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Psychological drivers of innovative work behavior in nursing: the roles of creative self-efficacy, trust in supervisors, uncertainty avoidance, and psychological capital

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Abstract

Background Innovation enables nurses to improve care delivery, yet their role is rarely recognized. The work activities in innovative work behavior (IWB) are characterized by their dynamic nature, involving complex tasks that are not standardized or routine in nature. This study examined the relationships between creative self-efficacy (CSE), trust in supervisors, uncertainty avoidance, psychological capital, and innovative work behavior among Egyptian nurses.

Methods A cross-sectional correlational design was employed. A convenience sample of 310 nurses (mean age = 31.52 ± 8.21 years), of both genders and aged above 18 years, was recruited at Assiut University Hospital. Data were collected using a structured questionnaire including demographic and work-related data, the Creative Self-Efficacy Scale, Trust in Supervisor Scale, Uncertainty Avoidance Scale, Psychological Capital Questionnaire, and Innovative Work Behavior Scale. Data were analyzed using descriptive statistics, Pearson correlation coefficients, and multiple linear regression analysis.

Results Using convenience sampling, participants were categorized into low, moderate, and high IWB groups. The findings demonstrated that higher levels of innovative work behavior were associated with higher levels of creative self-efficacy, uncertainty avoidance, and psychological capital. Significant positive correlations were observed between IWB and all studied psychological variables. Multiple regression analysis revealed that creative self-efficacy, uncertainty avoidance, and psychological capital were significant predictors of innovative work behavior, whereas trust in supervisors did not retain statistical significance.

Conclusions The results highlight the multifaceted psychological determinants of innovative work behavior in nursing practice the findings suggest that strengthening nurses' creative self-efficacy, psychological capital, and adaptive responses to uncertainty may enhance innovative work behavior.

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Keywords Creative self-efficacy, Trust in supervisor, Uncertainty avoidance psychological capital and innovative work behavior, Nurses work

Background

Innovation plays a crucial role in nursing, as healthcare professionals worldwide engage in creative endeavours to reduce costs and enhance patient outcomes. However, the contributions of nurses to innovation are often under recognized [1]. Empowering nurse leaders to cultivate innovation yields significant benefits for the workforce [2]. In this context, Innovative Work Behavior (IWB) emerges as a key concept, defined as employees' deliberate introduction, promotion, and implementation of novel ideas to improve organizational performance [3].

IWB transcends the boundaries of standard employment responsibilities, encompassing a dynamic range of activities that involve complex, non-standardized, and non-routine tasks [4]. In the nursing profession, IWB manifests as the discovery and application of enhanced work methodologies to advance health and nursing practices [5].

The development of IWB is influenced by both individual and environmental factors. Personal attributes such as self-efficacy, cognitive style, happiness [6] and thought processes, as well as environmental elements like leadership support and behavior, collectively shape IWB, which in turn drives productivity and organizational growth [7, 8]. For instance, self-efficacy plays a pivotal role in determining an individual's aspirations and the level of effort invested in pursuing innovative endeavors [9].

Employees exhibiting higher levels of Creative Self-Efficacy (CSE) demonstrate enhanced IWB due to their increased confidence in idea generation [10]. Hence, CSE, defined as an individual's belief and self-assurance in their capacity to innovate [5], significantly influences the initiation and persistence of IWB, as well as the utilization of skills [10]. It represents a self-assessment of creative potential, serving as a motivator for effort and achievement [11].

Trust in one's supervisor, reflecting perceived benevolent intentions, facilitates risk-taking behaviors such as IWB by mitigating fears of retaliation [12, 13]. This trust plays a crucial role in shaping nurses' innovative behavior by fostering an environment where learners feel supported and free to experiment with new ideas without negative consequences [14]. Nurses who trust their supervisors feel encouraged and respected, which motivates them to suggest and implement innovative ideas. Research has demonstrated a strong association between trust in leadership and creative behaviors among nurses [15]. Conversely, diminished trust redirects focus towards self-protection rather than innovation [16].

Uncertainty avoidance, which refers to risk tolerance levels, impacts the perception of innovation norms within organizations [17]. As innovation inherently involves uncertainty, individuals may resist engaging in innovative behaviors due to discomfort [18]. As innovation inherently involves uncertainty, individuals may resist engaging in innovative behaviors due to discomfort [19].

