

Development and Validation of the Evaluation Form on the Professional Skill of Primary Medical Care Practicum for Nursing Students: Mixed Methods Research

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Abstract

Nurses are healthcare workers with important roles in providing support and solving health problems. Professional skills of the primary medical care practicum for nursing students are necessary for development. Therefore, the nursing program focuses on developing graduates with the knowledge and professional skills of nursing. This study aimed to develop a model of a professional skills evaluation form for nursing students and examine its reliability and validity. Data were collected in two phases. In Step 1, qualitative data were collected through interviews with nurse preceptors, students, and instructors. In Step 2, the quantitative phase, a reliability test was conducted on 184 questionnaires after improving the form. Finally, the reliability and validity of the questionnaire were selected by nurse preceptors. The content validity index was 0.67–1.00. Exploratory Factor Analysis: EFA was conducted with Varimax rotation. The exploratory factor analysis revealed that the evaluation form consisted of 2 factors and 11 items. Kaiser–Meyer–Olkin (KMO) was 0.864. The cumulative variance contribution rate was 56.43%. The Cronbach’s α coefficient for the total questionnaire was 0.75. Two factors were (1) Holistic medical practice skills, which assess comprehensive care across physical, mental, social, and spiritual dimensions, as well as leadership and teamwork, and (2) Primary medical care skills, which measure competency in history taking, physical examination, initial diagnosis and treatment, counseling, and practicing under legal and professional ethics with cultural sensitivity.

Keywords: nursing evaluation form; professional skill; nursing students

Introduction

The global nursing and midwifery workforce comprises approximately 27 million personnel and represents more than 50% of the current shortage of health workers, with the greatest needs in Southeast Asia. The World Health Organization estimates that an additional 9 million nurses and midwives will be required by 2030 to achieve universal health coverage.

⁽¹⁾ In Thailand, healthcare disparities remain a critical challenge. Despite national efforts to decentralize services, the distribution of health resources continues to be concentrated in urban centers. Recent data indicate that the ratio of healthcare providers to the population in rural areas, particularly in the North-eastern and Northern regions, remains significantly higher than in Bangkok, reflecting an ongoing imbalance in medical personnel and hospital bed availability.⁽²⁾ Nurses play a critical role as frontline healthcare providers in delivering support and addressing health problems, with staffing levels directly influencing quality of care, patient outcomes, and cost containment.⁽³⁾ Therefore, the development of nursing students' professional skills is essential. These skills include the integration of nursing knowledge and practice, communication, teamwork, ethical practice, cultural competence, and the ability to provide holistic care for individuals, families, and communities. As primary medical care represents the first point of contact within the health system and encompasses a broad range of community-based services, nursing students must be adequately prepared with professional competencies to effectively respond to healthcare needs in real-world settings.⁽⁴⁾

In general, students complete theoretical coursework in primary medical care before undertaking the

primary medical care practicum. The primary medical care practicum subject is designed to prepare nursing students for real-world practice through several key components, including scenario-based learning to assess students' readiness, clinical training in secondary care settings under the supervision of nurse preceptors, and continuous guidance from instructors on academic knowledge, interdisciplinary teamwork, and professional adaptation.⁽⁴⁾ In this context, fourth-year nursing students are expected to demonstrate professional competencies that align with the Thailand Nursing and Midwifery Council's standards. These include clinical proficiency in primary medical care, holistic communication, and multidisciplinary teamwork essential for patient-centered care. Such competencies are consistent with the Primary Health Care System Act B.E. 2019, which emphasizes equitable access to quality care, community-based participation, and the integration of appropriate technology within the primary care network.^(5,6) Therefore, a valid and reliable professional skills assessment tool is necessary to ensure that nursing students achieve the required competencies and are adequately prepared for clinical practice.⁽⁴⁻⁶⁾ Such an evaluation tool plays a crucial role in guiding learning, standardizing assessment, and supporting the development of professional skills in alignment with the goals of nursing education and the principles of "Health for All".⁽⁶⁾

