

Controlling operative and postoperative pain | literature



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Review of literature is a key step in research process. The literature review is to discover what has previously been done about the problem to be studied what remains to be done, what methods have been employed in other research and how the result of other research in the area can be combined to develop knowledge.

It is essential step; it can be done before and after selecting the problem. It can help to determine what is already known about the topic (A. P. Jai, 2005).

This chapter attempts to present a review of studies done methodology adopted and conclusion attained by earlier investigators which helps in this study. The sources are internet search, textbook, published journal, editorials published and unpublished thesis. In this chapter, the researcher presents the review of the literature under the following headings,

- Section-I: Studies related to importance of postoperative pain management.
- Section-II: Studies related to Using Numeric Rating Scale for pain Assessment.
- Section-III: Studies related to effectiveness of music therapy among General Surgical Patients.
- Section-IV: Studies related to Effectiveness of Music Therapy among Post Caesarean Mothers.
- Section-V: Studies related to Gate Control Theory of Pain (Melzack and Wall (1965)).
- Section-VI: Conceptual Framework Based on Gate Control Theory of Pain (Melzack and Wall (1965)).

SECTION-I: STUDIES RELATED TO IMPORTANCE OF POSTOPERATIVE PAIN MANAGEMENT.

Kolawole and Fawole, (2003) conducted a study on Postoperative pain management following caesarean section in University of Ilorin Teaching Hospital (UIH). Ilorin, Nigeria. Prospective descriptive design was used to assess the effectiveness of various common methods of analgesia used in hospital following caesarean section. This study was conducted over a period of 18 months. Pain assessment was carried out by 4-point Verbal Rating Scale of None, Mild, Moderate, and severe. The first 24hrs postoperatively was particularly painful for the patient with 79.6% and 54.6% reporting moderate to severe pain in the recovery room and day 1 respectively. They concluded that the pain remains a significant problem following surgical operation in our environment. (PMID. 15008293)

Seers and Carroll, (1998) conducted a study on Relaxation techniques for acute pain management. They were used a systematic review of randomized controlled trials and seven studies involving 362 patients were included. Three of the seven studies demonstrated significantly less pain sensation or pain distress in those who had relaxation, four studies did not detect any difference. It was concluded that the well designed and executed randomized controlled trials are needed before the clinical use of relaxation in acute pain management can be firmly underpinned by good quality research evidence. So we can recommend that the relaxation in acute pain settings is carefully evaluated and not used as the main treatment for the pain management.

SECTION-II: STUDIES RELATED TO USING NUMERIC RATING SCALE FOR PAIN ASSESSMENT.

Yaakov Beilin, Jabera Hossain, and Carol, (2009) conducted a study on Numeric Rating Scale and Labor Epidural Analgesia, in this study a Numeric Rating Scale(NRS) used to evaluate pain in research studies, they define desire for additional analgesic medication as a clinically relevant outcome in research studies about pain and compare it with the results of the NRS. A post hoc analysis of three studies that conducted previously in concerning labor epidural analgesia was performed. In all three studies, score was obtained before and 15 min after analgesia. They found that the very few patients (2%) with a score of 0-1 wanted more medication. When the score was 2 or 3, 51% of the patients wanted more medication, and score was > 3, almost all patients (93%) wanted more medication. Grouping the final NRS scores into 3 categories (0 or 1, 2 or 3, and > 3) is more useful to the clinician than using individual NRS scores.

Cinzia Brunelli, (2009) did a study on Comparison of Numerical and Verbal Rating Scales to measure pain exacerbations in patients with chronic Cancer pain. Crosses sectional multicentre study conducted on a sample of 240 advanced cancer patients with pain, background pain and BP were measured by 6-point VRS and 11 point NRS. In order to evaluate the reproducibility of the two scales, a subsample of 60 patients was randomly selected and the questionnaire was administered for a second time three to four hours later. The proportion of “ inconsistent” evaluations was calculated to compare the two scales capability in discriminating between background and peak pain intensity and Cohen’s K was calculated to compare their reproducibility. It

concludes that NRS revealed higher discriminatory capability than VRS in distinguishing between background and peak pain intensity with a lower proportion of patients giving inconsistent evaluations (14% vs. 25%) & (Cohen's K of 0.86 for NRS vs 0.53 for VRS) while the reproducibility of the two scales in evaluating background pain was similar (Cohen's K of 0.80 vs. 0.77).

Nathalie Dieudonne, Alexandra Gomola, Philippe Bonnichon, and Yves M. Ozier, (2008) conducted a study on Prevention of postoperative pain after thyroid surgery. In this study double-blinded, randomized, placebo-controlled trial used to evaluate the analgesic efficacy of bilateral superficial cervical plexus blocks performed at the end of surgery. Ninety patients were randomized to receive 20 mL isotonic sodium chloride or 20 mL bupivacaine 0.25% with 1:200,000 epinephrines. Postoperative pain was assessed every 4 h using an 11-point numeric rating scale (NRS-11). All patients received acetaminophen every 6 h. In addition, morphine was administered following a standardized protocol if the NRS-11 score was ≥ 4 . The main outcome variables were pain scores (NRS-11), the proportion of patients given morphine at any time during the 24-h period, and the amount of morphine administered. The Bupivacaine group had a smaller proportion of patients given morphine (66.0% vs 90.0%; $P = 0.016$), and lower initial median pain scores ($P = 0.002$).

