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Factors Influencing Affective Organizational Commitment Among Nurses in the Post-COVID-19 Era: A Delphi Study

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Abstract: Background: The pandemic has pushed the nursing workforce to its limits and adversely affected affective organizational commitment. This Delphi study serves as a preliminary step toward strengthening and advancing the nursing profession in the post-pandemic era. **Objective:** This study aimed to identify, through expert consensus, the factors contributing to affective organizational commitment among nurses in the post-pandemic period. **Methods:** A three-round iterative e-Delphi technique was employed to collect data from a panel of 18 nursing experts. Panelists were selected based on predefined inclusion criteria, including relevant academic qualifications, extensive professional experience, and subject matter expertise aligned with the study objectives. All experts were currently practicing in acute care settings, specifically within COVID-19 isolation units. **Results:** Consensus among nursing experts was achieved on eight core attributes of affective organizational commitment. The key factors identified were work environment-related elements; remuneration and compensation systems; teamwork spirit within the workplace; perceived organizational justice; humanity in healthcare; ethical considerations and moral obligations of the nursing profession; emotional bonding and attachment to the workplace; and sustainable professional development at the regional, national, and international levels. **Conclusions:** The top prioritized indices contributing to affective organizational commitment, in the present study, reflect nurses' endorsement of professional and organizational principles. **Recommendations:** The identified attributes can guide nurse managers and policymakers in shaping the future organizational trajectories of nurses by developing targeted resilience training programs and capacity-building initiatives. Such initiatives can strengthen affective attachment to the organization and enhance the overall attractiveness of the nursing profession.
Keywords: Job commitment, Healthcare Workforce, Consensus, Good Health and well-being (SDG3).

العوامل المؤثرة في الالتزام التنظيمي العاطفي لدى الممرضين في مرحلة ما بعد كوفيد-19: دراسة دلفي

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الملخص: خلفية البحث: دفعت جائحة كوفيد-19 القوى العاملة التمريضية إلى أقصى حدودها، وأثرت سلباً في مستوى الالتزام التنظيمي العاطفي لدى الممرضين. وتمثل دراسة دلفي هذه خطوة أولية نحو تعزيز وتطوير مهنة التمريض في مرحلة ما بعد الجائحة. **الهدف**: تحديد العوامل التي تسهم في تعزيز الالتزام التنظيمي العاطفي لدى الممرضين في فترة ما بعد الجائحة من خلال التوصل إلى توافق آراء الخبراء. **المنهجية**: أُستخدمت تقنية دلفي الإلكترونية التكرارية المكونة من ثلاث جولات لجمع البيانات من لجنة تضم 18 خبيراً في التمريض. وتم اختيار الخبراء بناءً على معايير إدراج محددة مسبقاً، شملت المؤهلات الأكاديمية ذات الصلة، والخبرة المهنية الواسعة، والخبرة التخصصية المرتبطة بأهداف الدراسة. وكان جميع الخبراء يمارسون عملهم حالياً في بيئات الرعاية الحادة، وتحديداً في وحدات عزل مرضى كوفيد-19. **النتائج**: تم التوصل إلى توافق بين خبراء التمريض حول ثمانية سمات أساسية للالتزام التنظيمي العاطفي. وشملت العوامل الرئيسية التي تم تحديدها: عناصر بيئة العمل؛ أنظمة الأجور والتعويضات؛ روح العمل الجماعي داخل مكان العمل؛ العدالة التنظيمية المدركة؛ البعد الإنساني في الرعاية الصحية؛ الاعتبارات الأخلاقية والالتزامات المهنية لمهنة التمريض؛ الارتباط العاطفي والانتماء لمكان العمل؛ والتنمية المهنية المستدامة على المستويات الإقليمية والوطنية والدولية. **الاستنتاجات**: تعكس المؤشرات ذات الأولوية المساهمة في الالتزام التنظيمي العاطفي في هذه الدراسة مدى تبنّي الممرضين للمبادئ المهنية والتنظيمية. **التوصيات:** يمكن للسمات التي تم تحديدها أن توجه مديري التمريض وصانعي السياسات في رسم المسارات التنظيمية المستقبلية للممرضين من خلال تطوير برامج تدريبية مستهدفة لتعزيز المرونة ومبادرات لبناء القدرات. وتسهم هذه المبادرات في تعزيز الارتباط العاطفي بالمنظمة وزيادة الجاذبية العامة لمهنة التمريض.
الكلمات المفتاحية: الالتزام الوظيفي، القوى العاملة في مجال الرعاية الصحية، التوافق، الصحة الجيدة والرفاه (SDG3) .

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Background

The nursing profession, along with the broader healthcare system, is facing significant challenges in the post-COVID-19 era, particularly as the system was already in a fragile state before the pandemic (Falatah, 2021). Hooper (2023) described the COVID-19 pandemic as the "straw that broke the camel's back," a statement especially applicable to the nursing profession. As a result of the pandemic, nurses of all ages have experienced substantial increases in job-related stress and dissatisfaction, alongside a heightened propensity to leave the nursing field (Hooper, 2023; Murphy *et al*., 2022). An integrative review of 43 studies examining nurses' turnover before and after the pandemic revealed alarmingly high levels of intent to leave the profession and confirmed that organizational commitment is a key predictor of nurses' turnover intention (Falatah, 2021; Murphy *et al*., 2022). Furthermore, a 2022 survey sponsored by the American Nurses Association reported that among 12,000 nurses, 60% experienced severe stress, with nearly one-quarter indicating an intention to leave their organization within the next six months (American Nurses Association, 2022).