Psychological capital, another personal factor influencing IWB and the adoption of beneficial ideas in organizations [20, 21], encompasses confidence, optimism, and persistence towards goals [22]. This construct plays a significant role in shaping an individual's innovative potential and their ability to implement novel ideas effectively.

Research gap and significance

Despite the growing recognition of innovation as a strategic priority in healthcare systems, empirical studies that simultaneously examine the combined effects of creative self-efficacy, trust in supervisors, uncertainty avoidance, and psychological capital on nurses' innovative work behavior remain limited, particularly within Middle Eastern and developing country contexts.

Most existing studies have investigated these psychological constructs in isolation or within non-healthcare organizational settings, which limits the generalizability of their findings to nursing practice. Furthermore, the Egyptian healthcare context is characterized by high workload, hierarchical organizational structures, and resource constraints, all of which may uniquely influence nurses' psychological functioning and innovative behaviors.

Accordingly, this study addresses an important empirical gap by providing an integrated examination of key psychological predictors of innovative work behavior among Egyptian nurses. Understanding these relationships is essential for developing evidence-based managerial strategies aimed at fostering innovation, improving organizational effectiveness, and enhancing the quality of nursing care.

Research problem

Considering the limited empirical evidence within the Egyptian nursing context, the current research problem can be formulated as follows:

To what extent do creative self-efficacy, trust in supervisors, uncertainty avoidance, and psychological capital relate to and predict innovative work behavior among nurses working in Egyptian university hospitals?

Aim of the study

The primary aim of this study is to understand and explain the relationships between creative self-efficacy, trust in supervisors, uncertainty avoidance, psychological capital, and innovative work behavior among nurses working in an Egyptian university hospital.

In addition, the study aims to predict nurses' innovative work behavior based on selected psychological factors, namely creative self-efficacy, trust in supervisors, uncertainty avoidance, and psychological capital.

This aim is grounded in the fundamental scientific objectives of explanation and prediction, and seeks to generate empirical evidence that can inform managerial and organizational interventions designed to enhance innovation in nursing practice.

Research hypotheses

Based on the study aim and research questions, the following hypotheses were formulated:

H1 There is a positive statistically significant relationship between creative self-efficacy and innovative work behavior among nurses.

H2 There is a positive statistically significant relationship between trust in supervisors and innovative work behavior among nurses.

H3 There is a positive statistically significant relationship between psychological capital and innovative work behavior among nurses.

H4 There is a statistically significant relationship between uncertainty avoidance and innovative work behavior among nurses.

Method

Study design

A cross-sectional correlational research design was used.

Setting: The study was conducted at Assiut University Hospital, Egypt, which is a large tertiary teaching hospital providing inpatient and outpatient services across multiple medical and surgical departments.

Sample

The study population consisted of all registered nurses (N=1583) working at Assiut University Hospital at the time of data collection. A convenience sampling technique was used to recruit participants. Epi Info was used to estimate the required sample size, and 310 nurses were enrolled in the study. Nurses who were older than 18 years of age, of either sex, who were active nursing professionals in the hospital were eligible to participate in this study. Nurses who had been placed on leave prior to

or during the study period or were not directly caring for patients were excluded from participating.

Participants were categorized into three groups based on their scores on the Innovative Work Behavior Scale: low, moderate, and high innovative work behavior. The cutoff categories for IWB were determined based on a methodology developed by Roberts (2016) which classifies IWB scores as low (≤ 2), moderate ($> 2 < 4$) and high (≥ 4), creating a framework through which to evaluate differences between the groups based on IWB [23].

Tools of the study

Tool (1): Demographic and work-related attributes: As The data collected include the demographics and working variables, which are the age of the nurses, gender, place of residence, educational level, marital status, department type, years of service, as well as the number of patients attended to within the shift.

Tool (2): Creative Self-Efficacy Scale: The scale used to determine this is the Creative Self-Efficacy Scale created by Tierney & Farmer and comprises 3 items with a 7-point Likert-type scale rated from 1 (strongly disagree) to 7 (strongly agree) [21]. In the present study, the internal consistency of the scale was satisfactory (Cronbach's $\alpha = 0.88$).

