The concept of comfort is central to the art of nursing. It is very important to identify the ways through which patients can achieve comfort. Sleep is a basic human need (Maslow, 1970). It is a natural state of bodily rest observed in humans and other animals. It is distinguished from quiet wakefulness by a decreased ability to react to stimuli, and it is more easily reversible than hibernation or coma. In humans, regular sleep is essential for survival. Polysomnographic studies of patients experiencing acute pain during post-operative recovery show shortened and fragmented sleep with reduced amounts of slow wave and rapid eye movement (REM) sleep, and recovery is accompanied by normalization of sleep (Roehrs & Roth, 2005). Patients with post-coronary artery bypass graft (CABG) surgery reported that sleep disturbances are very common among these patients due to incision pain, difficulty finding a comfortable position and nocturia.

The process of achieving comfort is based on the patient’s need to live with illness or injury, and it remains central to the role of nursing. It is very important to identify the ways by which patients can achieve comfort. Identifying and treating patient’s sleep pattern disturbance is an important aspect of giving care to the patients. The present study was conducted to assess and compare the effectiveness of back-massage in improving sleep among post-CABG and valve replacement patients.

**Objectives**
The study had the following objectives:

- To assess the quality of sleep in patients before back massage in the control and experimental groups.
- To determine the effectiveness of back massage in improving quality of sleep in the experimental group.
- To compare the effectiveness of back massage in improving the quality of sleep in both the experimental and control groups.
- To associate the effectiveness of back massage in quality of sleep with selected demographic variables such as age, sex, marital status, education and clinical variables like diagnosis, surgery done, afternoon sleep hours, usual sleep hours.

**Hypothesis**
There will be significant improvement in the quality of sleep in patients with post-CABG and valvular replacement surgery following back massage (experimental group) than in patients who did not receive back massage (control group).

**Material and Methods**
The study was conducted at Kamala Nehru ward of Christian Medical College, Vellore (Tamil Nadu). A quasi experimental design was adopted to assess the effect of back massage and quality of sleep among post-operative CABG and valve replacement surgery patients. Consecutive sampling technique was used for collecting samples of 30 patients each from experimental as well as from control group.

**Inclusion Criteria**
1. Patients with post-CABG and valvular replacement surgery were taken up for the study on the third day of surgery. Special care was taken to select only those patients who were likely to remain in the ward for the next three days.
2. Patients who could read and write, either English, Hindi or Tamil.
3. Patients who were conscious and well-oriented.
4. Patients who were aged 18 years and above.

**Exclusion Criteria**
1. Patients who had not undergone CABG and valvular replacement surgery.
2. Patients who cannot read or write English, Hindi or Tamil.

**Tools and Techniques:** The instrument has two parts as discussed below:

**Demographic and clinical variables**: Demographic variables such as age, sex, marital status, occupation, education and clinical variables included patient’s diagnosis, types of surgery, afternoon sleep (number of hours) and usual sleep pattern at night (number of hours).
**Groningen sleep quality scale:** The 15 statements of the tool describing the patient’s sleep quality in the last night were evaluated. These statements are related to patient’s feeling about the difficulty in falling asleep, duration of sleep, sleep fragmentation, and early morning awakening. This instrument contained 4 statements with positive scoring, 11 statements with negative scoring; first statement had no scoring.

**Data Collection Procedure**
All patients who fulfilled the inclusion criteria were studied as control group in first two weeks and for the next four weeks experimental group was studied. The subjects were selected after reviewing the operative list and the patient’s records. The data was collected on post-operative day 3 of surgery. The investigator developed a good rapport with the patients. The purpose of the study was explained and their written consent was obtained. The demographic and clinical variables were collected on first visit (post-operative day 3 of surgery). Sleep quality of the third post operative night’s sleep was assessed using Groningen Sleep Quality Scale.

Routine care was provided to the control group subjects for three consecutive days, whereas back massage was given (8-9 pm) for three consecutive days to the experimental group. To start with, the subjects were made to lie in a comfortable position with the help of pillows under the chest and between legs. Powder was used to facilitate smooth strokes and enhance comfort to patients. Effleurage and stroking technique was used starting from iliac crest till supraclavicular and axillary lymph nodes. Intervention continued for 10 minutes.

All subjects in the control as well as in experimental group were reassessed on post-operative day 6 using same scale.

**Results**
The two groups were homogenous with regard to all demographic and clinical variables as analysed by Chi-square and p-value, thus groups were comparable. Student’s ‘t’ test was used to analyse pre-intervention score within and between two groups and post-intervention score within experimental group. There was improvement in last night’s sleep in experimental group after the intervention of back massage as shown in Table 1.

Table 1 depicts effectiveness of back massage, as quality of sleep is significantly improved (**p=0.000**) in the experimental group (mean score 4.4333), than in control group (mean score - 0.7667).

Fig 1 shows that overall quality of sleep improved in experimental group with the intervention of back massage; 73.3 percent subjects had good sleep, whereas sleep quality deteriorated in the control group and 93.3 percent subjects had poor sleep without the intervention of back massage.

In experimental group during pre-test, 28 (93.3%) subjects responded about inability to sleep for more than 5 hours during last night. After the intervention of back massage this inability decreased to 11 (36.7%) subjects and 21 (63.33%) subjects slept for more than 5 hours at night.

**Discussion**
This study is supported by those of Deianey Joseph et al. (2001). Following myofascial trigger-point massage therapy, there was significant decrease in heart rate (p<0.01), systolic blood pressure (p=0.02) and decreased blood pressure (p<0.01). Analysis of heart rate revealed a significant increase in parasympathetic activity (p<0.01). There was increase in relaxation response and overall reduction in defence-arousal (stress) response and parasympathetic activity increased which in turn improves sleep.

These findings are also supported by Richard et al. (1998) on critically ill patients, who with 6 minutes back massage slept one hour longer than the patients in control group. The authors concluded that back massage is useful for promoting sleep.

**Conclusion**
Back massage is perceived by patients as soothing, relaxing and effective sleep-inducing measure. Nurses can use this thera-

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control Group (n=30)</th>
<th>Experimental Group (n=30)</th>
<th>Overall Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groningen Sleep Quality Scale</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>-0.7667</td>
<td>2.56882</td>
<td>4.4333</td>
</tr>
</tbody>
</table>

*p<0.05  *p<0.01
ues and cost effective art to improve quality of sleep of post-operative patients. The present study supports the hypothesis that there will be significant improvement in quality of sleep in post-CABG and valvular replacement surgery. Improved sleep quality would reduce many post-operative complications, reduce length of hospital stay and improve quality of life.

References