Zagazig Nursing Journal

Editorial Board

January, 2010 **Vol. 6 No.10**

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Nursing Peer Review Protocol for Patient Safety

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Abstract
Background: Patient safety is of great concern to healthcare leaders and is a top priority in all healthcare organizations. It is essential to promote an organizational commitment that values a culture of safety through reporting of medical error and analysis of untoward events. Nursing peer review facilitates the establishment of a culture of safety, as it seeks to analyze medical errors and eliminate the reoccurrence of untoward events. **Aim**: To develop nursing peer review protocol for patient safety.**Method**: This study is a quasi-experimental study. The study subjects consisted of three groups: staff nurses (316), head nurses plus nursing directors (37) and (40) as jury group. The study was conducted in Military Production hospital and Nasr City Insurance hospital. Four tools were used for collecting data (two self administered questionnaires format and two opinionnaires format).**Results**: There was no statistical significant difference in both of the studied hospitals regarding all patient safety dimensions. There was poor safety organizational culture regarding all mentioned dimensions. There was no patient safety committee in both hospitals.**Conclusion-** Nursing peer review protocol for patient safety was developed and validated.

Key words: safety culture, peer review, nursing, patient safety, protocol.

Introduction

Patient safety is the reduction and mitigation of unsafe acts within the health-care system as well as through the use of best practices shown to lead to optimal patient outcomes **(Ellis, 2008)**. However, for nursing it must mean more than that. It means being under the care of a professional health-care provider who, with the person's informed consent, assists the patient to achieve an optimal level of health while ensuring that all necessary actions are taken to prevent or minimize harm. Patient safety is fundamental to nursing care and to health care more generally, across all settings and sectors. It is not merely a mandate; it is a moral and ethical imperative in caring for others **(Xianqiong Kathleen & Marianne, 2008)**. Patient safety refers to prevention of harm to patients, frequently measured as a low frequency of recorded adverse patient events, such as patient falls, nosocomial infections, medication errors, urinary tract infections, pneumonia, mortality, and failure-to-rescue **(Leonard & Frankel, 2006)**. Patient safety is defined as freedom for a patient from unnecessary or potential harm associated with healthcare. The practice environment supports or hinders nurses and other health-care professionals in their ability to provide safe care **(Institute of Medicine, 2003; Ching, et al., 2009)**.

Ensuring the provision of safe, compassionate, competent and ethical care to patients within the health-care system is a responsibility shared by all health-care professionals, health-care organizations, governments, professional associations, educational institutions and unions requires the involvement of the public (**Kinnaman 2007; Ellis 2008 & Aysel, 2009)**. Public's concern with the delivery of safe patient care in the healthcare organizations. The realization of potential medical errors resulting in

untoward events is what makes the priority for all healthcare leaders. When safety culture is applied to health care it has even more importance, as safety applies not only to the workforce but also to the patients who may be injured by the actions of staff (**Weingart, Farbstein & Davis 2004; Stow 2006; McBride, Greening & Redmond, 2006)**. The traditional 'blame and shame' patient safety culture in healthcare organizations has been criticized as obstructing the possibility of 'learning from the errors' and being responsible largely for causing medical errors **(Leslie et al., 2008).**

Problems with patient safety are seen as being driven by systemic factors such as rapid changes in the health-care system, increased use of technology, the quickening pace of work and restricted resources, including shortages of qualified professionals. A culture of safety fosters the implementation of programs that involve medical error reporting and analysis to identify possible contributory causes. Analyzing medical errors allows for the identification of causative factors that contribute to the occurrences of medical errors. Once the causative factors are identified, improvements and system redesigns are developed to eliminate the reoccurrence of these errors **(Brous, 2008).** Eliminating the underlying causes of medical errors by first evaluating the processes and systems is an important step toward improving the safety of the patients. The key feature of the safety culture is 'shared perceptions among managers and staff concerning the importance of safety **(Singer, Mark & Baker, 2007)**. Developing 'positive safety culture' has been stated as a means of reducing the potential for larger-scale disasters, and accidents associated with routine delivery of safe patient care a top tasks **(Zohar, Livne & Tenne-Gazit, 2007).**

The workforce of any health care organization is vital to its continued survival, but a highly competent and committed workforce is vital to its success. The evidence is clear: employees influence not only the financial performance of the organization, but also the safety and quality of the care provided to patients. Health care organizations must understand these important linkages and have in place corporate strategies to manage workforce issues with a systems focus that ensures excellent leadership and operational processes, a healthy culture, and optimum patient safety **(Aysel, 2009)**.

Nurses play an important role in ensuring patient safety because of their strong intention to report patient safety problems **(Xianqiong, Kathleen & Marianne, 2008)**. In support of a culture of safety, a root-cause analysis approach explores systems and processes for possible contributing factors resulting in medical errors with untoward events. Improvements to eliminate risk in the systems and processes are then implemented to deliver safe patient care. A culture of safety in healthcare organizations can be established through the implementation of a nursing peer review process. This process reviews nursing practice as consistent with evidenced-based professional standards and identifies systems or processes for improvement. Nursing Peer Review is the evaluation of nursing services, the qualifications of a nurse, the quality of patient care rendered by nurses, the merits of a complaint concerning a nurse or nursing care, and a determination or recommendation regarding a complaint including: the evaluation of the accuracy of a nursing assessment and observation and the appropriateness and quality of

the care rendered by a nurse; a report made to a nursing peer review committee concerning an activity under the committee's review authority; a report made by a nursing peer review committee to another committee or to the Board as permitted or required by law; and implementation of a duty of a nursing peer review committee by a member, an agent, or an employee of the committee. Peer review is a method of looking at nursing practice using structure, process and outcome **(Sara et al., 2009; American Nurses Credentialing Center, 2010).**

Significance of the study:

Patient safety is a global issue affecting countries at all levels of development. To estimate the size of the problem are scarce, particularly in developing and transitional countries. It is of great concern to healthcare leaders and is a top priority in all healthcare organizations. It is one of the nation's most pressing health care challenges **(Mark** and **Natasha, 2008).** Adverse events in health care delivery cause many cases of illness, injury and death. Studies in a number of countries have shown a rate of adverse events rate of about (10%) among hospital patients. An average of one in every ten patients admitted to hospital suffers some form of preventable harm that can result in severe disability and even death **(World Health Organization 2009)**.

Aims of the study

The present study was designed to develop nursing peer review protocol for patient safety through:

1. Assessing the current culture of the Military Production hospital and Nasr City Insurance hospital for patient safety.
2. Developing nursing peer review protocol for patient safety (based on the previous assessment).
3. Examining the validity of the developed protocol.

Research hypotheses:

It hypothesized that the key dimensions of the safety culture will not be available and not adequate and no patient safety protocol will be available in each of the studied hospitals.

Subjects and Methods:

Research design:

A quasi-experimental design was used in carrying out the study.

Study setting

The study was conducted in Military Production hospital, it is a military hospital affiliated to Ministry of Defense in Helwan governorate and Nasr City Insurance hospital affiliated to health insurance sector.

Study Subjects

A convenient sample of (316) staff nurses, (37) nurse managers and (40) juries.

The study subjects consisted of three groups:

1st group: **Staff nurses**

The study consisted of (116) nurses from Military Production hospital and (200) nurses from Nasr City Insurance hospital, from different departments within the studied hospitals. They characterized by the following: have experience not less than two years in the nursing profession and working at least one year within the studied hospital. Some of them were Diploma nurses (117) and the rest of them were Bachelor degree in nursing (83).

2nd group: **Nurse Managers**

All head nurses (14) from Military Production hospital and (21) head nurses from Nasr City Insurance hospital plus the nursing director from each hospital were included in the study. They characterized by the following: have experience not less than two years in the nursing

profession, two years in her current position and working at least one year within the studied hospital. All of them had Bachelor degree in nursing.

3rd group: this group served as jury (40). They were professors and assistant professors from faculty of nursing in Helwan, Ain Shams and Cairo universities (20); also, experts in nursing profession as nurse managers and heads of the quality management department from Cleopatra hospital, Dar El-Foad hospital, El- Galaa Military hospital and Ain Shams University hospitals (20), they were randomly selected.

Tools of data collection:

1. **Questionnaire format:** self-administered questionnaires for staff nurses. It was developed by the researcher based on review of current literature. It was included five dimensions for assessing patient safety programs, practices and culture as free flow of communication, continuous improvement, reporting, patient/family involvement and organizational factors as hospital management support for safety, supervisor's safety and rules/equipment availability.
2. **Interview questionnaire format*:*** It was used to interview nurse managers (head nurses and nursing directors) in the designed hospitals to assess patient safety culture in their facility, it included thirteen statements, as if is an organization's commitment to patient safety reflected in the mission statement, there are specific strategies (e.g., patient safety rounds) used to communicate and reinforce leadership's commitment to and ongoing support of patient safety, there is a patient safety committee, patient safety component is included in all new employee/new medical staff member orientation programs and so on.
3. ***Opinionnaire format**:* two Opinionnaires were designed by the researcher. One to elicit the staff nurses and nurse managers' opinions regarding suggested steps for nursing peer review protocol for patient safety. Meanwhile, the other was to identify experts' opinions regarding the developed protocol. Two types of validity were ascertained: face and content.

Pilot study:

The aim of the pilot study was to test the practicability, and to estimate the time required to complete tools. . The researcher randomly selected (38) of staff nurses and (15) of nurse managers from the designated hospitals for testing the questionnaire format. The time needed to fulfill the self administered questionnaire format for staff nurses ranged between (30-45) minutes. Meanwhile, it was (25-35) minutes for nurse managers. Collecting pilot study data lasts for one month. All of these subjects were included in the main study sample.

Procedure:

The data collection process was executed in three months. Data collection started in June first 2009 till August last 2009. The researcher started to assess the target group using questionnaire format, it is a self administered questionnaire to assess the current culture of the hospital for patient safety from the staff nurses and nurse managers' views. The time needed to fulfill the questionnaire format was (30-45) minutes for staff nurses and it was (25-35) minutes for nurse managers. Based on the results of the questionnaire the nursing peer

review protocol for patient safety was developed. It was developed by the researcher after reviewing recent relevant literature using a root-cause analysis approach; it was developed in two months, started in September first 2009 till October last 2009. Then, the suggested steps for nursing peer review protocol for patient safety were distributed to the study sample (staff nurses & nurse managers) to determine their opinion about the steps of the proposed protocol. Finally, the proposed protocol was distributed to the members of jury group to elicit their opinion regarding opinionnaire items (face validity) and its contents (content validity). After it was returned back, the protocol finalized accordingly. Then awareness sessions for head nurses and then for nursing staff in the designed hospitals about the developed protocol was conducted. The awareness sessions (five sessions for Military Production hospital and eight sessions for Nasr City Insurance hospital), in each session the researcher explained the importance of patient safety, safety culture in healthcare, and steps of the developed protocol, it last for one and half month, started in first November 2009 till the middle of the next month. Then, the protocol was started to be applied in Nasr City Insurance hospital in the second half of December 2009 till January last 2010 for testing its applicability.

Administrative and ethical aspects:

To carry out the study in the predetermined hospitals, letters containing the aim of the study were directed from the researcher' faculty of nursing to the hospital's director and also to nursing director to obtain their permission and help to conduct the study in their facility. The researcher then met the hospital director and the nursing director and explained the purpose and methods of data collection for the study. The researcher also obtained study subjects' approval orally after explaining the purpose and method of data collection for the study. Confidentiality of subjects' responses was assured.

Statistical analysis:

SPSS statistical software package was used for data analysis. The Z test for comparison between two proportions as regards categorized data was used. The probability of error at 0.05 was considered significant, while at 0.01 and 0.001was considered highly significant.

Results

Table (1) displays dimensions of patient safety as perceived by staff nurses in the studied hospitals. As evident, there was no free flow of communication either in Military Production hospital or in Nasr City Health Insurance hospital. Meanwhile, regarding the continuous improvement dimension most (79.31% and 61%) of the study sample in Military Production hospital and Nasr City Health Insurance hospital respectively stated that patient safety means reducing harm caused by human, device and drug errors. Also, staff nurses in both of the studied hospitals stated that there was no continuous improvement, the highest percentage (95.69% and 96.5%) of the study sample in Military Production hospital and Nasr City Health Insurance hospital respectively stated that patient safety problems are not remedied and hospital leaders did not communicate a clear vision of patient safety to them. On the same line, most of the study sample in Military Production hospital and Nasr City Health Insurance hospital stated that there was improper reporting regarding patient safety issues within their facility, the highest percentage (94.83% and 84%) of the study sample in Military Production hospital and Nasr City Health

Insurance hospital respectively stated that staff members do not report mistakes. Meanwhile only (2.59% and 3.50%) of the study sample in Military Production hospital and Nasr City Health Insurance hospital respectively stated that the report form allow for a descriptive narrative of the event. While regarding patient/family involvement dimension, as evident, the majority (98.28% and 95%) of the study sample in Military Production hospital and Nasr City Health Insurance hospital respectively stated that patients and their families are not informed of adverse outcomes and errors when they occur. On the other hand, only (1.725 and 8%) of the study sample in Military Production hospital and Nasr City Health Insurance hospital respectively stated that patient opinions are reflected in patient safety. Regarding the organizational factors, there was no hospital management support for safety, the highest percentage (91.38% and 89%) of the study sample in Military Production hospital and Nasr City Health Insurance hospital respectively stated that management do not reinforce patient safety as a priority. It also illustrated that there was no patient safety committee in their facility. It was appeared that most (96.55% and 95.5%) of the study sample in Military Production hospital and Nasr City Health Insurance hospital respectively stated that equipment for preventing accidents were not sufficient in their facility. There was no significant ($p>0.05$) difference between the two of the studied hospitals regarding all patient safety dimensions (communication flow, continuous improvement, reporting, patient/family involvement, hospital management support for safety, supervisors' safety and rules/equipment availability).

Table (2) illustrates perceived patient safety culture by nurse managers in the studied hospitals. As evident, the entire study sample (100%) in Military Production hospital and Nasr City Health Insurance hospital stated that they did not receive specific patient safety education; there was no designated patient safety leader (e.g., a patient safety officer) or patient safety committee in their facility. In addition performance appraisals for the staff have no component on patient safety. There was no process to identify and evaluate patient safety issues. Finally, patient safety concerns/system defects and their resolutions were not shared among departments and units in their facility. There was no significant ($p>0.05$) difference between nurse managers' perception regarding patient safety culture in the two of the studied hospitals.

Table (3) describes agreement of the staff nurses and nurse managers on suggested steps of nursing peer review protocol for patient safety. It was noticed that most (100%) of the study sample either staff nurses or nurse managers accepted the suggested steps of nursing peer review protocol for patient safety.

