

Research Article

Nurses' Work Methods Assessment Scale: A Construct Validation

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Received 5 May 2023; Revised 3 August 2023; Accepted 4 September 2023; Published 11 September 2023

Academic Editor: Foroozan Atashzadeh-Shoorideh

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Background. A nursing work method is the base for the organization and implementation of nursing care to patients based on nurses' skills. Nurses' work methods are consensually organized into two groups: task-oriented work methods (functional method) and client-centered work methods (teamwork method, individual work method, and work method per reference nurse). As for the impact of the work method on clients, we highlight the interference in the quality of care provided and, regarding nurses, the impact on workload and job satisfaction. Therefore, the existence of tools that allow identifying the organizational methodologies of nursing care is relevant. **Aim.** The aim of the study is to test the validity and reliability of the nurses work methods assessment scale (NWMAS). **Methods.** The methodological study followed the recommendations of the EQUATOR network. The NWMAS was previously developed as a self-completion questionnaire. To determine construct validity, exploratory and confirmatory factor analyses were performed. **Results.** 325 participants were enrolled in this study. In exploratory factor analysis, the 25 items comprising NWMAS were distributed in five dimensions, contemplating the work methods. Cronbach's alpha of the total scale was 0.846. The confirmatory factor analysis revealed a good fit. **Conclusion.** The NWMAS is a valid and reliable tool. **Implications for Nursing Practice.** The NWMAS identifies the work methods adopted by nurses in hospital settings, is a valuable tool for nursing management, and contributes to the definition of strategies that promote the quality of nursing care and the safety of patients.

1. Introduction

Quality in health is a complex and comprehensive concept involving multiple factors and the collaboration of various professionals. Improving the quality of care provided in health organizations is focused on the continuous search for service excellence and patient satisfaction, and the need to

implement quality improvement systems is strongly encouraged by international and national entities [1, 2].

Health professionals play a crucial role in implementing activities aimed at the quality of each specific care domain, which is the organization's most important component. In Portugal, the regulatory body of professional practice guides nursing practice based on descriptive statements of the

quality standards for nursing care, a document that structures the expected performance of nurses in the design and implementation of nursing care [2].

Inherent to their professional activity and role in health institutions, nurses must contribute judiciously, rigorously, and actively to the quality of care and patient safety [3, 4]. As a complex and demanding profession, nursing is always present in health institutions as the largest workforce. However, there are still differences in nurse staffing levels worldwide [5, 6]. Therefore, the constant search for quality improvement in nursing care should be closely associated with the satisfaction of patients' needs across clinical practice settings. It is worth noting that, in addition to meeting patients' needs, nurses' actions should focus on the search for care safety, particularly the way they organize and distribute work, aspects that may influence the efficiency, and quality of the nursing care provided [7].

A work method corresponds to the infrastructures that facilitate the organization and provision of care to patients based on a set of skills acquired by nurses and on the expected outcomes of care [8]. It also defines the division of labor and facilitates sustained decision-making through interaction between the nursing team and other health professionals [9, 10]. How nurses organize nursing care by adopting quality-promoting methodologies may influence an integrated response to patients' health problems and needs.

Despite being a fundamental aspect in the design, organization, and implementation of nursing care, as well as nurse's visibility in society, the evidence is scarce in this domain and the one that exists focusses on the characterization of the traditional working methods.

Traditionally, the most referenced nursing work methods are essentially grouped into two distinct areas: task-centered and client-centered work methods [5, 9]. Concerning the functional method, task-centered and influenced by Taylorism, it is a work distribution based on the execution of tasks and procedures, where the target of the action is not the patient but the task, emphasizing task maximization in a routine and mechanistic logic [7]. "Fragmented" interventions in task-oriented care delivery are seen, in which nurses are only specialized in the execution of a specific activity, without coordination between the parts [5, 11].

