

NON-PHARMACOLOGICAL APPROACHES TO MANAGING PREOPERATIVE ANXIETY IN CAESAREAN SECTION PATIENTS: A LITERATURE REVIEW

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Abstract. *Preoperative anxiety is a common psychological response experienced by patients before undergoing surgery, including caesarean sections. This emotional condition can lead to negative physiological effects, increased surgical risk, and delayed recovery. Pharmacological treatments are often used but may cause side effects, making them less ideal for long-term or preventive use. In contrast, non-pharmacological therapies offer safer, more holistic alternatives that support both physical and emotional readiness for surgery. This study aims to explore the effectiveness of various non-pharmacological interventions in reducing anxiety among patients scheduled for caesarean section. A literature review was conducted by analyzing journal articles published between 2019 and 2024, obtained through Google Scholar, and Publish or Perish. After screening based on relevance, language, content, and publication year, six full-text articles were selected. The analysis revealed that guided imagery, music therapy, lemon verbena aromatherapy, and murottal Qur'an recitation significantly reduced preoperative anxiety. These interventions also showed beneficial physiological outcomes, such as reduced heart rate and blood pressure. Meanwhile, methods like chewing gum and listening to Mozart music showed minimal or no significant effect on anxiety levels. These findings highlight the potential of integrating non-pharmacological techniques into standard preoperative care, particularly in obstetric settings. The therapies are practical, low-cost, and adaptable to cultural and spiritual contexts, supporting the development of holistic and patient-centered healthcare strategies.*

Keywords: *Anxiety, Caesarean, Pre Operative, Therapy, non-pharmacology.*

1. INTRODUCTION

Sectio Caesarea (SC) is action or procedure give birth to with make incision in the wall stomach until with the uterus (Sofian, 2015). Childbirth with Indications for SC include mothers with pre- eclampsia, failed vacuum, umbilical cord soaring, History of Sectio caesarean, location, and others (Cunningham et al., 2018). Sectio caesarean can done in a way elective or planned and cito or emergency (Majid, 2011). The SC rate in Latin America and the Caribbean is 4 out of 10 (43%) of all births. In Five Countries, the Dominican Republic, Brazil, Cyprus, Egypt and Turkey, SC operations are greater than normal births (Betran et al., 2021). The number of caesarean sections based on the UN geographical grouping in 2018 was America 39.3%, Europe 25.7%, Africa 9.2%, and Asia 23.1% and the largest in East Asia 33.7% (WHO, 2021). The results of the Riskedas average province in Indonesia is the caesarean section rate of 17.6%. The highest province for SC births is Bali 30.2%, the lowest in Papua 6.7% and the SC rate in Yogyakarta 23.1% (Riskesdas, 2018).

In the Sectio Caesarea process has risk physique like bleeding and organ injury (Cunningham et al., 2018). Risks another SC operation is risk psychological that is golden age patient (Maryunani, 2014). Anxiety operation is condition emotion will uncertainty to results operation and make somebody No comfortable. Common anxiety

disorders occur around 2.8% of men and 4.7% of women (Ritchie & Roser, 2018). The United States is the most common country where mental disorders are anxiety, more than 19.1% of about 40 million residents. Anxiety in America occurs most in people under 21 years of age and around 7% of children under 17 years of age experience anxiety each year (Blvd & Arlington, 2021). The results of the 2018 Basic Health Research showed that emotional mental disorders in the Indonesian population over 15 years old were 9.8%, around 20 million people (Tim Riskesdas, 2018).

Anxiety before operation is threat actual and potential that will generate stress (Smeltzer, 2014). Pre-operative patient anxiety includes worry about pain after surgery, changes in surgery will fail, dying during anesthesia, experiencing the same condition as other people with the same disease, facing the operating room, surgical equipment, and staff. (Perry & Potter, 2013) Preoperative anxiety causes surgical risks, such as vasoconstriction. vessels blood result in pressure blood increased. Pressure blood tall cause bleeding and complications operation that causes patient need preparation physical and psychological as well as need knowledge for overcome anxiety when matter the happen (Maryunani, 2015).

How to lower preoperative anxiety divided become two that is pharmacological and non- pharmacological (Stuart, 2016). Pharmacological methods allow pre- operative patient own effect side to treatment but in progress term short and not recommended for term long (Stuart, 2016) whereas non- pharmacological therapy recommended Because No No cause effect side for body (Maryunani, 2014). From the matter the researcher interested several researching non- pharmacological therapies to reduce anxiety patient before operation section caesarean.

