The effectiveness of postpartum education and support models in enhancing mothers' self-efficacy after cesarean section

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Abstract

Maternal self-efficacy refers to a parent's belief in their ability to care for a child, which can be influenced by a lack of experience, knowledge, and physical condition after giving birth by cesarean section (CS). Education and postpartum support for mothers after a CS are essential for enhancing their knowledge, skills, and confidence in caring for their babies, helping them feel more prepared and capable. This study examined the effectiveness of a postpartum education and assistance model on the maternal self-efficacy of post-CS mothers. This research was conducted at Bogor City Hospital (Indonesia) using a quasi-experimental method with a non-equivalent control group design, employing pre-test and post-test assessments. The sample obtained through purposive sampling consisted of 44 post-CS mothers, with 22 in the intervention group and 22 in the control group. The Wilcoxon test was used for data analysis. Maternal self-efficacy in caring for babies was measured before and after education and assistance using the Perceived Maternal Parenting Self-Efficacy (PMPSE) questionnaire with a Likert scale. The results showed that the median self-efficacy of post-CS mothers before the intervention was 64.50 (range 48-79), while after education and mentoring, the median increased to 81 (range 61-93). Education and mentoring significantly influenced maternal self-efficacy in caring for infants ($p<0.001$). It is hoped that this education and mentoring model can be applied in health facilities, particularly hospitals, to enhance the readiness of post-CS mothers to care for their babies and strengthen their confidence.

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Introduction

The postpartum period is a transitional phase for mothers, marked by numerous physical, mental, emotional, and social changes.[1] During this time, women must adapt to new roles and responsibilities while managing significant physiological and psychological adjustments.[2] For mothers who undergo a Cesarean Section (CS), the postpartum experience often differs from that of those who have a vaginal delivery.[3] CS are typically performed in cases of prolonged or obstructed labor, fetal distress, or abnormal fetal positioning.[4,5] Like all surgical procedures, CS carries potential risks and complications.[6,7] Common postpartum issues following a cesarean delivery include excessive bleeding, infections, fatigue, sleep disturbances, breastfeeding difficulties, challenges with self-care, and difficulties in caring for the newborn.[8,9] Pain, maternal death, breastfeeding problems, worsened sleep quality and comfort, anxiety, delayed recovery, prolonged hospitalization, and infection rates in cesarean deliveries are higher than in vaginal deliveries.[10,11]

The act of undergoing a CS can significantly impact a mother's psychological well-being. Mothers who give birth using this method often feel a sense of failure regarding their delivery. Additionally, they may worry about their recovery process and the potential effects of any medication. These feelings can lead to a sense of helplessness and anxiety concerning both their health and that of their baby. Furthermore, anxiety and pain resulting from a post-CS recovery can lead to fatigue, diminish self-confidence, and undermine a mother's ability to manage her emotions and care for her newborn.[12]

A mother's belief in her ability to care for her baby and per-

form her role as a mother (maternal self-efficacy) is a crucial aspect of supporting maternal well-being and child development. Research shows that mothers with high levels of maternal self-efficacy are more likely to have positive, responsive, and warm parenting strategies.[13] Mothers with low maternal self-efficacy are more likely to hold negative perceptions and are at greater risk for suboptimal parenting outcomes. On the other hand, mothers with high maternal self-efficacy are more capable of optimally caring for their children, fostering greater closeness, and employing effective stress management techniques.[14,15]

Education and mentoring for mothers after CS are essential to ensure that mothers can take good care of themselves and their babies. Healthcare workers provide information about caring for newborns. Quality education can enhance maternal self-efficacy, which in turn impacts the health of mothers and their children.[16,17] Maternal self-efficacy refers to a parent's confidence in their ability to manage and perform parenting-related tasks.[18] A lack of adequate information is one of the contributing factors to emotional distress in women, potentially leading to various challenges.[19,20] Moreover, limited experience and knowledge, combined with the physical recovery following a CS, can further hinder a mother's ability to effectively care for the newborn.

Healthcare workers should support mothers in adapting to their new roles by providing them with appropriate treatment and care. It is essential to address not only the physical needs of mothers and their babies but also to ensure both physical and psychosocial adjustment during this transition.[21,22]

This study aimed to evaluate the effectiveness of the postpartum education and support model on the self-efficacy of mothers who have undergone CS.

Materials and Methods

Research design

This study employs a quasi-experimental method and utilizes the "nonequivalent control group design" research design to assess the effectiveness of postpartum education and mentoring models on maternal self-efficacy after CS. The study involved an experimental and a control group, which underwent pre-tests before treatment. The experimental group received postpartum education and mentoring, whereas the control group received standard infant care. The study concluded with a final test (post-test) administered to both groups to evaluate maternal self-efficacy in caring for their babies.