Table (4) describes face and relevance validity of the designed nursing peer review protocol for patient safety as reported by jury members. As evident in the table that all the jury agreed upon the developed protocol.

Based on the results of the study, nursing peer review protocol for patient safety was developed, to act as a tangible written form that provides directions and guidance to the nursing personnel for effective operation and quality.

Discussion:

Patient safety is one of the most urgent issues facing quality of

healthcare today. It is a fundamental principle of health care. Every point in the process of care-giving contains a certain degree of inherent unsafely. Adverse events may result from problems in practice, products, procedures or systems. Patient safety improvements demand a complex system-wide effort, involving a wide range of actions in performance improvement, environmental safety and risk management, including infection control, safe use of medicines, equipment safety, safe clinical practice and safe environment of care. Improving patient safety is about creating an environment that is transparent and committed to change **(Sara et al. 2009).**

This investigation has yielded about the existing patient safety framework in the studied hospitals. It is also provided a comprehensive view of the perceived patient safety culture by staff nurses and nurse managers. Also, a patient safety protocol was developed and validated. It has been hypothesized that the key dimensions of the safety culture will not be available and not adequate and no patient safety protocol will be available in each of the studied hospitals. According to the present study the safety culture of an organization was expressed through a range of interrelated aspects or dimensions, some of which are organizational, some were related to the behavior of members of the organization, while the other aspects were related to the systems and processes in place to manage safety. These aspects or dimensions were approved as they were an essential factor influencing patient safety **(Leape & Berwick, 2000; Shinichi, Akihito & Koichi, 2008).**

Safety culture is the observable degree of effort with which all members in the organization direct their attention and actions towards improving safety on a daily basis. According to the present study findings, there was no free flow in communication regarding patient safety within the organization in both hospitals. These findings were incongruent with **(Susan et al., 2007; Shinichi, Akihito & Koichi, 2008)** who stated that organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety. On the same line, (**Xianqiong, Kathleen & Marianne, 2008; Sara et al., 2009)** emphasized that free flow of communication is fundamental to the ability of the organization to manage the safety of its operations.

Regarding the improvement of patient safety, most of the study sample stated that patient safety means reducing harm caused by human, device and drug errors. This was supported by **(Singer, Gaba & Geppert, 2003; Kinnaman, 2007)** who stated that improving patient safety forms a subset of organizational culture relating specifically to the values and beliefs concerning health and safety within an organization. On the same line, **(Susan et al., 2007; Ellis, 2008)** highlighted that improvement of patient safety reflects the ability of individuals or organizations to deal with risks and hazards as to avoid damage or losses and achieve their goals. This also was asserted by the (**British Health and Safety Commission, 2006)** that it was the product of individual and group values, attitude, competencies and patterns of behavior that determine the commitment to, and the style and proficiency of an organization's health and safety programs.

Voluntary reporting systems are an important part of an overall program for improving patient safety

and have a very important role to play in enhancing an understanding of the factors that contribute to errors. The present study revealed that the majority of the study sample stated that there was improper reporting regarding patient safety issues within their facility. These findings were in contrast with **(Stow, 2006; Mick, Wood & Massey, 2007)** who stated that any safety information system depends crucially on the willing participation of the workforce, the people in direct contact with the hazards. Also, **(Leslie et al., 2008)** emphasized that to achieve this, it is necessary to engineer a reporting culture in an organization in which people are prepared to report their errors and near-misses. This also was supported by **(Clarke, 2006; Blesch, 2008)** who stated that the willingness of workers to report depends on their belief that management will support and reward reporting and that discipline occurs based on risk-taking. Meanwhile, from the researcher's point of view, the willingness of workers to report patient safety issues depends on their belief that authority patterns relax when safety information is exchanged because managers respect the knowledge of front-line workers, or when they believe that the organization will analyze reported information and then implement appropriate change.

Concerning patient/family involvement dimension, the majority of the study sample stated that patients and their families are not informed of adverse outcomes and errors when they occur. These findings were contradicted with (**Leonard & Frankel, 2006)** who asserted that nurses in all practice settings are responsible for promoting patients safety by maintaining their own competence and fitness to practice safely and by taking action at the organizational or system level. This also was supported by **(Zohar , Livne & Tenne-Gazit, 2007)** who emphasized that nurses have great responsibilities regarding inform patients and families of potential risks, report adverse events to the appropriate authorities promptly and take an active role in assessing the safety and quality of care. On the same line **(Aysel, 2009)** stated that organizations should have strategies to integrate patient perspectives and to encourage patients to become involved as a partners in the pursuit of safety.

In relation to the organizational factors, the findings of the present study elaborated that there was no hospital management support for safety, the highest percentage of the study sample stated that management do not reinforce patient safety as a priority. These results were inconsistent with **(Pronovost & Sexton, 2005)** who asserted that safety culture is interesting and important in terms of the management of risk in healthcare organizations. Further more (**Ching et al., 2009)** emphasized that system failures and system driven errors in risk management both inside and outside healthcare have a crucial role that organizational culture plays in ensuring that the system is safe.

The present study revealed that there was no statistical significant difference in both of the studied hospitals regarding all patient safety dimensions. The findings elaborated that there was poor safety organizational culture regarding all mentioned dimensions as stated by staff nurses and nurse managers. These findings were inconsistent with **(Brous, 2008; Shinichi**, **Akihito & Koichi, 2008)** who found that the viability of developing a positive safety culture is thought to be influences by the quality of staff-management communications, agreement at all levels of the

organization that safety is important and confidence that measures are adequate. On the same line **(Sara et al., 2009)** asserted that good information flow and processing, shared perceptions of the importance of safety, recognition of the inevitability of error, confidence in the efficacy of preventive or safety measures, proactive identification of threats of safety, committed leadership and executive responsibility and a 'no blame', non-punitive approach to incident reporting and analysis were the characteristics of an organization with positive safety culture.

As a result, a great deal of effort has been expended on initiatives aimed at improving the safety culture of health organizations. These have included incident and error- reporting mechanisms, development of root cause analysis tools or protocols for patient safety are essential. The results revealed that the majority of the study sample agreed upon all of the suggested steps of nursing peer review protocol for patient safety. These findings were supported by **(Mark & Natasha, 2008; Xianqiong, Kathleen & Marianne, 2008)** who found that creating a nursing peer review framework was necessary in developing the policies and procedures required for each step of the peer review process. Also promotes uniformity in the evaluation of medical errors with potential untoward events involving nursing practice. On the same line **(Blesch, 2008)** stated that nurses should support organizational efforts to fully investigate errors and adverse events to identify the root causes of unsafe situations with the goal of improving the system. Also, **(Lillian, 2008; Aysel, 2009)** added that the nursing peer review committee members can develop a nursing peer review framework consisted of the following steps as referral of the problem to the committee, collecting data about the identified problem, documenting and communicating suggested solutions.

Conclusion

According to the study findings, it was concluded that there was no statistical significant difference in both of the studied hospitals regarding all patient safety dimensions. The findings elaborated that there was poor safety organizational culture regarding all mentioned dimensions as perceived by staff nurses and nurse managers. Also, the entire study sample agreed upon the suggested steps for nursing peer review protocol for patient safety. Then, the protocol was developed. The proposed protocol for patient safety is valid both in structure and content.

Recommendations

Based on the foregoing findings the following could be recommended:

1-Help both head nurses and staff nurses to apply the developed nursing peer review protocol, by being available to them.

2- Patient safety should be included in organization's vision, mission, objectives and strategies.

3- Give training programs about patient safety for different nursing categories inside or outside their organizations to enhance their awareness about patient safety.

4- Involve patient safety component in staff performance appraisal forms.

5- Patient safety component should be included in the orientation programs for all new employee/new medical staff member.

Table (1): Patient safety dimensions as perceived by staff nurses in the studied hospitals.

Dimensions	Military Production Hospital No.=116				Nasr City Hospital No.= 200				P-value
	Yes		No		Yes		No		
	No.	%	No	%	No.	%	No	%	
I. Free communication flow									
Staff members exchange ideas.	24	20.69	92	79.31	17	8.50	183	91.50	*<0.01
Staff members' comfort with speaking up, even to a superior, when they have concerns about patient safety	12	10.34	104	89.66	9	4.50	191	95.50	>0.05
Staff members' fear of reporting mistakes and errors due to fear of retribution	114	98.28	2	1.72	183	91.50	7	3.50	>0.05
Staff members ask questions	18	15.52	98	84.48	15	7.50	185	92.50	*<0.05
II. Continuous improvement									
Improving patient safety mean to you									
• Clinical incident reporting.	89	76.72	89	76.72	115	57.50	85	42.50	>0.05
• Reducing harm caused by human, device and drug errors.	92	79.31	24	20.69	122	61.00	78	39.00	*<0.01
• Systematic approach to driving up quality of care.	9	7.76	107	92.24	26	13.00	174	87.00	>0.05
• Reducing healthcare acquired infections.	33	28.45	83	71.55	61	30.50	139	69.50	>0.05
• Preventing suicide.	41	35.34	75	64.66	52	26.00	148	74.00	>0.05
Staff members' opinions are reflected in patient safety	8	6.90	108	93.10	6	3.00	184	92.00	>0.05
Patient safety problems are remedied	5	4.31	111	95.69	12	6.00	188	94.00	>0.05
Staff members' belief that hospital leaders have communicated a clear vision of patient safety to them	8	6.90	108	93.10	7	3.50	193	96.50	>0.05
Staff members' belief that their suggestions to improve patient safety will be considered	6	5.17	110	94.83	13	6.50	187	93.50	>0.05
III. Reporting									
Staff members don't report mistakes.	110	94.83	6	5.17	168	84.00	32	16.00	***<0.01
Staff members' belief that their peers encourage reporting of patient safety concerns and errors	9	7.76	107	92.24	21	10.50	179	89.50	*>0.05

There is a nonpunitive (but accountable) approach to the reporting of patient safety issues, near misses, adverse events, and medical errors	15	12.93	101	87.07	19	9.50	181	90.50	*>0.05
There is a rewards and/or recognition program for timely reporting of patient safety issues, adverse events, and medical errors	3	2.59	113	97.41	8	4.00	192	96.00	*>0.05
The patient safety/event reporting system allows for ease of reporting throughout the organization	5	4.31	111	95.69	13	6.50	187	93.50	*>0.05
The report form allow for a descriptive narrative of the event	3	2.59	113	97.41	7	3.50	193	96.50	*>0.05
IV. Patient/family involvement									
Staff members' perception that patients and families are appropriately informed of adverse outcomes and errors when they occur	2	1.72	114	98.28	10	5.00	190	95.00	*>0.05
Staff members support patient participation.	5	4.31	111	95.69	15	7.50	185	92.50	*>0.05
Staff members discuss care with patients	7	6.03	109	93.97	24	12.00	176	88.00	*>0.05
Patient opinions are reflected in patient safety	2	1.72	114	98.28	16	8.00	184	92.00	**<0.05
V. Organizational factors									
a.*Hospital management support for safety*									
Management's promotion of a work climate that is supportive of patient safety	31	26.72	85	73.28	30	15.00	170	85.00	**<0.05
Staff members' acknowledgment that management frequently reinforces patient safety as a priority	10	8.62	106	91.38	22	11.00	178	89.00	*>0.05
b.***Supervisors' safety***									
Supervisors consider staff members' suggestions.	5	4.31	111	95.69	16	8.00	184	92.00	*>0.05
Supervisors watch staff members work	52	44.83	64	55.17	67	33.50	133	66.50	*>0.05
Supervisors listen to staff members' objections.	13	11.21	103	88.79	24	12.00	176	88.00	*>0.05
There is a patient safety committee	0	0	116	100	0	0	200	100	

If yes,									
• Patient safety committee provides information.	0	0	0	0	0	0	0	0	
• Patient safety committee adopts our opinions.	0	0	0	0	0	0	0	0	
• Patient safety committee analyses incidents.	0	0	0	0	0	0	0	0	
• Patient safety committee performs rounds.	0	0	0	0	0	0	0	0	
c. ***Rules/equipment availability***									
Rules are practical for preventing accidents.	22	18.97	94	81.03	23	11.50	177	88.50	>0.05
Equipment is arranged to prevent accidents	9	7.76	107	92.24	21	10.50	179	89.50	*>0.05
Equipment for preventing accidents is sufficient	4	3.45	112	96.55	9	4.50	191	95.50	*>0.05
New medical devices and equipment are assessed from a patient safety perspective prior to acquisition	10	8.62	106	91.38	26	13.00	174	87.00	*>0.05

** Not Significant p> 0.05 **significant p < 0.05 ***highly significant p < 0.01*

Table (2): Patient safety culture as perceived by nurse managers in the studied hospitals

Items	Military Production Hospital No.=15				Nasr City Hospital No.=22				P-value
	Yes		No		Yes		No		
	No	%	No	%	No	%	No	%	
1. There is an organization's commitment to patient safety reflected in the mission statement	2	13.33	13	86.67	5	22.73	17	77.27	*>0.05
2. There are specific strategies (e.g., patient safety rounds) used to communicate and reinforce leadership's commitment to and ongoing support of patient safety	6	40.00	9	60.00	4	18.18	18	81.82	*>0.05
3. the organization's senior leaders received specific patient safety education	1	6.67	14	93.33	2	9.09	20	90.91	*>0.05
4. You received specific patient safety education	0	0.00	15	100.0	0	0.00	22	100.0	
5. There is a designated patient safety leader (e.g., a patient safety officer).	0	0.00	15	100.0	0	0.00	22	100.0	
6. There is a patient safety committee	0	0.00	15	100.0	0	0.00	22	100.0	
7. The organization strategic planning include a patient safety focus	2	13.33	13	86.67	5	22.73	17	77.27	*>0.05
8. Performance appraisals of staff have a component on patient safety	0	0.00	15	100.0	0	0.00	22	100.0	
9. Personnel work schedules and provider assignments made in consideration of the effect of workload, staffing levels, and work hours on patient safety	5	33.33	10	66.67	5	22.73	17	77.27	*>0.05
10. When a potential patient safety issue is identified, there is a process in place to further evaluate the issue, such as a proactive risk assessment	0	0.00	15	100.0	0	0.00	22	100.0	
11. There is a periodic feedback to staff on strategies to address reported patient safety concerns	2	13.33	13	86.67	2	9.09	20	90.91	*>0.05
12. Patient safety component is included in all new employee/new medical staff member orientation programs	1	6.67	14	93.33	3	13.64	19	86.36	*>0.05
13. Patient safety concerns/system defects and their resolutions are shared among departments and units to promote learning in the organization	0	0.00	15	100. 0	0	0.00	22	100.0	

**** Not Significant p> 0.05*** *****significant p < 0.05*** ******highly significant p < 0.01***

Table (3): Agreement of the staff nurses & nurse managers on suggested steps of nursing peer review protocol for patient safety

Steps	Military Production Hospital								Nasr City Hospital								P-value Staff nurses	P-value Nurse Manager
	Staff nurses No. =116				Nurse manger No. =15				Staff nurses No. =200				Nurse manger No. =22					
	Yes		No		Yes		No		Yes		No		Yes		No			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
1. Referral Process for Peer Review	112	96.5	4	3.5	15	100.0	0	0.0	198	99.0	2	1.0	19	86.36	3	13.64	*>0.05	***<0.01
2. Assigning a Facilitator	116	100	0	0.0	12	80.0	3	20.0	200	100.0	0	0.0	22	100	0	0	***< 0.01	
3. Methods of Data Collection	113	97.4	3	2.6	15	100.0	0	0.0	200	100.0	0	0.0	20	90.9	2	9.1	*> 0.05	***<0.01
4. Presentation Format of Data Collected	115	99.14	1	0.9	13	86.7	2	13.3	200	100.0	0	0.0	21	95.45	1	4.54	**< 0.05	*>0.5
5. Documentation of Peer Review	116	100	0	0.0	15	100.0	0	0.0	197	98.5	3	1.5	22	100	0	0		
6. Communication of Peer Review	116	100	0	0.0	15	100.0	0	0.0	200	100.0	0	0.0	22	100	0	0		

**Not Significant p> 0.05 ** significant p < 0.05 ***highly significant p < 0.01*

Table (4): describes the validity of the designed nursing peer review protocol for patient safety as reported by jury.

