

FACTORS RELATED SUCSESFUL SKIN TO SKIN ON FIRST HOUR AFTER BIRTH

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Abstract

Skin-to-skin contact (SSC) is a crucial step in early breastfeeding initiation, contributing to the success of exclusive breastfeeding and neonatal adaptation. However, its implementation still faces various challenges. This study aims to analyze factors associated with the timely implementation of SSC within the first hour after birth. A retrospective observational design was employed using medical record data from a hospital in Jakarta between January and December 2022. A total of 56 mothers were selected through simple random sampling. Data analysis was conducted using the chi-square test to examine the relationship between delivery method, maternal age, and education level with SSC implementation. The results showed significant associations between SSC and delivery method ($p = 0.006$), maternal age ($p = 0.034$), and education level ($p = 0.008$). Mothers who underwent cesarean section were more likely to receive SSC within the first hour compared to those with vaginal delivery. Additionally, mothers within the non-risk age category and those with a basic education level were more likely to implement SSC on time. In conclusion, SSC implementation is influenced by maternal and delivery-related factors, emphasizing the need for increased awareness among healthcare professionals to promote optimal SSC practices.

Keywords: Delivery Method, Maternal Age, Maternal Education, Skin-to-Skin Contact

Introduction

Infant mortality is a critical indicator in assessing a nation's health status. According to the Sustainable Development Goals (SDGs), target 3.2 aims to end preventable neonatal deaths by 2030, reducing neonatal mortality rates to below 12 per 1,000 live births (1). In Indonesia, infant mortality remains a major challenge in the healthcare system. Based on the 2022 Indonesia Demographic and Health Survey (IDHS), the country's infant mortality rate (IMR) stands at 19 per 1,000 live births (2). High infant mortality rates can negatively impact the quality of future generations, necessitating effective interventions to reduce neonatal deaths.

One of the key strategies to improve infant survival and prevent neonatal mortality is ensuring optimal nutrition through breastfeeding. The World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) recommend early initiation of breastfeeding (EIBF) within the first hour of birth as a crucial step toward successful breastfeeding (3). Breast milk provides essential nutrients that support optimal growth and enhance the immune system, protecting infants from infections (4). The success of exclusive breastfeeding depends not only on maternal readiness but also on various supporting factors, one of which is skin-to-skin contact (SSC) between mother and newborn immediately after birth. SSC has been proven to enhance infant sucking reflexes, strengthen mother-infant bonding, and help regulate the newborn's body temperature (5).

Currently, the prevalence of SSC varies across countries, including Indonesia. UNICEF (2023) data indicates that only approximately 48% of newborns in Indonesia receive SSC within the first hour of birth (6). This low prevalence is attributed to multiple factors, including limited knowledge among healthcare providers, medical interventions that do not support SSC, and hospital policies or cultural practices that hinder its implementation (7). Research has shown that SSC can increase the success rate of EIBF by up to 87% and promote exclusive breastfeeding for the first six months of life up to 61.4% (8).

Skin-to-skin contact is the practice of placing a newborn on the mother's bare chest, covering them only with a diaper and blanket to maintain warmth (9). SSC provides numerous benefits, including thermoregulation, increased blood glucose levels, reduced neonatal stress, and enhanced oxytocin release in mothers, which plays a crucial role in milk production (10). Several factors influence the successful implementation of SSC, including hospital policies, healthcare providers' knowledge and attitudes, maternal and neonatal health conditions, and family support (11).

Several studies have identified factors affecting SSC success. A study found that maternal education level, partner involvement, and healthcare provider support significantly contributed to SSC success (12). Additionally, research by Moore et al. (2020) demonstrated that healthcare provider training on the importance of SSC could increase adherence to the practice by up to 40% (5). Other influential factors include the readiness of healthcare facilities, the implementation of standard operating procedures in hospitals, and maternal awareness of SSC benefits. Studies in developing countries have also shown that community-based interventions, such as antenatal counseling and education classes for expectant mothers, significantly improve SSC coverage (13).

Given the importance of SSC in supporting breastfeeding success and its impact on reducing infant mortality, this study aims to identify the factors associated with SSC implementation within the first hour of birth. Understanding these factors can help develop more effective interventions to increase SSC coverage and contribute to achieving the SDGs target of reducing neonatal mortality rates.

