A study of the knowledge and practices of nurses regarding management of pain in patients undergoing cardio thoracic surgery in selected hospitals in Mumbai

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Abstract –The purpose of the study was to assess the knowledge and practices of nurses regarding management of pain in patients undergoing cardio thoracic surgery. The analysis of data related to knowledge of nurses with regard to pain and its management in the patients in cardio thoracic surgery units. The mean of the knowledge score was calculated and based on the mean, the obtained scores were grouped into three categories i.e. above average, average and below average. It was found that though pain is one of the commonest symptoms seen and the nurses are the one who have to manage pain, they did not possess adequate knowledge about pain management. The measures taken by the nurses in the management of pain showed that though giving injection and medicine was a dependent action it was quite often practiced by the nurses. In independent measures taken, commonest measures which were practiced were positioning the patient 40 percent of times, followed by Psychological support - 30 percent of times and providing comfort devices - 23 percent of times. The least measures taken were giving hot and cold application and use of diversion therapy. Occasionally measures such as gentle stroking at the site of pain, encouragement for deep breathing exercise, foot and back massage were used. The correlation between the knowledge and practices of nurses in management of pain showed that a Nurse who scored high in knowledge did not show high level of performance during the practices of pain management this showed that knowledge and practices were independent.

Keywords: Nursing; Pain Management; Cardio thoracic Surgery

1. Introduction: - Pain disables and distresses more people than any single disease entity. It is probably the most common reason for a person to seek health care. Pain is a phenomenon that is a challenge to the nurse whether she is working in the specialty area, clinics or giving home care. Nurses spend more time with the patient than any other member of the health team and therefore she has an opportunity to make a significant contribution towards relieving pain in the patient and increasing his comfort. As pain is highly individualized, the pain management strategies also should be individualized. A cardinal rule in the care of a patient with pain is all pain is real, regardless of its cause or even when the cause remains unknown. The nurse has a wide variety of options to choose for an individual patient. She has a significant role to play in the pain experience of the patient. A patient in pain presents a challenge to the nurse and with her unique role she can successfully meet this challenge

2. Review of literature: - The review of literature was divided under different headings.

A] Studies related to pain assessment.
B] Studies related to pain relieving measures.
C] Studies related to post operative pain management.
A] Studies related to pain assessment:

In the demonstration project on “The Pain as a Fifth Vital” by Dorothy Dale in U.S. in (2001). She mentioned that vital signs are monitored in order to detect changes or trends that signal a need for assessment, diagnosis and treatment. Hence pain should also be recorded considering it as a vital sign like temperature, pulse respiration and blood pressure and it should be done on regular basis. Use of a pain – rating scale allows patients to clearly articulate their pain and makes them more likely to receive proper treatment.

B] Studies related to pain relieving measures:

A study conducted by Haplin Linda et.al (2002) stated that in the clinical research it demonstrated that guided imagery a simple form of relaxation that can reduce pre operative anxiety and post operative pain among patients undergoing surgical procedures. A questionnaire was developed to assess the benefits of the guided imagery programme. Those who were willing to participate in the study were administered the questionnaire. Patients who completed the guided imagery programme had a shorter average length of stay in the hospital, the cost of medicine was reduced. Over all the patients held a high level of satisfaction with the care and treatment in guided imagery was considered a complementary means to reduce anxiety, pain and length of stay among the cardio surgery patients.

In a study done by Prabha Dasila (2001) it was found that foot massage reduced patient’s perception of post operative pain in cardio thoracic surgery patients. It supported the use of massage for management of post operative pain. If the
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nurse provided simple systematic and therapeutic touch, it helped the patient to manage anxiety and ultimately it reduced pain.

