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Original Research

Post-Cesarean Pain Intensity and Breastfeeding Success Within the First 24 Hours Postpartum: A Cross-Sectional Study

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ABSTRACT

Background: The relationship between post-sectio caesarea pain levels and breastfeeding success within the first 24 hours postpartum is an important concern because postoperative pain may inhibit early breastfeeding. Mothers who undergo sectio caesarea often experience limited mobility, discomfort, and disruption of the milk ejection reflex due to pain. This study aimed to determine the relationship between post-sectio caesarea pain levels and breastfeeding success within the first 24 hours postpartum at Dharma Kerti Hospital, Tabanan, in 2026. **Methods:** This study used a quantitative analytic design with a cross-sectional approach. The sample consisted of 35 post-sectio caesarea mothers selected using a purposive sampling technique. Pain levels were measured using the Numeric Rating Scale (NRS), while breastfeeding success was assessed using the LATCH method. Data were analyzed using Fisher's Exact Test with a significance level of $\alpha < 0.05$. **Results:** The results showed that most respondents experienced mild pain (48.6%), followed by moderate pain (37.1%) and severe pain (14.3%). A total of 85.7% of respondents successfully breastfed, while 14.3% were unsuccessful. Statistical analysis showed a significant relationship between post-sectio caesarea pain levels and breastfeeding success within the first 24 hours postpartum ($p < 0.001$). **Conclusion:** Higher pain levels were associated with an increased risk of breastfeeding failure.

Keywords: Post-sectio caesarea pain; breastfeeding success; LATCH; postpartum mothers; breast milk

1. INTRODUCTION

Breastfeeding is the optimal source of nutrition for infants and provides substantial health benefits for both mothers and newborns. Early initiation of breastfeeding and exclusive breastfeeding contribute to improved infant survival, enhanced immune protection, and reduced maternal morbidity. Despite these well-established benefits, many mothers continue to experience difficulties initiating breastfeeding, particularly during the first 24 hours postpartum, which is considered a critical period for establishing successful lactation. Common barriers include ineffective infant sucking, maternal fatigue after childbirth, and the need for continuous support from healthcare providers and family members.[1,2]

Globally, breastfeeding practices remain below international targets. Although improvements have been observed in breastfeeding initiation and exclusive breastfeeding rates, substantial gaps persist across countries. In Indonesia, exclusive breastfeeding coverage has exceeded the national target; however, regional disparities remain, and

successful breastfeeding during the immediate postpartum period continues to be challenging for many mothers.[1-3]

The increasing prevalence of cesarean section (CS) has become an important concern in maternal healthcare. While cesarean delivery is a life-saving intervention when medically indicated, postoperative pain, delayed mobilization, the effects of anesthesia, and delayed skin-to-skin contact may hinder early breastfeeding initiation and reduce maternal confidence in breastfeeding. In Indonesia, cesarean section accounts for approximately one-quarter of all deliveries, with Bali reporting the highest prevalence nationwide. These findings highlight the growing importance of addressing breastfeeding challenges among mothers undergoing cesarean delivery.[4,5]

Previous studies have demonstrated that mothers who undergo cesarean section are less likely to initiate and maintain breastfeeding than those who deliver vaginally. Postoperative pain is one of the most frequently reported barriers because it limits maternal mobility, interferes with comfortable breastfeeding positions, and increases dependence on caregivers. In addition, severe postoperative pain may contribute to maternal anxiety and reduce breastfeeding self-efficacy, ultimately compromising breastfeeding success during the early postpartum period. Conversely, adequate family support and appropriate breastfeeding education have been shown to facilitate successful breastfeeding initiation despite postoperative discomfort.[5,6]

Recent evidence has further emphasized the importance of targeted breastfeeding support for mothers following cesarean section. A systematic review and meta-synthesis reported that women who underwent cesarean delivery frequently experienced physical discomfort, emotional vulnerability, delayed mother–infant interaction, and inadequate breastfeeding support, all of which negatively affected breastfeeding initiation and continuation. The review concluded that timely assistance from healthcare professionals, supportive hospital policies, and active family involvement were essential to overcoming these barriers and improving breastfeeding outcomes. Furthermore, a systematic review and meta-analysis demonstrated that structured educational and supportive interventions significantly increased breastfeeding self-efficacy and exclusive breastfeeding rates, particularly when support was initiated during the early postpartum period and continued through individualized counseling and follow-up. More recent evidence also showed that postnatal interventions, including breastfeeding counseling, education, peer support, and family-centered approaches, substantially improved breastfeeding self-efficacy and breastfeeding success, highlighting the importance of comprehensive postpartum support for mothers recovering from cesarean section.[7-11]

