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RESEARCH ARTICLE

SPEOS Training and Qur'anic Murottal Therapy on Breast Milk Production, Sleep Quality, and Psychological Well-Being among Postpartum Mothers

Pelatihan SPEOS dan Terapi Murottal Al-Qur'an terhadap Produksi ASI, Kualitas Tidur, dan Kondisi Psikologis Ibu Nifas

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Abstract

Breast milk production in postpartum mothers may be affected by psychological conditions and poor sleep quality, which can influence oxytocin secretion. Husband involvement and spiritual approaches may provide practical and culturally appropriate support during the postpartum period. This study aimed to evaluate the effect of the SPEOS (Endorphin, Oxytocin, and Suggestive Massage Stimulation) method administered by husbands combined with Qur'anic murottal therapy on breast milk production, sleep quality, and psychological condition among postpartum mothers. A quasi-experimental study with a post-test-only control group design was conducted among 98 postpartum mothers recruited through accidental sampling from eight independent midwifery practices in Pringsewu Regency, with 49 participants in each group. The intervention was implemented throughout the first four weeks postpartum and consisted of husband-administered SPEOS massage combined with Surah Ar-Rahman murottal therapy. Data were analyzed using bivariate statistical tests with a significance level of $p < 0.05$. The results demonstrated significant differences between the intervention and control groups in breast milk production ($p = 0.002$), sleep quality ($p = 0.002$), and psychological condition ($p < 0.001$). These findings indicate that husband-administered SPEOS combined with Qur'anic murottal therapy may improve breast milk production, sleep quality, and psychological well-being among postpartum mothers. This intervention may serve as a feasible complementary approach that promotes active husband involvement in postpartum care.

Keywords: al-qur'an, murottal therapy, postpartum, psychology, SPEOS

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Abstrak

Produksi ASI pascapersalinan sering kali terganggu akibat rendahnya kadar hormon oksitosin, yang erat kaitannya dengan kondisi psikologis dan kualitas tidur ibu. Berbagai metode pijat telah dikembangkan untuk membantu pengeluaran ASI, namun keterbatasan akses pelayanan kesehatan membuat intervensi ini sulit dilakukan secara konsisten di rumah. Dukungan suami dan spiritualitas diyakini dapat memberikan kontribusi penting. Oleh karena itu, penelitian ini melatih suami untuk menerapkan metode SPEOS (Stimulasi Pijat Endorfin, Oksitosin, dan Sugestif), dipadukan dengan terapi murottal Al-Qur'an Surah Ar-Rahman, sebagai pendekatan baru dalam meningkatkan kesejahteraan ibu nifas. Penelitian ini bertujuan untuk mengevaluasi pengaruh penerapan metode SPEOS oleh suami dan terapi murottal Al-Qur'an terhadap peningkatan produksi ASI, kualitas tidur, dan kondisi psikologis ibu nifas. Desain penelitian ini adalah kuasi-eksperimental dengan pendekatan post-test only control group design. Sampel terdiri dari 49 subjek per kelompok yang dipilih secara accidental sampling dari 8 PMB di Kabupaten Pringsewu. Intervensi dilakukan selama 4 minggu masa nifas. Analisis data menggunakan uji bivariat dengan nilai signifikansi $p < 0,05$. Hasil menunjukkan adanya perbedaan signifikan pada produksi ASI ($p = 0,002$), kualitas tidur ($p = 0,002$), dan kondisi psikologis ibu nifas ($p < 0,001$) pada kelompok intervensi dibandingkan dengan kelompok kontrol. Metode SPEOS oleh suami dan murottal Al-Qur'an efektif meningkatkan produksi ASI, kualitas tidur, dan kondisi psikologis ibu nifas.

