

NURSING HANDOFF EDUCATIONAL BUNDLE AND ITS EFFECT ON NURSE INTERNS' KNOWLEDGE SHARING

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Abstract

Background: Effective nursing handoff communication is critical to delivering safe, high-quality patient care. **Aim:** This study aimed to assess the effect of nursing handoff educational bundle on nurse interns' knowledge sharing. **Research design:** A quasi experimental one group pre- posttest design used to conduct this study. **Settings:** The study was conducted at Kafr El-Sheikh University Hospital. **Subjects:** Included (95) nurse interns enrolled in internship training year. **Tools:** the data for this study were collected through three tools, namely handoff knowledge questionnaire, handoff communication competence observational checklist and knowledge sharing questionnaire. **Results:** Nurse Interns age ranged between 22 to 24 years. 73.7% of them were female, the majority of them (73.7%) had secondary school, slightly less than two thirds (64.2%) of them had no previous work experiences. About one third (30.5%) of nurse Interns' had satisfactory knowledge regarding nursing handoff before the intervention, This increased to (91.6%) post intervention and slightly declined to (87.4%) in follow up phase. Regarding nurse interns' handoff communication competence about (8.4%) had high competence in pre-intervention phase which increased to (92.6%) in post intervention and slightly declined to (68.4%) in follow up phase. Considering nurse interns' knowledge sharing about (83.2%) had satisfactory knowledge which increased to (95.8%) post intervention and slightly declined to (94.7%) in follow up phase. **Conclusion:** The implementation of nursing handoff educational bundle was effective in improving nurse intern's handoff knowledge and communication competence as well as knowledge sharing. **Recommendation:** Regular workshops and seminars for nurse interns should be held periodically and incorporating nursing handoff and knowledge sharing in undergraduate curriculum to increase competence as well as knowledge sharing.

Index Terms: Handoff bundle, Knowledge sharing, Nursing handoff, Nurse interns'.

INTRODUCTION

Nursing handoffs are a necessary component of current medical care. Accurate communication of information about a patient from one member of the health care team to another is a critical element of patient care and safety; it is also one of the least studied and taught elements of daily patient care. One of the leading causes of medical errors is a breakdown in communication. This breakdown may occur between clinicians at any level of the health care system [1]. Communication failures also have been found to be a leading cause of preventable error in studies of closed malpractice claims. In the era of collaborative care, effective clinician-to-clinician communication is important to facilitate continuity of care, eliminate preventable errors, and provide a safe patient environment [2]. The main aim of nursing handoff is to transfer accurate, relevant, and current clinical

information about the patient which is necessary for continuity of care. Ideally, the aim of the handoff process is to achieve effective, safe, and high quality communication when the responsibility for the patient's care is transferred from one nurse to another. Unfortunately, it is becoming increasingly apparent that any defect in communication system, in hospitals, compromises the patient safety [3]. Nursing handoff process includes exchanging of information, transferring the responsibility of care and preparing the team to take over, and ensuring the continuity of care. Handoff need not be only during the change of shift, it can be even during stepping down or stepping up of a patient, transferring for any procedures, transferring between units, or facilities and discharge [4]. Healthcare organizations are beginning to use knowledge sharing as a new practice. Knowledge sharing is a conveyance behavior wherein individuals disperse their knowledge, experiences, and skills to others. Effective knowledge sharing is vital in healthcare organizations because it significantly enhances the quality of care and patient safety. Healthcare workers can use knowledge sharing for their patients, making it easier to share information about their diagnoses and treatments during nursing handoff. Thus, knowledge sharing is a strong element for improvements and further development within the healthcare sector [5].

SIGNIFICANCE OF THE STUDY

During the supervision of nurse interns training, the researcher observed that nurse interns rarely know about handoff communication and its importance, nurse interns' may lacked experiences with important communication skills and are fearful of making mistakes which may affect patient safety. One way to improve handoff communication skill among nurse interns' is through education. Nurse interns' must be prepared for and learn the process of effective communication that promotes patient safety. The knowledge and skill to carry out a handoff report may be briefly addressed in the classroom or simulation laboratory setting but is mastered from the observation of mentors and peers. Moreover nurse interns' are exposed to multiple clinical sites and witness variability in handoff practices among different institutions. Following graduation, new nurses rarely receive formalized handoff education. Instead, they often learn this important safety skill by modeling equally unskilled peers. So the present study will be conducted to assess the effect of nursing handoff educational bundle on nurse interns' knowledge sharing.