Tool (3): Trust in Supervisor Scale: Developed by McAlister (1995), this 5-item measure, with a 5-point Likert response format (1–5), is used to tap affect-based trust [22]. The internal consistency coefficient in this study was Cronbach's $\alpha = 0.85$.

Tool (4): Uncertainty Avoidance Scale: This scale was designed by Jung & Kellaris (2004). It has 7 items using a 7-point likert scale (1 = strongly disagree, 7 = strongly agree) [24]. Cronbach's alpha for this scale in the current sample was $\alpha = 0.83$.

Tool (5): Psychological Capital Questionnaire: This tool was developed by Luthans et al. [25] and translated into Arabic by Metwally et al. It includes 24 items divided into four domains: self-efficacy, optimism, hope, and resilience. Statements in each domain were scored on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree [26]. Internal consistency for the total scale was Cronbach's $\alpha = 0.82$.

Instrument (6): Innovative Work Behavior Scale: It was developed by Jong & Den Hartog in 2008. It is a measure of innovative work behavior in 10 items across its four subscales: opportunity exploration with 2 items, idea generation with 3 items, championing with 2 items, and implementation with 3 items using a 5-point Likert scale ranging from 1 to 5. Procedures-Preparation and Assessment of Validity A literature review was done during the preparation period. This was conducted from May to June 2022. The overall reliability of the scale in this study was Cronbach's $\alpha = 0.89$.

Translation, validity, and reliability

All instruments were translated into Arabic using a forward–backward translation procedure to ensure linguistic and conceptual equivalence.

Content validity was assessed by a panel of five experts in Nursing Administration and Psychiatric Nursing, who evaluated the relevance, clarity, and cultural appropriateness of all items. Items were retained if at least 80% of experts agreed on their adequacy.

Pilot study

A pilot study was conducted on 31 nurses (approximately 10% of the total sample) to assess clarity, feasibility, and time required for completion of the questionnaire. The pilot data were analyzed, and no modifications to the tools were required. Pilot participants were excluded from the final analysis.

Statistical Analysis: Data were analyzed using SPSS version [27]. Normality of continuous variables was assessed using the Shapiro–Wilk test and inspection of histograms, which indicated approximate normal distribution. Descriptive statistics were computed using means and standard deviations for continuous variables and frequencies and percentages for categorical variables. Pearson correlation coefficients were used to examine relationships between innovative work behavior and the

studied psychological variables. Multiple linear regression analysis was performed to identify predictors of innovative work behavior.

Results

Table 1 presents the socio-demographic and work-related characteristics of the nurses according to their levels of innovative work behavior. Statistically significant differences were observed among the three groups with respect to age and years of professional experience. Specifically, nurses classified in the moderate innovative work behavior group tended to be younger, with a significantly lower proportion of participants aged over 40 years compared to the other groups. In contrast, nurses with more than 10 years of experience were more frequently represented in the low innovative work behavior group. No statistically significant differences were found among the three groups regarding gender, marital status, place of residence, educational level, department type, or patient load per shift. Based on the Innovative Work Behavior Scale scores, 151 nurses were classified as having low innovative work behavior, 52 as moderate, and 107 as high.

