

## **Exploring Relationship of High-performance Work System with Knowledge Workers' Work engagement through Indirect and Indirect Effects**

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### **Abstract**

This research work was undertaken to examine how the implementation of a high-performance work system (HPWS) affected the level of work engagement in Indian knowledge workers by observing the both direct and indirect effects. Research was carried out involving 202 knowledge workers from India. The study employed an online survey to gather information from the participants, and the data was obtained through a structured questionnaire. According to the study's findings, Indian knowledge workers recognized and valued the advantages of an HPWS (High Performance Work System) that embraced employees' participation in important decisions, receive ongoing training and development, access pertinent information and knowledge, and have access to a well-structured performance evaluation system. Furthermore, the study demonstrated that Indian knowledge workers also acknowledged their level of engagement in their work, indicating a willingness to take on challenges, voluntarily assist colleagues and supervisors, and fully engage with their tasks. In general, HPWS reported for 35 per cent of the variability in job engagement and exhibited a positive connection with work assignment. The study's findings also showed that HPWS reported for 31 per cent of the alteration in psychological contract fulfillment, 22 per cent of the variance in workers' perceived organizational support in terms of resources, and 33 per cent of the variance in organizational identity among Indian knowledge workers. Notably, constructs like 'psychological contract fulfillment,' 'organizational identity' and 'perception of job resources' influenced the Indian knowledge workers' 'work engagement.' Also, findings showed that in the context of Indian knowledge workers, factors such as the 'psychological contract fulfillment,' 'perception of job resources,' and 'organizational identity' played a role as partial mediators between High-Performance Work Systems (HPWS) and knowledge workers' 'work engagement.' Moreover, 'job satisfaction' acted as a perfect intermediary or mediator between 'fulfillment of psychological contract' and 'work engagement'.

**Keywords:** High-Performance Work Systems, knowledge workers, work engagement, organizational identity.

## 1. Introduction

Several multinational companies have recently established themselves in India, leading to increased competitive pressure on all market participants (Al-Kwafi et al., 2020). This situation has also highlighted the significance of knowledge workers. The term "knowledge workers" was given in 1959 by Peter Drucker, referring to extremely skilled individuals who apply their theoretical as well as analytical expertise to create new products (Sims, 2006). As the labour market grows more specialized, there's a growing demand for knowledge workers who have specialized knowledge and creative skills (Surawski, 2019). Knowledge workers play a crucial role in promoting and developing companies and creating sustainable competitive advantages (Igielski, 2017). The success of an organization depends on the engagement and performance of knowledge workers. J.P. Morgan's study highlights that organizations have improved their approaches to recruit, select, train, compensate, evaluate, and motivate their human resources (International Labour Organisation., 2019). Organizations are now viewing their human resources as valuable members and implementing the systems to improve their productivity, performance, and effectiveness. HPWS, or 'high-performance work systems', pertain to coordinated HR practices that aspire to improve employee effectiveness (Özçelik et al., 2016). Various definitions for HPWS exist, with describing it as a system combining hiring selectively, training extensively, empowerment, reduced status differences, performance-based pay, and sharing information with workers to maximize performance (Rayton & Yalabik, 2014). HPWS as labour management approaches that enhance skills, promote participative work, and motivate employees to improve organizational performance. Overall, HPWS is a set of practices that aim to enhance employee motivation, skills, and engagement (Harley, 2002).

In the knowledge economy, using HPWS has been agreed upon by both managers and employees to enhance job performance, but disagreements remain regarding the intangible cognitive aspects of the job, which can lead to reduced work engagement (Latham, 2021). Although some HPWS measures effectively enhance performance, the influence of HPWS on job engagement is not fully understood (Bieńkowska & Ignacek-Kuźnicka, 2019). Work engagement is a favorable work-related mental condition portrayed by passion, strength, and attachment (Bakker, Leiter & Breevaart, 2011; Bledow et al., 2011). Both definitions highlight the importance of absorption, vigour, and dedication in work engagement. HPWS may impact the engagement of knowledge workers through various mechanisms, but incorrect practices can demoralize and negatively impact performance (Mládková et al., 2015). However, the effect of HPWS on Indian knowledge workers has not been adequately explored (Varma et al., 2005). It is thus important to delve into the impact of HPWS on job engagement of knowledge workers in India. According to a study undertaken by Techcircle (2023) in Indian context, it was found that Indian knowledge workers like programmers, architects and scientists face exhaustion and high turnover, especially amidst younger workers in smaller organizations. So, in order to withhold employees, the managers are resorting to implementing HPWS, which offers competitive and motivating salary packages, training, authorization, and empowerment (Bhargava, 2020). Nevertheless, studies detailing the HPWS impact on knowledge workers engagement in India are limited and no to little agreement is there about the mediation mechanisms (Varma et al., 2005). Keeping these gaps in mind, this study investigates how HPWS impacts the 'work engagement' of knowledge workers in India.

