

EFFECT OF ORIENTATION PROGRAM ON COMPETENCY OF NEWLY GRADUATED NURSES AT MANSOURA NEW GENERAL HOSPITAL

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Abstract

Background: Orientation program promote the confidence and competency level of new nurses in providing patient care. Therefore organizations need to support effective orientation programs that are structured to prepare and facilitate the transition of a new nurse to competency. **Aim of the study :** was to assess the effect of orientation program on competency of newly graduated nurses **Subjects and Methods: Research design: A quasi experimental intervention design. Subjects:** all the available newly baccalaureate nursing graduates in their first year of practice (n = 60). **Setting:** Mansoura New General Hospital. **Tools of data collection :** Two tools were used for data collection: Newly graduated nurses' competency self assessment scale and newly graduated nurses' knowledge test. **Results** revealed that the majority (90.0%) of newly graduated nurses had average level of competency skills in pre-program self assessment and in observation pre-program, all (100%) newly graduated nurses had low level of competency skills and also in knowledge about competency skills before implementation of the orientation program. However, implementation of the orientation program had a positive effect on newly graduated nurses' level of competency skills' performance and knowledge. **Conclusion:** Implementation of the orientation program had a positive effect on newly graduated nurses' level of competency skills' performance and knowledge immediately and at three months post-program. Therefore, it is **recommended** to conduct a well designing effective orientation program for newly graduated nurses based on their competency assessment and knowledge test upon arrival to the clinical setting and careful selection of preceptors and mentors to guide and provide orientation for new graduate nurses is essential.

Key words: Newly graduated nurses; Orientation program; Competency-based orientation; Competency in nursing practice.

Introduction:

New graduate is "a nurse in first employment following the completion of registered nurse education". Graduates are distinct from other employee groups in that they often lack industry related work experience ⁽¹⁾. In their educational programs, new graduate nurses are accustomed to caring for fewer patients than they are expected to care for immediately after graduation which increases the fear and anxiety of those new graduates ⁽²⁾. The transition experience for the new graduate nurse is described as the "experience of moving from the known role of a student to the relatively less familiar role of professionally practicing nurse" ⁽³⁾. Orientation program

designed to support the transition from

student to newly qualified health professional through supporting learning in everyday practice and seeks to increase the confidence and competence of newly qualified nurses during their first year of employment following registration ⁽⁴⁾. Nursing orientation is a formal process that acquaints a new employee with the responsibilities of the job, demonstrates how to accomplish those responsibilities, and evaluates the employee's ability to perform competently in the new position ⁽⁵⁾.

Competency-based orientation (CBO) programs are being utilized to help nurses attain required competency levels ⁽⁶⁾. Competency is defined as "the possession of knowledge, practice skills, attitudes, and the ability to perform to a prescribed standard". Orientation is

based on assessed competencies and the knowledge and skills required to deliver patient care services. Clinical competence assessment is defined as an integrated form of assessment, seeking to combine knowledge, understanding, problem solving, technical skills, attitudes and ethics in assessment ⁽⁷⁾. Continuing nursing competency requires renewed partnership between education and clinical practice settings ⁽⁸⁾. The success of the nursing competency program depends on nurse leaders and nurse managers' recognition of the importance of the competency based-orientation program to improve the quality of nursing services and enhance the safety of nursing practice ⁽⁹⁾.

Significance of the study:

Organizations need to support transition or effective orientation programs that are structured to prepare and facilitate the transition of a new nurse into competent and professional provider ⁽¹⁰⁾.

Aim of the study:

The aim of the current study was to assess the effect of orientation program on competency of newly graduated nurses at Mansoura New General Hospital.

Research Hypothesis:

Newly graduated nurses' competency will be improved after completion of the orientation program.

Subjects and Methods:

Research design:

A quasi experimental intervention design was used to conduct the present study, with three phases of data collection. Data were collected pre-test or pre-intervention, immediately following the intervention (post-test), and at three months after the intervention (follow-up).

Study setting:

The present study was conducted at Mansoura New General Hospital.

Study subjects:

All the available newly

baccalaureate nursing graduates in their first year of practice who accept to participate (n = 60) at the above mentioned setting were included in the study.

