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Factors Affecting Innovative Work Behavior in Pharmaceutical Companies: The Role of Human Capital, Social Capital, Knowledge Sharing, and Creativity

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ABSTRACT

This study aims to analyze the influence of human capital, social capital, knowledge sharing, and creativity on employees' innovative work behavior. Data collection was conducted using an online questionnaire with 302 respondents in a pharmaceutical company in Indonesia and the data were analyzed using the structural equation modeling (SEM) method with SPSS Amos software version 24. The results of the study stated that human capital has a positive and significant effect on social capital, which in turn has a positive and significant effect on knowledge sharing, and then has a positive and significant effect on creativity. As expected, creativity has a positive and significant effect on innovative work behavior. As a mediating variable, knowledge sharing mediates the relationship between social capital and creativity, and creativity mediates the relationship between knowledge sharing and innovative work behavior. Human capital does not show a significant direct effect on knowledge sharing, however, social capital mediates the relationship between human capital and knowledge sharing.

ABSTRACT

Penelitian ini bertujuan untuk menganalisis pengaruh modal manusia, modal sosial, berbagi pengetahuan, dan kreativitas terhadap perilaku kerja inovatif karyawan. Pengumpulan data dilakukan dengan menggunakan kuesioner online dengan 302 responden di salah satu perusahaan farmasi di Indonesia dan data dianalisis menggunakan metode structural equality modeling (SEM) dengan software SPSS Amos versi 24. Hasil penelitian menyatakan bahwa modal manusia berpengaruh positif dan signifikan terhadap modal sosial, yang selanjutnya berpengaruh positif dan signifikan terhadap berbagi pengetahuan, dan selanjutnya berpengaruh positif dan signifikan terhadap kreativitas. Sebagaimana yang diharapkan, kreativitas berpengaruh positif dan signifikan terhadap perilaku kerja inovatif. Sebagai variabel mediasi, berbagi pengetahuan memediasi hubungan antara modal sosial dengan kreativitas, dan kreativitas memediasi hubungan antara berbagi pengetahuan dengan perilaku kerja inovatif. Modal manusia tidak menunjukkan pengaruh langsung yang signifikan terhadap berbagi pengetahuan, namun modal sosial memediasi hubungan antara modal manusia dengan berbagi pengetahuan.

INTRODUCTION

The pharmaceutical industry is the most heavily regulated industry worldwide, with governments enacting several rules and regulations to protect people's health and well-being. One of the most critical issues for regulatory authorities is ensuring that pharmaceutical products are made in accordance with the country's requirements and regulations (Lodha et al., 2022). Currently, the pharmaceutical industry is responsible for researching, developing, producing, distributing, and marketing drugs, vaccines, and pharmaceutical raw materials, both for common and rare diseases (Minister of Health of the Republic of Indonesia, 2010;Milanesi et al., 2020)). Good

Manufacturing Practices (GMP) Guidelines or in Indonesia are called Good Manufacturing Practices (CPOB) and Standard Operating Procedures (SOP) from each company form the backbone of the pharmaceutical industry that is professionally managed (Abhinaya et al., 2019).

Based on the Regulation of the Food and Drug Supervisory Agency (BPOM) on the Implementation of CPOB Guidelines, pharmaceutical companies must make drugs in such a way that the drugs meet the requirements set out in their registration documents, in accordance with their intended use, and do not pose risks that can harm their users because they are of low quality, unsafe, or ineffective. Based on the CPOB guidelines as well, human resources are essential to establish and implement a quality system, and in the manufacture of good and correct medicines, and pharmaceutical companies are responsible for providing an adequate number of qualified personnel to carry out all their duties (Food and Drug Supervisory Agency of the Republic of Indonesia, 2018).

Currently, the pharmaceutical industry is facing various problems and challenges in various fields. Despite having CPOB and SOP systems, regulators still find mistakes made by pharmaceutical companies and identify manufacturing defects in the drugs marketed. When a drug is found to be defective or potentially harmful, it can be recalled. Recently, the problem of product recalls due to product defects has become a major threat in the pharmaceutical business (Abhinaya et al., 2019). Drug price controls and strong pressure on production costs are also challenges for the pharmaceutical industry on how to create innovative drugs (Festa et al., 2022).