2. LITERATURE REVIEW

2.1 Preoperative Anxiety

Anxiety is a subjective experience of a person. a situation that makes someone uncomfortable n (Hartono, 2012). Anxiety is a fear accompanied by helplessness, isolation, state emotion without emotion without object certain so that cause feelings that are not Certain (Stuart, 2016). Pre -operation is stages somebody since decided operation or procedure surgery. Discomfort feelings felt before operation the is reasonable anxiety felt somebody before surgery. Preoperative anxiety will cause effect physiological and also psychological (Maryunani, 2015).

2.2 How to overcome preoperative anxiety non - pharmacologically.

In handle anxiety pre- operative patient need holistic approach to overcome anxiety without drugs. The technique aiming for increase quality life someone and reduce impact effect side long term. Non -pharmacological therapy in the form of therapy relaxation like deep breathing exercises, massage, relaxation muscle progressive, imagery, biofeedback, yoga, meditation, therapeutic touch, music therapy, and humor and laughter (Stuart, 2016).

3. RESEARCH METHODS

Literature review with method gathers article journal of therapy alternative for reduce preoperative anxiety. Researchers selected the title, abstract, content, and purpose of the articles. All selected articles were analyzed carefully to understand the contents. A search of research journals that have been published from 2019 to 2024. Researchers determined inclusion and exclusion criteria in election journal. Inclusion criteria with choose research article Google Scholar and Publish or Perish, with keywords in Indonesian a therapy alternative, pre operation, section Caesarea. Articles that have a title and purpose same as the topic preoperative anxiety SC. Selected articles is articles that analyze several technique therapy alternatives for reduce preoperative anxiety non - pharmacologically. The article was conducted exclusion is article which does not have a complete structure, does not provide relevant information, articles with pre- SC surgery anxiety, and paid articles

All selected articles were analyzed carefully to understand the contents. The search results obtained 1026 articles consisting of 923 on Google scholar and 103 in Publish or Perish, of the 1026 articles, 966 were excluded because no relevant so that 60 articles remain, of the 60 articles, 29 articles were excluded because publish before 2021. Out of the 31 remaining articles, those that were available in full text were selected. Subsequently, 25 articles were excluded because they were written in Indonesian and did not involve caesarean surgery. As a result, 6 articles were selected for analysis.

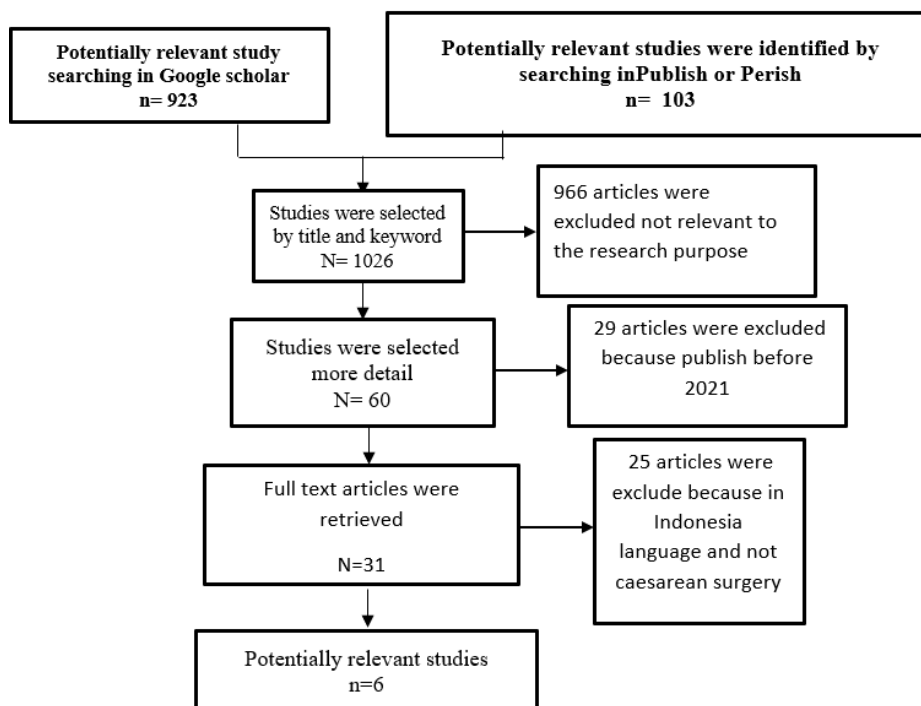


Figure 1. Literature Review Selection Process

4. RESULTS AND DISCUSSION

4.1 Results

Table 1.

