Effect of Educational Program about Nurse Managers' Psychological Capital on Nurses′ Professional Fulfillment and Healthy Work Environment

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Abstract

Background: As healthcare settings grow increasingly complex, nurse managers' ability to sustain psychological capital becomes a key factor in fostering professional fulfillment and maintaining a healthy work environment among nurses. **Aim**: The study aimed to determine the effect of educational program about nurse managers' psychological capital on nurses' professional fulfillment and healthy work environment. **Research design**: A quasi-experimental research design was utilized in the current study. **Setting**: The study was conducted at Tanta International Teaching Hospital. **Subjects:** This study involved all (n=45) nurse managers and convenience sample of nurses (n=286). **Tools**: Four tools were used: Nurse Managers' Psychological Capital Knowledge Questionnaire, Nurse managers' psychological capital questionnaire, Nurses' Professional Fulfillment Questionnaire, and Health Work Environment questionnaire**. Results:** Most nurse managers had a high knowledge level immediately post-program which slightly declined post three months of program implementation. In the other side, many nurses had a high perception level of professional fulfillment and healthy work environment after 3 months of program implementation**. Conclusion:** After 3 months of program implementation, there was statistically significant positive improvement in nurse managers' knowledge about psychological capital. A complementary partial mediation in the relationship between nurse managers' knowledge of psychological capital, and nurses' perception of healthy work environment, and their professional fulfilment. **Recommendations:** Conduct regular periodical enhancement programs and workshops for nurse managers focused on building hope, self-efficacy, resilience, and optimism to maximize their psychological capital and professional fulfilment, as well as build a healthy work environment.

***Keywords*:** Healthy work environment, Nurse Managers, Nurses, Professional fulfillment, Psychological capital.

Introduction

Nurse managers play a pivotal role in healthcare organizations, acting as a bridge between nurses, medical teams, and administration. The responsibilities of nurse managers encompass managing human resources, advocating patients, and ensuring quality and safety in care delivery. The effectiveness of nurse managers significantly influences the organizational environment, delivery of high-quality patient care, and the overall success of healthcare services (**Wulandari, Handiyani, Novieastari, Soemantri, & Rizany, 2024).**

The psychological capital (PsyCap) of nurse managers has a crucial aspect in enhancing both nurses' performance and overall quality of care **(Zhang et al., 2024).** It is a modifiable, developable asset that influences how nurses respond to challenges and engage in goal-directed behavior **(Luthans, Youssef-Morgan, & Avolio, 2021).** When nurse managers have strengthened PsyCap, they support their nurses emotionally and professionally, resulting in greater team cohesion, lower burnout, and improved job satisfaction **(AbuAlRub, Alshraifeen & Gharaibeh, 2023).** PsyCap encompasses self-efficacy, optimism, hope, and resilience, components that significantly influence various aspects of nursing management, including leadership effectiveness, nurse engagement, and caring behaviors **(Zhang et al., 2024)**.

In nursing, self-efficacy refers to nurse managers' confidence in their ability to take on and execute tasks successfully, particularly in challenging situations **(Youssef-Morgan, & Avolio, 2021).** The hope component indicates a positive motivational state based on goal-directed energy (agency) and the capacity to generate alternative pathways to achieve goals (pathways thinking), especially when faced with obstacles (**Jung, Han, & Kim, 2024).** The resilience component involves the ability to bounce back from adversity, uncertainty, or failure, adapting positively to stress and change while maintaining psychological stability **(Avey, Reichard, Luthans & Mhatre, 2020).**

Optimism is characterized by a positive attribution style, where nurse managers expect favorable outcomes and view setbacks as temporary and externally caused rather than personal or permanent. These psychological components empower nurses to overcome workplace challenges, maintain a positive outlook, and stay committed

to their career goals, thereby fostering a deeper sense of meaning and accomplishment in their work **(Youssef-Morgan & Luthans, 2022).**

As healthcare settings become increasingly complicated, nurse managers' capacity to sustain psychological strength becomes a critical aspect in supporting long-term professional fulfillment among nurses **(Chen, Zhang, & Li, 2022)**. Professional fulfillment implies a sense of meaning that is often linked to personal values, goal achievement, and workplace experiences **(Mills et al., 2021)**. It is a multifaceted concept influenced by job satisfaction, interpersonal relationships, and the work environment. It comprises several key dimensions of career experience: self-transcendence, self-enhancement, openness to change, and conservation. Self-transcendence includes values of universalism and benevolence, emphasizing care for others, social justice, and contributing to the greater good—qualities particularly relevant in the nursing profession (**Park & Ha, 2025; Kim, Park, & Lee, 2023).**

Self-enhancement, in contrast, focuses on personal success and dominance, involving values like achievement and power, where individuals derive fulfillment from personal accomplishments and recognition **(Oliveira-Silva & Porto, 2019).** Openness to change encompasses the pursuit of independence, creativity, and stimulation through values like self-direction and hedonism, allowing nurses to adapt and grow in dynamic clinical environments **(Kim, Lee, & Kim, 2022).** Finally, conservation involves values of tradition, conformity, and security, which offer stability, predictability, a supporting work approach, and consistency in care delivery**(Romem et al., 2023; Mills, Chamberlain, Hazleton, & Phillips, 2021).**

The synthesis of nurse managers' PsyCap highlights the importance of fostering a supportive work environment and improving patient outcomes **(Zhang et al., 2024)**. A healthy work environment characterized by elements, including supportive leadership, clear communication, interprofessional collaboration, and organizational justice, creates the psychological and practical conditions necessary for nurses to pursue and achieve their professional goals **(Wei, Roberts, Strickler, & Corbett, 2022).**

A healthy work environment is essential for optimal nursing practices and encompasses physical,

psychological, and organizational factors that support nurses' well-being, collaboration, and high-quality care **(Wei, Yuan & Carter, 2023).** The dimensions of a healthy work environment in nursing include autonomy, environmental control, interprofessional relationships, and organizational support. Autonomy refers to the degree of independence and authority that nurses have to make decisions regarding patient care and their professional practices, empowering them to act confidently and responsibly **(Khoshnaw & Alavi, 2020)**.