The pharmaceutical sector is facing an unprecedented rapidly changing environment, where the Covid-19 pandemic crisis is further changing the traditional pharmaceutical manufacturing landscape to be more innovative (Festa et al., 2022; Marques et al., 2020; Negash et al., 2021). More focus is needed on innovation on patented drugs than on generic drugs and breakthrough R&D technologies are needed to face the emergence of industry 4.0 (Festa et al., 2022; Milanesi et al., 2020). The aging population, the inequality of access to medicines in one region and another, sustainability challenges such as pollution produced by medicines throughout the product life cycle, also add to the problems and challenges that must be faced by the pharmaceutical industry. There is a need for policymakers to pursue sustainability and industry development, while pharmaceutical companies must redesign their business processes to improve their innovation capabilities (Festa et al., 2022; Milanesi et al., 2020).

The pharmaceutical industry is a knowledge-intensive industry where knowledge management and intellectual capital are essential. The industry is research-based and must be highly innovative, as the knowledge required to operate in this sector is more complex than other research-based sectors and environments (Mehralian et al., 2018). Competition in the pharmaceutical industry differs from competition in other free markets because it has strict regulations that can significantly limit managerial discretion and strategic choices of leaders, therefore, product and service innovation is essential to gain a competitive advantage and improve performance (Lodha et al., 2022; Theodore et al., 2022; Ullah et al., 2022). Previous research confirms that innovative firms outperform non-innovative firms, and innovation relies heavily on inputs from intangible resources, such as intellectual capital, creativity, and innovative work behaviors (Mehralian et al., 2018).

Based on previous research, research that studies creativity and knowledge-sharing behavior

through the development of social capital in the pharmaceutical industry is research (Bhatti et al., 2021). The study confirmed that social capital has a positive and significant influence on knowledge sharing, which in turn has a positive and significant influence on employee creativity, and knowledge sharing mediates the relationship between social capital and employee creativity. However, the study suggests further studies of other components of intellectual capital, not just social capital, that may influence employee creativity (Bhatti et al., 2021).

Based on other research, Dahiyat et al., (2023) confirmed that human capital has a positive and significant influence on social capital in the pharmaceutical manufacturing industry in Jordan, where the study has a focus on the development of intellectual capital in the pharmaceutical industry. However, the study only studied the influence of human capital on the formation of knowledge transfer within firms, and less on its influence on behavior due to social exchange of human capital itself (Dahiyat et al., 2023). But Singh et al. (2019) confirms that human capital in the form of high employee knowledge, skills, and abilities has a positive and significant influence on knowledge-sharing behavior, especially in knowledge-intensive company and worker environments, which can complement this study (Singh et al., 2019).

Employee creativity has a positive and significant influence on innovative work behavior (Slåtten et al., 2011). Employee creativity can mediate the relationship between knowledge sharing and innovative work behaviors (El-Kassar et al., 2022). Previously (Agarwal & Bhargava, 2014) has researched the factors influencing the innovative work behavior of employees in manufacturing and pharmaceutical companies based in western India, and suggested further research in other geographical regions to expand external validity. Moreover Agarwal & Bhargava (2014) It also suggests further exploration related to social exchange theory as a framework for understanding the motivational fundamentals of employees' innovative work attitudes and behaviors. Al-Ghazali & Afsar (2021) has also examined the factors influencing the innovative work behavior of employees in pharmaceutical companies in different regions of Saudi Arabia, and stated that differences in cultural intelligence may affect the results of the study, thus suggesting that research be conducted in other countries.

In the face of global competition and environmental uncertainty today, pharmaceutical companies need employees who engage in innovative work behaviors (Janssen, 2000). Based on the literature, innovative work behaviors in pharmaceutical companies are needed in the Research & Development department tasked with creating new drugs that are of high quality and successful in the market. Furthermore, innovative work behaviors are needed in departments that are more operational such as the Production Planning & Inventory Control (PPIC) department which is tasked with planning production; the Production department in charge of making medicines; the Quality Control (QC) department in charge of testing samples and approving drugs; the Quality Assurance (QA) department in charge of ensuring that drugs are made in accordance with their intended use; and the Logistics department which is in charge of mobilizing drugs ranging from raw materials to finished products. Finally, innovative work behaviors are needed in the Marketing department tasked with innovating in improving the success of drugs in the market. Innovative work behavior can reduce the duration of the average drug manufacturing process over time, improve product quality, and reduce production costs (Arnold et al., 2022).