The Organisation for Economic Co-operation and Development (OECD) report, published in October 2020, projected that the proportion of employed nurses and midwives would remain below the global average until 2030. The report also highlighted the scarcity of nursing resources, particularly in low-income countries such as Egypt, where there is one nurse—or fewer—per 1,000 people (OECD, 2020). In response to this situation, the present Delphi study was conducted to provide nurse managers and policymakers with an evidence-based reference on the core attributes that strengthen nurses' affective organizational commitment to the workplace.

This study can inform the development of a strategic roadmap aimed at shaping the future of the nursing profession, thereby enhancing organizational sustainability and advancing the profession (Eweida *et al*., 2020; Su *et al*., 2023). Furthermore, mental health nursing should be integrated into an advanced framework that links organizational working conditions with institutional culture. Mental health nurse practitioners play a crucial role in providing psychological support to frontline healthcare workers during infectious disease outbreaks (Yue *et al*., 2020).

Theoretical Underpinning of the Study

The adverse physical and psychological repercussions of the pandemic have pushed the nursing workforce to its limits and negatively affected nurses' commitment to their organizations (Falatah, 2021; Murphy *et al*., 2022). Meyer *et al*. (2002) defined affective organizational commitment as "the passionate connection of workers to their association, their desire to see the organization excel in its objectives, and the pride they take in being a part of that association" (p. 24). Drawing on the Job Demands–Resources (JD–R) model, employees' emotional commitment is significantly influenced by the demands and resources inherent in their jobs, which encompass organizational, psychological, and physical components and may contribute to job strain (Qtait, 2023). Within this framework, job demands refer to aspects of work that require sustained psychological or physical effort—such as fatigue and anxiety (psychological) or physical exhaustion and long working hours (physical)—and are thus associated with certain costs (Abdullah *et al*., 2022; Demerouti, 2025).

In contrast, job resources encompass psychological (e.g., emotional connection), personal (e.g., ethical commitments), and organizational elements (e.g., autonomy, organizational justice) with motivational potential.

These resources include, but are not limited to, social support from colleagues, opportunities for skill variety, and constructive feedback. They not only buffer the negative effects of job demands but also foster a stronger emotional bond with the organization (Abdullah *et al*., 2022). Consequently, they enhance affective organizational commitment, encouraging employees to feel more connected to and invested in their workplaces (Demerouti, 2025; Li *et al*., 2022).

Significance of the study and Identified Knowledge Gap

Given that the healthcare system—particularly hospitals—in the Middle East and North Africa (MENA) region, including Egypt, is still recovering from the COVID-19 pandemic, it is crucial to address factors that can strengthen nurses' emotional attachment to their organizations. The persistent shortage of nurses in Egypt relative to the country's large population remains a major concern that cannot be overlooked (Elkhashen *et al*., 2020). The World Health Organization (WHO) has emphasized that the continuous turnover of nurses exacerbates this shortage and places additional strain on the healthcare sector in Egypt, highlighting the need to prioritize a positive organizational climate to sustain the nursing workforce (WHO, 2020). Accordingly, the present study is particularly significant as a pioneering initiative conducted in Egypt, one of the largest Arab countries in the MENA region, aimed at identifying the core factors contributing to nurses' affective organizational commitment in the post-pandemic era. This study draws on data from previously published work that evaluated Mental Health First Aid (MHFA) as a supportive strategy for addressing organizational and environmental factors (Eweida *et al*., 2025).

The existing findings enable nurse managers to explore strategies that strengthen nurses' emotional commitment and willingness to work wholeheartedly for the organization. Moreover, they can support Egypt's efforts to lay the foundations for a more resilient community capable of withstanding adverse shocks, such as the COVID-19 pandemic. This, in turn, could enhance professional productivity during future outbreaks and contribute to placing Egypt on a positive trajectory in line with the principle of "Leaving No One Behind," thereby fostering inclusive and sustainable regional development—particularly in alignment with Sustainable Development Goals (SDGs) 3, 8, 11, and 16 (United Nations, 2022). Accordingly, this study aimed to identify the fundamental factors influencing affective organizational commitment among nurses in the post-pandemic era, employing a Delphi consensus methodology guided by the Job Demands–Resources (JD–R) model.

Method

Research Design

This study employed the Delphi technique, a well-established mixed-methods approach commonly used in health sciences research to achieve expert consensus on complex and context-specific topics and to inform the development of conceptual frameworks and clinical guidance (Shang, 2023). The Delphi method is particularly suitable when empirical evidence is limited or fragmented, as it enables the systematic refinement of expert opinions through multiple iterative rounds.

