Developing Nursing Care Standards for Patients Post Discectomy

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Abstract

Postoperative nursing care standards of discectomy are the baseline for quality nursing care and the guide of knowledge, and skills that are needed to practice nursing care safely. This descriptive study aimed at establishing the level of nurses’ knowledge and practice and to examine the relationship between nurses’ knowledge and practice for developing the nursing care standards for patients post discectomy. This study was conducted in the Neurosurgery Department at Assiut University Hospital. A convenient sample of 30 nurses was included in this study. Data collected by utilizing the designed questionnaire sheet and observation checklist sheet. The results can be concluded that all of nurses (100%) had an unsatisfactory level knowledge regarding standards for patients post discectomy with Mean±SD (9.6±5). All of nurses (100%) had an inadequate level practice regarding standards for patients post discectomy with Mean±SD (89.7±17.4). It was found that there was a strong relationship (r=—.815, p=.0001) between total knowledge score and total practice score regarding standards for patients post discectomy.

Conclusion: It can be concluded that, Nurses’ knowledge and practice regarding standards for patient post discectomy are at an unsatisfactory and inadequate level and it was needed to be improved through implementation of proposed nursing care standards.

Key Words: A standard is defined as benchmark of achievement — Which is based on a desired level of excellence.

Introduction

DISCECTOMY is removal of herniated or extruded fragments of intervertebral disc material. It is performed if there is evidence of a progressing spinal cord dysfunction (muscle weakness and atrophy, loss of sensory and motor function, loss of sphincter control) and persisting radicular pain that are unresponsive to conservative management and MRI signs of spinal canal stenosis. The goal of surgical treatment is to reduce the pressure on the nerve root to relieve pain and reverse neurologic deficits. To achieve the goal of pain relief, several surgical techniques are used, depending on the type and location of disc herniation, surgical morbidity, and results of previous surgery [2,3].

During procedure of discectomy, the surgeon will make incision over the vertebrae and down to the bony arches of vertebrae. The ligament joining the vertebrae along with all or part of the lamina is removed to see the involved nerve root. The surgeon will then pull the nerve root back toward the center of the spinal column and remove part of entire disc. The incision will be closed, and the large back muscles will protect the spine and nerve roots [4].

The potential complications of discectomy are hematoma at surgical site, persistent or recurrent pain, infection, bleeding, cerebrospinal fistula, neurogenic bladder/bowel (leading to urinary retention and constipation), meningitis, neurologic deficits (motor, sensory, weakness) and arachnoiditis [5].

Thorough planning for nursing care of the spinal surgical patient is essential to promote comfort, effective recovery, and rehabilitation and to prevent complications. In addition, neurologic assessment, mobilization, pain control, constipation avoidance, urinary catheterization, discharge planning and incision care [6].

Nursing care is playing an important role in the health care system. Changes in the health care brought about by scientific developments have and will continue to greatly influence the education, theory and practice of nursing as in other health professions. Nursing, therefore, must continue to examine its practice in the face of these developments in order to ensure that its practice is in consonance with global nursing standards and the
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satisfaction of its patients in order to maintain its relevance in the healthcare industry and the society [71].

Nursing standards of care are professional nursing activities demonstrated by the nurse through the nursing process. Standards may be defined as "a benchmark of achievement which is based on a desired level of excellence". Standards of care measure the degree of excellence in nursing care and describe a competent level of nursing care. All standards of practice provide a guide to the knowledge, skills, judgment and attitudes that are needed to practice safely [81].

Nursing standards of neurosurgery care are authoritative statements of the duties that neurosurgery nurses, regardless of role, population, or specialty served, are expected to competently perform [9].

The aim of the study:

The aim of the study is to develop nursing care standards for patients post discectomy.

Research questions:

To fulfill the aim of the study, the following research questions were formulated:

- What is the current level of knowledge regarding nursing standards for patients post discectomy?

- What is the current level of practice of nurses regarding nursing standards for patients post discectomy?

Significance of the study:

Potential complications after discectomy and non standardized nursing care, can significantly affect the prognosis, successful rate, and outcome of patients. This study will be the first study in this location which will help nurses to improve safe, high quality nursing care. Furthermore, result of this study could be helpful for nurses in planning and implementing nursing care standards for such group of patients.