Kata Kunci: *al-qur'an, terapi murottal, nifas, psikologi, SPEOS*

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Highlight:

- Husband-administered SPEOS technique combined with Qur'anic murottal therapy significantly enhances breast milk production in postpartum mothers.
- The psychological well-being of postpartum mothers improves through the SPEOS method (providing physical and emotional partner support) and Qur'anic murottal recitation, which together attenuate stress hormone levels and stimulate endorphin release.
- Endorphin massage, positive suggestion, and active partner companionship positively influence and improve sleep quality among postpartum mothers.

INTRODUCTION

According to study findings on exclusive breastfeeding, 55% of infant deaths caused by diarrhea and Acute Respiratory Infection (ARI) can be prevented in infants aged 0–3 months. Furthermore, exclusive breastfeeding can prevent 66% of infant mortality due to diarrhea and ARI in infants aged 4–6 months (Couto et al., 2020). Nevertheless, based on a report by the World Health Organization (WHO) in 2016, the global coverage of exclusive breastfeeding was only approximately 36% between 2007 and 2014. In Indonesia, exclusive breastfeeding coverage reached 53% in 2017 (BPS RI, 2018), indicating that only about half of infants in Indonesia receive exclusive breastfeeding. According to WHO, key barriers to breast milk production include poor sleep quality (Jannah, 2021), primigravidity, lack of support, and poor maternal

psychological well-being (Rahman et al., 2017). Although breast milk synthesis typically initiates immediately following delivery, ejection often fails due to sub-optimal secretion of oxytocin (King et al., 2019).

Oxytocin is considered a "happiness hormone" that is released when the mother feels relaxed, secure, and well-supported. Inadequate milk production and ejection can cause maternal distress and infant fussiness, thereby compromising the mother's rest due to postpartum pain and anxiety (Fatmawati and Hidayah, 2019; Hamang and Nurhayati, 2023; Setiawati et al., 2023). In the long term, this condition may lead to psychological disorders ranging from postpartum blues to postpartum depression (Risnah et al., 2023; Septianingrum and Damawiyah, 2019). To address this issue, healthcare providers routinely utilize massage stimulation interventions to facilitate breast milk ejection (Aini and Suryaningsih, 2021).

Previous researchers have implemented various massage techniques—such as oxytocin massage, acupressure, Oketani, and back massage—to promote breast milk production. However, healthcare providers are unable to deliver these interventions once the mother returns home. Mothers typically stay at healthcare facilities for only one day, whereas early breastfeeding success is critically determined within the first two weeks postpartum. Therefore, partner support plays a pivotal role in providing massage therapy to facilitate smoother breast milk synthesis and ejection (Clements et al., 2016; Nurasiaris, 2018). Unfortunately, husbands' knowledge, skills, and attitudes regarding lactation-enhancing massage techniques remain limited (Sari et al., 2023; Suyati and Muzayyaroh, 2023).

In addition to partner support, spiritual support is essential for postpartum mothers' psychological well-being (Martins and Gall, 2021). Regrettably, mothers are restricted from performing routine religious rituals, such as prayers (*salat*), during the postpartum period. Consequently, alternative spiritual approaches, such as listening to Qur'anic *murottal*, are required to provide spiritual support. Considering these challenges, partner support and spiritual interventions are vital factors for successful breastfeeding, improving sleep quality, and enhancing maternal psychological status. Nevertheless, studies integrating both partner support and spiritual interventions remain very limited, particularly those evaluating their long-term effects until the end of the postpartum period.

The problem-solving approach utilized in this study adopts a normative framework, which evaluates the necessity of follow-up stimulation care to optimize breast milk production and sleep quality, thereby preventing psychological distress in postpartum mothers. This approach emphasizes the involvement of the partner as a primary family support system to actively accompany the mother throughout the postpartum phase. Conventional oxytocin massage focuses solely on breast milk ejection without targeting pain-relief points, such as endorphin points, nor does it incorporate positive suggestive reinforcement for postpartum mothers.