Although the Delphi technique inherently integrates qualitative and quantitative elements, the present study was explicitly structured into three sequential Delphi rounds. Round 1 focused on qualitative item generation through open-ended questions. Rounds 2 and 3 employed quantitative procedures to refine, reduce, and confirm consensus on the generated attributes using structured rating and ranking methods. The integration of qualitative and quantitative data was achieved by linking thematically derived attributes from Round 1 with

quantitative rankings—such as the average percent of majority opinions (AMPO)—in subsequent rounds, enabling a transparent and rigorous assessment of expert consensus (Furtado *et al*., 2024; Romero-Collado, 2021).

Literature review: A comprehensive literature search was conducted using major health-related databases, including CINAHL, Cochrane Library, MEDLINE, PubMed, and PsycINFO, to identify empirical studies related to affective organizational commitment in nursing. The quality of the retrieved studies was appraised using the Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) Rating Scale, with Level IV evidence—including descriptive, qualitative, and correlational studies—considered appropriate for the exploratory nature of this investigation (Brunt, 2016; Whalen *et al*., 2024). Only high-quality Level IV studies demonstrating methodological rigor and relevance to nursing practice were included. These studies informed the conceptual framing of the Round 1 open-ended questions but were not presented verbatim to participants, thereby minimizing response bias while ensuring theoretical grounding.

Establishment of the expert panel for discussion: An expert panel consisting of 18 registered nurses with diverse qualifications (bachelor's degrees, technical institute diplomas, and other professional credentials) was assembled to ensure heterogeneity and breadth of clinical perspectives. The participants' demographic characteristics are presented in Table 1.

A purposive sampling technique was used to recruit panelists based on predefined inclusion criteria, including relevant academic qualifications, professional experience, subject-matter expertise aligned with the study objectives, and current clinical placement in COVID-19 isolation units (Furtado *et al*., 2024; Flanagan & Beck, 2024). Although Delphi panels commonly include between 7 and 12 experts, a larger panel was intentionally recruited to enhance the robustness and diversity of expert input (Beiderbeck *et al*., 2021).

Data Collection and Delphi Process: Data were collected using a three-round electronic Delphi process conducted via email using the SurveyXact platform (Ramboll Xact 2021). The questionnaire comprised two sections: demographic information and Delphi inquiry items (Figure 1).

Round 1: Item Generation: In Round 1, participants responded to the open-ended question:

"From your perspective as a nurse, what are the factors contributing to affective commitment to the organization among nurses?" Each expert was asked to identify at least five factors. Qualitative analysis of the responses yielded 43 initial attributes. The data were analyzed using thematic analysis, guided by the framework proposed by Lochmiller (2021). Attributes were generated through rigorous line-by-line coding of textual data. When multiple statements reflected a single underlying concept, chunk coding was applied to enhance conceptual clarity and analytical consistency (Lochmiller, 2021). Following an initial round of expert panel discussions, 7 attributes were discarded due to irrelevance or duplication, and conceptually similar responses were clustered. Consequently, 36 attributes entered the first formal Delphi round.

Round 2: Item Refinement and Reduction: In the second round of the Delphi panel, each participant was presented with 36 attributes representing a prioritized list of eight themes identified in Round 1. Participants were asked to evaluate the significance and priority of each attribute using a five-point Likert-type scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Based on this iterative assessment, 11 attributes were removed, yielding

a set of 25 refined items for inclusion in the subsequent Delphi round.

Round 3: Consensus Confirmation: In Round 3, the 25 refined items were redistributed to the expert panel for final review and confirmation of consensus. No additional attributes were removed during this round, and consensus was achieved without further modification. Consequently, all 25 attributes were finalized at the conclusion of Round 3, as shown in Figure 1. Upon completion of the Delphi process, a summary of the finalized attributes was circulated to the expert panel for verification.

Ethical considerations

This study adhered to the ethical principles outlined in the Declaration of Helsinki (DoH–Oct 2008). Written approval to conduct the study was obtained from the Research Ethics Committee of the Faculty of Nursing at Alexandria University (IRB00013620/129/9/2023). Prior to participation, all participants were fully informed of the study's aims and objectives and were assured of their right to decline participation or withdraw from the study at any time without consequences.

Data analysis and synthesis

Descriptive quantitative data, such as demographic characteristics, were analyzed using IBM SPSS Statistics, Version 23. Frequencies and percentages were calculated to describe the participants' demographic profile. To assess the degree of consensus among participants, the average percent of majority opinions (AMPO) approach was employed. According to von der Gracht (2012), questions with a cut-off rate below 69.7% were carried forward to the next round of analysis. This 69.7% threshold was adopted based on von der Gracht's recommendation as an effective criterion for determining consensus in Delphi studies (von der Gracht, 2012). This threshold aligns with consensus levels reported in other Delphi studies, which generally range from 60% to 80% agreement (Diamond *et al*., 2014; Hasson *et al*., 2000).

For qualitative data analysis, themes were constructed by identifying recurring words and concepts within participants' responses. The researcher systematically reviewed the identified attributes and developed themes through synthesis. The accuracy of these themes was subsequently verified, and any discrepancies were resolved to ensure correctness, following the procedures outlined by Elo and Kyngäs (2008) (Elo & Kyngäs, 2008).