Items	No= 40	%100
Designed nursing peer review protocol clarifies its designed purpose		
Steps of the nursing peer review protocol:		
1. Referral Process for Peer Review	40	100
2. Assigning a Facilitator	39	97.5
3. Methods of Data Collection	39	
4. Presentation Format of Data Collected	37	97.5
5. Documentation of Peer Review	38	92.5
6. Communication of Peer Review	40	
		95
		100
The linguistic style used in the manual:		
▪ Clear.	40	100
▪ Understandable.		
▪ Comprehensive and	39	97.5
▪ Applicable		
	40	100
	37	92.5
The nursing peer review protocol could be used for orienting the newly appointed nursing staff and head nurses.	35	87.5
The nursing peer review protocol could be used for guiding the already appointed nursing staff and head nurses.	39	97.5
The nursing peer review protocol could be used as guidelines toward improving the patient safety.	38	95
The designed format can be used for staff development.	40	100

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استخدام بروتوكول مراجعة التمريض النظراء لسلامة المريض

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الهدف *من البحث:*
وضع بروتوكول لسلامة المريض باستخدام مراجعة التمريض النظراء.

العينة البحثية:
اشتملت عينة البحث على ثلاث مجموعات: (٣١٦) ممرضة بالإضافة إلى رئيسة تمريض مستشفى مدينة نصر للتأمين الصحي ، (٣٥) مشرفة تمريض بالإضافة إلى رئيسة تمريض المركز الطبي للإنتاج الحربي ، (٤٠) من المحكمين منهم (٢٠) أساتذة و أساتذة مساعدين و(٢٠) مديرات تمريض ورؤساء وحدة الجودة فى المستشفيات.

أدوات البحث:
١. استمارة استبيان لجمع بيانات من الممرضات لتقييم مدى أمان البيئة في مستشفياتهم.
٢. استمارة مقابلة مع مشرفات ومديرات التمريض لتقييم مدى أمان البيئة في مستشفياتهم.
٣. استمارة استقصاء رأى لتحديد آراء كل من مشرفات ومديرات التمريض و كذلك الممرضات في خطوات مقترح البروتوكول.
٤. استمارة استقصاء رأى لتحديد آراء المحكمين فى مقترح البروتوكول.

نتائج البحث: أظهرت نتائج الدراسة:
- أنه لا توجد سهولة فى التواصل داخل كلا المستشفتين.
- أن معظم عينة البحث (٩٥,٦٩،٩٦,٥%) من الممرضات ذكرن أن "المشاكل الخاصة بسلامة المريض لا يتم مناقشتها أو الاهتمام بها بواسطة رؤسائهم فى العمل".
- أن معظم عينة البحث(٤٨% ،٩٤,٨٣%) من الممرضات ذكرن أنه " لا يتم تبليغ الأخطاء عند حدوثها".
- أن معظم عينة البحث (٩٥%، ٩٨,٢%) من الممرضات ذكرن أنه " لا يتم إبلاغ المريض أو أي من أقربائه في حالة حدوث أي خطأ".
- أن معظم عينة البحث (٨٩%، ٩١,٣٨%) من الممرضات ذكرن أنه "لا توجد مساندة من قبل إدارة المستشفى لسلامة المريض".
- كل عينة البحث من الممرضات ذكرن أنه" لا توجد لجنة لسلامة المريض في مستشفياتهم".
- أسفرت النتائج أن كلا من مشرفات ومديرات التمريض لم يتلقين أى دراسة أو تدريب في مجال سلامة المريض.
- أن معظم عينة البحث من الممرضات ورئيسات التمريض قد وافقن على مقترح البروتوكول المقدم لسلامة المريض.

وقد خلصت نتائج الدراسة إلى:
- أنه لا يوجد فرق احصائى بين الممرضات فى كلا المستشفتين فيما يخص البيئة الآمنة للمريض.
- أن البيئة داخل كلا المستشفتين غير آمنة للمريض.

وبناء عليه تم وضع مقترح بروتوكول لسلامة المريض بناءا على تلك النتائج.

وقد أوصت الدراسة بـ :
- العمل على مساعدة كل من الممرضات ورئيسات التمريض على تطبيق البروتوكول فى مستشفياتهم.
- أن يؤخذ فى الإعتبار سلامة المريض عند تعديل رؤية ورسالة المستشفى و كذلك عند تقييم أداء العاملين وأن يتم تضمين هذا الإعتبار فى برامج تأهيل العاملين الجدد.

Nurses Awareness Regarding Disasters' Preparedness at Suez Canal University Hospital

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Abstract
Disasters are destructive events that disrupt the normal functioning of a community, have occurred since the beginning of civilization. Disasters are an ongoing part of life and affect society both locally and globally. Today's nurses are faced with the challenges of responding to natural, manmade, and technological disasters. **Aim of Study**: is to determine the level of nurses' awareness about disasters' preparedness at Suez Canal University Hospital. **Subjects and Methods**: This study carried out on 102 of staff nurses and nurse managers in critical areas in the hospital. A questionnaire sheet composed of three parts was used to collect the study data. The first part was developed to collect data related to personal characteristics. The second part aimed to collect nurses' knowledge about classifications of disasters and the possible disasters that could occur outside or inside the hospital, it includes 17 questions. Third part was developed to assess the nurses' awareness by hospital disasters preparedness on external or internal level. **Results**: Study results revealed that about one fifth of nurses had satisfactory knowledge related to classifications of disasters, while only 20.6% of nurses were aware about external disaster preparedness components, and nurses' awareness about hospital internal disaster preparedness recorded very low percentage (4.9). **Recommendations**: In light of study results it was recommended that: design disaster plan for Suez Canal University Hospital, upgrade the nurses' knowledge, and equip them by main skills to face the disastrous events whether external or internal in addition to involve their job description with disaster preparedness role.

Key words: Disaster--Preparedness- Nurses- Awareness

Introduction
Healthcare has entered a new era. A transformation has occurred with the very real threat of chemical, biological, conventional, and nuclear attacks. Patients and staff can feel alienated, afraid, and confused by the new and persistent risks facing their community as a part of the world **(Fahlgren & Drenkard, 2002)**. Disasters are destructive events that disrupt the normal functioning of a community, have occurred since the beginning of civilization **(Veenema, 2003)**. Disasters are an ongoing part of life and affect society both locally and globally **(Fulmer et al., 2007)**. The word disaster's root is from astrology which implies that when the stars are in a bad position a bad event will happen **(Davis, Haghebaert, & Peppiatt, 2004).**

Disasters may be naturally occurring, caused by environmental forces, or generated by humans. Disasters have placed extraordinary stresses on society's ability to deal with the catastrophic effects. Natural disasters, such as earthquakes, floods, landslide, hurricanes, tornados, wildfires, and temperature extremes, often result in catastrophic losses, physical, social and economic destruction, human suffering, injury and death. An average of one disaster per week occurs globally requiring international assistance and the number

of federally declared disasters since 1976 average 34 per year **(Bankoff, Frerks, & Hilhorst, 2003** and **Veenema, 2003).** In this respect **Wisner et al., (2004)** argued that all disasters can be seen being manmade, their reasoning being that human actions before the strike of the hazard can prevent it developing into disaster. All disasters are hence the result of human failure to introduce appropriate disaster management measures. Manmade disasters are having an element of human interests, negligence, error, or involving the failure of a system. Healthcare facilities are rapidly preparing to meet the new challenges. They are evaluating their institutional policies and procedures for ensuring quality patient care in a complex environment. They are using appropriate resources, identifying strategic plans and operational tactics for implementation, and preparing for disasters on a global scale. Nurse executives have leadership roles in evaluating and rewriting disaster plans, coordinating efforts across the healthcare system, and in creating and initiating drills to test the effectiveness of their plans. The devastating events on September 11, taught nursing leaders two important lessons. The first was that disasters are indiscriminate and can occur at any time and in any place. Second, a well-crafted and often tested disaster preparedness plan is the best defense in times of emergency **(Richter, 2002).**

Today's nurses are faced with the challenges of responding to natural, manmade, and technological disasters. In the United States, disaster content is included in the National Council Licensure Examination **(N-CLEX) (National Council of State Boards of Nursing, 2006).** Little time is spent in teaching or learning this content during the basic nursing education program. Education at the master's or doctoral levels fares no better, there is a lack of emergency preparedness content in the curriculum. To overcome this problem, continuous knowledge and skills development to ensuring a functional workforce during catastrophes are essential **(Weiner, 2006;** and **Fulmer et al., 2007**). Moreover, hospitals must be prepared to respond to natural and manmade mass casualty incident that may cause sudden demand on services **(Christopher, 2006).** Manmade and natural disasters often occur around the world. Two major disasters in Egypt occurred in the past decade, the earthquake that occurred in October, 1992, and the flash floods that occurred in 2003, in Upper Egypt **Hyogo (2005**). Also we did not forget the premature victims of incubators' fire in El Shatby Hospital affiliated to Alexandria University Hospitals in 2006. So, it is important to assess the degree of awareness of nursing staff regarding to disaster preparedness, to overcome any disastrous events facing the Suez Canal University Hospital or the community around it especially that the hospital provides the health care services for four cities namely; Ismailia, Port- Said, Suez and Saini.

Aim of the study

The aim of this study is to determine the level of nurses' awareness of disaster preparedness at Suez Canal University Hospital.

Research questions

- Do the nurses know the types of disasters?
- Do the nurses know about presence of disaster plan in the hospital?
- Do the nurses know their role in disasters?

Subjects and Methods

Design and Setting:

A descriptive study design was conducted at Suez Canal University Hospital, in Ismailia Governorate, in

critical areas (Intensive care unit-Operating rooms, Incubators, Dialysis, Burn units, Surgery units, and Emergency unit).

Subjects:

The study involved staff nurses and nurse managers (supervisors and head nurses) with a total number of 102, they are working in critical units for more than one year. The total number of the nurses working in the selected units were 181, 18 of them were in long vacations, e.g., (child care), 15 were newly appointed staff, 10 out of them shared in the pilot study and they were later excluded from the main study sample, and the others did not agree to participate in the study due to their workload. So, the response rate for staff nurses was 62.3% and 100% for nurse managers

Tools:

The tool for data collection was a questionnaire sheet composed of three parts. **The first part** was developed by the researchers to collect data related to personal characteristics of nurses; it included questions about age, years of experience, job position, qualifications, work unit, and presence of disaster plan. The second and third parts were developed by **Mostafa (2003). The second part** aimed to collect data regarding nurses' knowledge about classifications of disasters and the possible disasters that could occur outside or inside the hospital, it includes 17 questions. **Third part** was developed to assess the nurses' awareness by hospital disasters preparedness on external or internal level. Questionnaires related to external disasters included 55 questions and were divided into three subgroups, preparedness plan, nursing role in external disaster and training to control disasters. Internal disaster preparedness questionnaires included 49 questions and were divided into four subgroups: safety measures and adequacy of supplies and equipment, infection control, fire prevention and evacuation plan.

Scoring system: Nurse's responses were related to dichotomies options of "yes" or "No", whereas, yes scored 1 and no scored zero. Nurses' knowledge was considered satisfactory if the total score percentage ≥60%. Nurses' awareness about disaster preparedness plan was considered "Aware" if total score percentage ≥60%.

Ethical approval:

A written letter used from the faculty of Nursing, Suez Canal University was directed to the Hospital Director to get approval for collecting the data and an oral consent was taken from the nurses before distributing the questionnaires and after explanation of the purpose of the study, to get their approval for participation in the study.

Pilot Study:

It was carried out on 10 nurses to ascertain the clarity and applicability of the tools. Those nurses who shared in the pilot study were excluded from the main study sample. Data were collected by using a structured interview questionnaire.

Field work:

Data were collected from January to March, 2009.

Results

The total number of studied nurses included in this study was 102. The age of the nurses ranged from 17 to 39 years, 17.6% are nurse managers; the majority of them (87.3%) held nursing school diploma, whereas 12.7% had bachelor degree in nursing, 60.8% of them had less than 5 years of experience. As for place of work, 20.6% of the nurses are working in surgery departments, 31.4% in ICU (Intensive Care Unit). 19.6 % in incubation department and the least number of them (4.9%) are working in emergency department.

Knowledge of nurses regarding to disasters' classifications is shown in **table (1)** the finding indicated that 7.8% of nurses had satisfactory knowledge related to manmade disasters.

As regards nurses' awareness about external disasters' preparedness. **Table (2)** revealed that only 22.5% of nurses were aware about external disasters preparedness plan in the hospital, less than half of nurses were aware about the implementation of disaster plan (47.1%), while only 7.8% were aware about flexibility of emergency plan. As regard nurses' awareness about their role during external disasters, 24.5% of nurses aware about their role, while only 14.7% of the studied nurses aware about the importance of training to control disaster.

Table (3) displays nurses' awareness about hospital internal disaster' preparedness. The minority of the studied nurses (4.9%) were aware about internal disaster preparedness. Concerning safety measures and adequacy of supplies and equipment it was observed that 13.7% of studied nurses were aware about medical supplies such linen, masks, gloves while 11.8% of studied nurses were aware about the current number of available equipment such suction machines, ventilators, wheelchairs, and only 2.9% of them were aware about the safety rules for transporting patient. Awareness about infection control components was generally low (4.9%), the highest percentage of awareness (10.8%) was related to safety measures for hospital waste disposal hazards, while awareness about dealing with sharp objects and rules of isolation of infectious cases recorded the same percentage (5.9%). As regards fire prevention, the highest percentage (24.5%) was related to dealing with fire alarm in the hospital, while awareness about fire safety tools recorded the least percentage (8.8%). Concerning the evacuation plan, only 3.9% of nurses were aware about the criteria of emergency exits.