Subjects and Methods

Research design: Descriptive research design was utilized in this study.

Setting: The study was conducted in the Neurosurgery Department of Assiut University Hospital January 2012 until December 2012.

Sample: A sample of convenience including all available nurses (30 nurses) working in selected area.

Tools:

Tool I: Questionnaire sheet: It was designed by the researcher based on current and international literature to assess nurses' knowledge regarding standards for patients post discectomy and it consists of two parts:

- Part 1: Sociodemographic characteristics of nurses: It includes age, gender, marital status, qualification, and years of experience.

- Part 2: Assessment of nurses' knowledge: It includes potential postoperative complications, postoperative nursing care and instructions of post discectomy patients.

Tool II: Observation checklist sheet: It was designed by the researcher after reviewing of literature to assess nurses' practice. It will include two parts:

- Part 1: Nurses' practices: It includes Neurological assessment (motor, sensory), vital signs, assessment of abdominal sounds, iv care and maintenance, pain and discomfort due to surgical intervention, applying antiembolic stockings, wound care, and preventing and managing pressure ulcer.

- Part 2: Instructions: It includes information about "need to report", information about therapeutic procedures, information about comfort measures and managing pain, information about post-surgical restrictions (at approximately 6-12 weeks post discectomy), information about exercises, and information about recommended alterations in lifestyle to reduce back strain.

Scoring system:

For questionnaire: The total scores of questionnaire 29 grades, one grade was given for the correct answer and zero for the incorrect answer. The satisfactory started from 60% and above and the unsatisfactory; will be below 60%.

For observation checklist: The total scores of performance checklist 257 grades, the possible response will be "done" or "not done". The score of done=1 and not done=0 score, from 0<60% considered inadequate, from 60% and more considered adequate.

Ethical approval:

An official permission to conduct the study was obtained by the researcher from the head of the Neurosurgery department. Oral consent for voluntary participation was obtained from each nurse and the nature and purpose of the study was described. The researcher emphasized that the
participation is voluntary, confidentiality and anonymity of the subjects was assured through coding of all data.

**Methods:**

*The study was executed on two phases:*

**Phase (1): Preparatory phase:**

In this phase, the tools for data collection after reviewing the related literature were developed. Validity of tools was done by 5 experts. By the end of this phase, a pilot study was carried out on 10% of sample to test the feasibility of the study and applicability of the tools, and the time needed to complete the tool was 15 minutes. After pilot study, the tool was used.

**Phase (2): Implementation phase:**

Data collection was carried out from "14 February 2012 until 14 May 2012". The questionnaire sheet was filled through semi structured interview while the nurses were on duty; purpose of the study was explained prior to get the questionnaire's questions asked. Each nurse involved in the study was interviewed to answer the questionnaire's questions. Observation checklist for nurses carried out during the morning and afternoon shift.

**Data analysis:**

The statistical analysis was carried out using SPSS 16.0. The collected data were tabulated and analyzed by using frequency distribution, percentage, mean, range and standard deviation. The level of significance was considered at 5% level (p<0.05). t-test was used to determine the differences between the knowledge and practice in relation to sociodemographic characteristics of nurses. Pearson-moment product correlation coefficient was used to find out the relationship between total knowledge and practice.

**Results**

Frequency distribution of socio demographic characteristics of nurses showed that, most of the studied nurses were female (90%) with mean age (25.8±8.13). Also it showed that; 86.7% of the nurses were married. 86.7% of them had diploma of nursing. As regard years of experience, most of the nurses (90%) had more than 3 years of experience with the mean (8.23±4.74). All of the nurses had not attended of any previous training courses about standards for patient post discectomy.

Table (1) shows that all of nurses (100%) had an unsatisfactory level knowledge regarding standards for patient post discectomy with Mean±SD (9.6±5).