Study participants

This study was conducted at Bogor Hospital, Indonesia, in July 2023. The location of the research was determined based on the existence of cesarean delivery services. The study population comprised all postpartum mothers in Bogor who had a cesarean delivery. The inclusion criteria were postpartum mothers who had undergone a CS, were in good health along with their babies, and were willing to participate by signing an informed consent form. Participants also needed to be able to communicate effectively, read, and write, as well as own an Android mobile phone capable of accessing e-booklets and video calls. Additionally, they had to be willing to receive home visits for support until the baby reached six months of age. Mothers or babies with any complications were excluded from the study. The sampling technique used in this study was a non-probability sampling technique, specifically the purposive sampling method. The sample size for this study was calculated using the formula for hypothesis testing of mean differences between two paired groups, resulting in a minimum requirement of 22 participants in both the intervention and control groups. The use of purposive sampling techniques in this study limits the generalizability of the results to all post-CS mothers, as the selection of respondents is based on specific criteria established by the researcher.

Variable, instrument, and data collection

This study focuses on the postpartum education and mentoring model as an independent variable, providing education to post-CS mothers about parenting readiness and skills. This education includes instruction on oxytocin massage practices, breastfeeding methods and positions, bathing babies, umbilical cord care, and daily baby care. The dependent variable was the maternal self-efficacy. This refers to the mother's belief in her ability to fulfill her role as a parent in caring for the baby, including breastfeeding, monitoring the baby's needs, and stimulating the baby's development. This study used pre- and post-test instruments to measure variables before and after postpartum education and mentoring. Education was conducted over four meetings. The first meeting was carried out after the mother entered the postpartum room, and education was provided about the condition of the postpartum period, the needs of newborns, the importance of breast milk, how breast milk is produced, correct breastfeeding techniques, and assistance in the breastfeeding process. The second meeting was held one day postpartum, covering topics such as breastfeeding schedules, alternative breastfeeding positions, methods to increase breast milk supply, and signs of adequate breastfeeding. In the third meeting on the second day postpartum, the material presented included information on recognizing tongue-tie and lip-tie, identifying danger signs in newborns, bathing techniques for the baby, caring for the umbilical cord, and drying the baby. The fourth meeting was conducted on the tenth day of home visits, providing assistance with daily baby care at home and evaluating the maternal self-efficacy in caring for their babies. This study employed the Perceived Maternal Parenting Self-Efficacy (PMPSE) questionnaire, comprising 20 questions, to assess maternal self-efficacy. The questionnaire used a Likert scale ranging from strongly disagree (1), disagree (2), agree (3), and strongly agree (4), with scores ranging from 48 to 93.

Data analysis

Before data analysis, a normality test was carried out using the Shapiro-Wilk test to determine whether the data were normally distributed. The results indicated that the data on maternal self-efficacy in infant care, before and after the intervention, were not normally distributed (p=0.008). Therefore, a non-parametric test, the Wilcoxon signed-rank test, was used to analyze the differences in self-efficacy before and after participation in the parenting class.

Ethical clearance

The research was approved by the Health Research Ethics Committee, Ministry of Health, Bandung Health Polytechnic, based on the ethical certificate 03/KEPK/EC/IX/2023. During the research, the researcher paid attention to the ethical principles of informed consent, respect for human rights, beneficence, and non-maleficence. Informed consent was obtained from all subjects involved in the study.

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Results

The research findings showed that the majority of respondents in both the intervention and control groups were of healthy reproductive age (20–30 years), accounting for 77.3% and 72.7%, respectively. In terms of education, 95.5% of mothers in the intervention group and 72.7% in the control group had attained higher education. Most were housewives (68.2% in the intervention group and 86.8% in the control group). Regarding parity status, the majority of mothers in the intervention group were multiparous (59.1%), as were those in the control group (81.8%) (Table 1).

As shown in Table 2, it appears that there is a difference in the average maternal self-efficacy in caring for meaningful babies before and after being given post-section cesarean education and assistance, with a value of p<0.001. This means that education and assistance for post-section cesarean mothers are effective in increasing their self-efficacy in caring for babies.

Based on Table 3, the analysis results show a significant difference in respondents' maternal self-efficacy between the control and intervention groups, with a p-value of 0.004. The results of the analysis of the maternal self-efficacy scores for the intervention and control groups were significant (p<0.005).

Discussion

The results of this study support the hypothesis that postpartum education and mentoring are effective in increasing maternal self-efficacy in post-CS mothers. The results of the Maternal Self-Efficacy (MSE) Scale, taken ten days after the postpartum education intervention, showed that the parenting self-efficacy scale score increased significantly (p<0.005). The study's findings align with prior research indicating that education enhances postpartum maternal self-efficacy.[16] This is linked to an increase in the experience and learning process that mothers undergo while achieving identity and parental roles.[14,23] Although both groups experienced an increase in the MSE scale at one week postpartum, the group of mothers who received postpartum educational intervention had higher scores. Statistically, this research shows that postpartum educational and mentoring interventions are effective in increasing the median mothering self-efficacy score by 15.50 points. This finding is supported by the results of previous research, which state that support and information effectively increase parenting self-efficacy.[24] Moreover, education and assistance during the intervention increase the maternal self-confidence in carrying out baby care tasks. In the research, the results showed that there was effectiveness in providing postpartum education and assistance to mothers with a CS (p<0.005). This finding is supported by the results of

Table 1. Characteristics of participants in each group.