C] Studies related to post operative pain management by Nurses:

Watt-Watson et.al (2000) did a study to examine the relationship between nurses empathetic responses and their patients pain intensity and analgesics administration after surgery. Two hundred twenty five patients from four cardio vascular units in three University affiliated hospitals were interviewed on the third day after their initial, uncomplicated coronary artery by-pass graft (CABG) surgery about their pain and pain management. Here the researcher made 80 pairs of nurse and patient (a nurse who gave care to a patient and who had undergone CABG were considered as one pair). Empathy, pain, knowledge and beliefs were assessed. It was found that nurses were moderately empathetic and their responses did not significantly influence their patients’ pain intensity. Patients reported moderate to severe pain but received only 47 percent of the total prescribed analgesia. Patients” perception of their pain was not positive. Deficit in knowledge and misbeliefs about pain management was evident in nurses.

G.A. Mc Hugh et.al (2002 conducted a study “To assess patients experience of pain management on the day following surgery”. In a telephone survey, one hundred and two patients agreed to take part second and fourth day of surgery. The majority of the patients (73 percent) were broadly satisfied with the quality of pain management they received, however there was room for improvement. Despite modern anesthesia and surgery 17 percent of patients surveyed reported having severe pain on the day immediately following surgery. The majority (82 percent) of patients left the day care ward in pain and even higher proportion (88 percent) had pain sometime between second and fourth post operative day. Severe levels of pain following discharge from hospitals were a concern for 21 percent of the patients. It was reported that day care staff did not always ask patients whether they were in pain. Communication with patients was vital in the delivery of optimal care. More support or more information was needed to manage patients’ pain effectively, in the day care ward and also follow-up of the patient after discharge.

Lesley B. Milgram (2004) in an article “Pain levels experienced with activities after cardiac surgery – Pain Management” stated that - coughing elicited the highest level of pain, next in order was movement or turning in bed, moving out of bed to a chair or walking, deep breathing or using an incentive spirometer and at rest. Patients reported reduced mobility as the most common effect of pain in a study by Yates et.al. Patients were less likely to adequately perform activities that reduced post operative complications. So pain must not be assessed when patients are at rest but it should be assessed during post-operative activities.

3. Conceptual frame work: - ‘Betty Neuman’s’ health care system model. The patient as a system is defined as an individual, who has undergone cardio thoracic surgery. The main goal is the stability of the system. In this study it means pain relief in the patient.

**Fig-1 Conceptual frame work: - ‘Betty Neuman’s health care system model**
4. Objectives:

1. To identify the knowledge of the nurses regarding management of pain in the patients admitted in cardio thoracic surgery units.
2. To find out the measures taken by the nurses in the management of pain among these patients.
3. To find out the relationship of knowledge of the nurses and their practices with regard to pain and its management.
4. To compare the nurses knowledge and their practices with regard to management of pain in selected hospitals of Mumbai.

5. Research Methodology:

5.1 Research Approach: - Exploratory Descriptive study.

5.2 Research design:-The design selected is a non experimental comparative descriptive design.

5.3 Variables: - The independent variable is management of pain and the dependent variable is the knowledge and practices among the nurses.

5.4 Setting of the study: - Medical-Surgical Cardio Thoracic Units of the selected public hospitals in Mumbai city.

5.5 Population:- Nurses working in Medical-Surgical Cardio Thoracic Units.

5.6 Sample and Sampling Technique

5.6.1 Sample Size: - 60 Nurses .20 nurses from private, 20 nurses from government and 20 nurses from Municipal Hospital.

5.6.2 Sampling Method: - Convenient Random Sampling

5.6.3 Inclusion Criteria:-

1. Nurses who are directly involved in patient care.
2. Nurses who are working in medical-surgical cardio thoracic units.
3. Registered Nurses.
4. Nurses willing to participate in the study.

5.7 Tool: - i) Semi Structured Questionnaire.

ii) Observation check list.

5.8 Technique: - Self report & Observation

A semi-structured questionnaire and an observation check list were used as tools to assess the knowledge and practices of the nurses regarding pain and its management.

5.9 Validity and reliability:-

The content validity of the tool was determined by a group of 13 experts in the field of Nursing and Medicine.

The reliability of the questionnaire was calculated by Cronbach’s alpha formula. The calculated value of the reliability coefficient was 0.83 and 0.76 of both the sections respectively. The reliability of the observation check list was determined by the Inter Rater Reliability Method.

