

# Impact of a Structured Nursing Training Program on Self-perceived Competence of Newly Appointed Nurses at Apex Trauma Center in Northern India: A Prospective Observational Study

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## ABSTRACT

**Background:** New graduate nurses require an induction program to improve their clinical skills and build confidence during their transition from education to practice.

**Objectives:** To evaluate and compare self-perceived clinical competence among new nursing staff before and after training program.

**Settings:** Apex Trauma Centre in Northern India.

**Study design:** A prospective observational study.

**Intervention:** New graduate nurses joining the institute during study period underwent a comprehensive training module to enhance their skills and confidence. A 20-item validated questionnaire was offered to participants for self-evaluation of their skills before and after receiving the training. Competence level of each nurse was computed by adding score of individual items in questionnaire.

**Results:** A total 136 newly joined nurses underwent training program during study period, of whom 120 participated in the study. There was a significant improvement in all 20 domains of clinical and housekeeping skills after the induction program (all  $p$  values < 0.01). Before induction program, less than two-thirds of the staff were confident about competence in key clinical skills. After induction more than 85% of attendees were confident about necessary skills.

**Conclusion:** In our study, the induction by critical care training program was effective in promoting confidence and clinical competence of new nurses.

**Keywords:** Competence, Effectiveness, New graduate nurses, Structured training program.

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## INTRODUCTION

Transition of new graduate nurses from education to practice is a key learning period, paving their way to becoming expert practitioners.<sup>1</sup> There is usually a theory–practice gap at the start of their carrier, as they might have limited clinical competence and technical skills to perform safe and effective patient care.<sup>2–4</sup> The transition from the nursing academic program to clinical care setting may be a stressful time period for these new joiners.<sup>5</sup> They require an induction program to improve their clinical skills and build confidence during this transition.<sup>6</sup>

At this institute, newly appointed nursing graduates routinely undergo orientation and a structured clinical training program soon after joining. The impact of these training modules on their knowledge and confidence to perform required clinical tasks has not been systematically evaluated. In present study, we evaluated impact of a clinical training program on self-perceived performance of new nursing staff at Apex Trauma Centre in Northern India.

## MATERIALS AND METHODS

This prospective observational study was conducted at Apex Trauma Centre in Northern India, between May 2016 and July 2016. Objectives of the study were to evaluate and compare self-perceived clinical competence among new nursing staff, before and after training program.

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Before data collection, a review of the literature about new graduate nurses' learning needs was done. The inputs from various field experts, i.e., trauma care consultants, trauma care nurses, trauma care technicians, and various international guidelines on trauma care were taken. By incorporating inputs from said resources, a comprehensive training module was prepared to

enhance the clinical judgment of new graduates and to increase their confidence with basic clinical skills. Based on this module, a 20-item questionnaire was prepared for evaluating the skills of nurses before the training and after receiving the training. After few revisions, this questionnaire was sent to few field experts for the validation. Suggestions from these experts were incorporated in the questionnaire.

During the study period, newly joined nurses underwent a 36 hour-comprehensive training program, spanned over 5 days, including various domains such as leadership, communication, clinical care, triage, and documentation. Training was imparted in two batches by 4 doctors and 14 senior nursing staff. Training included didactic lectures as well as work stations of various hands-on skills. Before initiating training, all new nurses were provided a questionnaire comprising questions pertinent to 20 clinical and housekeeping skills and were asked to grade their competency on a Likert scale of 1 to scale 1 to 5 meant, 'can't do task', 'can't do without help', 'confident', 'very confident' and 'expert', with increasing likert scale. Competence participation in questionnaire was voluntary and confidentiality of information during study was assured. Questionnaire was repeated after end of training.

**DATA ANALYSIS**

Statistical analysis was done using SPSS, version 17. Competence level of each nurse was quantified by adding score of individual items in questionnaire. Data are presented as median and interquartile range. Scores of all nurses before and after training were calculated and compared using Wilcoxon Signed Rank Test. Competence levels were further classified as 'not competent' (Likert scale 1 and 2) and competent (Likert scale 3-5). Comparison of proportion of staff competent before and after training was compared using McNemar test. A *p* value <0.05 was considered as significant.