<table>
<thead>
<tr>
<th>Nurses' knowledge</th>
<th>Satisfaction</th>
<th>Unsatification</th>
<th>Allotted score</th>
<th>Mean±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>29</td>
</tr>
<tr>
<td>Total knowledge</td>
<td>0</td>
<td>0</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Table (2) shows that (33.3%) of the nurses had satisfactory level of knowledge regarding instructions for patient post discectomy with highest Mean±SD (3.6±1.9), but no one of nurses had satisfactory level of knowledge regarding nursing care of patient post discectomy. Generally the results revealed that all nurses had unsatisfactory level of knowledge regarding standards for patient post discectomy.

Table (3) shows that all of nurses (100%) had an inadequate level practice regarding standards for patients post discectomy with Mean±SD (89.7±17.4).

<table>
<thead>
<tr>
<th>Items</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
<th>Allocated score</th>
<th>Mean±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total practice</td>
<td>0</td>
<td>0</td>
<td>30</td>
<td>100</td>
<td>29</td>
<td>9.6±5</td>
</tr>
</tbody>
</table>

Table (4) shows that (93.3%) of the nurses had adequate level of practice regarding intravenous care and maintenance with highest Mean±SD (15.3±1.8) but no one of nurses had adequate level of practice regarding neurological assessment (motor, sensory), assessment of abdominal sounds,
applying antiembolic stockings, preventing and pressure ulcer, information about "need to report", information about comfort measures and managing pain. Generally the results revealed that all nurses had inadequate level of practice regarding standards for patients post discectomy.

Table (4): Subtotal mean scores and percentage distribution of the nurses' practice regarding standards for patients post discectomy (N=30).

<table>
<thead>
<tr>
<th>Items</th>
<th>Nurses' practice</th>
<th>Adequate</th>
<th>Inadequate</th>
<th>Allotted score</th>
<th>Mean±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurological assessment (motor, sensory)</td>
<td></td>
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<td>30</td>
<td>100</td>
<td>52</td>
</tr>
<tr>
<td>Vital signs</td>
<td></td>
<td>15</td>
<td>15</td>
<td>50</td>
<td>47</td>
</tr>
<tr>
<td>Assessment of abdominal sounds</td>
<td></td>
<td>0</td>
<td>30</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Intravenous care and maintenance</td>
<td></td>
<td>28</td>
<td>2</td>
<td>67</td>
<td>19</td>
</tr>
<tr>
<td>Assessing and managing pain and discomfort due to surgical intervention</td>
<td></td>
<td>8</td>
<td>22</td>
<td>73.3</td>
<td>18</td>
</tr>
<tr>
<td>Applying antiembolic stockings</td>
<td></td>
<td>0</td>
<td>30</td>
<td>100</td>
<td>13</td>
</tr>
<tr>
<td>Wound care</td>
<td></td>
<td>3</td>
<td>27</td>
<td>90</td>
<td>15</td>
</tr>
<tr>
<td>Assessing and preventing pressure ulcer</td>
<td></td>
<td>0</td>
<td>30</td>
<td>100</td>
<td>16</td>
</tr>
<tr>
<td>Information about &quot;need to report&quot;</td>
<td></td>
<td>0</td>
<td>30</td>
<td>100</td>
<td>12</td>
</tr>
<tr>
<td>Information about therapeutic procedures</td>
<td></td>
<td>5</td>
<td>25</td>
<td>83.3</td>
<td>18</td>
</tr>
<tr>
<td>Information about comfort measures and managing pain</td>
<td></td>
<td>0</td>
<td>30</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Information about postsurgical restrictions</td>
<td></td>
<td>26</td>
<td>4</td>
<td>13.3</td>
<td>12</td>
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<tr>
<td>Information about Exercises</td>
<td></td>
<td>4</td>
<td>26</td>
<td>86.7</td>
<td>10</td>
</tr>
<tr>
<td>Information about recommended alterations in lifestyle to reduce back strain</td>
<td></td>
<td>22</td>
<td>8</td>
<td>26.7</td>
<td>11</td>
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Total practice: 0 30 100 257 89.7±17.4

Table (5): Correlation between total knowledge and total practice of nurses regarding standards for patients post discectomy (N=30).

<table>
<thead>
<tr>
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Total practice: 0 30 100 257 89.7±17.4

Table (5): Correlation between total knowledge and total practice of nurses regarding standards for patients post discectomy (N=30).