5.10 Data gathering process:-

The questionnaire was administered to the nurses according to their duty hours and then they were observed for their practices regarding pain management. Data was gathered in a period of one month. All the three hospitals were visited simultaneously as per the duty of the nurses and questionnaire was administered before the beginning of the duty.

The collected data was analyzed in terms of frequency and percentage and compared using the ‘t’ test. The relationship was analyzed by coefficient of correlation and was presented in the form of tables and graphs.

6. Data Analysis, Results and Discussion:

Findings of the study was analyzed in the following manner

1. Analysis of Demographic data
2. Knowledge of the nurses regarding pain and its management.
3. Measures taken by the nurses in management of pain in cardio thoracic surgery units.
4. Relationship between the knowledge and practices of the nurses regarding pain management within the group itself:
5. Comparison of the knowledge and practices of the nurses between the selected hospitals:

6.1 Demographic data: All the samples of the Private hospital belonged to the age group of 21-25 years. But this was just the opposite in the Municipal and Government hospitals, were only one sample in each belonged to the age of 21-25 years while nine from each belonged to the age group of 36 years and above. Except five from the private hospital who had done Basic B.Sc. Nursing all other 55 nurses had done Diploma in General Nursing. All the nurses in the Private hospital had experience below five years. In the Municipal hospital maximum i.e. 12 nurses had the experience of one year while in the Government hospital nine nurses had experience more than five years.
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6.2 Knowledge of the nurses regarding pain and its management: In the knowledge score it was found that there were just two samples who scored more than 30. Majority of the samples scored between 18 to 26 and there were six who scored below 17.
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6.3 Measures taken by the nurses in management of pain in cardio thoracic surgery units using frequency and percentage: Though giving injection and medicine was a dependent action it was quite often practiced by the nurses, 40 percent of the time. With regard to independent measures to be taken the commonest measures practiced were; change of position - 40 percent, followed by psychological support - 30 percent and comfort devices - 23 percent of times. The least measures taken were hot and cold application and use of diversion therapy. Occasionally measures such as gentle stroking at the site of pain, encouragement for deep breathing exercise, foot and back massage were used.
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6.4 Relationship between the knowledge and practices of the nurses regarding pain management within the group itself:

Table-1 Relationship between knowledge and practices of the nurses within the group

<table>
<thead>
<tr>
<th>Groups</th>
<th>Σx</th>
<th>Σy</th>
<th>Σxy</th>
<th>Value of ‘r’</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Hospital</td>
<td>462</td>
<td>231</td>
<td>5313</td>
<td>0.083</td>
<td>No correlation</td>
</tr>
<tr>
<td>Municipal Hospital</td>
<td>414</td>
<td>126</td>
<td>2611</td>
<td>0.012</td>
<td>No correlation</td>
</tr>
<tr>
<td>Government Hospital</td>
<td>469</td>
<td>131</td>
<td>10835</td>
<td>0.12</td>
<td>No correlation</td>
</tr>
</tbody>
</table>

The calculated value of ‘r’ of the Private hospital was ‘0.083’ and Municipal hospital was ‘0.012’. Since it was below 0.50, there was no correlation between the knowledge and practices of the nurses in the Private and Municipal hospitals. The calculated value of ‘r’ in the Government hospital was 0.12 which showed very low correlation between the knowledge and practices of these nurses in the Government hospital.

6.5 Comparison of the knowledge and practices of the nurses between the selected hospitals:

Table-2 Comparison of knowledge regarding pain management among nurses of three different hospitals