Indicator	Group			
	Intervention		Control	
	N	(%)	N	(%)
Age				
20-35	17	77.3	16	72.7
<20 and >35 years	5	22.7	6	27.3
Education Level				
Higher education	21	95.5	16	72.7
Low education	1	4.5	6	27.3
Occupation				
Employed	7	31.8	3	13.6
Housewife	15	68.2	19	86.4
Parity status				
Primipara	9	40.9	4	18.2
Multipara	13	59.1	18	81.8

Table 2. The effect of education and assistance on maternal self-efficacy in caring for babies in post-cesarean section.

Self-efficacy	Median (min-max)	p*
Pre-intervention (n=22)	64.50 (48-79)	0.000
Post-intervention (n=22)	81 (61-93)	

*p, Wilcoxon test.

Table 3. Effectiveness of education and assistance post-cesarean section on maternal self-efficacy.

Variable	N	Median (min-max)	Mean rank	p*
Self-Efficacy				
Intervention	(n=22)	15.50 (-18-39)	28.02	0.004
Control	(n=22)	10.50 (0-22)	16.98	

*p, Mann-Whitney test.

previous studies, which have shown that postpartum educational interventions have an influence on the self-efficacy of post-CS mothers in the early postpartum period. This condition was determined by time, materials, methods, and appropriate educational media or tools. Postpartum mothers become better prepared and more confident.[25]

Education in this study was carried out in stages, namely after the mother was transferred to the postpartum room with material regarding postpartum conditions, the needs of newborns, the importance of breast milk, how breast milk is produced, breastfeeding techniques, and breastfeeding guidance. Providing information about the condition of postpartum CS mothers is useful for gaining an understanding of the physical changes that occur in these mothers. Education during the postpartum period serves as a form of health promotion, focusing on recovery and the prevention of complications, enabling parents to adapt to changes and fulfill their role effectively.[26,27] Birth with the CS method often requires a longer and more difficult recovery time: the majority of mothers need an average of 6 weeks or more to recover from a CS.[28-30] Several research results recommend that midwives provide education to patients tailored to their learning needs. Various media can be used to offer individual education, such as written information.[31] In this study, providing booklets and additional time with the midwife will make it easier for postpartum mothers to understand and retain important information related to caring for themselves and their babies. Through individualized education, midwives can serve as a support system for mothers by providing information tailored to their needs, along with direct guidance, particularly for breastfeeding. During the second meeting, which took place on the first day postpartum, education was provided on breastfeeding schedules, alternative breastfeeding positions, methods to increase breast milk supply, and signs of adequate breast milk. One of the problems often encountered by postpartum mothers following CS surgery is difficulty breastfeeding.[21,32] Factors that influence the breastfeeding process include the mother's knowledge about breastfeeding and education on breastfeeding techniques for post-CS mothers.[33,34]

On the second day postpartum and before going home, education was provided on daily baby care and recognizing danger signs. Mothers received booklets as reading material to review at home and directly apply the education provided. The results of this study show that counseling with demonstrations and booklets increases the mother's knowledge and confidence in her ability to carry out childcare tasks such as breastfeeding, changing diapers, bathing, putting the baby to sleep, and calming the baby. All tasks in caring for newborns require the mother's understanding, mastery, and courage in three aspects, namely cognitive, affective, and skill. If the mother does not have the relevant knowledge, she will experience difficulties in caring for the newborn independently.[35]

On the third day, assistance was provided with observations *via* checklist sheets and online communication. Observations continued on the seventh day with a home visit, measuring the maternal self-confidence using the PMPSE questionnaire. The assistance and empathy provided by midwives as a form of support can encourage mothers to adopt positive behaviors. Efforts to improve postpartum care can be made by fostering strong relationships with mothers and addressing the unique needs of each mother individually.[17,36]

Research indicates that a mother's anxiety level impacts the information provided about newborn care. It has been shown that the mother's anxiety decreased after receiving health education.[26]

The focus of postpartum midwifery care is not only on physical recovery; midwives must also prepare mothers psychologically and emotionally to enable them to carry out the duties of caring for and nurturing newborns. Quality and adequate education by midwives will help post-CS mothers increase self-efficacy, which will ultimately affect the quality of maternal and child health.[21]

The study's limitations include the absence of an analysis of other factors that can influence self-efficacy in caring for babies, such as family support, physical condition, and psychological condition after a CS. As a result, additional research must be conducted, taking into account family support factors and physical conditions, as well as assessing the mother's psychological state, which will influence her ability to care for her baby.

Conclusions

There is a significant influence of education and mentoring on maternal self-efficacy in caring for babies after a cesarean section. It is hoped that this model of post-cesarean maternal education and assistance can be applied in healthcare service environments, especially in hospitals. This model could be utilized as an educational program for post-cesarean section patients, providing comprehensive care to enhance mothers' confidence and ability to care for their babies after birth.

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