Previous researchers addressed these limitations by introducing the Stimulation of Endorphin, Oxytocin, and Suggestive Massage (SPEOS) method (Lestari et al., 2019), in which mothers receive combined endorphin, oxytocin, and suggestive stimulation. Earlier studies demonstrated that murottal therapy effectively reduces the severity of postpartum blues and postpartum depression (Sumaningsih et al., 2022; Tonasih et al., 2023). However, prior murottal interventions often relied on dedicated music players, which created barriers for mothers without access to such devices, thereby limiting the intervention's full therapeutic benefit (Fitria et al., 2022). Combining oxytocin massage with Qur'anic murottal therapy has also demonstrated a positive impact on breast milk ejection (Indrayanti et al., 2020; Maknunah and Astuti, 2023).

The state of the art and novel contribution of this study lie in the direct delivery of education and training to husbands, enabling them to implement the SPEOS method simultaneously with Qur'anic murottal therapy while comprehensively evaluating maternal sleep quality, breast milk production, and psychological health throughout the complete postpartum period. Previous interventions have highlighted the active role of husbands in back massage (Julianti and Susanti, 2019), oxytocin massage (Doko et al., 2019), and endorphin massage (Widyastuti et al., 2021), as well as murottal therapy in enhancing breast milk production and alleviating postpartum depressive symptoms (Lalita et al., 2023). Nonetheless, these studies failed to evaluate outcomes across the full duration of the postpartum period. Assessing complete postpartum outcomes—such as sleep quality, infant weight gain, and maternal psychological status—is crucial to supporting a successful postpartum transition and ensuring exclusive breastfeeding efficacy.

To bridge this research gap, the authors developed a husband-led training program centered on SPEOS massage (Nurhayati and Sukadiariani, 2020) combined with Qur'anic murottal therapy to improve breast milk production, sleep quality, and psychological well-being among postpartum mothers. To the best of the authors' knowledge, no prior studies have investigated husband-administered training that integrates both the SPEOS method and Qur'anic murottal recitations (Lestari et al., 2020).

METHODS

This study employed a quasi-experimental design utilizing a pretest and post-test design with a control group. The study was conducted from June to August 2024. The target population comprised pregnant women at ≥ 35 weeks of gestation receiving care at Independent Midwifery Practices (PMBs) in Pringsewu Regency who met the inclusion criteria. The inclusion criteria included couples residing in Pringsewu Regency, normal pregnancy history, singleton pregnancy, ownership of a smartphone, and willingness to participate as research subjects. Couples with unplanned pregnancies were excluded from the study. Drop-out criteria included failure to complete the study protocol and the occurrence of postpartum complications. The sample size was determined based on previous studies using a significance level (α) of 0.05 and a statistical power of 80%, yielding a total of 49 participants per group. Sampling was conducted using an accidental sampling technique across eight PMBs in Pringsewu Regency

Both the experimental and control groups received standard postpartum care and health education based on the Maternal and Child Health (MCH) Handbook. Baseline (*pretest*) and post-intervention (*post-test*) assessments of breast milk production (measured via a breast milk production questionnaire), sleep quality, and postpartum blues screening were conducted on the first postpartum day, with post-tests reassessed at the second week (day 14) postpartum, followed by postpartum depression evaluation at the sixth postpartum week. Participants in the experimental group underwent husband-led SPEOS method training consisting of lectures, interactive discussions, and hands-on practice while simultaneously playing Qur'anic *murottal* recitations on the participants' smartphones. The training execution adhered to the SPEOS module and Qur'anic *murottal* therapy guidelines developed by the research team, which underwent content validity testing via expert judgment. Expert consultations involved certified midwives with specialized training in oxytocin and endorphin massage techniques. The reliability of the SPEOS module was subsequently tested on two subjects under direct expert supervision.