## 2. Literature Review

Sufficient number of research have probed the impact of 'High-performance work systems' (HPWS) on employees' work commitments. The impact of HPWS on work engagement can be understood with the help of 'social exchange theory'. Social exchange theory assumes that social behavior is the outcome of an exchange process. The primary intent of exchange process is to increase profits while denigrating the associated costs (Cook et al., 2013). The theory believes that individuals ordinarily weigh the strengths and weaknesses of social behaviors and associations before determining whether to partake in such behaviours or not. Their decision is influenced by determining which factor holds greater importance, whether it is the outweighing of benefits over risks or the reverse. If the advantages surpass the risks, people tend to get involved in the behavior or relationship. Conversely, if the risks surpass the advantages, people tend to evade the behavior or end the association.

HPWS is known to positively impacting the employee engagement in Indian manufacturing sector (Huang et al., 2018). Other studies also confirm positive impact of HPWS on employee engagement in various industries (Peprah, 2020; Zhu et al., 2022). This indicates that when HPWS is increased, employees tend to be more engaged in their work and the organization. Contemporary research recommends that HPWS exerts a positive effect on 'work engagement', but it is believed to be indirect. In a study it was found that HPWS was inversely related to psychological contract breaches

(Braekkan, 2012). As investment in HPWS increased, employees' perception of psychological contract violations decreased (Abdullah, 2017). Another study by Li and Yu (2017) focused on the mediating role of psychological contracts in the relationship between HPWS and Organizational Citizenship Behavior (OCB). Their investigation uncovered that HPWS was associated positively with relational and balanced psychological contracts, but negatively related to transactional psychological contracts. This led to the formation of the study's first hypothesis expressing:

**H1: HPWS is positively related to the psychological contract fulfilment of Indian knowledge workers.**

Job resource demand theory suggests that job demands and resources have a mediating role in employee engagement. It suggests that in situations where both job demands and resources are elevated, employees experience increased engagement with their work. Although few studies examined the effect of HPWS' on perceived job resources; HPWS is hypothesized to have a positive influence on job resources due to its ability to enhance employees' ability to carry out their tasks effectively. Comprehensive training, which is a part of HPWS, equips employees with the necessary knowledge and skills to perform their tasks competently. As a result, employees can use the available resources effectively, leading to a sense of adequate job resources (Fu et al., 2019). Another reason is the provision of resources by the organization. According to HPWS definitions, employee involvement is an important component. However, since there is limited research in this area, future studies should discover the effect of HPWS on the perception of resources within the job. So, the next hypothesis suggests:

**H2: High Performance Work System is positively associated with perceived job resources by Indian knowledge workers.**

'Organizational identity' refers to how companies resemble individuals, whereas social identity theory states that High Performance Work System creates an organizational identity that Human Resources identify with and perceive as congruent with their own identities, leading to greater work engagement and commitment to the organization. However, empirical research on the connection between HPWS and organizational identity is limited. (Mahdi et al., 2015) found a positive correlation between HPWS and organizational identity, indicating that when HPWS is improved, organizational identity also increases. However, besides the research is a scarcity of studies that explore the HPWS' influence on organizational identity. Thus, this is an area that requires further investigation in future research (Mahdi et al., 2015).. This led us to hypothesize:

**H3: HPWS is positively associated with Indian knowledge workers' organizational Identity.**

According to a study, there exists no direct link between work engagement and breaking the psychological contract (Rayton & Yalabik, 2014). However, it was discovered that breaking the psychological contract lowers job satisfaction, which in turn decreases work engagement (ibid). This indicates that fulfilling the psychological contract has a positive relationship with work engagement, mediated by job satisfaction (Rayton & Yalabik, 2014). Another study by Malik and Khalid (2016) explored how breaking the psychological contract affects the intentions behind a turnover and engagement at work. Their findings indicated a negative association between the two. Studies have support this finding, while some studies suggest that the relationship is moderated by job satisfaction (Al-dalahmeh, Khalaf and Obeidat, 2018; Wirawan, Jufri and Saman, 2020; Wang et al. 2020). This resulted in formation of hypotheses H4 and H5 expressing:

**H4: Psychological contract satisfaction motivates Indian KWs (Knowledge Workers) to work engagement.**

**H5: Job Satisfaction mediates the effect of psychological contract satisfaction on Indian knowledge workers' engagement.**

Numerous studies have delved into the relationship amidst work engagement and job resources and indicated towards a positive relationship; however, 'perception of job resources' tends to be a less explored field. In 2015, Alzyoud, Mohd Isa and Othman also found an affirmative correlation between work engagement and job resources in another study (Alzyoud et al., 2015). According to Van den Broeck (2017), since possessing job resources tends to lead to workers perceiving these resources positively, it might be contended that a favorable 'perception of job resources' is somehow associated with better work engagement (Van Den Broeck et al., 2017). Drawing from these results, it is inferred that job resources bolster engagement at work, implying that a favorable perception of job resources is likely to amplify the engagement in work as

well. However, such studies are extremely limited in Indian context; but based on available literature, it can be assumed that:

#### **H6: Perceived Job Resources increase job engagement of knowledge workers in India.**

Very few studies have indicated that organizational identity might have positive effects on work engagement; but it is possible to hypothesize the relationship between the two factors based on the definition of organizational identity. Organizational identity pertains to the set of articulations that the members of an organization consider essential, distinguishable, and enduring (Field & Buitendach, 2011). The increased engagement can be attributed to employees feeling proud of their organization and wanting to be associated with it. As a result, they may work harder to uphold these optimistic features (De Waal & Pienaar, 2013). However, the lack of research on this topic suggests that this can only be hypothesized, highlighting the necessity for additional investigation in this domain.

#### **H7: Organizational identity motivates knowledge workers in India for work engagement.**

Some gaps in the available academic literature are obvious. There is clearly a lesser research on the correlation between perception and engagement towards work; despite the expected positive effects on the latter; that managers struggle to achieve with knowledge workers. Another gap concerns the link between HPWS and perception of job resources, which researchers have largely overlooked. Likewise, very less research establishing the relationship between organizational identity and work commitment. Moreover, extremely less researches have been conducted in Indian context and mediating effects have also been observed on different organizational outcomes. Hence, this study was designed to understand the both immediate and mediated effects of HPWS on job engagement.

### **3. Research Methodology**

The present study empirically investigated how HPWS impacts work engagement among Indian knowledge workers, considering variables such as psychological contract fulfillment, perception of job resources, and organizational identity. Following quantitative research principles, the study collected primary data through a survey and analyzed it using inferential statistics to identify patterns and relationships. This study hypothesized a positive association between these variables and aimed to determine the generalizability of the collected data. For data collection, close-ended questions were used through standardized questionnaires to reach a large sample size cost-effectively and facilitate data analysis using statistical methods. The questionnaire contained 29 statements that covered all the key variables of the study. Respondents rated each statement on a 5-points Likert scale. In this study, purposive sampling was employed due to its convenience and cost-effectiveness. The study collected data from 210 respondents, which was considered sufficient for this investigation. SPSS was utilized to analyze the data. To facilitate easy understanding of the collected data, descriptive statistics were utilized to visualize the data's central tendency and dispersion. Tables were used to represent the data. To confirm the internal consistency and avoid measurement error, it was essential to estimate the reliability of the scale. A valid and reliable measure ensured the reproducibility of the research. In order to ascertain the reliability and validity of the research instrument, Cronbach Alpha was employed. The study put forth a hypothesis suggesting a positive connection between multiple variables, and Pearson's Correlation Coefficient has been used to measure this relationship by understanding the degree and direction of this relation. As, this investigation sought to comprehend the effect of HPWS on work engagement of knowledge workers in India; regression statistic was used.