The assessment of nursing performance plays a crucial role in ensuring high-quality care, and effective competency-based evaluation systems should provide continuous feedback to support learning and improvement.⁽⁷⁾ In clinical settings, nursing student assessment typically includes knowledge, clinical skills, professional skills, critical thinking, and self-

efficacy, reflecting the complexity of professional practice.^(8,9) At the same time, nursing education aims to develop graduates with competencies in knowledge, ethics, leadership, teamwork, cultural competence, and lifelong learning in alignment with professional standards.^(4,10) However, despite the existence of various evaluation tools for primary medical care practicum, recent evidence suggests significant variations in dimensions, criteria, and scoring systems. These inconsistencies often lead to challenges in standardized competency assessment, and many existing tools remain limited in their ability to comprehensively evaluate integrated professional performance within the complexity of real-world clinical settings.⁽¹¹⁻¹³⁾ This highlights a significant gap in standardized and holistic assessment approaches, particularly in integrating knowledge with clinical performance. In the context of a primary medical care practicum, where students are trained in secondary healthcare settings under supervision, the need for a valid, reliable, and comprehensive evaluation tool becomes essential to accurately assess performance and ensure that students meet expected professional standards.

Cognitive skills refer to students' ability to apply knowledge and critical thinking in solving health problems in accordance with the needs of patients and communities, while professional skills include holistic nursing practice, health education and counseling, compassionate care, cultural competence, and effective teamwork within multidisciplinary settings. Existing evaluation tools for primary medical care practicum, such as cognitive and professional skills assessment forms, have been developed to measure these competencies; however, they are often used separately, resulting in fragmented assessment processes that may

not fully reflect integrated professional performance in real clinical contexts. In addition, many existing tools lack systematic development and comprehensive psychometric evaluation, leading to concerns regarding their validity, reliability, and practical applicability in clinical education settings. Furthermore, the use of multiple evaluation forms may increase the burden on evaluators, such as physicians and nurse preceptors, and lead to inconsistencies in assessment outcomes. Most of the professional skill assessments in several nursing faculty were included in many evaluation forms, including Cognitive Skills for Primary Medical Care Evaluation Form (CSPMCEF) and Professional Skills for Primary Medical Care Evaluation Form (PSPMCEF).

Therefore, there is a need to develop a concise, standardized, and psychometrically sound evaluation tool that integrates both cognitive and professional skills. Such a tool would facilitate more accurate, practical, and consistent assessment aligned with students' competencies and real-world practice. Accordingly, this study aimed to develop and validate a professional skills evaluation form for the primary medical care practicum for nursing students, in accordance with the Nursing Council's standard criteria, to support effective and quality assessment in nursing education.

Methods

Research design

This research study utilized mixed-method research (exploratory sequential design). The research method was divided into 2 steps. In step 1: qualitative phase, focused on collecting important information to be used to create an assessment. The qualitative study aimed

to identify the evaluation items of professional skills for nursing students in primary medical care. In step 2: quantitative phase involved the evaluation form developed from qualitative research to check the quality and evaluate structural correctness.

Data Collection

Step 1: Qualitative Phase

In this stage, in-depth interviews were conducted with 7 nurse preceptors. The inclusion criteria required them to be currently working at a community hospital in Phra Nakhon Si Ayutthaya Province with at least 5 years of professional experience. Additionally, nine instructors and 10 graduate students who had direct experience with the CSPMCEF and PSPMCEF were included. The exclusion criteria involved individuals who were unable to participate throughout the entire interview process or those with health limitations during the study period. Before data collection, written informed consent was obtained from all participants, ensuring they were fully informed of the study's objectives and their right to withdraw at any stage. The interview questions focused on the appropriateness of each assessment item and suggestions for improvement. All gathered data were subsequently used to refine the instruments and develop scoring rubrics.

The concept of professional skills for primary medical care evaluation was determined through a literature review.⁽¹⁴⁾ The professional skills of students was designed based on the concept definition of nursing professional standards according to the Thailand Nursing and Midwifery Council, six dimensions were determined as follows: (1) holistic nursing practice to considering humanitarian principles and adhere to service recipient, (2) use the nursing process

as a tool to provide nursing care to service recipients, (3) use nursing practice guidelines empirical evidence and research knowledge to apply in nursing practice correctly and appropriately both at the individual, family, and community levels, (4) use empirical data to plan for solving health problems for clients individually, (5) involve service recipients and their families in decision-making and determining care plan, and (6) coordination between the nursing team and multidisciplinary team.⁽¹⁴⁾ To ensure the accuracy of the instruments, the CSPMCEF and PSPMCEF were translated by language specialists, followed by a review for conceptual equivalence.