AIM OF THE STUDY: The aim of present study was to assess the effect of nursing handoff educational bundle on nurse interns' knowledge sharing

SUBJECT AND METHODS

A- Research design

A quasi experimental one group pre- posttest design was used to conduct this study.

B- Setting

The study was conducted at Kafr Elsheikh University Hospital which affiliated to kafr Elsheikh University.

C- Subject

The subjects for the study consisted of nurse interns' enrolled in internship training year in different units at the above mentioned setting during the academic year 2021/2022. Stratified random sampling was used in this study .Sample size was calculated to detect an improvement in the scores of nurse interns' knowledge sharing scores from a baseline 3.34/5.00 (Yoo, 2019) with a moderate effect size (0.50) based on Hulley et al., (2013), using a 1.15 standard deviation at 95% level of confidence and 80% power. The required sample size is 85 nurse interns (Chow et al., 2008). This was increased to 95 to compensate for an expected dropout rate of around 10%.

D- Tools of data collection

Tool (1): Handoff Knowledge Questionnaire: This tool was developed by Seada and Bayoumy,(2017) and modified by the researcher .It consisted of two parts as the following:

Part 1: Personal Data Sheet

It included the following data: age, sex, year of graduation, type of education before joining the faculty, previous handoff knowledge, working shift, current clinical practice unit and previous training experiences years.

Part II: handoff Knowledge Questionnaire

It is aimed to assess nurse interns' knowledge about handoff. It consisted of (20) Multiple-choice questions, covering the following: Handoff definition and related (5) concepts, importance and benefits of handoff (5), methods and structure of handoff (5), and Handoff communication tools (5).

Scoring system for each question (score one) was used for correct answer and (zero) for incorrect answer. The scoring levels were arranged as follow 60%and more was considered satisfactory knowledge. Less than 60%is for unsatisfactory knowledge

Tool (2): Handoff Communication Competence Observational checklist

This tool was developed by Cegala, Coleman, & Turner (1998) and modified by Seada, and Bayoumy, (2017).It aimed to assess hand-off communication competence of nurse's interns at the patient bedside as a one-way report from the outgoing to the oncoming nurse interns. Its total items were (37items) under the following subscales: information giving (10 items), facilitating information seeking (5 items), information verifying (5 items), Role of oncoming nurse (5items), socio-emotional communication (8items) and written handoff communication (4 items)

Scoring system: Responses of participants were measured as follows: (1) for done and (zero) for not done. The total score is 25, the score of 14.9(59.9%) or below indicated poor

competence, the score from 15-18.5 (60-74%) indicated moderate competence and finally score 18.9 and more (75% and more) indicated high competence. It was utilized during different periods of assessment (Seada, and Bayoumy, 2017).

Tool (3): Knowledge sharing questionnaire

It was adopted from (Mohammed, 2019). This questionnaire aimed to assess knowledge sharing among nurse interns. It composed of 20 items. These items were grouped under two dimensions as the following: individual knowledge sharing (13 items) and organizational knowledge sharing (7 items).

THE SCORING SYSTEM

***Scoring System** for handoff knowledge questionnaire: for each question (score one) was used for correct answer and (zero) for incorrect answer. The scoring levels were arranged as follow 60%and more was considered satisfactory knowledge. Less than 60%is for unsatisfactory knowledge

* Scoring System of handoff communication competence observational checklist: Responses of participants were measured as follows: (1) for done and (zero) for not done. The total score is 25, the score of 14.9(59.9%) or below indicated poor competence, the score from 15-18.5 (60-74%) indicated moderate competence and finally score 18.9 and more(75% and more) indicated high competence. It was utilized during different periods of assessment

* Scoring System of knowledge sharing questionnaire: The score of each dimension were summed up. Then, the sum of scores was converted into percent scores. For categorical analysis , a score of 60% or higher in each dimension and for the total scale was considered as high knowledge sharing while a lower score was considered as a low knowledge sharing responses of participants were measured in five point likert scale ranging from (strongly disagree=1), (Disagree=2) ,(Neutral =3) , (Agree=4) and(strongly agree=5).