#### **4.1 Findings of the study**

The information gathered from 210 Indian professionals was examined and has been displayed under various headings.

##### **4.1. 1 Demographical details of the respondents**

Table 1 provides details on the gender, age, years of experience within the company, and industry type of the respondents from whom data was gathered. Table 1 reveals that 47.6 per cent of the sample were male, while 52.4 per cent were female. Among the age groups, 41.4 per cent were between 26-35 years old, followed by 24.8 per cent in the 36-45 years and 20.5 per cent in the above 45 years age group. Only 13 per cent of the respondents were between the age group of 18-25 years.

**Table 1**

**Table 1: Demographics of the respondents**

Particular	Variable	Frequency	Percentage
Gender	Male	100	47.6
	Female	110	52.4
Age	18-25 years	28	13.4
	26-35 years	87	41.4
	36-45 years	52	24.8
	More than 45 years	43	20.5
Number of years in the company	Less than 5 years	99	47.14
	5-7 years	78	37.14
	8-10 years	19	9.04
	10 years above	14	6.67
Profession	Programmer/ Data scientist	50	23.8
	AI/ML engineer	42	20
	Architect	36	17.14
	Consultant	59	28.1
	Others (lawyers, scientist, academician)	23	10.95

Nearly half of the participants, around 47.14 per cent, have been linked to their current organization for less than 5 years, while 37.14 per cent stated their affiliation with their present company to be lasting between 5-7 years. Only 9 per cent of the respondents declared their association with their existing company for the last 8-10 years. 28 per cent respondents were consultants whereas 24 per cent of the sample was represented by the programmers and data scientists.

#### 4.1.2 Cronbach's $\alpha$ Test for reliability

In order to guarantee the consistency and dependability of the measurement scale, this study used Cronbach's Alpha. A score of 0.7 is considered acceptable to guarantee the that measurement scale is reliable. In the given Table 2, Cronbach's Alpha values spanned between 0.720 to 0.944, indicating that the measurement scale used to evaluate the impact of high-performance work systems on engagement at work was reliable.

#### 4.1.3 Descriptive Statistics

Descriptive statistics are presented in Table 2. It can be seen from the table that the score for each item was above the average value of 3, indicating a positive assessment. The mean values for the statements ranged between 3.59 and 4.50, and the standard deviation values ranged from 0.402 to 0.762. Additionally, Table 2 displays the mean values for each construct, which ranged from 3.70 to 4.52. Work engagement was assigned the highest value, while job satisfaction received the lowest score.

**Table 2: Descriptive and reliability statistics**

Construct	Items	Item Mean	Std. Deviation	Construct Mean	Cronbach Alpha
High-performance work system (HPWS)	HPWS1	3.85	.642	4.09	.944
	HPWS2	4.18	.625		
	HPWS3	4.17	.612		
	HPWS4	4.26	.687		
	HPWS5	4.03	.728		

	HPWS6	4.05	.762		
	HPWS7	4.12	.666		
Work engagement (WE)	WE1	4.33	.571	4.47	.901
	WE2	4.55	.480		
	WE3	4.53	.418		
	WE4	4.56	.608		
	WE5	4.49	.590		
	WE6	4.41	.570		
Psychological contract fulfilment (PCF)	PCF1	4.09	.609	4.17	.789
	PCG2	4.15	.588		
	PCF3	4.18	.402		
	PCF4	4.24	.528		
Perception of job resources (POJR)	POJR1	3.77	.505	3.94	.823
	POJR2	3.88	.620		
	POJR3	3.94	.613		
	POJR4	4.18	.568		
Organizational identity (OI)	OI1	3.73	.575	3.85	.720
	OI2	3.79	.505		
	OI3	3.82	.489		
	OI4	4.06	.669		
Job satisfaction (JS)	JS1	3.59	.512	3.72	.767
	JS2	3.66	.672		
	JS3	3.77	.425		
	JS4	3.84	.518		

#### 4.1.4 Analysis of the Correlation Coefficient

This study tested an affirmative association between various variables through bivariate correlation taking the statistical significance level at 5 per cent. All variables had a significant positive correlation, with coefficients spanning 0.429 to 0.774 (refer table 3). HPWS showed a significant favourable correlation with psychological contract fulfillment (PCF), perception of job resources (POJR), and organizational identity. The results confirmed a moderate association between HPWS and PCF, POJR, and organizational identity, with correlation coefficients ranging from 0.550 to 0.650.