Subsequently, husbands administered the SPEOS method combined with *murottal*

recitations to the mothers over a 4-week postpartum period, with session durations of 15 minutes during weeks 1–2 and 20 minutes during weeks 3–4. The research instruments encompassed subject characteristics, including maternal and paternal age, maternal and paternal occupation, maternal and paternal educational level, infant birth weight, and breast milk output. Maternal sleep quality was evaluated using the Indonesian version of the Pittsburgh Sleep Quality Index (PSQI) (Sari and Anggorowati, 2020). Breastfeeding success was assessed using a 10-item breast milk production questionnaire. Validity testing confirmed that all questionnaire items had calculated r-values exceeding the critical table value ($r > 0.361$), establishing internal validity. Instrument reliability was evaluated using the Kuder–Richardson 20 (KR-20) method, yielding a reliability coefficient of 0.823, which indicates high internal consistency. Screening for postpartum blues and postpartum depression was conducted using the Edinburgh Postnatal Depression Scale (EPDS) (Desiana and Tarsikah, 2021). Ethical clearance for this study was granted by Universitas Muhammadiyah Pringsewu under ethics approval number 010/KEPK/FKes/2024.

RESULTS AND DISCUSSION

Subject characteristics

Table 1 shows that the demographic and clinical characteristics of the study participants were relatively comparable between the control and intervention groups. The mean age was 28.20 ± 5.370 years in the control group and 27.08 ± 5.350 years in the intervention group, with $p = 0.303$. Most participants were multigravida, accounting for 81.63% in the control group and 67.35% in the intervention group, with $p = 0.408$. The mean interpregnancy interval was 2.57 ± 2.449 years in the control group and 2.10 ± 2.624 years in the intervention group, with $p = 0.362$.

Based on Table 1, educational attainment was predominantly at the senior high school level in both groups, accounting for 57.1% in the control group and 63.3% in the intervention group, with $p = 0.746$. Regarding employment status, most participants in both the control group (65.3%) and intervention group (59.2%) were unemployed, with $p = 0.532$. The statistical analysis showed that there were no significant differences in any of the demographic and clinical characteristics between the control and intervention groups ($p > 0.05$). Thus, the two groups had relatively homogeneous baseline characteristics.

Table 1. Demographic and clinical characteristics of research subjects

Variable	Group		*p-value*
	Control (n = 49)	Intervention (n = 49)	
Age (years)			
Mean (SD)	28.20 (5.370)	27.08 (5.350)	0.303*
≤20 atau >35	10 (20.40%)	8 (16.33%)	
21-34	39 (79.60%)	41 (83.67%)	
Parity			
Mean (SD)	2.14 (1.979)	1,73 (1.811)	0.408*
Primigravida	9 (18.37%)	16 (32.65%)	
Multigravida	40 (81.63%)	33 (67.35%)	
Pregnancy Interval (years)			
Mean (SD)	2.57 (2.449)	2.10 (2.624)	0.362*
Median	3	1	

Variable	Group		*p-value*
	Control (n = 49)	Intervention (n = 49)	
Range	0-9	0 -10	
Education Level			
Junior High School	6 (12.2%)	4 (8.1%)	0.746 **
Senior High School	28 (57.1%)	31 (63.3%)	
University	15 (30.6%)	14 (28.6%)	
Employment Status			
Unemployed	32 (65.3%)	29 (59.2%)	0.532**
Employed	17 (34.7%)	20 (40.8%)	
Total	**49 (100%)**	**49 (100%)**	

Note: *Independent t-test, **Chi-square test, Data were considered normally distributed when p-value > 0.05 based on the normality test

Effect of husband-administered SPEOS and qur'anic murottal therapy on breast milk production

Table 2 demonstrates that the mean increase (**Δ**) in breast milk production was higher in the intervention group (4.96 ± 1.12) compared to the control group (4.29 ± 1.05). Comparative analysis revealed a statistically significant difference in effectiveness between the intervention and control groups regarding breast milk production (p = 0.002). The intergroup difference in breast milk volume aligns with the subject demographic characteristics (Table 1), where maternal age and parity theoretically contribute to individual milk synthesis capacity.

