

# EFFECT OF MANAGEMENT PROGRAM ON HEAD NURSES' PERFORMANCE OF CONTROL AND SAFEGUARD REGARDING RESOURCES AT EL-MENSHAWY GENERAL HOSPITAL

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### Abstract

Resources control is to know how to act in a responsible and recognized way to add economic value to the hospital units. it includes nursing practices that reducing the utilization of non-beneficial care and use of medical resources appropriately, without compromising the quality of the nursing care provided to the patient. **Aim:** The aim of the study was to determine the effect of management program on head nurses' performance of control and safeguard regarding resources at El-Menshawy General Hospital. **Method:** **Design:** Quasi experimental research **Setting:** Study was conducted at El-Menshawy General hospital affiliated to Ministry of Health and Population. It divided into three main big buildings A, B, and C which include twenty inpatient and outpatient units. **Subjects:** All (N=60) head nurses working in inpatient units, divided into head nurses (40) and in-charge nurses (20). **Data collection tools:** Tool (I) head nurses' knowledge about control and safeguard regarding resources questionnaire. Tool (II) head nurses' performance of control and safeguard regarding resources observational checklist. **Results;** Preprogram more than half of head nurses had low level of knowledge regarding control and safeguard resources, changed to be none had low but all had high level of knowledge post program. Beside preprogram seventy percent of head nurses at morning shift, but all of them at afternoon and evening shift had unsatisfactory level of performance regarding control and safeguard resources, changed post program to be all head nurses at morning shift, most and majority of them at afternoon and evening showed satisfactory performance levels. There was a strong and highly statistically significant positive correlation between total head nurses' high knowledge and satisfactory performance level post program than pre. **Conclusion;** The designed and implemented management program significantly improve head nurses' knowledge and performance regarding control and safeguard resources. **Recommendation;** Maintain periodical in-service training program to improve nursing staff' knowledge and practice regarding control and safeguard resources.

**Index Terms:** Resources Control, Resources Safeguard, Cost Saving Strategies, Material Resources, Medical Supplies And Equipment.

## INTRODUCTION

Expenditure of hospital supplies, drugs and equipment takes second place behind human resources, this makes clear the importance and need for data and information to assist controlling in this segment [1]. In the hospital environment material resources expenses represent approximately 15% - 25% of regular expenditure. About 3,000 to 6,000 items of high complexity consumed in hospitals are purchased with certain frequency, as well as within hospital pharmacy 2,000 drugs inventoried [2]. Supplies and equipment are essential resources to achieve the objectives of health care organization [3]. Also, drug availability is a critical factor in hospital's ability to provide effective, timely, and safe patient outcomes [4]. So health care resources are finite, and in the case that doesn't explicitly manage them, this will increase disparities in care [5, 6]. Continuing public concern around the cost of health care and the opportunities to prevent unnecessary harm to patients, has prompted clinicians and policymakers alike to take hard look at the appropriate use of care resources. While specialty nursing societies and others have begun to identify areas of overuse and explore methods to measure and reduce it [7]. Inefficient use of supplies, drugs and equipment can add as much as \$1.6 million to typical hospital budget [8]. Shortage of resources, administrative methods, and organizational culture are among the factors that affect the delivery of nursing care and use of resources [9]. As well, the hospital environment with certain characteristics such as critically ill patients, high mortality rate, unpredictable nature of the work, high use of resources, and more expensive equipment have led to specific care culture [10]. Within this context, culture and beliefs can have an effect on the efficiency of nursing activities and resource control [11]. This will be changed through improving of drug distribution and management training of staff in drug management, computer skills, finance and general management; Improvement of storage conditions for drugs and other medical supplies by renovating existing medical stores and by building new stores at national, regional and district levels. Implementation of computerized inventory control package at government medical stores [12, 13]. Resource saving knowledge and skills offer head nurses the opportunity to make an input in setting priorities when it comes to making choices in the face of inadequate resources. Head nurses must understand the unit cost per patient and outpatient in a day to enable them to know how much money nursing units are generating [14]. With cost-benefit analysis, nursing material resources saving can be achieved by a well-structured auditing, documentation, care and maintenance of equipment, inventory management, storage and stock control. Hospitals have to develop policies that minimize resources costs by balancing service efficiency and customer demands [15]. Adequate information and understanding of healthcare costs required to enable head nurses to have insight into management and leadership challenges confronting healthcare. It is important for head nurses to be trained and educated about their roles and responsibilities in material resources management of hospital finances [16]. Therefore, head nurses required to ensure the efficient use of limited healthcare resources, also, to get involved in the cost-benefit analysis so that resource saving are made into more profitable units and departments [17].