Table 1 The socio-demographic characteristics of the studied nurses

Socio-demographic characteristic	Total participants (N= 310)	Group 1 (N= 151)	Group 2 (N= 52)	Group 3 (N= 107)	Chi or F value	P value
Age (Mean ± SD)	31.52 ± 8.21	33.19 ± 9.16	29.77 ± 6.25	30.02 ± 7.15	6.31	0.002**
< 30 years	165(53.2%)	70(46.4%)	30(57.7%)	65(60.7%)	12.89	0.012*
30–40 years	89(28.7%)	42(27.8%)	17(32.7%)	30(28.0%)		
> 40 years	56(18.1%)	39(25.8%)	5(9.6%)	12(11.2%)		
Sex						
Male	98(31.6%)	49(32.5%)	13(25.0%)	36(33.6%)	1.31	0.521
Female	212(68.4%)	102(67.5%)	39(75.0%)	71(66.4%)		
Residence						
Rural	148(47.7%)	71(47.0%)	31(59.6%)	46(43.0%)	3.94	0.140
Urban	162(52.3)	80(53.0%)	21(40.4%)	61(57.0%)		
Educational Qualifications						
Bachelor of nursing	158(51.0%)	76(50.3%)	18(34.6%)	64(59.8%)	8.94	0.011*
Diploma	152(49.0%)	75(49.7%)	34(65.4%)	43(40.2%)		
Marital Status						
Married	170(54.8%)	90(59.6%)	27(51.9%)	53(49.5%)	2.78	0.249
Unmarried	140(45.2%)	61(40.4%)	25(48.1%)	54(50.5%)		
Years' Experience:						
< 5 years	140(45.2%)	58(38.4%)	26(50.0%)	56(52.3%)	14.18	0.007**
5–10 years	110(35.5%)	51(33.8%)	20(38.5%)	39(36.4%)		
> 10 years	60(19.4%)	42(27.8%)	6(11.5%)	12(11.2%)		
Nurse caring patients during shift:						
< 5 patients	103(33.2%)	55(36.4%)	16(30.8%)	32(29.9%)	6.19	0.186
5–10 patients	170(54.8%)	84(55.6%)	30(57.7%)	56(52.3%)		
> 10 patients	37(11.9%)	12(7.9%)	6(11.5%)	19(17.8%)		

Group 1: Low Innovative Work Behavior, Group 2: Moderate Innovative Work Behavior, Group 3: High Innovative Work Behavior, * p significant

Table 2 Distribution of creative self-efficacy, trust in supervisor, uncertainty avoidance and psychological capital scale results

Variables	Innovative Work Behaviour				F value	P value
	Total participants (N = 310)	Group 1 (N = 151)	Group 2 (N = 52)	Group 3 (N = 107)		
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD		
Creative Self-efficacy	12.80 $\pm$ 4.67	10.06 $\pm$ 4.16	14.60 $\pm$ 3.60	15.80 $\pm$ 3.37	77.93	< 0.001**
Trust in supervisor	14.73 $\pm$ 4.65	13.23 $\pm$ 5.15	16.79 $\pm$ 2.65	15.84 $\pm$ 3.94	17.74	< 0.001**
Uncertainty Avoidance	23.58 $\pm$ 10.49	16.72 $\pm$ 7.55	28.81 $\pm$ 8.38	30.72 $\pm$ 8.63	107.32	< 0.001**
Psychological Capital	72.81 $\pm$ 20.54	61.15 $\pm$ 22.62	82.98 $\pm$ 9.47	84.33 $\pm$ 9.15	68.26	< 0.001**
Self-efficacy	18.60 $\pm$ 5.35	15.50 $\pm$ 5.84	21.29 $\pm$ 1.88	21.65 $\pm$ 2.61	71.90	< 0.001**
Optimism	17.55 $\pm$ 5.39	14.93 $\pm$ 5.66	20.08 $\pm$ 3.09	20.01 $\pm$ 3.98	44.31	< 0.001**
Hope	18.29 $\pm$ 5.48	15.39 $\pm$ 6.09	20.90 $\pm$ 2.38	21.11 $\pm$ 2.98	55.88	< 0.001**
Resiliency	18.37 $\pm$ 5.77	15.32 $\pm$ 6.23	20.71 $\pm$ 4.29	21.55 $\pm$ 2.64	56.79	< 0.001**

Group 1: Low Innovative Work Behaviour, Group 2: Moderate Innovative Work Behaviour, Group 3: High Innovative Work Behaviour, * p significant

Table 3 Correlation between innovative work behaviour, creative self-efficacy, trust in supervisor, uncertainty avoidance, and psychological capital of the studied nurses (n = 310)

Scales		Innovative Work Behavior	Creative Self-efficacy	Trust in supervisor	Uncertainty Avoidance	Psychological Capital
Innovative work behavior	r-value	-				
	P-value	-				
Creative Self-efficacy	r-value	0.755	-			
	P-value	< 0.001**	-			
Trust in supervisor	r-value	0.544	0.540	-		
	P-value	< 0.001**	< 0.001**	-		
Uncertainty Avoidance	r-value	0.709	0.765	0.518	-	
	P-value	< 0.001**	< 0.001**	< 0.001**	-	
Psychological Capital	r-value	0.764	0.727	0.668	0.688	-
	P-value	< 0.001**	< 0.001**	< 0.001**	< 0.001**	-

** Correlation is significant at the 0.01 level (2-tailed)

Psychological variables across IWB levels

Table 2 shows the mean scores of creative self-efficacies, trust in supervisors, uncertainty avoidance, and psychological capital across the three innovative work behavior groups. Overall, nurses in the high innovative work behavior group demonstrated higher mean scores across all psychological variables compared to those in the moderate and low groups except trust in supervisors.

