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SELF-PERCEIVED NURSE PRACTITIONER CORE COMPETENCIES AND INFLUENCE ON CRITICAL CARE - A NATIONWIDE STUDY

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ABSTRACT

Background: The demand for Nurse Practitioners in critical care is increasing due to rising burden of critical illnesses, advancements in medicine and need for skillful, competent workforce capable of managing complex patient cases. Their unique skill set empowered through rigorous education and clinical training is vital in meeting the dynamic challenges of these high intensity environments.

Objective: The study aimed to assess and compare the self-perceived core competencies of Nurse Practitioners in critical care among the stakeholders and to assess the influence of Nurse Practitioners on critical care.

Methods: A descriptive study was conducted in multiple settings with a sample size of 210 nationwide. The participants were recruited through non-probability consecutive sampling technique. The data was collected using Researcher prepared rating scales to assess the perception regarding self-perceived core competencies and perception related to influence of Nurse Practitioners on critical care among the NPCC Stakeholders.

Results: More than 68% of the Stakeholders perceived confidence in Core competencies with no statistically significant difference among NPCC stakeholders at 5% level ($F= 2.521$, $p = 0.083$). More than 81% perceived positively regarding influence of Nurse Practitioners on critical care with high significant differences noted among NPCC stakeholders at 5% level ($F= 15.49$, $p = 0.000$).

Conclusion: From the perspective of the NPCC Stakeholders, the study highlights that they feel confident in the core competencies of the Nurse Practitioners in Critical care and perceive positively about their influence on critical care. The Nationwide acknowledgement of the NPCC Stakeholders about the competencies and influence of Nurse Practitioners in critical care is a testament to reinforce the importance of expanding Nurse Practitioner roles in critical care, ensuring greater autonomy and integrating them into leadership positions. It also calls for continued professional development, policy support and institutional backing to optimize the impact of Nurse Practitioners in Critical care environments.

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INTRODUCTION

In the ever-evolving field of healthcare, the introduction of Nurse Practitioners in India have emerged as a pivotal contribution to deliver high quality care across diverse clinical settings. Critical care environments, characterized by their complexity and intensity, demand specialized skills and competencies to address the multifaceted needs of the patients. Nurse Practitioners in critical care (NPCC) bridge the gaps in care delivery; improve patient outcomes and drive healthcare innovation. They play a vital role in addressing workforce shortages, enhancing patient centered care and providing cost effective solutions in the healthcare system. The demand for Nurse Practitioners in critical care is increasing due to multiple factors, including the rising burden of critical illnesses, advancements in medical technology and the need for highly skillful, competent workforce capable of managing complex patient cases. The Nurse Practitioners are increasingly at the forefront of these environments, contributing significantly to patient care through their advanced training, clinical expertise and ability to adapt to rapidly changing scenarios. Their unique skill set empowered through rigorous education and clinical training is vital in meeting the dynamic challenges of these high intensity environments. As key members of the multidisciplinary teams, Nurse Practitioners in critical care must master a range of core competencies that not only address the physiological needs of critically ill patients but also navigate the psychological, ethical and interpersonal dimensions of care delivery.

The concept of core competencies serves as a foundational framework for Nurse Practitioner education, practice and professional development. These competencies defined by the Indian Nursing Council encompass critical domains including clinical knowledge and competencies, diagnostic reasoning, management and evidence-based practice. However, the dynamic and unpredictable nature of critical care presents unique challenges in translating these competencies into real world practice. Limited research is available to understand the core competencies of Nurse Practitioners and how well it aligns with influence on patient outcomes.

