

# EFFECT OF PROGRESSIVE MUSCLE AND AUTOGENIC RELAXATION ON POST-SPINAL PAIN AND ANXIETY: A THREE-GROUP RANDOMIZED CONTROLLED TRIAL

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## Article Information

Received: 17 January 2025  
Revised: 21 May 2025  
Accepted: 10 July 2025

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## DOI

10.20884/1.jks.2025.20.2.14415

## ABSTRACT

Patients undergoing cesarean sections (CS) under spinal anesthesia often experience pain, anxiety, and peripheral vasoconstriction. This study, a randomized, blinded, controlled trial, compared progressive muscle relaxation (PMR) and autogenic training (AOT) with standard treatment to alleviate the aforementioned symptoms. Sixty-six female patients who underwent CS aged 20-35 were randomized into three groups: PMR (n=22), AOT (n=24), or standard (n=20). Pain and anxiety were evaluated using standardized instruments: Hamilton Rating Scale for Anxiety (HARS) and Numeric Rating Scale (NRS). Both groups indicated a statistically significant decrease in pain and anxiety as compared to the control group ( $p = 0.001$ ). Both the PMR (Mean difference; pain, 2.54) and anxiety (17.37) improved significantly more than the AOT (pain, 1.23; anxiety, 11.68) group, while the control group minimally improved (pain, 0.32; anxiety, 2.27) over their pre-intervention scores. Statistical tests, Mann-Whitney U and Kruskal-Wallis, showed statistically significant differences between the three groups,  $p < 0.034$ ;  $p < 0.001$ , 95% CI. Thus, the PMR is more effective than AOT or standard care. Therefore, PMR should be included in the postoperative care of nurse anesthetists in their pragmatic collaborative effort to support non-pharmacological symptom self-management in cesarean patients.

Keywords: Anxiety; autogenic; caesarean section; pain; progressive muscle relaxation



ISSN : 1907-6637

e-ISSN : 2579-9320

## BACKGROUND

A cesarean section (CS) is a surgical procedure that involves cutting through the abdominal and uterine walls to deliver a fetus. According to the WHO's Global Survey on Maternal and Perinatal Health, 46.1% of all births occur through a CS (Vogel et al., 2019). Moreover, approximately 94% of obstetric patients in the United States underwent a cesarean section in 2018 (Martin, Hamilton, Osterman, & Driscoll, 2019). According to data on 3,509 CS, the procedure is typically conducted if the patient exhibits the following conditions: pelvic fetal disproportion (21%), fetal distress (14%), placenta previa (11%), previous CS (11%), fetal anomalies (10%), pre-eclampsia (7%), and hypertension (7%) (Venancyana, Indrayani, & Lubis, 2022). The World Health Organization (2021) also reported that CS procedures

increased sharply in China, from 3.4% in 1988 to 39.3% in 2010.

The prevalence of cesarean sections is rapidly increasing, with 137 countries showing rates of 10%-15% of births (Asamblea Mundial de la Salud, 2019; Tadevosyan et al., 2019). The need for cesarean sections may have increased from 6.7% in 1990 to 19.1% in 2014, due to the availability of antibiotics, blood transfusions, improved surgical techniques, and enhanced anesthesia techniques (Bizimana et al., 2016; Caughey et al., 2018; Magne, Puchi Silva, Carvajal, & Gotteland, 2017).

In Indonesia, the proportion of births delivered via cesarean section increased from 6.8% to 9.8%, primarily due to