ADMINISTRATIVE DESIGN

Prior study conduction, an approval was obtained from the dean of faculty of nursing, Ain Shams University. The researcher was met with the dean of Faculty of Nursing Kafr Elshaikh University and the nursing director of Kafr El Elshaikh university hospital. The purpose of the study and its procedure was explained to them to gain their approval.

Ethical consideration:

1. The ethical research considerations in this study include the following:
2. A written initial approval was obtained from the research ethical committee at the faculty of nursing, Ain Shams University.

3. Individual oral consent was obtained from each participating nurse interns after explaining the nature and benefits of the study.
4. The researcher cleared the objectives and aim of the study to participating nurse interns.
5. The researcher maintained anonymity and confidentiality of participating nurse interns.
6. Participating nurse interns were allowed to choose to participate or not in the study, and given the right to withdraw at any time from the study without giving reasons.

OPERATIONAL DESIGN

The operational design includes preparatory phase, pilot study, and field work.

Preparatory phase

The researcher conducted a comprehensive review of current and past national and international related literature concerning the subjects of the study, using textbooks, articles, journals, and websites. This review was helpful to the researcher in designing of the educational bundle, and to be more acquainted with various aspects of the study topics.

Pilot study

A pilot study was carried out on 10% of nurse interns that constituted 9 nurse interns of the main study subjects. It was done to examine clarity, feasibility and applicability of the tools and their relevance to study and also to estimate time needed for filling them in. Since there weren't any changes made in the tools, the pilot study subjects were included in the main study sample.

Field work

The actual field work of the study started from the beginning of January and ended on July 2022. It included preliminary assessment, planning, implementation, evaluation and follow up phases.

Assessment stage: This phase is aimed at identifying the training needs which include pretest of nurse intern's knowledge and competences using data collection tools. The data was collected through one month. In this stage the researcher distributed the handoff knowledge questionnaire sheet, and knowledge sharing scale, components of these tools were explained to the participants in the study settings. The participant filled the questionnaire and they completed sheets in the same day at 20-30 minutes. Whenever the nurse intern had not completed the sheet the researcher left it another day. sometimes participant lost the sheet, they were given another one until the completed sheet collected from every department. Clarification were given whenever it was needed with reassurance about confidentiality of any obtained information as only a code number was used to mark each sheet using systematic serial numbers for each unit. The handoff communication

competence observational checklist was done three times in different shifts which constitute a base line data for developing the educational bundle .

Planning stage: Based on the analysis of the data obtained from the assessment phase and pertinent literature the researcher developed the handoff educational bundle the investigator pointed out the required handoff knowledge and designing of the hand out for the handoff bundle was done. The schedule was set, time of implementation was discussed and the place to carry out the program was booked,. The audiovisual aids and teaching methods were selected. This phase took one month started from beginning of February to the beginning of March.

Implementation stage: The educational bundle was implemented to the nurse interns who are trained at Kafr Elshikh University hospital. The educational bundle was implemented in small group sessions. It was more focused on practical and hand- on training along with a theoretical background for the clinical competencies. The training methods involved group discussion, problem based education, case studies, scenarios, role play and work in small groups. The teaching media include data show for computer presentations, video, whiteboard and flipchart. It took about (14) days. The total program was 28hours (four weeks, two hours/day) offered in four days weekly. The program was extended for 2 month; started from the beginning of March to the end of April 2022. Each session conducted through two hours; one hour for theory and one hour for practice and started at 12.00 am to 2:00 pm. The time and date of sessions were flexible according to nurse's interns scheduling and time of care provided. The researcher divided the nurse interns into four groups (three groups consisted of twenty five nurse interne and one group consisted twenty).