A secondary deductive analysis of interview data among Nurse Practitioners working in Australia and New Zealand suggested that both competence and capability need to be considered in understanding the complex role of the Nurse Practitioner[1].N Jeffery et.al (2020) performed a comparative analysis to examine data from NP education program across six countries (Australia, Canada, Finland, Norway, the Netherlands and the USA) covering admission criteria, curriculum structure and content, clinical requirements, teaching methods, program delivery and assignment and evaluation measures. Significant variations were identified in NP education both within and across countries. It is essential to establish international guiding principles and core competencies to promote common learning outcomes and standardized assessment and evaluation process. Further Global collaboration is needed to achieve this across countries with diverse healthcare systems and varying stages of NP role integration. However, Comprehensive

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monitoring and regulation of NP practice and education within each country, international protection of the NP title and political support is essential to achieve. [2]

Wang et.al (2024) investigated the roles and competencies of Nurse Practitioners using an online cross sectional survey among rheumatology nurses in China. Altogether a total of 796 completed questionnaires were collected successfully by the researchers. The total mean scores of the participants on the Nurse Practitioners' Roles and Competencies 19 Scale (NPRCS) was found to be 2.51 with a SD of 0.55 which indicated a medium level. Out of the six dimensions of the NPRCS poor scores were noted for medical assistance, leadership reforms and clinical research.[3]

Margarithe Charlotte Schlunegger et.al (2023) explored the existing literature related to Nurse Practitioner competencies. Studies from different databases such as MEDLINE, CINAHL, Web of science and PsycINFO were reviewed by two reviewers who described the competencies using Hamric's model of advance practice nursing. The competencies identified were related to direct clinical practice, which included nursing or medical tasks. A little information was available about competencies in leadership, ethical decision making and evidence based practice.[4]

Malar S Kodi et.al (2022) carried out a multi setting cross sectional survey to gauge the perception of implementing the Nurse Practitioner role in India among patients, nurses and doctors. A total of 1070 samples were identified from five tertiary hospitals located in different regions of India, using a proportionate stratified random sampling technique. Perceptions were assessed using Likert scales and sociodemographic profiles focusing on the necessity, feasibility and accessibility of implementing the NP role in India. The mean age groups were as follows: nurses 30.69 years, doctors 43.63 years and patients 38.15 years. Nearly 98% nurses and 85% doctors had no prior experience working with NPs and 53% doctors and 95% were unaware of the NP role. The findings of the study revealed strong support for implementing the NP role in India and suggests that NPs could independently manage health tasks, highlighting the potential of the NP role in India.[5]

An idea of Nurse Practitioner competencies is essential to ensure that advanced nursing professionals deliver safe, effective and quality based care. An understanding of the competencies helps maintain high standards of practice, protects patient safety and ensures accountability within the healthcare system. It can guide administrators to promote quality improvement, strengthen clinical training, and enhance patient outcomes.

NEED OF THE STUDY

The role of the Nurse Practitioners in critical care is continually expanding, necessitating a deeper understanding of the core competencies required to achieve optimal outcomes. Clarifying clinical core competencies and boundaries is crucial to ensure successful implementation of Nurse Practitioner role in critical care. Clearly defined competencies help establish professional identity, enhance interdisciplinary collaboration and prevent role conflicts within healthcare teams. However, challenges related to role clarity and competency recognition persist, even in

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countries where the NP role is well established. A mixed method study conducted in the USA, where Nurse Practitioners have been integrated into the healthcare system for several decades, providing insights into these challenges. The study found that only 10% of participating NPs reported that their roles were unclear. This relatively low percentage suggests that most NPs have well defined responsibilities. However, 16.3% of NPs reported that their healthcare colleagues misunderstood their competencies. This indicates that even in mature systems, role misperceptions and professional boundaries remain area of concern [6]. In Critical care settings, such misunderstandings can impact teamwork, decision making and ultimately patient outcomes. Hence, understanding of the core competencies of Nurse Practitioners in critical care is essential and demanding.

AIM OF THE STUDY

The study aimed to assess and compare the self-perceived core competencies of Nurse Practitioners in critical care among the stakeholders and to assess the influence of Nurse Practitioners on critical care.