Tools of data collection:

Two tools were used to collect data for this study.

Tool (1): Newly graduated nurses' competency self assessment scale.

Was designed by the researcher, assesses the performance and clinical competency of the new nurse in the clinical setting and includes self-reported data and observer-reported data. It was used before program as self assessment and as observation checklist before program intervention and three months later. It was composed of two parts:

- **Part one:** Covered personal characteristics e.g., age, previous educational preparation, graduation score, and work experience in nursing during the study.
- **Part two:** Competency self assessment scale. This part was developed by the researcher guided by Fakhry, ⁽¹¹⁾ Liu, et al., ⁽¹²⁾ Cowan, et al., ⁽¹³⁾ Fentianah, ⁽¹⁴⁾ Hsu & Hsieh, ⁽¹⁵⁾ Obied, ⁽¹⁶⁾ and relevant literature. It included 162 questions categorized under five main subscales, these were: clinical skills, client safety / illness and injury prevention, ethical practice, communication, interpersonal relations & caring, and leadership skills.

Scoring system:

Clinical skills subscale was measured by three points Likert Scale (0-2): (2) can do it by myself, (1) can do it under supervision, and (0) can't do it by myself. Other subscales were measured by two points Likert type (0-1) scale as able = 1 and not able = 0. Then, each nurse' total score was calculated and converted into percent score by dividing nurses' total score by the maximum possible score. Then scores were categorized into "low" that had score ($\leq 60\%$), "average" that had

score (>60% - ≤80%), and "high" that had score (> 80%).

Tool (2): Newly graduated nurses' knowledge test: This tool was developed by the researcher to examine the newly graduated nurses' actual knowledge about the entry-level competencies that included in the competency self assessment scale. It was composed of two parts:

- **Part one:** Nurse graduates' personal characteristics (identification questions).
- **Part two:** This part was designed by the researcher guided by Fakhry,⁽¹¹⁾ Harkreader et al.,⁽¹⁷⁾ Jones,⁽¹⁸⁾ Craven & Hirnle,⁽¹⁹⁾ Kelly,⁽²⁰⁾ Hogan,⁽²¹⁾ Smith et al.,⁽²²⁾ and Obied,⁽¹⁶⁾. It was used before program, immediately after program, and three months later. The sheet included {80} questions in the form of multiple choice (58 questions) and true & false (22 questions).

Scoring system:

Each item in the knowledge test was allotted a score of "1" if "correct" and "zero" if "wrong". Scores represented varying levels of nurse graduates' knowledge ranged from low to high. Low (≤60%), average (>60% - ≤80%), and high (> 80%).

Content validity & reliability:

Internal consistency reliability was done using Cronbach's alpha to assess the consistency of results across items within a test. Cronbach's alpha coefficients were 0.962 and 0.878 for newly graduated nurses' competency self assessment scale and knowledge test respectively.

Field Work:

Newly Graduated Nurses' Orientation Program:

The orientation program for newly graduated nurses' was designed by the researcher based on the findings of the competency self assessment scale, researcher's observations, and newly graduated nurses' knowledge test tool {1} & tool {2}, as well as reviewing recent relevant related literature. The objective of the program

was to assess the effect of orientation program on competency of newly graduated nurses at Mansoura New General Hospital through improve the competency of them after completion of the orientation program. Total duration of a program was {14} hours, divided to {7} sessions. The program provides a standardized curriculum comprising a series of learning sessions that are designed to achieve outcomes related to competency in practice.

The researcher started to collect data through the following phases:

Preparatory phase: It began with reviewing the theoretical and empirical literature. Then, tools for data collection and education were developed. Content and face validity were established by a jury of "five" experts consisted of three experts in nursing administration and two experts in medical surgical nursing from different faculties of nursing. Newly graduated nurses' competency was assessed through new graduates' self assessment and researcher's observations by (tool 1) and knowledge was tested by (tool 2) pre-orientation program to assess new graduates' levels of knowledge for developing the needed orientation program.

Implementation phase: The program was implemented by the researcher; it encompassed 14 hours duration divided into 7 sessions each session 2 hours. As it was difficult to teach the whole number of new graduate nurses at the same time, participants were divided into five groups each group was exposed to orientation program for one session per week from 9:00 am to 11:00 am. The orientation program sessions were held in the conference room of the hospital.