As for the client-centered work methods, in the individual method, there is a concern with the concept of integral care and allocating a nurse to one or more clients. A single nurse assumes total responsibility for providing care, during a work shift, to a group of patients. The organization of nursing care reflects the needs and centrality of the client as the focus of care [7, 11]. In the teamwork method, nurses are divided into groups coordinated by a team leader who enhances the group's capabilities and nurses' competencies, ensuring that the skills and qualifications of each nursing professional are maximized. This method is based on two fundamental pillars: leadership in planning and evaluating the care provided to clients and effective communication, aiming for the continuity of care [12, 13]. In the nurse reference method, nurses are responsible for planning, implementing, and assessing nursing care needs and supervising care from clients' admission to discharge [5, 14].

According to the nursing social mandate, designing and implementing nursing care supported by the best scientific evidence is nurses' duty and responsibility [15], adopting a work method promoting quality care and client safety. In addition to adopting a work method, it is imperative to identify how nurses plan, organize, and implement nursing care for clients aimed at the quality and safety of nursing care.

No tools characterizing and assessing nurses' work methods were found. Therefore, developing the nurses' work method assessment scale (NWMAS) [16] was considered relevant to assess hospital nurses' work methods as a tool to support decision-making in nursing management. Using the NWMAS makes it possible to standardize the measure and carefully identify the work methods adopted by nurses in the hospital context. The Nursing Care Quality Standards of the Portuguese Association of Nursing Professionals [2] and Imogene King's Theory of Goal Attainment [17] were used as a guiding theoretical framework for developing the NWMAS. The final version of the NWMAS consisted of 28 items.

In this context, the objective of the present study focuses on to test the validity and reliability of the nurses' work methods assessment scale.

2. Materials and Methods

2.1. Design, Samples, and Settings. A methodological study was developed, using a nonprobability convenience sample, guided by Streiner and Norman's recommendations [18]. The taxonomy, terminology, and definition of health measures of the International Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) were used as framework [19]. Inclusion criteria were defined as being a nurse or specialist nurse, working in a hospital in Northern Portugal, with at least six months of professional practice in this hospital, in departments of medicine, surgery, and intensive care medicine. All nurses not providing care (due to absence or other noncare functions) were excluded. The sample size calculation was based on a population of 604 nurses. For a confidence interval of 95% and a margin of error of 5%, a minimum of 236 participants would be necessary. The results of the content validation of this instrument have already been published [16].

2.2. Nurses' Work Method Assessment Scale (NWMAS). The deductive method was used for item generation through scoping review by mapping existing evidence on nurses work methods in hospital settings [9]. A reflective approach to measurement was used to develop the scales' items (form and wording). The relationship between items and the construct (nurses' work methods) is based on the fact that the items are an effect of the construct [19]. This work resulted in a 40 items instrument, organized in four dimensions with a set of ten items characterizing each work method (functional work method, individual work method, teamwork method, and reference nurse work method). This first version of the NWMAS was then assessed by an expert

panel of 23 nurses (managers, specialist nurses, and faculty members) on the suitability of each item to adequately reflect the construct of a given dimension [16]. The judgment on the relevance and comprehensiveness of each item provided the validity of the content [19]. Results from the experts' panel [16] provided a 28-item scale distributed in four dimensions with a set of seven items. Each dimension corresponds to traditional nursing work methods. Items are scored with a Likert-type scale with five options, where one corresponds to "never," two "rarely," three "sometimes," four "often," and five "always." Nurses' prevalent working method is defined by the highest mean achieved in a given dimension, e.g., a highest mean in the dimension "reference nurse work method" points this method as the mostly used by the participants. This version progressed to the validation of the construct, which is reported in this paper.

The sociodemographic and professional characteristics (gender, age, academic degree, professional status, area of specialization, work context, and length of professional experience) were collected when the NWMAS was applied.

2.3. Data Collection and Application Procedure. Data collection occurred from November 1 to December 31, 2022, after prior scheduling and availability of the professionals. The researchers went to the different care contexts, and in conjunction with the nurse managers, they gave each participant an informed consent form and the data collection instrument. Two unmarked envelopes were given to the participants to place separately the informed consent and the questionnaire after completion. Participants, after being informed about the objectives and procedures of the investigation, signed the informed consent, stating their agreement to participate in the study. Confidentiality and anonymity were guaranteed in the use and dissemination of the collected information.