Table 2. Mean differences in breast milk production between groups

Group	Breast Milk Production			p-value
	Pretest (Mean ± SD)	Postest (Mean ± SD)	Δ Breast Milk Production (Mean ± SD)	
Intervention	3.20 ± 1.15	8.16 ± 1.08	4.96 ± 1.12	0.001*
Control	3.25 ± 1.11	7.54 ± 1.20	4.29 ± 1.05	0.317
			0.002**	

Note: *Wilcoxon Signed-Rank test; **Mann–Whitney U test; significant if p-value < 0.05

Maternal age serves as a determinant factor influencing breast milk production level. The optimal reproductive age implies fully matured reproductive organs, psychological readiness, cognitive maturity, and adequate exposure to lactation-related information among postpartum mothers. Conversely, although advanced maternal age (>35 years) often correlates with prior parenting experience, information exposure opportunities differ from those in optimal reproductive age groups who are actively working outside the home (Purnamasari, 2022). Similarly, mothers aged <20 years represent a high-risk group—not only during pregnancy and delivery but also throughout the postpartum and lactation period—as the maternal body is still undergoing physical growth (Mp et al., 2022).

Maternal age and parity are critical maternal factors linked to early stage lactation outcomes. A recent scoping review demonstrated that primiparity consistently serves as an independent risk factor for delayed lactogenesis II, defined as a delay in copiously secreted breast milk following delivery. Maternal age also warrants consideration; however, its relationship with breast milk synthesis varies depending on population

characteristics, maternal health status, body mass index (BMI), delivery mode, and the frequency as well as effectiveness of milk expression (Li et al., 2024). Although prior breastfeeding experience may better prepare multiparous mothers for lactation, milk production is not solely determined by age and parity. Other factors—including maternal and infant health conditions, lactation support, mode of delivery, and breastfeeding or expression frequency—collectively play essential roles in ensuring successful lactation.

SPEOS represents a stimulation model for postpartum mothers that combines endorphin massage, oxytocin massage, and positive suggestion, aimed at facilitating successful breastfeeding and promoting psychological adaptation. This study empowered husbands as therapists following preliminary training on SPEOS administration for postpartum mothers. Husbands possess a stronger emotional bond compared to healthcare professionals, which is expected to enhance maternal comfort and relaxation during massage administration. SPEOS was delivered concurrently with researcher-provided Qur'anic *murottal* recitations (Surah Ar-Rahman). Consequently, this approach targets not only physical optimization but also maternal psychological well-being throughout the postpartum period.

The components of SPEOS are designed to act synergistically; thus, combining endorphin, oxytocin, and suggestive massage is anticipated to yield more optimal outcomes than applying single component interventions (such as oxytocin massage alone). Oxytocin massage primarily stimulates milk ejection without delivering the relaxational benefits of endorphin massage or the psychological reinforcement provided by positive suggestions. However, comparative evaluations regarding the isolated efficacy of individual SPEOS components were not conducted in this study and warrant further exploration. Observed post-intervention infant weight changes within the SPEOS group align with effective increases in breast milk output (Mp et al., 2022). Prior research has similarly demonstrated that postpartum mothers receiving SPEOS interventions are seven times more likely to secrete colostrum within the first postpartum day (Setyawan et al., 2021).

Endorphin hormones are naturally synthesized by the body and can be stimulated through cutaneous massage. Husband-administered endorphin massage involves gentle tactile touch applied to the neck, back, arms, and spine. This stimulation activates the parasympathetic nervous system—originating from the medulla oblongata to the sacral region—which signals the posterior pituitary gland to secrete oxytocin (Anderson et al., 2019). Meanwhile, oxytocin massage is performed along the neck, back, arms, and thoracic vertebrae 5–6 adjacent to the spine extending toward the scapula. Oxytocin induces milk ejection via G-protein-coupled receptors and phospholipase activation, resulting in optimized breast milk release (Syukur et al., 2020). These findings accord with Triansyah et al. (2021), who reported that oxytocin massage combined with breast care significantly enhances breast milk production. Physiologically, oxytocin stimulates myoepithelial contraction within the mammary glands during lactation.