To enhance the rigour and trustworthiness of the analysis, an expert validation process was implemented. An independent academic colleague with expertise in qualitative research conducted parallel coding of the nurses' responses to ensure consistency in theme identification. Any discrepancies in coding were discussed and resolved through consensus, thereby supporting intercoder reliability and strengthening the credibility of the findings.

Results/Findings

Table 1 shows that of the 18 Delphi panelists invited to participate in the study, more than half (55.56%) were aged 30 years or younger, and the majority were female (72.22%). Half of the participants held a bachelor's degree, while 44.45% of nurses held supervisory positions. Regarding length of service, 55.56% had ten or fewer years of nursing experience. In terms of clinical placement, 50% of participants worked in COVID-19 isolation units, including intensive care units and medical-surgical departments such as hematemesis, urology, and dialysis.

Table (1): Demographic Characteristics of Participants that responded to the Delphi survey (n = 18).

Demographic Characteristics	No.	%
Gender		
Female	13	72.22
Male	5	27.78
Age (years)		
≤ 30	10	55.55
31-40	5	27.78

Demographic Characteristics	No.	%
More than 40	3	16.67
Min. – Max.	21.0 – 52.0	
Mean ± SD.	32.10 ± 5.73	
Level education		
Diploma	3	16.67
Bachelor's degree	9	50.00
Technical institute	6	33.33
Job title Supervisor Nurses Staff Nurses	 8 10	 44.45 55.55
Length of service (Years)		
≤10	10	55.55
11–20	5	27.78
More than 20	3	16.67
Min. – Max.	1.0 – 23.0	
Mean ± SD.	11.29 ± 5. 76	
Type of ward		
Intensive Care Unit (ICU)	9	50.00
Medical-Surgical Units (Hematemesis, Urology, Dialysis departments)	9	50.00

Table 2 presents the top-prioritized factors contributing to affective organizational commitment, and the refinement of attributes across the three Delphi rounds. The Delphi panelists evaluated eight core attributes. In Round 1, ***work environment-related factors*** achieved a consensus of 94.44%, which increased to 100% in Rounds 2 and 3. A full consensus was reached, with no additional feedback. For the ***remuneration and compensation system***, consensus was 90.71% in Round 1 and rose to 94.44% in Round 2. Full consensus (100%) was attained in Round 3, with no further comments submitted. The attribute ***teamwork spirit in the workplace*** initially showed moderate agreement, with consensus scores of 77.78% in Round 1 and 88.89% in Round 2, ultimately reaching full consensus in Round 3, reflecting strengthened agreement over time. Regarding ***perceived organizational justice***, consensus began at 94.44% in Round 1 and remained stable at 100% in Rounds 2 and 3. These four attributes achieved full consensus (100%) in the final Delphi round, demonstrating strong agreement among panelists regarding their significance to affective organizational commitment.

Overall, the expert panel's prioritization of these themes reflects a shared recognition of the core elements that foster affective organizational commitment among nurses. High-ranking themes such as work environment-related factors and remuneration and compensation systems highlight the foundational importance of safe, supportive work settings and equitable compensation in promoting workforce stability. Likewise, the emphasis on teamwork spirit and perceived organizational justice underscores the value of inclusive, collaborative, and transparent organizational cultures in fostering a sense of belonging and sustaining commitment.

Regarding the remaining four attributes, the AMPO results indicated that by the third Delphi round, the panelists had reached the following levels of agreement: ***humanity of nurses in healthcare*** **–** 94.44%, ***ethical considerations and moral obligations*** **–** 88.89%, ***emotional bonding and attachment to the workplace*** **–** 88.89%, **and** ***sustainable professional development*** **(regional, national, international) –** 77.78%.

Notably, the prominence of themes such as humanity in healthcare, ethical considerations and moral obligations suggests that intrinsic professional values remain central to nurses' engagement and sense of purpose. Likewise, the prioritization of emotional bonding and attachment to the workplace, along with sustainable professional development, underscores the importance of personal identification with the work environment and opportunities for career progression in strengthening long-term organizational commitment**.**

