



To develop the nurse professional competence scale (NPCS) for nurses working in selected private hospitals of Districts, Punjab

^{1,2}Gurpreet Kaur and ³Dr. Sukhbir Kaur

¹Ph.D. Scholar, Department of Nursing Sciences, Sri Guru Ram Das University of Health Sciences, Sri Amritsar, Punjab, India

²Professor cum Principal, Sukhjinder Novel Institute of Nursing, Dunera, Pathankot, Punjab, India

³Associate Professor, Department of Nursing Sciences, Sri Guru Ram Das University of Health Sciences, Sri Amritsar Punjab, India

Corresponding Author: Gurpreet Kaur

DOI: <https://www.doi.org/10.33545/nursing.2025.v8.i2.F.569>

Abstract

In today's dynamic healthcare environment, pediatric nurses require specialized competencies to address the unique physiological and psychosocial needs of children. A validated and reliable tool to assess these competencies is essential for enhancing care quality, guiding professional development, and informing workforce planning.

Objectives of the study: The study aimed to develop and validate the Nurse Professional Competence (NPC) Scale for pediatric nurses working in private hospitals in selected districts of Punjab, and to evaluate its validity, reliability, and usability.

Methodology: A non-experimental methodological research design was used. The NPC Scale was developed through a comprehensive literature review and refined using the Delphi technique across three rounds with expert panels in nursing education, practice, and administration. The final tool comprised 60 items across 10 competency domains, with responses obtained from 385 pediatric nurses selected via convenience sampling. Competency assessments were conducted by head nurses. Content validity was evaluated using I-CVI, S-CVI, and CVR, while internal consistency was assessed using Cronbach's alpha.

Important findings: The Item content validity index (I-CVI) ranged from 0.95 to 1.00, and Scale content validity (S-CVI) was 0.97 for socio-demographic items and 0.90 for the Nurse Professional Competence Scale, indicating excellent content validity. Overall, Cronbach's alpha was 0.936 ($p < 0.001$), demonstrating high internal consistency. Component-wise reliability scores ranged from 0.723 to 0.871. Performance assessment showed that 59.3% of nurses demonstrated satisfactory competence, 14.5% performed strongly, and 26.2% required improvement.

Conclusion: The NPCS is a valid, reliable, and practical instrument for assessing pediatric nursing competencies in private healthcare settings. While most nurses showed satisfactory competence, targeted efforts are needed to strengthen non-clinical domains such as leadership, research utilization, and professional development. The NPCS can serve as a valuable tool for workforce evaluation, training needs assessment, and quality improvement in pediatric nursing practice.

Keywords: Pediatric nursing, nurse professional competence scale, competency assessment, tool development, validity, reliability, private hospitals

Introduction

Nowadays, a healthcare environment that is highly complex and rapidly changing poses a significant challenge to the nursing profession. To provide safe and effective care supported by the latest knowledge and technical procedures is an essential goal for nurses. The nature of emergency nursing practice mandates orientation to a wide spectrum of patient populations and conditions, policies, procedures, equipment, supplies, and processes. Nurses in emergency settings should quickly assess and analyze the problems of clients with a systematic and professional approach, placing priority on intervention skills.

Health care managers responsible for establishing and maintaining competency face the challenge of fairly evaluating nurses' performance. Therefore, assessment of core competencies in the nursing profession is essential to

ensure these are well developed. Qualified and competent nurses provide high-quality clinical care because they remain close to patients and can respond effectively to their needs.

Competence and competency have been used in the literature to describe various clinical skills related to nurses' performance, including quality of care and productivity. However, the relationship between these terms remains unclear in nursing and other health fields. Competence refers to the capacity to carry out tasks effectively and achieve expected results, forming a key benchmark across healthcare disciplines. WHO notes competence as a critical attribute of service quality and safety in clinical practice [5]. Mulder defines professional competence as the capacity of a healthcare practitioner to deliver services within accepted clinical standards [3].

Every competence framework delineates (i) core competencies, (ii) technical or functional competencies, (iii) behavioral competencies, and (iv) leadership competencies. Core competencies represent values, attitudes, and beliefs every healthcare provider must demonstrate, as described by Albarqouni *et al.* [1]. The WHO highlights their importance for education and training [5]. Core competencies signify a domain of knowledge, skills, and attitudes required to perform tasks to accepted standards [1].

The concept of core competence, initially popularized in management scholarship, has evolved significantly in recent years. Contemporary studies emphasize its integration within the dynamic capabilities framework, which highlights an organization's ability to sense, adapt, and reconfigure its competencies in response to rapidly changing environments [2]. In nursing and healthcare, core competencies remain essential but are increasingly recognized as adaptable and evolving, aligning with emerging demands such as technological proficiency, resilience, and evidence-based adaptability, [4, 6]. Technical competencies involve the ability of healthcare personnel to practice independently while integrating knowledge, skills, and judgment under prevailing standards [7].