## **SIGNIFICANCE OF THE STUDY**

Nursing staff faced significant pressure to increase efficiency and deliver quality care in a cost-efficient manner. The head nurses are responsible to be competent in their control practices for resources safeguard and saving activities. El Menshawy General Hospital developed supplies and medication committees to restrict consumption of these resources but as an innovative idea there is a resistance to change from nurses. Therefore the present management educational program is essential to improve head nurses' knowledge and performance of control and safeguard of resources [18, 19].

**Aim of the Study:** This study aimed to determine the effect of management program on head nurses' performance of control and safeguard regarding resources at El-Menshawy General Hospital.

## **SUBJECT AND METHODS**

### **A- Research Design**

A quasi-experimental research design was conducted to achieve the aim of this study.

### **B- Setting**

This study was conducted at El-Menshawy General Hospital affiliated to the Ministry of Health and Population. It divided into three main big buildings A, B, and C which include twenty inpatient and outpatient units.

### **Subject**

The subjects of the present study consisted of all head nurses (60) working in inpatient units, divided into head nurses (40) and in-charge nurses (20). Every unit of the previously mentioned setting had two head nurses and one in-charge nurse.

### **Tools of Data Collection**

Tool (1): Structured Questionnaire

It was designed by the researcher. It was composed of two parts :

Part 1: Head nurses' characteristic data included age, sex, educational level, marital status, years of experiences, job title, and attendance of any previous programs about control and safeguard regarding nursing resources.

Part 2: Head Nurses' Knowledge about Control and Safeguard Regarding Resources Questionnaire:

This tool was developed by the researcher to assess head nurses' knowledge about control and safeguard regarding resources guided by Bogo 2015 and review of literature. It consisted of 63 questions, in the form of complete (5) questions, multiple choice questions (25) questions, true & false questions (26) questions, and match (7) questions. These questions were classified into six categories as aspects related to definition, importance, objectives and methods of resources control included (13) questions, causes

of deviation from cost saving and barriers for resources control safeguard and saving included (13) questions, head nurses' strategies for cost saving included (14) questions, head nurses' resources control activities essential for head nurses in monitoring documentation and auditing of resources included (8) questions, head nurses' resources control activities essential for head nurses in monitoring storage, security, and safety of resources included (6) questions, nurses training for correct use of supplies and equipment to enforce cost saving culture environment included (9) questions.

### **Scoring System**

Each question in the knowledge questionnaire was allotted score of one for correct answer and zero for wrong answer. The total scores for the knowledge test were classified into levels according to cut-off points as follows:-

- High level of knowledge  $\geq 75\%$
- Moderate level of knowledge  $\geq 60\% - < 75\%$
- Low level of knowledge  $< 60\%$

Tool (2) Head Nurses' Performance of Control and Safeguard Regarding Resources Observational Checklist:

This tool was developed by the researcher guided by Khomami 2019, Cosgrove 2013 and Heydari 2015 and relevant literature. This tool used to assess head nurses' performance of control and safeguard regarding resources. It included (101) items divided in five scales as follows: Monitor deviation for resources safeguard scale it included five subscales as follows: auditing subscale (13) items, documentation subscale (9) items, care and maintenance of equipment subscale (11) items, inventory management subscale (11) items, storage and stock control subscale (12) items. Monitoring nurses' deviation from resources saving scale (11) items, discover cause of deviation scale (15) items, give nurses corrective action scale (7) items, enforce cost saving strategies scale (12) items.