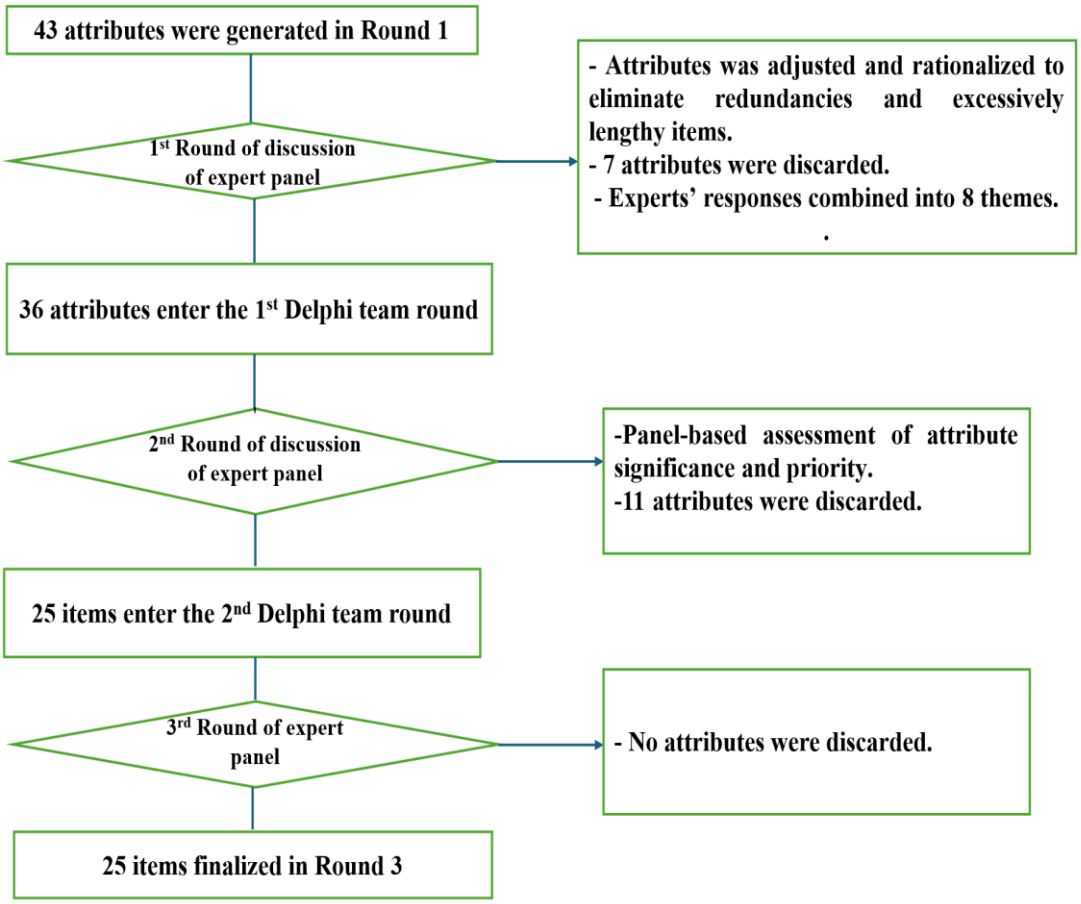

Figure (1): Using E-Delphi study to identify factors contributing to Nurses' Affective organizational commitment.

Table (2): Summary of the Top Prioritized Factors Contributing to Affective Organizational Commitment and Refined Attributes across the Three- iterative Delphi Rounds.

	Attributes (Round 1)	Round 1 Consensus	Amended Attribute (Round 2)	Round 2 Consensus	Amended Attribute (Round 3)	Round 3 Consensus	Final Attribute	Panellist-wise variations in consensus levels.
1	Consistently maintaining hospital supplies and medical equipment, ensuring precautionary and safety measures, effective administrative management, preparedness, and proactive creation of a framework to tackle unexpected circumstances, cleanliness, and configuration of the clinical setting.	94.44%	Regular provision of hospital's medical supplies and disaster preparedness.	100%	Hospital- related management systems (e.g., hospital resources, clear administration, and planning).	100%	Work environment-related factors	Highly ranked by supervisor nurse
2	Feel fairly compensated through increasing wages, and salaries, feel valued, and inspire leadership mindset and empowerment.	90.71%	Recognition of the hard work devoted by nursing staff and monetary appreciation.	94.44%	Ongoing motivation of nursing staff and pecuniary compensation.	100%	Remuneration and compensation system	Highly ranked by staff nurses

	Attributes (Round 1)	Round 1 Consensus	Amended Attribute (Round 2)	Round 2 Consensus	Amended Attribute (Round 3)	Round 3 Consensus	Final Attribute	Panellist-wise variations in consensus levels.
3	Friendliness, mutual respect, and understanding, spirit of cooperation and sense of work group cohesion, proper communication between staff, positive discussion, democratic opinions, and adopting shared vision to address work problems.	77.78%	Democratic atmosphere and interprofessional communication style of nursing staff.	88.89%	Co-worker support and team camaraderie in clinical settings.	100%	Teamwork spirit in the workplace	Equally valued across all panellists.
4	Attain justice, transparency and non-discrimination among all staff members, equal distribution of tasks or assignments by the head of the unit, alignment to job description and hospital policy.	94.44%	Organizational fairness, equality, and inclusion in relation to distribution of tasks and assignments.	100%	Equitable and inclusive workplace.	100%	Perceived organizational justice	Held greater significance among nurses with 11–20 years of experience.
5	Put oneself in the patients' place and feeling their suffering and afraid of being in their place at one point of time.	77.78%	Empathic and compassionate attitudes of nurses.	88.89%	Empathy in nursing practice.	94.44%	Humanity of nurses in healthcare	Equally valued across all panellists.
6	Obligation to cherish, relieve suffering and save patients' lives, maintaining professional ethics, Reckoning for the honorable face of God.	66.67%	Nurses-driven by professional obligation.	83.33%	Nurses' professional duty of care.	88.89%	Ethical considerations and moral obligations	The nurses with 11–20 years of experience held a higher ranking.
7	Inspiring a state of job bond and perceiving workplace as the second home.	83.33%	Belonging to working environment	77.78%	Nurses' integration and attachment to workplace.	88.89%	The theme of 'emotional bonding and attachment to the workplace	Rated more highly by female staff nurses within the ≤30 age group
8	Continuing education through frequent practice-related training, conferences, and workshops related to global and future health issues.	66.67%	Constantly harmonizing nursing education in the health discipline.	77.78%	Lifelong learning opportunities in the health discipline.	77.78%	Sustainable professional development (regional, national, international)	Highly ranked by nurses holding a Bachelor's degree.