2.4. Statistical Analysis. For data analysis and treatment, the statistical package for the social sciences (SPSS), version 29.0 and IBM SPSS Amos-v. 29 (for confirmatory analysis), were used, in which descriptive and metric analyses were performed. To evaluate the adequacy of the data, we used the item-total correlation, the interitem correlation, Guttman's two halves coefficient, and Spearman-Brown's coefficient [20, 21]. Exploratory factor analysis was used to validate the NWMAS construct based on the test of sphericity (5% significance level) and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy for each activity. It should be noted that KMO values should vary between 0.5 and 1 [20].

For exploratory factor analysis, the principal components method was used to extract the factors that presented factor loadings lower than 0.3.

To evaluate the reliability of the factor model of each dimension, we used composite reliability and Cronbach's alpha coefficient. For composite reliability, it was taken as a rule that a value of 0.7 or higher indicates appropriate construct reliability, although lower values may still be acceptable [21]. Regarding Cronbach's alpha, a value higher than 0.8 means good internal consistency [20].

Regarding the confirmatory factor analysis, to assess the quality of adjustment of the proposed model, the following indexes were used: comparative fit index (CFI), assuming acceptance values greater than or equal to 0.9; goodness of fit index (GFI), for acceptance values equal to or greater than 0.85; adjusted goodness of fit index (AGFI), starting from an acceptance value equal to or greater than 0.80; root mean square residual (RMR), for acceptance values less than or equal to 0.1; root mean square error of approximation (RMSEA), with an acceptance value less than 0.1; and the modified expected cross-validation index (MECVI) [20–22].

The assessment of factor validity consisted of calculating the standardized regression weights of each identified factor and the square of these weights, referred to as individual reliability. It is assumed appropriate for a value equal to or greater than 0.25. Concerning the convergent validity of each factor, the mean extracted variance (MEV) was used and values equal to or greater than 0.5 were considered appropriate [21]. The data obtained in data collection were used both for exploratory and confirmatory analysis.

2.5. Ethical Considerations. The Ethics Committee for Health approved the study, whose opinion number was 421-21. Afterward, it had the approval of the Board of Directors of the hospital where data were collected. The nurses who agreed to participate signed the informed consent form, and confidentiality and anonymity were guaranteed. The completed instrument was placed and sealed in unmarked envelopes by the participants and collected by the researcher.

3. Results

The 325 nurses who participated in the study (Table 1) were predominantly female (80.9%), married, or cohabiting (60.9%). The mean age was 38.4 ± 8.1 years, ranging from 25 to 62 years. Regarding academic degrees, most of them had college degrees (87.7%). Regarding their professional status, 70.8% were nurses and 29.2% were specialist nurses, with a predominance of nurses specialized in rehabilitation nursing (56.8%).

The most representative clinical settings were wards from the Department of Medicine (42.1%). As for the time of professional practice, nurses had a mean time of 14.7 ± 8.1 years and specialist nurses had a mean of 16.8 ± 8.1 years. Regarding the time of professional practice in the current service, nurses had a mean of 10.2 ± 8.8 years and specialist nurses had a mean of 8.5 ± 6.4 years. Only a minority (19.7%) had training in nursing care organization methodologies.

From the 325 questionnaires obtained during data collection, no data were missing. All data were included in statistical analysis. NWMAS, initially comprising 28 items, presented three items with a loading factor lower than 0.3 and therefore were removed. Subsequently, the instrument was submitted to validation and internal consistency analysis, with factor loadings ranging from 0.444 to 0.842. The corrected item-total correlations were mostly moderate, with an average of 0.384 (Table 2); the average interitem

TABLE 1: Participants' sociodemographic and professional descriptive measures.