Evaluation stage: This stage performed after implementing the educational bundle immediately using the same data collection tools used in the assessment phase for measuring knowledge and two weeks later for measuring handoff communication competence and knowledge sharing to assess the effect of nursing handoff educational bundle on nurse interns knowledge sharing .

Follow-up stage: This stage performed after three months from implementation of the educational bundle at February 2022 using the same evaluation tools used in the assessment phase. This tools were distributed to the nurse interns in their work place to evaluate the effect of the handoff educational bundle on their handoff knowledge, handoff communication competence and knowledge sharing. The handoff communication competence was done three times after implementation of educational bundle in different shifts and taking the mean of them.

STATISTICAL DESIGN

The collected data were coded and entered into the statistical package for the social science (SPSS Version 20) statistical software package. Data were collected ,coded and Entered into a computer , after that it were reviewed for coding and entering errors .Data were presented using descriptive statistics in the form of frequencies and percentages for

qualitative variables, and means \pm standard deviations for quantitative variables. Qualitative variables were compared using chi-square test, while Paired t-test was used to compare between two means in the same studied group pre and post intervention & between two means post intervention and during follow up phase. Paired t- test was used for comparison between two variables with continuous data. Correlation co-efficient test was used to test for correlation between two variables with continuous data. ANOVA test was used to identify significant differences among more than two mean. The reliability (internal consistency) of the knowledge questionnaire..Correlation Coefficient (r) test was used to test the closeness of association between two variables. Also, In order to identify the independent predictors of knowledge and competency, multiple linear regression analysis was used and analysis of variance for the full regression models was done .So, the p-value was considered significant as the following:

- Probability (P-value)
 - P-value <0.05 was considered significant.
 - P-value <0.001 was considered as highly significant.
 - P-value >0.05 was considered insignificant.

RESULT

Table 1: Personal characteristics of the nurse interns in the study sample (n=95)

	N	%
Age (Years)		
22 - <23	22	23.2
23 - <24	55	57.9
24 - <25	18	18.9
Mean \pmSD	22.9 \pm 0.6	
Gender		
Male	25	26.3
Female	70	73.7
Educational Level		
Secondary	70	73.7
Technical institute	25	26.3
Did you have previous work experiences during study years?		
Yes	34	35.8
No	61	64.2
Do you have information about clinical handoff communication		
Yes	75	78.9
No	20	21.1

Table (1) the study sample consisted of (95) nurse interns whose age ranged between 22 to 24years as shown in **Table 1**. 73.7% of them were female, the majority of them (73.7%) had secondary school. nearly more than half (64.2%) of them had no previous work

experiences and the majority of them (78.9%) had information about clinical hand off communication.

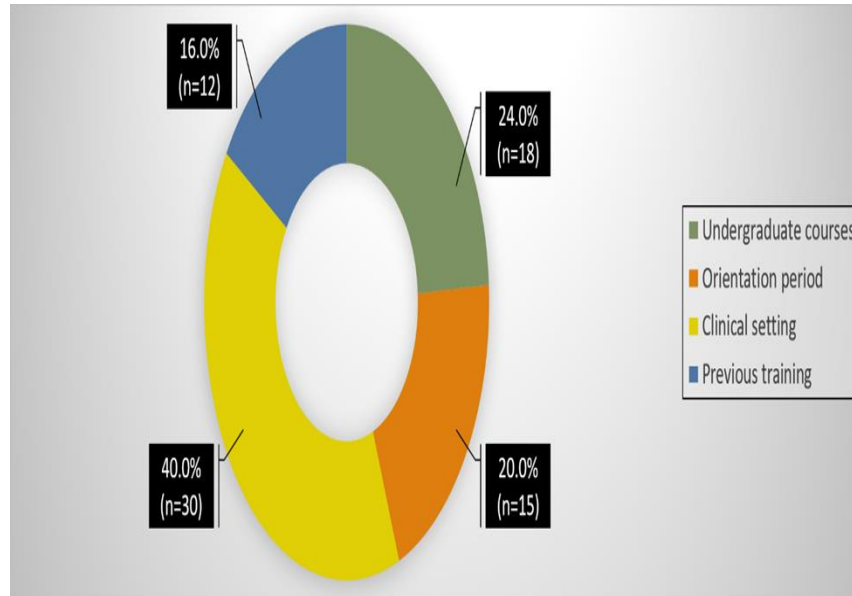


Figure 1: Distribution of nurse interns source of knowledge about clinical

Handoff communication (n=75)