The relationship between personal characteristics and disasters preparedness awareness of nurses **table (4)** shows that only 12 nurses were aware about disasters preparedness and the nurses with age brackets ranging between 25- < 30 years old recorded highest percentage (23.1) of awareness, whereas 30.8% of nurses who held bachelor nursing degree were aware by disasters preparedness. Regarding job position, one third of nurse managers were aware about disaster preparedness. As well, nurses who work in emergency department recorded the highest percentage of awareness (40%) related to disaster preparedness. Statistical significant differences were observed among personal characteristics and nurses' qualifications and job position ($P = 0.045$ & 0.006 respectively).

Discussion

Recent world events have raised the scope and intensity of disaster planning and readiness activities, including assessment, planning, implementation, and evaluation., The chief nurse executive is critical to the clinical operations and implementation of changes across a system, whether that system is a single hospital or a multiple site integrated healthcare system (**Drenkard et al., 2002***)*.

The findings of the present study revealed that no disaster plan at Suez Canal University Hospital was developed. Reorganization of health care settings is a must to face any unpredictable disastrous events, to be learned from the others. In this regard **Bernard & Mathews (2008)** and **Orlando, Bernard, & Mathews (2008)** stated that Hurricane Katrina forced a reexamination of how the

country organized and allocated resources to address the full range of catastrophic events, both natural and manmade. Numerous lessons were learned, and improvements made in disaster planning and nursing management of disasters. According to nurses' knowledge related to classification of disasters, the results were catastrophic since less than tenth of the studied nurses had satisfactory knowledge related to manmade disasters. This finding interpreted in a very recent study carried out by **Danna et al. (2009)**, who concluded that nurses must continually improve their knowledge, skills, and readiness for disasters to better serve their patients, their communities, and each other.

The current study revealed that slightly less than one fourth of nurses were aware about their role in external disasters. This awareness may be related to watching the television episodes or reading or follow up internet related to catastrophic events. These finding is supported by **Campbell, Hart & Norton (2007),** who stressed that nursing roles and expectations must be defined in the disaster plan and in job descriptions containing performance standards specific to disaster response.

Totally, nurses awareness related to internal disaster management represented a minority, did not exceed 5%, concerning safety measures components, As for nurses awareness of rules of patients transport, it was identified by a minority of nurses. In this respect, **Mohamed and Zakaria (2003)** pointed to the needed attention to hospital environment to prevent accidents, reducing injuries and errors and increasing organizational function because the hospital environment is considered a dangerous place.

In spite of the hospital had infection control committee, the nurses' awareness about infection control components reflected that less than tenth of them were aware of infection control team, and lesser percentage of studied nurses were aware by the rules of isolation of infectious cases, while slightly more than tenth of them were aware about safety measures for hospital waste disposal hazards. In this respect, **Hoballah (2003**) claimed that infection is a major cause of morbidity and mortality worldwide. Moreover, **Ismail (2003)** mentioned that health care wastes and its environmentally harmful elements may reach and affect the environment.

As regards fire prevention, less than tenth of nurses were aware with fire safety tools. In the same line with the foregoing results, **Kowalski and Bunker (2003)** pointed to that fire protection measures require a constant state of alertness to danger area or situation.

According to findings of the current study, slightly more than one fourth of nurses were aware with components of evacuation process during internal disasters, which was supported by **Hersche and Wenker (2000),** who stated that evacuations require serious planning and a good concept, without adequate planning they will most likely fail.

According to the current study results, nurses having bachelor degree, nurse managers, and nurses working in emergency department were the most aware of disaster preparedness, which was interpreted that qualified nurses reflected good preparations and professional obligation for nurse's mangers **(Danna et al., 2009)**. However, nurses in emergency are facing catastrophic events like receiving road accidents which provide them with experience.

Conclusion

Often people are waiting till problems occur then start to think about solutions. This statement must be

exchanged by people must be prepared, test their system and be ready for any catastrophic events. The study results revealed that Suez Canal University Hospital had no disaster plan, the awareness of nurses regarding to disasters' preparedness was generally poor.

Recommendations

The study recommended with designing disaster plan for the hospital, and upgrading the nurses' knowledge and equipping them by main skills to face the disastrous events, whether external or internal, in addition to involve their job description with disaster preparedness role

Table (1): Nurses knowledge about disasters' classifications (n= 102)

.

Types of disasters	Level of Knowledge			
	Satisfactory ≥60%		Unsatisfactory ≥60%	
	No	%	No	%
Natural	18	17.6	84	82.4
Manmade	8	7.8	94	92.2

Table (2): Nurses awareness about external disasters' preparedness in the hospital (n=102).

Items	Nurses' awareness			
	Aware (60%+)		Unaware (<60%)	
	No.	%	No.	%
I. External disasters' preparedness plan:				
• Emergency plan.	23	22.5	79	77.5
• Members of emergency team.	24	23.5	78	76.5
• Implementation of disaster plan.	48	47.1	54	52.9
• Flexibility of emergency plan.	8	7.8	94	92.2
• Recording data in disaster situations.	25	24.5	77	75.5
• Victims' personal identification card.	33	32.4	69	67.6
• Person in charge for recording victims' data.	33	32.6	69	67.6
Total	23	22.5	79	77.5
II. Nursing staff role in external disasters' preparedness.				
• Nursing role in field triage.	23	22.5	79	77.5
• Nursing structure in disaster.	21	20.6	81	79.4
• Nursing schedule in participate in disasters.	25	24.5	77	75.5
Total	25	24.5	77	75.5
III. Training to control disaster:				
• Importance of theoretical and practical training.	21	20.6	81	79.4
• Training should involve all nurses.	21	20.6	81	79.4
• Importance of disasters' drill.	17	16.7	85	83.3
• Content of training program.	8	7.8	94	92.2
Total	15	14.7	87	85.3
Grand Total	21	20.6	81	79.4

Table (3): Nurses awareness about internal disasters' preparedness in the hospital (n= 102).

Items	Nurses' awareness			
	Aware (60%+)		Unaware (<60%)	
	No.	%	No.	%
I. Safety measures and adequacy of supplies and equipment.				
• Rules of safety patients transport.	3	2.9	99	97.1
• Current level of medical supplies.	14	13.7	88	86.3
• Current number of available equipment	12	11.8	90	88.2
Total	3	2.9	99	97.1
II. Infection control:				
• Infection control program.	5	4.9	97	95.1
• Members of infection control team.	8	7.8	94	92.2
• Rules of isolation of infectious cases.	6	5.9	96	94.1
• Safety measures for hospital waste disposal hazards.	11	10.8	91	89.2
• Sharp box.	6	5.9	96	94.1
• Use of protective clothing.	8	7.8	94	92.2
Total	5	4.9	97	95.1
III. Fire prevention:				
• Posted calling number of the civil defense.	13	12.7	89	87.3
• Fire safety tools in all floors (Fire extinguishers in all floors).	9	8.8	93	91.2
• Electrical safety in the hospital.	21	20.6	81	79.4
• Maintenance of fire extinguishers.	10	9.8	92	90.2
• Dealing with a fire alarm in the hospital.	25	24.5	77	75.5
Total	7	6.9	95	93.1
IV. Evacuation plan:				
• Person in charge for immediate evacuation.	65	63.7	37	36.3
• Role of nursing staff during evacuation.	26	25.5	76	74.5
• Rules to transfer to other hospitals.	36	35.3	66	64.7
• Criteria of emergency exit.	4	3.9	98	96.1
Total	27	26.5	75	73.5
Grand Total	5	4.9	97	95.1

Table (4): Relationship between personal characteristics of the studied nurses and their awareness of disasters' preparedness

Characteristics	Nurses Awareness				X^2	P-value
	Aware (n= 12)		Unaware (n=90)			
	No	%	No	%		
Age:						
< 20 years	1	4.5	21	95.5	5.096	0.165
20 -	3	7.5	37	92.5		
25 -	6	23.1	20	76.9		
30 -	2	14.3	12	85.7		
Qualifications:						
Diploma	8	9.0	81	91.0	#FE	0.045*
Bachelor	4	30.8	9	69.2		
Job position:						
Staff nurse	6	6.1	78	92.9	#FE	0.006*
Nurse managers	6	33.3	12	66.7		
Experience:						
< 5 years	8	12.9	54	87.1	0.197	0.906
5 -	3	10.0	27	90.0		
10 -	1	10.0	9	90.0		
Units:						
Operating room	1	14.3	6	85.7	11.802	0.067
Burn	3	30.0	7	70.0		
Emergency	2	40.0	3	60.0		
ICU	2	6.2	30	93.8		
Incubation	1	5.0	19	95.0		
Dialysis	2	28.6	5	71.4		
Surgery	1	4.8	20	95.2		

** Statistically significant* *# Fisher exact test was used*

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قياس مدى وعى الممرضات للاستعداد لمواجهة الكوارث بمستشفى جامعة قناة السويس

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غالبا ننتظر وقوع الكارثة ثم نبحث عن الحل ولذلك يجب أن نسال أنفسنا دائما ماذا لو..... بمعنى ماذا لو وقعت كارثة سواء طبيعية مثل الزلزال أو من صنع الإنسان مثل الحرائق سواء خارج المستشفى أو داخل المستشفى التى تحتوى على العديد من القوى البشرية و من ثم المرضى الذين يجب الحفاظ على أرواحهم. فقد تعرضت مصر فى الآونة الاخيرة لكوارث عدة مثل زلزال ١٩٩٢ و عديد من الفياضانات فى صعيد مصر و منطقة البحر الأحمر و لا ننسى ما حدث فى مستشفى الشاطبى بالأسكندرية بوحدة الحضانات التى أسفرت عن حريق أطفال مبتسرين لا ذنب لهم. و يجب أن نسأل أنفسنا هل نحن مستعدون لمواجهة أيا من هذه الكوارث.

الهدف من الدراسة:
تهدف هذه الدراسة إلى قياس مدى وعى الممرضات لمواجهة الكوارث بمستشفى جامعة قناة السويس بالإسماعيلية.

عينة البحث:
إشتملت عينة البحث على ١٠٢من الممرضات و رئيسات التمريض اللاتى يعملن فى وحدات العناية الحرجة مثل العنايه المركزة و الحروق و الغسيل الكلوى و الطوارئ و العمليات و الحضانات و الجراحات.

النتائج:
أوضحت نتائج هذه الدراسة عن عدم و جود خطة لمواجهة الكوارث لأعضاء هيئة التمريض بالمستشفى وأن خمس الممرضات فقط لديهن معلومات مرضية عن تصنيف الكوارث و٢٠,٦% منهن لديهن وعى بعناصر مواجهة الكوارث التى تحدث خارج المستشفى، بينما نسبة قليلة جدا ٤,٩% من الممرضات لديهن وعى بالإستعداد لمواجهة الكوارث التى تحدث بداخل المستشفى.

التوصيات:
أوصت الدراسة بتصميم خطة لادارة الكوارث بالمستشفى و أيضا اكساب الممرضات المعلومات والمهارات الأساسية اللازمة لمواجهة الكوارث من خلال البرامج التدريبية بالاضافة إلى إدراج دور الممرضة لمواجهة الكوارث فى التوصيف الوظيفى الخاص بكل فئة من فئات التمريض.

Compliance of Adolescents with Chronic Renal Failure to Their Management Plan at Mansoura Children's University Hospital

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Abstract

Chronic renal failure in adolescents is a major health problem and is considered as the most common chronic disease of childhood. So, the compliance to management plan is necessary to improve nutritional status, reduce uremia toxicity and delay renal deterioration and other problems associated with end stage renal failure and dialysis. Therefore, the aim of this study was to evaluate the compliance of the adolescents with chronic renal failure to their management plan. The study was carried out at out- patient clinic of the nephrology unit and hemodialysis unit at Mansoura Children's University Hospital. The sample consisted of 50 adolescents with chronic renal failure. Two tools were used for data collection. The first tool was a structured interview sheet, which designed by the researcher and included sociodemographic characteristics of adolescents and their dietary, fluid and medications compliance. Second tool was Adherence Scale which was developed by the researcher guided by Jacobson et al. (1990) to assess the level of compliance of adolescents to their management plan. The results revealed that adolescents' compliance about dietary program, fluid intake, and measurement of vital signs, medications, blood analysis, daily activities and follow – up were lacked in the first visit and improved significantly in the second and third visits. Therefore, establishment of continuous educational programs and hand out for adolescents with chronic renal failure to provide them with the essential knowledge about disease and its management plan are recommended.

Key Words: Renal Failure – Compliance- Adolescents

Introduction

Chronic renal failure is a complete and irreversible loss of kidney function. It is a permanent condition that requires dialysis or kidney transplantation to sustain life. **(Lieurance, 2001 & Cohen, 2003).** The management of CRF is either conservative or renal replacement therapy. The conservative therapy includes dietary modification, drugs as diuretics. Renal replacement therapy involves dialysis or kidney transplantation **(James, Ashwill & Droske, 2002 & Durkan and Ramage 2003)**.

The management and care of adolescents with CRF are based on multidisciplinary team approach, with the aim of optimizing the quality of life of the adolescents and family, improving compliance to therapeutic regimen, treating the complications of progressive renal disease and delaying the progression to end stage renal failure (**James Ashwill & Droske, 2002 & Durkan and Ramage 2003)**.

Compliance is defined as an active, international and responsible process of care, in which the individual works to maintain his or her health in close collaboration with health care personnel to achieve mutually desired goal of health **(Kyngas, Skaar-Chandler & Duffy, 2000 & Rose et al.,**

2000 and Lahdenpera & Kyngas, 2001). Also, North American Nursing Diagnosis Association (**NANDA**) defined compliance in 1996 as the extent to which a person and or caregiver's behavior coincides with a health promoting or therapeutic plan agreed upon by the person, or family or community and health care Professionals **(Morphy & Canales, 2001).**

A multi-strategic approach is needed to improve the management and medication compliance, specifically, strategies aimed at improving communication and trust between the health provider and adolescents. **(Zhao, Furber and Bauman, 2002 & Divertie, 2002)**.

The nurses play an important role in the care of adolescents with chronic renal failure. Nurses' goals include promoting adolescents' growth and development, removing waste products, maintaining their fluid balance via dialysis, encouraging psychosocial well being, and supporting and educating the family. In addition, nurses' attitudes and therapeutic motivation have an influence on adolescents' compliance. A positive attitude toward the disease, care and good motivation improve compliance **(Logan et al., 2003 & Kyle, 2008).**

Aim of the study

This study aims to evaluate the compliance of the adolescents with chronic renal failure to their management plan.