Total	<i>n</i> = 325
<i>Gender n (%)</i>	
Male	62 (19.1)
Feminine	263 (80.9)
<i>Age (years)</i>	
Mean (\pm SD)	38.4 (8.1)
Minimum; Q1; median; Q3; maximum	25; 33; 38; 43; 62
<i>Marital status n (%)</i>	
Not married	110 (33.8)
Married/nonmarital partnership	198 (60.9)
Divorced	16 (4.9)
Widower	1 (0.3)
<i>Educational qualification n (%)</i>	
Bachelor's degree	2 (0.6)
Graduation	285 (87.7)
Master's degree	37 (11.4)
Doctorate degree	1 (0.3)
<i>Work context n (%)</i>	
Department of medicine service	137 (42.1)
Department of surgery service	111 (34.2)
Department of intensive care medicine	77 (23.7)
<i>Condition of exercise of the profession n (%)</i>	
Nurse	230 (70.8)
Specialist nurse	95 (29.2)
<i>Professional practice time as a nurse</i>	
Mean (\pm SD)	14.7 (8.1)
Minimum; Q1; median; Q3; maximum	3; 8; 14.5; 19; 40
<i>Professional practice time as a specialist nurse</i>	
Mean (\pm SD)	16.8 (8.1)
Minimum; Q1; median; Q3; maximum	6; 11; 16; 21.5; 35
<i>Time of professional practice in the current service as a nurse</i>	
Mean (\pm SD)	10.2 (8.8)
Minimum; Q1; median; Q3; maximum	1; 3; 6; 16; 37
<i>Time of professional practice in the current service as a specialist nurse</i>	
Mean (\pm SD)	8.5 (6.4)
Minimum; Q1; median; Q3; maximum	1; 3.5; 6; 13; 27
<i>Specialty area n (%)</i>	
Medical-surgical nursing	21 (22.1)
Nursing to the person in critical situation	1 (1.1)
Rehabilitation nursing	54 (56.8)
Mental health and psychiatric nursing	3 (3.2)
Maternal and obstetric health nursing	4 (4.2)
Community nursing	4 (4.2)
Community health and public health nursing	8 (8.4)
<i>Specialty time of professional practice (years)</i>	
Mean (\pm SD)	4.5 (4.5)
Minimum; Q1; median; Q3; maximum	1; 2; 3; 6; 26

Q1, first quartile; Q3, third quartile; SD, standard deviation.

correlation was 0.173; the Guttman two-half coefficient was 0.676; and the Spearman-Brown coefficient was 0.716.

Based on the KMO measure of sampling adequacy, it was found that the overall value and the value for each item are mainly high or very high, with the sole exception of item 2, whose coefficient is very close to 0.5.

To this end, we performed a factor analysis to extract factors using the principal components method that resulted in

TABLE 2: Item-total corrected correlations.

Items	Corr.
1	0.191
2	0.049
3	0.338
4	0.355
5	0.236
6	0.055
7	0.241
8	0.235
9	0.254
10	0.107
11	0.269
12	0.576
13	0.604
14	0.691
15	0.683
16	0.515
17	0.554
18	0.698
19	0.406
20	0.411
21	0.418
22	0.491
23	0.426
24	0.450
25	0.357

Corr.: Correlation.

a solution with five factors, explaining 55.3% of the total variance. Table 3 shows the results of the forced 5-factor analysis followed by varimax rotation and Kaiser normalization.

Within the scope of the confirmatory factor analysis, using the same sample of the exploratory factor analysis, regarding the quality of the model adjustment, there are only 108 nonredundant residuals (36%) with an absolute value higher than 0.05, which indicates a good quality adjustment.

As for the coefficients of adjustment quality, the CFI was 0.880; the GFI and the AGFI were, respectively, 0.875 and 0.841; the incremental fit index (IFI) was 0.882; the Tucker-Lewis index (TLI) was 0.859; the RMR was 0.077; the RMSEA was 0.065, and finally the MECVI value was 2.335.

In order to evaluate the reliability, Cronbach's alpha value of 0.846 was obtained for the global scale, a high value showing good internal consistency. The composite reliability of the first two factors/dimensions is very high (respectively, 0.897 and 0.830), that of the third factor/dimension is high (0.745), and that of the last two is somewhat low (0.562 and 0.448). The consistency of the factors is good, except for the third factor, whose consistency is acceptable. Test-retest, inter-, and intrarater reliability were not assessed.

As for factor validity, assuming that individual reliability is appropriate for a value greater than or equal to 0.25, it is good or even high in most items, thus confirming factor validity. The convergent validity of each dimension was measured through the mean extracted variance (MEV), being considered adequate when the MEV is greater than or equal to 0.5. Thus, it was verified that the first and second have a VEM greater than 0.5, while the remaining have a VEM less than 0.5.