No	Author	Objective Study	Method (Design, Sample, Instrument)	Results
1	The effect guide imagery pre-caesarean section on the perceived preoperative anxiety, surgical fear, and physiological parameters of women: Randomized controlled tria .	This study was conducted to investigate the impact of guided imagery applied before caesarean section on preoperative anxiety, surgical fear, and physiological parameters of women	D: trial design random controlled S: 60 participants caesarean section patient I: STAI -S, SFQ, physiological parameter form	Effective guided imagery intervention lower-level Preoperative anxiety and control afraid operative in a way significant. No there is significant difference in physiological parameters between group

				intervention and group control.
2	<p>Effect of music listening on perioperative anxiety, acute pain and pain catastrophizing in women undergoing elective cesarean delivery: a randomized controlled trial Avinash(Kakde et al., 2023)</p> <p>Kakde1, Ming Jian Lim, Haiying Shen, Hon Sen Tan, Chin Wen Tan, Rehena Sultana4 and Ban Leong Sng, 2023</p>	<p>Know The effect of perioperative music listening on reducing anxiety, acute pain, and pain catastrophic scale (PCS) scores after elective caesarean section with spinal anesthesia.</p>	<p>D: pre- and post-implementation prospective experiments</p> <p>S: patients who will undergoing surgery as many as 108 mothers giving birth</p> <p>I: VAS-A</p>	<p>Listening to music significantly reduced postoperative VAS-A scores (MD -1.43, p <0.001) and total PCS scores (MD -6.39, p=0.003) . Music helped mothers focus and reduce anxiety during surgery. No significant differences were found in acute pain scores between music listeners and non-listeners. High preoperative anxiety was correlated with increased postoperative pain levels. Overall satisfaction with the music intervention was reported as “very good” or “good” by more than 95% of participants.</p>
3	<p>The effect of Mozart music on patient satisfaction during cesarean delivery: a randomized controlled trial(Drzymalski et al., 2023)</p> <p>Dan M. Drzymalski, Mohammad Dahlawi, Robert R. Hall, Shreya Ranjan, Craig L. Best, 2023</p>	<p>Know influence use of music in clinical settings</p>	<p>D: prospective, randomized, controlled trial</p> <p>S: 27 woman who will be a mother undergo section caesarean</p> <p>I: MSSCS Instrument</p>	<p>The study found no significant difference in patient satisfaction between the music and control groups, with mean satisfaction scores of 116 vs. 120. Anxiety levels did not show any significant difference, with scores of 2.7 vs 2.5,</p>

4	<p>Effects of the aroma of lemon verbena (<i>Aloysia citriodora</i> Paláu) essential oil on anxiety and the hemodynamic profile before cesarean section: A randomized clinical trial(Haryalchi et al., 2023)</p> <p>Katayoun Haryalchi, Soudabeh Kazemi Aski², Mandana Mansour Ghanaie, Masoumeh Fotouhi Roghayeh, Mansoori Seyed, Mahdi Sadraei, Yasaman Yaghobi, Sepehr Olangian - Tehrani, 2023</p>	<p>To determine the effect of inhaling LV essential oil on anxiety levels and subsequent hemodynamic changes before cesarean section.</p>	<p>D: single-blind randomized trial</p> <p>S: 84 patients who will undergo caesarean section</p> <p>I: Spielberger Instrument</p>	<p>LV essential oil significantly reduces preoperative anxiety in patients. Aromatherapy with LV is recommended as a non-invasive method to reduce anxiety before cesarean section. Significant variations in pain scores were observed after inhalation in both groups. Heart rate, respiratory rate, and blood pressure decreased after inhalation of LV essential oil.</p>
5	<p>Effect of chewing gum on anxiety in women undergoing elective cesarean section: a randomized controlled study(Bang et al., 2023)</p> <p>Yu Jeong Bang, Eun Kyung Lee, RyungA Kang, Ah Hyun Kim, Chung Su Kim, Woo Seog Sim, Suk-Joo Choi, Soo-Young Oh, Cheong-Rae Roh, Justin Sangwook Ko, 2022</p>	<p>To determine the effects of chewing gum on pregnant women undergoing elective caesarean section with regional anesthesia.</p>	<p>D: single-center prospective randomized controlled trial</p> <p>S: Women who will undergo a caesarean section as much as 33 participants</p> <p>I: APAIS</p>	<p>Preoperative gum chewing does not reduce preoperative anxiety levels in elective cesarean section patients. A randomized controlled trial found no significant difference in anxiety scores between gum chewers and controls before surgery.</p>
6	<p>Murottal Therapy Reduces The Level Of Anxiety In Patients Pre Operating Sectio Caesarea In Klaten Islamic General Hospital(Hamranani et al., 2023)</p> <p>Sri Sat Titi Hamranani, Daryani,</p>	<p>Knowing the impact of murottal therapy at the General Hospital</p>	<p>D: experimental design with a single group pretest-posttest approach</p> <p>S: The study consisted of 45 patients who underwent caesarean section at Klaten Islamic Hospital,</p>	<p>Preoperative <i>caesarean section</i> patients showed moderate levels of anxiety. Patient before receiving murottal therapy anxiety 48.9%, after done therapy murottal anxiety levels decreased to</p>