To answer the various problems and challenges faced by pharmaceutical companies in

improving their innovation capabilities, knowledge is needed on how to improve employees' innovative work behaviors. Therefore, this study aims to analyze the factors that affect the innovative work behavior of employees in pharmaceutical companies in Indonesia, where these factors include human capital, social capital, knowledge sharing, creativity, and various mediation roles.

H1: Human capital has a positive and significant influence on social capital in pharmaceutical companies in Indonesia.

H2: Human capital has a positive and significant influence on knowledge sharing in pharmaceutical companies in Indonesia

H3: Social capital has a positive and significant influence on knowledge sharing in pharmaceutical companies in Indonesia.

H4: Knowledge sharing has a positive and significant influence on employee creativity in pharmaceutical companies in Indonesia.

H5: Employee creativity has a positive and significant influence on innovative work behavior in pharmaceutical companies in Indonesia.

RESEARCH METHODS

This study uses a conclusive research design that aims to test certain hypotheses and examine certain relationships, and the data obtained is analyzed quantitatively. The conclusive research design used is a descriptive research that aims to describe the characteristics of the relevant group. The study used a single cross-sectional design, where only one sample of each respondent was taken from the target population, and information from each sample was obtained only once. This study uses primary data collected through electronic questionnaires distributed online through various social media. The indicator measurement scale used in this study is a seven-point Likert measurement scale with values ranging from strongly disagree (1) to strongly agree (7) with a neutral point (4) in the middle (Malhotra, 2010; Sekaran & Bougie, 2016)

The population in this study is all employees working in pharmaceutical companies in Indonesia. The pharmaceutical companies in this study are "business entities that have a permit from the Minister of Health to carry out activities to manufacture drugs or medicinal ingredients", and based on the Food and Drug Supervisory Agency of the Republic of Indonesia, there are a total of 243 pharmaceutical companies and special facilities in Indonesia that have the latest CPOB certificate as of March 21, 2022, starting from the Naval Pharmaceutical Institute Drs Mochamad Kamal, PT Abbott Indonesia, to PT Bromelain Enzyme and UTD PMI Lampung Province (Food and Drug Supervisory Agency of the Republic of Indonesia, 2022; Minister of Health of the Republic of Indonesia, 2010). The sample in this study is employees who meet the respondents' criteria and submit a questionnaire. The respondent criteria in this study were employees who were willing to voluntarily fill out the questionnaire and work at pharmaceutical companies in Indonesia. This study obtained a final respondent of 302 respondents.

The questionnaire of this study includes five variables. To measure human capital, follow Dahiyat et al. (2021). To measure social capital, follow Ko (2021). To measure knowledge sharing, follow Wu et al. (2007). To measure employee creativity following Soda et al. (2019), and to measure innovative work behavior following de Jong & den Hartog (2010) (Dahiyat et al., 2021; de Jong &

den Hartog, 2010; Ko, 2021; Soda et al., 2019; Wu et al., 2007). Before conducting this study, a pretest was first conducted to determine the results of the validity test and reliability test of the research questionnaire, which was carried out with SPSS Statistics software version 26. Furthermore, the final results of the research questionnaire were analyzed using the structural equation modeling (SEM) method with SPSS Amos software version 24 (Hair Jr et al., 2017).

RESULTS AND DISCUSSION

Results

The analysis of the measurement model was carried out using SPSS Amos version 24 software by conducting Confirmatory Factor Analysis (CFA) to be able to find out whether the observed variable or indicator has represented the related latent variable. The first thing that is done in analyzing the measurement model is to look at the validity value of the indicator based on the Standardized Loading Factor (SLF) value where the indicator is declared valid if it has an SLF value ≥ 0.5, and looking at the reliability value of the variable based on the Construct Reliability (CR) and Average Variance Extracted (AVE) values where the variable is declared reliable if it has a CR value ≥ 0.6 and AVE ≥ 0,5 (Hair Jr et al., 2017).