Evaluation phase: The orientation program for new nurses was evaluated to determine the extent to which new graduates have changed

in their performance and knowledge.

Pilot study:

A pilot study was carried out to test the questionnaire feasibility, understandability and to estimate the time consumed for filling in the forms. The study was carried out on 10% of new graduate nurses. These new nurses were excluded from the main study sample.

Administrative and Ethical considerations:

An official permission to carry out the study was obtained from administration of Mansoura New General Hospital. The researcher met the administrators and explained the purpose of the study to them to assure the cooperation during the study. Verbal and written explanation of the nature and aim of the study have been explained to the newly graduated nurses included in the study sample. They were given an opportunity to refuse or to participate, and they were notified that they could withdraw at any stage of filling in the questionnaire; also they were assured that the information would be utilized confidentially and used for the research purpose only.

Statistical design:

The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 16). For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, comparison between two groups and more was done using Chi-square test (χ^2). For comparison between means of two groups of non-parametric data of independent samples, Z value of Mann-Whitney test was used. For comparison between means of two related groups (pre and post-program) of non-parametric data, Z value of Wilcoxon Signed Ranks Test was used. For comparison between more than two means of parametric data, F value of ANOVA test was calculated for

parametric data, where Scheffe test was performed to compare between each two means if F value was significant. For comparison between more than two means of non-parametric data, Kruskal-Wallis (χ^2 value) was calculated. For comparison between means of three related groups (pre, immediate post and 3 months post program), χ^2 value of Friedman test was calculated for non parametric data. Correlation between variables was evaluated using Pearson's correlation coefficient (r). Significance was adopted at $p < 0.05$ for interpretation of results of tests of significance.

Results:

Table (1) indicated that, the mean age of the newly graduated nurses was 23.73 ± 0.78 years and 60.0% of them were in the age group 24-25 years. 88.3% of them have general secondary school previous educational preparation, less than two thirds (63.3%) had graduation score very good and the highest percentage (80.0%) of them did not have work experience in nursing during the study.

Table (2) clarified that, there were statistically significant differences in total competency skills level and scores throughout the program phases ($P < 0.05$). Also, the table showed statistical significant improvement of newly graduated nurses' performance level post-program in total competency skills level and scores at ($P < 0.05$).

Figure (1) showed that, pre-program self assessment results revealed that 90.0% of newly graduated nurses had average level and the rest (10.0%) had low level. Observation pre-program results indicated that, all (100%) newly graduated nurses had low level. In contrary, all (100%) newly graduated nurses had high level in observation 3 months post-program on total competency skills level.

Table (3) indicated that there was a statistically significant difference in all competency skills subscales

throughout the program phases ($P < 0.05$). Regarding to pre-program self assessment results, the highest mean scores were for clinical skills subscale (1.32 ± 0.09). However, the lowest mean scores were for leadership skills subscale (0.55 ± 0.10). Concerning to observation 3 months post-program and observation pre-program results, the highest mean scores were for clinical skills subscale (1.88 ± 0.04 & 0.98 ± 0.13), followed by ethical practice subscale (0.97 ± 0.07 & 0.45 ± 0.22) respectively. However, the lowest mean scores were for client safety / illness and injury prevention subscale (0.92 ± 0.07 & 0.28 ± 0.14), followed by leadership skills subscale (0.93 ± 0.07 & 0.29 ± 0.12) on the previous phases respectively.

Table (4) illustrated that, there were statistically significant differences in total knowledge level and scores throughout the program phases ($P < 0.05$). Also, the table showed statistical significant improvement of newly graduated nurses' total knowledge level and scores immediately post program at ($P < 0.05$).

Figure (2) illustrated that, pre program all (100%) newly graduated nurses had low knowledge level, while immediately post-program and 3 months post-program phases indicated that all (100%) newly graduated nurses had high knowledge level in total knowledge about competency skills.

Figure (3) illustrated that, 71.7% of the studied newly graduated nurses in pre-program implementation had incorrect answers. A percentage improved to indicate that most of them 93.3% had correct answers in immediately post program, while a slight decrease to 88.3% was detected three months post-program. In addition, there was a statistically significant difference in total knowledge about competency skills throughout the program phases ($P < 0.05$).

