

Assessment of Nurses' Performance in Physical Restraining for Children Undergoing Invasive Procedures

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Abstract

Aimed: to assess nurses' performance in physical restraining for children undergoing invasive procedures. **Subjects and Methods:** A descriptive study was conducted at the pediatric surgical and medical departments affiliated to Beni Suef University Hospital and Ain Shams University Hospital. **Sampling:** A convenience sample include all available nurses who are working in the previously mentioned settings. **Tools:** A structured questionnaire sheet to assess nurses' characteristics and their knowledge regarding physical restrain. The second tool was an observation checklist to assess nurses' practice toward physical restrain. The third tool was an attitude sheet to assess nurses' attitude regarding physical restrain. **Results:** revealed that more than two fifth of the nurses were aged < 25years and more than half of them were technical institute. Nearly two fifth of nurses had less than 5 years of experience. Also, it was clear that more than two fifth of them had average knowledge about physical restrain. While nearly two thirds of nurses had incompetent level of practice regarding physical restrain. And more than two fifth of nurses had negative attitude about physical restrain. **Conclusion:** The study concluded that, the majority of the studied nurses had poor level of knowledge, incompetent level of practice and negative attitude regarding physical restrain. **Recommendations:** The study recommended that, importance of implementing training program for nurses regarding physical restraint. Close supervision and teaching on spot from nurse supervisor is needed to ensure quality of care provided by nurses for physical restrain.

Key words: Physical Restraint, Nurses, Knowledge, Practice, Attitude, Children.

Introduction

Physical restrain is defined as any manual methods, physical or mechanical device, material, equipment that immobilizes the ability of a child to move his arm, leg, body or head freely or a drug or medication when it is used as a restriction to manage the child's freedom of movement and is not a stander treatment or dosage for the child's condition (*Hockenberry and Wilson, 2015*).

Restrain are used to restrict the movements of the sick child in the bed, the nurse should select appropriate, safe and comfortable restraints. However, the use of restrain should be restricted to the minimum. Main reason for restraining child is to prevent dislodgement of medical equipment, carry out procedure safely and effectively, restrict his access to the body and remove important tube as nasogastric tube, endotracheal tube and chest tube (*Rousset, 2010*).

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Immobilization can be accomplished by holding a child (human restraint), by wrapping with a blanket or other devices (mechanical restraint) or by sedation (Chemical restraint). The protective measures to limit movement are necessary for restraining children in the health care setting. There can be as short term restraint to facilitate examination and minimize the child's discomfort during special tests, procedures and specimen collections. Restrain can also be used for a longer period of time to maintain the child's safety and prevention from injury (*Marlow and Redding, 2010*).

The nurse play an important role in restrain before initiating restraint the nurse completes a comprehensive assessment of the child to determine need for restraint, nurse need to assess development, mental status and potential to hurt others or self and safety. The nurse is responsible for selecting the least restrictive type of restrain (*Kalia, 2012*).

Significant of the study

The physical restrain of pediatric patients despite being often applied with no real scientific basis has always been part of nursing practice in caring for the ill children. Restraint is the initial step for most procedures and is necessary for providing adequate access to the area concerned for invasive procedures and allows performing procedures with minimal disturbance (*Hockenberry and Wilson, 2015*).

In Egypt, physical restrain is a more conventional practice in hospitals. There are no available guidelines or legal regulations concerning physical restraint use. Reviewing the literature illustrated that only one study addressed physical restraint use in Egypt. Physical restraints are a common practice in healthcare, with prevalence rates ranging between 33% and 68% in hospital settings (*Attia and Kadry, 2013*).

Aim of the study

This study aims to assess nurse's performance in physical restraining for children undergoing invasive procedures.

Research question

- 1- What are the nurses' knowledge regarding physical restraining for children undergoing invasive procedures?
- 2- What are the nurses' practices regarding physical restraining for children undergoing invasive procedures?
- 3- What are the nurses' attitudes regarding physical restraining for children undergoing invasive procedures?

Subjects and Methods

Subject and Methods for this study was portrayed under the four main designs thesis are

- 1-Technical design
- 2-Operational design
- 3-Administration design
- 4-Statistical design

1- Technical design

The technical design used for the will be includes; the Research design, settings, subjects, and tools for data collection used in the study.