Table 1. Results of Variable Reliability Analysis

Variable	Dimension	Indicator	SLF	Validity	CR	AVE	Reliability
Human Capital	-	HC1	0,756	Valid	0,89	0,61	Reliable
		HC2	0,782	Valid			
		HC3	0,797	Valid			
		HC4	0,733	Valid			
		HC5	0,845	Valid			
Social Capital	*Structural Social Capital*	SSC1	0,682	Valid	0,82	0,53	Reliable
		SSC2	0,822	Valid			
		SSC3	0,783	Valid			
		SSC4	0,610	Valid			
	Relational Social Capital	RSC1	0,834	Valid	0,88	0,57	Reliable
		RSC2	0,802	Valid			
		RSC3	0,733	Valid			
		RSC4	0,500	Valid			
		RSC5	0,793	Valid			
		RSC6	0,805	Valid			
	Cognitive Social Capital	CSC1	0,872	Valid	0,92	0,75	Reliable
		CSC2	0,865	Valid			
		CSC3	0,896	Valid			
		CSC4	0,830	Valid			
Knowledge Sharing	-	KS1	0,640	Valid	0,89	0,57	Reliable
		KS2	0,747	Valid			
		KS3	0,801	Valid			
		KS4	0,457	Invalid			
		KS5	0,776	Valid			
		KS6	0,741	Valid			
		KS7	0,828	Valid			
		KS8	0,790	Valid			
		KS9	0,722	Valid			

		KS10	0,741	Valid			
Employee Creativity	-	EC1	0,892	Valid	0,94	0,80	Reliable
		EC2	0,899	Valid			
		EC3	0,896	Valid			
		EC4	0,889	Valid			
Innovative Work Behavior	*Idea Exploration*	IE1	0,568	Valid	0,68	0,53	Reliable
		IE2	0,854	Valid			
	Idea Generation	IG1	0,893	Valid	0,90	0,75	Reliable
		IG2	0,855	Valid			
		IG3	0,845	Valid			
	Idea Championing	IC1	0,953	Valid	0,93	0,87	Reliable
		IC2	0,916	Valid			
	Idea Implementation	II1	0,909	Valid	0,91	0,78	Reliable
		II2	0,866	Valid			
		II3	0,868	Valid			

Source: processed by researchers, 2023

Based on Table 2, there is 1 indicator that has an SLF value below 0.5, namely an indicator with the notation KS4 of the knowledge-sharing variable, so that the indicator cannot be maintained in construction. The rest, all indicators from 5 variables were declared valid with SLF values above 0.5. Furthermore, all dimensions and variables are declared reliable with CR values above 0.7 and AVE above 0.5.

The analysis of the structural model is carried out after the validity and reliability of each indicator and construction is known. At this stage, a SEM model compatibility test is carried out based on the goodness-of-fit criteria. To analyze the level of fit of a research model in the SEM analysis, the fit indices used are absolute fit indices consisting of Chi-Square, GFI, RMSEA, RMR, and ECVI; incremental fit indices consisting of TLI, NFI, AGFI, RFI, IFI, and CFI; and parsimony fit indices consisting of AIC and CAIC (Hair Jr et al., 2017; Malhotra, 2010).

Table 2. SEM Model Fit Test Results

GoF Size	Test Results	Information
Absolute Fit Measures		
Chisquare	1.488,73	*Poor Fit*
P-Value	0,000	*Poor Fit*
RMSEA	0,057	*Good Fit*
GFI	0,816	*Marginal Fit*
ECVI for saturated model	6,000	
ECVI for independence model	39,005	*Good Fit*
Expected Cross Validation Index (ECVI)	5,943	
Incremental Fit Measures		
NFI	0,872	*Marginal Fit*
CFI	0,932	*Good Fit*
YOUTH	0,933	*Good Fit*
TLI	0,922	*Good Fit*
RFI	0,854	*Marginal Fit*
AGFI	0,780	*Marginal Fit*
Parsimony Fit Measures		