The initial evaluation form was developed using a qualitative approach, incorporating in-depth interviews and focus groups with instructors (n=9), graduate students (n=10), and expert nurses (n=7). Data were analyzed using inductive thematic analysis to refine the items, with a focus on practicality and behavioral observability. In addition, qualitative content analysis was employed to categorize and interpret the data systematically. The guiding question was: "Are the items in the original CSPMCEF (10 items) and PSPMCEF (10 items) instruments appropriate for assessing the intended variables?" Redundant items related to relationship-building and health assessment were consolidated into the domain of Holistic Medical Practice Skills, while cultural aspects were refined into the domains of Individualism and Cultural Differences to better reflect transcultural nursing concepts. This process resulted in a more concise and practical instrument. Codes were generated and grouped into themes to ensure the content validity of the evaluation items.

Step 2: Quantitative Phase

After the results of the qualitative research, the researchers revised the assessment for each item to improve it in accordance with the objectives of the course and the standards of the Nursing Council. Two original evaluation forms were revised from 20 items to 11 minor items (7 dimensions) and from 5 minor items (appropriate questions) to 1 minor item (appropriate questions). As for the 6 minor items that are revised, the scoring rubrics have been added to each item of the evaluation form. The 4-point Likert scoring system is as follows: “Very good = 4 / Good = 3 / Fair = 2 / Need to improve = 1”. The score ranged from 15 to 60, and the higher the score, the better the professional skills for primary medical care in nursing students’ ability.

Data analysis

SPSS version 20.0 was used for data processing and statistical analysis. In the main statistical analysis, factor analysis was set at $p < 0.05$.

The validity and reliability tests: Content validity was assessed because the instrument’s purpose is to evaluate the coverage of its contents. Expert validity was used to reflect content validity, represented by the item-objective congruence index: IOC. Improved instruments with research backgrounds, objectives, operational definitions, as well as content analysis and behavior assessment tables, were given to three experts to consider. (2 Academic Experts; doctoral degree in Nursing Science, specializing in Community Health Nursing, and have a minimum of 5 years of experience in teaching and research. 1 Clinical Expert; registered nurse acting as a nurse preceptor in a community setting with at least 5 years of experience in clinical teaching and student evaluation.

Cronbach’s α coefficient (α) for rating scales was used to assess the internal consistency reliability. In this study, nurse preceptors used the developed tool to evaluate the professional skills of nursing students under their supervision during clinical practice. Therefore, the data used for reliability analysis (Cronbach’s alpha) were derived from the preceptors’ assessments, not from students’ self-evaluations. We conducted a second questionnaire survey among nursing students.

Construct validity: construct validity was examined using exploratory factor analysis (EFA) with the principal component analysis (PCA) method. The analysis was performed as follows: (1) the Bartlett’s test of Sphericity and the Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy were used to verify the factorability of the data, with a KMO value approaching 1.0 being ideal; (2) factors were extracted based on Kaiser’s criterion (Eigenvalue > 1.0), which was selected to ensure that each retained factor explains more variance than a single individual variable; (3) variables were considered for exclusion if they had factor loadings less than 0.40 or exhibited cross-loading (loading significantly on more than one factor), as these indicators do not contribute to a clear and distinct factor structure; and (4) orthogonal rotation was applied using the Varimax method to maximize the variance of loadings and enhance the interpretability of the factors. The statistical methods of this study were reviewed by a biostatistician.

Ethical consideration

This study was approved by the Research Ethics Committee (SWUEC/E-118/2563E). Approval was dated on 15th June 2020. All samples agreed to provide data. Researchers explained the research objectives and documents to the research participants.

The samples voluntarily signed a consent form for participation in the study and were advised that they could stop answering the questionnaires at any time.