Table (5) indicated that, the lowest mean score of knowledge in

pre-program scores was for ethical practice subscale (0.21 ± 0.30). Grades obtained immediately post-program were better than that in pre-program as there were increase in mean scores of newly graduated nurses' knowledge regarding leadership skills subscale (0.95 ± 0.06), client safety / illness and injury prevention skills subscale (0.94 ± 0.08), then there were a slight decrease in mean scores three months post-program (0.91 ± 0.08 , 0.90 ± 0.09) respectively.

Discussion:

Regarding pre-program self assessment for total competency skills level, the findings of the present study indicated that ninety percent of new graduates (NGs) had average level and the rest had low level of total competency skills. Most probably because the highest percentage of them did not had work experience in nursing during the study. This can be an indication that NGs can identify their competency areas that need to be developed to increase the level of competency. This finding agreed with Liou et al. ⁽²³⁾, who found that on a 10-point scale, participants scored in the medium on their satisfaction of performing nursing skills before the deliberate skill practice and medium high after the clinical practicum. As well, Kajander-Unkuri et al. ⁽²⁴⁾ found that the self-assessed overall competence was on average level.

Regarding pre-program observation for total competency skills level, the findings of the present study indicated that all NGs had low level of total competency skills. This result could be due to the newly graduated nurses undergo a transition period during which they adjust to new environments. This finding is matching with Sportsman ⁽²⁵⁾, who found that only twenty five percent of the respondents were satisfied with new graduate nurses' performance at the time of hire. In the same way, Edwards ⁽²⁶⁾ found that both nurses and nursing leaders emphasized the lack of basic

nursing skills in new nurses and indicated this hampered the nurses in meeting their expectations in the clinical area.

The present study findings in pre-program self assessment and observation pre-program for competency skills subscales indicated that, the lowest mean score was for leadership skills subscale. Those NGs were not able to carry out leadership skills. This can be attributed to the fact that leadership clinical training is highly stressful like any other courses of practice. The fact is that leadership clinical course is stressful than any other courses related to managing role functions. This result is in accordance with Hartigan et al. ⁽²⁷⁾, who found that the newly graduated nurses lacked leadership skills needed to prioritize, manage and delegate workload, and lacked skills to deal with unexpected events such as deteriorating patient. As well, Ahmed ⁽²⁸⁾ detected that highest percentage of final year nursing students were had unsatisfactory scores of leadership practices before implementation the program.

Regarding observation pre-program for competency skills subscales, the present study findings indicated that the lowest mean score was for client safety / illness and injury prevention subscale. Those NGs were not able to carry out the skills necessary to client safety as environmental safety, hazardous material safety, falls prevention, health promotion, and medication administration safety. This finding is matching with El Ashmawy ⁽²⁹⁾, who found that most of nurses did not able to apply safe practice and infection control measures. As well, Parmenter ⁽³⁰⁾ found that a surprising finding was the low percentage of participants who had been able to be involved in the identification and resolution of a patient safety issue.

The present study findings in pre-program self assessment and observation pre-program for

competency skills subscales indicated that, the highest mean score was for clinical skills subscale. The self-assessed level of competency in clinical skills found in this study may reflect the emphasis on clinical skills in undergraduate studies. Competency is experienced as performance of clinical skills. Although the mean of clinical skills was the highest mean in observation pre-program, the researcher was much less confident of the clinical skills and abilities of the NGs. This finding is matching with Nied ⁽⁹⁾, who found that pre-residency, the residents were very confident of their clinical skills and abilities, perhaps unrealistically so. There is a potential for unsafe practice because the overconfident NGs will act without consultation with a preceptor or other experienced nurse and the outcome could be disastrous.

The present study findings in pre-program self assessment and observation pre-program for competency skills subscales indicated that, the highest mean score was for ethical practice skills subscale. This means that those new graduates were considering and respecting patients' race, gender, culture, age, spirituality, beliefs and values. This finding agreed with Wangenstein et al., ⁽³¹⁾, who found that newly graduated nurses assessed themselves most competent in providing ethical and individualized nursing care. As well, Jolade ⁽³²⁾ found that new baccalaureate registered nurses have high level of ethical competency.