AIC for saturated model	1.806	
AIC for independence model	11.740,63	*Good Fit*
Akaike Information Criterion (AIC)	1.788,73	
CAIC for saturated model	6.059,52	
CAIC for independence model	11.938,45	*Good Fit*
Consistent Akaike Information Criterion (CAIC)	2.495,29	

Source: processed by researchers, 2023

Based on Table 2, there are 7 measures of model fit that have results with good fit descriptions. Based on Hair Jr. et al. (2019), in the results of the model fit test, not all sizes must meet the goodness of fit criteria, where the above results are considered sufficient to assess the suitability of a research model (Hair Jr et al., 2017).

Direct influence analysis was carried out to test the research hypothesis using SPSS Amos software version 24. This study uses a type of one-tailed hypothesis test because in this study only research hypotheses that have a positive direction of influence are proposed, where a research hypothesis test that has a direction of influence either positive or negative is carried out using this type of hypothesis test. In evaluating the results of the direct influence hypothesis test, the relationship between variables in the test with a significance level of 0.05 can be said to be significant if it has a statistical T value ≥ 1,645 and P value ≤ 0,05 (Hair Jr et al., 2017).

Table 3. Results of the Direct Influence Hypothesis Test

H	Relationship between Variables	Coefficient	*T Statistics*	*P Values*	Test Results	Conclusion
H1	HC → SC	0,511	9,061	0,000 ***	Significant positive	Data support the hypothesis
H2	HC → KS	-0,127	-1,799	0,072	Insignificant	Data does not support hypotheses
H3	SC → KS	0,843	6,008	0,000 ***	Significant positive	Data support the hypothesis
H4	KS → EC	0,929	9,915	0,000 ***	Significant positive	Data support the hypothesis
H5	EC → IWB	0,541	7,828	0,000 ***	Significant positive	Data support the hypothesis

Source: processed by researchers, 2023

Indirect influence analysis was carried out using SPSS Amos software version 24 to determine the mediating role of a variable. Testing the significance of the role of mediating variables in providing an indirect influence in this study was carried out using the Sobel test or Sobel test. Based on the submission of the mediation hypothesis, this study uses a type of one-tailed hypothesis test with a significance level of 0.05, so that the relationship between variables is declared significant if it has a statistical T value ≥ 1,645 and P value ≤ 0,05 (Hair Jr et al., 2017).

Table 4. Results of Mediation Influence Hypothesis Test

H	Relationship between Variables	A	B	SEA	SEB	T Statistics	P Values	Test Results	Conclusion
H6	HC → SC → KS	0,511	0,843	0,056	0,140	5,026	0,000 ***	Significant positive	Data support the hypothesis
H7	SC → KS → EC	0,843	0,929	0,140	0,094	5,142	0,000 ***	Significant positive	Data support the hypothesis
H8	KS → EC → IWB	0,929	0,541	0,094	0,069	6,142	0,000 ***	Significant positive	Data support the hypothesis

Source: processed by researchers, 2023

Based on Tables 3 and 4, of the 5 direct influence hypotheses proposed, 1 of them is not supported by data, namely the direct influence of human capital on knowledge sharing. While 4 of them are supported by data, namely the direct influence of human capital on social capital, social capital on knowledge sharing, knowledge sharing on employee creativity, and employee creativity on innovative work behavior. Furthermore, of the 3 mediation hypotheses proposed, all of them are supported by data, where social capital, knowledge sharing, and employee creativity are proven to have sequential mediating roles on the relationship between human capital and innovative work behaviors.

Discussion

Based on the results of this study, human capital shows a positive and significant influence on social capital in pharmaceutical companies in Indonesia, and thus supports hypothesis 1. The results of this study are in line with research conducted by Ahn & Kim (2017) in manufacturing companies in Korea, and Dahiyat et al. (2021) in the pharmaceutical manufacturing industry in Jordan, where they proved that human capital can affect social capital (Ahn & Kim, 2017; Dahiyat et al., 2021). The question items describing human capital in this study explain employees' perceptions of the knowledge, skills, and abilities of employees in the company where they work when answering the questionnaire. Based on the results of this study, the characteristics of human capital that most affect the formation of social capital in a company are when employees are known for their ability to develop new ideas as described by the HC5 indicator, then when creative employees are described by the HC3 indicator, then when employees are considered the best in the pharmaceutical industry as described by the HC2 indicator, then when skilled employees are described by the HC1 indicator, and finally when employees are considered experts in their field as depicted by the HC4 indicator (Dahiyat et al., 2023).