Results

In accordance with the hypothesis that the developed professional skills evaluation form for nursing students would exhibit acceptable reliability and validity, the results of the study are presented as follows:

Step 1: Qualitative Phase

Following the qualitative research process and findings described in the Methodology and Data Collection sections, the questions and scoring criteria for the Professional Skills Evaluation Form in Primary Medical Practice were finalized. Subsequently, the study proceeded to the quantitative data analysis phase for further validation.

The summary of these qualitative findings, including the level of agreement across participant groups, is presented in Table 1.

Two original evaluation forms were improved from 20 items to 11 minor items (7 dimensions). As for the items that are acceptable but need to be revised, 11 minor items were added, and the scoring rubrics have been added to each item of the evaluation form.

Additional suggestions were obtained as shown in Table 2.

Step 1: Quantitative Phase

The samples were selected using a specific method by nurse preceptors from 8 hospitals that assessed students (28–29 nursing students/hospital) by using the Professional Skills Evaluation Form in primary care practice. A total of 228 questionnaires were sent out, and 184 were received, with an effective recovery rate of 80.70%. A total of 184 completed questionnaires were obtained from nurse preceptors in both the Outpatient Department (OPD) and Emergency Room (ER), which was approximately 10 times greater than the number of variables (11 variables). The nurse preceptors' age ranges from 25 to 51 years old. All participants were male. Nurses' experience years ranged from 5 to 20 years. The education level was college or above 100%.

Validity test

Content validity for the item-objective congruence index (IOC) was in the range of 0.67 – 1. For construct validity, an Exploratory Factor Analysis (EFA), and Kaiser-Meyer-Olkin: KMO value of 11 items in the professional skills evaluation form was 0.864. The Bartlett spherical test statistic was 857.119 (df=55),

Table 1 Summary of qualitative results for item development

New item Name	Original source items	Key codes/themes	Agreement (%)	Action taken
1. Holistic Medical Practice Skills	CSPMCEF (Items 1, 10) & PSPMCEF (Item 1)	Item redundancy; need for integration; easier to use if combined.	100%	Merged 3 original items into 1 comprehensive item.
2. Consideration of Individualism and/or cultural differences	PSPMCEF (Item 4)	Behavioral observability; Transcultural nursing application.	100%	Refined item name for clarity and clinical relevance

Table 2 Details of the questions and scoring criteria for the professional skills assessment form in primary medical practice

Dimension	Items	Scoring rubrics
1. Holistic medical practice skills	1.1 Providing the primary medical care for service users	1. Holistically taking care of service users in terms of physical, mental, social, and spiritual aspects 2. Appropriately taking care of the family members of service users in various situations 3. Providing enough information for service users and their family members to make health decisions according to the guidelines for promoting health 4. Respecting the thoughts and decisions of service users, who are the centers for services
2. Primary medical care skills	2.1 Holistically and correctly asking patients' records	1. Introducing him/herself and identifying the conditions of the student and service users/relatives/caretakers 2. Explaining the objectives and asking for information about the illness of the service user 3. Asking open-ended questions, providing opportunities for service users/relatives/caretakers, as well as explaining the medical records of service users 4. Holistically and correctly integrating and applying the knowledge into the OLD CART assessment
	2.2 Systematically checking up patients according to the procedures and correctly interpreting the checkup and/or laboratory results	1. Explaining the information, asking for permission to check up on patients, preparing equipment for checkups, and appropriately adjusting postures and environments 2. Correctly checking up on patients according to conditions and disorders 3. Summarizing and explaining checkup results for service users as well as providing opportunities for them to ask questions 4. Correctly and completely interpreting checkups and/or laboratory results
	2.3 Diagnosing diseases and appropriately providing the primary medical cares	1. Analyzing the causes and completely diagnosing diseases 2. Explaining the supporting and opposing information about diseases 3. Providing primary medical care according to professional standards and nursing plans 4. Providing primary medical care by allowing service users and/or family members/caretakers to make decisions
3. Knowledge transfer and consultancy skills	3.1 Directly providing suggestions about problems and requirements for service users and/or relatives	1. Completely, clearly, and concisely explaining medical information that is easy to understand without using overly technical words 2. Providing suggestions for solving health problems and improving health behaviors 3. Providing opportunities for service users and/or relatives to ask questions 4. Evaluating service users about the knowledge and understanding of self-care as well as summarizing contents
4. Empathy	4.1 Providing the medical cares for service users with empathy	1. Providing care with empathy, respect, and humanity 2. Communicating with polite words appropriate for situations and respecting service users 3. Carefully listening to service users' problems, making eye contact with them, and understanding their conditions 4. Actively providing services, cheering up service users, protecting them, and maximizing benefits for them

Table 2 Details of the questions and scoring criteria for the professional skills assessment form in primary medical practice (cont.)

