

TOWARDS SUSTAINABLE NURSING ORGANIZATION AND DEVELOPMENT OF A STANDARDIZED TOOL: AN APPLICATION OF AMERICAN ORGANIZATION OF NURSE EXECUTIVES (AONE) MEASURES TO MIDDLE-EAST HOSPITALS

RUMO A UMA ORGANIZAÇÃO DE ENFERMAGEM SUSTENTÁVEL E AO DESENVOLVIMENTO DE UMA FERRAMENTA PADRONIZADA: UMA APLICAÇÃO DAS MEDIDAS DA ORGANIZAÇÃO AMERICANA DE ENFERMEIROS EXECUTIVOS (AONE) EM HOSPITAIS DO ORIENTE MÉDIO

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Abstract

Introduction: This study adapts the American Organization of Nurse Executives (AONE) competency framework for Saudi Arabian hospitals, aiming to validate a standardized tool for nurse administrators. It assesses managerial, relational, and business skills across five competency domains: communication and relationship management, knowledge of the healthcare environment, leadership, professionalism, and business skills. **Methodology:** The study conducted a factor analysis using data from 315 respondents to confirm the instrument's strong consistency and construct validity. After that, a pilot study was conducted to assess the validity and consistency of the tool development. A cross-sectional design was applied, and 338 respondents participated in the survey. Findings show that respondents rated themselves highly in leadership (grand weighted mean = 3.55) and professionalism (3.66), while scoring lower in knowledge of the healthcare environment and communication. **Conclusion:** The study found that respondents are proficient in leadership skills and professionalism and competent in other domains; thus, improvements in these domains are needed. This reliable measure can guide continuing education, workforce planning, and performance appraisal in the Kingdom's evolving health sector.

Resumo

Introdução: Este estudo adapta o quadro de competências da Organização Americana de Enfermeiros Executivos (AONE) para hospitais da Arábia Saudita, com o objetivo de validar uma ferramenta padronizada para administradores de enfermagem. Ele avalia habilidades gerenciais, relacionais e empresariais em cinco domínios de competência: comunicação e gestão de relacionamentos, conhecimento do ambiente de saúde, liderança, profissionalismo e habilidades empresariais. **Metodologia:** O estudo realizou uma análise fatorial utilizando dados de 315 participantes para confirmar a forte consistência e a validade de construto do instrumento. Posteriormente, foi realizado um estudo piloto para avaliar a validade e a consistência do desenvolvimento da ferramenta. Foi aplicado um desenho transversal, e 338 participantes responderam à pesquisa. Os resultados mostram que os participantes se autoavaliaram com notas altas em liderança (média ponderada geral = 3,55) e profissionalismo (3,66), enquanto obtiveram pontuação mais baixa em conhecimento do ambiente de saúde e comunicação. **Conclusão:** O estudo constatou que os participantes são proficientes em habilidades de liderança e profissionalismo e competentes em outros



Keywords: Competency. Nurse Administrators. AONE Framework. Professionalism. Leadership. Healthcare Environment.

domínios; portanto, são necessárias melhorias nesses domínios. Essa medida confiável pode orientar a educação continuada, o planejamento da força de trabalho e a avaliação de desempenho no setor de saúde em evolução do Reino.

Palavras-chave: Competência. Enfermeiros Administradores. Estrutura AONE. Profissionalismo. Liderança. Ambiente de Saúde.