Developing a pediatric nurse competence scale is essential for maintaining high-quality care tailored to children's unique medical and emotional needs. Such a scale outlines the necessary skills and knowledge expected of pediatric nurses, promoting consistency in staff training and performance evaluations across healthcare institutions. It serves as a valuable tool for assessing current competencies, identifying areas for improvement, and directing ongoing professional development.

The scale contributes to advancing nursing education and research, shaping policies that aim to improve pediatric care. By helping nurses better support families, respond to their concerns, and provide effective health education, such a scale plays a crucial role in improving outcomes for children".

Methodology

The present study adopted a methodological research design with a quantitative approach to develop and evaluate the Nurse Professional Competence Scale (NPCS) for pediatric nurses. The study included 385 nurses, recruited by convenience sampling from nine private hospitals in Punjab registered with the Punjab State Health Department, each having > 50 beds. The target sample size was estimated using Cochran's formula for an unknown population:

$$n_0 = \frac{Z^2 * p * (1-p)}{e^2}$$

Where Z is the standard normal deviate corresponding to the desired confidence level, *p* is the assumed proportion (anticipated prevalence), and *e* is the margin of error. Nurses included were those registered with the Punjab Nurses Registration Council, having a minimum of six months' clinical experience in the same hospital, while those on

long-term leave (more than three months) or unwilling to participate were excluded.

Tool development was carried out in two phases: Phase I included preliminary preparation through literature review, item generation, instrument construction, and expert panel selection, followed by three Delphi rounds with 20 national nursing experts to refine items across ten domains of competence, resulting in the final draft. Phase II focused on psychometric assessment, where content validity was established using Item-CVI, Scale-CVI, and Content Validity Ratio, construct validity was confirmed through principal component analysis with varimax rotation, and reliability was tested using Cronbach's alpha, with coefficients above 0.70 considered acceptable.

Data collection was conducted between November 2024 and March 2025 after obtaining institutional permission and ethical approval from the Sri Guru Ram Das Institute of Medical Health Sciences & Research, Sri Amritsar. The NPCS was administered by Head Nurses of pediatric departments, who objectively rated their staff nurses on a 3-point Likert scale (0=Never, 1=Sometimes, 2=Often). To ensure completeness and accuracy, systematic follow-ups were conducted, while anonymity and confidentiality of participants were strictly maintained, and informed consent was obtained before participation.

Results

Participants' characteristics (Table 1)

The demographic profile of the participants revealed that the majority were in the age group of 26-35 years (42.1%), followed closely by those aged ≤ 25 years (40.5%), while 17.4% were between 36-45 years; no participants were aged ≥ 46 years. Most of the respondents were females (90.4%), with only 9.6% males, and a higher proportion were unmarried (62.6%) as compared to married (37.4%), with no cases of divorced, separated, or widowed status. In terms of residence, 63.4% belonged to urban areas, whereas 36.6% were from rural areas. Regarding educational qualifications, nearly half of the participants had completed GNM (49.1%), followed by B.Sc. Nursing (42.1%), and a smaller proportion (8.8%) held Post Basic Nursing degrees. With respect to work experience, the majority (61.5%) had 1-5 years of experience, 16.1% had 6-10 years, 14.8% had 11-15 years, and only 7.6% had more than 15 years of professional experience. The area of working showed that most participants were posted in the postnatal ward (68%), followed by the NICU (20%), NICU with PW (8.6%), and a small proportion in the PICU (3.4%).

Section 3

Content validity

The Item content validity index (I-CVI) values of the scale was ranged between 0.3 to 0.79 and the scale content validity index (S-CVI) (Average) was 0.9. The 14 items with the CVR of less than 0.4 and CVI of less than 0.7 was removed from the scale.

Demographic characteristics of the sample

Table 1: Frequency and percentage distribution of demographic variables, N=385

S. No	Variables	Categories	Frequency	Percentage
A.	Age (in years)	≤ 25	156	40.5
		26-35	162	42.1
		36-45	67	17.4
		≥ 46	0	0
B.	Gender	Male	37	9.6
		Female	348	90.4
C.	Marital status	Unmarried	241	62.6
		Married	144	37.4
		Divorced	0	0
		Separated	0	0
		Widow	0	0
D.	Place of Living	Rural	141	36.6
		Urban	244	63.4
E.	Education	G	189	49.1
		B.Sc Nursing	162	42.1
		Post Basic Nursing	34	8.8
F.	Total work experience (in years)	1-5	237	61.5
		6-10	62	16.1
		11-15	57	14.8
		> 15	29	7.6
G.	Area of working	PW	262	68
		NICU	77	20
		NICU/ PW	33	8.6
		PICU	13	3.4

Construct validity (Table 2)

To assess the suitability of the scale, Kaiser-Meyer-Olkin (KMO) was calculated and the score 0.745 indicates an adequate sample size. This exceeds the recommended minimum of 0.60, indicating sample adequacy according to Kaiser's 1974 classification. This suggests that the sample size (N=385) and patterns of correlation among the variables were sufficient for conducting principal

component analysis. Bartlett's test of Sphericity yielded a P value less than 0.001, indicating that there was correlation among variables. The principal component (Table 3) resulted in the extraction of 11 factors, each with an eigenvalue greater than one, which are significant which as shown in the scree plot. These 11 factors accounted for 87.49% variance.