Correlation and regression studies

Table 3 presents the Pearson correlation coefficients between innovative work behavior and the studied psychological variables. There was a significant positive correlation between innovative work behavior and creative self-efficacy ($r=0.755$, $p<0.001$), trust in supervisors ($r=0.544$, $p<0.001$), uncertainty avoidance ($r=0.709$, $p<0.001$), and psychological capital ($r=0.764$, $p<0.001$). This pattern was also observed for creative self-efficacy, which showed a strong positive correlation with trust in supervisors ($r=0.540$, $p<0.001$), uncertainty avoidance ($r=0.765$, $p<0.001$), and psychological capital ($r=0.727$, $p<0.001$). Trust in supervisors was likewise positively correlated with uncertainty avoidance ($r=0.518$, $p<0.001$) and psychological capital ($r=0.668$, $p<0.001$).

In a similar manner, uncertainty avoidance demonstrated a strong positive correlation with psychological capital ($r=0.688$, $p<0.001$). These findings indicate notable interrelationships among the studied psychological variables and innovative work behavior.

The results of the multiple linear regression analysis are presented in Table 4. The results indicate that a substantial proportion of the variance in innovative work behavior was explained by creative self-efficacy, trust in supervisors, uncertainty avoidance, and psychological capital. Creative self-efficacy emerged as the strongest positive predictor of innovative work behavior ($B=0.663$, $p<0.001$), followed by uncertainty avoidance ($B=0.173$, $p<0.001$) and psychological capital ($B=0.188$, $p<0.001$). In contrast, trust in supervisors, although positively correlated with innovative work behavior, did not retain statistical significance in the regression model, suggesting potential shared variance with other predictors.

Discussion

The present study aimed to examine the relationships between creative self-efficacy, trust in supervisors, uncertainty avoidance, psychological capital, and innovative work behavior among nurses working in an Egyptian

Table 4 Multiple regression analysis between Creative Self-efficacy, Trust in supervisor, Uncertainty Avoidance, Psychological Capital and Innovative Work Behavior of the studied nurses (N = 310)

Dependent variable	R ²	Independent variable	B	Standard Error	Beta	t	P	F
Innovative Work Behavior	0.682							
		Creative Self-efficacy	0.663	0.116	0.318	5.730	<0.001**	163.38
		Trust in supervisor	0.020	0.091	0.010	0.223	0.823	
		Uncertainty Avoidance	0.173	0.049	0.187	3.546	<0.001**	
		Psychological Capital	0.188	0.026	0.398	7.217	<0.001**	

university hospital. The findings provide empirical support for the theoretical assumption that psychological resources play a central role in shaping nurses' engagement in innovative behaviors within complex healthcare environments.

The results demonstrated that nurses with higher levels of innovative work behavior reported higher levels of creative self-efficacy, uncertainty avoidance, and psychological capital except trust in supervisors. Additionally, a positive relationship exists between IWB and all previous aspects.

Multiple regression analysis showed that a higher level of IWB was related to enhanced levels of creative self-efficacy, uncertainty avoidance, and psychological capital. Contrary to expectations, trust in the supervisor did not distinguish as a factor in the model. In consistent findings, research showed that there were positive relationships observed between creative self-efficacy, trust in supervisor, uncertainty avoidance, and innovative work behavior [13]. In similar research, Abbas and Raja found a strong correlation between psychological capital and innovative performance [28].

The correlation between CSE and IWB is consistent with the principles of social cognitive theories. People who are high in CSE feel confident in their capacity for the generation and use of new ideas at work. Feeling confident in this manner also helps them in tackling uncertain situations in the process of innovation. The research findings of this study support the fact that CSE can improve levels of IWB [29–31] and has predictive capability in regard to innovative work behavior [9, 32].