Research design:

A descriptive design was utilized for the conduction of this study.

Setting:

This study was conducted in medical and surgical departments affiliated to both Beni Suef University Hospital and Ain Shams University Hospitals.

Subject:

A convenience sample was used in the present study included all available nurses who are working in the previously mentioned settings; their total number was (100 nurses).

Tools of data collection:

Three tools were used for data collection related to this study:

1-A structured questionnaire sheet: It was designed and developed by the researcher in Arabic Language after reviewing the related literature in the form of closed end questions and multiple choices to assess nurses' knowledge about physical restraint. It covered the following parts:

Part I: Characteristics of the nurses included nurses' age, qualifications, years of experience, marital status, hospital setting and attendance of training programs related to physical restrain.

Part II: Characteristics of the children included gender, age, diagnosis, invasive procedures and types of restraint used.

Part III: It concerned with nurses' knowledge regarding physical restraint. This included; definition, indications, types, criteria, complications, contraindications, principles, hospital policy, take doctor order, alternatives, equipment and role of nurse toward physical restraints.

Part IV: It concerned with nurses' knowledge regarding invasive procedures. This included definition, purpose, complication and role of the nurses' in invasive procedures.

❖ **Scoring system**

The studied nurses' answers were compared with a model key answer, where (2) scores was given for completely correct answer, (1) for incompletely correct answer, and (0) for do not know the answer. According

to the nurses' answer, their total level of knowledge was categorized as the following:

- Good level of knowledge $\geq 75\%$.
- Average level of knowledge $60 < 75\%$.
- Poor level of knowledge $< 60\%$.

2-Observational checklists:

It was adapted and modified by the researcher after reviewing the related procedures from **Bowden, V. (2012): Pediatric Nursing Procedure, 3rd ed, Lippincott Williams, China, 633-635.** To assess nurses' practice regarding physical restraints as regards mummy restraint, elbow restraint and clove hitch restraint. Each nurse was observed using the observational checklist which filled by the researcher during providing physical restraining for the children undergoing invasive procedures.

❖ **Scoring system**

Nurses' practice was classified in to (2) scores was given for completely done, (1) score was given for incompletely done, (0) score was given for not done. Total score, 100% was categorized as the following according to the nurses' actual practice.

Their total level of practice was categorized as the following:

- Competent level of practice $\geq 75\%$.
- Incompetent level of practice $< 75\%$.

3- Nurses' attitude (likert scale):

This tool adapted from **Suen etal., (2006): Use of physical restraints in rehabilitation settings: staff knowledge, attitudes and predictors, Journal of Advanced Nursing, 28-20, (1)55.** It was modified by the researcher and consisted of 10 statements to assess nurses' attitudes, scale statements are categorized as agree, indifferent and disagree.

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❖ Scoring system

Nurses' answer was given (2) score for positive attitude, (1) score for indifferent attitude, (0) score for negative attitude.

2- Operational design:

The operational design includes preparatory phase, exploratory phase and field work.

A-Preparatory phase:

It was included reviewing of related literature and theoretical knowledge of various aspects of the study using books, articles, and internet's Periodicals and magazines to develop tools for data collection.

- Content validity and reliability:

Content validity was tested through panel of fifth experts from Faculty of Nursing, Ain Shams University to ensure its validity for comprehensiveness, accuracy, clarity and relevance. Little modification was carried out in the content and the final form of tools was obtained.

Content reliability of tools tested for self-administered questionnaire, observational checklist and nurse attitude questionnaire was reliable at (0.84).

B- Exploratory phase:

- Pilot study:

A pilot study was carried out on 10 nurses from the study subjects to test the clarity, applicability, feasibility and relevance of the tools used and to determine the needed time for the application of the study tools. The necessary modifications were done and final form was developed. The nurses in the pilot study were excluded from the final subjects of the study.

C) Field work

- An approval was obtained from hospital directors and nursing directors.
- The purpose of the study was simply explained for nurses under study prior to any data collection.
- The Researcher was available at each study setting by rotation, three days/weekly (Tuesday, Wednesday, and Thursday).
- The self-administered questionnaire sheet was distributed to the nurses in their workplace; each questionnaire will take 10 to 15 minutes to fill it.
- Nurses' observational checklist filled by the researcher during nurse's work in the morning shift, nurse was observed during actual work. Time consumed for assessing procedures takes 10-20 minutes according to checklist.