### **Scoring System**

Performance of head nurses were observed and measured on four points Likert Scale ranged zero-three. The score zero for not applicable, one for not done, two for incompletely done and three for completely done. The total scores were classified into levels according to cut-off points as follows:-

- Satisfactory performance  $\geq 75\%$
- Unsatisfactory performance  $< 75\%$

### **Tools Validity and Reliability**

Testing the reliability through Cronbach's Alpha reliability analysis. To achieve the criteria of trustworthiness of the tool reliability a doctor in statistics checked faces and content of all items. The reliability of the tools was assessed through 10% head nurses (pilot study)

using the developed questionnaire. Measuring their internal consistency by determining Cronbach alpha coefficient, proved to be high as indicated in the following table: Cronbach's Alpha reliability analysis

Tools of the study	Tools dimensions	Alpha Cronbach	F test	Content validity	P value
1- Head Nurses' knowledge (Questionnaire sheet)	6 dimensions	0.856	0.913	98.5	<0.001*
2- Head Nurses' Performance (Observational checklist)	5 dimensions	0.971	0.955	98.1	<0.001*

### Administrative Design

Approval was obtained from responsible authorities of Faculty of Nursing, then written official letter sent to the managers of El-Menshawy hospital under study, include the aim of the study and steps of the nursing intervention program, to get permission to conduct the study.

### Ethical Consideration

1. The ethical research considerations in this study include the following:
2. Approval from ethical committee at Faculty of Nursing, Tanta University was obtained.
3. The researcher introduced herself to the participant, a full explanation of the aim and method of the study was done to obtain the acceptance and cooperation as well as their informed consent.
4. The right to terminate participation at any time was accepted.
5. The nature of the study did not cause any harm for the entire sample.
6. Assuring the head nurses about the privacy and confidentiality of the collected data and explained that it was used for the study purpose only.

### Operational Design

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

### Preparatory Phase

It included reviewing of the current and more recent national and international literature reviews concerning current study by using books, articles, periodicals, magazines and internet. After reviewing related literature in various aspects of the problems, the study tools were designed and tested for its face, content validity and reliability.

### Pilot Study

A pilot study was carried out after the expert's opinion and before starting actual data collection. It was carried out on a sample of 10% of subjects (n= 6) to check and ensure the clarity of the tools, identify obstacles and problems that might be encountered during data collection. The aim of pilot study was to test the sequence of items, clarity,

applicability and relevance of the questions. Necessary modifications were done.

### **Field Work**

The tools were distributed by researcher on the subjects in their work setting, the subjects answered the questionnaires in the presence of the researcher. Tools I & II were used before and after implementation of the program, every head nurse performance was observed three times about control and safeguard regarding resources (tool II). The researcher set up a teaching sessions plan based on assessed need of the sample and literature review., these objectives were categorized into general and specific objectives and the program resources, facilities were allocated (power point presentations, flow sheets, pens and papers). In addition, the researcher determined the teaching strategy (group discussion, lecture and examples from work and real life situation).

The program theoretical sessions were held at El-Menshawy general hospital. The management program about head nurses' control and safeguard regarding resources was designed and implemented by the researcher based on review of recent relevant different literatures. The data was collected from head nurses by researcher. Head nurses were divided into six groups, each group (10) nurses. The program time was 12 hours for each group. Every session two hours and the program was conducted at conference room of El-Menshawy General Hospital. They preferred to start session at 10:30 am –12:30 pm as it was the most suitable time for them after finishing the necessary unit work. The data collection started from January 2021 and lasted six months.

### **Evaluation of the Intervention**

Evaluation was done for head nurses using tools (I, II) two times pre and Immediately post implementation of the program,. Comparison made between the pre and post-tests results to evaluate change in head nurses' knowledge and performance of control and safeguard regarding resources.