Although hospitals have implemented various interventions, including breastfeeding education, lactation counseling, and restrictions on formula supplementation, breastfeeding within the first 24 hours after cesarean section remains suboptimal. Preliminary observations at Dharma Kerti Hospital indicated that mothers experiencing moderate postoperative pain frequently reported anxiety, delayed mobilization, and difficulty initiating breastfeeding, whereas mothers with mild pain were more likely to breastfeed successfully. These findings suggest that postoperative pain may be an important determinant of breastfeeding success despite the availability of clinical support.

Given the increasing rate of cesarean section and the importance of successful breastfeeding during the first 24 hours postpartum, further investigation is needed to clarify the relationship between postoperative pain and breastfeeding outcomes. Therefore, this study aimed to examine the association between post-cesarean pain intensity and breastfeeding success within the first 24 hours postpartum at Dharma Kerti Hospital, Tabanan.

2. METHODS

2.1 Type and Design Study

This study employed a quantitative analytical design using a cross-sectional approach. The study was conducted to examine the association between post-cesarean section pain intensity and breastfeeding success within the first 24 hours postpartum without any intervention from the researchers.

2.2. Time and Location

Data collection was carried out at Dharma Kerti General Hospital, Tabanan, Indonesia, between February to April 2026.

2.3. Population, Sample, and Sampling

The study population comprised all post-cesarean section mothers admitted to the postpartum ward. A total of 32 participants were recruited using purposive

sampling based on predefined inclusion and exclusion criteria.

2.4. Variables

The variables examined in this study were post-cesarean section pain intensity (independent variable) and successful breastfeeding initiation within the first 24 hours postpartum (dependent variable).

2.5. Data Collection

Primary data were collected directly from the respondents through interviews and observations.

Postoperative pain intensity was assessed using the Numeric Rating Scale (NRS), while breastfeeding success within the first 24 hours postpartum was evaluated using the LATCH Score observation checklist. NRS asks patients to rate their pain on a scale from 0 to 10, where 0 means "no pain" and 10 represents "the worst pain imaginable". The LATCH questionnaire is used to assess the effectiveness of breastfeeding by evaluating five key components: Latch, Audible swallowing, Type of nipple, Comfort (breast and nipple), and Hold (positioning and assistance). Each component is scored from 0 to 2, resulting in a total score ranging from 0 to 10, with higher scores indicating more successful breastfeeding.

2.6. Data Analyzes

Univariate analysis was performed to describe respondents' characteristics and the distribution of the study variables using frequencies and percentages. Bivariate analysis was conducted using Fisher's Exact Test to examine the association between post-cesarean section pain intensity and breastfeeding success. The analysis was performed using IBM SPSS Statistics Version 31, the latest available version. The interpretation of the results was based on the p-value with a significance level of 0.05. If the p-value was less than 0.05 ($p < 0.05$), the null hypothesis was rejected, indicating a statistically significant association between the variables. Conversely, if the p-value was greater than or equal to 0.05 ($p \geq 0.05$), the null hypothesis was not rejected, indicating that there was no statistically significant association between the variables.

2.7. Ethical Practice

This study was conducted in accordance with established ethical principles for research involving human participants. Ethical approval was obtained from the Institutional Review Board (IRB)/Research Ethics Committee of STIKES Kesdam IX/Udayana before the commencement of the study. The study received Ethical Clearance Certificate No. 007/EC-KEPK-SK/III/2026. All participants were informed about the purpose, procedures, potential benefits, and risks of the study, and written informed consent was obtained prior to data collection. Participants' confidentiality and privacy were strictly maintained, and all collected data were anonymized and used solely for research purposes. Participation was voluntary, and participants had the right to withdraw from the study at any time without any consequences.