METHODS

The study adopted descriptive design and the study setting included Nursing Institutes in India offering Nurse Practitioner in Critical care program. The Accessible population of the study were the Stakeholders of Nurse Practitioner in Critical care Program from India. The Samples for the present study included Nurse Practitioner in Critical Care Students, Nurse Practitioner in Critical Care Graduates and Nurse Practitioner in Critical Care Preceptors. The inclusion criteria were NPCC Students who are in their Second year of the Program, NPCC Graduates who graduated from an Indian nursing council recognized Nursing Institute and NPCC Preceptors who are involved in the program for a minimum one year. The study adopted non-probability Consecutive Sampling technique whereby the Researcher chose every participant consecutively who comes into contact and met the predefined criteria until the desired target size of 210 was achieved. The Sample of 210 comprised of 54 NPCC Students, 124 NPCC Graduates and 32 NPCC Preceptors. The tools used for obtaining data comprised of Researcher prepared rating scales to assess perception regarding self-perceived core competencies and perception related to influence of Nurse Practitioners on critical care among the NPCC Stakeholders. The study followed all ethical guidelines and had obtained ethical approval from the University Ethical Committee.

ISSN:1517-4492 | **E-ISSN**:2178-7727

RESULTS

Distribution of Self Perceived Core Competencies among the NPCC Stakeholders n = 210

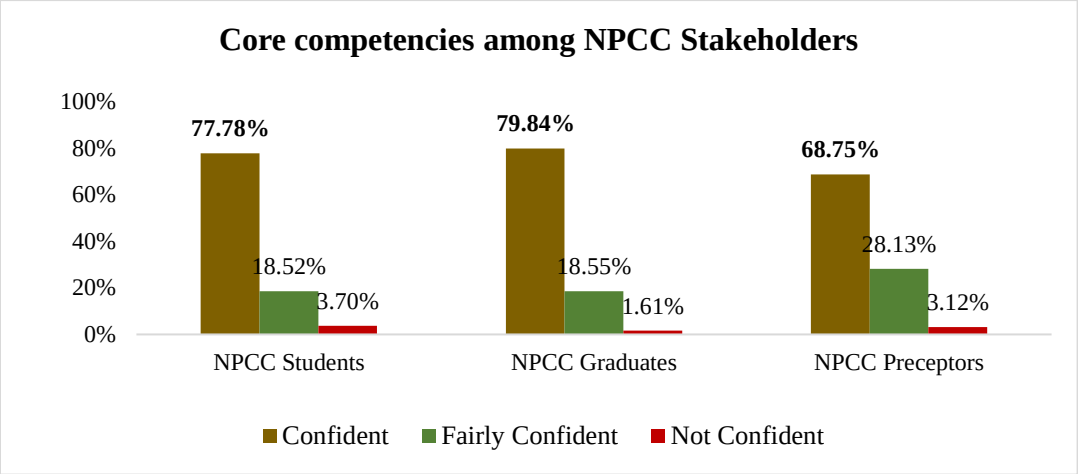

Figure_1 Self perceived Core competencies among the NPCC Stake holders

Figure_1 shows that 77.78% NPCC Students, 79.84% NPCC Graduates and 68.75% NPCC Preceptors expressed confidence regarding core competencies. The NPCC Graduates reported the highest level of confidence while the preceptors reported the lowest. While most of the NPCC Stakeholders feel confident, 18.52% of NPCC Students, 18.55% of NPCC Graduates and 28.13% of NPCC Preceptors report being only fairly confident and a smaller percentage of 3.70% NPCC Students, 1.61% NPCC Graduates and 3.12% NPCC Preceptors report of not feeling confident.

Table 1: Rank order of Positive self-perceptions on Core competencies among NPCC Stakeholders'

n = 210

Stake holders	Rank order of positive perceptions					
	NPCC Students (54)		NPCC Graduates (124)		NPCC Preceptors (32)	
	%	Rank	%	Rank	%	Rank
Focused History Collection	91%	4	93%	3	88%	3
Focused Physical Assessment	85%	5	84%	6	81%	4
Diagnostic Investigations	77%	7	81%	7	59%	7
Diagnosis	77%	7	86%	5	75%	5
Management	81%	6	81%	7	66%	6

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Follow up and provide ongoing management	85%	5	81%	7	66%	6
Set up, use & maintain Critical care Equipments	96%	2	92%	4	94%	1
Monitoring parameters	98%	1	94%	2	94%	1
Clinical Procedure skills	94%	3	96%	1	91%	2

Table 1 displays the rank order of positive perceptions on core competencies among the NPCC Stakeholders. The highest percentage of positive perception on core competencies is observed for 'Monitoring parameters among the NPCC Students and NPCC Preceptors as well as 'Clinical Procedure skills among NPCC Graduates. Additionally, among the NPCC Preceptors, the highest percentage is also noted for 'Critical care equipments'.