Dimension	Items	Scoring rubrics
5. Compliance with laws and service users' rights	5.1 Considering human rights, service users' rights and professional ethics	1. Equally treating service users 2. Providing actual and enough information about sickness and cares 3. Actively providing the services for service users with good will 4. Helping service users according to professional standards by considering patients' rights and urgent needs
6. Consideration of individualism and/or cultural differences	6.1 Providing the primary medical care for service users by considering cultural differences	1. Equally providing care by considering ethnic, religious, and cultural differences 2. Communicating with service users with cultural differences to evaluate their symptoms and to make them understand the symptoms 3. Having good relations and respect for decisions relevant to service users' ethnicities, religions, and cultures 4. Appropriately solving problems about different ethnicities, religions, and cultures
7. Leadership and/or teamwork with colleagues in different fields	7.1 Showing leadership and managing the primary medical cares 7.2 Having problem solving skills according to situations 7.3 Behaving appropriately and having teamwork	1. Having self-confidence and roles appropriate for situations 2. Having leadership and providing appropriate suggestions for team members 3. Respecting the decisions and opinions of colleagues in different fields 4. Controlling his/her emotions appropriately 1. Observing and evaluating situations 2. Prioritizing problems in order to solve problems appropriately 3. Solving problems reasonably, quickly, and appropriately 4. Having systematic thinking processes for solving common as well as urgent problems 1. Wearing clothes according to the regulations of the institute and organizations 2. Respecting others, behaving appropriately, and exhibiting good characteristics 3. Communicating and coordinating with colleagues appropriately 4. Accepting changes and adapting him/herself to colleagues

$p < 0.001$). The results indicate that the correlation matrix was significantly different from 0 at 0.001, suitable for factor analysis. Therefore, EFA analysis can be continued.

Application of the principal component analysis, the maximum variance orthogonal (Varimax) rotation, and the final draw two common factors according to the corresponding content of each factor, named holistic medical practice skills (3 items), Primary

medical care skills (8 items), consisting of 11 items. The cumulative variance contribution rate was 56.43%, and the items on the corresponding factor of load were all above 0.4. An assessment of two factors and 11 items was finally formed, as shown in Table 3.

Reliability test

The reliability of the assessment form was tested with 30 nursing students. The internal consistency, measured by Cronbach's alpha coefficient, was 0.75

Table 3 Results of reliability and structural analyses

Factor number	Item	N	Factor loading
Factor 1	2.1, 2.2, 2.3, 3.1, 4.1, 5.1, 6.1, 5.2	8	0.791 – 0.544
Factor 2	1.1, 7.1, 7.3	3	0.914 – 0.503

for the overall scale. Specifically, the alpha coefficients for the Holistic Medical Practice Skills and Primary Medical Care Skills sub-scales were 0.76 and 0.74, respectively, indicating acceptable internal consistency for all categories.

The scoring weight for each item was determined based on the consensus from the qualitative phase. Items with higher weights (e.g., scoring weight of 2) were identified by experts and preceptors as critical core competencies or complex skills essential for pa-

tient safety and clinical decision-making. For instance, ‘Holistic medical practice skills’ received a higher weight because it integrates multiple clinical dimensions into a single behavioral indicator, reflecting the professional standards of the Nursing and Midwifery Council. To measure the Professional Skills for the Primary Medical Care Evaluation Form, the researchers designed a format according to the 4-point Likert scoring system as follows: “Excellent = 4/Good = 3/Fair = 2/Failure = 1”. The score ranged from 15 to