### **Statistical Design**

Collected data were coded, entered, tabulated and analyzed using SPSS (Statistical Package for Social Science) version 25 (IBM Corporation, Armonk, NY, USA). For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, which describe a categorical set of data by frequency, percentage or proportion of each category, comparison between two groups and more was done using Chi-square test ( $\chi^2$ ). 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 more than two means of non-parametric data, Kruskal-Wallis ( $\chi^2$ ) was calculated. Correlation between variables was evaluated using Pearson's correlation coefficient (r).

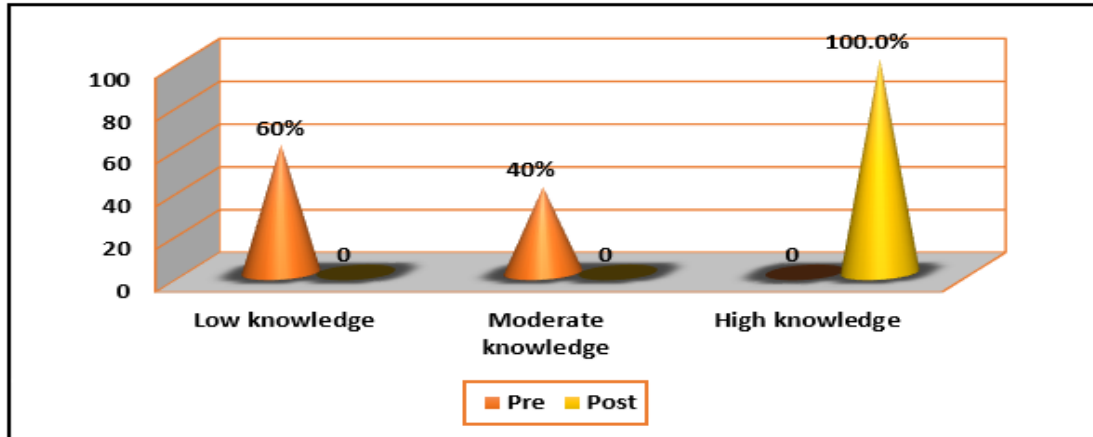
## RESULT

**Table (1): Characteristics of head nurses (n=60)**

Items	Head nurses (n=60)	
	No.	%
<b>- Age in years</b>		
< 30	5	8.3
30 - < 40	41	68.3
40 - 50	14	23.4
<b>Range</b>	<b>25 – 47</b>	
<b>Mean ± SD</b>	<b>36.983 ± 4.78</b>	
<b>- Sex</b>		
Male	2	3.3
Female	58	96.7
<b>- Educational level</b>		
Bachelor degree	29	48.4
Post graduate diploma	17	28.3
Master degree	11	18.3
Doctorate degree	1	1.7
Fellowship	2	3.3
<b>- Marital status</b>		
Married	58	96.7
Not married	2	3.3
<b>- Years of experience</b>		
Less than 10	11	18.3
10 – 20	45	75.0
More than 20	4	6.7
<b>Range</b>	<b>3 – 21</b>	
<b>Mean ± SD</b>	<b>14.033 ± 4.40</b>	
<b>- Job title</b>		
Nursing specialist	4	6.7
Nursing supervisor	56	93.3
<b>- Attendance of any previous programs about control and safeguard regarding nursing resources</b>		
Yes	-	-
No	60	100.0

Table (1) Represents characteristics of head nurses. The age of head nurses ranged from 25 – 47 years with mean age  $36.983 \pm 4.78$  and 68.3% their age group was 30 - < 40. Head nurses 96.7% were married female and 93.3% of them were nursing supervisors. Less than half (48.4%) had bachelor degree and the rest (51.6%) had post graduate degrees also. Three quarters (75.0%) of head nurses had 10 – 20 years of experience. All head nurses did not attend any programs about control and safeguard regarding nursing resources.

## Head Nurses' Knowledge



**Figure 1: Levels of Head Nurses' Total Knowledge Regarding Control and Safeguard Resources Pre, and Post Program (n=60)**

Figure (1): Shows levels of head nurses' total knowledge regarding control and safeguard resources pre, and post program. Preprogram more than half of head nurses had low level of knowledge regarding control and safeguard resources, changed to be none had low but all had high level of knowledge post program.