<table>
<thead>
<tr>
<th>Total knowledge</th>
<th>Adequate</th>
<th>Inadequate</th>
<th>Allotted score</th>
<th>Mean±SD</th>
</tr>
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<tbody>
<tr>
<td>Satisfactory</td>
<td>815**</td>
<td>p=0.0001</td>
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<tr>
<td>Unsatisfactory</td>
<td>1.4±3.5</td>
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</table>

Discussion

The aim of the present study is developing nursing care standards for patient post discectomy at Assiut University Hospital.

Discectomy is the most frequently neurosurgical procedure. Although the current microsurgical technical standard provides extremely safe and secure operative results, discectomy still carries major complication rate throughout major neurosurgical centers that need maximum effort for the successful care and complication avoidance [10].

Provision of high-quality care consistent with established standards is critical. The nurse is responsible and accountable for the quality of nursing care given to patients. The single most important protective strategy for the nurse is to be a knowledgeable and safe practitioner of nursing and to meet the standards of care with all patients. Today's practicing nurse must be aware of nursing standards, legal issues in nursing, legal limits of nursing and legal liabilities. Otherwise, he or she could be the first person to be penalized from a legal standpoint [8].

Based on the results of the present study, the most of the studied nurses were aged from 20 - <40 years. The most of the studied nurses were female, married, have nursing diploma, the most of the studied nurses have an experience more than three years and all of them have no previous in-service training courses related to discectomy.

Ghanem III; in the same line with the current study findings conducted a study in Neurosurgery Department of Assuit University Hospital entitled "Chronic Subdural Hematoma: Effect of developing and implementing post-operative nursing care standards on nurse's performance for reduction or prevention post-operative complications" the most of the studied nurses were aged from 20-<40 years. The most of the studied nurses were female and
nursing diploma was the highest proportion, less than half of them have an experience more than ten years and all of them have no in service training courses related to chronic subdural hematoma.

The previous result is contradicted with Norushe [12] who stated that nursing is a dynamic profession that is subject to rapid changes in health care provision, hence the need for in-service training programmes for nurses. Newly employed registered nurses require in-service training in order to update them regarding the latest developments in nursing practice. Also, David [13], who stated that continuing professional development by education and training after the point of qualification and/or registration help nurses in an improvement of patient care and enables professional nurse practitioners to provide quality nursing care and service delivery to their patients.

Marquis and Huston [14], also stressed that education and training are two components of staff development that occur after an employees' indoctrination. The staff knowledge level and capabilities are a major factor in determining the number of staff required to carry out unit goals. The better trained and more competent the staff, the fewer staff required, which in turn saves the organization money and rise reproductively.

The results in the present study revealed that, all of the studied nurses had an unsatisfactory level knowledge regarding standards for patients post-discectomy. Furthermore, the results indicated that four of the nurses recognized the potential postoperative complications of discectomy. Only one nurse correctly answered the instructions for patients postdiscectomy. Finally the results indicated that all of the studied nurses not had satisfactory level of knowledge regarding nursing care of patient post discectomy. These results indicated that nurses lacked knowledge in these areas.

The reasons of these results might be due to educational and training background of the nurses. In this present study, almost all the staff nurses did not receive formal training courses about nursing care standards for patient post discectomy. In addition, the majority of the nurses had only diploma in nursing in which the content of discectomy was limited in this curriculum.

Since almost all the nurses had no basic education in discectomy and majority of them had diploma degree in nursing, it is concluded that these results are the significant reasons for obtaining an unsatisfactory level of knowledge regarding this issue. This interpretation is in agreement with Pancorbo-Hidalgo, et al. [15] who stated that nurses' knowledge was affected by professional education and training.

Furthermore, this is in accordance with The American Association of Colleges of Nursing [16], who stated that education has a significant impact on the knowledge and competencies of the nurse. Evens [17], in another study also discovered that knowledge could be obtained through basic and continuing education, training, personal experience, and in-service training.

This result contradicted with Xyrichis [18], who stated that in post-qualification, the time pressures within health care areas can prove to be a barrier for staff wishing to access courses. Staff often rely on advice from peers who may themselves not have accessed the most up-to-date information which can prevent development of evidence based interventions.