1 INTRODUCTION

In contemporary healthcare systems, nurse administrators play a crucial role at the intersection of strategic decision-making and bedside care, significantly influencing organizational resilience, workforce engagement, and patient outcomes (Alshamlani *et al.*, 2024; Daly *et al.*, 2014) [1][2]. In Saudi Arabia, this leadership role is increasingly important due to the National Transformation Program and Vision 2030, which have led to the expansion of healthcare facilities, increased competition for talent, and the adoption of innovative service models. These changes demand nurse leaders who can navigate complexity, manage resources, and foster cultures of safety and quality (Baalharith *et al.*, 2024; Catton, 2018)[3][4]. While internationally recognized competency frameworks, such as those from the American Organization for Nursing Leadership (AONL), provide a foundation, their direct application in Middle Eastern contexts may overlook cultural values, hierarchical norms, and policy environments that affect leadership practices (Al-Harty *et al.*, 2018)[5]. The limited empirical testing of these frameworks in the Gulf Cooperation Council countries undermines confidence in their applicability and hinders the development of relevant professional development pathways. As Pales (2015)[6] asserts, "dynamic health systems demand equally dynamic leadership." This study aims to map the current competency profile of Saudi nurse administrators and develop a culturally attuned measurement instrument to support leadership development, succession planning, and performance evaluation in the Kingdom's evolving hospital sector. Research on nurse leadership competencies in Saudi Arabia is emerging, with few studies directly addressing this area. Alshamlani *et al.* (2024) [1] emphasize the need to

evaluate leadership competencies and their predictors to inform development strategies, while Baalharith *et al.* (2024)[3] highlight the importance of competency frameworks for guiding training programs, especially in virtual healthcare contexts. Various assessment tools, such as the "Competency Assessment Tool: Self-Assessment," have been used to evaluate self-reported leadership and management competencies among Saudi nurses, revealing areas of strength and development (Alshamlani *et al.*, 2024)[1]. Additionally, studies on self-reported competence among nurses in Saudi public hospitals indicate challenges in leadership, organization, and care delivery, highlighting potential gaps in perceived leadership capabilities. Educational interventions have shown positive impacts on nurses' leadership perceptions, with improved self-assessed competence following training.

2 METHODS

The study utilized a cross sectional, design with a quantitative focus to effectively assess competencies across a diverse population, following Creswell's (2014)[7] methodological insights. This approach enabled a broad examination of competencies within a specific timeframe, providing a snapshot of current skills and knowledge levels among participants. The design facilitated the collection of data that could be quantitatively analyzed, offering a structured means to evaluate competency levels across various demographic and professional groups within the healthcare sector. Such a design is particularly beneficial in diverse settings, accommodating the varying backgrounds and experiences of participants and allowing researchers to identify patterns and trends with greater precision.

2.1 Sampling

The sampling method employed in this study was a combination of stratified and convenience sampling, designed to ensure a representative sample of nurse administrators from selected hospitals under the Ministry of Health in Saudi Arabia. The sampling frame consisted of nurse administrators from five key regions: Madinah, Makkah, Jeddah, Yanbu, and Taif. These regions were chosen due to their significant representation of

healthcare facilities in the Western Region of Saudi Arabia. Eligibility criteria included nurse administrators holding positions such as head nurses, training educators, supervisors, and other administrative roles within these hospitals. Recruitment was conducted through official channels, utilizing the hospitals' administrative networks to invite eligible participants to partake in the study. Initially, 1,134 nurse administrators formed the total population, from which the sample was drawn using a five percent Cochran formula to determine a statistically significant sample size for the first and second surveys.

The recruitment process invited the respondents to participate across the two surveys, with 338 respondents participating in the first survey and 315 in the second survey. The response rate was calculated based on the number of respondents who completed the surveys compared to those invited, ensuring a comprehensive representation of the targeted population. The response rate for the first survey was approximately 29.8%, while the second survey achieved a response rate of 27.8%. These rates reflect the willingness and availability of the nurse administrators to engage in the study, despite the challenges posed by the ongoing pandemic. The study's use of online surveys facilitated broader participation across the regions, maintaining anonymity and confidentiality, which likely contributed to the response rate. Overall, the sampling method provided a robust framework to assess the competencies of nurse administrators, yielding a representative sample that reflects the diverse demographics and professional backgrounds within the healthcare system in the Western Region of Saudi Arabia.