**Table (2): Levels of Head Nurses' Total for Each Dimension of Knowledge Regarding Control and Safeguard Resources Pre, and Post Program (n=60)**

Dimensions		Levels of total knowledge						Chi-square	
		Low		Moderate		High		$\chi^2$	P- value
		No	%	No	%	No	%		
- Definition, importance, objectives and methods of resources control	Pre	31	51.7	21	35.0	8	13.3	91.765	0.0001**
	Post	-	-	-	-	60	100.0		
- Causes of deviation and barriers of resources control, safeguard and saving	Pre	37	61.7	16	26.7	7	11.6	91.205	0.0001**
	Post	-	-	1	1.7	59	98.3		
- Strategies for cost saving	Pre	43	71.6	16	26.7	1	1.7	100.833	0.0001**
	Post	-	-	5	8.3	55	91.7		
- Monitoring documentation and auditing of resources	Pre	28	46.7	21	35.0	11	18.3	82.817	0.0001**
	Post	-	-	-	-	60	100.0		
- Monitoring storage, security, and safety of resources	Pre	23	38.4	32	53.3	5	8.3	101.536	0.0001**
	Post	-	-	-	-	60	100.0		
- Correct use of supplies and equipment.	Pre	48	80.0	10	16.7	2	3.3	112.258	0.0001**
	Post	-	-	-	-	60	100.0		

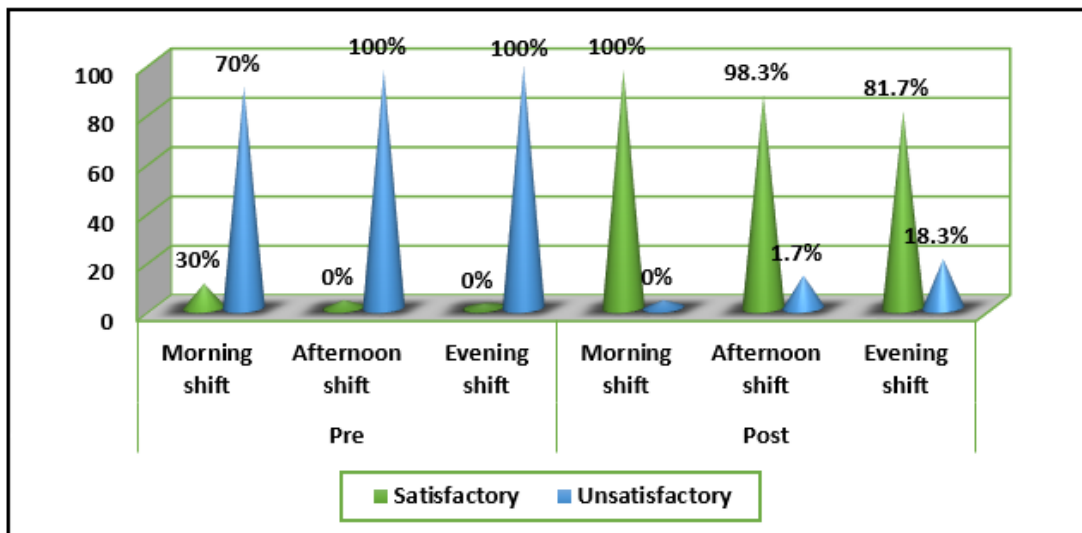
\*Statistically Significant difference at (P<0.05)  
 difference at (P<0.01)

\*\* Highly Statistically Significant



Table (2): The table shows highly statistically significant improvement post than preprogram for all dimensions of head nurses' knowledge regarding control and safeguard resources ( $p= 0.0001$ ). Preprogram 80%, 71.6%, 61.7% of head nurses showed low level of knowledge respectively for total dimension of correct use of supplies and equipment, strategies for cost saving and causes of deviation and barriers for resources control safeguard and saving. While, post program range (91.7% - 100.0%) of head nurses showed high total score for all dimensions of knowledge regarding control and safeguard resources at ( $p= 0.0001$ ).