In relation to relationship between nurses 'knowledge and their sociodemographic characteristics. It can be concluded that, age, gender, marital status, and experience of the studied nurses could be not of the factors affecting nurse's knowledge. This result disagreed with Mostafa [19], who found that statistically significant relation between nurses' knowledge scores with their duration of experience and age. This result is also in contrast with previous study, it was found that, a statistically significant relation between nurses' knowledge scores with their duration of experience 1111.

Although nurses had some working experience in providing care in neurosurgery department (M=8.2), but the overall knowledge was at unsatisfactory level. That is not in agreement with the proposition of that more working experience could increase knowledge; it may be due to the fact that the nurses do not know all aspects of nursing care for patient post discectomy. This finding is supported by, Pancorbo-Hidalgo et al., [15] who found that, a lower level of knowledge among nurses with many years of work experience was due to a lack of present educational status.

The results in the present study revealed that, all of nurses had an inadequate level of practice regarding standard care for patients post discectomy.

The findings showed that the nurses absolutely didn't perform neurological assessment (motor, sensory) because they believed that is from responsibility of surgeon. This finding is disagreed with Harvey and Strayer 120,211, who stated that the nurse should do neurological assessment (sensory
& motor) every 2 hours at least for the first 24 hours post discectomy. This is performed in a distal to proximal manner below the level of the spine involvement. It is important to know the patient’s preoperative deficits as baseline so that subtle changes can be noted quickly.

The finding of the present study showed that a half of nurses had done adequate vital signs measurement. This could be due to negligence and respiratory monitoring not a routine care. This finding is disagreed with Louise [22], who stated that, vital signs are a fundamental component of nursing care. They include pulse, respiration, blood pressure and body temperature and they are essential in identifying clinical deterioration and that parameters must be measured consistently and recorded accurately.

In addition, Castledine [23], stated that, measuring and recording a patient’ vital signs accurately is important as this gives an indication of the patient's physiological state. Patients undergoing surgery will often have their vital signs recorded on admission to hospital, on the morning of surgery, during surgery, in the recovery room and back on the ward at certain intervals.

Based on the present study, the nurses don’t perform auscultation abdominal sounds to assess peristaltic movement. This is disagreed with Elliot [24], who stated that, a good bowel can promote patient’s comfort and reduces the risks of further problems such as nausea, vomiting. Gut function should be assessed at the start of each nursing shift.

The results indicated that most of the studied nurses did adequate intravenous care and maintenance. This result agreed with Randle [25], who stated that, the risk of infection from peripheral intravenous cannula is one of the major challenges facing nurses so infection prevention and control measures should be effective in minimizing the risk of it. The longer the patient has a peripheral intravenous cannula in situ, the greater the opportunity for micro-organisms to multiply. This is because medical devices offer an easy way for bacteria to spread into a patient’s tissues as they are foreign objects that break the skin.

Minority of the nurses did adequately assessing and managing pain and discomfort due to surgical intervention. This finding is disagreed with Harvey, [20] who stated that, pain is the biggest concern to the patient. It should be monitored frequently using the 0-10 scale.

In addition, Osborn [4], stated that, achieving adequate pain control and comfort are major goals of postoperative care. The physiological effects of pain are well known and include an increase in sympathetic stimulation with an increase in blood pressure, heart rate, respiratory rate, and cardiac workload. The body enters a catabolic state that uses up physiological reserves. From a psychological standpoint, pain contributes to loss of sleep, lack of appetite, depression, anxiety, anger, helplessness, and hopelessness. Postoperative pain is associated with delayed ambulation and diminished functional performance.

The findings revealed that the nurses had not done procedure of applying antiembolic stockings. This finding is disagreed with Harvey [20], who stated that as with immobilized patient post discectomy, DVT prophylaxis should be implemented. The most important intervention is to apply antiembolic stockings.

Only three of the studied nurses had done adequate wound care and dressing. Some nurses believed that is the responsibility of medical staff. This result is in line with a study of Sabra [26], who found out that the wound care was rarely done by staff nurses, and their role mainly was to assist the physician in daily dressing. This may be attributed to lack of written standards for nursing procedures.