Environmental control involves the resources, support, and opportunities provided by the organization that allow nurses to meet their professional expectations and deliver quality care **(Lake et al., 2019)**. Interprofessional relationships, especially between nurses and physicians, emphasize collaboration, mutual respect, communication, and shared decision-making, which enhance team performance and patient outcomes **(Tang Zhou, Chan & Liaw, 2018).** Lastly, organizational support reflects the extent to which nurses believe the organization values their contributions and cares about their well-being, as seen through fair policies, supportive leadership, and equitable resource distribution **(Marashdah & Albdareen, 2020).**

Significance of study

Nurse managers' roles have become increasingly complex and difficult, leading to higher levels of job-related stress and burnout**.** The nurse managers' leadership knowledge, abilities, styles, attitudes, and behaviors directly affect direct-care nurses' well-being, job satisfaction, level of work-related stress, and patient care quality **(Luthans & Youssef-Morgan, 2017; Marashdah & Albdareen, 2020)**. Consequently, a nurse manager's PsyCap may play a significant role in enabling nurses to function under stress and foster healthier work conditions.

This PsyCap could be leveraged by nurses to achieve higher levels of performance and raise nurses' talents, strengths, and potential, helping them to achieve professional fulfillment and a healthy work environment. Therefore, it is imperative to gather more evidence that can help to better understand the effect of implementing an educational program regarding nurse managers' PsyCap on nurses' professional fulfillment and fostering a healthy work environment.

Aim of study

The present study aimed to determine the effect of educational program about nurse managers' PsyCap on nurses′ professional fulfillment and healthy work environment.

Research hypotheses:

After implementation of the educational program, it is expected that:

- Nurse managers' knowledge about psychological capital will be improved.
- Nurse managers' psychological capital is related to nurses' professional fulfillment and a healthy work environment.

Subjects and Methods:

Design: A quasi-experimental design was utilized to accomplish the present study's aim.

Study setting: The study was conducted at Tanta International teaching Hospital, which is affiliated with the Ministry of Higher Education and Scientific Research. It was conducted in all departments of medical, orthopedic, neurological surgery, vascular, burn, kidney, pediatric surgery, and oncology, as well as all intensive care units of cardiac, medical, pediatric, anesthesia, and neonates.

Subjects: The study's subjects consisted of all nurse managers (N=45) and a convenience sample of nurses (n=286 out of 1104). The sample size and power analysis were calculated using the Epi Info software statistical package. The criteria used for sample size calculation are as follows: Z= confidence level at 95% (1.96) & d= error proportion (0.05).

Tools: Four tools were used to accomplish the study's aim, including:

Tool I: Nurse Managers' psychological capital Knowledge Questionnaire: This tool was developed by the researcher based on relevant literature reviews **(Luthans & Youssef-Morgan, 2017; Lee & Jung, 2019** to assess the nurse managers' knowledge about PsyCap. It consisted of two parts:

Part one: Personal data and work-related data of nurse managers: This part included nurse managers' age, gender, marital status, educational level, department, position, years of experience, and attending previous training program about PsyCap.

Part two: Knowledge questionnaire regarding psychological capital: It consisted of 50 questions in the form of multiple choice (25 questions) and true & false (25 questions). These questions were classified into six categories as follows:

- Psychological capital concepts (5 questions).
- Psychological capital process (9 questions).
- Psychological capital framework and components (9 questions).
- Psychological capital strategies (7 questions).
- Antecedents and factors contributing to psychological capital (9 questions).
- Psychological capital outcomes and applications (11 questions).

Scoring system

Each question was taken score (1) for correct answer and (0) for wrong answer. All the questions scores were summed up and categorized according to the cut-off points into:

- High knowledge level >80% (>40)
- Moderate knowledge level 60 - 80% (30-40).
- Low knowledge level <60% (<30).

Tool II: Nurse Managers' psychological capital of Perception Questionnaire:

This tool was developed by **Lufthansa (2007)** and was adapted by researchers based on related literature **(Percunda & Putri, 2020; Di Maggio & Ginevra, & Nota, 2021)** to assess the nurse managers' perceptions of PsyCap. It consisted of four dimensions, including 36 items: self-efficacy (9 items), optimism (7 items), resilience (10 items) and hope (6 items).

Scoring system

Responses of nurse managers were measured in five points Likert scale ranging from 5= strongly agree to 1 = strongly disagree. The total score summed up and classified according to cut–off points into the following levels:

- High perception level of psychological capital >75% (>135).
- Moderate perception level of psychological capital 60% -75% (108-135)
- Low perception level of psychological capital <60% (<108).

Tool III: Nurses' Professional Fulfillment Questionnaire

This tool was developed by **Hwartz (2012)** and was adapted by the researchers based on **Penwell-Waines, Greenawald, & Musick, (2018)** and **Metwaly & Ahmed, (2018)** to assess nurses' professional fulfillment. It consisted of two parts as follows:

Part 1: Nurses' personal data and work-related data: It involved nurses' personal data of age, gender, marital status, qualifications, unit name, years of experience and number of working hours per week.

Part 2: Professional fulfillment questionnaire: It consisted of four dimensions including 21 items: **s**elf-transcendence (4 items), self-enhancement (7 items), openness to

change (5 items), and conservation (5 items).

Scoring system

Responses of nurses were measured in five points Likert scale ranging from 4 = extremely important to 0 = not important. The total score summed up and classified according to cut–off points into the following levels:

- High level of professional fulfillment >75% (>63)
- Moderate level of professional fulfillment 60% -75% (50-63).
- Low level of professional fulfillment <60% (<50).