Research Question

Are adolescents complying with their management plan?

Subjects and Method

Research Design

A descriptive design was utilized in this study.

Setting

This study was conducted in Outpatient Clinic in the Nephrology Unit and Hemodialysis Unit at Mansoura Children's University Hospital.

Subjects

This study included a convenient sample of 50 adolescents with chronic renal failure who fulfilled the following criteria:

- Aged 12-18 years.
- Both sexes.
- Free from other chronic diseases.

Tools of Data Collection

I- Adolescents' Compliance to their Management Plan Structured Interview Sheet

The tool was developed by the researchers and covered the following items:

A- Sociodemographic Data, such as, age, sex, educational level, rank in the family, residence, parent's education, occupation, family income and crowding index.

B- Adolescents' compliance to diet, fluid intake and medication.

II- Adherence Scale

Adherence Scale was developed by the researcher to assess the level of compliance of adolescents with CRF to their management plan which was guided by **Jacobson et al. (1995)** who assessed adherence for adolescents with diabetes mellitus**.** The management plan included therapeutic regimens, dietary program, vital signs, medication and activities …….etc. The scale is Likert scale and ranged from "No" to "always".

Method

1- Approval to conduct this study was obtained from the director of nursing of Children University Hospital after explaining the aim of the study.

2- Tools were developed by the researcher and tested for their content validity by 5 juries who are experts in the field and its value was 67% for each. The tools

reliability was ascertained and its value was 76% for each.

3- A Pilot study was done on 5 adolescents with CRF to evaluate the clarity of the questions and to estimate the time required to use the tools. No modification was done.
4- Ethical considerations were done through obtaining written consent from adolescents and their parents, and securing the rights, privacy and safety of the study subjects.
5- At initial visit, adolescents were individually interviewed to assess their compliance to their previous management plan.
6- After each adolescent examination by the physician, the management plan was given based on his/her needs (medication, diet and fluid intake) and the researcher reinstructed each adolescent about his/her plan and ascertained that he/ she understood the instructions.
7- Adolescents' compliance to the instructions of the management plan was reassessed after one month (second visit) and 2 months (third visit).

11- The data was collected from first of June, 2008 to the end of February, 2009.

Data analysis

The data were revised, coded, tabulated and analyzed using SPSS version 13.0 program by which the analysis was conducted applying frequency tables with percentages and cross tabulations, arithmetic mean and standard deviation, Fisher – exact test was used for assessing change after repeated measurement. 1% level of significance was used. Scores were used to evaluate adolescents' compliance to management plan. Compliance was scored as follows 4 marks for "always", 3 marks for "most of times", 2 marks for "sometimes" and 1 mark for "no" or "never".

Total Compliance score of adolescents with chronic renal failure was 64 marks distributed as follows:

A- Dietary program, vital signs, medication and activities 52 marks
B- Compliance score about follow up 12 marks

Total Scores compliance was classified as follows:

Good	70% or more.
Moderate	50% to less than 70%.
Poor	less than 50%.

Results

Sociodemographic characteristics of the studied adolescents with chronic renal failure are illustrated in **table (1)** it was found that adolescents' age 12 to less than 14 years and those 16 years and more constituted 36% for each with mean age 14 $\pm$ 2.011 years. Almost two thirds of adolescents were males (62%) and 38% were in primary school compared to only 10% who were in secondary school. Slightly more than one fifth of the studied adolescents were the first born child (24%), and 44% were either the second or third born child. More than half of adolescents were from rural area (58%).

Adolescent's compliance to their diet, fluids intake and medications is presented in **table (2).** It is revealed from this table that 28% of the adolescents in the first visit were compliant to diet and this percentage improved to 70% in the second visit and 64% in the third visit. In relation to fluid intake, 22% of the adolescents were compliant to their fluid intake in the first visit and this percentage improved to 76% and 58% in the second and the third visits respectively and the differences were statistically significant. Nearly half of the

adolescents were compliant to their medication dose in the first visit (46%) and this percentage increased to 60% in the second visit and 58% in the third visit. On the other hand, 58% of the adolescents were compliant to their medication frequency in the first visit and this percentage improved to 70% and 72% in both the second and third visits respectively. Yet, the differences were not statistically significant (P= 0.315 for dose and 0.25 for frequency).

Adolescents' level of compliance to dietary program is portrayed in **table (3).** It is observed from the table that 14% of adolescents follow dietary program most of the times in the first visit and this percentage improved to 48% and 40% in the second and third visits respectively. None of the adolescents always compliant to follow dietary program in the first visit (0.0%) and this percentage became 12% and 8% in both the second and third visits respectively and the differences were statistically significant.

Table (4) illustrates adolescents' level of compliance to their vital signs, maintenance of ideal body weight and daily mouth care. It is revealed that 38% of the adolescents sometimes monitor their blood pressure regularly in the first visit. This percentage increased to 46% in the second visit and 50% in the third visit. The highest percentage of the adolescents (80%) reported that they never compliant to measure their vital signs regularly in the first visit and this percentage dropped to 54% in the second visit and 62% in the third visit.

When adolescents were asked about maintaining the ideal body weight, slightly less than one quarter of the adolescents reported that they maintain it in the first visit (22%). This percentage was increased to 50% and 36% in the second and third visits respectively and the difference was statistically significant.

It is observed from the same table that more than one half of the adolescents never cared for their mouth daily in the first visit (52%). This percentage dropped to 20% in the second visit and 18% in the third visit. On the other hand, 16% of the adolescents cared for their mouth most of the time in the first visit and in the second and third visits the percentage increased to 46% and 32% respectively and the difference was statistically significant.

Table (5) shows adolescents' level of compliance about medications, blood analysis and daily activities. It was revealed from the table that 40% of adolescents sometimes complaint to take medication accurately in both the first and second visits, while in the third visit the percentage was 32%. On the other hand, 16% of adolescents reported that they are always compliant to take medication accurately in the first visit, and in both the second visit and third visits this percentage became 26% and 32% respectively.

In relation to blood analysis, it was found that 28% of the adolescents never compliant to make blood analysis in the first visit, while in the second and third visits the percentages were 20%, 34% respectively. Lastly, 4% of the adolescents always make blood analysis in the first visit and the percentage increased to 8% in both the second and third visits. Yet, the differences were not statistically significant

It is also clear from the same table that 64% of the adolescents were compliant sometimes to perform the allowed daily activities in the first visit and the percentage decreased to 52% and 58% in the second and third visits respectively. Only 4% of the adolescents stated that they always perform the allowed daily activities in the first visit and this percentage

increased to 10% in both the second and third visits.

Walk for suitable time daily as a type of daily activities was never performed by 42% of the adolescents in the first visit compared to 16% in both the second and third visits. On the other hand, 18% of the adolescents were compliant to walk for suitable time daily most of the times in the first visit and this percentage increased to 36% in the second visit and 24% in the third visit.

Table (6) represents adolescents' level of compliance to their follow-up according to their management plan. Thirty percent of the adolescents always follow up on time in the first visit, while in the second and third visits this percentage increased to 50% and 48% respectively. When adolescents were asked about going to hospital for complications and treatment, 22% mentioned that they go most of the times in the first visit and this percentage increased to 40% in the second visit and 32% in the third visit and the difference was statistically significant (P = 0.007).

Slightly more than one quarter of the adolescents always compliant to regular dialysis sessions in the first visit (28%), while in the second and third visits this percentage increased to 36% and 38% respectively. Yet, the difference was not statistically significant.

Total compliance score for adolescents with CRF is shown in **Figure (1).** Only 2% of adolescents had good compliance score in the first visit while in the second and third visit, the percentage improved to 48% and 36% respectively with statistically significant difference.

Discussion

Chronic renal failure (CRF) is an irreversible loss of kidney function that occurs over months to years **(James Ashwill, & Droske, 2002 & Farag, 2005).** Although the adolescents with CRF usually require maintenance hemodialysis, they do not require permanent hospitalization. They are in need to adhere to therapeutic regimen for the rest of their lives **(Thompson et al., 2002 & Joseph, 2008).**

Compliance with prescribed regimen is essential for successful management of chronic renal failure. Successful management of chronic renal failure in adolescents depends on accurate and comprehensive information about adolescents and their lives. In addition, adolescents' life style, their disease – related knowledge and behaviors, environmental exposures and self – management practices should be known to health care providers. Thus, this information helps them in clarifying knowledge and identifying any misconceptions held by adolescents **(Kyngas, 2005).** Therefore, the current study was conducted to evaluate adolescents' compliance to their management plan.

Krespi et al., (2004) mentioned that management of CRF involves fluid, diet and medication restriction and in some patients dialysis and kidney transplantation. Its effectiveness is compromised by non-adherence to the restriction in protein, potassium and fluid intake. Also, **Hockenberry** and **Wilson, (2007)** stated that dietary restrictions include fluid and salt, protein and potassium to prevent fluid overload and its associated symptoms of hypertension, cerebral manifestations, and congestive heart failure. Potassium is restricted to prevent complications related to hyperkalemia. The result of the current study revealed that the majority of the studied adolescents were compliant either most of the time or sometimes in reducing protein intake and potassium in their diet and in drinking the required fluids/day, especially in the second and third visits (See Table 4).

The improvement of adolescents' compliance to their diet and fluid intake in the second and third visits can be attributed to the researcher's certainty of adolescent's understanding of the instructions given to them which emphasize the importance and role of diet, especially protein, salts and potassium in their regimen plan to prevent complications.

Callaham, (2004) mentioned that adolescents with end stage renal failure must compliant to detailed dietary plan through avoiding of canned prepackaged meals and fast food that are high in sodium as well as avoid fluid gain daily because with increased fluid, the dialysis machine will work harder to remove excess fluid. The findings of the present study showed that the majority of the studied adolescents had never compliant to restricted canned and fast food. In the first visit the majority of adolescents never compliant to drink the required fluids per day. Also, the minority of them reported that canned and fast foods are avoided nutrition for CRF. This may be due to adolescents' belief that fluid overload from canned and fast food is not a problem because this fluid is removed through dialysis machine and adolescents have not enough knowledge about canned food that high in preservatives and salts.

Concerning medication compliance, **Callaham, (2004),** mentioned that the level of the adolescents' compliance to medication and treatments aids in reduction of associated problems. **Antia – Otong** and **Knogable (2005)** added that the more medications the adolescents take, the more side effects they experience, making compliance more difficult. Also, **Charles et al., (2007)** stated that adherence to medication regimens is poor in the management of chronic diseases. **Joseph (2008)** reported in this study of practice of compliant and non – compliant of patients in relation to therapeutic regimen, that the majority of patients do not take their medications on time; and sometimes they decrease dose or frequency of the drug intake without any physician consultation. This finding is consistent with the result of the present study, where more than half of the adolescents were non-compliant to doses of medications in the first visit. This may be related to lack of information about accurate dose of medication provided to them or the side- effect of this medication let them ignore it.

Brownbridge and **Fielding (1994)** studied children and adolescent with CRF, where they found that low adherence with dialysis sessions. On the contrary, the finding of the current study showed that three quarters of the adolescents were either always or most of the time had regular dialysis sessions in the first visit and this result improved in the second and third visits. This finding may be due to fact that the studied adolescents knew the ideal prescribed dose of dialysis to improve their physical functioning. Also, their compliance may result from the health care team emphasis on the importance of attending dialysis sessions for maintaining life and due to the effect of the researcher's further instructions about the importance of regular dialysis sessions.

In relation to compliance about suitable activities for CRF, the majority of the adolescents perform the allowed daily activities and walking for suitable time daily either most of the time or sometimes. This compliance is supported by **Hockenberry** and **Wilson, (2007)** who stated that patients should be allowed for unrestricted activity and to set their limits regarding rest and extent of exertion. This may be related to effect of chronic illness that doesn't help

them to make vigorous activities and affect their compliance about their activities.

Glasper and **Richardson, (2006)** mentioned that the child with chronic renal failure should maintain strict measure and record of urine output to maintain fluid intake and output balance. Also, **Smeltzer** and **Bare, (2004)** reported that for maintaining accurate fluid allowance, urine output should be measured every day. On the contrary, the result of the present study revealed that the majority of the adolescents never compliant to measure their urine output daily. This finding may be due adolescents' ignorance about the importance of measuring urine output daily to determine amount of fluid intake and lack of knowledge about the cause of measuring it.

The results of the present study revealed that the majority of the adolescents never compliant to regular vital signs measurement, especially blood pressure. On the other hand, **Kyle, (2008)** stated that vital signs and blood pressure should be measured regularly for children with chronic renal failure. The result of the present study may be due to negligence of nursing staff to measure vital signs frequently for them and this indirectly lead them to not appreciate the importance of measuring it.

As regard adolescents' compliance to regular follow – up, the majority of them were always compliant to follow up visits in the second and third visits. This result goes with the result obtained by **Lasmar et al., (2007)** who found that the highest degree of compliance was observed for follow – up visits. Also, **Cegala, Martinelli,** and **Post, (2000)** reported that trained patients who received training booklets were more compliant with follow – up appointments. This may be due to the stress of physicians and nurses on the importance of follow – up to cure the adolescents' disease and non compliance to follow up and increases complications of CRF.

The results of the present study revealed that there was significant relation between total adolescents' compliance score about CRF and its management. This result is in agreement with **Clark et al., (1999)** who mentioned that compliance is thought to be heavily influenced by the knowledge and attitudes of the patient. Meanwhile, increasing adherence by correcting misconceptions about treatment might increase motivation to take medications and improve skills and hence ability to comply with the management plan.

Conclusion

Based on the findings of the current study, it is concluded that adolescents' compliance about dietary program, fluid intake, vital signs measurement, medication, blood analysis, daily activities, and follow – up were lacked in the first visit and improved significantly in the second and third visits.

Recommendations:

In the light of the findings of the current study, the following recommendations are suggested:

1. Continuous educational programs for adolescents with chronic renal failure who attend hemodialysis unit and nephrology clinic to provide them essential knowledge about the disease and its management plan are mandated.
2. Adolescents must be motivated to comply to their management plan through small gifts, cards….etc.
3. Designing educational handout about CRF and its management plan for adolescents and their parents in the unit.