Table 4 Professional skills for the primary medical care assessment form

Item	Score weight	Excellent (4)	Good (3)	Fair (2)	Failure (1)
1. Holistic Medical Practice Skills					
1.1 Providing the primary medical care for service users	2				
1.2 Showing leadership and managing the primary medical cares	1				
1.3 Behaving appropriately and having teamwork	1				
2. Primary Medical Care Skills					
2.1 Holistically and correctly asking patients’ records	2				
2.2 Systematically checking up patients according to the procedures and correctly interpreting the checkup and/or laboratory results	2				
2.3 Diagnosing diseases and appropriately providing the primary medical cares	2				
2.4 Directly providing suggestions about problems and requirements for service users and/or relatives	1				
2.5 Providing the medical cares for service users with empathy	1				
2.6 Considering human rights, service users’ rights and professional ethics	1				
2.7 Providing the primary medical cares for service users by considering	1				
2.8 Having problem solving skills according to situations	1				
Total score60.....	Score.....				

60, and the higher the score, the better the professional skills for primary medical care in nursing students' ability. This form is as shown in Table 4.

The empirical evidence validates the hypothesis that the newly developed evaluation form meets the standards for reliability and validity. These results underscore the instrument's readiness for implementation, the implications of which will be further addressed in the discussion section.

Discussion

The validity and reliability of the evaluation form

For this study, an evaluation form was created on the professional skills of the primary medical care practicum for nursing students. It was improved from 20 items to 11 minor items (7 dimensions). The variables of the components were appropriate for evaluating professional skills such as holistic medical practice skills, primary medical care skills, and leadership and/or teamwork with colleagues in different fields. Structural validity reflects the degree of conformity between the faculty of Nursing and the Thailand Nursing and Midwifery Council. Before EFA is analyzed, the assumptions of EFA are tested. KMO and Bartlett's test of sphericity yielded a value of 857.119 with a significance level of $p < 0.01$ (less than 0.01), indicating that the correlation matrix was significantly different from zero. Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was 0.864. These indicate that the model was appropriate 86.4% (excellence level). Therefore, EFA analysis can be continued. When the exploratory factor analysis was used to evaluate the questionnaire structure validity, the load value of each item on its attribution factor was required to be > 0.4 , and the cumulative variance

contribution rate of the extracted common factors was recommended to be $> 60\%$ for an ideal structure. However, in behavioral sciences, a cumulative variance of 50–60% is often regarded as satisfactory.⁽¹⁵⁾ In this study, two common factors were extracted by exploratory factor analysis. The load values of each factor were > 0.4 . The cumulative variance contribution rate was 56.43%, which displays that the assessment has good structural validity. The extraction of two factors in this study is consistent with recent instrument development in nursing education, which emphasizes the integration of clinical competence and holistic care. For instance, studies developing nursing competency scales often report cumulative variance between 50% and 60%, which is considered acceptable in social science and behavioral research to maintain a balance between parsimony and explanatory power.^(16,17) However, some previous studies on nursing competency evaluation reported different factor structures. While this study identified a streamlined two-factor structure, Wu et al. found that clinical competency often involves more complex dimensions, particularly in the areas of cognitive and technical decision-making. This suggests that while concise tools are practical, more expanded frameworks may be needed for specialized clinical settings.⁽¹⁸⁾ Furthermore, while this study achieved a two-factor model, Kavurmaci et al. found that using a larger number of items (over 20 items) provided higher internal consistency in specific clinical settings, suggesting that a more concise tool might overlook subtle behavioral indicators in specialized primary care.⁽¹⁹⁾

The practical and scientific aspects of the evaluation form

This form is important and used for primary

medical care in order to meet the objectives of the program, focusing on developing high-quality students who meet learning standards in the aspects specified by the Nursing and Midwifery Council. The program has to include activities such as history taking, check-ups for patients, diagnosing diseases, providing medical care, and giving health recommendations. Regarding the development of students' skills consistent with the classroom management indicators in the 21st century, the learning management system (LMS), various learning sources, information technologies, and communication for learning purposes, skills promoting self-learning, team learning, and communication skills are encompassed.⁽²⁰⁾