3. RESULTS

3.1 Respondent Characteristics

A total of 35 respondents participated in this study. Table 1 presents the characteristics of the respondents, including age, educational level, occupation, household income, family type, and number of children.

Table 1. Respondent characteristics at Dharma Kerti General Hospital, Tabanan

Characteristics	Frequency (f)	Percentage (%)
Age		
20-35 years	30	85.7
>35 years	5	14.3
Level of education		
Basic	3	8.6
Intermediate	17	48.6
High	15	42.9
Occupation		
Employee	23	65.7
Unemployed	12	34.3
Household income		
<minimum wage	22	62.9
≥minimum wage	13	37.1
Family type		
Nuclear family	16	45.7
Extended family	19	54.3
Parity		
Primipara	11	31.4
Multipara	24	68.6
Total	35	100.0

The study findings showed that the majority of respondents were aged 20–35 years, while only a small proportion were older than 35 years. Regarding educational attainment, most respondents had completed

secondary education, followed by those with higher education. Overall, 91.5% of the respondents had attained secondary or higher education, indicating a relatively high educational level among the study participants.

In terms of occupation, the largest proportion of respondents were unemployed or homemakers, followed by those employed in the private sector. Only a small number of respondents were civil servants. With respect to household income, most respondents had a monthly income below the regional minimum wage, whereas approximately one-third reported an income above the regional minimum wage. Regarding family type, the majority of respondents belonged to extended families, while fewer than half lived in nuclear families. Based on parity, most respondents were multiparous, having more than one child.

3.2. Distribution of Post-Cesarean Section Pain Intensity Within the First 24 Hours Postpartum

The frequency distribution of post-cesarean section pain intensity experienced by the respondents during the first 24 hours postpartum is presented in Table 2

Table 2. The frequency distribution of post-cesarean section pain intensity experienced by the respondents during the first 24 hours postpartum at Dharma Kerti General Hospital, Tabanan.

Level of pain	Frequency (f)	Percentage (%)
Mild	17	48.6
Moderate	13	37.1
Severe	5	14.3
Total	35	100.0

Table 2 presents the distribution of post-cesarean section pain intensity among the respondents during the first 24 hours postpartum. Nearly half of the respondents experienced mild pain (48.6%), followed by moderate pain (37.1%), while only 14.3% reported severe pain. These findings indicate that most mothers experienced mild to moderate postoperative pain within the first 24 hours after cesarean section

3.3. Distribution of Breastfeeding Success Among Post-Cesarean Section Mothers Within the First 24 Hours Postpartum

Breastfeeding success within the first 24 hours postpartum is an important indicator of early infant nutritional adequacy and maternal adaptation following childbirth. Assessing breastfeeding success provides an overview of the mother's ability to initiate and maintain breastfeeding during the early postpartum period. The frequency distribution of breastfeeding success among the respondents is presented in Table 3.

Table 3. Frequency distribution of breastfeeding success among post-cesarean section mothers within the first 24 hours postpartum at Dharma Kerti General Hospital, Tabanan.

Breastfeeding	Frequency(f)	Percentage (%)
Success	30	85.7
Unsuccess	5	14.3
Total	35	100.0

Table 3 shows that most respondents successfully breastfed within the first 24 hours postpartum, whereas only a small proportion experienced unsuccessful breastfeeding. Overall, these findings suggest that the majority of mothers were able to establish breastfeeding during the early postpartum period.

3.4. Association Between Post-Cesarean Section Pain Intensity and Successful Breastfeeding Initiation Within the First 24 Hours Postpartum

Bivariate analysis was performed to examine the association between post-cesarean section pain intensity and successful breastfeeding initiation within the first 24 hours postpartum at Dharma Kerti General Hospital, Tabanan. The cross-tabulation of the study variables and the results of Fisher's Exact Test are presented in Table 4.

Table 4. Association between post-cesarean section pain intensity and successful breastfeeding initiation within the first 24 hours postpartum at Dharma Kerti General Hospital, Tabanan.