Figure 1: showed that nearly half of nurse interns (40%) had knowledge about clinical handoff from training in clinical settings

Table 2: The work routine of the nurse interns (n=95)

	Pre-Intervention		Post-Intervention		Follow-Up		X ² (P – Value) (Pre & Post)	X ² (P – Value) (Pre & Follow)
	n	%	N	%	N	%		
What is your working shift?								
Day	74	77.9	59	62.1	63	66.3	5.639 (0.017*)	3.166 (0.075)
Night	21	22.1	36	37.9	32	33.7		
Clinical practice setting							1.512 (0.911)	1.990 (0.850)
Intensive care	22	23.2	26	27.4	17	17.9		
Obstetric	21	22.1	20	21.1	23	24.2		
Medical	8	8.4	10	10.5	13	13.7		
Surgical	11	11.6	7	7.4	11	11.6		
Pediatric	21	22.1	21	22.1	20	21.1		
Cardiac care	12	12.6	11	11.6	11	11.6		

As displayed in **table 2**, the majority of the nurse interns was working a day shift and is trained in intensive care departments.

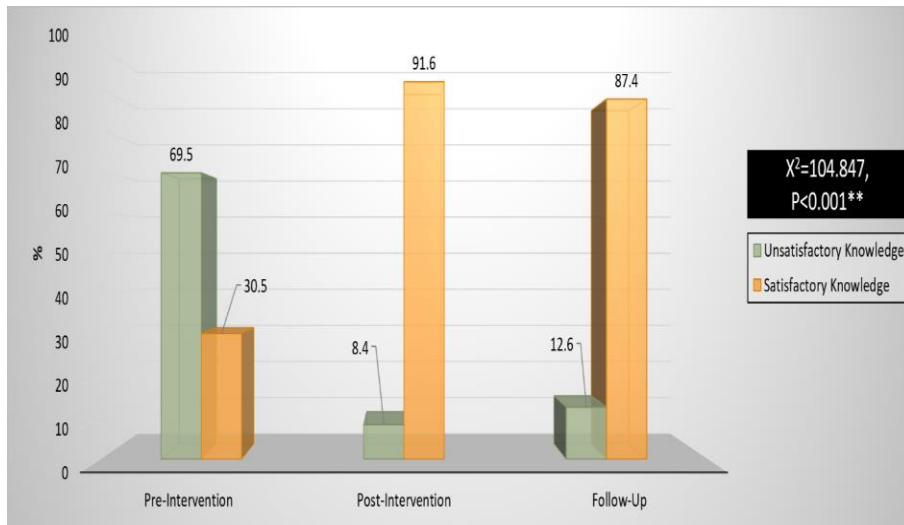


Figure 2: Total Nurse Intern's knowledge of nursing handoff throughout the intervention phases

Figure 2: showed that only (30.5%) of nurse interns had satisfactory knowledge regarding nursing handoff before the intervention . This increased to (91.6%) post intervention and slightly declined to (87.4%) in the following up phase