Method

This study employs a retrospective observational design using medical record data from a hospital in Jakarta. The sample size was determined using Slovin's formula, resulting in a total of 56 medical records. The inclusion criteria include medical records of mothers who gave birth between January and December 2022, with complete data on delivery method, maternal age, education level, and documentation of SSC implementation.

The independent variables in this study include the delivery method, maternal age, and education level, while the dependent variable is SSC implementation within the first hour of birth. The delivery method is categorized into vaginal delivery and cesarean section. Maternal age is grouped into two categories: risk (<20 years or >35 years) and unrisk (20-35 years). Education level is classified as basic and high. SSC implementation is recorded as either performed >1 hours or not based on medical documentation.

Data analysis will be conducted using the chi-square test to determine the association between the independent variables and SSC implementation. The statistical significance level is set at $p < 0.05$. The results will be presented in the form of frequency distributions and cross-tabulations to illustrate the relationships between variables. Data analysis will be performed using statistical software to ensure accuracy and reliability.

Results

This study analyzed 56 medical records of mothers who gave birth in a hospital in Jakarta between January and December 2022. The results are presented in the form of frequency distribution and the relationship between independent variables (delivery method, maternal age, and parity) and the implementation of skin-to-skin contact (SSC).

Table 1. Frequency Distribution of Delivery Method, Maternal Age, Education, and Skin-to-Skin Contact

Variable	n	Percentage
Delivery method		
vaginal delivery	21	37,5
cesarean section	35	62,5
Age		
Unrisk	32	57,1
Risk	24	42,9
Education level		
Basic	30	53,6
High	26	46,4
Skin to Skin		
<1 hour	29	51,8
>1 hour	27	48,2

The results indicate that cesarean section was the most common mode of delivery, accounting for 62.5% of births, while 37.5% of mothers gave birth vaginally. This suggests that a significant number of deliveries involved surgical procedures, which may influence the implementation of SSC.

In terms of maternal age, 57.1% of mothers were categorized as having an "unrisk" age (20-35 years), while 42.9% were in the "risk" age group (<20 years or ≥35 years). This age distribution is crucial as maternal age has been associated with birth outcomes and breastfeeding practices.

Regarding educational background, more than half of the participants (53.6%) had a basic education level, whereas 46.4% had a higher level of education. Education plays a vital role in maternal awareness and decision-making related to early SSC and breastfeeding initiation.

The findings also reveal that only 51.8% of newborns received SSC within the first hour of birth, while 48.2% experienced a delay of more than one hour. Given the importance of SSC in supporting breastfeeding success and neonatal adaptation, this nearly equal distribution highlights the need for improved adherence to SSC protocols, especially in cases where delays occur.

The chi-square test was used to analyze the association between delivery method, maternal age, education level, and SSC implementation.

Table 2. The Relationship Between Delivery Method, Maternal Age, and Education Level with Skin-to-Skin Contact

Variable	Skin to Skin		p-value
	<1 hour	> 1 hour	
Delivery method			
vaginal delivery	6	15	0.006
cesarean section	23	12	
Age			
Unrisk	21	11	0.034
Risk	8	16	
Education level			
Basic	21	8	0.008
High	8	18	

Delivery Method and SSC

The chi-square test revealed a significant association between delivery method and SSC implementation ($p = 0.006$). Among mothers who had a vaginal delivery, only 28.6% (6 out of 21) experienced SSC within the first hour, while 71.4% (15 out of 21) had a delayed SSC. In contrast, 65.7% (23 out of 35) of those who underwent a cesarean section received SSC within the first hour, while 34.3% (12 out of 35) experienced a delay. These findings suggest that cesarean section was more associated with timely SSC compared to vaginal delivery in this study population.

Maternal Age and SSC

Maternal age also showed a significant correlation with SSC ($p = 0.034$). Among mothers categorized as "unrisk" (20-35 years), 65.6% (21 out of 32) successfully implemented SSC within the first hour, while 34.4% (11 out of 32) had a delayed SSC. Conversely, among mothers in the "risk" category (<20 years or ≥ 35 years), only 33.3% (8 out of 24) received SSC within the first hour, while 66.7% (16 out of 24) experienced a delay. This indicates that older mothers were more likely to experience delayed SSC compared to younger mothers.

