

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

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Abstract: Background: Handoff is crucial for planning patient care, patient evaluation, and patient management. The lack of efficiency with handoff communication among nurses and other health care professionals has been problematic. **Purpose:** was to study the effect of handoff training program on nurses' interns' knowledge, and communication competence. **Design:** A quasi-experimental research design was used. **Setting:** Conducted in different governmental and private hospitals where nursing interns enrolled in internship year 2021-2022 **method:** 150 of intern nursing students (30%) who enrolled in internship year 2021-2022. Data collection **Instruments:** Handoff knowledge test and communication competence observational checklist were used. **Results:** There was marked improvement in handoff knowledge among nurses' interns at posttest and follow up test compared with pretest after implementing of training program. Also, more than half of the nurses' interns had unsatisfactory level of handoff knowledge at pretest but, majority of them had satisfactory knowledge level at posttest and slightly decline at follow up test. Furthermore, there was a highly statistically significance and improvement of nurses' intern's communication competence dimensions through program phases. The communication competence level of intern students was high in posttest and follow up test compared with pretest. **Conclusion:** there was highly statistically significance correlation between hand-off knowledge and communication competence and there was marked effectiveness of the handoff training program on improving the nurses' interns' communication competence. **Recommendations:** Provide undergraduate students the opportunities to participate in handoff during clinical area.

Key words: *Communication Competence, Handoff, Nursing Interns, training program.*

Introduction

An internship year is an opportunity for graduate nurse, it is clinical training year for baccalaureate nursing

graduates to gain practice in a real world setting under the guidance of knowledgeable, experienced, a

***Effect of Shift Handoff Training Program on Nurses Interns' Knowledge
and their Communication Competence***

successful supervisor. The internship year help the graduate nurses to develop his or her management competencies. The internship process gives nursing interns the confidence to be more comfortable in doing work in the field and encourages them to feel safe in applying their competencies in the clinical skills of nursing and nursing management needed to provide quality and safe service to clients, also provide opportunities for nursing interns to adapt to the work environment and reduce the shock of reality (Lavoie-Tremblay, 2021).

The shift change signifies a time for communication to promote care, safety, and best practices with the aim of eliminating or mitigating risks to the patient. Moreover, personal significance and socialization can be an objective or personal goal for welcoming patients and their families during the handover because the shift report may have an emotional significance. The shift change becomes a time to connect with the patient, his/her family, and the rest of the staff to resolve difficulties that have occurred in the course of the shift with the entire team and, simultaneously, to socialize, sharing what was resolved and what is pending. The important thing is that it does not become a routine that hides the times for the development of the process (Pere, 2021).

The transfer of essential information and the responsibility for care of the patient from one health care provider to another is an integral component of communication in health care. This critical transfer point is known as a

handoff. Handoff contribution to healthcare quality is being increasingly recognized as evidence grows linking communication defects to patient safety lapses. The concept of a handoff is complex and includes communication between the change of shift, communication between care providers about patient care, handoff, records, and information tools to assist in communication between care providers about patient care. (George & O'Reilly, 2023).

Effective communications competence skills are necessary in each area of life, but of particular importance in the field of nursing. Nurses, if communicate effectively optimal health outcomes can be easily reached.

defined nurse communication as the effective exchange of information, ideas, and feeling to achieve desirable interpersonal relationships which will be beneficial to the patient. Previous studies showed that practicing effective communication among nurses contributed to safe and high quality nursing care (Morris, 2021).

Communication competency has been confirmed as a valuable resource for improving nursing services in nursing organizations. Studies on communication competency among nurses have investigated the relevance of such competency to their conflict management methods, job satisfaction and organizational commitment and servant leadership. Overall, the results suggest that communication competency is essential for nurses. Effective, competent communication between nurses and patients is necessary for successful outcomes of

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

nursing care whereas ineffective communication is reported as a significant and primary factor in medical errors and inadvertent patient harm (Ke & Stocker, 2019).

Patients in most healthcare systems will be cared for by multiple providers or a provider team, it is therefore necessary for patients and provider safety that there be a dedicated protocol for exchanging patient information, transferring care, and continuing care based on patient centered needs. Discontinuity creates an opportunity for errors when clinical information is not accurately exchanged between providers. The nurses' must feel comfortable knowing that the information exchanged will ensure continuity of care for the patient (Granados-Gómez et al., 2022).

In addition, the hand-off communication process improved for nurse-to-nurse accountability when a solid hand-off communication process was established to keep the patient well informed of the plan of care. Nurses appreciate the need to take responsibility for information being exchanged and the ability to speak to the physicians with confidence regarding the patient (Real et al., 2021).

Significance of the study

Effective communication among nurses is essential to ensure patient's safety and deliver high quality of care. The transfer of essential information and the responsibility for care of the patients among health care providers is an integral component of communication in health care. This

critical transfer point is known as a handoff. (Meghan et al., 2014). The loss of information during handoff communication can be injurious to a patient. Interruptions in care, treatment delays, wrong provided treatment, medication errors, unnecessary readmissions, and increased financial burden to health care systems are all problems that can arise due to information loss during handoff (Forde et al., 2020).