Table 2: Assessment of the suitability of the nurse professional competence scale

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.745
Bartlett's test of Sphericity (p-value) **	0.000

KMO value must be, >0.60

Bartlett's test of Sphericity must be, <0.05

Table 3: Principal component analysis of the nurse professional competence scale with the varimax method

Component of the tool	Extraction sums of squared loadings		
	Eigen value	% of variance	Cumulative%
1	7.681	29.469	29.469
2	7.876	13.126	42.595
3	6.727	11.212	53.807
4	5.440	9.066	62.873
5	3.512	5.854	68.727
6	2.926	4.877	73.604
7	2.109	3.514	77.118
8	1.969	3.281	80.400
9	1.818	3.030	83.429
10	1.270	2.116	85.545
11	1.169	1.948	87.494

Reliability

Cronbach's alpha of the Nurse Professional Competence Scale was 0.90, indicating excellent internal consistency. The value of Cronbach's alpha for the 10 domains were

0.73, 0.70, 0.73, 0.85, 0.72, 0.73, 0.78, 0.87, 0.84, 0.84, respectively (Table 4).

Table 4: Component-wise reliability of nurse professional competence scale, N=385

Areas	No of items	Reliability
Assessment	7	0.729
Nursing Diagnosis	3	0.792
Planning	6	0.732
Implementation	4	0.845
Evaluation and Documentation	4	0.723
Ethical and Legal Considerations	11	0.732
Knowledge and Research	5	0.776
Collaboration and Interpersonal Relationships	9	0.871
Leadership and Resource Utilization	3	0.844
Professional and Personal development	8	0.839

Administration to the sample

The majority, 59.3%, demonstrated satisfactory performance, while 14.5% showed strong performance. A notable 26.2% needed improvement, and no participants were rated under exceptional performance. The mean score was 97.24±13.64, suggesting that most scores were gathered toward the higher end of the scale. Hence, it is shown that participants performed satisfactorily, but there is still a significant portion who require support to improve.

Discussion

In the present study, the content validity of the Nurse Professional Competence Scale (NPCS) was assessed using I-CVI, CVR, and S-CVI. The S-CVI (average method) was 0.90, with I-CVI values between 0.79-1.00 and CVR values between 0.75-1.00, indicating strong expert agreement. Similar findings were reported by Nilsson *et al.* [8] (2014) for the Swedish NPC Scale (I-CVI>0.80) and by Zhang *et al.* [9] (2011) for the Competency Inventory for Registered Nurses in China (S-CVI>0.85).

In the present study, the Nurse Professional Competence Scale (NPCS) showed strong reliability with an overall Cronbach's alpha of 0.936. High internal consistency was observed in domains such as Collaboration and Interpersonal Relationships ($\alpha=0.871$), Implementation ($\alpha=0.845$), Leadership and Resource Utilization ($\alpha=0.844$), and Professional and Personal Development ($\alpha=0.839$), while the remaining domains showed acceptable reliability ($\alpha=0.723-0.792$). Comparable findings were reported by Suresh and Jacob [10] (2015) in South India ($\alpha=0.74-0.89$), Bharathi and Reddy [11] (2019) in nursing students ($\alpha=0.91$), and Takase and Teraoka [12] (2011) in Japan ($\alpha=0.74-0.88$), reinforcing the consistency of nursing competency scales across diverse contexts.

In this study, the majority of participants (59.3%) showed satisfactory performance, 14.5% strong performance, and 26.2% needed improvement, with none rated exceptional. These findings are consistent with Suresh and Jacob [10] (2015), Sharma and Singh [13] (2020), Lakanmaa *et al.* [14] (2014), and Wangenstein *et al.* [15] (2012), who similarly reported that most nurses demonstrate satisfactory competence, though many require further training in areas such as critical thinking, leadership, and decision-making.

Limitations

Due to varied hospital schedules and workloads, the timelines for data collection were kept flexible; however, in some cases, this resulted in extended periods, which may

have influenced the consistency of evaluations across institutions. Furthermore, the study was limited to nurses working exclusively in pediatric departments, and therefore, the findings cannot be generalized to nurses employed in other specialties or departments. In addition, the research was conducted only in selected private hospitals across districts of Punjab, which may restrict the broader applicability of the results to different healthcare settings.