TABLE 3: Factorial structure and quality of adjustment.

Items	Fator 1	Fator 2	Fator 3	Fator 4	Fator 5	Correlations item-total corrected
12	0.734	0.157	0.004	0.099	0.019	0.576
13	0.685	0.283	0.097	0.001	0.076	0.604
14	0.805	0.187	0.088	0.144	0.064	0.691
15	0.771	0.243	0.126	0.072	0.053	0.683
16	0.725	-0.011	0.072	0.129	0.032	0.515
17	0.651	0.115	0.175	0.172	-0.084	0.554
18	0.793	0.225	0.196	0.076	-0.052	0.698
19	0.137	0.803	-0.061	0.030	0.132	0.406
20	0.241	0.490	0.001	0.308	-0.061	0.411
21	0.286	0.610	0.130	-0.167	0.048	0.418
22	0.190	0.842	0.013	0.114	-0.029	0.491
23	0.180	0.833	-0.089	0.013	0.076	0.426
8	0.045	-0.084	0.788	0.069	-0.086	0.235
9	0.163	-0.199	0.622	0.026	0.314	0.254
10	-0.155	-0.064	0.711	0.072	0.089	0.107
11	0.172	0.020	0.444	0.083	0.050	0.269
24	0.208	0.159	0.688	0.180	-0.078	0.450
25	0.267	0.132	0.620	-0.172	0.047	0.357
1	0.060	0.090	0.066	0.450	-0.076	0.191
2	-0.130	0.093	0.145	0.448	-0.320	0.049
3	0.314	-0.078	-0.116	0.739	0.139	0.338
4	0.280	0.060	0.131	0.472	0.003	0.355
5	0.064	-0.099	0.068	0.645	0.424	0.236
6	-0.123	0.209	0.002	-0.051	0.727	0.055
7	0.112	0.018	0.186	0.073	0.739	0.241
% variance	24.358	11.375	7.694	6.441	5.482	

The values in the table indicate the factorial weights of the items in each factor, with the highest weight of each item being in bold.

Based on the factor model presented, the NWMAS was composed of five dimensions: seven items in the dimension “team work method,” five items in the dimension “reference nurse work method,” six items in the dimension “individual work method,” five items in the dimension “functional work method,” and two items in the dimension “good practices in work organization.”

Figure 1 presents the path diagram that summarizes the confirmatory analysis of the NWMAS.

4. Discussion

The participation of 325 nurses in this study allowed for testing the validity and reliability of the NWMAS. Considering the theoretical constructs, it was possible to support the implementation of this instrument. The scale was composed of five dimensions, with a high Cronbach’s Alpha, translating into a robust internal consistency.

In quantitative and qualitative terms, the participants’ profiles, who were directly involved in care provision, contributed to validating the NWMAS. However, the lack of training in nursing care organization methodology reinforces the importance of strategies that allow monitoring of the work methods adopted by professionals.

We found that the factorability of the correlation matrix is good, and factor analysis by the principal components method and by Kaiser’s rule indicated a 5-factor solution, justifying 55.3% of the total variance.