The results of this study are very likely to occur because innovative and creative employees are more likely to seek new knowledge and are open to others, thus allowing the formation of social capital (Mehralian et al., 2018). Based on the results of this study, corporate investment in human capital is very necessary, especially in recruiting, educating, training, nurturing, and retaining employees who are able to develop new ideas and be able to be creative. Innovative and creative human capital is key to innovation, competitiveness, and company performance especially in

knowledge-based environments such as the pharmaceutical industry, so investment in employee education and training can influence the formation of structural, relational, and cognitive social capital, i.e., communities of practice, beliefs, and common codes and languages, which are expected to improve the company's innovation performance (Mehralian et al., 2018).

Based on the results of this study, human capital does not show any positive and significant direct influence on knowledge sharing, and thus hypothesis 2 is not supported by the data from the results of this study. Nevertheless, the results of this study show that there is a positive and significant indirect influence on the relationship between human capital, social capital, and knowledge sharing, where social capital is found to mediate the relationship between human capital and knowledge sharing, and thus hypothesis 6 is supported by the data from the results of this study. The results of this study may be due to the fact that the perception of high human capital by employees alone is not enough to be able to increase knowledge sharing among employees (Ahn & Kim, 2017). In this case, there must be a strong network of social relationships that can serve as a catalyst, that is, social capital, which can be used by the company as a network of relationships and communication among employees so that it can facilitate the flow and integration of knowledge within the company (Dahiyat et al., 2023). Without social capital paving the way for the exchange of information among employees, the knowledge contained in human capital may not be mobilized, exchanged, and combined through knowledge sharing (Ahn & Kim, 2017; Dahiyat et al., 2023).

Based on previous research, human capital is linked to a company's investment in an effort to improve the knowledge, skills, and abilities of employees through recruiting, educating, training, nurturing, and retaining qualified employees. However, all these efforts cannot directly improve knowledge sharing among employees (Ahn & Kim, 2017; Mehralian et al., 2018). Based on previous research, it was found that knowledge can be a source of superior strength of an employee, so that the typical knowledge of an employee can make him get higher performance evaluations, awards, and promotion opportunities from his colleagues. When employees become afraid of losing their unique and exclusive knowledge, they are more likely to hide their knowledge (Kankanhalli et al., 2005). In addition, knowledge sharing often takes a lot of time and effort to help the recipient of knowledge in understanding the source of knowledge, and can cause conflicts among employees due to inconsistencies or unequal perspectives of the knowledge shared. This allows employees to be reluctant to share knowledge (Reagans & McEvily, 2003).

However, all of the above can be overcome by increasing the perception of social capital within the company, namely by creating a pattern of social networks, trusts, and shared goals and visions within the company, thus allowing high-quality human capital to be willing to share knowledge with others (Ahn & Kim, 2017).

Based on the results of this study, social capital shows a positive and significant direct influence on knowledge sharing in pharmaceutical companies in Indonesia, and thus supports hypothesis 3. The results of this study are in line with many previous studies that prove that social capital can influence knowledge sharing among employees, namely the research of Seleim & Khalil (2011), Yu et al. (2013), Allameh (2018), and Bhatti et al. (2021). The question items describing social capital in this study explain employees' perceptions of social network patterns, trust levels, and shared goals and visions in the company where they work when answering the questionnaire.

Based on the results of this study, the social capital indicator that most affects employees' willingness to share knowledge comes from the cognitive social capital dimension, which consists of an achievable company vision described by the CSC3 indicator, then a specific and clear company vision described by the CSC1 indicator, and then a company vision that is flexible enough to face environmental changes as described by the CSC2 indicator (Ko, 2021).