4. Assess compliance of parents of adolescents with CRF about their management plan.

Table (1): Sociodemographic Characteristics of the Studied Adolescents with Chronic Renal Failure

Characteristics	N n=50	%
Age in Years		
12 –	18	36
14 –	14	28
16 & more	18	36
Mean± SD	**14.66±2.011**	
Sex		
• Male	31	62
• Female	19	38
Educational Level		
• Illiterate	6	12
• Read and write	15	30
• Primary school	19	38
• Secondary school	10	10
Birth Order		
• The First	12	24
• 2 nd - 3 rd	22	44
• The fourth and more	16	32
Residence		
• Rural	29	58
• Urban	21	42

Table (2): Adolescents' Compliance for their Diet, Fluids Intake and Medication

Items	Compliance						Test	
	1st visit		2nd visit		3rd visit			
	N n=50	%	N n=50	%	N n=50	%	FET	P
Diet								
Compliant	14	28	35	70	32	64	20.773	0.000*
Non compliant	36	72	15	30	18	36		
Fluids								
Compliant	11	22	38	76	29	58	30.288	0.000*
Non Compliant	39	78	12	24	21	42		
Medication Dose								
Compliant	23	46	30	60	29	58	2.313	0.315
Non compliant	27	54	20	40	21	42		
Frequency								
Compliant	29	58	35	70	36	72	2.581	0.275
Not Compliant	21	42	15	30	14	28		

** Significant at 0.01*

Table (3): Adolescents' Level of Compliance to their Dietary Program and Fluid Intake and Output

Items	Compliance						Test	
	1st visit		2nd visit		3rd visit			
	N n=50	%	N n=50	%	N n=50	%	FET	P
Follow Dietary Program								
Never	19	38	2	4	10	20		
Sometimes	24	48	18	36	16	32		
Most of times	7	14	24	48	20	40		
Always	0	0	6	12	4	8	30.687	0.000*
Decrease Protein Intake								
Never	16	32	3	6	2	4		
Sometimes	16	32	8	16	21	42		
Most of times	18	36	29	58	21	42		
Always	0	0	10	20	6	12	35.515	0.000*
Decrease Potassium Containing Diet								
Never	28	56	6	12	8	16		
Sometimes	15	30	15	30	16	32		
Most of times	6	12	19	38	19	38		
Always	1	2	10	20	7	14	35.858	0.000*
Decrease Canned Food								
Never	14	28	0	0	2	4		
Sometimes	11	22	1	2	6	12		
Most of times	15	30	22	44	16	32		
Always	10	20	27	54	26	52	40.123	0.000*
Drink Required Fluids / Day								
Never	32	64	5	10	12	24		
Sometimes	9	18	11	22	13	26		
Most of times	8	16	28	56	21	42		
Always	1	2	6	12	4	8	39.065	0.000*
Measure Urine Output Daily								
Never	47	94	27	54	32	64		
Sometimes	3	6	19	38	6	12		
Most of times	0	0	4	8	12	24		
Always	0	0	0	0	0	0	34.428	0.000*

** Significant at 0.01*

Table (4): Adolescents' Level of Compliance to their Vital Signs, Maintain Ideal Body Weight and Daily Mouth Care

Items	Compliance						Test	
	1st visit		2nd visit		3rd visit			
	N n=50	%	N n=50	%	N n=50	%	FET	P
Regular Monitoring of Blood Pressure								
Never	21	42	7	14	7	14		
Sometimes	19	38	23	46	25	50		
Most of times	6	12	12	24	11	22		
Always	4	8	8	16	7	14	15.542	0.016*
Regular Measurement of Vital Signs								
Never	40	80	27	54	31	62		
Sometimes	8	16	15	30	11	22		
Most of times	0	0	4	8	2	4		
Always	2	4	4	8	6	12	10.891	0.092*
Maintain Ideal Body Weight								
Never	18	36	8	16	7	14		
Sometimes	21	42	12	24	17	34		
Most of times	11	22	25	50	18	36		
Always	0	0	5	10	8	16	22.151	0.001*
Daily Mouth Care								
Never	26	52	10	20	9	18		
Sometimes	15	30	11	22	20	40		
Most of times	8	16	23	46	16	32		
Always	1	2	6	12	5	10	25.477	0.000*

** Significant at 0.01*

Table (5): Adolescents' Level of Compliance to their Medication, Blood Analysis and Daily Activities

Items	Compliance						Test	
	1st visit		2nd visit		3rd visit			
	N n=50	%	N n=50	%	N n=50	%	FET	P
Take Medication Accurately								
Never	10	20	2	4	3	6		
Sometimes	20	40	20	40	16	32		
Most of times	12	24	15	30	15	30		
Always	8	16	13	26	16	32	11.249	0.081*
Make Blood Analysis								
Never	14	28	10	20	17	34		
Sometimes	31	62	27	54	26	52		
Most of times	3	6	9	18	3	6		
Always	2	4	4	8	4	8	9.855	0.275
Perform Allowed Daily Activities								
Never	8	16	1	2	4	8		
Sometimes	32	64	26	52	29	58		
Most of times	8	16	18	36	12	24		
Always	2	4	5	10	5	10	11.813	0.066*
Walk for Suitable Time Daily								
Never	21	42	8	16	8	16		
Sometimes	17	34	22	44	25	50		
Most of times	9	18	18	36	12	24		
Always	3	6	2	4	5	10	15.297	0.016*

** Significant at 0.01*

Table (6): Adolescents' Level of Compliance to their Follow up

Items	Compliance						Test	
	1st visit		2nd visit		3rd visit			
	N n=50	%	N n=50	%	N n=50	%	FET	P
Follow up on Time								
Never	1	2	2	4	1	2		
Sometimes	12	24	4	8	5	10		
Most of times	22	44	19	38	20	40		
Always	15	30	25	50	24	48	9.002	0.173
Go to Hospital for Treatment/ Complications								
Never	9	18	3	6	1	2		
Sometimes	22	44	11	22	22	44		
Most of times	11	22	20	40	16	32		
Always	8	16	16	32	11	22	17.796	0.007*
Regular Dialysis Sessions	**n=30**		**n=30**		**n=30**			
Never	3	10	1	3.3	0	0		
Sometimes	1	3.3	0	0	1	3.3		
Most of times	12	40	11	36. 7	10	33.3		
Always	14	46.7	18	60	19	63.3	6.539	0.587

** Significant at 0.01*

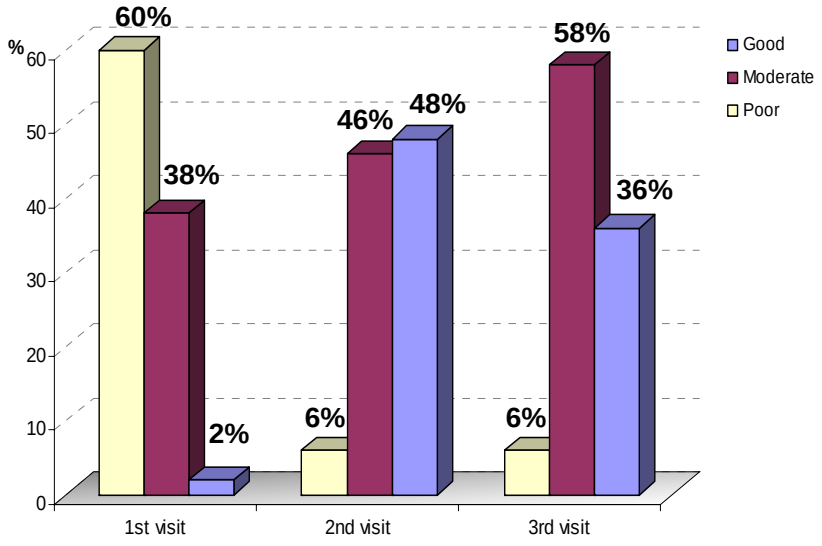

Figure (1): Total Compliance Score for Adolescents with CRF

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التزام المراهقين المرضى بالفشل الكلوي المزمن بخطة علاجهم في مستشفى المنصورة الجامعي للأطفال

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مقدمة:

يعتبر الفشل الكلوي في المراهقين من الأمراض المزمنة المعروفة في مرحلة الطفولة . لذلك تأتى الحاجة إلى برنامج متكامل لتحسين الحالة الغذائية و خفض تسمم الدم باليورميا و التقليل من سرعة تدهور الكلى و المشاكل الأخرى المصاحبة مع المرحلة النهائية للفشل الكلوي و الغسيل الكلوي .

الهدف :

الهدف من هذه الدراسة هو تقيم مدى التزام المراهقين المصابين بالفشل الكلوي للخطة العلاجية .

مكان الدراسة:

أجريت الدراسة في العيادات الخارجية للكلى و وحدة الغسيل الكلوي في مستشفى المنصورة الجامعي .

عينة البحث:

احتوت العينة على خمسين مراهق مصابين بالفشل الكلوي .

أدوات البحث:

تم استخدام أداتين في هذه الدراسة لتجميع المعلومات . و كانت الأداة الأولى عبارة عن استمارة تجميع البيانات و قد صممت لتجميع الخصائص الاجتماعية و الديموغرافية الخاصة بالمراهقين و أيضا عن التغذية و عن مدى التزام المراهقين بالبرنامج العلاجي . و قد كانت الأداة الثانية عبارة عن مقياس جاكبسون لتقيم مستوى المراهقين المصابين بالفشل الكلوي المزمن بخطة العلاج .

النتائج:

وقد أظهرت النتائج تحسن ملحوظ للخطة الخاصة بالتزام المراهقين بالبرنامج الغذائي والسوائل و قياس العلامات الحيوية و الدواء وتحليل الدم و النشاطات اليومية و المتابعة و التي تحسنت بشكل ملحوظ في الزيارة الثانية و الثالثة مقارنة بالزيارة الأولى .

التوصيات:

و قد أوصت الدراسة بضرورة عمل برامج تعليمية و مطبوعات خاصة بالمراهقين المصابين بالفشل الكلوي لمدهم بالمعلومات اللازمة عن المرض

Relationship between Leadership Styles and Span of Control of the Head Nurses at Zagazig University Hospitals

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Abstract:

Health care is facing number of challenges in the 21st century. All of these challenges require effective leadership and successful leader able to help people meet all of these challenges. In addition, leadership style helps in not only achievement of organizational goals but also will release energies for personal growth and development. Span of control is also considered a useful concept for measuring the closeness of contact between the manager and staff. The aim of the present study was to assess the relationship between leadership styles (traditional & advanced) and span of control of the head nurses at Zagazig University Hospitals. A descriptive design was utilized with a sample of 56 head nurses and systematic random sample of 151 staff nurses working at all inpatient units in Zagazig University Hospitals. Data were collected by two questionnaire sheets one for the head nurses composed of three parts and the other for staff nurses composed of two parts. Results revealed that there was no statistically significant relationship between leadership styles of the head nurses and span of control. More than half of the head nurses rated themselves as transformational leaders. However, more than quarter of staff nurses described them as autocratic leaders and this differentiation was statistically significant. Head nurses and staff nurses mentioned that there were negative relations between leadership styles explaining that head nurses used a single style in the different situations. Therefore, it is recommended that continuous follow up and evaluation would help head nurses to use different leadership styles, according to the different situations rather than using a single pattern and there is a need to establish a policy and guidelines regarding to the number of subordinates, head nurses can effectively supervise allowing them to have time to support nurses and be available for monitoring and development.

Key Words: Leadership Style- Span of Control- Head nurses

Introduction:

In the 21st century, healthcare organizations face many challenges, including increasing costs and demand on services and new technology. This has resulted in the healthcare environment being one of complexity and change. As well, restructuring continues to occur in an attempt to reduce the economic burden. In addition, social and demographic changes have seen healthcare organizations recognize the importance of the role that nurses, the largest group of healthcare professionals, have as both leaders and managers within these organizations (**Linton & Farrell, 2009).** Furthermore**,** leadership is one of the major factors; sometimes the only factor that determines whether an organization succeeds or fails (**Clark, 2009).**

Leader is defined as the initiator of team change and as the one who influences team processes **(Reiss, 2006)**. On the same way, nurses must have leadership to move forward in harmony with changes in society and in health care. In addition, within work organizations, certain nurses are designated as managers that are important to ensuring that care is

delivered in a safe efficient manner **(Yoder–Wise, 2007)**. In addition, leadership is the special quality which enables people to stand up and pull the rest of people over the horizon. As well, it is lifting a person's vision to higher sites, the raising of person's performance to a higher standard and the building of personality beyond its normal limitations **(Huber, 2006).** Furthermore, leadership is the process of influencing others to understand and agree about what needs to be done and how they can be done effectively, and the process of facilitating individual and collective efforts to accomplish the shared objectives (**Yi Wu, 2008**).

Head nurses are responsible for the operational management of resources and personnel of a unit within the health care system. This is a first level management position which has evolved over the years and as a consequence has distanced head nurse from direct patient care where, managerial responsibilities have become more demanding. Their responsibilities have extended to include unit personnel development, management, financial management and decision making (**Iro**, **2007).** The head nurses' responsibility also is to provide leadership so that those staff nurses would have self-confidence and feel secure to improve productivity, efficiency and job satisfaction **(Wang et al., 2003)**. In addition, leadership styles are the consistent behavior patterns exhibited in influencing the activities of others by working with and through them as perceived by those others (**Huber, 2006).** In addition**,** leadership style helps in not only achievement of organizational goals but also will release energies for personal growth and development **(Singh, Sinha & Vijayaragavan., 2008)**.

On the other hand, the span of control, in general terms, can be viewed as a set of ratios that link sets of managers and subordinates **(Meier & Bohte, 2003)**. Span of control is also a simple managerial construct which identifies or regulates the amount of direct supervision (and hence interaction or contact) that exists between a superior (i.e., a manger or supervisor) and his direct subordinates within an organization (**Yassine, Goldberg, & Li Yu, 2005**). In addition, span of control or span of management is a dimension of the organizational design measured by the number of subordinates that report directly to a given manager. This concept affects the organizational design in a variety of ways including; speed of communication flow, employee motivation, reporting relationships and administrative overhead **(Thomas, 2009).** Furthermore, in today's health care environment, the characteristics and content of leadership are changing dramatically, so, currently nurse leaders must be creative, innovative, and highly adaptive to the critical and substantial changes affecting health care **(O'Grady**, **2007**).

Aim of the study:

The present study was conducted in order to assess the relationship between leadership styles (traditional & advanced) and span of control of the head nurses at Zagazig University Hospitals.

Subjects and methods:

Design:

A descriptive design was used to conduct the present study**.**

Setting:

The present study was conducted at all free–service inpatient units (n=56) in Zagazig University Hospitals that included two sectors involving seven hospitals: The Emergency sector included four hospitals, they were: General Surgery Hospital, Emergency Hospital, Obstetric Emergency

Hospital and Internal Medicine Hospital. El–Salam sector included three hospitals, they were: Pediatric Hospital, Cardio-Thoracic Hospital and El-Salam Hospital.

Subjects:

The study sample included two groups. The first group included a sample of convenience of 56 head nurses from the above mentioned settings, with overall responsibility for organizing the administrative and clinical aspects of one nursing unit and having at least one year experience, while, the second group constituted of 151 staff nurses working in the above mentioned settings, having at least one year experience and selected by a systematic random sample.