Also the Joint Commission, (2017) reports that shortcomings related to communication can be directly related to an increase in patient care errors, with approximately 80% of medical errors resulting from miscommunication during the handoff process. Moreover, from the clinical experience as responsible for supervision of student during internship year, it was observed that many handoff communication problems were caused by nurse's interns in different shifts. In addition there is comparably limited literature describing the effects of handoff education on nursing student handoff communication skills. Therefore, the current study aimed to study the effect of handoff training program on nurses' interns' knowledge, and their communication competence.

Purpose of the study

Study the effect of handoff training program on nurses' interns' knowledge, and communication competence.

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

Research Hypotheses

- A.** Nurse's interns will have lower level knowledge score regarding hand off at pretest than posttest after the implementation of handoff training program. .
- B.** Nurse's interns have lower level of communication competence than posttest after implementing of hand off training program.

Methods

Study design

A quasi-experimental research design was conducted.

Study Sample:

The sample size was 30% (150 of nursing interns) from total numbers of the students (479) who enrolled in internship year within the academic year 2021-2022 and from the above mentioned setting at the time of the study.

The sampling technique:

The sampling technique is a proportional sample was used to select participants in the current study.

Study Setting:

This study was conducted in different ICU, OR, Dialysis unit, Emergency Unit at governmental and private hospitals where nursing interns enrolled in internship year within the academic year 2021-2022. Governmental hospitals were Menoufia University Hospital, Helal Insurance Hospital, and National Liver Instituted Hospital at Menoufia governance, as well as private hospitals such as German Saudi Hospital, Elaraby Hospital Hospital, and

neonatal Algamaya Al Sharea at Shibien alkom hospital where nursing interns were trained during the study

Instruments of data collection

Two instruments were used for data collection:

First instrument: Handoff knowledge test :

It was developed by the researcher after reviewing the related literature of (Seada & Bayoumy, 2017, Kim & Seomun, 2020) to assess nurses' interns' knowledge about handoff. It consisted of two parts :

- **Part one:** Personal data: It included personal data of nurses' interns, such as: age, gender, and marital status, and graduation grade, previous education level, training hospital.
- **Part two:** Handoff knowledge test; It consisted of 35 multiple-choice questions, covering the following dimensions: Handoff definition and related concepts (7 items), importance and benefits of handoff (5 items), components of handoff (8 items), methods and tools of handoff (9 items) and hand off communication barrier (6 items).

Scoring system:

As the following, with scoring one for the right answer and zero for the incorrect answer for multiple-choice questions. The scoring levels was categorized as follow: $\geq 60\%$ for satisfactory knowledge. $< 60\%$ was for unsatisfactory knowledge (Seada & Bayoumy, 2017).

*Effect of Shift Handoff Training Program on Nurses Interns' Knowledge
and their Communication Competence*

Second instrument: Communication

Competence Observational Checklist :

It was adapted from Cegala, (1998) and (Dellai et al., 2009) and modified by the researcher after reviewing the related literature to assess hand-off communication competence of nurse's interns at the patient bedside handover through the program phases as a one-way report from the outgoing to the incoming nurses interns.

Communication Competence Observational Checklist consisted of 36 items divided into three domains as the following: socio-emotional communication (16 items), General information giving and verifying (11 items), elaborate information giving (9 items).

Scoring system:

It was as following: (1) for competent and (zero) for not competent. The total score was (<60%) indicated low competence (not competent) , score from ($\geq 60\%$) indicated moderate competence and high competence (competent) (according to statistical cut of point).

Validity and Reliability of instruments:

Validity

The instruments were distributed to a panel of experts consisted of five professors in the field of nursing administration to judge the content and face validity of the instruments, presented from 3 professor from Faculty of Nursing Menoufia University and 2 professor from Faculty of Nursing Tanta University. The period taken by the experts group

lasted from the beginning of august month at 2021 to the end of September at 2022. The instruments were considered valid from the experts' views. Finally, modifications were done based on their comments such as (e.g. adding some question and modify some words to give the right meaning). After making validity of the instrument there were some modification as the following: It consisted of 35 multiple-choice questions, covering the following dimensions: Handoff definition and related concepts (7 items), importance and benefits of handoff (5 items), components of handoff and communication competence (8 items), methods and tools of handoff communication competence (9 items) and hand off communication barrier (6 items).

Reliability

Handoff knowledge questionnaire: This instrument was tested to reliability by internal consistency coefficient alpha was 0.88. Communication Competence Observational checklist: This instrument was tested to reliability by internal consistency coefficient alpha was.0.94.

Pilot study:

After reviewing the instrument by the experts, the researcher conducted the pilot study before administrating the final questionnaire. The purpose of pilot study was to ascertain clarity, relevance, applicability of the study instruments and to determined obstacles that may be encountered during data collection. It also helped to estimate the time needed to fill the

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

questionnaire tools. The pilot study was carried on 15 nurses' interns' students from total sample size (150) which presented (10%) of the sample size to evaluate the feasibility and clarity of the instrument. There was no change was made so this sample was included in the study.