	Fitriana Nurkhayati, Sujadi, 2023		selected by consecutive sampling. I: PASS	37.8%, and the percentage of patients reporting no anxiety increased from 11.1% to 26.7%. The decrease in anxiety levels was significant, with a p value of 0.001. shows the effectiveness of murottal therapy in reducing anxiety among participants.
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4.2 Discussion

Anxiety is response emotional experiences individual for to face situation certain, including moment face procedure operation. Anxiety can influence experience patient, results treatment, surgical process, even the recovery process. Overcoming anxiety with approach pharmacology like use antidepressant drugs will reduce anxiety that must be under consideration risks and effects side like dependency, tolerance, and interaction medicine. Considerations usage technique pharmacological make more effective in maintenance and minimization long-term risk long (Maryunani, 2015). Some non-pharmacological techniques such as guided imagery, listening to music, murottal Quran, oil essential, candy rubber can be used as alternative reduce anxiety, especially anxiety before operation or pre-operative.

Research (2024) shows use of guided imagery techniques before caesarean section operation in a way significantly reduce level preoperative anxiety. Non-pharmacological techniques that utilize strength thoughts and imagery for create a positive and calming mental experience. In pre-operation, patient feel more calm, safe, positive approaching procedure surgery. Research Eberhart (2020) that afraid procedure operation needs a comprehensive approach so that anxiety can be minimized (Eberhart et al., 2020). Research result in line with Alvarez (2020) that guided imagery was successful lower anxiety related fear of the procedure possible surgery more complex like surgery heart (García & Yaban, 2020).

Study Kakde et al. (2023) show that listen music in a way perioperative can lower-level anxiety and pain catastrophizing in patients undergoing operation Caesar elective. Intervention this involving playback music choice patient before, during, and after operation. The results show that receiving group intervention music own score anxiety postoperative (VAS-A) which is lower in a way significant compared to group control. Total and subscale scores Pain Catastrophizing Scale (rumination, magnification, helplessness) shows significant decline. Findings this support hypothesis music can give effect psychological positive through stimulation system limbic, which plays a role in arrangement emotions and responses stress.

Decrease score pain catastrophizing becomes findings important because condition this known increase intensity painful acute and risk painful chronic post operation. Weingarten (2021) explains music play a role in interfere with cognitive processes negative against pain, such as feeling no empowered and inclined for magnify the pain. This result in line with study music can be an efficient strategy for reduce perception negative to painful post caesarean section operation was performed (Weingarten et al., 2021). Masoud (2020) explains effect positive as indicated by the intervention music also goes hand in hand with a number of studies previously which shows connection between music and decline anxiety as well as use analgesic although in study this no found difference significant on score painful I between group (Masoud et al., 2020).

Research result show height level satisfaction to intervention music. The majority participant state that music help they feel more calm, focused, and comfortable during the operation process. Selection music based on preference personal possibility big strengthen effect relaxation and improve participation active patient in management his emotions. With consider effectiveness, safety, and convenience implementation, therapy music worthy under consideration as part from protocol standard maintenance perioperative, in practice modern obstetrics that emphasizes approach non-pharmacological patient-centered (Kakde et al., 2023).

Research by Drzymalski et al. (2023) shows that playback Mozart's music during operation caesarean no give difference meaningful to satisfaction patient, level anxiety, as well as pressure blood postoperative. Average score satisfaction in the group music is 116, while group control reaching 120, with p value = 0.645. Change anxiety between group also not significant in a way statistics. These results confirm that intervention Mozart's music in context this no effective increase experience patient in a way overall.

Understanding about music can influence system limbic, which is responsible answer to regulation emotion. Music with rhythm certain believed capable lower hormone stress like cortisol and stimulates release endorphins. Effects this expected can increase comfort and perception positive patient to action medical, including operation caesarean (Drzymalski et al., 2023). Study this no in line with a meta-analysis by Hole (2015) which states that music influential significant to satisfaction and recovery post operation. Difference results this highlight importance time, context, and personalization music in determine effectiveness intervention music in patients' surgery (Hole et al., 2015).