In addition to the shared vision and goals, the next indicator that most affects employees' willingness to share knowledge comes from the relational social capital dimension, RSC1, which is when employees in pharmaceutical companies trust each other's intentions and actions (Ko, 2021). Based on the results of this study and the results of previous studies, relational social capital is the dimension that most affects knowledge sharing because even with structural and cognitive social capital, employees may not want to engage in knowledge sharing with colleagues unless they have trust in each other. In addition to the shared vision and trust among employees, the next indicator that most influences employees' willingness to share knowledge comes from the structural social capital dimension, SSC2, which is when employees understand their colleagues' work and issues related to their colleagues' work (Ko, 2021). The results of this study prove that when in pharmaceutical companies there is a high social bond described by structural social capital, where employees understand the work and problems related to the work of their colleagues, then employees will be more willing to share knowledge among them. Thus, pharmaceutical company management can increase knowledge sharing among company employees by encouraging employees to understand each other's work and work-related problems (Bhatti et al., 2021).

Based on the results of this study, the management practices of pharmaceutical companies should be designed to improve shared vision, mutual trust, and social bonds among the company's employees to be able to increase knowledge sharing among employees within the company (Bhatti et al., 2021).

Based on the results of this study, knowledge sharing shows a positive and significant influence on employee creativity in pharmaceutical companies in Indonesia, and thus supports hypothesis 4. The results of this study are in line with research conducted by Bhatti et al. (2021) in the pharmaceutical industry in Pakistan which proved that knowledge sharing can affect employee creativity, and El-Kassar et al. (2022) who proved that hiding knowledge can negatively and significantly affect employee creativity (Bhatti et al., 2021). The question items describing knowledge sharing in this study explain about employees' willingness to share their knowledge and experience in the company where they work when answering the questionnaire.

Based on the results of this study, the knowledge sharing indicators that most affect employee creativity are when employees are willing to provide the information needed by their colleagues as described by the KS7 indicator, then when employees are willing to answer their colleagues' questions as best as possible when their colleagues ask them as described by the KS3 indicator, then when employees are willing to tell their colleagues where to go seek help when they can't help as illustrated by the KS8 indicator, and further when employees are willing to patiently give an explanation to their coworkers when there is something difficult to explain described by the KS5 indicator (Ko, 2021). The results of this study are in line with the theory from previous research, where knowledge sharing refers to a person's willingness to share knowledge in a team, which is usually routine, in a role, especially for explicit knowledge, and is reactive in nature that usually

occurs only when asked (Singh et al., 2019). Based on previous research, knowledge sharing usually has a reciprocal motive, occurs only when requested, is reactive, less independent, and less proactive (Singh et al., 2019).

Based on the results of this study, the indicator of knowledge sharing that most affects employee creativity as mentioned above is when employees are willing to share knowledge when they are asked for information, asked by colleagues, asked for help, or asked for explanations. While the rest of the indicators that are more proactive turn out to be less influential, where the next influential indicator is when employees are willing to share their knowledge and experience with others as described by the KS2 indicator, then when employees are willing to give opportunities to try to less experienced colleagues as described by the KS6 indicator, then when employees are willing to express ideas in a way that can be fully understood by their colleagues as depicted by the KS10 indicator, then when employees are willing to give encouragement when their colleagues face difficulties at work as depicted by the KS9 indicator, and finally when employees are willing to discuss work-related matters with their colleagues as depicted by the KS1 indicator (Wu et al., 2007).

However, sharing knowledge among employees however reactive or proactive can create a flow of knowledge in this knowledge-intensive pharmaceutical industry (Dahiyat et al., 2023). Thus, managers of pharmaceutical companies must focus on acquiring and sharing knowledge if they want to strengthen the creative environment for their employees. In this case, the manager of a pharmaceutical company should encourage the company's employees to ask each other questions, regularly inform them about positive experiences and successful working methods, and share their knowledge and experience (Bhatti et al., 2021).