Ethical considerations:

- The study was conducted with careful attention to ethical standards of research and rights of the participants: The respondent rights were protected by ensuring voluntary participation, so the informed consent was obtained by explaining purpose, nature time of conducting the study, potential benefits of the study, how data was collected, any invasive procedure, expected outcomes and the respondent rights to withdrawing from the research study at any time in case of violation of his rights. The respondent was assured that the data would be treated as strictly confidential by coding it; furthermore, the respondent anonymity would be maintained as they would not require mentioning their names. Also, the protocol of the study was revised and accepted by ethical committee in the Faculty of Nursing Menoufia University before starting the study. To ensure scientific honesty, the researcher used bracketing and intuiting to avoid bias. The researcher fully explained the aim of the research to the nurses to get better cooperation during the implementation phase of the research; also an individual oral

consent was obtained from each participant in the study after explaining the purpose of study.

- Before starting the data collection, an official permission was obtained from the vice president of nursing administration department at Faculty of Nursing Menoufia University to carry out this study. This was done by sending letters clarifying the aim of the study. Then oral official permission had been obtained from the matron of the private and governmental hospitals and then from nurses' interns' students. The purpose of the study was explained to each nurses' interns' students and getting their agreement to participate in the study.

Procedure:

- The preparation, construction and approval of data collection instruments consumed around ten months from December 2021 to September 2022. The handoff training program was implemented to nurses' interns at private and governmental hospital results of the pre-test. The one instrument link were send for nurses' interns students on zoom and WhatsApp group from 5/12/2021 to 5/1/2022 then send PowerPoint program content and recorded explanation of it through 5 sessions, each session spend 2 hour per day from 6/1/2022 to 2/3/2022 due to nursing interns students distributed on different location and difficult to collected them on one site to attained the training program.

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

- After program implementation, a post-test was done immediately through two instrument link from 2/3/2022 to 30 /4 /2022. There was continuous communication with them on WhatsApp group to provide frequent monitoring and adequate feedback to any inquiry.
- After three months from program implementation from 30 /7/2022 to 20/9/2022 with the rate of five days per week, all study instruments were applied for nurses' interns' students to evaluate the effect of the program of handoff on communication competence by comparing the results before and after program implementation.

Data Analysis:

The collected data were organized, tabulated and statistically analyzed using SPSS software statistical computer package version 26. For quantitative data, the range, mean and standard deviation were calculated. Cronbach alpha coefficient was calculated to assess the reliability of the scales through testing their internal consistency. For qualitative data, comparison was done using Chi-square test (χ^2). For comparison between means of variables for two groups, independent samples T-test were used. For comparison between means for variables pre and post intervention in a group, paired samples T-test was used. For comparison between means for variables during three periods of intervention in a group, or for more than two variables, the F-value of analysis of variance (ANOVA) was calculated. Multiple linear regression

analysis was used and analysis of variance for the full regression models was done.

Correlation between variables was evaluated using Pearson and Spearman's correlation coefficient r. A significance was adopted at $P < 0.05$ for interpretation of results of tests of significance (*). Also, a highly significance was adopted at $P < 0.01$ for interpretation of results of tests of significance (**).

Results:

Table (1): Demonstrates distribution of nursing intern student according to their personal characteristics. This table indicated that more than half of the nursing intern student was less than 22 years (54.7%) with mean age (22.63 ± 0.708) and majority of nursing intern student were female (86.7%). Also more than two third of them was not married (72.7%) and had graduation grade as very good (70.7%). Regarding to previous education level, nearly two third of the nursing intern student had general secondary school (67.3%). And more than half of them had not working during studying (58.0%).

Table (2): shows mean score of handoff knowledge dimensions among nursing intern student throughout the program phases. This table declared that there was a highly statistically significance differences and improvement of nurses' intern's knowledge among handoff dimensions throughout the program phases. Also, the highest mean score was Methods and tools of handoff dimension, Importance and benefits of handoff

***Effect of Shift Handoff Training Program on Nurses Interns' Knowledge
and their Communication Competence***

dimension at posttest and follow up test (19.84 ± 1.5) and (7.98 ± 0.7) with mean percentage (82.67%), (79.80%) compared with pretest respectively.

Table (3): shows mean score of communication competence dimensions throughout the program phases among nursing intern student. This table declared that there was a highly statistically significance differences and improvement of nurses' intern's communication competence dimensions throughout the program phases. Also, the highest mean score was socio- emotional communication dimension at posttest and follow up test (59.68 ± 6.7) and (54.53 ± 7.6) with mean percentage (74.6%), (68.2%) compared with pretest respectively.

Figure (1): Shows percentage distribution of handoff knowledge level among nursing intern student throughout the program phases. This figure marked improvement of handoff knowledge level among nurses' interns during the program phases. Also, 51.3% of nursing interns had unsatisfactory level regarding handoff knowledge in pretest, while majority of nursing interns (86.0%) had satisfactory knowledge level at posttest and (83.3%) at follow up test .

Figure (2): Shows percentage distribution of nursing intern student regarding their communication competence level among nursing intern student throughout the program phases. This figure marked improvement of communication competence level among nurses' interns during different

phases of the program. Also , 61.3% of nursing intern student had the highest level of communication competence and 48.7% of nursing intern student had moderate level of communication competence after implementation of the training program.

Figure (3): this figure shows the linear regression of handoff knowledge and communication competence among nursing intern student at pre the program phase. This figure showed that there was little correlation between handoff knowledge and communication competence.

Figure (4): this figure shows the linear regression of handoff knowledge and communication competence among nursing intern student at post the program phase. This figure showed that there was strong positive regression between handoff knowledge and communication competence and improvement of nurses' interns' knowledge about hand off and this reflected positively on their communication competence.