**RESULTS**

A total of 136 newly joined nurses underwent training program during study period and were provided with questionnaire before and after completion of the training. Of these, 120 responded and completed the questionnaire. Demographic characteristics of the participants are depicted in Table 1.

Table 2 depicts median (IQR) self-perceived competence scores in various domains of housekeeping and clinical skills before and after induction. There was significant improvement in all the domains after the induction (all *p* values < 0.01).

Table 3 depicts the proportion of nurses being confident in various housekeeping and clinical skills before and after induction.

**DISCUSSION**

Clinical competence of nursing staff is vital for safety and successful recovery of patients. New graduate nurses might not have desired skills to meet expectations of clinicians and patients. Several studies have demonstrated low entry-level competencies and practice readiness among nursing students and newly graduated nurses.<sup>7-10</sup> New nurses perceive low to moderate levels of stress mainly from heavy workloads and lack of professional nursing competence.<sup>11</sup> A European survey of postgraduate nurses' self-assessment on clinical competence also highlighted the need for further training in key clinical practice areas.<sup>12</sup> Findings of a recent systematic

**Table 1:** Demographic profile of study participants

Characteristic	N (%)
Gender	
Male	88 (73.3)
Female	32 (26.6)
Age (years)	
<25	55 (45.8)
25–30	59 (49.1)
31–35	3 (2.5)
>35	3 (2.5)
Qualification	
GNM	87 (72.5)
BSC	33 (27.5)
Experience	
<5 years	107 (89.1)
5–10 years	11 (9.1)
>10 years	2 (1.6)

**Table 2:** Self-perceived competence scores, before and after training

Parameter	Before induction	After induction	<i>p</i> value
Personal hygiene	3 (2.7, 4)	4 (3, 4)	<0.01
Bed making	3 (2.5, 3.6)	4 (3, 4)	<0.01
Positioning and body mechanics	3.6 (3, 4.6)	4 (3.7, 5)	<0.01
Reception of new patient and admission	2.25 (2, 3)	3 (2.7, 3.7)	<0.01
Vitals monitoring and documentation	4 (3, 4.8)	4 (3.8, 4.8)	<0.01
Medications	4 (3, 4.8)	4 (3.5, 5)	<0.01
Hot and cold application	2.8 (2, 3)	3.6 (3, 4)	<0.01
Physiotherapy/ exercises	2.3 (2, 3)	3.7 (3, 4)	<0.01
Restraints	2.5 (2, 3)	3.2 (3, 4)	<0.01
Prevention of pressure ulcers	2.6 (2, 3)	3.8(3, 4)	<0.01
Enema	2.5 (2, 3)	3.8 (3, 5)	<0.01
Artificial feeding	3 (2.2, 3.6)	3.6 (3, 4.2)	<0.01
Gastric lavage	2.8 (2, 3.6)	3.9 (3.2, 4.3)	<0.01
Steam inhalation	2.4 (2.1, 3.2)	3.3 (3, 4)	<0.01
Nebulization	2.5 (2, 3.8)	3.5 (3, 4.4)	<0.01
Foley's catheter care	3 (2.4, 3.8)	3.8 (3, 4.1)	<0.01
Care of CVC	3 (2.2, 4)	4 (3.2, 4.3)	<0.01
Care of peripheral I/V line	3 (2.7, 4)	4 (3.3, 5)	<0.01
Care of patients with cast/plaster	3 (2.5, 3.5)	4(3, 4)	<0.01
Technique of suctioning	3 (2.6, 4)	4 (3.3, 4.6)	<0.01

Data expressed as median (Interquartile range)

review suggested that perceptorship can improve new nurses' nursing competence in clinical care.<sup>13</sup> It is, however, unknown which aspects of transition programs best support new graduate nurses and improve competence and confidence to transition into nursing practice.