The present study findings indicated that, significant improvement of newly graduated nurses' performance level three months post program in total competency skills level and scores and in all competency skills subscales. This emphasizes the success of the orientation program in improving competency of the NGs. Engaging NGs in orientation program gives them the opportunity to demonstrate and practice their skills and to be more competent. This

finding is parallel to that of Liou et al. ⁽²³⁾, who found that analyses on the clinical competence questionnaire subscales revealed significant differences between pretest and posttest scores on all subscales. The posttest scores on all subscales increased significantly from pretest. As well, Chang et al. ⁽³³⁾ found that after implementation of competency-based management, new graduates nurse job satisfaction and patient satisfaction increased significantly.

The findings of the present study revealed that all newly graduated nurses had low level of knowledge about competency skills pre-program implementation. This may be due to the need of newly graduated nurses to knowledge and competencies beyond those developed in nursing schools, limited coping strategies when dealing with complex clinical situations, besides the absence of orientation at the beginning of their work at their units, all these led to the poor knowledge that nurses had before implementation of the program. In this respect, Safadi et al. ⁽³⁴⁾ found that the lowest mean score was in knowledge. Also, Clark & Springer ⁽³⁵⁾ found that participants described stress associated with "not knowing".

The results of present study revealed that, the lowest mean score of knowledge in pre-program for competency skills subscales was for ethical practice skills subscale. Those NGs answer incorrectly about questions related to ethical principles. This finding consistent with Parmenter ⁽³⁰⁾, who found that an important gap in graduates learning experience was identified when eighty percent reported no exposure to any type of ethical issues. The twenty percent of the graduates who reported that had been involved in this type of situation clarified "I only got to listen to a discussion between family members about end-of-life concerns" and "my nurse manager and an employee got into it because he accessed his own medical record."

Results of the present study revealed that there was an increase in total mean scores of newly graduated nurses' knowledge immediately post-program implementation and after three months post-program relative to pre-program. Knowledge scores were significantly higher after the intervention, indicating a possible positive effect of the orientation program on newly graduated nurses' knowledge. Those NGs may have developed sufficient knowledge and intervention strategies to more easily organize and manage activities related to care for patients and cope with stresses inherent in their clinical practice. This finding is matching with Kamboj ⁽⁷⁾, who found that both the new graduates and observer competency level scores increased from the start to the end of the program, reflecting an increase in knowledge. In the same way, Hsu et al. ⁽³⁶⁾ found that mean knowledge scores were higher at post-test than at pre-test.

Newly graduated nurses changed significantly from being with low to be with high level of knowledge on all competency skills subscales the same as mentioned in significant improvement of newly graduated nurses' performance level three months post program in total competency skills level and scores and in all competency skills subscales.

The current study findings showed that there were a slight decrease in mean scores of newly graduated nurses' knowledge at three months post-program compared to immediately post program. This might be due to that the newly graduated nurses did not use the handouts they received during program implementation due to lack of time to read it because of the heavy work in their units and shortage of the staff, adding to that they might have forgotten some of the knowledge they gained during program implementation. This finding supported with studies carried out by Ibrahim ⁽³⁷⁾

and Mohamed ⁽³⁸⁾, who found that a slight decrease in nurses' knowledge scores at three months post-program assessment was observed compared to immediately post program.

Conclusion:

Implementation of the orientation program had a positive effect on newly graduated nurses' level of competency skills' performance and knowledge immediately and at three months post-program. Additionally, there were statistically significant differences in total competency skills' performance and knowledge throughout the program phases.

Recommendations:

In the light of the study findings, the following

recommendations are suggested:

- Conduct a well designing effective orientation programs for newly graduated nurses based on their competency assessment and knowledge test upon arrival to the clinical setting.
- Put educational materials of the orientation program in booklet to be a guide for newly graduated nurses, and provide them also with designed evaluation manual based on standard procedures included in the orientation booklet.
- Careful selection of preceptors and mentors to guide and provide orientation for new graduate nurses is essential.

Table (1): Personal characteristics of the studied newly graduated nurses (n=60).