Figure (5): this figure shows the linear regression of handoff knowledge and communication competence among nursing intern student at follow up of the program phase. This figure showed that there was strong positive regression between handoff knowledge and communication competence and improvement of nurses' interns' knowledge about hand off and this reflected positively on their communication competence.

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

Table (1): Percentage Distribution of Nursing Intern Student Regarding Their Personal Characteristics (n=150.)

	Number (N)	Percent (%)
Age		
<=22	68	45.3
>22	82	54.7
Mean ±SD	22.63±0.708	
Gender		
Female	130	86.7
Male	20	13.3
Marital status		
Married	41	27.3
Not married	109	72.7
Graduation grade		
Good	15	10.0
Very good	106	70.7
Excellent	29	19.3
Previous education level		
General secondary school	101	67.3
Secondary technical school	16	10.7
Technical institute	33	22.0

Table (2): Mean Score of Handoff Knowledge Dimensions among Nursing Intern Student throughout the Program Phases (n=150).

Handoff knowledge dimensions	Pre		Post		Follow up		t1	P-value	t2	P-value
	Mean ±SD	Mean %	Mean ±SD	Mean %	Mean ±SD	Mean %				
Hand off definition and related concepts dimension	3.60 ± 1.4	25.7%	10.12±1.0	72.29%	8.99±.9	64.21%	17.19	.000**	1.1	.29
Importance and benefits of handoff dimension	3.58 ± 1.0	35.8%	8.14±.8	81.40%	7.98±.7	79.80%	4.87	.000**	1.7	.07
Component of handoff dimension	3.36 ± 1.5	21%	12.07±1.2	75.44 %	12.01±1.1	75.06 %	21.5	.000**	.6	1.00
Methods and tools of handoff dimension	5.36 ± 1.6	22.3%	19.84±1.5	82.67 %	16.64±1.4	69.33%	24.5	.000**	1.2	.22
Handoffs communication barriers dimension	4.10 ± 1.2	34.2%	9.58±.6	79.83%	8.50±.8	70.83%	12.9	.000**	0.8	.38

* Statistically significance P<0.05

** highly statistically significance p<0.001

t1 paired t test between pre and post program

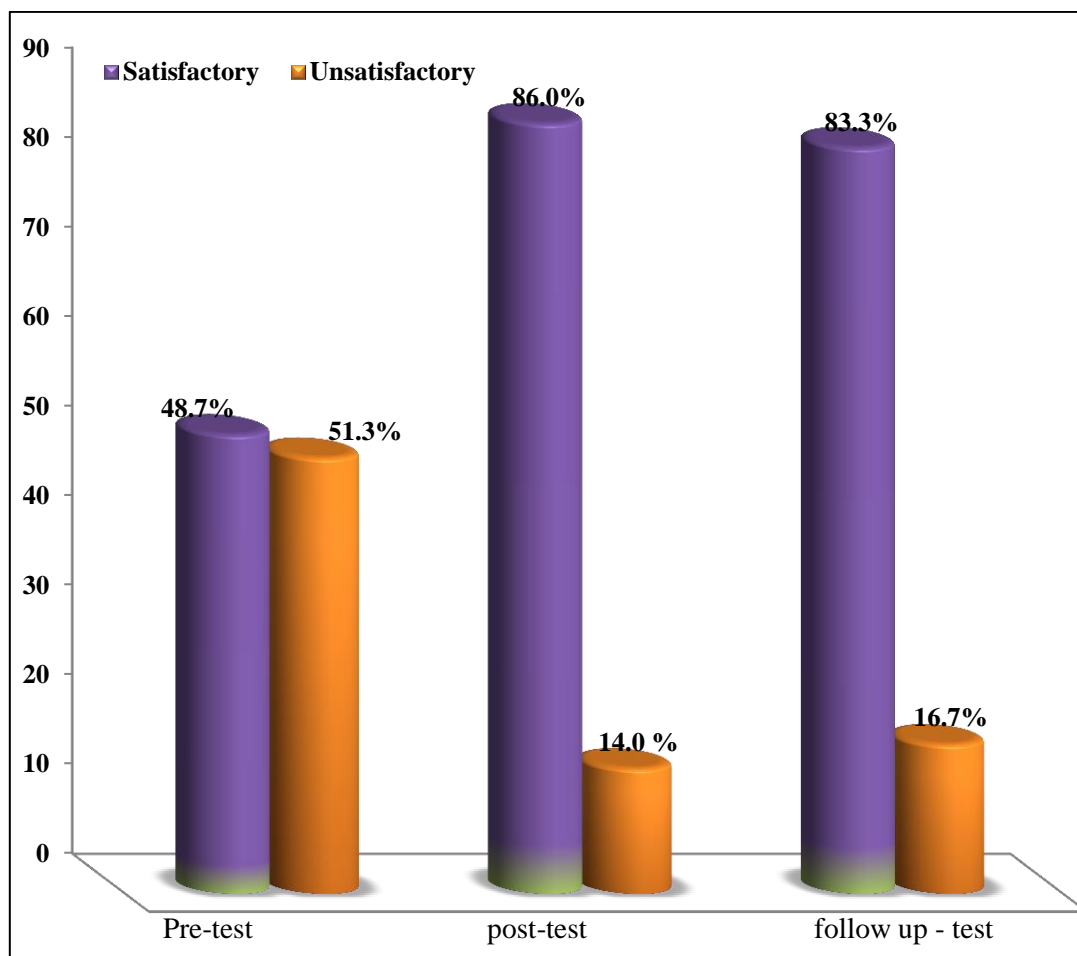
t2 paired t test between post and follow-up program