Zappalà et al. (2020) emphasized the importance of personal initiatives and innovation support in the development and application of concepts in the nursing area, and this finding was also supported by recent studies [33]. Li, Cheng, and Xu (2022) explained the mediator role of creative self-efficacy in the correlation between the expectations of innovation by leaders and the innovation behavior of the nursing team, and the importance of the innovation in the subject area through self-efficacy [5]. Furthermore, Namono et al. (2022) showed the major effect of creative self-efficacy in IWB, and the important role of belief as an activator for participating in the innovation processes [34].

To the contrary, the results indicate that uncertainty avoidance showed a positive impact on IWB in the nursing profession. This contrary finding can be explained by the fact that nurses see uncertainty avoidance as a means of following usual procedures for guarantees of safety while implementing innovative approaches in patient services. This finding is consistent with Kim and Zhou (2018), which found that there was a significant and direct positive impact of uncertainty avoidance on innovative behavior [17]. This finding is contrary to previous literature that showed that intolerance of ambiguity encourages risk-taking and innovations [35–38].

The analysis of results for psychological capital reported a positive significant effect on IWB. Psychological capital, a pool of key psychological resources, aids in the effective generation of innovative work-related ideas. This finding supports existing literature that reported a positive effect of psychological capital on the workplace behavior of employees regarding innovation [19, 28]. The significance of nursing psychological resources in improving workers' innovative behavior in the workplace has not only been supported but emphasized.

These results have been supported in recent research. Yuan et al. (2022) found a positive correlation between psychological capital (self-efficacy, optimism, hope, and resiliency) and improved mental health and work performance among nurses. This suggests that these factors may be encouraged to increase innovation [39]. Akkoç et al. (2022) pointed out the role of psychological empowerment in the relationship between the environmental ethics factor, innovation culture factor, and creative behavior among nurses [40]. Karimi et al. (2023) emphasized psychological capital as a strong predictor of IWB [41].

Contrary to expectations, results in this study revealed that trust in supervisors did not have statistically significant influence on IWB. This outcome calls for a closer examination of the trust and innovation relationship in the healthcare context. Possibly, in settings that trust their superiors to a great extent, workers could choose not to scrutinize their creative and innovative endeavors.

High trust may promote confidence in support from managers irrespective of results. This argument is supported by Zhang and Zhou, who argued that trust enables creativity and innovation [42], and also Kmiecik, who found a positive relation between trust and IWB [11].

However, Hughes et al. showed the maximum amount of IWB if trust in supervisors is lower [15]. These conflicting findings reflect the complexity of trust dynamics and further point toward nuances required in healthcare teams.

Based on these findings, nurse managers should invest in training programs that allow calculated risk-taking, embrace uncertainty as a natural companion of innovation, and create an atmosphere where trust in the leadership is fostered. The development of nurses' creative self-efficacy is necessary since this factor may provide a basis upon which uncertainty avoidance and trust could influence IWB. The availability of chances to enhance trust in supervisors should be accompanied by the development of psychological capital. Together, these can facilitate an environment that is empowering for innovative work behavior among nursing employees.

Limitations of the study

Cross-sectional design cannot enable causal inference; convenience sampling might lack generalizability. In the Arabic versions of the measures, confirmatory factor analysis (CFA) was not performed, which is considered a potential construct validation issue.

Implications for future research and practice

Future research should adopt longitudinal or experimental designs, use probability sampling, and recruit participants from multiple healthcare institutions to enhance the generalizability and causal understanding of psychological resources' impact on innovative work behavior. Psychometric validation of translated instruments through confirmatory factor analysis, along with examination of mediating and moderating factors such as leadership style, organizational climate, and job autonomy, could provide deeper insights into these relationships. Practically, nursing management should focus on developing nurses' psychological resources—especially creative self-efficacy and psychological capital—through training, mentoring, and supportive leadership, while fostering work environments that encourage idea sharing, constructive risk-taking, and resilience, as these strategies may be more effective in promoting innovation than structural or procedural reforms alone.

Conclusion

Creative self-efficacy, uncertainty avoidance, and psychological capital were significant correlates of nurses' innovative work behavior, emphasizing the relevance of internal psychological capacities in relation to nurses' engagement in innovation. These findings suggest that psychologically informed managerial strategies may support the development of nurses' innovative potential,

with potential implications for organizational performance and the quality of patient care.