Education Level and SSC

Education level was also found to be significantly associated with SSC implementation ($p = 0.008$). Among mothers with a basic education level, 72.4% (21 out of 30) received SSC within the first hour, while 27.6% (8 out of 30) experienced a delay. However, in the higher education group, only 30.8% (8 out of 26) had SSC within the first hour, while 69.2% (18 out of 26) experienced a delay. These findings suggest that mothers with a basic education level were more likely to have timely SSC compared to those with a higher education level.

Discussion

The results indicate that cesarean section (CS) was the most common mode of delivery (62.5%), and it was significantly associated with a higher proportion of timely SSC compared to vaginal delivery ($p = 0.006$). This finding contrasts with previous studies suggesting that CS often leads to delayed SSC due to maternal recovery and post-operative care (14). However, some hospitals have implemented enhanced recovery after surgery (ERAS) protocols, which facilitate early maternal-infant bonding even after surgical delivery (15).

Maternal age was also found to be significantly correlated with SSC ($p = 0.034$), with younger mothers (<35 years) more likely to implement SSC within the first hour. This aligns with studies showing that younger mothers tend to have better neonatal care awareness and adaptability, whereas older mothers may face physiological and psychological challenges that delay SSC initiation (16).

Education level played a crucial role in SSC implementation, as mothers with a basic education level were more likely to practice SSC within the first hour compared to those with a higher education level ($p = 0.008$). This finding contradicts conventional assumptions that higher education correlates with better health practices (17). However, research suggests that some highly educated mothers may have heightened concerns about neonatal fragility, leading to increased caution in initiating SSC.

Several studies have reported varying findings on the relationship between delivery mode and SSC. A study concluded that vaginal birth generally promotes earlier SSC due to immediate maternal-neonatal interaction. However, in our study, CS was associated with higher SSC rates within the first hour, potentially due to improved surgical protocols and neonatal care in the hospital setting (18). Similarly, research by Moore et al. (5) emphasized that structured hospital policies significantly influence SSC timing regardless of delivery method.

Regarding maternal age, our findings are consistent with a study conducted in Indonesia, which demonstrated that younger mothers had better SSC adherence due to increased exposure to health promotion programs. Conversely, older mothers may experience delayed SSC due to prolonged labor, fatigue, or medical complications.

The unexpected association between lower education levels and earlier SSC initiation may be explained by cultural and familial support. In some communities, traditional postpartum practices encourage immediate SSC, irrespective of formal education level. Additionally, health workers may provide more focused counseling on SSC to mothers with lower education levels, enhancing their adherence to recommended practices.

The findings of this study underscore the importance of hospital policies in ensuring timely SSC, regardless of delivery method. Healthcare facilities should integrate structured SSC protocols into postnatal care, especially for mothers undergoing CS. Training programs for healthcare providers should emphasize the benefits of SSC, particularly for older mothers and those with higher education levels who may require additional reassurance and guidance.

Public health campaigns should also focus on reinforcing the benefits of SSC across diverse educational backgrounds. Tailored interventions can help address specific concerns among different demographic groups, ensuring equitable access to evidence-based maternal and neonatal care practices.

One of the strengths of this study is its use of medical records, which provide objective and reliable data on SSC implementation. Additionally, the study population represents a hospital-based setting in Jakarta, making the findings relevant to urban maternal care practices.

However, several limitations must be acknowledged. The study's cross-sectional design does not allow for causal inferences between the independent variables and SSC initiation. Additionally, the sample size ($n = 56$) is relatively small, limiting generalizability. Future studies should include a larger and more diverse sample to validate these findings.

Further research should explore the underlying reasons for the observed associations, particularly the counterintuitive relationship between higher education and delayed SSC. Qualitative studies involving in-depth interviews with mothers and healthcare providers can provide valuable insights into decision-making processes related to SSC. Additionally, intervention studies assessing the impact of hospital policies on SSC implementation can offer evidence-based recommendations for improving neonatal care practices.

Conclusion

This study highlights significant associations between delivery method, maternal age, and education level with SSC implementation. The findings suggest that hospital policies and maternal demographics play a crucial role in determining SSC timing. Strengthening hospital protocols and public health initiatives can enhance adherence to SSC recommendations, ultimately improving neonatal outcomes and maternal-infant bonding.

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