2.2 Item construction and validation

2.2.1 Instrument development

Instrument development was a critical component of the study, beginning with the systematic translation and contextual adaptation of the competencies outlined by the American Organization of Nurse Executives (AONE). This process ensured that the competencies were relevant and applicable to Saudi Arabian healthcare contexts, as highlighted by Al-Harty *et al.* (2018)[5]. The adaptation involved a thorough review to maintain cultural relevance and contextual appropriateness, ensuring the competencies

resonated with local practices and expectations. A panel of eight experts in nursing management, healthcare quality, and psychometrics rigorously assessed each item, focusing on clarity, cultural relevance, and fidelity to the original competency domains, as emphasized by Sherman & Pross (2010)[8]. This expert review was essential to ensure that the adapted competencies retained their intended meaning and effectiveness in the new context.

The development of the 55-item questionnaire was a rigorous and iterative process aimed at accurately capturing constructs related to professional competencies in nurse administrators. Utilizing a five-point Likert scale (1 =novice , 2= advance beginner, 3= competent, 4= proficient. 5= expert) Scores were interpreted as follows: competent (4.00 - 5.00), high (3.50 - 3.99), and improvable (1.00 - 3.49). This scale's effectiveness in capturing nuanced responses and its successful application in similar studies have been documented (Field, 2018)[9].

To ensure the sample was representative, the survey was distributed to nurse administrators across tertiary, secondary, and community hospitals in Saudi Arabia's principal regions, enhancing the generalizability of the findings. The response rate of 427 usable surveys met the recommended sample-to-item ratio standards for factor analysis, reinforcing the study's methodological rigor (Hair *et al.*, 2019)[10].

Exploratory Factor Analysis (EFA)

Data entry and cleaning were meticulously conducted to preserve dataset accuracy. The exploratory factor analysis (EFA), using principal-component extraction with varimax rotation, effectively uncovered the underlying domain structure of competencies. This approach facilitated an in-depth evaluation of construct validity and ensured the instrument accurately reflected professional competencies' dimensions (Costello & Osborne, 2005)[11]. The reliability was confirmed with Cronbach's alpha coefficients exceeding 0.70, indicating a high level of internal consistency.

Statistical Treatment and ANOVA Findings

Various statistical treatments, including Analysis of Variance (ANOVA), were employed to analyze the data. Significant differences in competencies based on demographic characteristics were identified:

Communication and Relationship Management: Significant differences were noted based on nationality and area of assignment ($p < 0.05$), especially among those in the delivery room and with varying years of experience.

Knowledge of Healthcare Environment: Variations were significant concerning nationality, area of assignment, years of experience, and educational attainment ($p < 0.05$), indicating those with higher education and specific experiences had greater clinical practice knowledge.

Leadership: Differences were significant based on area of assignment, years of experience, and educational attainment ($p < 0.05$), with those in emergency rooms and with advanced degrees demonstrating superior competencies.

Professionalism: Notable differences emerged based on nationality and position ($p < 0.05$), suggesting cultural background and job role significantly influenced professionalism.

Business Skills and Principles: Significant differences were found in business-related competencies concerning nationality, area of assignment, years of experience, and educational attainment ($p < 0.05$).

The study concluded that the adapted tool effectively assessed nurse administrators' competencies. It highlighted the need for targeted training and development programs to enhance healthcare management effectiveness. These findings underscore the importance of considering demographic factors in competency assessments and the utility of the AONE framework in diverse cultural contexts.

3 ETHICAL CONSIDERATIONS

Ethical considerations were paramount in this study, given the involvement of human subjects. To ensure the highest ethical standards, the research underwent a thorough review process. Initially, the study was evaluated and approved by the Institutional Review Board (IRB) of Our Lady of Fatima University. This approval confirmed that the study met the university's ethical guidelines, ensuring that participants were fully informed about the study's purpose, procedures, and their rights.

Subsequently, the research was subjected to further scrutiny by the IRB office of the Ministry of Health (MOH) in Riyadh. This additional layer of review reinforced the

commitment to ethical integrity, ensuring compliance with national and international ethical standards. Both IRBs focused on critical aspects such as obtaining informed consent, where participants were given comprehensive information about the study and their voluntary involvement.