Personal Characteristics	The studied newly graduated nurses (n=60)	
	n	%
•Age (years):		
22-<24	24	40.0
24-25	36	60.0
Mean±SD	23.73±0.78	
•Previous educational preparation:		
General secondary school	53	88.3
Secondary technical nursing school	0	0
Health technical institute	7	11.7
•Graduation Score:		
Excellent	10	16.7
Very good	38	63.3
Good	12	20.0
Satisfactory	0	0
•Work experience in nursing during the study:		
Yes	12	20.0
No	48	80.0

Table (2): Mean scores and level of total competency skills assessed by self and observation pre-program and 3 months post-program of the studied newly graduated nurses (n=60).

Total Competency Skills	Pre-program self assessment (I)		Observation pre-program (II)		Observation 3 months post-program (III)		χ^2 test	P
	n	%	n	%	n	%		
	•Total competency skills level:							
Low ($\leq 60\%$)	6	10.0	60	100	0	0	327.273	0.0001*
Average ($>60\% - \leq 80\%$)	54	90.0	0	0	0	0		
High ($> 80\%$)	0	0	0	0	60	100		
•Total competency skills scores:								
Mean \pm SD	1.03 \pm 0.06		0.73 \pm 0.08		1.50 \pm 0.01			
F value			554.530					
P			0.0001*					
Scheffe test			I vs II, P=0.0001*					
P			I vs III, P=0.0001*					
			II vs III, P=0.0001*					

*Significant (P<0.05)

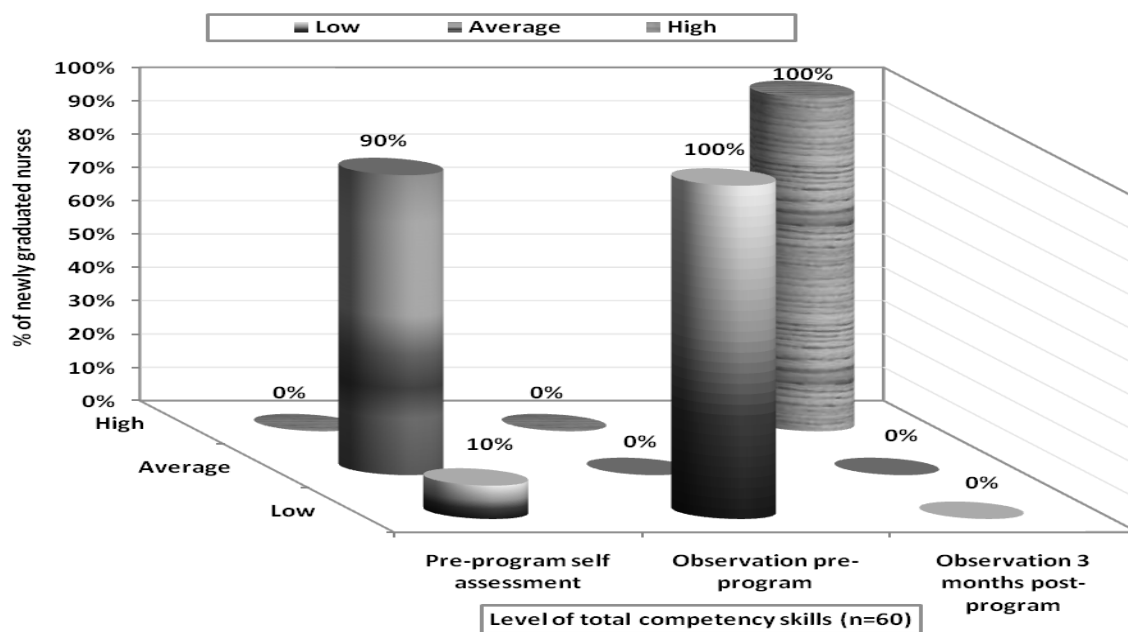


Figure (1): Level of total competency skills assessed by self and observation pre-program and 3 months post-program of the studied newly graduated nurses (n=60).

Table (3): Mean scores of competency skills subscales assessed by self and observation pre-program and 3 months post-program of the studied newly graduated nurses (n=60).