Discussion

Nurses, as frontline healthcare providers working at the epicenter of the COVID-19 pandemic, faced significant challenges in clinical settings. These extraordinary circumstances heightened nurses' perceptions of organizational obstacles and diminished their professional commitment (Eweida *et al.*, 2020).

Therefore, this study aims to identify, through expert consensus, the factors contributing to affective organizational commitment among nurses in the post-pandemic era.

Across the three iterative Delphi rounds, expert consensus progressively solidified around eight core attributes of affective organizational commitment: work environment-related factors, remuneration and compensation systems, teamwork spirit in the workplace, perceived organizational justice, humanity in healthcare, ethical considerations and moral obligations of the nursing profession, emotional bonding and attachment to the workplace, and sustainable professional development at regional, national, and international levels. Importantly, the introduction of a set of expert-validated indicators significantly enhances the understanding of affective organizational commitment, particularly within the regional context of the Middle East. These indicators reflect a culturally grounded perspective, informed by the lived experiences and professional realities of healthcare practitioners in the region. Furthermore, the findings provide expert-driven insights into both structural and psychosocial determinants of organizational commitment, offering a context-sensitive framework to guide future policy development, workforce planning, and retention strategies in healthcare settings.

Hospitals worldwide faced formidable challenges during the COVID-19 pandemic due to severe shortages of equipment and supplies, and Egyptian hospitals were no exception. The Egyptian healthcare system struggled with chronic financial constraints and supply chain disruptions throughout the outbreak (OECD, 2020). Nurses reported that the scarcity of hospital supplies and equipment hindered their ability to care for the overwhelming number of patients. This situation exposed them to intense stress and jeopardized their professional trajectories (Eweida *et al*., 2020; Vejdani *et al*., 2021). In this context, Said and El-Shafei (2021) reported that 51% of Egyptian nurses experienced low job satisfaction during the pandemic, with a striking 96.2% indicating an intention to leave their positions (Said & El-Shafei, 2021). The limited availability of medical and protective materials emerged as a major workplace stressor, contributing to organizational barriers and undermining nurses' commitment (Daneshvar & Otterbach, 2025). Furthermore, Moyimane *et al*. (2017) conducted a qualitative study examining the effects of prolonged shortages of hospital medical supplies, documenting a substantial negative impact on nurses and the profession. Participants expressed feelings of frustration, discouragement, and demotivation, stating: "We keep blaming ourselves, and this is haunting us. We end up developing stress-related conditions due to the hospital's failure to supply us with the required medical equipment" (Moyimane *et al*., 2017).

Anecdotal evidence suggests that financial conditions across the MENA region deteriorated significantly following the COVID-19 pandemic. Egypt, as one of the economically fragile countries, has been challenged not only by persistent fiscal deficits but also by the limited capacity of its healthcare sector and disrupted hospital operations (OECD, 2020). Data from the Egyptian Ministry of Health and Population indicate that the rapid progression of the pandemic contributed to an unprecedented state of economic turmoil, placing governmental hospitals in an especially vulnerable position. This was particularly evident in terms of operational expenses and the low salaries of healthcare professionals (Elkhashen *et al*., 2020).

The Egyptian Medical Syndicate reported that the infection risk allowances for medical and nursing staff ranged from 9–30 Egyptian pounds ($0.57–$1.91) (Elhabashy *et al*., 2024). This finding aligns with the results of the cur-

rent study, in which remuneration and compensation were consistently identified as the second-priority attribute across the three Delphi rounds, with consensus levels of 90.71%, 94.44%, and 100%, respectively. In light of these conditions, scholars have advocated additional financial compensation of up to 40% of healthcare providers' salaries for those directly managing COVID-19 cases (Cotrim-Junior *et al*., 2022; Gadsden *et al*., 2021). Diaconu *et al*. (2021), in their study of the Eastern Mediterranean region, highlighted that monetary recognition and satisfaction with pay can enhance healthcare professionals' performance and motivation in low-income countries. These findings underscore the need for Egypt to consolidate efforts to strengthen the healthcare sector, including initiatives to raise the minimum wage for nurses (Diaconu *et al*., 2021).

The attribute of teamwork spirit in the workplace ranked as the third-highest priority for affective organizational commitment in this Delphi study. This finding aligns with numerous studies indicating that a strong sense of teamwork and camaraderie motivates team members to collaborate effectively toward achieving organizational goals, ultimately enhancing nurses' affective commitment (Grillos *et al*., 2021; Saygılı *et al*., 2020; Zhenjing *et al*., 2022). In a related context, an extensive review of organizational communication highlights the critical role of vibrant staff communication in promoting effective teamwork. Effective communication facilitates information flow, enhances emotional safety and well-being, and boosts employee morale, thereby contributing to job satisfaction and clinical effectiveness (Meneses-La-Riva *et al*., 2025). The American Nurses Association (ANA) similarly emphasizes that effective communication constitutes a core standard of professional nursing practice, prioritizing inter-professional communication within healthcare teams to foster mutual understanding among organizational members and create a supportive working environment within hospital settings (American Nurses Association, 2022).