SECTION-III: STUDIES RELATED TO EFFECTIVENESS OF MUSIC THERAPY AMONG GENERAL SURGICAL PATIENTS.

Sigma Theta Tau International, (2009) conducted a study to assess and compare the effect of music therapy on postoperative pain of patient undergone elective abdominal surgery. A quasi-experimental design was used and convenient samples of 30 (15 in each exp&control group). Pain was measured by Verbal Rating Scale. Music therapy was given as per patient's wish to experimental group and intensity of pain was monitored before and immediately after recovery from anesthesia, during the 1st and 2nd postoperative day for both the groups. Results revealed that those patients who listened to self selected music tapes had significant differences ($p < 0.001$) in pain scores when compared to the control group. The conclusion of study shows that the music is an effective anxiolytic (relaxing agent) which can be beneficial for the early recovery of surgical patients.

Tse MM. Chan Me. Benzie, (2005) conducted a study to find the effectiveness of music therapy on postoperative pain and analgesic use following nasal surgery. Sample size was 57 patients (24females&33 males) who were matched for age and sex and then non-selectively assigned to either an experimental or a control group. Music was played intermittently to members of the experimental group during the first 24hrs postoperative period and pain intensity was measured by Verbal Rating Scales. It shows the significant decrease in pain intensity over time were found in the experimental group compared to the control group ($p < 0.0001$). In addition, the experimental group had a lower systolic BP and HR and took fewer oral

analgesics for pain. These findings concluded that music therapy is an effective non-pharmacological approach for postoperative pain.

Nilsson, Unosson and Rawal, (2005) conducted a study on Stress reduction and analgesia in patients exposed to calming music postoperatively. The randomized controlled trial was designed to evaluate the effectiveness of music therapy. Seventy-five patients undergoing hernia repair in day care surgery were allocated to three groups: intraoperative music, postoperative music and silence (control group). Patient's postoperative pain, anxiety, blood pressure (BP), heart rate (HR) and oxygen saturation were studied. The postoperative music group had less anxiety and pain and required less morphine after 1hr compared with the control group. The result concluded that intraoperative music may decrease postoperative pain, and that postoperative music therapy may reduce anxiety, pain and morphine consumption.

SECTION- IV: STUDIES RELATED TO EFFECTIVENESS OF MUSIC THERAPY AMONG POST CAESAREAN MOTHERS.

Arastirma TAF pre Med Bull, (2009) conducted a study to evaluate the effectiveness of music therapy on postoperative pain after Caesarean section. The sample size was 100 and randomly allocated into two groups (50 in each group). Group 1, patients listened to music through a headphone for 1hour immediately before surgery where as in group-2, not listen to any music during the same period. In the postanesthesia care unit patients were connected to I. V. PCA device when they were able to respond to commands. The patient's level of satisfaction with perioperative care was

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assessed by a 10cm Visual Analogue Scale and the severity of postoperative pain was assessed by VAS. The results shows that the postoperative tramadol consumption, total amount of tramadol consumption, additional analgesic use and all VAS values were lower in group-1($p < 0.05$). Agars score were significantly greater in group-1. This study can imply that music therapy given before surgery decreases postoperative pain and analgesic requirements.

Amin Ebnesahidi, and Masood Mohseni, (2008) conducted a study to evaluate the effect of patient selected music on early postoperative pain, anxiety and Hemodynamic profile in Caesarean section. The sample size was 80 who were undergoing elective C. S. surgery enrolled randomly to listen 30 minutes of music or silence by head phones postoperatively. Pain and Anxiety were measured with visual Analogue Scale. Results says that the pain score and postoperative cumulative opioid consumption were significantly lower among patients in the music group ($p < 0.05$). Finally it concluded that the postoperative use of patient selected music in Caesarean section could alleviate the pain and reduce the need for other analgesics, thus improving the recovery and early contact of mothers with their children.

SECTION-V: STUDIES RELATED TO GATE CONTROL THEORY OF PAIN

Marial, (2007) did a study to assess the effectiveness of back massage on pain during first stage of labour among mothers in selected maternity centre at tirupur. 60 samples were selected by using convenient sampling method for the study (experimental group-30 and control group-30). Experimental group received massage were as the control group did not. She used <https://assignbuster.com/controlling-operative-and-postoperative-pain-literature/>

Melzack pain gate control theory for conceptual frame work. Data was collected using behavioral intensity and visual analogue scale. The statistical calculation done was frequency mean, SD, chi-square and 't' test. The result of the study shows that massage is a cost effective nursing intervention that can decrease the pain perception during labour.