### Head Nurses' Performance



**Figure 2: Levels of Head Nurses' Total Performance Regarding Control and Safeguard Resources Pre, and Post Program. (n=60)**

Figure (2): Shows levels of head nurses' total performance regarding control and safeguard resources pre, and post program. Preprogram seventy percent of head nurses at morning shift, but all of them at afternoon and evening shift had unsatisfactory level of performance regarding control and safeguard resources, changed post program to be all head nurses at morning shift, most and majority of them at afternoon and evening showed satisfactory performance levels.

**Table 3: Levels of Head Nurses' Total Satisfactory Performance at Morning, Afternoon and Evening Shifts For Each Dimensions Regarding Control and Safeguard Resources Pre, and Post Program (N=60)**

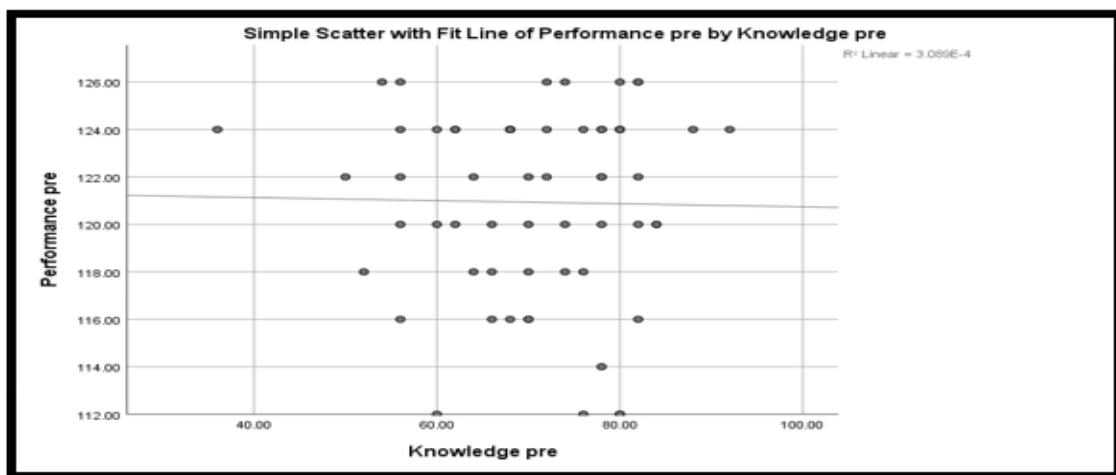
Dimensions		Satisfactory performance						Chi-square	
		Morning shift		Afternoon shift		Evening shift			
		No	%	No	%	No	%	$\chi^2$	P- value
Monitor resources safeguard deviation.	Pre	21	35.0	5	8.3	4	6.7	<b>21.840</b>	<b>0.0001**</b>
	Post	58	96.7	51	85.0	49	81.6	<b>6.939</b>	<b>0.031*</b>
Monitoring of resources saving deviation.	Pre	33	55.0	6	10.0	8	13.3	<b>39.104</b>	<b>0.0001**</b>
	post	52	86.7	49	81.7	39	65.0	<b>8.936</b>	<b>0.011*</b>
Cause of deviation.	Pre	6	10.0	2	3.3	1	1.7	4.912	0.086
	post	45	75.0	45	75.0	40	66.7	1.385	0.500
Corrective action	Pre	35	58.3	21	35.0	17	28.3	<b>12.352</b>	<b>0.002*</b>
	post	55	91.7	55	91.7	43	71.7	<b>12.549</b>	<b>0.002*</b>
Cost saving strategies	Pre	8	13.3	5	8.3	2	3.3	3.927	0.140
	post	59	98.3	51	85.0	31	51.7	<b>40.851</b>	<b>0.0001**</b>

\*Statistically Significant difference at (P<0.05)  
difference at (P<0.01)