**Table 3: Correlation analysis**

Correlations							
		HPWS	WE	PCF	POJR	OI	JS
HPWS	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	210					
WE	Pearson Correlation	.582**	1				
	Sig. (2-tailed)	.000					
	N	210	210				
PCF	Pearson Correlation	.650**	.774**	1			
	Sig. (2-tailed)	.000	.000				
	N	210	210	210			

POJR	Pearson Correlation	.550**	.774**	.527**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	210	210	210	210		
OI	Pearson Correlation	.588**	.714**	.636**	.660**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	210	210	210	210	210	
JS	Pearson Correlation	.552**	.792**	.551**	.586**	.429**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	210	210	210	210	210	210
**. Correlation is significant at the 0.01 level (2-tailed).							

Table 3 exhibits a positive relationship of 'psychological contract fulfillment' with employees' 'work engagement', with a significant correlation coefficient statistic of 0.774 (sig. <0.05). 'Work engagement' too, was significantly associated with 'perceived job resources' with significant correlation coefficient statistic of 0.774 (sig. <0.05) and with 'organizational identity' with a significant correlation coefficient value of 0.714 (sig. <0.05). These findings affirmed that 'work engagement' had a strong favourable relationship with 'psychological contract fulfillment', 'perceived job resources', and 'organizational identity'.

#### 4.1.5 Hypotheses testing

The primary reason of conducting this investigation was to explore how 'high-performance work systems' impact or influence 'work engagement' of Indian knowledge workers. It was anticipated that 'high-performance work systems' would have a favorable impact on 'psychological contract fulfillment' and 'organizational identity', and these components would consequently affect the employees' 'work engagement'. This study utilized regression analysis to test these suppositions and the outcome of the same have been displayed in Table 4.

**Table 4: Regression summary**

Hypothesized relationship	R <sup>2</sup>	Beta	t-value	Significance	Decision
HPWS--PCF	.313	.530	9.368	.000	Accept
HPWS--POJR	.222	.440	7.117	.000	Accept
HPWS--OI	.334	.572	9.859	.000	Accept
PCF--WE	.584	.761	16.701	.000	Accept
PCF—JS--WE	.712	.126	1.152	.100	Accept
JS--WE		.709	8.730	.000	
POJR--WE	.542	.712	15.642	.000	Accept
OI--WE	.545	.739	15.746	.000	Accept

The table 4 shows that HPWS (high-performance work system) accounted for 31 per cent of the change in 'psychological contract fulfillment' of Indian knowledge workers. ANOVA was utilized to test the applicability of the regression statistic; that yielded with a significant F statistic value (88.830, sig.<0.05). HPWS was reported with a beta value of .530 and a significant t value (9.318, sig.<0.05), showing a strong relationship with 'psychological contract fulfillment'. These findings affirmed the hypothesis H1, which envisaged a positive link between HPWS and 'psychological contract fulfillment' of Indian knowledge workers.



Table 4 exhibits that HPWS accounts for 22% of the differences in perceptions of job resources of knowledge workers in India. Corresponding ANOVA statistics also indicated a significant F value i.e., 51.657 (Sig. < 0.05). HPWS was also seen associated with a beta value of 0.440; that was accompanied by a significant t-value (7.117, sig. < 0.05), denoting that HPWS was significantly linked with perception of job resources. These results supported the hypothesis H2 suggesting a positive relationship between HPWS and Indian knowledge workers' perceptions of job resources.

Table 4 shows that HPWS accounted for 33 per cent of the variation in organizational identity among Indian knowledge workers. ANOVA statistics were significant (97.546, sig.<0.05), with a beta value of .574 and a significant t-value of 9.859 (sig.<0.05), indicating HPWS as a significant predictor of organizational identity. These findings support hypothesis H3. Furthermore, psychological contract fulfillment explained 58 per cent of the variation in work engagement, with a significant t-value of 292.250 (sig.<0.05). Psychological contract fulfillment had a beta value of .761 and a significant t-value .of 16.701 (sig.<0.05), indicating that it was a crucial indicator of work engagement, supporting hypothesis H4.