Jacintha, (1995) did a study on the effect of back massage during the first stage of labour. She divided the samples into two groups of 30 each. The experimental group received back massage for 10 minutes per hour. She used non participatory observation technique to observe the maternal behavioral every hour. She used Melzack pain gate control theory for conceptual frame work. The experimental group was interviewed regarding their experience and feelings of back massage before shifting them to the post natal ward. 100% of mothers remembered massage given to them during labour, with feeling of comfortable in 76.66% and relaxed in 43.33%. All the mothers were of the opinion that all mothers in labour should be given back massage.

Locsin, (1981) did a study to assess the effectiveness of music on the pain of selected postoperative patients during first 48 hrs. The 24 female gynecology and/ obstetric patients were assigned to two groups (control and experimental). The measurement of the experimental variable was done by an Overt Pain Reduction Rating Scale (OPRRS) which is devised by the writer. Significant differences were found between the groups of postoperative patients in their muscular-skeletal and verbal reactions during the first 58hr at the 0.05 level. The conceptual framework of the study was based on the concept of distraction following the Gate Control Theory of Pain by Melzack & <https://assignbuster.com/controlling-operative-and-postoperative-pain-literature/>

Wall (1965). The finding says that the music can be used as a nursing measure for postoperative patients.

SECTION-VI: CONCEPTUAL FRAMEWORK BASED ON GATECONTROL THEORY OF PAIN (MELZACK AND WALL (1965))

The conceptual frame work for the present study was derived from Gate Control Theory of Pain (Melzack and Wall, 1995)

Application of Gate Control Theory of Pain

Polit and Hungler, (1965) state that a conceptual framework is inter related concept on abstraction that is assembled together in some rational scheme by virtue of their relevance to a common scheme. It is a device that helps to stimulate research and the extension of knowledge by providing both direction and impetus. The present study was aimed at determining the effectiveness of music therapy on intensity of post operative pain among primipara mothers who had Caesarean Section. The conceptual frame work of this study was derived from gate control theory of pain.

Gate Control Theory of Pain:

Many theories of pain have been presented in the literature. These include specificity, pattern, affect and psychological/behavioral theory (Mander 1998). The most widely used and accepted theory is that of Melzack &Wall (1965). These researchers have established that gentle stimulation actually inhibits the sensation of pain. Their gate control theory states that a neural or spinal gating mechanism occurs in the substantiate gelatinosa of the

dorsal horns of the spinal cord. The nerve impulses received by nociceptors, the receptors for pain in the skin and tissue of the body, are affected by the gating mechanism. It is the position of the gate that determines whether or not the nerve impulses travel freely to the medulla and the thalamus, thereby transmitting the sensory impulse or message, to the sensory cortex. The pain impulses will be carried out by the small diameter slow conducting A-delta and C fibers. Impulses traveled through small diameter fibers will open the " pain gate" and the person feels pain. Pain gate is also receiving impulses produced by stimulation of thermo receptors or mechanoreceptors transmitted via large diameter; myelinated A-delta fibers inhibit superimpose the small diameter impulses. (Myles -2003)

If the gate is closed, there is little or no conduction, for example distraction, counseling and massage techniques are ways to release endorphins, which close the gate. This prevents or reduces the client's perception of pain (Freeman and Lawlis, 2001) If the gate is open, the impulses and messages pass and are transmitted freely. Therefore, when the gate is open, pain and sensation is experienced. (Potter and Perry, 2009)

Many non pharmacological procedures such as hydrotherapy, music therapy (distraction), application of heat or ice, massage, vibration, TENS and movement stimulate the nerve endings connected with large diameter fibres which can produce a reduction of pain by closing the pain gate. Based on the principle of gate control theory, the following conceptual framework was developed. Method used to reduce intensity of postoperative pain is instrumental music which is composed by violin among Primipara mothers who had Caesarean Section.

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Stimulation of Pain Receptors:

Surgical trauma of the uterus due to Caesarean Section stimulates pain receptors in lower abdomen and lumbar area of the back. In the control group there was more stimulation of pain receptors in these areas due to the close contact between the contracting uterus and abdominal and lower back structures. In case of experimental group (Music therapy), there was less stimulation of free nerve ending in the lower abdomen and lumbar area of back compared to the control group due to the distraction caused by music therapy.

Travelling of Pain Impulses:

Normally pain impulses are traveling through small short conducting A-delta and C fibres. Impulses from stimulation will be distracted by instrumental music and decrease in pain perception produce a reduction of pain by closing the pain gate in experimental group.

Gating Mechanism:

Pain impulses after the Caesarean Section are transmitted through the spinal nerve segment of T11-12 and accessory lower thoracic and upper lower sympathetic nerves, which are traveled through (A-delta and C) small diameter and slow conducting amyelinated fibres and reach the pain gate and open the gate thus the mother perceives pain in the lower abdomen and lower back. Impulses reduced by music due to decreased in pain perception to travel through fast conducting myelinated A-delta fibres which impose small fibres and close the pain gate.

SUMMARY

This chapter dealt with the studies related to importance of postoperative pain management, application of music therapy and conceptual frame work based on gate control theory of pain.