\*\* Highly Statistically Significant

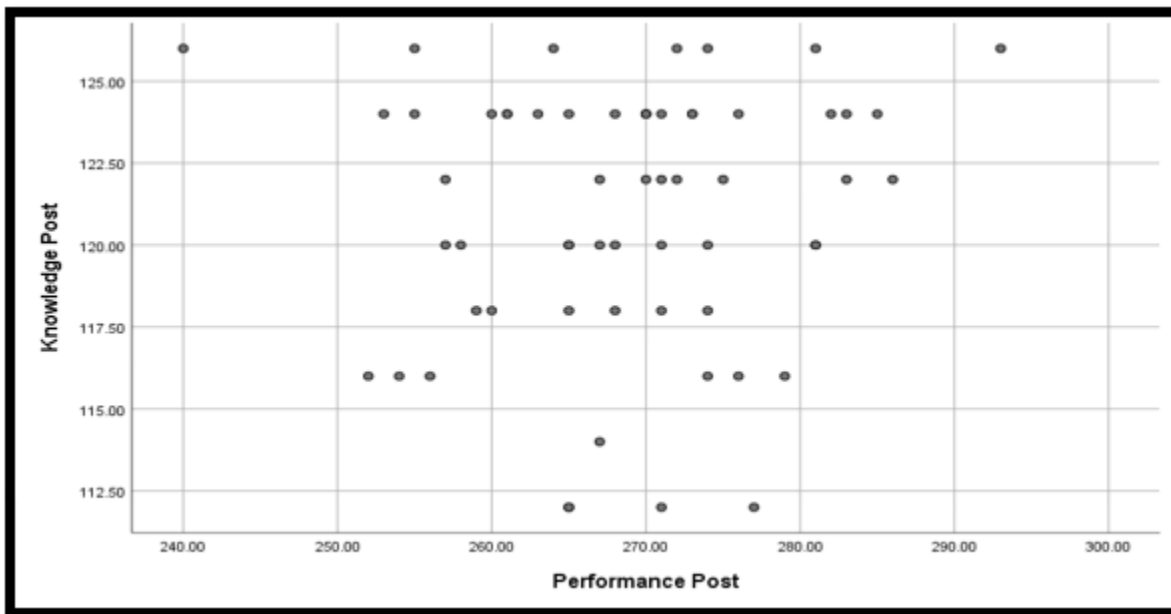
Table (3): The table shows improvement of head nurses' total satisfactory performance for all dimensions except causes of deviation post program than preprogram at statistically significant (P<0.05) and highly significant at (P<0.001). There was statistically significant improvement of head nurses' satisfactory performance post program than preprogram at morning than afternoon and evening shift for total monitor resources safeguard deviation, total monitoring nurses' resources saving deviation, total corrective action, and total cost saving strategies dimensions respectively at (P<0.05).

### Correlations



**Figure 3: Correlation between Head Nurses' Knowledge and Performance Regarding Control and Safeguard Resources Pre-Program**

Figure (3): Shows correlation between head nurses' knowledge and performance of control and safeguard regarding resources pre-program. There was highly statistically significant positive correlation between total levels of head nurses' knowledge and performance at evening shift preprogram at ( $r = 0.932$ ,  $P = 0.0001$ ).



**Figure 4: Correlation between Head Nurses' High Knowledge and Satisfactory Performance Regarding Control and Safeguard Resources Post Program**

Figure (4): Shows correlation between head nurses' knowledge and performance regarding control and safeguard resources post program. There was a strong and highly statistically significant positive correlation between total head nurses' high knowledge and satisfactory performance level post program.

## DISCUSSION

Hospitals have entered a critical period regarding control and safeguard resources. The lack of well qualified nurses and head nurses to has been considered as one of the most important barriers to achieve proper saving of hospital resources. Head nurses in hospitals have challenges for improving their abilities to control and safeguard unit resources, cost saving, increase use of technology and improve staff nurses activities related to control and safeguard resources. Adding to management of resources shortage, plan for new administrative methods, and correct the old organizational culture.