Abbreviations

IWB Innovative work behavior
CSE Creative self-efficacy

Author contributions

ES, G A, NE, SA recruited participants, analysis, and interpreted data, and wrote the manuscript. All authors have read and approved the manuscript.

Data availability

All data generated or analyzed during this study are available from corresponded on request.

Declarations

Competing interests

The authors declare no competing interests.

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References

1. Ahmed Mohamed Ebrahim S, Abdeen Abdeen Kheder M, Hussein Yassein Hussein N. Effect of organizational justices on creative self-efficacy and innovation of nurses. *Egypt J Health Care*. 2020;11(3):722–31.
2. Brodtkorb K, Skaar R, Slettebø Å. The importance of leadership in innovation processes in nursing homes: an integrative review. *Nord J Nurs Res*. 2019;39:127–36.
3. Siregar ZME, Suryana EA, Senen SH. Factors influencing innovative work behaviour: an individual factors perspective. *Int J Scient Technol Res*. 2019;8:324–7.
4. Kustanto H. The moderation role of psychological empowerment on innovative work behavior. *Syst Rev Pharm*. 2020;11(8):254–64.
5. Li X, Cheng M, Xu J. Leaders' innovation expectation and nurses' innovation behavior in conjunction with artificial intelligence: the chain mediation of job control and creative self-efficacy. *J Nurs Manag*. 2022;30(8):3806–16.
6. Jankelová N, Joniaková Z, Mišún J. Innovative work behavior—a key factor in business performance? The role of team cognitive diversity and teamwork climate in this relationship. *J Risk Financ Manag*. 2021;14:185.
7. Al-Ghazali B. Understanding employees' innovative work behavior through an interactionist perspective: the effects of working style, supportive noncontrolling supervision, and job complexity. *Eur J Innov Manag*. 2021;26(1):230.
8. Code, J. (2020). Agency for learning: Intention, motivation, self-efficacy and self-regulation. *Frontiers in Education*, 5.
9. Abdullah NH, Wahab E, Shamsuddin AB. Creative self-efficacy, innovative work behavior and job performance among selected manufacturing employees. *J Social Sci Res*. 2019;5(2):291–7.
10. Shaw A, Kapnek M, Morelli N. Measuring creative self-efficacy: an item response theory analysis of the creative self-efficacy scale. *Front Psychol*. 2021;12:678033.
11. Kmiecik R. Trust, knowledge sharing, and innovative work behavior: empirical evidence from Poland. *Eur J Innov Manag*. 2021;24(5):1832–59.
12. Silic, M., & Back, A. (2017). Impact of gamification on users' knowledge-sharing practices: Relationships between work motivation, performance