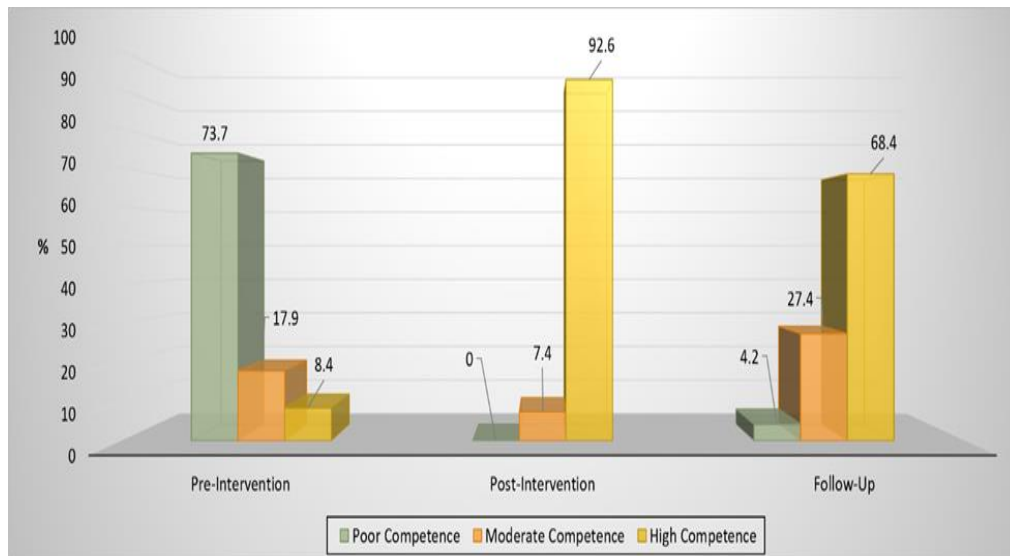


Figure 3: Total score of Nurse Interns Handoff Communication Competence throughout the intervention phases (n=95)

Figure 3: Illustrated that only (8.4%) of nurse interns had high competence before the intervention. This increased to (92.6%) post intervention and slightly declined to (68.4%) in the following up phase

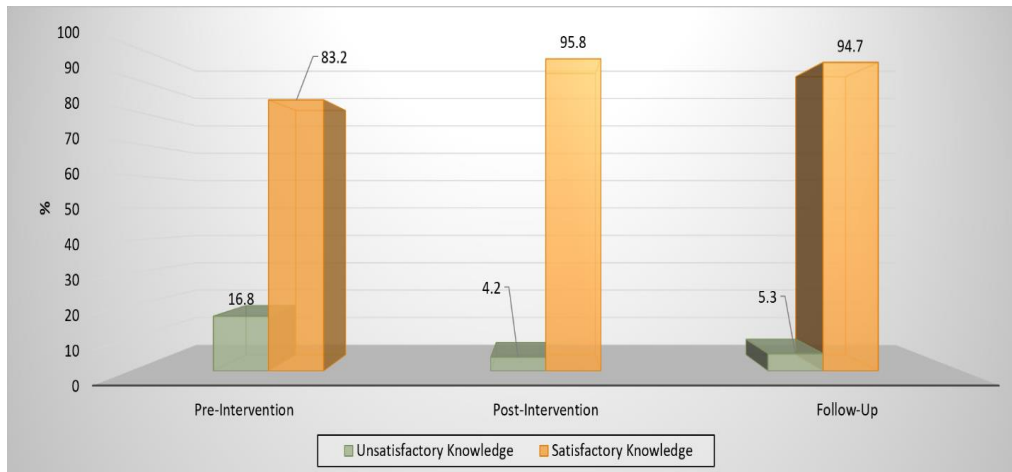


Figure 4: Total knowledge Sharing Questionnaire domain scores throughout the intervention phase

As displayed in Figure 3, (83.2%) of nurse interns had satisfactory knowledge sharing before the intervention. This increased to (95.8%) post intervention and slightly declined to (94.7%) in the following up phase

Table 5: Correlation between nurse interns handoff Knowledge domains with handoff Knowledge total Score throughout the intervention phases(n=95)

Handoff knowledge domains	Handoff Knowledge Score					
	Pre		Post		Follow-Up	
	R	p	R	P	R	p
Handoff definition and related concepts	0.752	<0.001**	0.624	<0.001**	0.766	<0.001**
Importance and benefits of handoff	0.763	<0.001**	0.575	<0.001**	0.688	<0.001**
Methods and structure of handoff	0.818	<0.001**	0.602	<0.001**	0.545	<0.001**
Handoff communication tools	0.107	0.303	0.446	<0.001**	0.704	<0.001**

(*) Statistically significant at $p < 0.05$

(**) High Significant at $P < 0.001$

Table 5: showed that there were a highly statistically correlation between nurse interns handoff knowledge questionnaire domains with handoff Knowledge Score pre intervention except with handoff communication tools , while there were a highly statistically correlation with all domain in post and follow up phases ($P < 0.001$)