Regarding Head nurses knowledge in table(3) and figure (1), results of present study showed that preprogram head nurses had low level of knowledge regarding control and safeguard resources. This result was in agreement with [19] who studied logistic management as perceived by nursing leaders and reported that head nurses at Benha University Teaching Hospital had poor knowledge level about health resources control

and management. Also, the result consisted with [20] who studied experiential educational intervention to improve nurse managers' knowledge and self-assessed competence with health care financial management, found that knowledge of head nurses were low preprogram in all dimensions of resources and financial management of first line nurse managers' competencies

Concerning head nurses performance in table(4) and figure (2), data in existing study displayed that preprogram head nurses at morning, afternoon and evening shift had unsatisfactory level of performance of control and safeguard resources. This result was in similarity with [21] who studied quality outcomes and costs, an issue of critical care nursing clinics of North America, they found that most of head nurses had poor level of performance relate to control and management of logistics resources. From the researcher point of view, this result might be attributed to head nurses do not care to make up for follow causes of deviation and over looked corrective staff nurses' actions. Beside their lack of knowledge about the strategies of control and safeguarding resources.

Head nurses in present study had unsatisfactory performance of control and safeguard resources especially at afternoon and evening shifts. This result was incongruent with [22] who carried out a study entitled about frequency of registered medical errors in a hospital in Ardabil, support the present study results and state that night shift nurses who have sleep problems are at greater risk for wasting material resources and compromised nursing care quality. From the researcher point of view, this result might be attributed to evening shift was long shift which make a bad impact in nurses' efficient work performance. Also, evening shift in most cases characterized by shortage of staff nurses and insufficient supervision and lack of training opportunities for staff nurses.

Present study results illustrate that none of head nurses had low but all had high level of knowledge and satisfactory performance regarding control and safeguard resources post program. This result was in agreement with [23] who carried out a study entitled developing and validating strategic plan for total quality management in nursing, who found that head nurses level of knowledge and practice about correct management of supplies for saving resources to achieve quality post program were improved 100% than preprogram.

Also [24] who carried out a study entitled effect of managerial innovation educational program for head nurses on their professional competency, reported that a highly statistical improvement of head nurses' knowledge regard managerial innovation between pre and post program phase. From the researcher point of view, this result might be attributed to their attendance of present study program sessions which give information explain to them all control and safeguard resources related dimensions

The results of present study in figure (3,4) shows strong and highly statistically significant positive correlation between total low level of head nurses' knowledge and performance at afternoon and evening shifts preprogram and shows strong and highly statistically

significant positive correlation between total levels of head nurses' high knowledge and satisfactory performance at morning, afternoon and evening shifts post program.

This result was in agreement with [25] who carried out a study entitled study about efficacy of leadership program for head nurses' empowering and supportive role on nurses' work engagement, and [26] who carried out a study entitled study about design program about accreditation standard to enhance staff nurses' documentation performance in intensive care units, they support the study and state that there is a statistically significant positive correlation between low level of head nurses' knowledge and performance preprogram and shows strong and highly statistically significant positive correlation between levels of head nurses' high knowledge and satisfactory performance post program.

Most probably all of these positive improvement of knowledge and performance achieved through training in the present resources control and safeguard management program because the knowledge gap and strongly needs of training in this specially important topic.

## CONCLUSION

Head nurses at El-Menshawy General Hospital had low level of knowledge and unsatisfactory level of performance regarding control and safeguard resources pre-program, which reflected on their demand for implementing well-designed management program to enforce head nurses talents and significantly improving their knowledge and performance and maintaining regular using of resources saving strategies. And this is what has already been done after the implementation of the current management program, which showed statistically significant improvement after its implementation.

## Recommendation

The result of this study suggested the following recommendations:

- Maintain periodical in-service training program to improve nursing staff' knowledge and practice regarding control and safeguard resources.
- Head nurses need to seriously supervise and control consumption of supplies and medications in their units.

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