Sample size of staff nurses:

Assuming the frequency of leadership style used by head nurses was 33.5% according to the pilot study, at confidence interval 95%, degree of precession 80.0% and a population size of about 1400 staff nurses obtained from the hospital records, the sample size was calculated to be about 151 staff nurses **(Dean et al., 1994).**

Tools of data collection:

Two tools were used to collect data for this study.

1. **Head nurse's questionnaire sheet**: It was composed of three parts.

Part 1: covered Personal characteristics e.g., age, qualification, department, years of experience in the present unit, and questions related to receiving leadership training courses and date of last training course.

Part 2: was developed by **Clark (1998)** and **Elsayed (2005**), in order to assess leadership styles. It was composed of two categories: Traditional category included 24 questions categorized under three divisions, namely; autocratic, democratic and laissez-faire styles and advanced category included 57 questions categorized under two major divisions. The first was transformational dimensions composed of 38 questions categorized under 5 subscales namely; attributed charisma, idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. The second was transactional dimensions contained 19 questions subdivided into 3 subscales were; contingent reward, active management by exception and passive management by exception. The responses were on a five-point Likert scale rating from "never" to "always" they were scored from 1 to 5 respectively for each statement.

Part 3: was adopted from **McCutcheon (2004)** in order to assess span of control. It consisted of five questions, two MCQ questions and three complete questions. The first question consisted of giving (1) for the response "yes" and (zero) for "no". The second question is a multiple choice one with scored 1, 2, 3, and 4. The fifth question is a complete with scored 1 and 2.

2. **Staff nurses' questionnaire sheet**

It was composed of two parts:

Part 1 concerned with personal characteristics of staff nurses as: age, qualification, years of experience and department.

Part 2 contained the same questions of part 2 of the head nurses' questionnaire sheet that entailed questions related to leadership styles but with differentiation of the verbs used.

Pilot study:

A pilot study was carried out on 15 staff nurses, and subjects who shared

in the pilot study were excluded from the main study sample.

Statistical Design:

Data entry and statistical analysis were performed using SPSS, version 12. Suitable descriptive statistics were used such as frequency, percentage, median, range, mean and standard deviation.Chi–square test, Fisher exact test and correlation coefficient (r) test were also used.

Results

Table (1) displays personal characteristics of the studied head nurses (n=56)**.** It indicates that, 51.8% of the head nurses aged 35 years or more. As regards qualification, most of the head nurses (96.4%) had bachelor degree in nursing, while the least of them (3.6%) had diploma in nursing + specialty degree. Concerning years of experience, 51.8% of the head nurses had 11 years of experience or less. In addition, 37.5% of them were working in surgical departments. Regarding to leadership training courses, the majority of the head nurses (85.7%) did not attend any leadership training courses.

Table (2) describes the personal characteristics of staff nurses included in the study. According to the table 58.9% of the staff nurses aged less than 30 years old. As regards qualification, the majority of them (89.4%) had diploma in nursing. Concerning years of experience, 59.6% of the staff nurses had 10 years or more, and 44.4% of them were working in surgical departments.

Figure (1) illustrates the comparison between leadership styles among the study subjects. The figure reveals that 51.8% of the head nurses used transformational leadership style, while, the least percentage of them (1.8%) used laissez-faire leadership style. On the other hand, 29.1% of staff nurses affirmed that their head nurses used autocratic leadership style, while, the least percentage of them (7.3%) asserted that their head nurses used mixed leadership styles and this difference was statistically significant.

Figure (2) displays the comparison between total traditional and advanced leadership styles as reported by the study subjects. The figure reveals that the majority of the head nurses (83.9%) compared to almost half of staff nurses (50.3%) mentioned that head nurses used advanced leadership styles. However, 16.1% of head nurses compared to 49.7% of staff nurses asserted that head nurses used traditional leadership styles and this difference was statistically significant.

Table (3) shows correlation between traditional and advanced leadership styles as mentioned by the head nurses. Findings clarified that there were negative relationships between traditional and advanced leadership styles as reported by head nurses. In addition, there were statistically significant negative relations between head nurses' transformational leadership style as regards autocratic, democratic and mixed leadership styles.

It is clear from **table (4)** that there were negative relations between traditional and advanced leadership styles as reported by staff nurses. In addition, there were significant negative relations between autocratic leadership style regarding to democratic, laissez–faire, transformational, transactional and mixed leadership styles. Moreover, there were statistically significant negative relations between democratic leadership style as regards laissez-faire and transformational leadership styles. Furthermore, there was a significant negative relation between laissez–faire and transformational leadership styles. **Table (5)** shows the distribution of

span of control as reported by head nurses. As regards staff reporting directly to the head nurses, all the head nurses (100%) supervised staff nurses and nurse aids categories in their units. On the other hand, most of them (94.6%) did not supervise technicians. In addition, 58.9% supervised students in their units, and 62.5% of the head nurses were reporting directly to all the managerial levels in their hospitals. As regards total number of subordinates, 51.8% of the head nurses supervised 30 subordinates or less. Regarding to the location of units, for the majority of the head nurses (83.9%) their units were located in part of the floor. Moreover, all of them (100%) were responsible for one unit.

Table (6) demonstrates the relationship between span of control and leadership styles according to head nurses' answers. It is obvious from this table that there was no statistically significant relation between head nurses' leadership styles regarding to span of control.

Discussion

In recent years, competition has become increasingly intense between organizations, which results in higher organizational requirements, such as increased efficiency and lower cost. As a result of this, the leadership competencies of nurse managers are extremely important so, nurse leaders who have excellent leadership competency are always beneficial for their organizations (**Zhang**, **2009).** On the same way, leadership is an important issue related to how nurses integrate the various elements of nursing practice to ensure the highest quality of care for patients **(Huber, 2000)**. In addition, the nurse managers′ leadership style and span of control are important elements in creating positive work environment **(Doran et al., 2004)**. Therefore, the aim of this study was to assess the relationship between leadership styles (traditional & advanced) and span of control of the head nurses at Zagazig University Hospitals.

Investigating the relationship between leadership styles and span of control, according to the current study findings, there was no statistically significant relationship between leadership styles and span of control. This means that leadership styles used by head nurses may not be affected by a wide or a narrow span of control. This might be attributed to that the head nurses do not understand the concept of leadership and so, they were not aware of leadership styles and techniques that could help them to become more competent leaders or this might be due to that they were not aware about their managerial roles in their units. In this respect, **Park** and **Augenbroe (2003),** conducting a study in Georgia, found that a wide span may cause difficulties in subordinates' control. In addition, **McCutcheon (2004)** studied the relationships between leadership style, span of control and outcomes in Toronto and found that, it is very difficult if not impossible to consistently provide positive leadership style to overcome the effects of a wide span of control.

Regarding to leadership styles as reported by the study subjects, the findings of the present study indicated that, there was a statistically significant difference between head nurses and staff nurses answers as regards the leadership style most commonly used. Thus, more than half of the head nurses rated themselves as transformational leaders and the least frequently rated style was laissez-faire leadership style representing a minority. However, more than one quarter of staff nurses described their head nurses as autocratic leaders and the least frequently used style was

mixed leadership. This could be explained that the head nurses in the present study might prefer to work adequately by using the transformational leadership style to accomplish work and achieve goals. This tendency may be attributed to either personal factors or to head nurses′ higher educational degrees. Regarding to staff nurses opinions, this might be related to their submissive feeling or might reflect head nurses′ full sense of responsibility along working hours which was translated into autocratic style.

As for the head nurses answers in this study findings are matching with **Moore** and **Rudd (2006),** who conducting a study on leadership styles of current extension leaders and the authors asserted that effective-successful head nurses as nurse leaders use transformational leadership behaviors more often than transactional or laissez-faire leadership. Similarly, **McGuire** and **Kennerly (2006)** found that head nurses as nurse managers rated themselves higher on transformational leadership. Additionally, in a study carried out in four acute care hospitals in New Jersey, **Casida** and **Pinto-Zipp (2008)** found that effective organizations have head nurses as first-line nurse leaders that demonstrate transformational leadership style. A leader who practices transformational leadership style creates and implements a vision of what can be accomplished at work and empowers the staff with that vision, while keeping abreast of health care changes and interacting with others inside and outside of the organization. Moreover, head nurses who have used transformational leadership styles have shown a positive impact on organizational outcomes. On the other hand, the previous findings are contradicting with **El-Shimy, Akel & Saber (2000), Mustafa (2004), Abd El-Kawy (2005) and Abdel-Aleem (2007),** who found that the majority of the head nurses have mixed leadership style. In this context, **Huber (2000)** reported that no one leadership style is optimal in all situations so leadership styles should be chosen according to circumstances. However, the previous findings are contradicting with **Thomas (2004),** who found that head nurses viewed themselves as democratic leaders. Moreover, in private hospitals in Alexandria, **Belal (2008)** found that head nurses tended to use transactional leadership style more than transformational leadership style.

Regarding to staff nurses answers, this study finding was in agreement with **Thomas (2004),** who found that staff nurses mentioned that the usual type of leadership used by their head nurses was the autocratic style. The foregoing finding opposed with a study carried out in Alexandria University Hospitals by **Mostafa (2005),** who found that 71.7% of staff nurses perceived the head nurses′ leadership style as transformational, while only 28.3% of them perceived their head nurses′ leadership style as transactional. Additionally, in a study conducted in a southeastern area in Spain **Molero et al. (2007)** found that according to the staff nurses, the styles more frequently employed by their head nurses are democratic leadership style, followed by transformational leadership style while, the least frequently used style was the autocratic style. As well, in disagreement with these findings, **McGuire** and **Kennerly (2006),** and **Belal (2008)** mentioned that staff nurses asserted that their head nurses tend to use transactional leadership style. These contradictions may be due to different settings.

Concerning the relation between total traditional and advanced leadership styles, there was a statistically significant difference between head nurses and staff nurses opinions. This means that, the majority of the head nurses rated themselves as advanced leaders while just slightly more than half of staff nurses asserted this perception. In addition, about one sixth of the head nurses mentioned that they used traditional leadership styles while about half of staff nurses asserted that.

Investigating the correlation matrix among leadership styles as reported by the study subjects, and detected from the present study findings, head nurses mentioned that there were negative relations among different leadership styles but not significant. This means that the head nurses used a single predominant style with different situations. In addition, there were significant negative relations between transformational leadership style with regard to autocratic, democratic and mixed leadership styles. This can be explained by that when the head nurses used transformational style they might not use these styles. As for staff nurses, there were statistically significant negative relations between autocratic style regarding to the other five leadership styles; between democratic style as regards laissez-faire and transformational styles. This might be due to that those head nurses were not trained to use different leadership styles. This result was consistent with **Daniel (2004)**, who mentioned that each head nurse as a nurse leader has a particular leadership style that tends to be consistent from one situation to the next. This result was in disagreement with **McCutcheon (2004)**, who found that there were highly statistically significant relationships between transformational and transactional leadership styles.

As regards head nurses′ span of control items, according to the study finding all the head nurses supervised staff nurses and nurse aids, while, more than half of them supervised students as well which, determined span of control in their units. This result was supported by a study was conducted in Toronto hospitals by **Doran et al. (2004),** who found that span of control, included all categories of staff, nursing and non-nursing, reporting directly to the manager. In addition, the present study results revealed that the median of subordinates supervised by head nurses were 30 staff nurses. This study finding contradicted with that of a study carried out by **Laschinger** and **Wong (2007)**, explaining a profile of the structure and impact of nursing management in Canadian Hospitals, and the authors found that, the median of subordinates that head nurses supervise is 63 staff nurses. On the other hand, **Richardson et al. (2006)** asserted that current authors advocate ratios ranging from 15 to 25 subordinates per leader.

Conclusion

In the light of the main study findings, it can be concluded that, there was no statistically significant relationship between leadership styles and span of control of the head nurses. There were statistically significant differences between head nurses and staff nurses' opinions regarding to leadership style most commonly used by the head nurses where; more than half of the head nurses rated themselves as transformational leaders, while, more than quarter of staff nurses asserted that their head nurses tend to use the autocratic leadership style. Head nurses and staff nurses mentioned that there were negative relations among the six leadership styles explaining that head nurses used

single predominant style in the different situations.

Recommendations

- Leadership and span of control must be included in undergraduate and post graduate curricula.
- Head nurses should have opportunities to update their leadership knowledge, behaviors and skills in the form of conferences, seminars and workshops to cope with rapidly developing leadership science and styles.
- Head nurses should motivate their staff nurses to express their opinion and enhance their leadership competencies, so that staff nurses might apply these when they become leaders.
- There is a need to establish a policy and guidelines regarding to the number of subordinates, head nurses can effectively supervise and lead staff nurses allowing them to have time to support staff nurses and be available for mentoring and development.