Pain score	LATCH score				Total	*p*-value	Cramer's V
	Success		Unsuccess				
	n	%	n	%	n		
Mild	17	100.0	0	0.0	17	<0.001	1.000
Moderate	13	100.0	0	0.0	13		
Severe	0	0.0	5	100.0	5		
Total	30	85.7	5	14.3	35		

Based on Table 4, the majority of respondents who experienced mild pain achieved successful breastfeeding initiation. Similarly, most mothers in the moderate pain category were also successful in initiating breastfeeding. In contrast, respondents who experienced severe pain were unsuccessful in initiating breastfeeding, as assessed using the LATCH score.

The results of Fisher's Exact Test revealed a statistically significant association between post-cesarean section pain intensity and successful breastfeeding initiation within the first 24 hours postpartum ($p < 0.001$). Therefore, the study hypothesis was accepted, indicating a significant relationship between the two variables. Furthermore, the Cramer's V coefficient was 1.000, indicating a very strong association between post-cesarean section pain intensity and successful breastfeeding initiation

4. DISCUSSION

4.1. Post-Cesarean Section Pain Intensity Within the First 24 Hours Postpartum

The findings of this study showed that the majority of mothers who underwent cesarean section at Dharma Kerti General Hospital, Tabanan, experienced mild postoperative pain within the first 24 hours postpartum. As presented in Table 4, of the 35 respondents, 17 experienced mild pain, 13 experienced moderate pain, and 5 experienced severe pain.

Pain and anxiety experienced by mothers during the first 24 hours after cesarean section may contribute to physical discomfort and interfere with postpartum recovery. Consequently, effective pain management is essential during this period. Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage.[12] Pain may act as a stressor that elicits both biological and psychological responses, leading to physical and behavioral changes that can affect maternal recovery and wellbeing. A research emphasized the importance of assessing pain intensity within the first 24 hours postpartum, as the analgesic effects of anesthesia diminish during this period and postoperative pain commonly reaches its peak.[13] Early pain assessment is therefore essential for optimizing analgesic management, facilitating maternal mobilization, and supporting the initiation of breastfeeding following cesarean delivery. A study reported that mothers who undergo cesarean section commonly experience drowsiness and weakness due to the residual effects of anesthesia. Once these effects subside, pain at the abdominal incision site often discourages mothers from moving, potentially delaying postoperative recovery.[14]

Based on the respondents' characteristics, most mothers were aged 20–35 years, followed by those aged over 35 years. This age group generally represents women in adulthood who have reached biological, psychological, and emotional maturity. In the context of reproductive health, these respondents belong to the reproductive-age population, which constitutes the primary focus of fertility and maternal health research in Indonesia.[15] Their biological maturity suggests that most participants were within the optimal reproductive age and generally possessed adequate physiological and psychosocial capacity for pregnancy and childbirth.

Regarding educational attainment, the majority of respondents had completed secondary education (17 respondents), indicating that nearly half had attained at least a moderate level of formal education. This was followed by respondents with higher education (15 respondents). Overall, 91.5% of participants had completed secondary or tertiary education, reflecting a relatively high educational background. Educational attainment has been shown to influence mothers' ability to understand health information, including knowledge related to breastfeeding and postoperative care. This finding is consistent a study who stated that individuals with higher educational levels are generally more capable of acquiring and comprehending health-related information.[16]

With respect to occupation, the largest proportion of respondents were unemployed or homemakers and private-sector employees, with 12 respondents in each category. Occupation is closely associated with socioeconomic status, which may influence an individual's ability to access healthcare services and other resources. Adequate family economic status, particularly the husband's socioeconomic condition, may also enhance the support provided to mothers during the postpartum period.[17]

The majority of respondents in this study were multiparous, having more than one child. multiparous women may have previous childbirth and postoperative experiences that improve their psychological preparedness and coping strategies during recovery. Pain perception is influenced not only by tissue injury but also by psychological factors, previous experiences, and individual expectations. These findings are supported by

a recent prospective cohort study by Getahun et al., which reported that women undergoing primary cesarean section experienced significantly greater postoperative pain than those undergoing repeat cesarean section during the first 24 hours after surgery. The authors suggested that previous surgical experience and adaptation to postoperative recovery may contribute to lower pain perception among women with repeated cesarean deliveries.[18]

4.2 Successful Breastfeeding Initiation Among Post-Cesarean Section Mothers Within the First 24 Hours Postpartum

The findings of this study showed that the majority of post-cesarean section mothers at Dharma Kerti General Hospital successfully initiated breastfeeding within the first 24 hours postpartum. As presented in Table 3, 30 respondents successfully initiated breastfeeding, whereas only 5 respondents were classified as unsuccessful.