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Type of Hospitals</th>
<th>Mean</th>
<th>SD</th>
<th>S₀D</th>
<th>‘t’ value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Private Hospital (N=20)</td>
<td>23.1</td>
<td>3.56</td>
<td>1.14</td>
<td>2.10</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>Municipal Hospital (N=20)</td>
<td>20.7</td>
<td>2.07</td>
<td>1.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Municipal Hospital (N=20)</td>
<td>20.7</td>
<td>3.74</td>
<td>1.96</td>
<td>1.8</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Government Hospital (N=20)</td>
<td>22.95</td>
<td>3.74</td>
<td>1.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Private Hospital (N=20)</td>
<td>23.1</td>
<td>3.81</td>
<td>1.22</td>
<td>0.12</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Government Hospital (N=20)</td>
<td>22.95</td>
<td>3.81</td>
<td>1.22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

df = 3

A. Comparison of the knowledge of the nurses between the selected hospitals:

It was found that there was a significant difference in the knowledge of the nurses in the Private and Municipal hospital at 0.05 level for df = 38 as calculated’ value was 2.10 and table value was 2.02. While among the Municipal and Government and Private and Government hospital the calculated’ value was less than table value hence there was no significant difference seen in their knowledge.

B. Comparison of the practices of the nurses between the selected hospitals:

It was found that there was a significant difference in the practices of nurses in pain management in the Private and Municipal hospital and also in the Private and Government hospital. The calculated’ value was 4.13 and 3.85 respectively for df = 38, and the table value was 2.02 which showed that the calculated value was high. Hence the practices of the Private hospital nurses were higher than the Public hospital nurses. However there was no difference seen between the practices of Municipal and Government hospital nurses.

7. Conclusion:

The study was aimed at finding out the knowledge and practices of the nurses in pain management. The findings of the study indicated that though pain was one of the commonest symptoms and the nurses were the one who had to manage pain they did not possess adequate knowledge about pain management. The study helped to bring out the fact that although nonpharmacological interventions could be practiced independently and could be taught to the patients relatives, they were least practiced by the nurses of the Municipal and Government hospitals. While the practices in the Private hospital were high. Though giving injection and medicine was a dependent action it was quite often practiced by the nurses, 40 percent of the times.

With regard to independent measures to be taken, commonest measures which were practiced were positioning the patient 40 percent of times, followed by Psychological support - 30 percent of times and providing comfort devices - 23 percent of times. The least measures taken were giving hot and cold application and use of diversion therapy. Occasionally measures such as gentle stroking at the site of pain, encouragement for deep breathing exercise, foot and back massage were used. A study done by Prabha Dasila (2001) on “Effect of foot massage as a pain relieving measure in the patients with sternotomy,” Some of the nonpharmacological interventions were very often used while some were totally neglected. The maximum
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use of non-pharmacological measures by the Private hospital nurses could be due to nurse patient ratio that was maintained in the Private hospital and all of these nurses were young enthusiastic as they belonged to the age group of 21 years to 25 years. Moreover in Private hospital patients were more demanding than in Public hospital. In the Public hospital the nurse patient ratio was not maintained and the maximum nurses were above the age group of 36 years and above. In Private hospital it showed that though the nurses had adequate knowledge in pain management and also had 1:1 nurse patient ratio, their knowledge and practices had no correlation. A Nurse who scored high in knowledge did not show high level of performance during the practices of pain management this showed that knowledge and practices were independent. 

In comparison of knowledge of the Nurses in Private and Municipal hospital. The knowledge of the Private hospital nurses was significantly higher than the knowledge of the nurses working in Municipal hospital. In Private hospital all the staff nurses were from the age group of 21-25 years and they were recent graduates while in Municipal hospital most of the nurses (12) had experience of less than one year this could be the reason why the knowledge scores of the Private hospital nurses were more than the Municipal hospital nurses. In comparison between Municipal hospital and Government hospital nurses there was no significant difference observed between the knowledge of the nurses of Municipal hospital and Government hospital nurses.

In comparison between Private and Government hospital there was no significant difference between the knowledge of Private hospital and Government hospital nurses

The difference between practices regarding pain management among Private and Municipal hospital and Private and Government hospital could be due to the nurse-patient ratio. In Private hospital it was 1:1 while in Municipal and Government hospitals it was 1:3 to 1:4. The availability of resources were better in private hospital than in the Municipal and Government hospitals and it could also be because the patients of the Private hospital were more demanding as they were paying patients while in Municipal and Government hospitals they were not paying so not demanding. In Municipal and Government hospitals the situation was more or less the same hence there was no significant difference in the practices of nurses working in these hospitals.

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