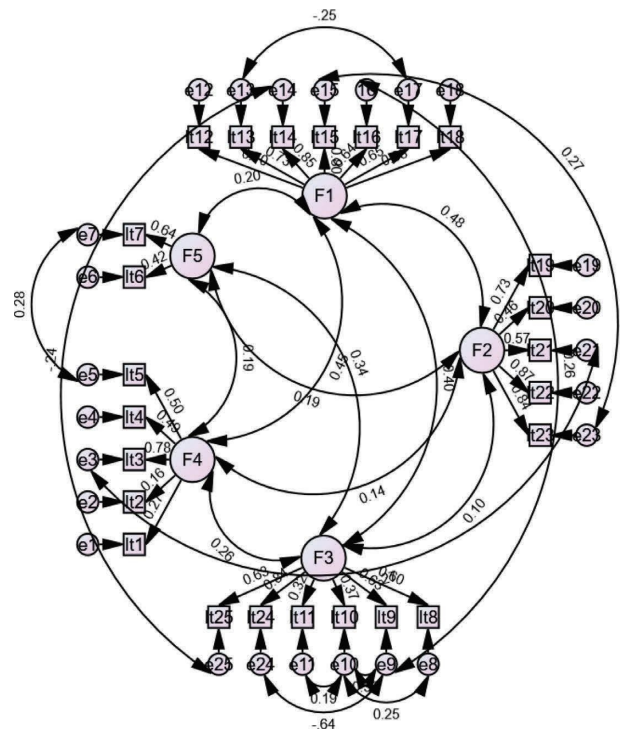


FIGURE 1: Path diagram of the confirmatory factor analysis.

The emerging factorial structure corroborates the theoretical component [5, 7, 9, 11–13]. The factors were aggregated into the following dimensions: “team work method,” “reference

nurse work method,” “individual work method,” “functional work method,” and “good practices in work organization.”

Regarding the dimension “teamwork method,” the factorial structure that emerged is in line with the theoretical component [7, 9, 23]. The items highlight that this working method of nurses is based on the existence of a team leader, who designs, supervises the care provided, and promotes reflection on the nursing care provided to clients [3]. On the other hand, the assignment of patients privileges the individual skills and qualifications of the nurses on the team, making the best use of the resources available and promoting maximization and professional satisfaction [7, 24].

The emerging factorial structure in the dimension “work method by reference nurse” corroborates the literature [14, 25]. The items emphasize the responsibility of the same nurse, the reference nurse, to plan, execute, and assess nursing care to the patient, from admission to discharge, to meet the patient’s actual needs. On the other hand, each nurse works in partnership with other nurses, delegating interventions and ensuring continuity of care without the reference nurse [25]. It is essential to highlight that the reference nurse coordinates and supervises nursing care during hospitalization [9, 26].

The factorial structure emerging in the “individual work method” dimension is consistent with the theoretical component. The items emphasize that, within the scope of work organization, a single nurse is responsible for caring for a group of patients during a work shift, directing the design and implementation of care to meet all their needs [12]. It is noteworthy that this method is beneficial for its individualized and personalized approach, having as its most significant influence the nurse’s ability to establish a relationship of trust and empathy with his or her clients, allowing sustained, client-centered decision-making [27], in addition to sound technical and scientific knowledge, which ensure safe nursing care.

Concerning the “Functional Work Method” dimension, the factorial structure that emerged corroborates the literature, in which the items show that the division of work is performed in specific tasks, often according to each professional’s skills, within the nursing team, and when the target of action is not the client, but the task [7].

According to the factor loading, the dimension “good practices in work organization” only included two statements agreeing with a scientific methodology nurses use in nursing care, namely, the nursing process. This methodology allows each nurse, throughout a work shift, to assess the care needs of the patients assigned to him/her, allowing for the definition of problems and the implementation of interventions to solve them, as well as the assessment of nursing activities [7, 28].

Therefore, the confirmatory factor analysis corroborated the number of factors and the relationships between items and factors. Cronbach’s alpha was high ($\alpha = 0.846$) for the overall scale and good for all subscales except the third one, whose consistency is acceptable.

The individual item reliability, given by the squares of the standardized regression weights, allowed us to identify

that all factors exhibit factor validity. These results confirm the association of the items with their respective factors [20].

Despite being possible to improve the adjustment in each dimension by excluding items and simplifying the structure of the overall scale, this was not carried out considering the authors’ purpose to develop an instrument to assess the work methods in hospital settings, to promote the quality of nursing care and patient and nursing care safety. The work methods adopted should be clear to patients and converge with their specific care needs. The definition of the working method adopted is influenced by the nursing leadership, which in turn should promote strategies that enhance the job satisfaction of the team, reducing nurse turnover and increasing work-related well-being [29].

Although the development of the NWMAS was initiated through findings related to previous research, this study has limitations, namely, the fact that this phase of construct validation occurred only in a single hospital center. Given the scarcity of evidence in this domain, future research is suggested, in various hospital institutions, which may contribute to improving the metric properties and the assessment of convergent and divergent validity.