Competency Skills Subscales	The studied newly graduated nurses (n=60)			F-value or χ^2 value P	Scheffe test or Z value P
	Pre-program self assessment	Observation pre-program	Observation 3 months post-program		
	(I)	(II)	(III)		
	Mean \pm SD	Mean \pm SD	Mean \pm SD		
I-Clinical skills subscale	1.32 \pm 0.09	0.98 \pm 0.13	1.88 \pm 0.04	848.860 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.0001*
II-Client safety / illness and injury prevention subscale	0.58 \pm 0.17	0.28 \pm 0.14	0.92 \pm 0.07	377.195 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.0001*
III-Ethical practice subscale	0.64 \pm 0.28	0.45 \pm 0.22	0.97 \pm 0.07	84.586 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.0001*
IV-Communication, interpersonal relations, and caring subscale	0.57 \pm 0.12	0.38 \pm 0.14	0.94 \pm 0.06	381.231 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.0001*
V-Leadership skills subscale	0.55 \pm 0.10	0.29 \pm 0.12	0.93 \pm 0.07	643.544 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.0001*

*Significant (P<0.05)

 χ^2 value of Kruskal Wallis Test

Z value of Mann Whitney U test

N.B. Maximum Score for Clinical Skills Subscales = 2 and for other subscales = 1.

Table (4): Mean scores and level of total knowledge about competency skills in the three periods time of the studied newly graduated nurses (n=60).

Total Knowledge about Competency Skills	The studied newly graduated nurses (n=60)						χ^2 test	P
	Pre program (I)		Immediately post-program (II)		3 months post-program (III)			
	n	%	n	%	n	%		
•Total knowledge level:								
Low (\leq 60%)	60	100	0	0	0	0	180.00 0	0.0001 *
Average (>60% \leq 80%)	-	0	0	0	0	0		
High (> 80%)	0	0	60	100	60	100		
•Total knowledge scores:								
Mean \pm SD	0.31 \pm 0.07		0.94 \pm 0.03		0.89 \pm 0.04			
F value	117.109							
P	0.0001*							
Scheffe test	I vs II, P=0.0001*							
P	I vs III, P=0.0001*							
	II vs III, P=0.0001*							

*Significant (P<0.05)

