greater than 1.96 (Byrne, 2010). Meanwhile, HPWS does not have a direct effect on IWB (H1 is not supported). In other words, soc-cap and psy-cap fully mediate the influence of employee experiences in HPWS on employee's IWB. The results of the model test showed that the model fits the data as all the suitability criteria were met. Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Incremental Fit Index (IFI) were greater than 0.95. Meanwhile, the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) of less than 0.05 and 0.08, respectively, showed a good fit.

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A moderation test of the relationship model was carried out, with NFC being the moderating variables. The moderation test was carried out using multi-group SEM through unconstrained and constrained parameters. The next step was to compare the calculated and tabulated chi-square values. The moderation model is supported when the calculated is greater than the tabulated chi-square value. Tables 2, 3, and 4 show the results of the model moderation tests.

Table 2. Constrained parameters.

Path	Low NFC		High NFC	
	CR	ß	CR	ß
HPWS → Soc-Cap	39.051	0.808*	39.051	0.808*
HPWS → Optimism	7.874	0.299*	7.874	0.299*
HPWS → Resilience	24.578	0.671*	24.578	0.671*
Soc-Cap → IWB	6.394	0.240*	6.394	0.240*
Optimism → IWB	3.648	0.214*	3.648	0.214*
Resilience → IWB	9.647	0.508*	9.647	0.508*
Chi-square = 50.290 Df = 13 P = 0.000 Chi-square/df = 3.868				
GFI = 0.972 AGFI = 0.936 CFI = 0.986				
NFI = 0.982 RFI = 0.972 IFI = 0.987				
TLI = 0.979 SRMR = 0.028 RMSEA = 0.064				

Source: Primary data processing results.

The results of testing the relationship model with moderation of need for cognition on constrained parameters show that the relationship model fits the data. This is evident in all characteristics of fit with the data meeting the criteria, namely Chi-square on constrained parameters 50.290 with df = 13.

Table 3. Unconstrained parameters.

Path	Low NFC		High NFC	
	CR	ß	CR	ß
HPWS → Soc-Cap	12.987	0.771*	36.622	0.983*
HPWS → Optimism	6.241	0.492*	4.919	0.288*
HPWS → Resilience	7.555	0.558*	23.659	0.803*
Soc-Cap → IWB	4.497	0.323*	3.944	0.190*
Optimism → IWB	0.895	0.074	4.219	0.362*
Resilience → IWB	6.736	0.527*	5.302	0.438*
Chi-square = 15.646 Df = 6 P = 0.016 Chi-square/df = 2.608				
GFI = 0.991 AGFI = 0.955 CFI = 0.997				
NFI = 0.994 RFI = 0.981 IFI = 0.997				
TLI = 0.988 SRMR = 0.003 RMSEA = 0.046				

Source: primary data processing results.

The results of the relationship model test with NFC moderation for unconstrained parameters show that the relationship model fits the data. This is also evident in all characteristics of the fit with the data that meets the criteria, with Chi-square on constrained parameters 15.646 and df = 6. The next step was to calculate the difference in chi-square and degree of freedom (df) values between constrained and unconstrained parameters, as shown in Table 4.

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Table 4. Comparison of constrained and unconstrained parameters for NFC difference test.

Unconstrained Parameter	**Constrained Parameter**
Chi-Square = 15.646 df = 6	Chi-Square = 50.290 df = 13
Selisih Chi-Square = 50.290 – 15.646 = 35.644	
Selisih df = 13 – 6 = 7	
Chi-Square tabel = 14.0671	
Karena Chi-Square hitung > Chi-Square tabel maka kesimpulannya adalah ada perbedaan model hubungan ditinjau dari NFC.	

Source: Primary data processing results.

Table 4 is the chi-square calculation for constrained and unconstrained parameters. The calculation results were compared with the chi-square table value. Because the calculated chi-square value is greater than the chi-square table value, there is a difference in the relationship model in terms of NFC (H5 is supported). This result shows that NFC moderates the relationship model or become a condition for fulfilling the relationship model.

5. DISCUSSION

This study aimed to examine the effect of HPWS on IWB mediated by soc-cap and psy-cap. NFC was also tested as moderating variables in the relationship model. The results show that soc-cap and psy-cap serially mediate the effect of HPWS on IWB. The average HPWS of professional service organizations in several big cities was categorized as high. This result suggested that employee viewed the implementation of HPWS positively. Meanwhile, the average IWB of employee was also categorized as high. In accordance with its characteristics, organizations always provides services according to the desires and expectations of customers. This is what drives employee to innovate in providing the best service.

The results of the correlation test showed that HPWS was significantly positively correlated with soc-cap, IWB, NFC, and psy-cap in both the optimism and resilience dimensions. Soc-cap and psy-cap were positively and significantly correlated with IWB and NFC. IWB was also significantly positively correlated with NFC. The positive and significant correlation test results showed that variables were related. Therefore, it was possible to test the relationship model with mediating and moderating variables.