The perception of the stakeholders revealed that more than 59% of the NPCC Students, 62% of NPCC Graduates and 46% of the NPCC Preceptors perceived Nurse Practitioners as confident across all items of 'Focused Physical Assessment'. The highest confidence level among NPCC students was reported for assessing client's strengths, health promotion, illness prevention or risk reduction needs, selecting relevant assessment tools and techniques, assessing cardiovascular system and renal system (75.9%). They perceived less confidence level in assessing skeletal system (59.3%). About the NPCC Graduates, the highest level of confidence was noted for performing a relevant physical examination (74.2%) and lowest for assessing the endocrine system (62.9%). Similarly, the NPCC Preceptors also reported highest confidence level for performing a relevant physical examination (71.9%) and lowest for assessing lymphatic system (46.9%).

The perception of stakeholders with relation to ordering diagnostic investigations revealed that more than 63% of the NPCC Students, 63% of the NPCC Graduates and 37% of the NPCC Preceptors perceived Nurse Practitioners as Confident. Among NPCC Students, highest level of confidence was seen for interpreting the results of screening and diagnostic investigations using evidence informed clinical reasoning (72.2%) and lowest for ordering screening and diagnostic investigations using best available evidence (63%). Similarly, NPCC Graduates reported highest confidence for informing the client of the rationale for ordering diagnostic tests and assuming responsibility for follow-up of test results (77.4%) and lowest for ordering screening and diagnostic investigations using best available evidence (63.7%). The NPCC Preceptors perceived highest confidence level for ordering screening and diagnostic investigations using best available evidence (53.1%) and lowest confidence level was noted for interpreting the results of screening and diagnostic investigations using evidence informed clinical reasoning (37.5%). With regard to diagnosis more than 55% of the NPCC Students, 62% of NPCC Graduates and 40% of the NPCC Preceptors perceived Nurse Practitioners as confident across all items in Diagnosis. The NPCC Students exhibited highest level of confidence for analyzing and interpreting multiple sources of data, including diagnostic and

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screening tests, health history, and physical examination (64.8%) and lowest level for communicating diagnosis to client, including implications for short- and long term outcomes and prognosis (55.6%). Among NPCC Graduates, highest confidence level was expressed for explaining results of clinical investigations to client (74.2%) and least confidence was noted for synthesizing assessment findings with scientific knowledge and confirming most likely diagnoses (62.1%). The NPCC Preceptors perceived highest confidence level for communicating diagnosis to client, including implications for short- and long-term outcomes and prognosis (62.5%) and lowest for analyzing and interpreting multiple sources of data, including diagnostic and screening tests, health history, and physical examination (40.6%).

The perception related to the management of patients revealed that more than 55% of the NPCC Students, 60% of the NPCC Graduates and 43% of the NPCC Preceptors perceived Nurse Practitioners as confident. The NPCC Students reported highest level of confidence for ordering required treatments as per institutional SOP (70.4%) and lowest level of confidence for initiating appropriate plan of care and selecting relevant pharmacotherapeutic options (55.6%). Among NPCC Graduates, highest confidence level was seen for initiating appropriate plan of care (72.6%) and lowest was seen for selecting appropriate interventions, synthesizing information (60.5%). The NPCC Preceptors perceived highest confidence level for completing accurate prescription(s) in accordance with Institutional SOP (59.4%) and least confidence level for selecting relevant pharmacotherapeutic options (43.8%), whereas the perception on competency related to follow up and provide ongoing management revealed that more than 69% of the NPCC Students, 64% of the NPCC Graduates and 50% of the NPCC Preceptors perceived Nurse Practitioners as confident.

The NPCC Students reported highest level of confidence for providing Health education based on the patient needs and counselling for patient and family (78%) and lowest level of confidence was seen for evaluating response to plan of care in collaboration with the client (69%). Similarly, the NPCC Graduates perceived highest level of confidence for providing health education based on the patient needs (74%) and least for developing a systematic and timely process for monitoring client progress (64%). The NPCC Preceptors perceived highest level of confidence for providing health counselling for patient and family (59%) and lowest for evaluating response to plan of care in collaboration with the client and revising plan of care based on client's response and preferences (50%).