Tool IV: Health Work Environment Questionnaire: This tool was developed by **Gasparino (2009)** and was adapted by the researchers based on **Huang, Wang, Dong, Li, & Wan (2021); Rodríguez-García, Márquez-Hernández, Granados-Gámez, Aguilera-Manrique, & Gutiérrez-Puertas (2021)** to assess nurses' perception of a healthy work environment. It consisted of four dimensions including 23 items: autonomy (4 items), environmental control (6 items), professional relationship (3 items), and organizational support (10 items).

Scoring system

Responses of nurses were measured in three points Likert ranging from 3=agree to 1=disagree. The total score was summed up and classified according to cut–off points into the following levels:

- High perception level of healthy work environment >75% (>52).
- Moderate perception level of healthy work environment 60%-75% (41-52).
- Low perception level of healthy work environment <60% (<41).

Methods

An official permission to conduct the study was obtained from the Dean of the Faculty of Nursing and administrator of Tanta International Educational Hospital after explanation the study's aim.

Ethical considerations

- Approval of The Scientific Ethical Committee, Faculty of Nursing, Tanta University was obtained with code number 256/5/2023.
- The researcher introduced her to the participants; a full explanation of the aim and method of the study was done to obtain their acceptance and cooperation as well as their informed consent.
- The right to abstain and terminate participation at any time was respected.
- The nature of the study did not cause any harm for the study subjects.
- Assuring the participant nurses about the privacy and confidentiality of collected data and it will be used for the study purpose only.

- The study's tools were tested for relevance by the jury of seven experts in the specialty to check content validity of the tools. The seven experts were five professors and two assistant professors of Nursing Administration from the Faculty of Nursing, Tanta University. The experts' responses were represented in four points rating scale ranging from 4 =strongly relevant, to 1= not relevant, in which the necessary modifications were made.
- The face validity for tool I was 100%, for tool II was 99.1%, for tool III was 98.8%, and for tool IV was 99.2%
- A pilot study was carried out on 10% of nurse managers (n=5) and nurses (n=30), who were excluded from the total study's subjects. It was collected from another place but with the same sample features and carried out after the experts' opinions, before starting the actual data collection. The pilot study was done to test clarity, sequence of items, applicability, and relevance of the questions.
- The estimated time to complete all the questionnaire items ranged from 25 to 45 minutes, in which approximately 10-15 minutes tool I and approximately 5-10 minutes for each tool (II, III, & IV).
- Reliability of questionnaire was tested using Cranach's Alpha coefficient test. The reliability value of tool I was 0.890, tool II was 0.799, tool III was 0.879 and tool IV was 0.968.
- The educational program was conducted in four phases: including assessment, planning, implementation, and finally evaluation.

Phase I: Assessment

- Assess the nurse managers' knowledge and perception regarding PsyCap using tool I and II, respectively, before implementation of the program implementation.
- Assess nurses' professional fulfillment using tool (III) and their perception of healthy work environment using tool (IV) before program implementation.

Phase II: Planning of instructional program

- The first step in this phase was to develop the main aim of the program based on managers' knowledge and perception regarding PsyCap as well as the review of relevant literature.
- The second step was designed to determine the content and methods of teaching, in which simple scientific language was used.
- The instructional program involved six sessions, which were presented in the following sequence:

First session: psychological capital concepts, objectives, and importance.

Second session: psychological capital Process.

Third session: psychological capital framework and components.

Fourth session: psychological capital strategies.

Fifth session: Antecedents and factors contributing to psychological capital.

Sixth session: psychological capital outcomes and application.

- Appropriate technologies and advanced learning strategies were used, including interactive lectures, individual or group discussion, brainstorming, and role playing.
- The teaching aids were used in the instructional program including Power Point Presentation (PPT), handouts, and videos.

Phase III: Implementation of educational program

- The researcher informed nurse managers about the objectives of the instructional program and encouraged their participation.
- The researcher built a good relationship with participants to enhance their participation and involvement.

Data collection

The data was collected from nurse managers by the researcher, where dividing into five groups, each group formed of nine nurse managers. Every session was 45 minutes, and the program was conducted at the conference room of Tanta International teaching Hospital. They preferred to start the session at 11:00 am, which was the most suitable time for them after finishing the necessary unit work. Data collection lasted for seven months, from the beginning of November 2023 to the end of May 2024.

Phase IV: Evaluation of educational program

The educational program was evaluated to determine the extent of improvement in nurse managers' levels of knowledge regarding psychological capital through:

- Post-test to assess nurse managers' levels of knowledge regarding (PsyCap) (tool I) immediately post program and after three months of program implementation.
- Assess professional fulfillment among nurses (tool III) and health work environment tool (IV) after three months from program implementation.

Statistical analysis of the data

Data was fed to the computer and analyzed using the IBM SPSS. Qualitative data were described using number and percentage. Quantitative data were described using range (minimum and maximum), mean, and standard

deviation. The Paired t-test handled normally distributed quantitative variables to compare between two periods. The ANOVA test with normally distributed quantitative variables utilized to compare between more than two periods, while the Friedman test held used to compare between more than two periods.

Furthermore, the Pearson coefficient test correlates between two normally distributed quantitative variables, while the student t-test reflects the normally distributed quantitative variables to compare between two studied groups. The significance of the results obtained was judged at the 5% level.

Results

Table 1: shows the frequency and distribution of nurse managers' personal data. The table revealed that more than half (53.3%) of nurse managers were aged between thirty and thirty-five years, with a mean score of 34.84±5.75, and more than three-quarters (77.8%) of them were females and married. The majority (82.2%) of nurse managers had a bachelor's degree in nursing; 22.2% of them worked in a kidney dialysis unit, in which 62.2% of them worked as charge nurses. Furthermore, less than half (48.9%) of them had years of experience ranging from 10 to less than 15 years old, with a mean score of 12.76±5.79, and 84.4% of them did not attend training courses related to PsyCap.