In testing the relationship model, HPWS does not directly affect employee performance, namely IWB. This supports the results of previous studies that the effect of HPWS on performance is mediated by other variables (Arshad et al., 2024; Javed et al., 2023; Jyoti & Rani, 2017; Kianto et al., 2017). In other words, the results proved that HPWS does not directly affect performance. This was contrary to the results of previous studies (e.g., (Kaushik & Mukherjee, 2022; Shin et al., 2018; Tripathi & Kumar, 2023; Weller et al., 2020)) which found a direct influence of HPWS on employee and organizational performance.

Soc-cap, as a social network, can be formed because individuals have positive experiences in managing employee in workplace. The results of this study further strengthen that positive experiences in HPWS increase soc-cap (Arshad et al., 2024; Han et al., 2020; Javed et al., 2023; Jiang & Liu, 2015). Furthermore, soc-cap, as an organizational resource in the form of work network, has also been shown to increase performance, namely IWB. This result is consistent with the report of previous studies that soc-cap improves employee innovative behavior (Lyu, Li, Hanikel, Wang, & Yaghi, 2022; Wang et al., 2023) and organizational performance (Ozgun, Tarim, Delen, & Zaim, 2022). The implementation of HPWS improves social networks between employee, leading to a high level of productivity and innovation.

The results of this study also proved that positive experiences in HPWS improved psy-cap, consistent with several previous reports (e.g., (Abubakar et al., 2019; Emur et al., 2023; Liu & Xie, 2020)). Furthermore, psy-cap, which can improve employee performance, such as IWB confirmed the results of previous studies (e.g., (Abubakar et al., 2019; Kidron & Vinarski-Peretz, 2024; Liu & Lin, 2021)). Good implementation of HPWS improved the psychological condition of employee, such as optimism and resilience. Employee will be more confident in abilities and are better equipped to handle various challenging situations. This will encourage employee productivity and the ability to innovate.

The results of this study found that NFC moderated the tested relationship model, where positive experiences in HPWS affected IWB through soc-cap and psy-cap as mediating variables. These results are consistent with the

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reports of a previous study conducted by Arshad et al. (2024). The psychological state where employee abilities and participation are valued by the organization is important in this relationship model. This is consistent with the reports of Liu and Li (2018) and Wang et al. (2022). Meanwhile, soc-cap which mediates the influence of HPWS experiences in workplace on IWB is also supported. This is also consistent with the results of previous studies (Ali et al., 2024; Arshad et al., 2024). Positive experiences in HPWS lead to the creation of social networks both structurally, relationally, and cognitively to increase the IWB of employee.

Studies on performance or achievement cannot be separated from the need to improve cognitive abilities (Acarturk & Mucen, 2022; Q. Liu & Nesbit, 2024). NFC is a psychological factor that explains the condition of individuals who feel engaged, comfortable, need, and motivated to do the jobs, analyze, think critically, obtain information, and solve work-related problems. NFC is a requirement for how experience in HPWS practices can improve IWB through social networks and employee psychological conditions. The results of this study proved that NFC moderated the effect of HPWS experience on IWB mediated by soc-cap and psy-cap, thereby confirming previous reports (Arshad et al., 2024; C. Liu & Li, 2018; Z. Wang et al., 2022).

HPWS is a human resource management system that focuses on empowerment, participation, decentralization, and autonomy of decision-making. Previous studies focused on the experiences of employee who work in organizations that have implemented HPWS. Professional service organizations, such as hospitals, schools, banking, and tourism have adopted system and received positive assessments from the employee. This positive experience increases IWB through the development of soc-cap and psycap. IWB developed from system also required the psychological condition of employee who is willing to show active participation in system.

6. CONCLUSION

In conclusion, HPWS was a good system for employee management. System could be assessed positively or negatively due to the various efforts required and the struggles of employee. Positive experiences in implementing HPWS could create social networks as well as psychological conditions by remaining optimistic and resilient in facing difficult conditions in workplace, thereby improving employee performance in the form of IWB. Effective implementation requires supportive employee psychological conditions, such as feelings of engagement, enthusiasm, comfort, and motivation to complete all work tasks.

This study contributed to the implementation of positive HPWS that alleviated employee stress by fostering system that employee could willingly adopt. Several limitations need to be identified to be improved by further studies. The use of self-report to assess dependent and independent variables was the first limitation that caused confusion in the results, namely common method variance (Fuller, Simmering, Atinc, Atinc, & Babin, 2016). In addition, the mediation model was more appropriate when the longitudinal data collection method was adopted, not cross-sectionally (Schuler et al., 2025). More data may be needed to obtain generalizations.

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INSTITUTIONAL REVIEW BOARD STATEMENT

The ethical committee of the Mercu Buana Yogyakarta University; Indonesia, Law No. 28 of 2014 concerning Copyright and Permendiknas No. 17 of 2010.

TRANSPARENCY

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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AUTHORS' CONTRIBUTIONS

Both authors contributed equally to the conception and design of the study. Both authors have read and agreed to the published version of the manuscript.

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