Research by Haryalchi et al. (2023) shows inhalation oil lemon verbena essential oil (LV) significant lower anxiety preoperatively in patients who will undergo operation caesarea. Decrease significant on score deep state and trait anxiety LV group compared group placebo. Changes physiological like decline pulse heart, pressure blood systolic and diastolic, as well as rate breathing was also detected in a way significant after inhalation. Findings this strengthen proof that aromatherapy with LV can give effect real calming in a way psychological and physiological (Haryalchi et al., 2023).

Anxiolytic effect of lemon verbena is assumed originate from compound active such as limonene, geranial, and linalool which work through system limbic brain. This pathway related close with processing emotions and regulation stress. Mechanism works the similar with effect from benzodiazepines, but originate from track more non-pharmacological safe. Activation GABA receptors and decrease activity system nerve sympathetic trusted play a role in reduce anxiety and stabilizing vital signs during pre-operative phase (Igarashi, 2013).

Study this consistent with findings from Razavi et al. (2017) and Igarashi (2013) show anxiolytic effects of LV and linalyl acetate in animal models and human. Aromatherapy can reduce anxiety before action surgery. Intervention simple this rated safe, economical and easy applied, so it is very relevant as approach non-pharmacological in practice modern (Razavi & Hosseinzadeh, 2017) obstetrics. Use of aromatherapy with LV potential become addition intervention preoperative for increase comfort mother and reduce complications consequence anxiety (Jaruzel et al., 2019).

Research by Bang et al. (2023) evaluated effect chew candy rubber to anxiety preoperative in women undergoing operation fault elective with regional anesthesia. The results showed no there is difference significant on score anxiety (APAIS) between group intervention and control. The chewing group candy rubber experiences more pain low moment procedure spinal-epidural anesthesia (CSE). Findings show chew candy rubber no effective as intervention single for reduce anxiety, but own potential in lower sensation painful during action medical (Bang et al., 2023).

Consistent results with studies previously state that activity chew can reduce perception pain, but different from findings previously which shows anxiolytic effects in non-obstetric populations. Difference this possible influenced by the level more anxiety high in mother pregnant, method anesthesia, and factors psychosocial others. Research this underline importance multimodal approach in manage anxiety preoperative as well

as the need instrument more measurements specific for population obstetrics (Bang et al., 2022).

Research conducted by Hamranani, Daryani, Fitriana, and Sujadi (2023) shows that therapy murottal effective in lower-level anxiety in patients who will undergo operation section caesarea. The results of the Wilcoxon test produced p value = 0.001, which indicates there is meaningful difference between level anxiety before and after intervention. Before given therapy, part big patient is at in category anxiety moderate (48.9%), while after intervention, amount patients who do not experience anxiety increase from 11.1% to 26.7%. Findings this show that therapy murottal give effect calm in a way significant so that can help patient more ready mentally and emotionally in face action surgery.

Findings in line with results study previously which proves effectiveness spiritual approach in reduce anxiety by Fitriyani (2021). Therapy murottal use chant paragraph holy Qur'an with rhythm regular and melodious believed capable influence system limbic in the brain as an area that plays a role in arrangement emotion (Fitriani et al., 2021). Activation system the can lower response physiological to stress and reduce symptom anxiety (Hosseini et al., 2013). Implementation therapy this in accordance with mark culture and religion Indonesian society, especially at home sick based on Islam, so that potential accepted by the patient enough tall.

Therapy murottal strengthen approach service health that includes dimensions biological, psychological, social, and spiritual aspects holistic. Therapy this potential for integrated to in standard procedure maintenance preoperatively, especially in facilities health that implements approach Islamic. Its application need training for power health and preparation guidelines technical for implementation therapy can in progress consistent and standardized approach. This contributes in increase quality service and provide a sense of peace of mind as well as more confidence strong to patient approaching action medical (Hamranani et al., 2023).

CONCLUSION

Interventions can be an effective and safe alternative to reduce anxiety in patients undergoing cesarean section. Techniques such as guided imagery, music therapy, inhalation of lemon verbena essential oil, and murottal Al-Qur'an have been shown to provide significant calming effects both psychologically and physiologically. These therapies are easy to apply, economical, and have minimal side effects, making them suitable for integration into pre-operative care protocols. The effectiveness of interventions is influenced by personalization, timing, and the cultural context of the patient. The use of a holistic approach that considers biological, psychological, social, and spiritual dimensions can improve maternal mental readiness and lead to better clinical outcomes. This study supports the development of patient-centered obstetric care strategies and opens opportunities for further research on combination and long-term interventions.

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