Breast milk production is closely influenced by maternal psychological status; when the mother feels comfortable and relaxed, oxytocin secretion is stimulated. Suggestive interventions combined with Qur'anic *murottal* listening serve as an alternative care model for postpartum mothers to induce relaxation, thereby facilitating optimal milk ejection. Positive suggestions were delivered by the husband following the script in the training module. These suggestions convey positive affirmations aimed at rebuilding maternal self-confidence, gratitude, and acceptance, such as *"I am peaceful, calm, and happy. I am capable of breastfeeding my baby easily, smoothly, in a relaxed and happy state"*. Repeated exposure to positive affirmations instills strong convictions

within the conscious mind (Dini et al., 2017). Consequently, mothers develop self-confidence during each breastfeeding session, perceiving the process as enjoyable, relaxed, easy, and fulfilling. Previous findings similarly indicate that suggestive techniques integrated into the SPEOS method significantly increase postpartum breast milk production (Arsi et al., 2021).

Recitations of Surah Ar-Rahman exert a distraction effect against anxiety, fear, and psychological stress. Surah Ar-Rahman describes the signs and greatness of Allah SWT, instilling optimism, serenity, and confidence in listeners (Octaviani et al., 2023). However, this study did not directly compare the therapeutic effects of Qur'anic *murottal* recitations with classical or instrumental music, nor did it evaluate this intervention in non-Muslim participants. Consequently, it remains unconfirmed whether the observed relaxation benefits stem uniquely from the spiritual meaning of the Qur'anic recitation or are attributable to general calming auditory parameters, such as rhythm, tempo, and acoustic volume. Such comparisons represent an important avenue for future research to elucidate the specific mechanisms underlying the psychological and physiological impacts of Qur'anic *murottal* recitations on lactation.

Effect of husband-administered SPEOS and qur'anic murottal therapy on sleep quality

Table 3 demonstrates that the mean reduction (**Δ**) in sleep quality scores—indicating greater improvement—was higher in the intervention group (4.78 ± 1.95) compared to the control group (3.53 ± 1.32). The comparative analysis evaluating the effectiveness of husband-administered SPEOS techniques combined with Qur'anic *murottal* recitations revealed a statistically significant difference between the two groups (p = 0.002). Endorphin massage involves light touch and gentle massage techniques that stimulate endogenous endorphin production while balancing circulating epinephrine and norepinephrine levels, thereby promoting a state of calm and comfort (Yahya et al., 2020). This massage technique induces maternal relaxation through the release of endorphins, often referred to as endogenous morphine. Increased endorphin activity enhances happiness while alleviating pain and physical discomfort. This heightened emotional well-being fosters psychological comfort and physiological calmness, creating optimal conditions for sound and restful sleep (Argaheni, 2021).

Table 3. Mean differences in sleep quality scores between groups

Group	Sleep Quality			*p-value**
	Pretest **Mean ± SD**	***Postest*** **Mean ± SD**	**ΔSleep Quality Mean ± SD**	
Intervention	10.10 ± 2.20	5.32 ± 1.90	4.78 ± 1.95	0.001
Control	10.20 ± 2.10	6.67 ± 1.80	3.53 ± 1.32	0.317
			0.002**	

Note: *Wilcoxon Signed-Rank test; **Mann–Whitney U test; significant if p-value < 0.05

Postpartum sleep quality is strongly influenced by an interplay of physical, emotional, and environmental factors. Active husband accompaniment during the postpartum and lactation period serves as a critical form of support required by mothers. Positive suggestion techniques can be utilized as a non-pharmacological therapy to convey constructive messages that foster maternal psychological composure. Suggestions may be delivered verbally through therapeutic communication or integrated with

relaxation techniques. Verbal suggestions have been reported to enhance the therapeutic effects of relaxation interventions, although outcomes remain contingent upon individual characteristics and clinical contexts (Kekecs and Varga, 2013; Schakel et al., 2019). In relation to sleep, suggestive therapy has been investigated as an adjunct intervention with the potential to improve sleep quality. However, existing evidence remains heterogeneous; thus, its therapeutic efficacy cannot be broadly generalized across all patients or postpartum populations (Wofford et al., 2023). Consequently, positive suggestions can serve as supplementary support for relaxation and sleep improvement, but they do not replace professional clinical evaluation and management for persistent sleep disorders.