Following cesarean section, mothers enter a postpartum period that differs from that of women who deliver vaginally. During this period, mothers experience the dual challenge of recovering from both childbirth and abdominal surgery. The postpartum period is characterized by the gradual involution of the reproductive organs to their pre-pregnancy state, while simultaneously initiating lactation as the mammary glands begin to produce breast milk.[19] Successful breastfeeding during this critical period is therefore influenced by both physiological recovery and the mother's ability to adapt to the demands of infant feeding.

Cesarean section may also have psychological consequences that affect breastfeeding outcomes. Mothers who undergo cesarean delivery may perceive themselves as having failed to experience a normal birth and may experience concerns regarding wound healing and the potential effects of medications on their infants. These concerns can contribute to feelings of anxiety, helplessness, and psychological stress. Maternal stress stimulates the release of adrenaline, resulting in vasoconstriction of blood vessels surrounding the mammary alveoli, which may inhibit the milk ejection (let-down) reflex, reduce milk flow, and increase the risk of breast engorgement.[20,21]

In this study, most respondents were aged 20–35 years (30 respondents), while only five respondents were older than 35 years. Maternal age is one of the predisposing factors influencing breastfeeding success. Women aged 20–35 years are generally considered to be in their optimal reproductive years, with adequate physical and psychological maturity to support successful breastfeeding. In contrast, mothers aged over 35 years may experience physiological changes, including reduced hormone production, which may impair lactation and increase the risk of pregnancy, childbirth, and postpartum complications.[19]

Regarding educational attainment, most respondents had completed secondary education (17 respondents), followed closely by those with tertiary education (15 respondents). Higher educational attainment may facilitate greater openness to health information and improve mothers' ability to understand breastfeeding recommendations.[16] Nevertheless, a high level of formal education does not necessarily translate into adequate knowledge of breastfeeding techniques, as practical breastfeeding skills require specific education and hands-on experience rather than general educational achievement.

With respect to occupation, the largest proportions of respondents were homemakers and private-sector employees, with 12 respondents in each category. Employment status may influence mothers' exposure to health information. Working mothers often interact with a wider social network, increasing opportunities to receive health-related information. However, occupational demands may also limit the time available to participate in health education activities. Conversely, homemakers may have more time to access health information and receive breastfeeding education, thereby improving their knowledge and breastfeeding practices.[19]

The majority of respondents were multiparous, having more than one child. Parity reflects a mother's previous childbirth and breastfeeding experience, including prior exclusive breastfeeding practices, family breastfeeding traditions, and knowledge of the benefits of breastfeeding. Such previous experiences may positively influence maternal confidence and decision-making regarding breastfeeding.

Regarding family structure, most respondents (19 mothers) lived in extended families, indicating that more than half of the participants resided with multiple family members across generations. Family support and household dynamics may substantially influence maternal breastfeeding practices. Lindayani reported that patriarchal cultural norms within Balinese Hindu communities, together with the common practice of

living with parents-in-law, may limit women's autonomy in decision-making. Family members, particularly mothers-in-law, often influence decisions regarding infant feeding, the use of traditional remedies, the selection of baby care products, and maternal dietary practices during the postpartum period. These sociocultural influences may either facilitate or hinder successful breastfeeding initiation, depending on the type of support and advice provided.[22,23]

4.3. Association Between Post-Cesarean Section Pain Intensity and Successful Breastfeeding Initiation Within the First 24 Hours Postpartum

The results of this study involving 35 respondents showed that all mothers who experienced mild postoperative pain (n = 17) successfully initiated breastfeeding, as assessed using the LATCH scoring system. Similarly, all respondents who reported moderate pain (n = 13) were also classified as having successful breastfeeding initiation. In contrast, all five respondents who experienced severe pain were categorized as unsuccessful in initiating breastfeeding.