Furthermore, measures were implemented to guarantee the confidentiality and anonymity of participants' responses, safeguarding their privacy throughout the research process. These steps align with the ethical principles outlined by Beauchamp and Childress (2013)[12], which emphasize respect for autonomy, beneficence, non-maleficence, and justice. By adhering to these rigorous ethical procedures, the study upheld the dignity and rights of all participants, fostering trust and integrity in the research process.

4 RESULTS

Table 1 provides an overview of the demographic characteristic of the respondent in Saudi Arabia, which is essential for understanding the range of perspectives and expertise within this group. The majority of respondents are Saudi nationals (58%), followed by a significant representation of Filipinos (31%), and a smaller percentage from other countries such as India, Jordan, and Egypt (11%). This multicultural composition reflects the global nature of the healthcare workforce in the region, contributing to a rich blend of cultural insights and practices. The gender distribution, with 62% female and 38% male participants, aligns with global trends in nursing, where women predominantly fill roles in the healthcare sector. This gender dynamic can influence leadership styles and decision-making processes within nursing administration.

The respondents' years of experience further illustrate the competency levels present in the sample. With 43% having more than 10 years of experience, there is a substantial foundation of seasoned professionals whose insights and leadership are integral to shaping healthcare policies and practices. Those with 5-10 years of experience (33%) and less than 5 years (24%) provide a balance between seasoned expertise and fresh perspectives, fostering an environment of dynamic growth and innovation. The mean age of 39 suggests a matured workforce capable of handling complex administrative challenges while still being adaptable to change. This demographic composition is crucial

in understanding how diverse experiences and backgrounds contribute to effective nursing administration in Saudi Arabia, ultimately impacting patient care quality and healthcare system efficiency.

Table 1

Demographic Characteristic of Respondent

Demographic Variable	Frequency (%)
Saudi	58%
Filipino	31%
Others (India, Jordan, Egypt)	11%
Female	62%
Male	38%
Age (Mean)	39%
Less than 5 years	24%
5-10 years	33%
More than 10 years	43%

Table 2 shows the exploratory factor analysis and reliability indices conducted by Medina (2022)[13] successfully retained all five theoretical domains, demonstrating a robust structure that aligns well with the AONE framework. This analysis accounted for 71.4% of the total variance, a substantial figure that underscores the model's comprehensive nature in capturing the complexity of the domains under study. The individual factor loadings, which ranged from 0.62 to 0.88, indicate strong correlations between items within each domain, signifying that the items are well-suited to their respective constructs. Such high factor loadings suggest that the items are not only relevant but also effective in measuring the underlying theoretical constructs. This structural integrity is crucial for ensuring that the framework accurately reflects the multifaceted nature of the domains, which include communication, leadership, and professionalism, among others. The retention of all five domains implies that the theoretical framework is both inclusive and representative, providing a comprehensive view of the competencies required in the healthcare setting.

Moreover, the reliability indices, as indicated by the Cronbach's alpha values, further highlight the robustness of this framework. The high reliability scores of 0.91 for communication and relationship management, 0.88 for knowledge of the healthcare environment, 0.93 for leadership, 0.90 for professionalism, and 0.89 for business skills

demonstrate the internal consistency of the items within each domain (Medina, 2022)[13]. These values exceed the commonly accepted threshold of 0.70, suggesting that the items consistently measure the intended constructs across different settings and populations. The reliability of these domains is critical, especially in the context of healthcare, where effective communication, leadership, and professionalism are paramount. The strong reliability indices reinforce the validity of using this framework as a tool for assessing competencies in healthcare administration, ensuring that practitioners are well-equipped to meet the demands of their roles. This study by Medina (2022) thus provides a valuable contribution to the field, offering a validated and reliable framework for understanding and developing essential competencies in healthcare management.