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

Table (3): mean score of Communication Competence Dimensions among Nursing Intern Student throughout the Program Phases (n=150).

communication Competence	Pre	Mean %	Post	Mean %	Follow up	Mean %	t1	P-value	t2	P-value
	Mean ±SD		Mean ±SD		Mean ±SD					
socio- emotional communication dimension	39.42 ±8.0	49.3%	59.68 ±6.7	74.6%	54.53 ±7.6	68.2%	23.5-	.000**	6.1	.000**
General information giving and verifying dimension	25.87 ±5.8	47%	40.97 ±4.3	74.5%	37.00 ±5.0	67.3%	25.1	.000**	7.3	.000**
Elaborated information giving dimension	21.32 ±5.5	47.4%	33.62 ±3.6	74.7%	30.33 ±4.5	67.4%	22.5	.000**	6.8	.000**

Figure (1): Percentage Distribution of Nursing Intern Student Regarding their Handoff Knowledge Level throughout the Program Phases (n=150).



Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

Figure (2): Percentage Distribution of Nursing Intern Student Regarding Communication Competence Level throughout the Program Phases (n=150).

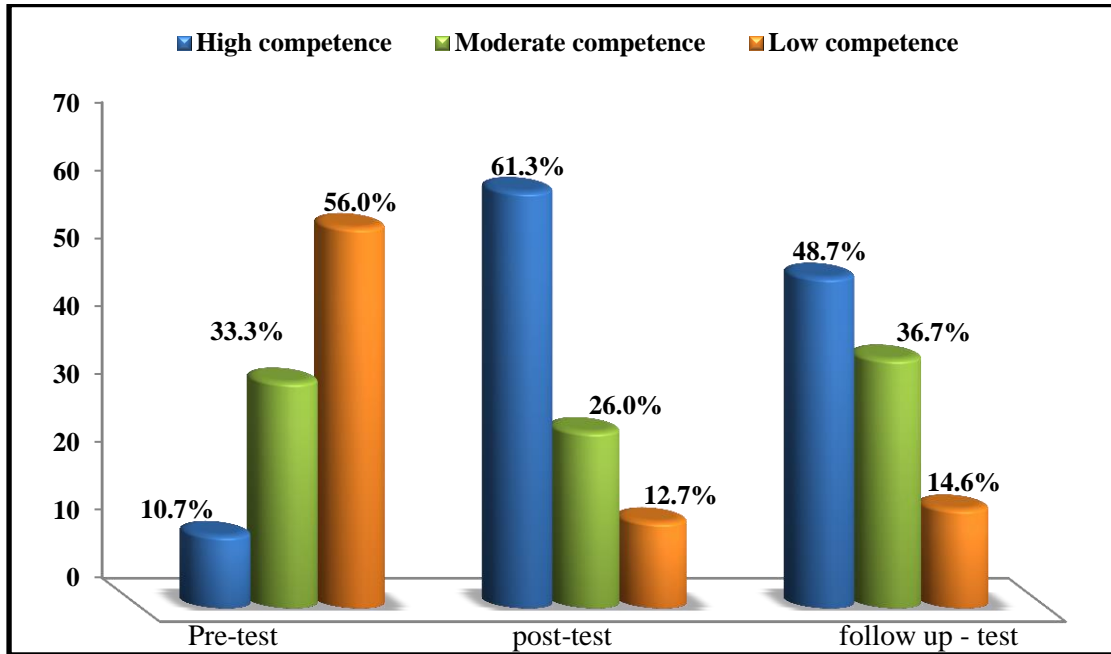
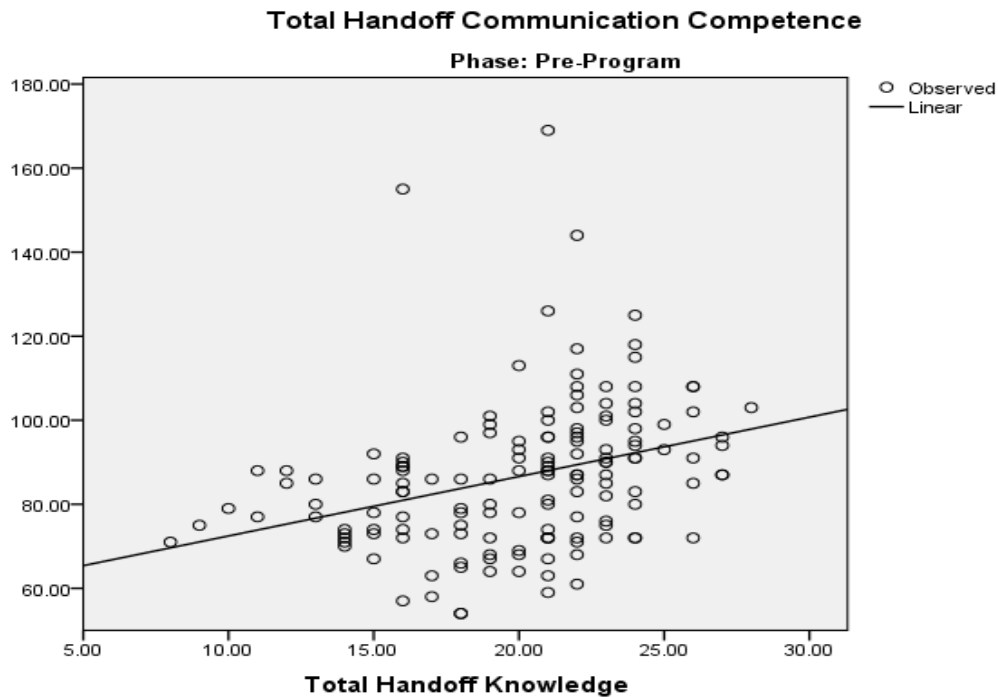