The study proposed job satisfaction as a medium to bridge the gap between psychological contract fulfillment and Indian knowledge workers' engagement. When both these were considered together, the beta value decreased to .129 with an insignificant t-value of 1.152 (sig.>0.05), while job satisfaction remained a significant predictor of work engagement, with a beta value of .712 and a significant t-value of 8.730 (sig.<0.05). The findings suggest that job satisfaction completely mediates the relationship between these two variables, supporting hypothesis H5. (Table 4)

The perception of job resources explained 54 per cent of the variation in work engagement for Indian knowledge workers (Table 4). The regression analysis had a significant ANOVA statistic with a value of 238.529 (sig.<0.05). The perception of job resources had a beta value of .712 and a significant t-value of 15.642 (sig.<0.05), suggesting its significant role in predicting work engagement. These findings support hypothesis H6.

Organizational identity accounted for 55 per cent of the variation in work engagement among Indian knowledge workers, with a significant beta value of .739 and a significant t-value of 15.746 (sig.<0.05). These results support hypothesis H7, which suggests a positive association between organizational identity and work engagement among Indian knowledge workers, as shown in Table 4.

HPWS explained 35 per cent of the variation in work engagement and had a significant beta value of .599 and a t-value of 1.563 (sig.<0.05), supporting hypothesis H2. HPWS also positively influenced relational expectations fulfillment, perceived job resources, and organizational identity, which in turn impacted work engagement. The findings of this study revealed that work engagement was influenced by job satisfaction, which worked as a mediator in the relationship between fulfillment of the psychological contract and job engagement. Sobel test was used to check the mediating mechanisms between High performance work system and job engagement.

#### 4.1.6 Validating the mediating mechanisms

Table 5 shows the results of the Sobel test, which examined the mediating character of PCF, POJR, and organizational identity between HPWS and engagement towards work. HPWS was a significant predictor of work engagement ( $b = .420$ ,  $p < 0.05$ ), and when the mediators were added to the regression analysis, HPWS remained a significant predictor but with reduced predictive power (see C' values column). All variables were found to be partial moderators

**Table 5: Sobel Test**

Hypothesis with mediator CS	a with std. error	b with std. error	C (with sig.)	C' (with sig.)	Sobel test statistic	Type of mediation	Result of Sobel Test
HPWS---PCF---WE	.530, .044	.761, .043	.420 (.040)	.178 (.030)	9.0112	Partial	Significant
HPWS---POJR-WE	.440, .049	.712, .034	.420 (.040)	.231 (.000)	8.253	Partial	Significant



HPWS---OI---WE	.572, .036	.739, .071	.420 (.040)	.178 (.000)	8.706	Partial	Significant
PCF---JS---WE	.715. .027	.709, .038	.761 (.000)	.126 (.100)	15.252	Complete	Significant

The Table results show job contentment as a variable which mediates between PCF and job engagement. The results reveal that satisfaction regarding a job completely mediates the relationship between PCF and work engagement, with a non-significant value of  $b = .126$  ( $p > 0.05$ ). These results were consistent with those reported in Table 4. Sobel test confirmed the statistical significance of the mediating effects for each variable ( $p < 0.05$ ).

## 5. Discussion of the findings and implications

The current enquired sought to examine the impact of HPWS on Indian knowledge workers' job engagement. Data was collected from 210 workers with varying demographics and work experience. Results revealed that most respondents perceived adequate incentives and believed that their companies incentivized them to perform better. These results resemble with earlier research's results of Yalabik et al. (2008), Carvalho and Chambel (2014) and Jyoti and Rani (2017), which highlighted the significance of discriminating hiring, skill development, empowering work environment, merit-based compensation, comprehensive perks, competent appraisal schemes, and workers' encouragement in high-performance work systems. The outcomes of this study suggest that Indian companies embrace all the characteristics of HPWS as well (Carvalho & Chambel, 2016; Jyoti & Rani, 2017; Yalabik et al., 2008).