Table 2: indicates the frequency and distribution of nurses' personal data. The table showed that two-thirds (66.9%) of nurses were aged in the group who had less than 30 years, with a mean score of 28.49±6.44, and 82.9% were females. Furthermore, 73.5% of nurses were married, 57.8% of them had a technical nursing diploma, and 22% of them worked in a neonatal intensive care unit. While more than one-third (36.9%) of nurses had years of experience ranging from 5 to less than 10 years with a mean score of 8.49±6.55.

Figure 1: illustrates that pre-program, the vast majority (93.3%) of nurse managers had a low level of overall knowledge of PsyCap, which significantly improved to 95.6% with a high level immediately post-program and slightly decreased to 75.9% after three months of program implementation.

Figure 2: shows that 74.3% of nurse managers had a low perception level, while 15.7% of them had a moderate perception level, and only 10% of them had a high perception level of overall PsyCap pre-program implementation.

Figure 3: describes that the vast majority (92%) of nurses had a low perception level of professional fulfillment pre-program, which improved to 82.9% having a high perception level after 3 months of program implementation.

Figure 4: depicts that Pre-program implementation, the majority (80.1%) of nurses perceived a low level of a healthy work environment, which shifted to 85.7% having a high level after three months of program implementation.

Figure 5: embodies that there was complementary partial mediation, in which both the direct effect between nurse managers' knowledge of PsyCap and nurses' professional fulfillment = 0.386, as well as the indirect effects between nurses' work environment and their professional fulfillment = 0.158, are significant at $p \leq 0.01$ and point in the same positive direction with total effect = 0.544.

Figure 6: represents a full complementary mediation, in which the effect of nurse managers' perceptions of PsyCap (direct effect = 0.0.78) on nurses' professional fulfillment (indirect effect = 0.047 with $p < 0.001$) was complementary, transmitted with the help of a healthy work environment with a total effect of 0.125.

Table (1): Frequency and distribution of nurse managers' personal data and work-related data (n = 45)

Personal data	No.	%
Age (years)		
<30	6	13.3
30 – 35	24	53.3
>35	15	33.3
Min. – Max.	26.0 – 50.0	
Mean ± SD.	34.84 ± 5.75	
Gender		
Male	10	22.2
Female	35	77.8
Marital status		
Married	35	77.8
Unmarried	10	22.2
Education level		
Bachelor of Sciences in Nursing	37	82.2
Post-graduates Studies	8	17.8
Department		
Medical	2	4.4
Orthopedic	2	4.4
Neurological surgery	2	4.4
Vascular	4	8.9
Burn	2	4.4
Kidney	10	22.2
Pediatric surgery	3	6.7
Oncology	1	2.2
Cardiac ICU	9	20.0
Medical ICU	1	2.2
Pediatric ICU	3	6.7
Anesthesia ICU	2	4.4
Neonates	4	8.9
Position title		
Nursing Supervisor	8	17.8
Head nurse	9	20.0
Charge nurse	28	62.2
Years of experience		
5-<10	12	26.7
10-<15	22	48.9
≥15	11	24.4
Min. – Max.	5.0 – 28.0	
Mean ± SD.	12.76 ± 5.79	
Attending		
No	38	84.4
Yes	7	15.6

Table (2): Frequency and distribution of nurses' personal data and work-related data (n = 287)

Nurses' personal data	No.	%
Age (years)		
<30	192	66.9
30 – 35	56	19.5
>35	39	13.6
Min. – Max.	19.0 – 51.0	
Mean ± SD.	28.49 ± 6.44	
Gender		
Male	49	17.1
Female	238	82.9
Marital status		
Married	211	73.5
Unmarried	76	26.5
Education level		
Secondary Nursing Diploma	19	6.6
Technical Nursing Diploma	166	57.8
Bachelor of Sciences in Nursing	102	35.6
Department		
Medical	47	16.4
Orthopedic	24	8.4
Neurological surgery	14	4.9
Vascular	10	3.5
Burn	10	3.5
Kidney	33	11.5
Pediatric surgery	9	3.1
Oncology	13	4.5
Cardiac ICU	11	3.8
Medical ICU	17	5.9
Pediatric ICU	27	9.4
Anesthesia ICU	9	3.1
Neonates ICU	63	22.0
Years of experience		
<5	86	30.0
5-<10	106	36.9
10-<15	52	18.1
≥15	43	15.0
Min. – Max.	1.0 – 32.0	
Mean ± SD.	8.49 ± 6.55	

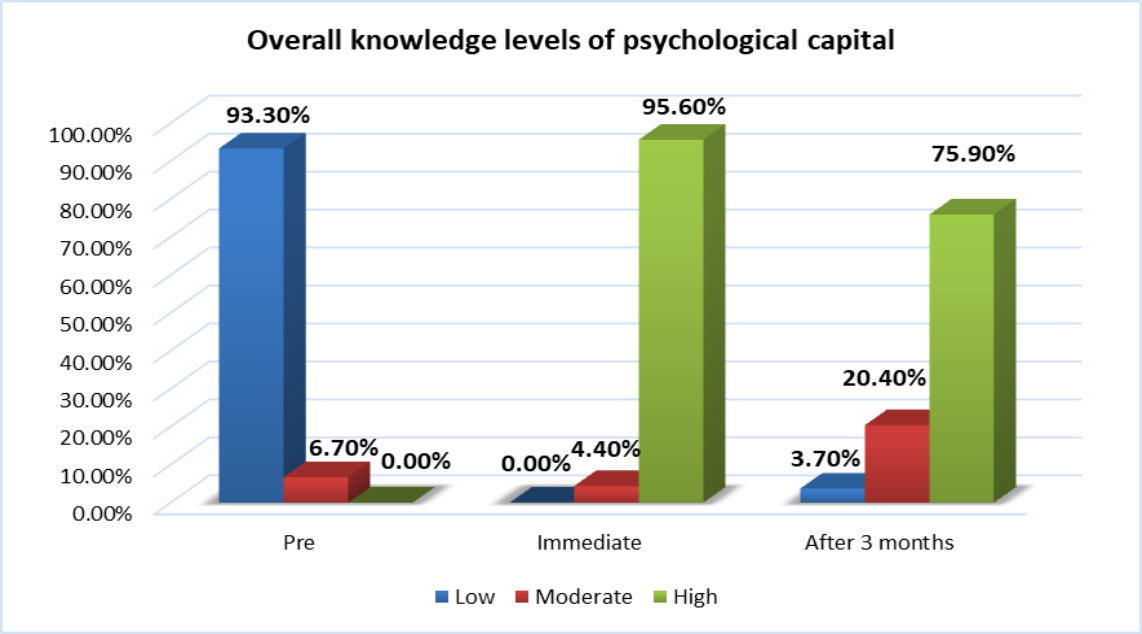

Figure (1): Nurse Managers' overall knowledge levels of psychological capital through three phases of program