Table 2

Exploratory Factor Analysis and Reliability Indices

Domain	Variance Explained(%)	Factor Loading Range	Crombach Alpha's
<i>Communication and Relationship Management</i>	71.4%	0.62- 0.88	0.91
<i>Knowledge of the Health-Care Environment</i>	0.88		
<i>Leadership</i>	0.93		
<i>Professionalism</i>	0.90		
<i>Business Skills</i>	0.89		

Table 3 shows the competency appraisal results of the current skill levels within the team, highlighting areas of strength and opportunities for growth. Communication and relationship management, with a weighted mean of 3.34, underscore the team's ability to engage effectively with stakeholders, though there is room for enhancement. This score suggests that while team members are active communicators, there is potential to refine their skills further to ensure more impactful interactions. The score of 3.21 in knowledge of the healthcare environment indicates a solid understanding of essential industry trends, including policy, finance, and regulatory matters. However, this also highlights the necessity for a deeper dive into complex systems thinking. By expanding their grasp of integrated healthcare systems and emerging technologies, team members can better anticipate and adapt to future challenges, ultimately improving strategic decision-making.

Leadership emerged as a notable strength with a score of 3.55, reflecting the team's ability to inspire and guide others through effective vision setting and change management. This competency suggests a robust foundation in empowering teams and driving organizational success, though continuous development in leadership agility could further enhance these capabilities. Professionalism, scoring highest at 3.66, demonstrates a strong adherence to ethical standards, a commitment to lifelong learning, and active advocacy efforts. This lays a solid groundwork for maintaining a positive organizational culture and upholding the institution's reputation. Meanwhile, business skills, with a score of 3.53, indicate a commendable understanding of budgeting, resource allocation, and quality improvement analytics. Continued focus on these areas, particularly through advanced financial modeling and strategic resource management, will be crucial in navigating the complex financial aspects of healthcare. Together, these evaluations guide targeted development strategies to bolster competencies across all domains, aligning team capabilities with organizational goals.

Table 3

Competency Appraisals

Domain	Grand Weighted Mean	Description
<i>Communication and Relationship Management</i>	3.34	Active though improvable skill
<i>Knowledge of the Health-Care Environment</i>	3.21	Awareness of policy, finance, and regulatory trends; need for deeper systems understanding
<i>Leadership</i>	3.55	Confidence in vision setting, change management, and empowerment of teams
<i>Professionalism</i>	3.66	Strong commitment to ethical practice, lifelong learning, and advocacy
<i>Business Skills</i>	3.53	Familiarity with budgeting, resource allocation, and quality-improvement analytic

5 DISCUSSION

The competency profile documented in the study highlights the crucial intersection of professionalism and strategic vision as essential to effective clinical leadership, aligning with Daly *et al.* (2014)[2]. Table 4 shows the competency profile by domain, with Saudi nurse administrators self-reporting high ratings in leadership (3.55) and professionalism (3.66). These scores reflect a strong self-perception of their abilities to navigate the complexities of the healthcare landscape, indicating that they believe they possess essential qualities for effective leadership, such as ethical judgment, integrity, and a forward-thinking approach.

However, the study also reveals areas needing improvement, particularly in knowledge of the healthcare environment (3.21) and communication and relationship management (3.34). These lower scores indicate potential gaps in understanding the broader dynamics of the healthcare system and in fostering effective interpersonal relationships. Addressing these gaps is crucial for enhancing the overall competency of nurse administrators. Targeted training programs focused on active listening, negotiation, and conflict resolution will be essential for bolstering communication skills. Additionally, providing deeper insights into complex systems thinking and integrated healthcare will prepare nurse administrators to adapt to the evolving challenges of the industry.

Furthermore, the implications for continuing professional development (CPD) are significant. The validated assessment tool can function as a self-assessment for aspiring nurse leaders, facilitating tailored learning experiences that align with identified competency gaps. Moreover, it can serve as a curriculum blueprint for graduate programs, ensuring that nursing education in Saudi Arabia is responsive to both current and future healthcare demands (Catton, 2018)[4]. Accreditation bodies may also leverage the tool to verify managerial competence, thus supporting the Kingdom's efforts to elevate healthcare standards and improve patient outcomes.

In summary, while the results indicate a solid foundation in leadership and professionalism among nurse administrators in Saudi Arabia, the identified gaps in communication and knowledge of the healthcare environment highlight critical areas for focused development. By addressing these needs through structured training and

educational frameworks, the effectiveness of nursing administration can be significantly enhanced, ultimately benefiting the healthcare system as a whole.