In recent decades, numerous studies have suggested that a supportive working environment is best fostered through democratic or participative leadership. This leadership style promotes a positive workplace by emphasizing teamwork, trust, and transparency, thereby motivating employees to exceed expectations (Nassani *et al*., 2024; Şimşekli *et al*., 2025). A systematic review of 12 studies by Qtait (2023), including four conducted in Egypt (Qtait, 2023; Nassani *et al*., 2024; Sarfraz *et al*., 2022) highlighted that head nurses' leadership style can significantly influence the working environment. Nurses who adopt a democratic approach play a central role in encouraging staff to share knowledge and skills, express opinions, solve problems collaboratively, and take initiative, in contrast to individuals working in isolation (Srimulyani & Hermanto, 2022). In the current study, all participants' responses in the third Delphi round were weighted equally regarding the importance of fostering a democratic atmosphere and maintaining an open-door policy to address work-related challenges. Conversely, Gavya and Subashini (2024) reported that laissez-faire and transformational leadership styles also positively influenced nurses' commitment to the organization (Gavya & Subashini, 2024).

The prioritization of perceived organizational justice in the workplace, as highlighted by the findings of the current study, can be understood through the lens of organizational justice theory. Organizational justice theory primarily derives from equity theory, which posits that individuals evaluate the fairness of their job-related outcomes in relation to their inputs and in comparison to their peers (Adamovic, 2023). Such evaluations influence the level of engagement within the organization, as individuals compare the ratios of their perceived work

outcomes (e.g., promotion, pay, recognition) to their perceived work inputs (e.g., time, effort) against those of their colleagues (Chen *et al*., 2023). De Clercq *et al*. (2023) noted that when individuals perceive that they invest more effort and time than others but do not receive proportionate rewards, they view this as unfair. This perception motivates them to seek equitable interactions and avoid biased or unjust situations (De Clercq *et al*., 2023). In this context, Wolor *et al*. (2022) emphasized that unfair treatment in the workplace can lead to increased distrust, higher turnover intentions, and reduced job satisfaction and organizational commitment (Wolor *et al*., 2022). Therefore, it is imperative for nursing leaders to foster a culture of equity by addressing effort-reward imbalances through adequate recognition, promotion, and remuneration, in order to strengthen nurses' organizational commitment.

It is unsurprising that the theme "Humanity of nurses in healthcare" was consistently valued by all panelists. This finding can be interpreted through the lens of Carl Rogers' theory of empathy, which provides a foundational philosophical underpinning for the nursing profession (Babaii *et al*., 2021). In practice, this is reflected in the nurse's ability to place themselves in the patient's position, experiencing their suffering, fear, and vulnerability (Babaii *et al*., 2021). Such empathetic engagement not only motivates nurses to deliver patient-centered care but also strengthens their emotional connection to their professional identity, thereby fostering affective organizational commitment (Eweida, 2025).

According to the AMPO results in the current study, ethical considerations and moral obligations were rated more highly by nurses with 11–20 years of experience. This finding is consistent with Gassas & Salem (2022), which reported a positive association between nurses' professional ethics and organizational commitment among hospital nurses during the COVID-19 pandemic (Gassas & Salem, 2022). This relationship reflects the influence of virtue ethics within the nursing profession, which emphasizes the moral responsibility to act rightly and avoid causing harm or unnecessary risk to patients. As documented in the literature, the ethical and moral obligations of the nursing profession enable healthcare providers to bring their conscience to work, perform duties with genuine compassion, and feel wholeheartedly committed to their organization (Khanian *et al*., 2024). This, in turn, strengthens the moral foundation of the nursing profession, with ethical considerations and moral obligations serving as enduring motivational anchors for professional commitment and practice (Eweida, 2025).

Our findings indicated that emotional bonding and attachment to the workplace were rated more highly by female staff nurses aged ≤30 years. This observation aligns with recent studies reporting that individuals under 25 and those over 40 tend to exhibit high levels of organizational commitment (Şimşekli *et al*., 2025; Paparisabet *et al*., 2024). These studies suggest that younger individuals are often recent graduates with strong motivation to secure and maintain employment, whereas older individuals are generally well-established in their roles, demonstrate a high degree of task orientation, and show a lower propensity to leave their positions.

A key outcome of this study is the high prioritization of sustainable professional development among nurses holding a Bachelor's degree. Supporting this, Kurtović *et al*. (2024) reported that Bachelor-prepared nurses tend to place greater emphasis on personal professional growth (Kurtović *et al*., 2024). This finding aligns with the core values of nursing professionalism, which underscore the importance of maintaining up-to-date knowledge and competencies in an ever-evolving healthcare environment (Brunt, 2016; Wong *et al*., 2021).

Moreover, recent research indicates that nurses' engagement in continuing professional development (CPD) is influenced not only by intrinsic motivation but also by extrinsic factors, including organizational culture and the availability of supportive environments (Nyelisani *et al*., 2023; Simkhada *et al*., 2023). These insights highlight the critical role of CPD in equipping nurses to respond effectively to the increasingly complex demands of contemporary healthcare systems.