Table 2: Distribution of NPCC Stakeholders perception on Confidence regarding use of critical care equipment

n = 210

Items	**Students (n = 54)**	**Graduates (n = 124)**	**Preceptors (n = 32)**
	Confident		

ISSN:1517-4492 | **E-ISSN**:2178-7727

Set up, use and maintain critical care equipments	***f***	**%**	***f***	**%**	***f***	**%**
Ventilator	45	83	95	77	24	75
Monitor	48	89	113	91	26	81
Transducer / pressure bag	45	83	108	87	25	78
Temperature probes	49	91	112	90	28	88
SpO2 probes	48	89	111	90	30	94
Sequential compressing device	48	89	102	82	26	81
12 lead ECG Monitor	49	91	110	89	28	88
Warmer	49	91	112	90	28	88
Fluid warmer	40	74	106	86	24	75
ET Cuff pressure monitor	50	93	110	89	26	81
Defibrillator	43	80	111	90	22	69
Pacemaker	39	72	80	65	19	59
Syringe pump	46	85	112	90	26	81
Infusion pump	48	89	114	92	28	88
Alpha mattress	41	76	103	83	25	78
CRASH trolley	49	91	113	91	30	94

Table 2 depicts that more than 72% of the NPCC Students, 65% of the NPCC Graduates and 59% of the NPCC Preceptors perceived Nurse Practitioners as confident across all items in ‘set up, use and maintain critical care equipments’. Among NPCC Students, highest level of confidence was noted for setting up, using and maintaining ET cuff pressure monitor (93%) and lowest for pacemaker (72%). The NPCC Graduates exhibited high confidence for infusion pump (92%) and least for pacemaker (65%). The NPCC Preceptors perceived highest confidence level for Spo2 probes and CRASH trolley (94%) and less confidence was perceived for pacemaker (59%).

Table 3: Distribution of NPCC Stakeholders perception regarding competency on Monitoring parameters

n = 210

	Students (n = 54)		**Graduates (n = 124)**		**Preceptors (n = 32)**	
Items	**Confident**					
Monitoring parameters	***f***	**%**	***f***	**%**	***f***	**%**
Pulse oximetry	51	94	110	89	31	97

ISSN:1517-4492 | **E-ISSN**:2178-7727

ABG	48	89	110	89	28	88
ET Cuff Pressure	51	94	112	90	23	72
Capnography (ETCO2)	43	80	95	77	20	63
Invasive BP monitoring	47	87	108	87	24	75
Noninvasive BP monitoring	49	91	111	90	28	88
ECG	45	83	105	85	27	84
PiCCO	36	67	77	62	19	59
Peripheral vascular status	41	76	97	78	19	59
Care of patient on hemodialysis	40	74	104	84	19	59
Care of peritoneal dialysis	40	74	86	69	17	53
Intracranial pressure	39	72	91	73	15	47
Cranial nerves	44	82	97	78	21	66
GCS	47	87	113	91	30	94
Pain	49	91	114	92	30	94
Temperature	50	93	114	92	29	91
Peripheral neurological status	45	83	105	85	26	81
Reflexes	44	82	105	85	25	78
Sedation score	46	85	106	86	23	72
Pain management	45	83	112	90	27	84
Brain death evaluation	41	76	95	77	18	56
Bowel sounds	43	80	105	85	27	84
Abdominal pressure	41	76	101	82	19	59
Residual volume	39	72	101	82	20	63
Calorie requirement	36	67	88	71	17	53
Protein requirement	38	70	95	77	18	56

Table 3 shows that more than 67% of the NPCC Students, 62% of the NPCC Graduates and 47% of the NPCC Preceptors perceived Nurse Practitioners as confident across all items in monitoring parameters. Among the NPCC Students, the highest confidence was seen for monitoring pulse oximetry and ET cuff pressure (94%) and lowest was reported for PiCCO and calorie requirement (67%). The NPCC Graduates perceived highest confidence level for monitoring pain and temperature (92%) and expressed least confidence for monitoring PiCCO (62%). Similar to the NPCC Students, the NPCC Preceptors also perceived high confidence for monitoring pulse oximetry (97%) and least for monitoring intracranial pressure (47%).