Table (1): Personal characteristics of the studied head nurses (n=56)

Personal Data	No	%
Age (in years):		
▪ < 35*	27	48.2
▪ ≥ 35	29	51.8
Qualification:		
▪ Diploma in nursing + specialty	2	3.6
▪ Bachelor degree in nursing	54	96.4
Years of experience:		
▪ ≤ 11*	29	51.8
▪ > 11	27	48.2
Department:		
▪ Emergency/critical care units	15	23.8
▪ Medical departments	20	35.7
▪ Surgical departments	21	37.5
Leadership training courses:		
▪ Yes (2005 – 2008)	8	14.3
▪ No	48	85.7

**The median*

Table (2): Personal characteristics of staff nurses included in the study (n=56)

Personal Data	No	%
Age (in years):		
▪ < 30*	89	58.9
▪ ≥ 30	62	41.1
Qualification:		
▪ Diploma in nursing	135	89.4
▪ Diploma in nursing + specialty	4	2.7
▪ Technical institute	12	7.9
Years of experience:		
▪ < 10*	61	40.4
▪ ≥ 10	90	59.6
Department:		
▪ Emergency/critical care units	45	29.8
▪ Medical departments	39	25.8
▪ Surgical departments	67	44.4

▪ *The median*

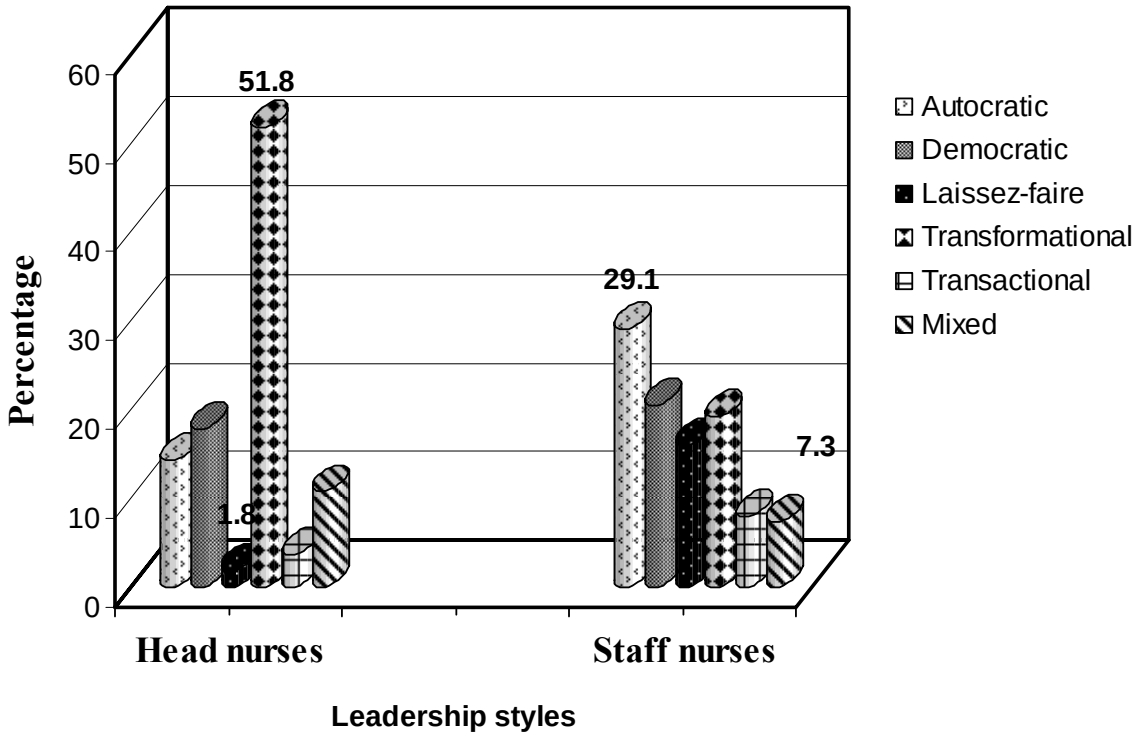

Figure (1):Distribution of leadership styles as reported by the study subjects

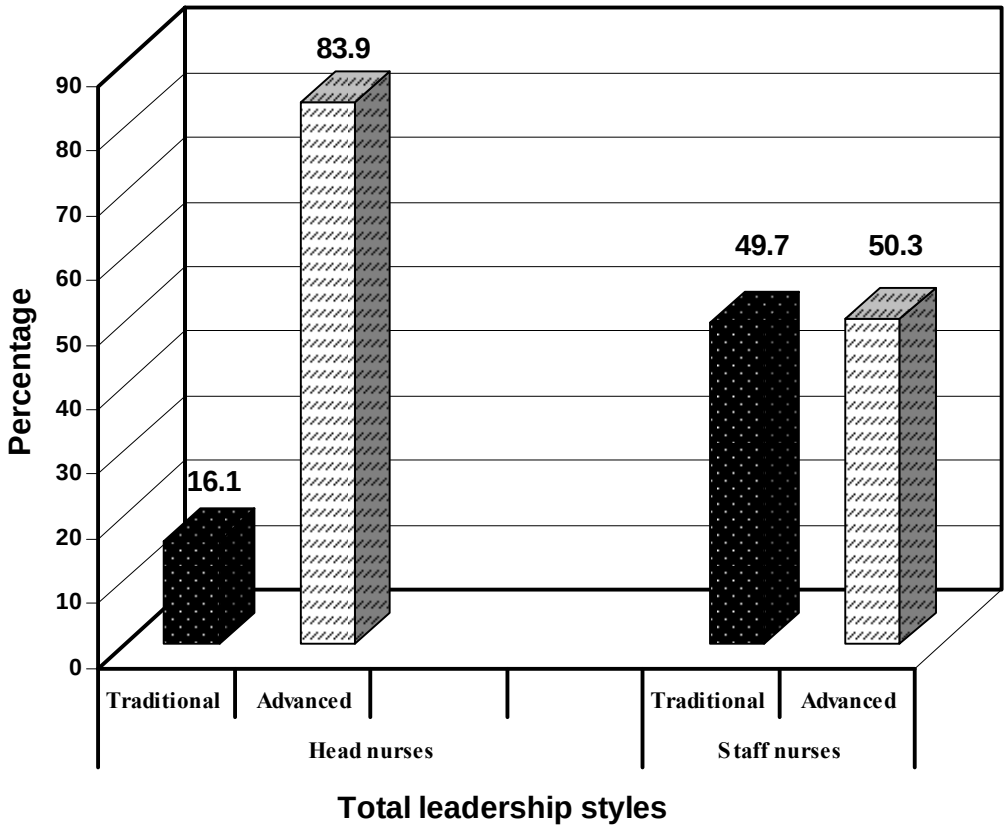

Figure (2): Distribution of total traditional and advanced leadership styles as reported by the study subjects

Table (3): Correlation between traditional and advanced leadership styles as mentioned by the head nurses

Items	Autocratic style	Democratic style	Laissez-faire style	Transformational style	Transactional style
	r	r	r	r	r
Democratic style	-0.19				
Laissez–faire style	-0.05	-0.06			
Transformational Style	-0.42*	-0.48*	-0.14		
Transactional Style	-0.07	-0.09	-0.02	-0.19	
Mixed	-0.14	-0.16	-0.04	-0.35*	-.06

**Significant at p < 0.05*

Table (4): Correlation matrix between traditional and advanced leadership styles as reported by staff nurses.

Traditional And Advanced Leadership Styles	Autocratic style	Democratic style	Laissez-faire style	Transformational style	Transactional style
	r	r	r	r	r
Democratic style	-0.32*				
Laissez-faire style	-0.27*	-0.22*			
Transformational style	-0.31*	-0.24*	-0.21*		
Transactional style	-.018*	-0.14	-0.12	-0.14	
Mixed	-0.18*	-0.14	-0.12	-0.13	-0.08

** Significant at p < 0.05*

Table (5): Distribution of span of control items as reported by the head nurses

Span of Control Items	No	%
1. Staff reporting directly to the head nurse:		
A. Staff nurses		
▪ Yes	56	100.0
▪ No	0	0.0
Median	22	
Range	(7 – 140)	
B. Nurse aids:		
▪ Yes	56	100.0
▪ No	0	0.0
Median	4	
Range	(1 – 24)	
C. Others (technicians)		
▪ Yes	3	5.7
▪ No	53	94.6
Median	*2*	
Range	(1 – 4)	
D. Students		
▪ Yes	33	58.9
▪ No	23	41.1
Median	3	
Range	(1 – 20)	
2. Head nurse report directly to:		
▪ Hospital director	3	5.4
▪ Nursing director	18	32.1
▪ Both of them	35	62.5
3. Total number of subordinates in head nurses department:		
▪ ≤ 30*	29	51.8
▪ > 30	27	48.2
4. Sites of these units (located in):		
▪ Part of the floor	47	83.9
▪ *Whole floor*	9	16.1
5. number of units the head nurse is responsible for:		
▪ One unit	56	100.0

***** *Median of total No. of subordinates*

Table (6): Relationship between span of control and leadership styles according to head nurses' answers (n=56)

Leadership Styles	Span of Control				X^2	P- value
	≤ 30 SN (n= 29)		> 30 SN (n= 27)			
	No.	%	No.	%		
Autocratic style	2	6.9	6	22.2	2.68	0.10
Democratic style	7	24.1	3	11.1	1.61	0.20
Laissez-faire style	1	3.5	0	0.0	0.94	0.33
Transformational style	15	51.7	14	51.9	0.00	0.99
Transactional style	2	6.9	0	0.0	1.93	0.16
Mixed	2	6.9	4	14.8	0.91	0.33

Significant at p < 0.05 *SN = staff nurses*

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العـلاقة بين أنـماط القيادة و نـطاق الإشـراف لمـشرفات التـ ـمريض بمستشـ ـفيات جـ ـامعة الزقـ ـازيق

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المقدمة والهدف من الدراسة:

إن القيادة هى العملية التى من خلالها يستطيع الفرد أن يؤثرعلى الآخرين لإنجاز هدف المؤسسة وتوجيهها بطريقه تجعلها أكثر تماسكاً وترابطاً والنمط القيادى هو الطريقة والنُهج المستخدم لتقديم التوجيه وتنفيذ الخطط وتحفيز الممرضات. علاوةُ على ذلك، فإن نطاق الإشراف مفهوم هام ينبغي أن يؤخذ في الإعتبار عند التعامل مع الآخرين والأكثر من هذا فإن النمط القيادى لمشرفات التمريض ونطاق الإشراف من أهم العناصر المهيئة لبيئة عمل إيجابية. لهذا تهدف هذه الدراسة إلى تحديد العلاقة بين أنماط القيادة (التقليدية والمتطورة) ونطاق الإشراف لمشرفات التمريض بمستشفيات جامعة الزقازيق.

طرق وأدوات البحث:

تصميم البحث :

لقد استُخدمت دراسة وصفية لإجراء هذا البحث.

مكان البحث

تم إجراء هذه الدراسة فى الوحدات الداخلية بمستشفيات جامعة الزقازيق التى تحتوى على قطاعين متضمنة سبع مستشفيات هى مستشفى الجراحة الجديد، الإستقبال، حوادث النساء، الباطنة، مبارك للأطفال، قلب وصدر ومستشفى السلام.

عينة البحث

تكونت عينة البحث من جميع مشرفات التمريض(٥٦) اللاتى يعملّن فى الوحدات السابقة بالاضافة إلى ١٥١ ممرضة تم اختيارهن بطريقة عشوائية منتظمة بحيث لا تقل سنوات الخبرة عن سنة وتقبلّن المشاركة فى البحث ويعملّن فى الوحدات السابق ذكرها.

أدوات البحث: استُخدِمت استمارتي استبيان لجمع المعلومات من عينة البحث.

الأولى: استمارة استبيان لمشرفات التمريض وتشتمل على ثلاثة محاور هى:

١. البيانات الشخصية لمشرفات التمريض.
٢. الأنماط القيادية التقليدية وتشتمل على ٢٤ سؤال تمثل النمط الديكتاتورى، النمط الديموقراطى واللانمطى كما تشتمل على الأنماط القيادية المتطورة والتى تتضمن ٥٧ سؤال ممثلةً النمط القيادى التحويلى والنمط الإجرائى.
٣. كما تحتوى على خمسة أسئلة لقياس نطاق الإشراف.

الثانية: استمارة استبيان للممرضات وتحتوى على جزئين:

١. البيانات الشخصية.
٢. الجزء الثانى من استمارة استبيان مشرفات التمريض التى تقيس النمط القيادى لهن مع الأخذ فى الإعتبار تغيير ضمير المتكلم.

النتائج : أسفرت نتائج هذه الدراسة عن الآتى:

- أن ٥١,٨ ٪ من مشرفات التمريض قد بلغت أعمارهن ٣٥ عاما أو أكثر والغالبية (٩٦,٤ ٪) حاصلات على بكالوريوس في التمريض كما أن ٥١,٨ ٪ لديهن ١١ عاما من الخبرة أو أقل والأغلبية (٨٥,٧ ٪) لم تحضرن دورات تدريبية فى القيادة.
- فيما يتعلق بالممرضات فإن ٥٨,٩ ٪ تقل أعمارهن عن٣٠ سنة و الغالبية(٨٩,٤ ٪) حاصلات على دبلوم في التمريض كما أن٥٩,٦ ٪ لديهن ١٠ أعوام من الخبرة أو أكثر. وأن ٤٤,٤ ٪ يعملن في أقسام الجراحة.
- بالنسبة لأنماط القيادة المستخدمة، وجِد أن ٥١,٨ ٪ من مشرفات التمريض يستخدمن النمط القيادى التحويلي. في حين أن ٢٩,١٪ من الممرضات أكدت أن مشرفات التمريض تستخدمن نمط القيادة الديكتاتورى وهذا الاختلاف ذو دلالة احصائية.

- أن غالبية مشرفات التمريض (٨٣,٩ ٪) مقارنة بنصف الممرضات (٥٠,٣٪) ذكرن أن مشرفات التمريض تستخدمن الأنماط القيادية المتطورة، في حين أن ١٦,١ ٪ من مشرفات التمريض مقارنة بـ ٤٩,٧ ٪ من الممرضات ذكرن أن مشرفات التمريض تستخدمن الأنماط القيادية التقليدية وهذا الاختلاف ذو دلالة احصائية.
- طبقا للتحليل الإحصائى لإجابات مشرفات التمريض فقد وجد إرتباط سلبى ذو دلالة احصائية بين النمط القيادى التحويلى فيما يتعلق بالنمط الديكتاتورى والديمقراطي وكذلك أنماط القيادة المختلطة.
- وجِد ارتباط سلبى ذو دلالة احصائية بين النمط الديكتاتورى وباقى أنماط القيادة الاخرى وكذلك بين النمط الديموقراطى فيما يتعلق باللانمطى والنمط التحويلى كما وجدت علاقة سلبية بين اللانمطى والنمط التحويلى وذلك طبقا للتحليل الإحصائى لإجابات الممرضات.
- لقد أظهرت النتائج أن جميع مشرفات التمريض يشرفن على الممرضات والعمال في وحداتهن، فى حين أن معظمهن (٩٤,٦ ٪) لا يشرفّن على الفنيين و ٦٢,٥ ٪ ترفع تقاريرها إلى كافة المستويات الإدارية في المستشفي كما أن ٥١,٨٪ يشرفّن على ٣٠ ممرضة أو أقل.
- عدم وجود علاقة ذات دلالة إحصائية بين أنماط القيادة (التقليدية والمتطورة) ونطاق الإشراف لمشرفات التمريض بمستشفيات جامعة الزقازيق.

الخلاصة:

نستنتج من هذه الدراسة أن الأنماط القيادية (التقليدية والمتطورة) لمشرفات التمريض لا تتأثر بعدد الممرضات (نطاق الإشراف).

التوصيات:

بناءا على نتائج الدراسة الحالية ، تم وضع المقترحات الآتية :

١. أن تكون القيادة ونطاق الاشراف مدرجة في المناهج الدراسية للبكالوريوس والدراسات العليا.
٢. توفير الفرص لتحديث و تطوير المعرفة بفن القيادة والسلوك والمهارات في شكل مؤتمرات وحلقات دراسية وورش عمل لمواجهة التطور السريع لعلوم وأنماط القيادة.
٣. أن تُحفز مشرفات التمريض الممرضات على التعبير عن آرائهن وتحسين الكفاءات القيادية لديهن للاستفاده منها عندما يصبحن قادة.
٤. تُوصى الدراسة بوضع لوائح وإرشادات بشأن الأعداد المناسبة من الممرضات بحيث تستطيع مشرفات التمريض الإشراف عليها بنحو فعال مما يسمح لهن بدعم الممرضات وتوجيههن وتنميتهن.

رقم الايداع
١٢٦٢٦