Table 6: Correlations between nurse intern's knowledge sharing with handoff communication competence and handoff Knowledge

(*) Statistically significant at $p < 0.05$

	Pre		Post		Follow-Up	
	Mean \pm SD	Significance	Mean \pm SD	Significance	Mean \pm SD	Significance
Handoff Knowledge Questionnaire						
Unsatisfactory Knowledge	54.6 \pm 6.3		57.4 \pm 1.1		56.6 \pm 8.8	
Satisfactory Knowledge	55.4 \pm 3.6	T=0.658, P=0.512	59.1 \pm 1.7	T=2.767, P=0.006*	58.7 \pm 2.6	T=1.722, P=0.088
Observational Checklist						
Poor Competence	54.4 \pm 6.0		-		56.8 \pm 2.1	
Moderate Competence	56.4 \pm 3.5		57.4 \pm 3.7		56.9 \pm 2.0	
High Competence	55.3 \pm 5.3	F=0.893, P=0.413	59.3 \pm 1.3	T=2.910, P=0.005*	58.3 \pm 4.6	F=3.748, P=0.027*

(**) High Significant at $P < 0.001$

T is student's t – test

F is one way ANOVA

Table 6: Showed that there were statistically significant relation between nurse interns knowledge sharing with their handoff knowledge post intervention, while there were statistically significant relation between nurse interns knowledge sharing with their handoff communication competence in post and follow up phase

DISCUSSION

As regards to the studied nurse interns personal characteristics the study results in table (1) showed that, Nurse interns age ranged between 22 to 24years .73.7% of them were female, the majority of them (73.7%) had secondary school, nearly more than half (64.2%) of them had no previous work experiences and the majority of them (78.9%) had information about clinical hand off communication. According to the present study results, the majority of the nurse interns had deficient handoff knowledge at the pre intervention phase. Thus, only one third of the study subjects were having satisfactory knowledge, such knowledge deficiency might be explained by the lack of sufficient information about nursing handoff communication in the curricula of nursing education , especially at their undergraduate level and the majority of them had no previous work experience during study years This finding was similar to[6] in a study about SBAR shift report training program and its effect on nurses' knowledge and practice in Egypt demonstrated that nurses' had low awareness of handoff shift reporting at pre training phase

After implementation of the current study intervention the result demonstrated significant improvements in nurse intern's handoff knowledge. All areas of knowledge showed statistically significant improvements after the intervention, and this was maintained through the follow –up phase although with slight decline. This indicate that the

intervention handoff bundle was effective in improving the nurse intern's handoff knowledge. In agreement with [7] in a study entitled of effect of management intervention program on intensive care unit staff nurses' shift change process which showed that post management intervention program staff nurses had overall knowledge and high level of perception.

Also, the success of the present study intervention in improving nurse interns knowledge could be mainly attributed to that the content of the intervention was based on their identified learning needs. Thus it tends to fill the knowledge gabs they had. This emphasizes the importance of nursing handoff educational bundle. In the same line [8] in the study in Egypt about the effectiveness of handoff educational program on nurse's interns' knowledge, and communication competence revealed that there were statistical significant and marked improvement in nurses interns' levels of handoff knowledge dimensions during different periods of assessment.

According to the present study results, nurse intern's knowledge sharing and handoff communication competence had significant influence on their acquisition of knowledge post intervention. Thus, the multivariate analysis demonstrated that the post intervention knowledge scores were significantly higher among nurse interns after implementation of nursing handoff bundle which might explained by repeated training always improve nurse interns handoff knowledge . In the same line with this , [9]in a study about handover training for medical students: a controlled educational trial of a pilot curriculum in Germany who showed that knowledge dramatically altered and improved following the handover teaching and training program, resulting in a decrease in information omission and improved handover quality.