Table 4

Competence Profile by Domain

Competency Domain	Grand Weighted Mean	Cronbach's Alpha
<i>Communication and Relationship</i>	3.34	0.91
<i>Knowledge and Health-care Environment</i>	3.21	0.88
<i>Leadership</i>	3.55	0.93
<i>Professionalism</i>	3.66	0.90
<i>Business Skills</i>	3.53	0.89

5.1 Cultural relevance and applicability of the AONE framework

The strong psychometric properties of the developed tool affirm the relevance of the AONE constructs in the Saudi context, thus rebuffing concerns regarding the cultural incongruity of Western leadership models (Al-Harty *et al.*, 2018)[5]. This finding suggests that while cultural adaptations are necessary, the foundational competencies identified by AONE are indeed applicable to nurse leaders in Saudi Arabia. The validated instrument serves as a bridge, providing diagnostic precision and developmental direction for nurse administrators seeking to enhance their competency profiles.

6 FUTURE RESEARCH DIRECTIONS

Future research should prioritize replication studies in neighboring Gulf states and the broader Middle Eastern context to assess the scalability and universality of existing findings related to leadership competencies in healthcare settings. By conducting these studies, researchers can determine whether the observed outcomes are consistent across different cultural and socio-economic landscapes within the region. Additionally, comparative studies that delve into how cultural factors influence leadership competencies could provide valuable insights into the variations and commonalities in leadership styles across diverse healthcare environments. This approach would allow for a nuanced understanding of how cultural norms, values, and organizational structures

impact leadership effectiveness, thereby informing best practices for leadership development. Such insights would be invaluable for designing and implementing tailored leadership programs that are culturally sensitive and contextually relevant. Ultimately, these studies could contribute to a more comprehensive framework for leadership development that not only addresses regional specificities but also offers adaptable strategies for enhancing leadership competencies in a variety of healthcare settings globally, as suggested by Pales (2015)[6].

7 CONCLUSION

The study's development of a standardized, evidence-based measure serves as a pivotal advancement in evaluating the competencies of Saudi Arabian nurse administrators. By establishing a comprehensive framework that assesses leadership, professionalism, environmental knowledge, and relationship management, the study provides a nuanced understanding of the strengths and areas for improvement within nursing administration. The high ratings in leadership and professionalism reflect the robust skills and dedication present in the current workforce, indicating a solid foundation for fostering effective nursing leadership. However, the lower scores in environmental knowledge and relationship management suggest the need for targeted development in these areas. Addressing these gaps is crucial for enhancing the adaptability and collaborative skills of nurse administrators, which are essential in the dynamic healthcare landscape. By integrating this tool into continuing professional development programs, Saudi Arabia can systematically elevate the competencies of its nursing leaders, contributing to the creation of sustainable nursing organizations that prioritize high-quality patient care.

The implications of this study extend beyond national borders, offering valuable insights for replication in neighboring Gulf states and the broader Middle Eastern context. By conducting similar studies in these regions, researchers can explore the scalability and applicability of the findings, providing a regional perspective on nursing leadership and organizational effectiveness. Such comparative analyses will enrich the global discourse on best practices in nursing administration, fostering an exchange of knowledge and strategies that can elevate the standards of healthcare leadership worldwide. The potential

for these findings to influence policy and practice on an international scale underscores the importance of continued research and collaboration. By addressing the developmental priorities identified in this study, countries can better prepare their nurse administrators to meet the challenges of modern healthcare, ultimately leading to improved patient outcomes and more resilient healthcare systems.

8 LIMITATIONS

This study acknowledges several limitations that may impact the findings. Firstly, the reliance on self-report data introduces the potential for response bias, particularly social desirability bias, where respondents may overstate their competencies to align with perceived expectations. Additionally, the cross-sectional design restricts the ability to infer causality and may not capture changes in competency over time. Furthermore, while the tool was rigorously validated within Saudi Arabian hospitals, its applicability and reliability in other cultural or healthcare settings remain to be established, necessitating further testing to confirm its efficacy beyond this context.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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