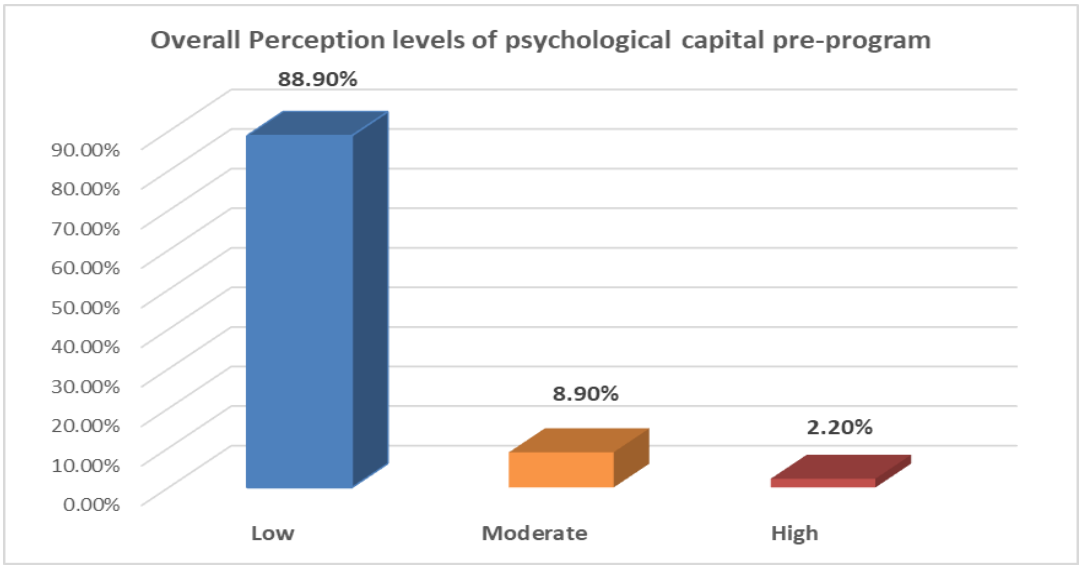

Figure (2): Nurse Managers' overall perception levels of psychological capital pre-program implementation

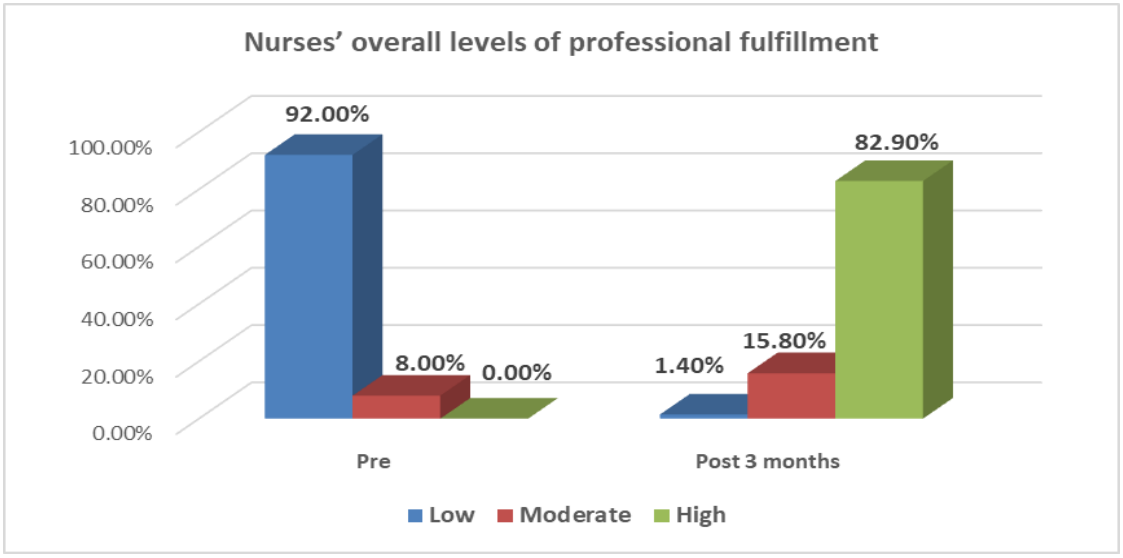

Figure (3): Nurses' overall perception levels of professional fulfillment pre- and post-program implementation