Figure (3): Regression of Handoff Knowledge and Communication Competence among Nursing intern student at Pre the Program Phase (n=150).



Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

Figure (4): Regression of Handoff Knowledge and Communication Competence among Nursing intern student at Post the Program (n=150).

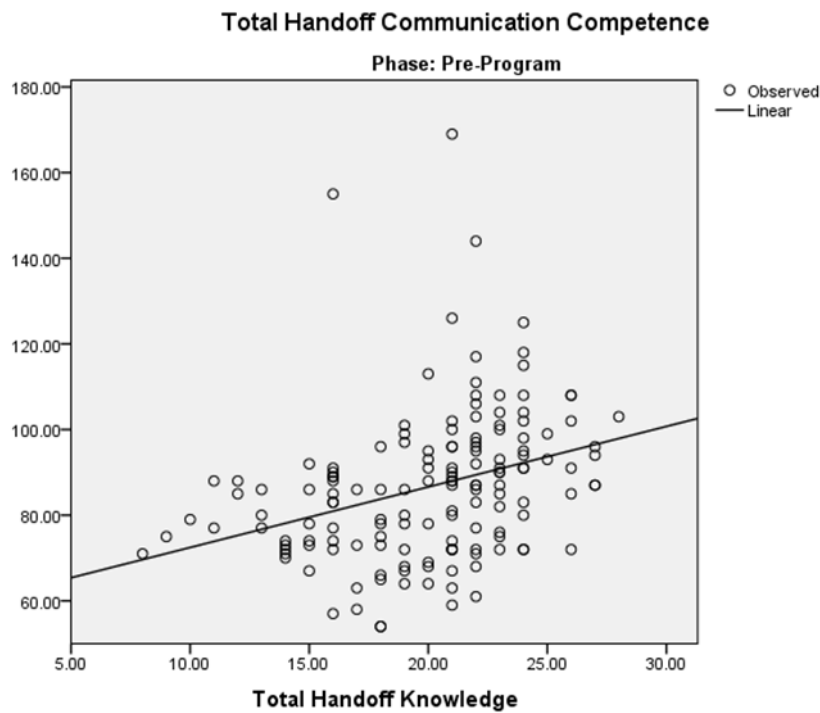
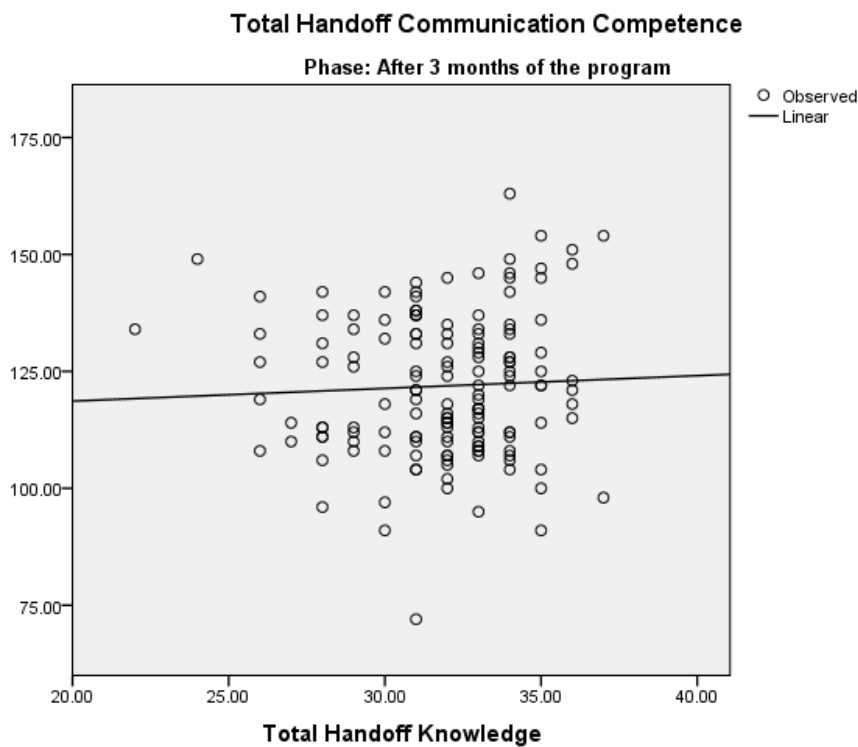