Concerning the nurse interns handoff communication competencies, the study results revealed very low nurse interns handoff competencies at the pre intervention phase , thus the majority of them had poor competence especially in information giving, socio emotional communication and written handoff communication dimension which are essential competences that any nurse should master. Moreover, the highest percentages of nurses performing specific competences at the pre- intervention phase of the current study were related to information seeking and role of oncoming nurse. Although these were the highest, they only constitute a very small percentage of the nurse interns , less than one- fifth of them. These extremely low competences could be due to unprepared to hand off patient care adequately especially in the beginning of the internship year, and because of the related topics in the nursing curricula are taught only as theoretical topics with no related practical training or application This result is consistent with [10]in a study about the effect of educational sessions about effectiveness of handoff system for nurses on their knowledge and practice, they reported a statistical significant difference at pre and post educational session regards the overall quality of handoffs received described as excellent or good.

The implementation of the current study intervention led to significant improvements in all the observed specific competencies at both post and follow –up phases of the intervention.

This may be due to lack of nurse interns training about nursing handoff and inadequate practice of handoff in undergraduate courses thus it revealed that repeated training will improve nurse interns handoff communication competencies this result in the same line with [11] who studied the effectiveness of nursing handoff education program on competencies of handing over among nursing students that revealed the nursing handoff education program was effective to improve the competencies of handing over among nursing students as there was a significant difference between experimental and comparison group in pediatric laboratory setting as well as clinical setting.

Also, the study results in table (3) illustrated parent-child relationship was usual in more than half of families while more two third of parents had normal parent relationship. This result was in similarity with [12] who carried out a study entitled "Sociodemographic and socioeconomic correlates of learning disability in preterm children in the United States" and found that illustrated parent-child relationship was usual in more than half of families while more two third of parents had normal parent relationship. From the researcher point of view, this result might be due to great affection of fathers and mothers for their child.

Overall, the implementation of the present study intervention raise the percentage of nurse interns having adequate total competencies from less than one fifth at the pre intervention phase to the majority at post intervention phase, and this was maintained at the follow-up phase with minimal decline. And all these differences were statistically significant.

Concerning nurse interns' knowledge sharing during nursing handoff both individual and organizational knowledge sharing. There were statistically significant improvement in nurse intern's knowledge sharing dimensions in the post and follow up phases. Knowledge sharing considered a bidirectional process and both sides enhance knowledge, competences, and experience. It also has an impact on organizations. Because the knowledge sharing between employees in an organization both improve employees relations with each other and make knowledge a value within the organization. In the same line [13] in the study about the effect of the organizational justice and organizational Commitment on knowledge sharing revealed that employee don't hesitate to share their knowledge, they tend to share more knowledge in order to do their job better and support activities.

Regarding the correlation between nurses' interns total handoff knowledge and communication competencies dimensions. There were statistically correlation between them during different periods of assessment, also [14] in a study about integrating hand-off communication in to undergraduate nursing clinical courses revealed the same results.

Finally, the implementation of the present study intervention showed a highly statistically correlations between most nurse interns handoff knowledge scores and handoff communication competence with their knowledge sharing in post and follow-up phases which proved that handoff educational bundle had a positive effect on nurse interns' knowledge sharing. The findings demonstrates the significant influence of correct knowledge on nurse interns' handoff communication competence and knowledge sharing

during nursing handoff. In the same line [15] in a study about assessing nurses' knowledge and performance regarding shift report handover showed that there were significant positive correlation between knowledge score and performance score regarding shift report.

CONCLUSION

The study results conduce to the conclusion that the nurse interns in the study setting have deficient knowledge about nursing handoff and poor level of handoff communication competencies. The implementation of nursing handoff educational bundle is very effective, although to a less extent, in improving nurse interns' handoff knowledge, competencies and knowledge sharing. There were a highly statistically significant correlation between nurse interns handoff knowledge, handoff communication competencies and knowledge sharing post – intervention which is maintained through the 3 –month follow –up with minimal decline

RECOMMENDATION

The result of this study projected the following recommendations:

- The nursing faculty curricula should provide more emphasis to nursing handoff knowledge and competencies to increase students an awareness of this important topic
- Future researches with larger sample sizes and multiple settings are recommended to substantially evaluate the effectiveness of educational program on handoff communication competencies.

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