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Table 4: Distribution of NPCC Stakeholders perception regarding Clinical Procedure skills

n = 210

	Students (n = 54)		**Graduates (n = 124)**		**Preceptors (n = 32)**	
Items	**Confident**					
Clinical Procedure skills	***f***	**%**	***f***	**%**	***f***	**%**
Triage	43	80	109	88	25	78
BLS	46	85	114	92	29	91
ACLS	44	82	112	90	25	78
Tracheostomy care	49	91	111	90	26	81
Airway application	46	85	111	90	28	88
Tracheal suctioning - Open	50	93	112	90	28	88
Tracheal suctioning - Closed	48	89	113	91	26	81
Chest drainage	45	83	110	89	25	78
Chest physiotherapy	46	85	112	90	24	75
Nebulization	48	89	117	94	28	88
Oxygen administration	49	91	116	94	29	91
Mechanical ventilator	46	85	116	94	25	78
Non – invasive ventilation	48	89	113	91	26	81
Connecting to Ventilator	48	89	115	93	23	72
Weaning from ventilator	47	87	111	90	25	78
Extubation	47	87	115	93	24	75
Use of T-tube & Venturi devices	46	85	111	90	29	91
Postural drainage	47	87	107	86	22	69
Weaning from tracheostomy	43	80	109	88	24	75
Chest tube removal	45	83	110	89	20	63
Endotracheal intubation	44	82	107	86	24	75
Fluid administration	48	89	113	91	25	78
Blood & blood product administration	46	85	116	94	24	75
Ionotrope administration	45	83	115	93	24	75
Application of TED stocking	46	85	107	86	21	66
Thrombolytic therapy	44	82	110	89	20	63
Insertion and Care of CVP line	43	80	102	82	22	69
Arterial line	45	83	110	89	22	69
Pacemaker	43	80	99	80	19	59
IABP	43	80	96	77	19	59

ISSN:1517-4492 | **E-ISSN**:2178-7727

ECMO	37	69	81	65	17	53
Removal of arterial line	48	89	109	88	23	72
Collection of blood samples from Central line and arterial line	45	83	115	93	25	78
Use of vacutainer	46	85	108	87	24	75
Electrolyte replacement	46	85	111	90	23	72
Inotrope titration	46	85	105	85	21	66
Removal of Central line	47	87	112	90	27	84
Fluid balance planning	47	87	108	87	23	72
Insertion of arterial line	41	76	104	84	19	59
Insertion of Pulmonary Artery Catheter	36	67	87	70	15	47
NG feeding	48	89	113	91	28	88
Gastrostomy / Jejunostomy feeding	50	93	107	86	26	81
Parenteral nutrition	49	91	112	90	27	84

Table 4 conveys that more than 67% of the NPCC Students, 65% of the NPCC Graduates and 47% of the NPCC Preceptors perceived Nurse Practitioners as confident across all items in 'Clinical Procedure Skills'. Among the NPCC Students, the highest level of confidence was noted for open tracheal suctioning and Gastrostomy/Jejunostomy feeding (93%) and the lowest confidence was expressed for insertion of pulmonary artery catheter (67%). The NPCC Graduates reported higher confidence levels for Nebulization, Oxygen administration, mechanical ventilator and blood & blood products administration (94%), whereas they reported least confident about ECMO (65%). About NPCC Preceptors, they perceived highly confident for BLS, oxygen administration, use of T tube and venturi devices (91%) and least confident for insertion of pulmonary artery catheter (47%).