Figure (5): Regression of Handoff Knowledge and Communication Competence among Nursing intern student at Follow up Phases (n=150). :



Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

Discussion

Nursing care provision must continue 24 hours a day, seven days a week at healthcare organization to provide round-the-clock patient care, a team of nurses is required, and this procedure necessitates the transfer of patient care duties, often known as a handoff. The most prevalent kind of communication between nurses is handoff reports, which are seen as critical in ensuring continuity of care and delivering safe patient care. The purpose of the handoff is to transfer important patient information so that safe and ongoing care may be provided. Effective communication among health care members is difficult in complex and dynamic healthcare settings. The failure of health care professionals to deliver accurate, timely, and easily available critical information raises the risk of patient injury and can have catastrophic outcomes for patient care. An efficient nurse handoff facilitates the systematic transfer of accurate, timely, and vital patient information, as well as care and treatment continuity, resulting in improved patient safety (Rhudy et al., 2022).

The purpose of present study was study the effect of shift handoff training program on nurses' interns' knowledge and their communication competence.

▪ Part I: Nurses interns' knowledge regarding hand off dimensions through the program phases:

The current study result found that more than half of the nurses' interns had unsatisfactory level of handoff

knowledge at pretest but, majority of the nurses' interns had satisfactory level at posttest and this level slightly decline at follow up test. Also, nurses' knowledge levels improved significantly in the immediate post program phase compared to the pre-program phase and slightly decline at follow up test.

From the investigator point of view, the nurses' interns had unsatisfactory level of handoff knowledge at pretest; this due to nursing intern's student didn't have enough information about handoff in the curriculum during study and didn't attend any workshops or training programs about handoff before. But this result was changed because of engaging nurse's interns in handoff training program had a positive impact on increasing their knowledge as they become aware about essential concepts of handoff, methods and structures; in addition they gain knowledge about importance of proper handoff for them and for their patients.

This result in the same line with Ghonem & El-Husany, (2023) who reported that the percentages of nurses having unsatisfactory knowledge, inadequate practice, and low perception at pretest but in posttest majority of nurses had satisfactory level of knowledge, adequate practice and high level of perception and were significantly higher in the post-intervention with some declines at follow-up. Furthermore, the study result matched with Abdel-Aal et al.,(2020) who revealed that majority of studied nurses had very deficient

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

total knowledge regarding shift report handover and low of performance regarding shift report handover. Also, Abd Elhamed et al., (2019) who stated that the nurses had deficient knowledge of shift report. This was noticed in most of the knowledge areas tested and the majority of nurses not aware of concept of shift report.

Additionally, this result consistent with Chien et al.,(2022)who found a significant difference at pre , post and follow up educational session regarding nurse's handoff knowledge and the handoff knowledge score was low at pre session while the total handoff knowledge score improved at post and follow up session. Also reported that, insufficient handoff of patient information carries major risks for staff, organizations and patients. So sufficient and relevant information through educational sessions should be exchanged to ensure patient safety. More over without handoff education, the nursing students in this study lacked awareness of the importance and benefits of handoff, methods of handoff as well as components of handoff and communication competence.

On the other hand, this study result was inconsistent with Seada and Bayoumy, (2017) who reported that the majority of nursing intern student had satisfactory score of hand off knowledge at follow up test compared to preprogram and immediately post program period. Also, the current study result not matched with Lee & Lim, (2021). who found that there was significant difference at pre and post educational session regarding

agreement, patient information, at pre educational session the nursing intern student had moderate level of handoff knowledge but this level of knowledge improved after educational session and this result was expected after applied the educational session. This can interpreted as, the importance of a shared understanding among team members is critically important to achieving continuity, safety, and high-quality health outcomes .

▪ **Part II: Nurses interns' levels regarding communication competence dimensions through the program phases:**

The current study result indicated that the total hand-off communication competence levels among nurses' interns during different phases of assessment was low competence at pretest and high level of competence at posttest and slight decline at follow up test. Also, there was a highly statistically significance differences and improvement of nurses' intern's communication competence levels through three program phases.

From the investigator's point of view. This result may be due to the nursing the nursing interns' students didn't have enough knowledge and experience regarding to communication competence but this level improved at posttest and slightly decline at follow up test due to the effect of the training program which improved their knowledge about handoff and its positive effect on communication competence and the nurses need to communicate

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

appropriately and give clear information to the patient. Also, this might be due to support given to them by the staff of the hospital and that of the training program given was effective. In addition, many of the nursing competencies are not developed well among the nursing students before they go to their internship year.

This study result consistent with Noh & Kim, (2021) who showed that at the posttest and follow up test there was statistically significant improvements and high level at communication competence, communication clarity, assertive behaviors, and clinical competence when compared to pretest which was low level of communication competence

Furthermore, this result in the same line with Sung & Park, (2021) who showed that a pre- and posttest design and reported that the mean total score of the nurses increased significantly after participating in the program,. Comparisons of differences in cultural competence scores between pre- and posttests by participant characteristics revealed that the improvement in cultural competence was greater in those with no experience abroad for longer than 1 month compared to those who had experience abroad for longer than 1 month and in those who had never cared for a foreign patient compared to those who had cared for more than three foreign patients per week.