Respondents were motivated to achieve their goals and accept challenges, as seen in previous researched by Bakker et al. (2011) and Bledow et al. Job Engagement was defined as a fulfilling job-related experience characterized by absorption, vigor, and dedication. The current study's findings supported this, validating that high-performance work systems (HPWS) significantly enhance work engagement and account for 36 per cent of the variance. Previous research by Huang et al. confirmed the positive association of HPWS with job engagement. Husin, Mansor and Kelana (2021).and Li et al. (2019) also found that employee mood and job satisfaction could mediate this relationship. Thus, the present study confirmed that HPWS can impact work engagement both directly and indirectly, with various factors mediating this relationship. These findings support the social exchange theory, which suggests that both organizations and human resources can be benefitted from implementing HPWS (Kumar, 2018).

The study hypothesized that HPWS would have a favourable connection with the fulfillment of psychological contract, perceived job resources, and organizational identity. These results confirmed all the hypothesized relationships. The research found that most of the respondents of this study felt that their employers delivered the promises that were made for supporting employees and fulfilling obligations, which positively impacted psychological contract fulfillment. Regression analysis showed that HPWS explained 31 per cent of the differentiation in psychological contract fulfillment among Indian knowledge workers. The findings can be explained by the theory of social exchange, which suggests that psychological contract fulfillment is enhanced by HPWS, eventually leading to increased job engagement and involvement. Turnley et al. (2003) also argue that High performance work systems fulfills the expectations of employee and increases employee productivity. Overall, the present study's results align with previous research conducted by researchers (Rogozńska-Pawelczyk, 2020), (Pawelczyk et al., 2021).

Participants in the study reported having workplace autonomy and employer support, with access to professional development and supervision. The research hypothesized a favorable relationship amid a high-performance work system and perceived job resources. Regression analysis revealed that HPWS accounted for 22 per cent of the variation in Indian knowledge workers' perception of job resources. The job demand theory also supports these results, as HPWS can improve job resources, enabling employees to handle increased job demands effectively. In conclusion, the research's conclusions support previous findings from the past conducted for the relationship between HPWS and perception of job resources (Andersén & Andersén, 2019; Fu et al., 2019; Granziera et al., 2021).

Results showed that most participants identified strongly with their company and believed its values aligned with their own. The study hypothesized that a high-performance work system would positively impact organizational identity, and the results confirmed this, with HPWS explaining 33 per cent of the variation. These findings align with Mahdi et al.'s (2014) study and support the social identity theory's notion that HPWS fosters employee performance by creating a feeling

of attachment to the organization. The social identity theory also suggests that HPWS systems are designed to improve employee performance by fostering a sense of belonging and identification with the work group and the organization.

The goal of the research was to analyze the mechanisms through which HPWS the work engagement. The study confirmed that PCF, POJR, and organizational identity acted as partial mediators between HPWS and work engagement. So, it can be said that HPWS has both immediate and mediated effects on work engagement in Indian context. It was found that High performance work systems had the highest influence on organizational identity, then by the fulfilment of psychological contract, and the lowest impact on perceived job resources. While past researches have examined the effect of HPWS on various variables, they did not highlight their relative contributions. Therefore, this study makes a unique contribution to the existing literature by identifying the relative impact of HPWS on these variables.

**Findings revealed that** psychological contract fulfillment explained 58 per cent of variance in work engagement. Respondents were satisfied with their jobs and companies, and their job matched their desired type. The correlation between psychological contract fulfillment and work engagement was completely mediated by satisfaction in their job. Past research has consistently demonstrated a detrimental effect of psychological contract breach on work engagement (Rayton & Yalabik, 2014), which is supported by these findings. However, the present study's results do not align with those of Rayton and Yalabik (2014), who discovered that only the relationship of work engagement with psychological contract breach was reconciled by job satisfaction. and denied the direct effect of PCF on WE. The different results could be understood by appreciating the treat of psychological contract wherein Rayton and Yalabik (2014) studied the latter from negative perspective i.e., breach; whereas this study discussed the positive aspect of psychological contract i.e., fulfillment (Rayton & Yalabik, 2014).