Table 5: Comparison of Self perceived Core competencies among NPCC Stakeholders

n = 210

Stake holders	**NPCC Students**	**NPCC Graduates**	**NPCC Preceptors**	**F test**	**df**	**p - value**	**Sign at 5% level**
Focused History Collection	19.22 ± 2.33	19.23 ± 2.64	18.84 ± 2.63	0.309	209	0.73	NS
Focused Physical Assessment	36.78 ± 6.62	37.16 ± 6.01	35.88 ± 6.58	0.545	209	0.58	NS
Diagnostic Investigations	10.46 ± 2.06	10.73 ± 1.86	9.59 ± 1.95	4.388	209	0.01	S**

ISSN:1517-4492 | **E-ISSN**:2178-7727

Diagnosis	20.46 ± 3.82	21.31 ± 3.32	19.72 ± 3.85	3.033	209	0.05	S*
Management	25.57 ± 5.16	26.03 ± 4.88	24.34 ± 5.42	1.441	209	0.24	NS
Follow up and provide ongoing management	13.54 ± 2.28	13.33 ± 2.27	12.41 ± 2.61	2.589	209	0.08	NS
Set up, use & maintain Critical care Equipments	45.17 ± 5.34	45.69 ± 4.36	44.63 ± 6.90	0.741	209	0.48	NS
Monitoring parameters	72.13 ± 9.22	73.03 ± 7.86	69.91 ± 8.52	1.813	209	0.17	NS
Clinical Procedure skills	121.11 ± 15.27	123.30 ± 11.14	117.19 ± 15.07	2.94	209	0.05	S*

Table 5 displays that there are no significant differences in the categories of focused history collection, focused physical assessment, management, follow up and ongoing management, set up, use and maintain critical care equipments and monitoring parameters among the NPCC Stakeholders. However, significant differences were noted in the categories of diagnostic investigations, diagnosis and clinical procedure skills which interprets that differences in perceptions in these categories is statistically significant at 5% level. ($p < 0.05$).

Table 6: Comparison of overall Self perceived Core competencies among NPCC Stakeholders

n = 210

Stake holders	**Mean**	**SD**	**F test**	**df**	**p -value**	**Significant at 5% level**
NPCC Students	364.44	45.702	2.521	209	0.083	NS
NPCC Graduates	369.82	34.93				
NPCC Preceptors	352.5	43.26				

Table 6 reveals that there is no statistically significant difference in perceptions regarding core competencies among the NPCC Stakeholders.

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Table 7: Distribution of NPCC Stakeholders perception related to influence of Nurse Practitioners on Critical care

n = 210

Items	Students (n = 54)		Graduates (n = 124)		Preceptors (n = 32)	
	Positive Perception					
	f	%	*f*	%	*f*	%
Nurse Practitioners are first point of contact in emergency in CCU	43	79.6	86	69.4	18	56.3
Nurse Practitioners handle Critical care units independently	44	81.5	86	69.4	19	59.4
The introduction of Nurse Practitioners has a positive impact on interprofessional relationships	49	90.7	100	80.6	23	71.9
Nurse Practitioners work in coordination with doctors in patient care	51	94.4	106	85.5	28	87.5
Nurse Practitioners prescribe medications as per hospital SOP in emergency when doctors are not available	48	88.9	97	78.2	20	62.5
Nurse practitioners perform advanced patient care procedures in emergency situations before doctors arrive	48	88.9	99	79.8	22	68.8
Nurse practitioners are considered vital members of the Health care team	47	87	101	81.5	24	75
Nurse Practitioners work in collaboration with other health care providers to provide safe, high quality health care services	49	90.7	106	85.5	27	84.4
Nurse Practitioners offer holistic care	46	85.2	103	83.1	23	71.9
Overall the introduction of Nurse Practitioners has a positive impact on promoting patient care	50	92.6	105	84.7	27	84.4

Table 7 illustrates that more than 79% of the NPCC Students, 69% of the NPCC Graduates and 56% of the NPCC Preceptors perceived positively about the influence of Nurse Practitioners on Critical care. The NPCC Students displayed highest positive perception for 'Nurse Practitioners work in coordination with doctors in patient care' (94.4%) and the least positive perception was noted for 'Nurse Practitioners are first point of contact in emergency in CCU' (79.6%). Similarly, the NPCC Graduates (85.5%) and the NPCC Preceptors (87.5%) also reported highest positive perception for 'Nurse Practitioners work in coordination with doctors in patient care'. Among the NPCC Graduates, another highest positive perception

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recorded was for 'Nurse Practitioners work in collaboration with other health care providers to provide safe, high quality health care services (85.5%) and the lowest was for 'Nurse Practitioners are first point of contact in emergency in CCU' and 'Nurse Practitioners handle Critical care units independently' (69.4%). The NPCC preceptors reported the lowest positive perception for 'Nurse Practitioners are first point of contact in emergency in CCU' (56.3%) similar to the NPCC Graduates and students. Among all NPCC Stakeholders , the highest positive perception was noted consistently for 'Nurse Practitioners work in coordination with doctors in patient care' and lowest for 'Nurse Practitioners are first point of contact in emergency in CCU'.