While, Hoang et al.,(2019) As regard studied staff nurses' knowledge about communication competence, the study revealed that the studied staff nurses

had deficient knowledge at preprogram and moderate level at posttest and follow up in communication process which includes; definition, characteristics of effective communication, principles, goals, etc.

On the other hand, the study result was not matched with Seada et al.,(2022) who reported that there was a statistical significant differences in nurses interns mean scores regarding most of dimensions of handoff communication competencies at follow up test program, and the majority of nursing intern student had high level of communication competence relative to pre while at immediately post program period the communication competence level was low .

Regarding to communication competencies dimensions through the program phases: The current study results showed highly statistical significant differences in most of related dimensions (information giving, seeking and verifying) and there was improvement of nurses' intern's communication competence dimensions through three program phases.

From the investigators' point of view this result may be due to nurses' engagement in handoff educational program increased their communication competencies. During nursing handoff, the nursing interns get more information about patients and can ask any question about the patient to the staff nurse who assigned with the patient. In addition during bedside handoff the outgoing nurse interns encouraging the incoming one to ask questions and seek information,

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

answering questions of incoming nurse related to the patient's needs. As well as reviewing important or complex information to make sure it correctly understood and making sure that all explanations and directions were clearly understood. Collaboration of inter professional communication are essential elements of the transfer of crucial patient information and the socio-emotional communication is another one component of communication competence that focuses on fostering warmth, trust, and concern during handoff .

This result matched with Dice smith, (2019) who reported that outgoing nurses rated their own information giving behaviors higher, opposed to the rating they received from the incoming nurse. Outgoing nurses rated information seeking behaviors of the incoming nurse higher than the self-rating from the incoming nurse. In addition, outgoing nurses also rated their own information seeking behaviors as higher than the rating given to them by the incoming nurse. Furthermore, outgoing nurses rated their own socio emotional behaviors higher than the rating given to them by the incoming nurse.

▪ Part III: Correlation between handoff knowledge and communication competence through the program phases:

The result of the current study showed that there was highly statistically significance between handoff knowledge and communication competence at all program phases.

From the investigator's point of view, this result can be explained as, the training program has it's a positive effect and nurse's intern's students started to apply the knowledge they gained which was reflected on their communication competence. The nursing handoff process is considered to be a crucial part of providing quality care in a modern healthcare environment.

This result was in the same line with El-Guindy et al., (2022), who clarified that there was a positive highly statistically significant correlation between nurses' level of knowledge and performance toward handoff immediate post program. Also, that there was a positive highly statistically significant correlation between level of performance and level of continuity of care post program. This can be due to understand by knowledge regarding shift change handoff had a positive effect on performance and continuity of patient care and also due to effective shift report handoff supports the transition of critical information and continuity of patient care and treatment. Finally due to achieved goal of nursing handoff educational program is to communicate and exchange accurate, relevant and up-to-date clinical information about the patient which is necessary for continuity of care.

Moreover, the study result was consistent with Ghonem & El-Husany, (2023) who reported that concerning nurses' practice of SBAR, the study results revealed a moderately significant positive correlation between nurses' knowledge scores and SBAR

Effect of Shift Handoff Training Program on Nurses Interns' Knowledge and their Communication Competence

practice. Moreover, the improvement in their knowledge scores was a significant positive predictor of the improvement in their communication competence.

Moreover, the result of this study result was inconsistent with Gaber, (2022). Who found that, there was only a statistical significant relationship between handoff communication competencies and nurse's intern's previous handoff knowledge?

Conclusion

Based on the finding of the current study result, it can be concluded that there was marked improvement and effectiveness of hand off training program on nurses' interns knowledge at posttest and follow up test compared with pretest. Also, more than half of the nurses' interns had unsatisfactory level of handoff knowledge at pretest while, majority of the nurses' interns had satisfactory knowledge level at posttest and slightly decline at follow up test.

Moreover, there was a highly statistically significance and improvement of nurses' intern's communication competence dimensions throughout the program phases. The communication competence level of intern students was high in posttest and follow up test compared with pretest. Also, the highest mean score was socio-emotional communication dimension at posttest and follow up test compared with pretest.

Finally, there was highly statistically significance correlation between hand-off knowledge and communication

competence in all program phases.at posttest and slightly decline at follow up test.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

- 1) Hospital management should improve hand offs by initiating a workshop within each facility, setting the priority, and identifying the timeline for nursing intern and new graduated students.
- 2) Design the information technology systems in the long term, an excellent opportunity exists to support hand offs and transitions in care, including electronic medical records, continuity of care records, and various integrated summary-of-care documents.
- 3) Nursing students should be prepared for and learn the process of effective communication that promotes patient safety.
- 4) Provide undergraduate students the opportunities to educate and participate in handoff during clinical area were heavily influenced by clinical environment factors.
- 5) Establishing cooperation protocols between the College of Nursing and the various hospitals to improve nursing intern's communication competencies.
- 6) Improve patient safety outcomes for all patients through continued research in communication skills and tools.
- 7) Additional research regarding the education and cultivation of strong

***Effect of Shift Handoff Training Program on Nurses Interns' Knowledge
and their Communication Competence***

communication skills among nurses and other healthcare disciplines could be a top priority for nursing education and healthcare facilities.

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