**Table 3:** Proportion of nurses feeling confident in various skills, before and after induction

Parameter	Before induction	After induction	p value
Personal hygiene	66	100	<0.001
Bed making	48.8	93.0	0.001
Positioning and body mechanics	79	100	0.06
Reception of new patient and admission	25.7	72.3	<0.001
Vitals monitoring and documentation	78.2	99.0	0.010
Medications	79.2	100	0.03
Hot and cold application	42.6	86.1	<0.001
Physiotherapy/exercises	27.7	84.2	<0.001
Restraints	33.7	83.2	<0.001
Prevention of pressure ulcers	32.7	86.1	<0.001
Enema	44.2	78.4	<0.001
Artificial feeding	49.5	84.2	<0.001
Gastric lavage	46.4	82.3	<0.001
Steam inhalation	49.5	89.0	<0.001
Nebulization	54.0	92.2	<0.001
Foley's catheter care	49.5	85.1	<0.001
Care of CVC	60.5	95.0	<0.001
Care of peripheral I/V line	72.3	97.0	0.002
Care of patients with cast/plaster	60.4	94.1	<0.001
Technique of suctioning	67.3	100	<0.001

In the present study, we evaluated impact of a 36-hour comprehensive training program on self-perceived clinical competence among new nursing staff. In our study, short induction program at time of joining significantly improved self-perceived competence among new joinees. Before induction program, less than two-third of staff was confident about competence in key clinical skills. After induction, more than 85% of attendees were confident of necessary skills.

Several researchers have evaluated impact of training programs, which varied in duration and components on competence of fresh nurses. In a prospective, observational study, advanced practice clinician trainees participated in 10-day standardized, competency-based didactic and clinical training program in a specified clinical domain at 23 clinical sites across 6 institution of US.<sup>14</sup> After the induction program odds of complications occurring from advanced practice, clinician-performed procedures were comparable to odds of complications occurring from resident physician trainees. In another study examining effect of mastery learning on new graduate nurses' skill and self-regulation practices in a simulated learning environment at United States, the authors observed significantly improved performance after training.<sup>15</sup> Similarly, another study from the United States demonstrated that simulation-based training improved performance for low-frequency, high-risk

skills required to manage a pediatric intensive care unit nurse code cart.<sup>16</sup> In an observational study from emergency department, the authors observed that a single-day crisis resource management training, combining didactic and simulation sessions, improved nontechnical skills of interprofessional emergency medical teams, which could have potential bearing on patient safety.<sup>17</sup> Chen et al. assessed impact of a 3-month interactive situated and simulated teaching (ISST) program on novice nursing practitioners' clinical competence, confidence, and stress at a university hospital in Taiwan.<sup>18</sup> After training, the ISST group demonstrated superior nursing competency, lower stress levels, and increased confidence in professional competence when compared to those in the control group. In a study from Ireland, after 1 year structured training program, majority of the respondents perceived the scheme to be successful in making them adequately prepared to take on the role of a nurse specialist.<sup>19</sup> A recent systematic review of 30 studies also suggests that transition interventions/strategies lead to improvements in confidence and competence, job satisfaction, critical thinking, and reductions in stress and anxiety for the newly qualified nurse.<sup>20</sup>

Our findings are in corroboration with abovementioned observations and highlight the importance of induction program for new nurses for improving patient safety and confidence level of staff for executing desired clinical and non-clinical skills. We suggest that there shall be well-organized training modules offered at time of joining to help out new joinee staff rather than simply leaving them to acclimatize to their new role themselves. There are several limitations of our study. Ours was an observational study, the performance before and after training was self-assessed, and these could have a potential for bias.

Sustainability of acquired skills could have better assessed by a follow-up assessment after a period. Further research with well-designed randomized trials using more objective training modules and reliable outcome measures is warranted to formulate structure of training programs.

## LIMITATIONS

This program covered all trauma care nurses in single training program; individual needs might not be addressed in one generic program. Although this study concluded that newly joined nurses inducted to clinical training program had significantly higher post training clinical competence score compared to the scores before, the strength of the conclusion that induction program results in significant increase in clinical competence is limited by the lack of a comparison group in this study. These give way to more carefully designed, multicenter studies, with a control group and randomization procedures in the future.

## CONCLUSION

This study provides meaningful insight into the healthcare administrators about the need of specific clinical care training program and hand holding of newly recruited critical care or trauma nurses. The results revealed that the induction by critical care training program was effective in promoting confidence and clinical competence of new nurses. This was conducive to nurse's adaptation to their services as trauma care nurse. New nurses' clinical competence remained much higher after the program than before this program.

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