3- Administrative Design

An official permission was obtained from the dean of nursing faculty Ain Shams University to medical and nursing directors and head of each department in study settings in order to conduct the study after clear explanation about the aim of the study and its benefits.

Ethical consideration

Approval of the study protocol was obtained from Ethical Committee in the Faculty of Nursing at Ain Shams University before starting the study. The researcher clarified the objective and aim of the study to the nurses included in the study. The researcher assured maintaining anonymity and confidentiality of the subject data. Nurses were informed that they allowed choosing to participate or not in the study and that they have the right to withdraw from the study at any time without giving any reasons.

4- Statistical Design:

The collected data were organized, categorized, tabulated and statistically analyzed

using the statistical package for social science (SPSS) version (20) to assess nurses' level of knowledge, practice and attitude regarding physical restraint.

Results

Table (1): Frequency and percentage distribution of the studied nurses' according to their characteristics (No =100).

Item	No	%
Hospital Setting:		
Ain Shams Children's Hospital	45	45.0
Beni suef university Hospital	55	55.0
Departments:		
Medical department	45	45.0
Surgical department	55	55.0
Age in years :		
20 <25	43	43.0
25 < 30	32	32.0
≥30	25	25.0
Mean ±SD	22.3±1.2	
Educational level:		
Diploma	37	37.0
Technical institute	52	52.0
Bachelor Degree	11	11.0
Marital status :		
Single	15	15.0
Married	80	80.0
Divorced	3	3.0
Widow	2	2.0
Years of experience :		
< 5 years	38	38.0
5 <10	31	31.0
≥10	31	31.0
Mean ±SD	3.4 ±1.2	
Training program:		
No	100	100.0

Table (1): shows that more than half (55%) of studied nurses working in Beni suef university hospital and in a surgical department. More than two fifth(43%) of studied nurses their age ranging between 20 to less than 25 years, and the mean age of them is (22.3±1.2) years. Regarding the level of education more than half (52%) of nurses has technical education and the majority (80%) of them are married. Also, it is found that more than one third (38%) of them has less than 5 years of experience with the mean experience years (3.4 ±1.2) and all of them (100%) did not attend training course.

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Table (2): Frequency and percentage distribution of the studied nurses' according to their total level of knowledge about physical restrain (No =100).

Item	No	%
Good	21	21.0
Average	42	42.0
Poor	37	37.0

Table (2): Regarding nurses' knowledge about physical restraints, table (2) shows that more than two fifth (42%) of the nurses has average level of knowledge, while (37%) and (21%) has poor and good level of knowledge about physical restraints respectively.

Table (3): Frequency and percentage distribution of the studied nurses' according to their total level of practice about physical restrain (No =100).

Item	No	%
Competent	39	39.0
Incompetent	61	61.0

Table (3): Regarding nurse's practice about physical restraints, table (3) shows that nearly two thirds (61%) of the nurses have incompetent practice, while (39%) of the nurses have competent practices in physical restrain.

Table (4): Frequency and percentage distribution of the studied nurses' according to their total attitude toward physical restrains (No =100).

Item	No	%
Positive	32	32.0
Indifferent	23	23.0
Negative	45	45.0

Table (4): Regarding nurses' attitude about physical restraints, table (4) illustrates that (32%) of the nurses has positive attitude about physical restraints and (23%) has indifferent attitude about physical restraint, while (45%) has negative attitude about physical restraints.

Discussion

The nurse plays a key role in managing the process regarding physical restraint use in hospitals. The nurse usually begins the decision making process and points out to physician the need to order, initiate or remove physical restraints (*Eskandari and Abdullah, 2017*).

This study was carried out to assess the nurses' performance in physical

restraining for children undergoing invasive procedures.

As regards nurses' characteristics, the present study revealed that more than two fifth of nurses were younger than 25years old. These may be due to most of those nurses were newly graduated, young and tolerate the nature of the work. This result was agreed with *Azab and Abunegm (2013)*, who conducted a study on the use of physical restraint in intensive care unit (ICU) at Ain shams university hospitals,

and found that more than two thirds of nurses were in age ranged between 20 and 25 years old.