Given the comprehensiveness of the NWMAS, we consider that this scale represents an added value in identifying the nurses’ work organization in hospital settings, with a significant impact on the quality of nursing care and patient safety.

5. Conclusion

The NWMAS presents good metric properties to assess the work methods nurses adopt in hospital settings as promoters of quality and safety of care. The scale presents an internal consistency equal to 0.846. Therefore, the application of this instrument presents itself as reliable and valid.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors’ Contributions

J. M., M. M., and L. L. designed the study; J. M., S. F., A. C., R. M., and S. C. collected the data; J. M., L. L., I. J., S. F., and O. M. analysed the data; J. M., M. M., L. L., I. J., and O. M. supervised the study; and J. M., M. M., L. L., R. M., and O. M. wrote the manuscript. All the authors carried out critical revisions for important intellectual content.

References

- [1] International Council of Nurses, *Nurses: A Voice to Lead Invest in Nursing and Respect Rights to Secure Global Health*, International Council of Nurses, Geneva, Switzerland, 2022.

- [2] Ordem dos Enfermeiros, *Padrões de Qualidade dos Cuidados de Enfermagem: Enquadramento Conceptual e Enunciados Descritivos*, Ordem dos Enfermeiros, Lisboa, Portugal, 2012.
- [3] W. I. L. Cárdenas, E. Gil Vidal, R. M. Altamirano Ceron, N. A. Henao Murillo, Y. A. Santa Mejía, and A. C. Jurado Jiménez, “Care perceptions in two ICU nursing care delivery models: a qualitative-comparative approach,” *Investigación y Educación en Enfermería*, vol. 40, no. 3, pp. 199–214, 2022.
- [4] B. Theucksuban, W. Kunaviktikul, O. A. Wichaikhum, and K. Abhicharttibutra, “Testing a model of Thai nurses’ intent to stay in employment,” *International Nursing Review*, vol. 69, no. 4, pp. 450–458, 2022.
- [5] D. Prentice, J. Moore, and Y. Desai, “Nursing care delivery models and outcomes: a literature review,” *Nursing Forum*, vol. 56, no. 4, pp. 971–979, 2021.
- [6] O. M. Ribeiro, C. S. Fassarella, L. L. Trindade, A. A. Luna, and J. M. A. V. Silva, “International year of nursing: from Florence Nightingale’s 200th birthday to the covid-19 pandemic,” *Revista de Enfermagem do Centro Oeste Mineiro*, vol. 10, pp. 1–11, 2020.
- [7] P. Parreira, P. Santos-Costa, M. Neri, A. Marques, P. Queirós, and A. Salgueiro-Oliveira, “Work methods for nursing care delivery,” *International Journal of Environmental Research and Public Health*, vol. 18, no. 4, pp. 1–17, 2021.
- [8] American Nurses Credentialing Center, *2019 Magnet® Application Manual*, American Nurses Credentialing Center, Maryland, MD, USA, 2019.
- [9] J. M. Ventura-Silva, M. M. F. P. S. Martins, L. L. Trindade, O. M. P. L. Ribeiro, and M. F. P. T. Cardoso, “Working methods of nurses in hospitals: scoping review,” *Journal Health NPEPS*, vol. 6, no. 2, pp. 1–8, 2021.
- [10] S. Winslow, C. Cook, W. Eisner, D. Hahn, R. Maduro, and K. Morgan, “Care delivery models: challenge to change,” *Journal of Nursing Management*, vol. 27, no. 7, pp. 1438–1444, 2019.
- [11] C. V. Fiorio, M. Gorli, and S. Verzillo, “Evaluating organizational change in health care: the patient-centered hospital model,” *BMC Health Services Research*, vol. 18, no. 1, pp. 95–15, 2018.
- [12] J. Fawcett, “Thoughts about models of nursing practice delivery,” *Nursing Science Quarterly*, vol. 34, no. 3, pp. 328–330, 2021.
- [13] J. Li, P. Talari, A. Kelly et al., “Interprofessional Teamwork Innovation Model (ITIM) to promote communication and patient-centred, coordinated care,” *BMJ Quality and Safety*, vol. 27, no. 9, pp. 700–709, 2018.