Positive thinking can be conceptualized as a cognitive framework prioritizing constructive perspectives and positive emotions toward oneself, others, and current life circumstances. The suggestive affirmations incorporated into this study's intervention included: *"Thank you, self, for extraordinarily navigating pregnancy, childbirth, and breastfeeding our beloved child"*—accompanied by deep exhalations to amplify feelings of gratitude for Allah's vast blessings. These suggestive statements were recited repeatedly throughout the SPEOS sessions. Suggestive interventions offer therapeutic benefits in mitigating cognitive, affective, and behavioral challenges. Furthermore, suggestion is recognized as a mind-body therapeutic technique utilizing hypnotic methods to introduce positive directives into the subconscious mind for psychological healing and cognitive-behavioral restructuring. By leveraging structured positive linguistic influences, suggestive techniques are considered effective in resolving emotional and psychological distress. Common stress-related manifestations—such as panic attacks, test anxiety, anger, guilt, general anxiety, phobias, and low self-esteem—stem primarily from underlying fear and apprehension, all of which can be addressed through targeted suggestive interventions.

Qur'anic *murottal* refers to the auditory recitation of the Qur'an, wherein verses are recited in *tartil* (measured rhythm) often accompanied by soothing intonations. This study restricted the *murottal* intervention specifically to Surah Ar-Rahman; therefore, it remains inconclusive whether other surahs or verses exert comparable effects on postpartum sleep quality. Comparative evaluations among different surahs represent a highly relevant topic for future research. Sleep quality reflects an individual's subjective evaluation of their sleep experience, encompassing sleep depth, satisfaction, duration adequacy, sleep onset latency, minimization of nocturnal disruptions, and daytime functional efficiency (Buysse et al., 1989). A study by Ahmaniyah and Annisa (2020), demonstrated that Qur'anic *murottal* therapy significantly improves sleep quality, yielding low PSQI scores (2.27 ± 2.48). Similarly, traditional *klenengan* music was shown to reduce PSQI scores, denoting superior sleep quality. Notably, their findings revealed no significant difference between Qur'anic *murottal* therapy and *klenengan* music in managing postpartum sleep disturbances.

Effect of husband-administered SPEOS and qur'anic murottal therapy on maternal psychological status

Table 4 demonstrates that at 2 weeks postpartum, the psychological status score of subjects in the intervention group was significantly lower—indicating a better psychological condition—compared to the control group, with a mean score of 7.88 ± 2.008. Similarly, at the 6-week postpartum evaluation, subjects in the intervention group exhibited lower mean psychological scores (6.59 ± 1.273) than the control group (8.61 ± 1.846), reflecting superior psychological outcomes. The comparative effectiveness

analysis of husband-administered SPEOS techniques combined with Qur'anic *murottal* recitations revealed statistically significant differences between groups at both week 2 (p = 0.042) and week 6 (p <0.001), with an overall total p-value of <0.001.

Table 4. Mean differences in maternal psychological scores

Psychological Status Assessment	Group		*p-value**
	Intervention *Mean ± SD*	Control *Mean ± SD*	
Week 2	7.88 ± 2.008	8.67 ± 2.025	0.042*
Week 6	6.59 ± 1.273	8.61 ± 1.846	<0.001*
Total	**7.23 ± 1.837**	**8.64 ± 1.927**	**<0.001***

Note: *Mann–Whitney U test; significant if *p*-value < 0.05

The postpartum period marks a critical transition characterized by physical, psychological, and social adaptations. Beyond hormonal fluctuations, maternal anxiety frequently arises as mothers assume additional parental roles. Spousal support encompasses a range of behaviors provided by the husband to his wife, including emotional support, practical assistance with infant care and domestic chores, as well as appraisal support through praise and appreciation of the wife's efforts (Suyati and Muzayyaroh, 2023). Spousal support exerts a profound impact on a wife's emotional well-being, as the husband serves as the primary companion responsible for facilitating feelings of comfort, security, respect, self-worth, empowerment, and enthusiasm to successfully navigate pregnancy and childbirth with joy (Sari et al., 2023).