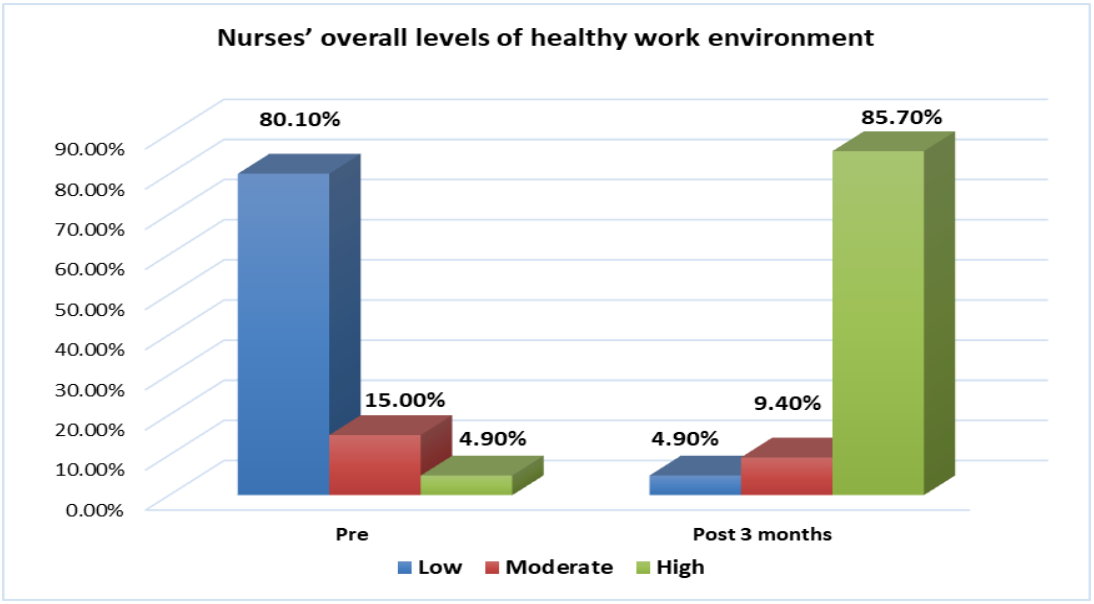

Figure (4): Overall levels of nurses' perception of a healthy work environment pre- and after three months of program implementation

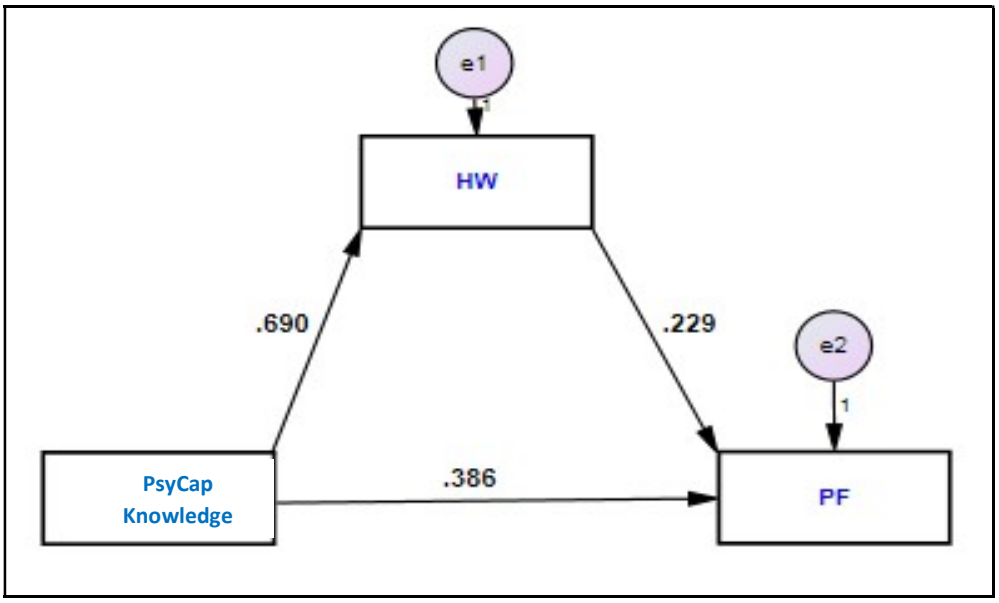

Figure (5): Analysis for the parameters of psychological capital knowledge and healthy work environment affecting professional fulfillment

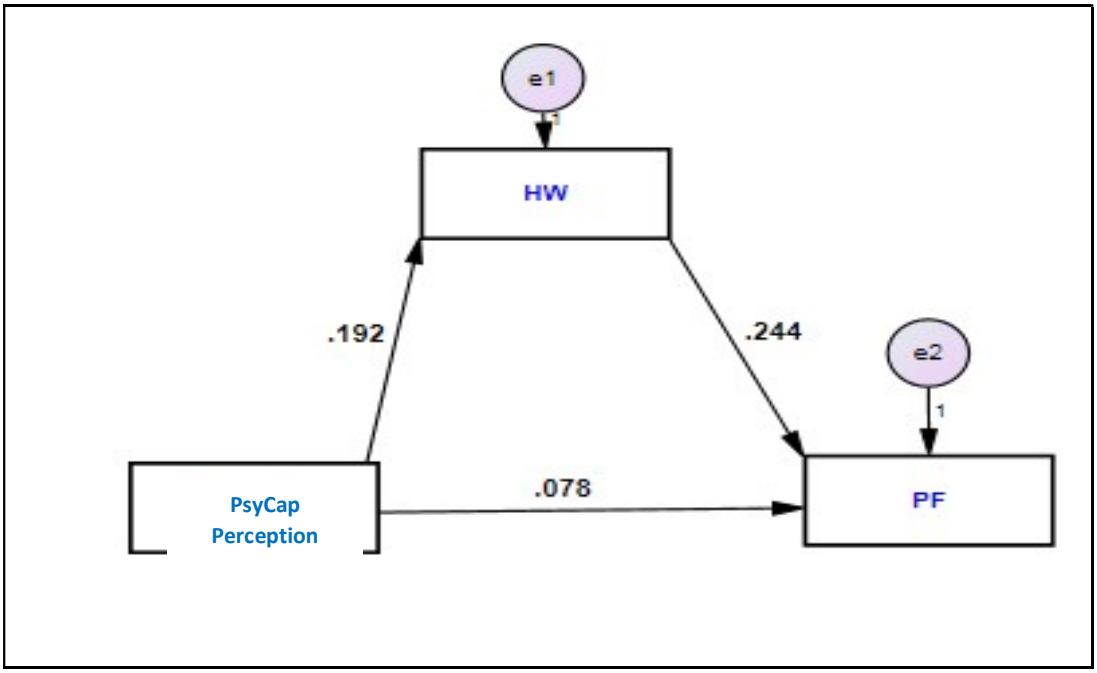

Figure (6): Analysis of the parameters of psychological capital perception and healthy work environment affecting professional fulfillment

Discussion

In nursing, nurse managers have an essential responsibility in cultivating a positive work environment and enhancing nurses' professional fulfillment, which significantly impacts the overall performance of healthcare institutions. By prioritizing the PsyCap of nurse managers, healthcare organizations can create a more positive, supportive, and effective work environment that benefits nurses both personally and professionally (**Lv, Cui, Wang, Qi, & Hu, 2023)**. Therefore, this study aimed to determine the effect of educational program about nurse managers' psychological capital on nurses' professional fulfillment and healthy work environment.