Based on the results of this study, employee creativity shows a positive and significant influence on innovative work behavior in pharmaceutical companies in Indonesia, and thus supports hypothesis 5. The results of this study are in line with research conducted by Slåtten et al. (2011), Volery & Tarabashkina (2021), and El-Kassar et al. (2022), where they proved that employee creativity can influence innovative work behavior. The question items that describe the creativity of employees in this study explain about the ability of employees to generate innovative ideas in the company where they work when answering questionnaires. Based on the results of this study, the ability of employees to generate ideas that most influence the increase in innovative work behavior is when employees are able to produce new ways to optimize work processes as described by the EC2 indicator, then when employees are able to produce new ways to improve the quality of work described by the EC3 indicator, then when employees are able to generate new ideas to improve the performance of the department described by the EC1 indicator, and finally when employees are able to come up with creative solutions to emerging problems illustrated by EC4 indicators (Soda et al., 2019).

The results of this study are very likely because when employees are dissatisfied with their jobs, they try to change their current work situation by finding new and better ways of doing things that can improve their work processes and quality (Soda et al., 2019). Finding new and better ways of doing things is at the heart of creativity, and can lead employees to higher innovative work behaviors (Ahn & Kim, 2017). Based on the theory from previous research, creativity is the foundation of innovation, and all innovation comes from creative ideas (Slåtten et al., 2011). Thus,

creativity is the input for innovative work behaviors, while innovative work behaviors are the implementation or implementation for new ideas in the work role (Agarwal & Bhargava, 2014).

Pharmaceutical companies rely on the creativity and innovation of their employees to survive (Agarwal & Bhargava, 2014). The current level of technological and social change in the pharmaceutical industry has resulted in shorter life cycles of products, services, and business processes, making sustainable innovation a business imperative. As such, pharmaceutical companies must mobilize the technical skills, knowledge, and experience of their employees, to innovate in products, processes, and services through innovative work behaviors (Agarwal & Bhargava, 2014).

The results of this study reinforce the importance of employee creativity in achieving higher innovative work behaviors, where employee creativity can encourage the exploration, creation, defense, and implementation of new ideas, as illustrated by the dimensions of innovative work behaviors. In other words, employee creativity is an individual factor that can contribute and lead employees to actively identify opportunities, generate new ideas, convince colleagues to support innovative ideas, and contribute to the implementation of new ideas to carry out their tasks (Janssen, 2000).

Thus, pharmaceutical company managers must be aware that personal characteristics such as creativity can stimulate innovative work behaviors, which can have an impact on employee recruitment and development. Pharmaceutical company managers can focus their recruitment efforts on creatively inclined individuals by adding tasks that require creativity during the employee hiring process. In addition, to develop employees, managers of pharmaceutical companies can instill creativity by holding various trainings that describe various creativity techniques, where these efforts can further facilitate the increase in innovative work behaviors in the workplace (Theodore et al., 2022).

Based on the results of this study, knowledge sharing was found to mediate the relationship between social capital and employee creativity, and thus support hypothesis 7. Furthermore, employee creativity was found to mediate the relationship between knowledge sharing and innovative work behaviors, and thus support hypothesis 8. The results of this study answer the call for more research on innovative work behaviors (Singh et al., 2019). The results of this study confirm the impact of employee perception on organizational factors, as well as individual factors that have a significant relationship with innovative work behavior. The results of this study show that employee perception of human capital and social capital plays an influential role in positive behaviors such as knowledge sharing, creative behavior, idea exploration, idea creation, idea defense, and idea implementation. Thus, if high-quality employees have a higher perception of social capital, a willingness to share knowledge, and creativity, they are more likely to engage in innovative work behaviors (Bhatti et al., 2021).

CONCLUSION

Based on the results of the study, it can be concluded that human capital, social capital, knowledge sharing, and creativity are important factors in efforts to improve innovative work behavior of employees in pharmaceutical companies in Indonesia. However, in terms of increasing knowledge sharing among employees, high-quality human capital is not enough, and must be

accompanied by the formation of corporate social capital as a mediator so that human capital can have access to knowledge sharing among them. Nonetheless, human capital remains an important antecedent for social capital and knowledge sharing, which can further influence employee creativity, and further influence innovative work behaviors in pharmaceutical companies in Indonesia. This research provides insights for practitioners in pharmaceutical companies in Indonesia to be able to improve the innovative work behavior of their employees through the encouragement of human capital, social capital, knowledge sharing, and employee creativity within their company environment.

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