The initial Pearson's Chi-square analysis, performed after table reduction, yielded a statistically significant result (Asymp. Sig. [2-sided] = 0.019, $p < 0.05$). However, because of the small sample size and unequal distribution of observations, Fisher's Exact Test was subsequently conducted to provide a more accurate estimate of the association. The Fisher's Exact Test also demonstrated a statistically significant relationship ($p = 0.045$), indicating that post-cesarean section pain intensity was significantly associated with successful breastfeeding initiation within the first 24 hours postpartum at Dharma Kerti General Hospital. These findings suggest that higher levels of postoperative pain are associated with an increased likelihood of unsuccessful breastfeeding initiation.

Physiologically, postoperative pain may interfere with breastfeeding through hormonal mechanisms. Pain and psychological stress inhibit the release of oxytocin, the hormone responsible for the milk ejection (let-down) reflex. Consequently, although breast milk production may occur, milk transfer to the infant can be impaired. Hobbs et al. reported that women who underwent cesarean section were more likely to experience breastfeeding difficulties than those who delivered vaginally, primarily because of postoperative pain, limited mobility, and the residual effects of anesthesia.[24]

A meta-synthesis by Ulfa et al. demonstrated that mothers recovering from cesarean delivery commonly experience pain-related difficulties in positioning the infant, maintaining prolonged skin-to-skin contact, and achieving an effective latch. These physical limitations are frequently accompanied by fear of movement and reduced confidence in breastfeeding, which may delay breastfeeding initiation and decrease feeding frequency.[5] Similarly, Karlström et al. reported that postoperative pain adversely affects both breastfeeding and infant care by limiting maternal mobility and reducing mothers' ability to respond comfortably to their infants' feeding cues. Inadequate pain control may therefore compromise maternal–infant interaction during the critical early postpartum period, when frequent breastfeeding is essential for stimulating oxytocin release and establishing effective lactation. These findings support the present study, in which mothers experiencing severe postoperative pain were less likely to achieve successful breastfeeding within the first 24 hours postpartum than those with mild or moderate pain. Therefore, effective post-cesarean pain management should be considered an integral component of breastfeeding support to facilitate early breastfeeding success.[25]

Based on the findings of the present study, the researchers suggest that post-cesarean section pain plays an important role in successful breastfeeding initiation during the first 24 hours postpartum. Mothers experiencing greater pain intensity are more likely to have restricted mobility, difficulty adopting comfortable breastfeeding positions, and reduced ability to achieve effective mother–infant contact and latch. These limitations may decrease breastfeeding frequency and compromise the stimulation required for adequate milk ejection. Moreover, postoperative pain may contribute to maternal anxiety, fear of movement, and discomfort during breastfeeding, further inhibiting the oxytocin-mediated let-down reflex and leading to perceptions of insufficient milk supply. Conversely, mothers experiencing mild pain are generally more comfortable performing early mobilization, more confident in breastfeeding, and more likely to breastfeed frequently, thereby increasing the likelihood of successful breastfeeding initiation during the early postpartum period.

5. CONCLUSION

The findings of this study demonstrated that the majority of post-cesarean section mothers at Dharma Kerti General Hospital, Tabanan, experienced mild postoperative pain and successfully initiated breastfeeding within the first 24 hours postpartum. Statistical analysis revealed a significant association between post-cesarean section pain intensity and successful breastfeeding initiation. These findings suggest that effective postoperative pain management plays a crucial role in facilitating successful breastfeeding during the early postpartum period.

Based on these findings, healthcare facilities should strengthen comprehensive postoperative care by optimizing pain management strategies, providing lactation education, and offering psychological support and breastfeeding assistance for mothers recovering from cesarean section. Mothers and their families should also be encouraged to prepare for breastfeeding during pregnancy by actively seeking information on breastfeeding techniques and the importance of exclusive breastfeeding. Future studies are recommended to include larger sample sizes, involve multiple healthcare settings, and examine additional determinants, such as maternal knowledge, family support, breastfeeding self-efficacy, and maternal motivation, to provide a more comprehensive understanding of the factors influencing successful breastfeeding initiation after cesarean section.

Ethical Approval

Ethical approval for this study was obtained from the Health Research Ethics Committee of STIKES Kesdam IX/Udayana (Ethical Approval No. 007/EC-KEPK-SK/III/2026)

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Competing Interests

All the authors declare that there are no conflicts of interest.

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No funds were received for this study.

Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

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