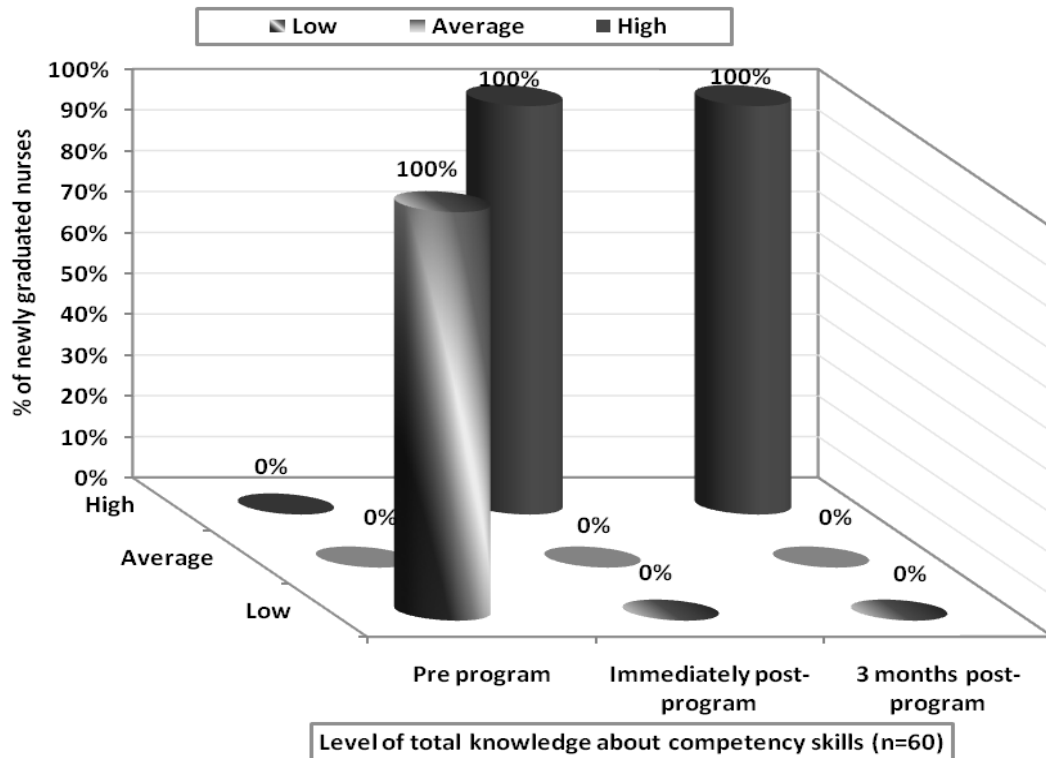
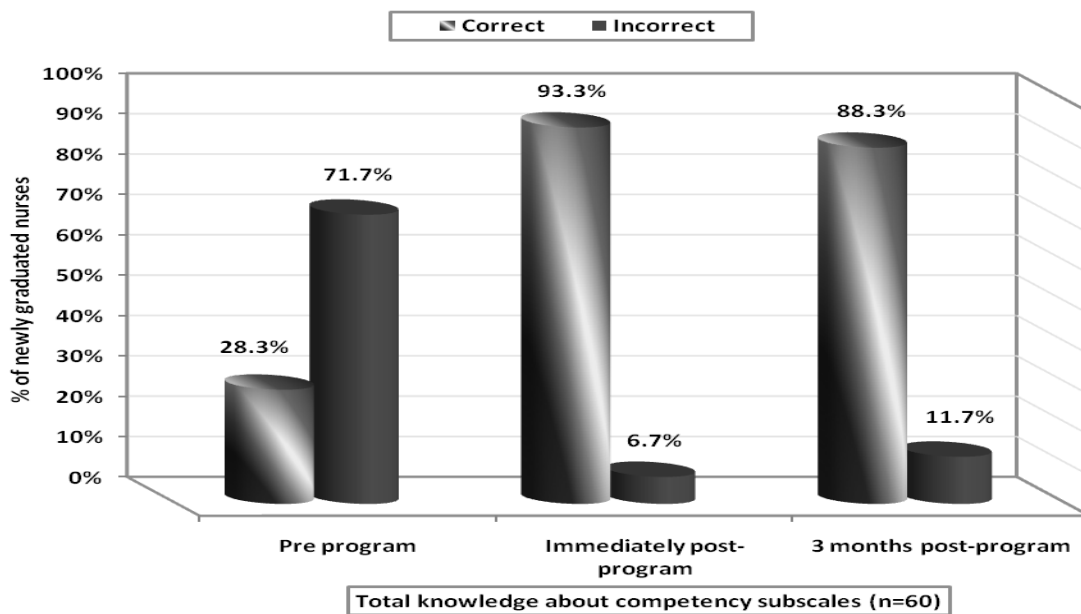


Figure (2): Level of total knowledge about competency skills in the three periods time of the studied newly graduated nurses (n=60).



$\chi^2 = 74.762$ P- value = 0.0001*

Figure (3): Frequency distribution of total knowledge about competency skills subscales in the three periods time of the studied newly graduated nurses (n=60).

Table (5): Mean scores of knowledge about competency skills subscales in the three periods time of the studied newly graduated nurses (n=60).

Knowledge about Competency Skills Subscales	The studied newly graduated nurses (n=60)			F-value or χ^2 value P	Scheffe test or Z value P
	Pre program	Immediately post-program	3 months post-program		
	(I)	(II)	(III)		
	Mean±SD	Mean±SD	Mean±SD		
I-Clinical skills subscale	0.30±0.08	0.93±0.04	0.88±0.05	712.712 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.0001*
II-Client safety / illness and injury prevention subscale	0.31±0.21	0.94±0.08	0.90±0.09	106.550 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.198
III-Ethical practice subscale	0.21±0.30	0.90±0.21	0.82±0.30	82.981 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.345
IV-Communication, interpersonal relations, and caring subscale	0.28±0.24	0.92±0.10	0.89±0.12	103.480 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.729
V-Leadership skills subscale	0.36±0.21	0.95±0.06	0.91±0.08	105.943 0.0001*	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.306

*Significant (P<0.05)

 χ^2 value of Friedman Test

Z value of Wilcoxon test

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