As regards the educational level, the present study revealed that more than half of nurses had technical institute, two third of nurses had nursing diploma. This result could be due to the fact that nursing diploma and technical institutes of nursing provide the health agencies with large numbers of graduated nurses than faculties of nursing. These results were disagreed with *Abdelrezak (2014)*, who studied the nurses perception and practice of using physical restraint among hospitalized children undergoing invasive nursing procedure and stated that half of the studied nurses' were in secondary nursing school.

As regards marital status, the present study revealed that, more than half of nurses were married. This result was congruent with *Taha, Ali (2013)*, who studied the physical restraints in critical care unit: Impact of a training program on nurses' knowledge, practice and on patients' outcomes, and mentioned that almost three quarters of studied sample were married.

As regards years of experience the majority of nurses had less than fifth years of experience, and this was considered a high percentage. This may be due to the fact that the majority of the studied sample was recently graduated from technical institute and diploma. This result was similar to *Ahmed (2014)*, who studied nurses' knowledge and performance about physical restraints for critical ill patient, and mentioned that half of the studied nurses had experience less than five years.

The findings of the current study revealed that all of the nurses did not receive training programs about physical restraints. This may be due to lack of in-service training programs, educational and staff development in hospitals. This result was in agreement with *Abdelrezak (2014)*, who stated that the majority of the studied

nurses did not receive any training program about physical restraint. Also, *Taha, Ali (2013)*, who founded that more than three quarters of nurses did not receive training course.

Concerning nurses' total knowledge about physical restraint in the present study, the result revealed that more than two fifth of nurses had average level of knowledge related to physical restraint. This may be due to lack of training programs and education related to physical restraint, lack of written policies and procedures that regulate the application of physical restraint and most of nurses neglect updating their knowledge. This result was congruent with the study done by *Eskandari and Abdullah (2017)*, who studied use of physical restraint, Nurses knowledge, attitude, intension and practice and influencing factors. And found that majority of nurses had poor level knowledge regarding physical restraint. In the same line of *Suenl, et al. (2006)*, who studied use of physical restraints in rehabilitation setting, staff knowledge, attitudes and predictors, and found that nurses have inadequate knowledge regarding physical restraint.

As regards the total practice of nurses for physical restraint, it was found that nearly two thirds of them had incompetent level of practice about physical restraint. This might be due to faulty technique or unsuitable equipment, this is because all of studied nurses did not receive any special education or in-service training about physical restraint practice or due to there is no special policies that regulate the application of physical restraint and inadequate supervision and guidance by the nurse supervisors. This result was congruent with the study done by *Ahmed (2014)*, who found that more than half of nurses had unsatisfactory level of practice regarding physical restraint. Also, *Kirwan and Coyne (2016)*, found that majority of nurses had poor level of performance regarding physical restraint.

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Concerning nurses total attitude toward physical restraint, it was clear that more than two fifth of nurses had negative attitude about physical restraint. These results attributed to their belief that restraining procedure is not ethically accepted to be applied with the child. This was in agreement with *Azab and Abunegm (2013)*, who mentioned that half of nurses had negative attitude regarding physical restraints. Also, *Kirwan and Coyne (2016)*, who mentioned that the majority of nurses had negative attitude regarding physical restraint. These finding disagree with *Akansel (2010)*, who found that more than half of the studied nurses had implies a positive attitude regarding application of physical restraint.

Conclusion

Based on the findings of the present study, it can be concluded that:

More than two fifth of nurses' had average level of knowledge regarding physical restraint, while nearly two thirds of them had incompetent level of practice toward physical restraint, and more than two fifth of them had negative attitude regarding physical restraint.

Recommendations

Based on the results of the present study, the following recommendations are suggested:

- Implementation of training program for nurses regarding physical restraints.
- Upgrading nurses' knowledge and performance through continuous educational program and orientation program about physical restraint.
- Development of local policies for physical restraint in hospitals.
- Continuous monitoring and teaching on spot is needed from nurse supervisor to ensure quality of care provided by nurses for restraint.
- Increase awareness of physicians about of written orders for applying physical restraints.

- Furthers studies should be conducted to improve nurses' knowledge and performance regarding physical restraints.

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