Conclusion

The study concludes that while pediatric nurses are clinically competent, there is a significant need to strengthen non-clinical competencies such as leadership, research application, and professional development. The NPCS was found to be a reliable and valid tool for evaluating nursing competence in pediatric care settings.

Recommendations

Building upon the findings of the present study, several avenues for future research emerge that could significantly strengthen the evidence base on nursing competence. To enhance the generalizability of the Nurse Professional Competence Scale (NPCS), studies may be extended to government hospitals, community health centers, and tertiary care institutions. Comparative research can further illuminate differences in competency levels between nurses working in public versus private hospitals, urban versus rural settings, and across varying levels of clinical experience. Longitudinal studies are also needed to capture how nurses' competence evolves over time, particularly following structured training, orientation, or professional development programs. In addition, correlation studies should be undertaken to examine the direct relationship between nurses' competence and patient outcomes, such as satisfaction, recovery rates, and reduction in clinical errors. Future research may also focus on adapting the NPCS for nursing students to assess professional competence early in their careers, and on evaluating the effectiveness of structured competency-based training programs in enhancing the professional readiness of final-year nursing students.

Acknowledgement

This study is derived from the first author's dissertation work. The researchers extend their sincere gratitude to the management, nursing administrators, and nursing staff of the selected private hospitals of Punjab for their cooperation and support throughout the study. Their willingness to

participate and contribute was invaluable in completing the research.

Approval of institutional ethical review board

Sri Guru Ram Das Institute of Medical Health Sciences & Research, Sri Amritsar, SGRD/IEC/2022-29, 22.02.2022.

Conflict of Interest: None declared

Funding: None declared

Financial Support

Not available

References

1. Albarqouni L, Hoffmann T, Straus S, Olsen NR, Young T, Ilic D, *et al.* Core competencies in evidence-based practice for health professionals: Consensus statement based on a systematic review and Delphi survey. *JAMA Netw Open.* 2018;1(2):e180281.
2. Cegliński P. The concept of dynamic capabilities in strategic management. *J Entrep Manag Innov.* 2020;16(1):75-110.
3. Mulder M. Conceptions of professional competence. In: Billett S, Harteis C, Gruber H, editors. *International handbook of research in professional and practice-based learning.* Dordrecht: Springer; 2014, p. 107-137.
4. Greeff M, Toit DE, Kruger A. Developing core competencies in nursing: A South African perspective. *Afr J Nurs Midwifery.* 2020;22(2):1-15.
5. World Health Organization. *Transforming and scaling up health professionals' education and training: World Health Organization guidelines 2013.* Geneva: WHO; 2013.
6. Huo J. Core competencies in nursing practice in the context of digital healthcare transformation. *Nurse Educ Today.* 2022;117:105450.
7. International Council of Nurses. *ICN framework of competencies for the generalist nurse.* Geneva: ICN; 2009.
8. Nilsson J, Johansson E, Egmar AC, Florin J, Leksell J, Lepp M, *et al.* Development and validation of a new nurse competence scale for clinical practice. *J Nurs Manag.* 2014;22(1):79-91.
9. Zhang M, Petrini M. Factors influencing Chinese undergraduate nursing students' perceptions of their clinical competence. *Nurse Educ Today.* 2011;31(4):312-317.
10. Suresh K, Jacob A. Development and validation of competency assessment tool for nurses working in tertiary care hospitals. *Nurs J India.* 2015;106(6):267-271.
11. Bharathi G, Reddy S. Validation of a clinical competency checklist for nursing students in India. *Int J Nurs Educ.* 2019;11(3):35-40.
12. Takase M, Teraoka S. Development of a competency scale for staff nurses: The level of competence of experienced nurses. *Jpn J Nurs Sci.* 2011;8(1):63-73.
13. Sharma R, Singh R. Assessment of clinical competence among staff nurses: A cross-sectional study in North India. *Int J Adv Nurs Stud.* 2020;9(1):45-50.
14. Lakanmaa RL, Suominen T, Perttilä J, Castrén RM, Vahlberg T, Kilpi LH. Competence requirements in intensive and critical care nursing-Still in need of definition? A Delphi study. *Int J Nurs Stud.* 2014;51(11):1501-1512.
15. Wangensteen S, Johansson IS, Nordström G. The first year as a graduate nurse-an experience of growth and development. *J Clin Nurs.* 2012;21(13-14):2068-2078.

How to Cite This Article

Kaur G, Kaur S. To develop the nurse professional competence scale (NPCCS) for nurses working in selected private hospitals of Districts, Punjab. *International Journal of Advance Research in Nursing.* 2025;8(2):400-404.

Creative Commons (CC) License

This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.