Nurse managers' knowledge levels of psychological capital:

The current study's results revealed that most nurse managers had a low knowledge level of PsyCap prior to the program. This finding appears to be supported by the nurse managers' responses, which indicate a poor comprehension of psychological capital process, framework, components, outcomes, and application. Moreover, most nurse managers do not attend previous training program or workshops related to PsyCap due to increased patients' acuities and overload of work.

In the same line, the nurse managers' PsyCap knowledge was significantly improved to having a high level immediately after the program, with a slight decline after three months. These results can be explained by most nurse managers lacking focused training on psychological capital, in which missing continuous reinforcement or application of knowledge that can fade over time, leading to a natural decline in knowledge retention. Additionally, unsupportive organizational culture in sustaining PsyCap underlines the necessity of ongoing support and refresher sessions to maintain high levels of knowledge and application in managerial roles within the healthcare environment.

These findings are consistent with the results of a study conducted by **Abo El-Magd & Abdelaziz (2021),** which revealed a significant improvement in nurse managers' knowledge immediately after the program; though a slight reduction was noted at follow-up **El-Gazzar, Hegazy & Ibrahim. (2020)** discovered that baseline knowledge of PsyCap among nurse managers was generally insufficient, resulting in a significant improvement post-

intervention, with many of them achieving a high level of knowledge immediately following the program. Moreover, the study of **Hassan and Soliman (2020)** showed insufficient PsyCap related competencies among nursing leadership. After three months, the percentage of them retaining an average knowledge level dropped slightly to more than half, indicating a slow decline over time .

Likewise, the study conducted by **Kotb, Shazly, & Mostafa (2024)** found a statistically significant improvement in the nurse interns' mean scores regarding total knowledge about PsyCap throughout both the post-test phase and the follow-up phase in comparison with the pre-test phase. The Thailand study of **Chaleoykitti and Thaiudom (2019),** showed that the levels of nurses' PsyCap knowledge in the experimental group significantly increased after the PsyCap program. Additionally, a meta-analysis study was conducted in Romania by **Lupșa, Vîrga, Maricuțoiu, & Rusu (2020)**, which exhibited significant improvement of PsyCap through the post-test and follow-up phases .

Conversely, **El-Gamal, Youssef & El-Baz (2021)** stated that more than half of nurse leaders had a satisfactory level of knowledge regarding PsyCap. Furthermore, **Yaşayacak & Tokur Kesgin (2025**) suggested that nurse managers, on average, demonstrate a medium to high level of PsyCap knowledge in which they generally possess a good foundation of these positive psychological resources and crucial for their leadership roles and the well-being of their nurses. **Darwish & Elfiky (2022)** highlighted that sixty percent of nurse managers had a moderate level of PsyCap knowledge, while no one showed low PsyCap.

Nurse managers' perception levels of psychological capital:

Pre-program, nurse managers had a low perception level of overall psychological capital. This finding indicates a general lack of understanding or awareness of PsyCap among the nurse managers. From the researcher's perspective, this result could be due to many nurse managers likely had no formal training in psychological capital prior to the intervention, leading to low baseline awareness. Leadership development programs often focus on technical and administrative skills while neglecting psychological resources like hope, resilience, and self-efficacy.

Furthermore, these findings can be explained by increasing nurse managers' high job demands, inadequate resources, limited decision-making power, short staffing, and challenging work environments that are filled with workplace violence, which lead to stress and reduced resilience. Additionally, a lack of support, both from the top management of their organization and from their peers, can impede the development of positive psychological resources.

Along with the present study's results, the Egyptian study of **Mohamed, Ahmed, & Abd Elkhalek (2018)** displayed that more than half of nurses had a low perception level of PsyCap. In addition, **Ibrahim, Osman, Elwekel, & El-Gilany (2020)** explored nurses' work environment and PsyCap as predictors of workplace bullying among nurses, which detected a low perception level among staff nurses at El-Fayoum University Hospital. In this context, **Zhang et al. (2024)** conducted a study in three tertiary hospitals in Beijing, China, and disclosed that Asian nurses had lower levels of PsyCap than those in the Americas and Australia, which may be related to increased work stress and negative workplace experiences.

Contradictorily, **Shaban et al. (2025)** demonstrated that nurses had moderate to relatively high levels of PsyCap. While the cross-sectional study used a deductive approach of **Huo et al. (2020)** suggested that the studied nurses had a higher level of PsyCap, which facilitates attaining their individual and organizational goals, as well as distinguishes them in the eyes of their managers, who recognize them as valuable resources capable of effectively achieving organizational targets.

On the other hand, **Elghabbour, Eldiasty, Atia, and Abdallah (2022)** discovered that nurses with high levels of PsyCap are better able to bounce up and move on when faced with challenges at work, as well as making them more capable of doing their job well. Those nurses can recover themselves by setback and see the challenge as a growing lesson, which reflecting on their successful performance at work. Therefore, **Choudhary and Parbha (2023)** asserted that PsyCap is not a static feature; it is subject to change, development, and enhancement through specific interventions and training

Nurses' perception of professional fulfilment

Prior to the program, most of the nurses reported having a low perception level of professional fulfillment, however, after three months of program implementation, the nurses' perception significantly improved. Nurses initially reported low professional fulfilment due to factors like lack of autonomy and poor work environments, which are common issues in healthcare settings. However, after program implementation, perception improved significantly, likely due to the program addressing these root causes, such as implementing strategies for better teamwork, communication, or leadership support.