Table 8: Comparison of Perception related to Influence of Nurse practitioners on Critical care among NPCC Stakeholders

n = 210

Stake holders	Mean	SD	F test	df	p -value	Significant at 5% level
NPCC Students	43.72	7.38	15.49	209	0.000	S***
NPCC Graduates	41.24	9.05				
NPCC Preceptors	39.28	9.59				

Table 8 reveals that there is significant difference in perceptions related to Influence of Nurse practitioners on Critical care among NPCC Stakeholders. The *p* Value is found to be 0.000 indicating statistically significant at 5% level ($p < 0.05$).

DISCUSSION

The confidence level of core competencies as perceived by stake holders are NPCC Students (77.8%), NPCC Graduates (79.8%) and NPCC Preceptors (68.75%). The NPCC Graduates reported the highest level of confidence while the preceptors reported the lowest. Margaret (2011) found that their competencies enhanced clinical outcomes.[7] Hui Yu Liang et.al (2021) revealed that supervisors rated NPs professional competence significantly lower than both self and peer assessment.[8]

There are no significant differences in the categories of focused history collection, focused physical assessment, management, follow up and ongoing management, set up, use and maintain critical care equipments and monitoring parameters among NPCC Stakeholders. However, significant differences were noted in the categories of diagnostic investigations, diagnosis and clinical procedure skills, which is statistically significant at 5% level ($p < 0.05$).

There is no statistically significant difference in perceptions regarding core competencies among the NPCC Stakeholders. Emma et.al (2020) reported that the most common challenges reported by student included medication adherence, decision-making and monitoring symptom

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related outcomes.[9]

The results of perception related to influence of Nurse Practitioners on Critical care illustrates that more than 79% of the NPCC Students, 69% of the NPCC Graduates and 56% of the NPCC Preceptors perceived positively about the influence of Nurse Practitioners on Critical care.

Alison M Pirret (2008) studied the effectiveness of NP led Critical care outreach and concluded that it has a significant effect on the patient outcomes.[10]Tracey et.al (2020) supports that NP's spend majority of their time in direct patient care.[11]

There is significant difference in perceptions related to Influence of Nurse practitioners on Critical care among NPCC Stakeholders at 5% level ($p < 0.05$). Kazunao Mori et.al (2022) summarized that NP participation in the ICU team was associated with reduced ICU length of stay which shows the influence of Nurse Practitioners on critical care[12].

CONCLUSION

A.ter Maten Speksnijder et.al (2013) review on nurse practitioners published from 1995 to 2012 revealed that Nurse Practitioner role was seen as a potential solution to healthcare and workforce challenges. The efficiency discourse held the most influence. Most physicians supported task delegation to Nurse Practitioners.[13] Julie Stanik et.al (2013) synthesized a systematic review which evaluated the quality, safety and effectiveness of care provided by Nurse Practitioners. The evidences identified in the review supported that the outcomes of patient care provided by the Nurse Practitioners are equivalent to those of physicians. The study depicts that the quality, safety and effectiveness of patient care provided by the Nurse Practitioners and Physicians are comparable.[14] This Nationwide study highlights the Self-perceived competencies of Nurse Practitioners in Critical care among the NPCC Stakeholders and their perception related to influence of Nurse Practitioners on critical care. It is found that the NPCC Stakeholders nationwide perceived positively about the core competencies of Nurse Practitioners and their influence on Critical care. Overall, the results indicate a strong and positive perception of Nurse Practitioner competencies and their influence on critical care, reinforcing the need for their expanded role in healthcare systems nationwide.

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Declaration of competing interest

The authors have declared no conflict of interest.

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