The findings revealed that the nurses had not done assessing and preventing pressure ulcer. This finding is disagreed with Shoemake & Stoessel, [27] who stated that, nursing staff are challenged with preventing skin injury in the perioperative environment due to prolonged periods of patient immobility, compromised circulatory function under anesthesia, and preexisting conditions of many surgical patient populations. These skin injuries may result in extended hospital stay, increased medical costs and prolonged morbidity. The healthcare facility may also incur financial and legal ramifications from these injuries.

Regarding health education before discharge that include information about signs and symptoms of potential complications, information about therapeutic procedures, information about comfort measures and managing pain, information about postsurgical restrictions (at approximately 6-12 weeks post discectomy, information about exercises, and information about recommended alterations in lifestyle to reduce back strain. The results showed that majority of nurses gave adequate teaching about postsurgical restrictions (at approximately
6-12 weeks post discectomy and recommended alterations in lifestyle to reduce back strain and did not give any instructions regarding signs and symptoms of potential complications and comfort measures and managing pain as well as minority of nurses gave adequate teaching about exercises and therapeutic procedure. They believe this is from responsibility of physician.

This result disagreed with Smeltzer, et al. [5] who stated that the patient's hospital stay is likely to be short; therefore, the patient and family should understand the care that is important for a smooth recovery and before discharging the patient, the nurse provides written instructions covering each of the points of patient's instructions.

These results indicated that nurses not provided good nursing practice for patient post discectomy. This could be due to that all nurses didn't have enough knowledge about it, lack of written nursing care standards related to patient post discectomy and lack of a system for supervision and evaluation of nursing practice.

The previous interpretation is in line with Welch [28], who stated that extending nurses' knowledge is very much needed to improve nurses' practice and to prepare them for their extending roles and hospital requirement.

Also, the previous interpretation is in agreement with McMahon [8], who mentioned that nursing standards are important to promote, guide, and direct professional nursing practice, important for self-assessment and evaluation of practicing nurses and he also added that today's practicing nurse must be aware of nursing standards.

Moreover, the previous result contradicted with Marquis and Huston [14], reported that each organization and profession must set standards and objectives to guide individuals and practitioners in performing safe and effective care. Also not only must standards exist, but leader and managers also must see that subordinates know and understand the standards and employee must be aware that their performance will be measured in terms of their ability to meet the established standards.

In addition, the nurses' practice regarding standard nursing care of patient post discectomy may also be influenced by other factors. These may the possible reasons for explaining this inadequate level of practice might be due to the limited working time in direct patient care, shortage of nursing staff, inadequate equipment, absence or ignorance of clear job description, and changes in hospital policy. These were not explored in this current study. Future research is needed to explore the relationships of these factors and nursing practice.

The study showed also that practice was not significantly related to age, gender, marital status, and experience. This indicated that knowledge was reflected on practice.

In relation to relationship between knowledge and practice regarding standard nursing care of patient post discectomy, a strong, positive correlation was found between knowledge and practice regarding the nursing care standards of patient post discectomy. This signified that knowledge did influence practice regarding standard nursing care of patient post discectomy. This finding indicated that skills can be linked with relevant scientific base of knowledge. This matches Bloom's taxonomy. He mentioned that practice is positively related to knowledge.

Finally, it seems logic to say that, application of nursing care standards is very important for patient post discectomy.

Conclusion:
Based on the result of the present study, it can be concluded that, Nurses' knowledge and practice regarding nursing care standards of patient post discectomy in neurosurgery department of Assiut University Hospitals are at an unsatisfactory, inadequate level and need training in the application of nursing care standards to improve nurses' knowledge and practice.

Recommendations:
Based on the finding of this study, following recommendations were made:
Continuous education and in-service training programs should be conducted at neurosurgical department to improve nurses' knowledge and practice.

Nurses should be encouraged to read textbooks and periodicals and to attend scientific meeting and conferences.

Another study should be done to evaluate the effect of implementing the proposed nursing care standards for patient post discectomy in neurosurgery department of Assiut University Hospitals.

Similar studies on a larger sample acquired from different geographical areas in Egypt should be done to achieve more generalizable results.
References