Similar findings were reported in a study by **Hagedorn, Kravitz, & Zubair (2023)** where a structured program focusing on professional development and PsyCap led to a significant increase in nurses' professional fulfilment. This suggests that targeted interventions can effectively shift perceptions of professional fulfilment and potentially improve their job satisfaction and retention among nursing staff. The observed change underscores the importance of integrating professional fulfilment strategies into nursing education and training programs, particularly those aimed at developing PsyCap and enhancing job satisfaction.

The longitudinal study, which conducted in southeastern United States of **Guastello et al. (2024)** indicated that healthcare workers continue to face increasing burnout and reduced professional fulfilment in their jobs, with nurses being at most risk due to poor work attitudes, negative mental health consequences, and poor patient outcomes. **Burns, Pattani, Lorens, Straus & Hawker (2021)** found that physicians had lower professional fulfilment associated with increasing burnout and organizational culture factors at work.

Nurses' perception of healthy work environment:

The data analysis explores that most nurses perceived a low level of a healthy work environment prior to the program. But after three months of the program's implementation, there was a noticeable change, with most nurses reporting a high degree of perception of a healthy work environment. These findings may be due to factors of poor communication and collaboration, inadequate resources, and work-life imbalance.

This result is consistent with **Patel, Thompson, & Hayes (2023)** which demonstrated that targeted educational interventions effectively improved nurses' perceptions of their work environment, leading to higher job satisfaction and better overall workplace health. The shift in perception in this study supports the idea that structured programs can foster a positive work environment, which is essential for improving nurse retention, satisfaction, and productivity.

Likewise, the study conducted by **Harris et al. (2022),** which found that the structured educational interventions significantly improved nurses' perceptions of a healthy work environment, particularly in terms of communication, collaboration, and organizational support. This improvement in nurses' perceptions highlights the efficacy of educational programs in f.ostering a positive work environment, which is essential for job satisfaction, retention, and quality patient care.

Regression analysis among study's variables:

The findings' analysis indicates a complementary partial mediation in the relationship between Perception PsyCap nurses' work environment, and nurses' professional fulfilment. This means that both direct effect of nurse managers' knowledge and indirect effect of the work environment on nurses' professional fulfilment are statistically significant and in a positive direction. In simpler terms, a positive work environment and knowledgeable nurse managers about PsyCap both contribute to nurses' professional fulfilment.

Likewise, the direct effect of nurse managers' perceptions and indirect effect nurses' professional fulfilment was complementary, transmitted with the help of a healthy work environment. These results means that the positive perceptions of nurse managers, coupled with a healthy work environment, are both important in fostering professional fulfilment among nurses. The work environment acts as a conduit, amplifying the positive impact of nurse managers' perceptions.

In this scene, the study conducted by **Liu et al. (2025)** in China indicated that nurses' well-being has a direct impact on their intention to leave their positions. Additionally, work engagement and PsyCap serve as partial mediating factors in the relationship between nurses' well-being and their turnover intention. Furthermore, **Darwish & Elfiky (2022)** discovered an indirect effect

of nurse managers' knowledge and perception of PsyCap that potentially impacts the nursing staff. If the nurse managers have a better understanding and positive perception, they are more likely to create a supportive and empowering environment for their nurses.

In this aspect, **Chang et al. (2023)** detected those PsyCap of Chinese nurses mediated the relationship between workplace violence and professional identity. **Zheng et al. (2024)** demonstrated that perceived organizational support has a direct impact on nurses' occupational well-being. Additionally, professional quality of life and the perception of decent work play chain mediating roles between perceived organizational support and nurses' well-being.

Conclusion

It is concluded that pre-program, most nurse managers had a low level of overall knowledge of PsyCap, which significantly improved immediately post-program and slightly decreased after three months of program implementation. Many nurse managers perceived a low level of overall PsyCap. The majority of nurses initially had a low perception of professional fulfillment, which improved to a high perception after three months. Furthermore, many nurses perceived a low level of a healthy work environment prior to the program, but this perception shifted to a high level after three months. Furthermore, a complementary partial mediation in the relationship between nurse managers' knowledge of PsyCap, and nurses' perception of a healthy work environment and their professional fulfilment.

Recommendations

In view of the study's results, the following recommendations are:

For hospitals administrators

- Conduct regular periodical enhancement programs and workshops for nurse managers focused on building hope, self-efficacy, resilience, and optimism to maximize their PsyCap and professional fulfilment.
- Promote policies that support work-life balance that positively influence PsyCap and job satisfaction, leading to better mental health outcomes.
- Implement stress reduction activities and provide resources to manage work-related stressors, thereby reducing emotional exhaustion and psychological distress.
- Represent nurses in different hospital committees, which can facilitate professional development that sustains the expansion of

personal knowledge and enhances leadership skills.

For nurse managers

- Promote a culture of open communication, where nurses feel comfortable expressing concerns and seeking support.
- Offer clear pathways for career advancement and mentorship programs to provide constructive feedback and guidance.
- Enhance perceived organizational support by recognizing and rewarding nurses' contributions.
- Involve nurses in decision-making with their supervisors to improve patient care, enhance communication, and create a supportive work environment.

For Nurses

- Focus on developing intrinsic motivation and creating opportunities to feel a sense of control and purpose in their work.
- Boost a healthy work-life balance through flexible scheduling and support for personal well-being.
- Normalize conversations about mental health and wellness to encourage nurses to seek help when necessary.

For nursing education

- Involve PsyCap in nursing curriculum to prepare nursing students for the demanding nature of healthcare.
- Educate nursing students on current evidence-based practices to improve their clinical competence and confidence in PsyCap through role-playing, case-based learning, and cognitive-behavioral techniques.

Future research

- Conduct a longitudinal study to investigate the effect of nurse managers' PsyCap on nurses' green creativity, work engagement, and green organizational performance.

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