54 per cent of the variation in the Indian knowledge workers' job engagement was explained by the perception of job resources. Job resources were utilized to measure the perceived job resources in the previous literature. The results align with the theory of job demand (Kim, 2015; Bakker and Demerouti, 2017), which suggests when there is a high level of job demands and resources, job engagement improves. HPWS provide organizational personnel with the necessary resources, enhancing their work engagement. 55 per cent of the variation in work engagement was determined by the organizational identity. The results matched with previous studies wherein employees appreciating the organization's values and characteristics working harder, resulted in better productivity and increased engagement (De Waal and Pienaar, 2013). The results can be understood through the lens of social identity theory, which suggests that social behavior may be affected by affected by an individual's group membership, character, and motivations. Therefore, the present study largely supports previous research.

The findings also showed that psychological contract fulfilment, organizational identity, and impression of job resources had the least impact on work engagement. Job satisfaction, however, served as the only mediator between psychological contract fulfilment and job engagement. Although earlier research acknowledged the mediation effect of job satisfaction, it did not examine the relative weighting of each element on work engagement. This qualification signifies the distinctive contribution that this study makes to the body of research.

The study has important implications. Firstly, it attempts to clarify how HPWS affects work engagement among Indian knowledge workers by considering the role of four different variables. The study also confirms the mediating function of PCF, POJR and organization identity between HPWS and work engagement; and job satisfaction between psychological contract fulfilment and work engagement, which brings much-needed clarity to the inconsistent findings of previous studies. Moreover, the research reveals that the impact of fulfilment of psychological contract on job engagement is not direct, and job contentment mediates this association completely. This information greatly contributes to the current literature. This research findings have vital implications for human resources in the knowledge arena due to which HR managers should take these findings seriously. Organizations must pay attention to employee needs and keep their pledges and commitments. In order to maintain employee engagement, managers are encouraged to provide enough training and opportunities for professional development. Also, they must take steps to ensure that employees strongly identify with the company's underlying principles.

## 6. Conclusion

The motive of the study conducted was to understand how a high-performance work system affects work engagement in Indian knowledge workers. Results showed that Indian knowledge workers were provided with opportunities to engage in

crucial decision-making processes and receive regular training and development chances. They also successfully maintained the balance between their work and personal life and received incentives for better performance, germane data and sharing information, and had a performance evaluation framework that was well developed. In summary, the study found that a high-performance work system had a favorable relationship with work engagement. Fulfillment of Psychological contract, perceived job resources, and organizational identity were the salient mechanisms through which HPWS affected work engagement. Indian knowledge workers had a strong sense of attachment with their organizations and recognized unequivocally with them. The study shows that HPWS had the greatest influence on organizational identity and psychological contract performance. We could also ascertain that psychological contract fulfillment, perception of job resources, and organizational identity were positively related with work engagement. Further, job satisfaction fully intervened the relationship between psychological contract fulfillment and work engagement. This research found that maximum variation in Indian knowledge workers' work engagement was determined by psychological contract fulfillment, followed by organizational identity.

## 7. Limitations and future research directions

Quantitative methods were employed in the study to investigate the effect of High-performance work systems on job engagement. However, these quantitative methods are limited in their ability to provide a comprehensive understanding of the real emotions, beliefs, and values. They also suffer from artificial experimental conditions. Hence, researchers in future may consider implementing a mixed methodology to gain a better understanding of the impact of HPWS on work engagement. Sampling method was another disadvantage. The present study used judgmental sampling, which allowed the investigators to gather data from Indian employees knowledgeable about high-performance work systems. Although this method is cost-effective and timely, though it suffers from investigator bias, yielding a less representative sampling, and it also affects the generalization of the findings. So, future investigators are recommended to employ probability sampling. Another limitation of the study is the sample size. Although the sample size of 210 respondents was statistically effective, small samples greater variability, which may reduce the results' trustworthiness. Therefore, potential researchers are advised to collect data from larger sample and compare the inconsistency in findings, if any.

The study focused on the impact of HPWS on work engagement among Indian knowledge workers. However, there are other employee outcomes that have been reported by previous researchers such as motivation, organizational citizenship behavior, productivity, retention, and loyalty. Future examinations should take into account these variables while researching the impact of high-performance systems. In addition, while the current study considers employee engagement as a dependent variable and job satisfaction as an intermediate variable between PCF and job engagement, future exploration should do filter the character of job engagement either as a dependent or an intermediate variable through separate studies. It is also suggested that the mediating role of job satisfaction between HPWS and job engagement should be considered in future research.

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