Based on the expert-driven indicators identified in this study, several targeted strategies are recommended. These include the implementation of structured mentorship programs to support early-career nurses, leadership development initiatives aimed at fostering supportive and transformational management, and salary reforms to ensure equitable compensation that reflects workload intensity and frontline responsibilities. Furthermore, the promotion of interdisciplinary, team-based care models is essential for enhancing collaboration, professional recognition, and collective efficacy. Collectively, these strategies provide actionable, evidence-informed guidance for healthcare policymakers and administrators seeking to strengthen workforce stability and organizational resilience within the evolving post-pandemic healthcare landscape.

Limitations

This study has several limitations that should be acknowledged. First, although the use of the SurveyXact tool was intended to facilitate ease of access, the exclusive reliance on email communication for participant recruitment necessitated repeated reminders to encourage participation. Some nurses did not routinely check their institutional email accounts, potentially due to demanding clinical workloads, irregular shift patterns, or limited access to digital platforms during working hours. Future research could benefit from incorporating alternative communication methods—such as SMS reminders or in-person outreach—to enhance participant engagement.

Second, the small sample size limits the generalizability of the findings. As data were collected exclusively from Egypt, the applicability of the results to other regions or countries is restricted. Nevertheless, the study may inspire further research in diverse contexts. Future studies should aim to address these limitations by using larger, more diverse samples and a variety of data collection methods. Finally, although this study was conducted by a single researcher, peer debriefing strategies were implemented in collaboration with an academic colleague experienced in qualitative data analysis who reviewed the nurses' thematic responses. This collaboration helped to enhance the credibility and methodological transparency of the study, ensuring the robustness and rigour of the analytical process (Lochmiller, 2021).

Conclusion

This e-Delphi study represents a significant milestone in identifying a clearly defined set of attributes that underpin affective organizational commitment, as determined through consensus among expert nurses. These factors encompass elements related to the work environment, compensation structures, workplace collaboration and equity, ethical considerations and moral obligations, sustainable professional development, the humanistic role of nurses in healthcare, and emotional bonding and attachment to the workplace.

The identified attributes hold substantial potential to guide nurse managers and policymakers in shaping the strategic direction of the nursing workforce through initiatives such as targeted resilience training programs and capacity-building activities designed to enhance nurses' preparedness for future health crises or outbreaks. By proactively addressing these domains, healthcare institutions can strengthen

the resilience and adaptability of nursing staff—both of which are essential for maintaining high-quality patient care during periods of crisis. Future research should prioritize validating these attributes through larger-scale or cross-cultural studies and focus on developing intervention models grounded in the identified factors, thereby ensuring their applicability and effectiveness across diverse healthcare settings.

The post-pandemic period has intensified the pre-existing shortage of nursing personnel, highlighting the urgent need for comprehensive national strategies to address this critical workforce issue. Nurse managers and policymakers must implement targeted interventions aimed at strengthening nurses' emotional commitment and enhancing the overall attractiveness of nursing as a sustainable long-term career. Furthermore, future research should focus on validating these influencing factors across diverse clinical settings and evaluating the effectiveness of interventions designed to improve organizational commitment.

Nurses in Egypt face numerous challenges in their work environment, including inadequate wages, high nurse-to-patient ratios, and other related factors, which adversely impact retention and contribute to turnover. According to the International Council of Nurses, the global nursing shortage could reach a staggering 13 million by 2030 without radical intervention. Against this backdrop, this Delphi study was conducted as a pioneering effort in one of the largest Arab countries in the MENA region, Egypt, to examine the factors influencing affective organizational commitment among nurses in the aftermath of the pandemic. The findings have the potential to support an open-door policy, enhance the appeal of the nursing profession, and foster a positive work culture aligned with the demands of the 21st-century labour market. Therefore, it is imperative that the voices of frontline nurses—as essential defenders in healthcare settings—be amplified and considered in policy and organizational planning.

Nurses in clinical settings should actively engage in collaborative dialogue with hospital leadership and policymakers to identify key determinants—such as remuneration, ethical culture, and team spirit—that influence affective organizational commitment. These insights can inform the implementation of targeted interventions, including resilience-building programs and ethical leadership practices, ultimately fostering a psychologically healthy and supportive organizational climate.

List of Abbreviations

- COVID -19: Coronavirus
- WHO: World Health Organization
- OECD: Organisation for Economic Co-operation and Development
- JD–R: Job Demands–Resources model
- MENA: Middle East and North Africa
- MHFA: Mental Health First Aid
- ANA: American Nurses Association

Disclosure Statement

- **Ethical approval:** Ethical approvals were obtained from the Institutional Review Board Alexandria University (IRB00013620/129/9/2023).
- **Consent to participate:** Information about the aim of this study was provided to the participants. They also have been informed that they could withdraw from a study at any time without any punishment. It was confirmed that privacy was maintained during the study, so the questionnaire was recorded using serial numbers.
- **Availability of data and materials:** The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.
- **Author's Contribution:** The author was responsible for study conception, design,

data collection, analysis, and manuscript preparation.

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