21st Century skills include the 12 abilities that today's students need to succeed in their careers. Each 21st Century skill is broken into one of three categories: (1) learning skills, (2) literacy skills, and (3) life skills. Altogether, these categories cover the 21st-century skills that contribute to a student's future career.⁽²¹⁾ Few studies have evaluated the components of the professional skills evaluation form, although there are studies of nursing students about other developments such as Clinical skill,⁽²²⁾ Morality, Ethics, and Nursing Law Competency⁽²³⁾ Morality and Ethics from the study of Brodowicz-Król et al,⁽²⁴⁾ the moral and ethical behaviors of nursing students found that the results of the model could apply the moral hospital concept for developing moral and ethical behaviors among nursing students. This evaluation form on professional skills of primary medical care practicum for nursing students was consistent with the focus on respondents' opinions concerning the development of knowledge and professional skills.⁽²⁵⁾ Morality is a part of the life and

career skills of learning management in the 21st century. It is consistent with the research that the Professional Skills Evaluation Form in Primary Care Practices was developed in this research. Some variables include the knowledge of learning management in the 21st century, such as Health Literacy, productivity, accountability, and responsibility. At present, teaching nursing students emphasizes the development of teaching and learning management styles by integrating electronic media. This is considered a very interesting topic in 21st century learning management. These components must focus on the nursing student's development of knowledge for learning management in the 21st century.

In other research, professional skills and other relevant assessments have been published, such as the contributions of nursing students during their clinical practice in primary care,⁽²⁶⁾ similar to the development among students in other fields, such as dental students.⁽²⁷⁾ In addition to the professional development needs of nurse managers, recent findings by Gunawan et al., highlight that management and leadership skills remain essential competencies for ensuring the quality of nursing practice. Their study emphasizes that gaining a professional voice and garnering support are critical for nurses to navigate complex healthcare environments, aligning with the core components identified in this research.⁽²⁸⁾ This study is consistent with the study of Raimaturapong and Oumtanee, developing head nurses' competency assessment scale found the head nurses' competency scale was composed of five dimensions covering the following 24 competency items including 7 leadership competency items, 6 management competency items, 2 information technology competency items, 4 care quality development

items, and 5 morality and ethics competency items.⁽²⁹⁾ The findings of this study revealed that the two identified factors, Holistic Medical Practice Skills and Primary Medical Care Skills, are fundamental to nursing competency. This is consistent with the study of Kaphle et al., which emphasized that clinical evaluation tools must integrate both technical nursing procedures and holistic communication to reflect true student performance.⁽³⁰⁾ In the Thai context, our findings also correlate with the work of Prasertsong and Panasiri, who found that developing a structured evaluation form for nursing students in community settings significantly enhances the objectivity of preceptor ratings and supports the achievement of 21st century learning outcomes.⁽³¹⁾

In summary, the professional skills evaluation form developed in this study serves as a high-quality, evidence-based instrument that aligns with both the 21st century learning framework and the professional standards of the Nursing and Midwifery Council. Its demonstrated reliability and validity ensure that it is a dependable tool for enhancing the objectivity of clinical assessments and supporting the professional development of nursing students in primary medical care settings.

Conclusions

From this study we found that the set of variables can be analyzed in two components. The revised evaluation forms achieved nurse production standards as required for primary care practice. However, all nursing training institutions could use this evaluation form for professional skill assessment, which should be continually developed to assess the results of the measurement. There is a need for further research to develop other evaluation tools with a reasonable lev-

el of validity and reliability, and it must be tested before being applied to the nursing curriculum.

Limitation

1. The quantitative data were collected from nurse preceptors within a specific geographical area (Phra Nakhon Si Ayutthaya Province). Therefore, the findings and the applicability of the evaluation form may not fully represent the diverse clinical contexts or administrative structures of community hospitals in other regions of Thailand.

2. The sample size of 184 participants met the minimum requirement for statistical analysis (10 times the number of variables), a larger and more diverse sample would further enhance the stability and generalizability of the factor structure identified through Exploratory Factor Analysis.

3. Additionally, the cumulative variance contribution rate of the identified two-factor model was 56.43%, which is slightly below the 60% threshold often preferred in stringent factor analysis standards. This indicates that there may be other latent factors or specific clinical skills not yet captured by the current 11-item instrument.

Despite these limitations, this study provides a validated and standardized tool that aligns with the Thailand Nursing and Midwifery Council's standards, serving as a significant starting point for improving nursing education assessments.