Beyond emotional backing, husbands can actively participate in supporting the lactation process through direct maternal care and practical aid. Partner support has been consistently associated with the initiation and continuation of breastfeeding, although the efficacy of specific support modalities must align with maternal needs and preferences. The SPEOS method—comprising endorphin stimulation, oxytocin massage, and positive suggestions—has been documented in several experimental and quasi-experimental studies as an intervention capable of enhancing breast milk production among postpartum mothers (Arsi et al., 2021; Widiantari et al., 2023). Furthermore, Qur'anic *murottal* therapy may be considered an integrative spiritual-auditory intervention to induce relaxation and alleviate anxiety, particularly among Muslim mothers receptive to this modality (Ghiasi and Keramat, 2018; Simonovich et al., 2022). However, the combined efficacy of husband-administered SPEOS and *murottal* therapy on psychological relaxation and breast milk production cannot be definitively established without direct empirical measurement and robust methodological designs.

Qur'anic *murottal* therapy induces emotional tranquility and alleviates anxiety among listeners. Furthermore, this therapy instills resilience and motivation to overcome challenges, thereby reducing anxiety levels across various clinical contexts, although the quality and design of existing studies remain heterogeneous (Ghiasi and Keramat, 2018). Research indicates that the melodic recitation of Qur'anic *murottal*, characterized by precise rhythm and *tajwid* (pronunciation rules), promotes a state of deep spiritual focus (*khusyu'*). Consequently, as postpartum mothers listen to these sacred verses, they experience profound emotional tranquility, relaxation, and a more optimistic outlook on life. Listening to Qur'anic recitations with optimal rhythm, *tajwid*, and *tartil* (measured pacing) serves as a complementary auditory-spiritual therapy with the potential to enhance relaxation, foster inner peace, and mitigate maternal anxiety. However, the direct

impact of *murottal* therapy on stress hormones and endorphin levels in postpartum mothers requires further validation through studies utilizing rigorous biomarker assessments (Ghiasi and Keramat, 2018; Moulaei et al., 2023). A relaxed maternal state fosters psychological composure, ensures adequate rest, and subsequently enhances breast milk production. Qur'anic *murottal* played at an acoustic volume of 50–60 dB exerts a therapeutic effect by stimulating the auditory nerve. This auditory stimulation triggers neurotransmitters that activate the amygdala and hippocampus, prompting the release of endorphins and other neurochemicals. This physiological cascade shifts brain wave activity toward the alpha frequency, culminating in a state of profound relaxation and calmness, primarily characterized by the robust secretion of endorphin hormones (Alex et al., 2020). Concurrently, the mechanical effects of massage therapy can elevate circulating levels of serotonin and dopamine, which effectively mitigate physical discomfort, fatigue, psychological stress, and depressive symptoms (Argaheni, 2021).

CONCLUSION

The husband-administered SPEOS method combined with Qur'anic *murottal* listening (surah Ar-Rahman) effectively enhances breast milk production, sleep quality, and psychological well-being among postpartum mothers compared to those receiving standard normal postpartum care alone. Theoretically, these findings reinforce the concept that partner support and spirituality contribute to lactation success via psychoneuroendocrine pathways—specifically through the stimulation of oxytocin and endorphin hormones triggered by feelings of comfort, safety, and relaxation. Practically, these results indicate that SPEOS and *murottal* therapy training for husbands can serve as a family-based self-care intervention integrated into antenatal and postnatal educational programs by healthcare professionals, particularly in low-resource or limited-access settings.

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