- [14] A. Cocchieri, G. Magon, M. Cavalletti, E. Cristofori, and M. Zega, “Exploring hospital compliance with the primary nursing care model: validating an inventory using the Delphi method,” *BMC Nursing*, vol. 20, no. 1, pp. 188–8, 2021.
- [15] L. Cullen, K. Hanrahan, M. Farrington et al., “Evidence-based practice change champion program improves quality care,” *The Journal of Nursing Administration: The Journal of Nursing Administration*, vol. 50, no. 3, pp. 128–134, 2020.
- [16] J. M. Ventura-Silva, M. M. F. P. S. Martins, L. L. Trindade et al., “Nurses’ work methods assessment scale: a study of content validation,” *Revista Brasileira de Enfermagem*, vol. 76, no. 2, pp. 1–7, 2023.
- [17] O. M. Ribeiro, M. M. Martins, D. M. Tronchin, and E. C. Forte, “O olhar DOS enfermeiros portugueses sobre OS conceitOS metaparadigmáticos de enfermagem,” *Texto and Contexto Enfermagem*, vol. 27, no. 2, pp. 1–9, 2018.
- [18] D. Streiner and G. Norman, *Health Measurement Scales: A Practical Guide to the Development and Use*, Oxford University Press, London, UK, 4th edition, 2008.
- [19] L. B. Mokkink, C. B. Terwee, D. L. Patrick et al., “The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: an international Delphi study,” *Quality of Life Research*, vol. 19, no. 4, pp. 539–549, 2010.
- [20] J. Maroco, “Análise Estatística com o SPSS Statistics,” 2021, <https://www.wook.pt/livro/analise-estatistica-com-o-spss-statistics-joao-maroco/24699154>.
- [21] J. Maroco, “Análise de Equações Estruturais – fundamentos Teóricos, Software e Aplicações,” 2021, <https://www.wook.pt/livro/analise-de-equacoes-estruturais-joao-maroco/24699200>.
- [22] A. C. Souza, N. M. Alexandre, and E. D. Guirardello, “Psychometric properties in instruments evaluation of reliability and validity,” *Epidemiologia e serviços de saúde: revista do Sistema Unico de Saúde do Brasil*, vol. 26, no. 3, pp. 649–659, 2017.
- [23] K. L. Jones, M. R. Johnson, A. Y. Lehnertz et al., “Rapid deployment of team nursing during a pandemic: implementation strategies and lessons learned,” *Critical Care Nurse*, vol. 42, no. 3, pp. 27–36, 2022.
- [24] H. E. M. Haskins and L. Roets, “Nurse leadership: sustaining a culture of safety,” *Health SA Gesondheid*, vol. 27, pp. 1–8, 2022.
- [25] I. Gonçalves, D. A. Mendes, S. Caldeira, E. Jesus, and E. Nunes, “The primary nursing care model and inpatients’ nursing-sensitive outcomes: a systematic review and narrative synthesis of quantitative studies,” *International Journal of Environmental Research and Public Health*, vol. 20, no. 3, pp. 1–19, 2023.
- [26] S. De Rosis, C. Barchielli, M. Vainieri, and N. Bellé, “The relationship between healthcare service provision models and patient experience,” *Journal of Health, Organisation and Management*, vol. 36, no. 9, pp. 1–24, 2021.
- [27] K. Johnson, S. Razo, J. Smith, A. Cain, and B. Detaranto, “A person centered nursing care intervention on a medical surgical unit,” *Geriatric Nursing*, vol. 42, no. 5, pp. 1125–1128, 2021.
- [28] R. Momeni Pour, A. Darvishpour, R. Mansour-Ghanaei, and E. Kazemnezhad Leyli, “The effects of education based on the nursing process on ostomy self-care knowledge and performance of elderly patients with surgical stoma,” *Nursing Research and Practice*, vol. 2023, Article ID 2800796, 8 pages, 2023.
- [29] M. Niinihuhta and A. Häggman-Laitila, “A systematic review of the relationships between nurse leaders’ leadership styles and nurses’ work-related well-being,” *International Journal of Nursing Practice*, vol. 28, no. 5, Article ID 130400, 2022.