- expectancy and work engagement. In *Proceedings of the 50th Hawaii International Conference on System Sciences*.
13. Afsar B, Masood M. Transformational leadership, creative self-efficacy, trust in supervisor, uncertainty avoidance, and innovative work behavior of nurses. *J Appl Behav Sci*. 2018;54(1):36–61.
 14. Kim SJ, Park M. Leadership, knowledge sharing, and creativity: the key factors in nurses' innovative behaviors. *J Nurs Adm*. 2015;45(12):615–21.
 15. Hughes M, Rigtering JPC, Covin JG, Bouncken RB, Kraus S. Innovative behavior, trust and perceived workplace performance. *Br J Manage*. 2018;29(4):750–68.
 16. Lin HC. The impact of national cultural differences on nurses' acceptance of hospital information systems. *Comput Inform Nurs*. 2015;33(6):265–72.
 17. Kim J, Zhou F. Influences of power distance and uncertainty avoidance on innovative work behavior: mediation effects of self-leadership. *Korean J Ind Organ Psychol*. 2018;31:669–94.
 18. Watts LL, Steele LM, den Hartog DN. Uncertainty avoidance moderates the relationship between transformational leadership and innovation: a meta-analysis. *J Int Bus Stud*. 2020;51:138–45.
 19. Asbari M, Prasetya AB, Santoso PB, Purwanto A. From creativity to innovation: the role of female employees' psychological capital. *Int J Social Manag Stud*. 2021;2(2):66–77.
 20. Soni K, Rastogi R. Impact of psychological capital on organizational effectiveness: role of positive psychology at work. *J Organ Human Behavior*. 2017;6(1):1–9.
 21. Tierney P, Farmer SM. Creative self-efficacy: its potential antecedents and relationship to creative performance. *Acad Manage J*. 2002;45(6):1137–48.
 22. McAllister DJ. Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Acad Manage J*. 1995;38(1):24–59.
 23. Roberts, S. (2016). *Innovation capacity: Resilience as an underpinning trait that promotes innovation readiness* (Doctoral dissertation, Capella University).
 24. Jung JM, Kellaris JJ. Cross-national differences in proneness to scarcity effects: the moderating roles of familiarity, uncertainty avoidance, and need for cognitive closure. *Psychol Mark*. 2004;21(9):739–53.
 25. Luthans F, Youssef CM, Avolio BJ. Psychological capital: Developing the human competitive edge. Oxford: Oxford University Press; 2007.
 26. Metwaly S, Ahmed H, Ahmed A. The impact of psychiatric nurses' psychological capital on their burnout and coping style. *Egypt Nurs J*. 2018;15:302.
 27. De Jong, J. P. J., & Den Hartog, D. N. (2008). *Innovative work behavior: Measurement and validation*.
 28. Abbas M, Raja U. Impact of psychological capital on innovative performance and job stress. *Can J Adm Sci*. 2015;32:128–38.
 29. Hsu MLA, Hou ST, Fan HL. Creative self-efficacy and innovative behavior in a service setting: optimism as a moderator. *J Creat Behav*. 2011;45(4):258–72.
 30. Tierney P, Farmer SM. Creative self-efficacy development and creative performance over time. *J Appl Psychol*. 2011;96(2):277–93.
 31. Newman A, Tse HHM, Schwarz G, Nielsen I. The effects of employees' creative self-efficacy on innovative behavior: the role of entrepreneurial leadership. *J Bus Res*. 2018;89:1–9.
 32. Al Wali J, Muthuveloo R, Teoh AP. Unravelling the nexus between creative self-efficacy, humble leadership, innovative work behavior and job performance amongst physicians in public hospitals. *Asia-Pacific J Bus Admin*. 2022;14(4):706.
 33. Zappalà S, Toscano F, Polevaya MV, Kamneva EV. Personal initiative, passive-avoidant leadership and support for innovation as antecedents of nurses' idea generation and idea implementation. *J Nurs Scholarsh*. 2021;53(1):96–105.
 34. Namono R, Obanda PW, Ayebale D, Isiagi E, Wofuma G. Strategizing for innovative work behavior in higher education institutions: the role of creative self-efficacy. *Continuity Resilience Rev*. 2022. <https://doi.org/10.1108/crr-03-2022-0005>.
 35. Swierczek FW, Ha TT. Entrepreneurial orientation, uncertainty avoidance and firm performance. *Int J Entrep Innov*. 2003;4:46–58.
 36. Miron E, Erez M, Naveh E. Do personal characteristics and cultural values that promote innovation, quality, and efficiency compete or complement each other? *J Organ Behav*. 2004;25(2):175–99.
 37. Jansen JJP, den Van Bosch FAJ, Volberda HW. Exploratory innovation, exploitative innovation, and performance. *Manage Sci*. 2006;52:1661–74.
 38. Idris A. Uncertainty avoidance and innovative differences in a multi-ethnic society: a female perspective. *Asian J Soc Sci*. 2011;39(3):275–95.
 39. Yuan Z, Zhang X, Wang F, Jin M, Teng M, He H. Levels of psychological capital among nurses: a systematic review and meta-analysis. *Int Nurs Rev*. 2023;70(1):89–96.
 40. Akkoç İ, Türe A, Arun K, Okun O. Mediator effects of psychological empowerment between ethical climate and innovative culture on performance and innovation in nurses. *J Nurs Manag*. 2022;30(7):2324–34.
 41. Karimi S, Malek F, Yaghoubi Farani A, Liobikienė G. The role of transformational leadership in developing innovative work behaviors: the mediating role of employees' psychological capital. *Sustainability*. 2023;15:1267.
 42. Zhang X, Zhou J. Empowering leadership, uncertainty avoidance, trust, and employee creativity. *Organ Behav Hum Decis Process*. 2014;124(2):150–64.

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