Recommendations

Nursing educational institutions should adopt this validated evaluation form as a standardized tool for primary medical care practicum to ensure consistent and objective assessment of students' professional skills. Further research should employ confirmatory factor analysis (CFA) to verify the stability of the

identified two-factor structure and ensure the long-term robustness of the evaluation form.

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การพัฒนาและตรวจสอบแบบประเมินทักษะทางวิชาชีพปฏิบัติการรักษาพยาบาลขั้นต้น สำหรับนักศึกษาพยาบาล: การวิจัยแบบผสมผสาน

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บทคัดย่อ: พยาบาลเป็นบุคลากรทางการแพทย์ที่มีบทบาทสำคัญในการให้การสนับสนุนและแก้ไขปัญหาสุขภาพ
ทักษะทางวิชาชีพในรายวิชาปฏิบัติการรักษาพยาบาลขั้นต้นสำหรับนักศึกษาพยาบาลจึงเป็นสิ่งจำเป็นต่อการ-
พัฒนา ดังนั้น หลักสูตรพยาบาลศาสตร์จึงมุ่งเน้นการพัฒนาบัณฑิตให้มีความรู้และทักษะทางวิชาชีพอย่างเหมาะสม
การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อพัฒนาแบบประเมินทักษะทางวิชาชีพการปฏิบัติการรักษาพยาบาลขั้นต้น
สำหรับนักศึกษาพยาบาล และตรวจสอบคุณภาพด้านความเชื่อมั่นและความตรงของเครื่องมือ การวิจัยดำเนินการ
การภายใต้กรอบแนวคิดการประเมินทักษะวิชาชีพด้านการรักษาพยาบาลขั้นต้น โดยพัฒนาแบบสอบถามเบื้องต้น
จากการทบทวนวรรณกรรม การประชุมกลุ่มร่วมกับพยาบาลพี่เลี้ยง นักศึกษา และอาจารย์ รวมทั้งการให้ข้อ-
เสนอแนะจากผู้เชี่ยวชาญ การเก็บข้อมูลแบ่งเป็น 2 ระยะ ได้แก่ ระยะที่ 1 การวิจัยเชิงคุณภาพ โดยการสัมภาษณ์
พยาบาลพี่เลี้ยง นักศึกษา และอาจารย์ และระยะที่ 2 การวิจัยเชิงปริมาณ โดยนำแบบประเมินที่ปรับปรุงแล้ว
ไปทดสอบความเชื่อมั่นกับกลุ่มตัวอย่างจำนวน 184 คน ผลการศึกษาพบว่า ค่าดัชนีความตรงเชิงเนื้อหาอยู่ระหว่าง
0.67-1.00 การวิเคราะห์องค์ประกอบเชิงสำรวจด้วยการหมุนแกนแบบวาริแมกซ์ (varimax rotation) พบว่า
แบบประเมินประกอบด้วย 2 องค์ประกอบ รวม 11 ข้อ มีค่า Kaiser-Meyer-Olkin (KMO) เท่ากับ 0.864
ค่าความแปรปรวนรวมคิดเป็นร้อยละ 56.43 และค่าสัมประสิทธิ์อัลฟาของครอนบาค (Cronbach's α) ของ
แบบสอบถามทั้งฉบับเท่ากับ 0.75 องค์ประกอบทั้ง 2 ด้าน ได้แก่ (1) ทักษะการปฏิบัติการรักษาแบบองค์รวม
ซึ่งประเมินการดูแลที่ครอบคลุมมิติกาย จิต สังคม และจิตวิญญาณ รวมถึงภาวะผู้นำและการทำงานเป็นทีม และ
(2) ทักษะการรักษาโรคเบื้องต้น ซึ่งวัดสมรรถนะด้านการซักประวัติ การตรวจร่างกาย การวินิจฉัยและรักษา
เบื้องต้น การให้คำปรึกษา และการปฏิบัติภายใต้กฎหมายและจริยธรรมวิชาชีพด้วยความไวทางวัฒนธรรม

คำสำคัญ: แบบประเมินผลการพยาบาล; ทักษะทางวิชาชีพ; นักศึกษาพยาบาล