

# Does cesarean section have an impact on the successful initiation of breastfeeding in Saudi Arabia?

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## ABSTRACT

**Objectives:** To investigate whether the type of birth influenced breastfeeding outcomes.

**Methods:** This study used a quantitative descriptive correlation design study in a sample of 60 primigravida mothers. Participants were recruited over a 2-month period from June to July 2011 in the postnatal ward at King AbdulAziz University Hospital (KAUH) in Jeddah city, Kingdom of Saudi Arabia (KSA).

**Results:** The results of the study indicated that women who gave birth vaginally were more likely to breastfeed within the first hour, and at 24 hours after birth than those who had a cesarean section. The mothers who had cesarean section stated that pain interfered with their ability to hold, breastfeed, and care for their baby. Healthy term babies at KAUH are routinely separated from their mothers, and given infant formula supplementation.

**Conclusion:** The findings in this study reinforce the importance of appropriate pain management, keeping well babies with their mothers to remain together, 24 hours a day, and avoidance of non-medically indicated formula supplementation.

Breastfeeding is the optimal way to feed infants and young children. The World Health Organization (WHO) recommends exclusive breastfeeding for the first 6 months of life, and continuing for 2, or more years while introducing appropriate complimentary foods to achieve optimal health, growth, and development.<sup>1</sup> Some studies show that “any” breastfeeding rates among Saudi mothers are below the recommended durations.<sup>2-4</sup> It has been shown that at birth, 76.1% of mothers breastfeed; however, this rate tapers off as the mothers

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start to increase the number of formula feedings, leaving 32.9% breastfeeding at 2 months of age, an incidence that declines further to 12.2% at 6 months of age.<sup>2</sup> There appears to be a belief that breastfeeding alone is not sufficient,<sup>5</sup> and that a combination of breast milk and formula is common for babies in the Kingdom of Saudi Arabia (KSA).<sup>4,5</sup> It is currently a routine practice for mothers and babies to be separated for several hours following a cesarean section; this reduces their opportunities for early skin-to-skin contact, and to initiate breastfeeding.<sup>6</sup> Several studies show a significantly higher rate of breastfeeding in women who give birth vaginally versus women who undergo cesarean section.<sup>7,8</sup> This disparity in breastfeeding outcomes has serious implications for public health. According to Ba’aqeel,<sup>9</sup> the rate of cesarean births among 14 administrative regions and government hospitals of the Ministry of Health in Saudi Arabia increased significantly over a 10-year period from 10.6% of births per annum in 1997 to 19.1% in 2006, which corresponded to an overall increase of 80.2%. This has significant implications for breastfeeding rates and durations. This study aimed to explore whether there is a correlation between cesarean section, and the timing of the initiation of breastfeeding in the first 24 hours after birth compared with vaginal birth in the Obstetric Unit of King AbdulAziz University Hospital (KAUH) in Jeddah city, KSA. The findings will shed light on the factors that may affect the timing of breastfeeding initiation, leading to an improved understanding of mothers’ experiences of breastfeeding, and facilitate improved care and support by health professionals. The current study recognizes that cesarean section negatively impacts on the initiation of breastfeeding, and aims to determine the level of influence. Specifically, the aim was to identify factors that influence mothers’ breastfeeding initiation in the first 24 hours after birth.

**Methods. Participants.** A convenient sample was chosen due to recruitment timing limitations. The inclusion criteria for participants included primigravida women, who had either a cesarean or vaginal birth, and no postnatal complications, and had a well term baby. These mothers were literate, older than 17 years, were inpatients who had initiated breastfeeding, and consented to be part of the study.

**Recruitment procedure.** Participants were recruited through the postnatal ward at KAUH over a 2-month period from June to July 2011. They were invited to participate, sign the consent form, and had the questionnaire left with them to complete. Once

completed, it was then returned to a secure box in the nursing desk at the Obstetric Unit.

**Study instrument.** Participants were required to provide information on their breastfeeding patterns in the first 24 hours after birth. Two questionnaires were developed, one for women who had undergone a cesarean section, and the other for women who had birthed vaginally. The final questionnaires were offered to participants in either Arabic or English, according to their preference. The questionnaire was designed to be completed within a short time (roughly 10 minutes). The questionnaire content was validated through a pilot test with 10 Saudi mothers. These participants did not make any recommendations for change in the questionnaires.

Data analysis was carried out using an alpha level of  $p < 0.05$ , or less as the significant cutoff for all statistical tests described below. Analyses carried out in the current study include descriptive analysis, frequency analysis, crosstabs contingency tables, and chi-square tests. Lastly, thematic analyses were carried out to analyze the findings of the open-ended questions data after identifying the themes.<sup>10</sup>

**Ethical considerations.** Before undertaking the study, approval was obtained from the Ethics Committees of KAUH in Jeddah and the Royal Melbourne Institute of Technology (RMIT) University. To ensure privacy and confidentiality, no names, or identifying information was given by participants.

**Results. Participant's profile.** Sixty mothers between the ages of 18 and 49 years participated in this study. Two-thirds of the sample ( $n=38$ , 63.3%) were 25-34 years, 20 (33.3%) was between the ages of 18-24 years, and lastly only 2 (3.3%) were between the ages of 35-49 years. Less than half of the women were Saudis ( $n=28$ , 46.7%), followed by Yemeni women ( $n=13$ , 21.7%). Twenty-nine women achieved a normal vaginal birth, and one required a ventouse extraction. The mothers' postnatal socio-demographic data are shown in Table 1.

**Initiation of breastfeeding following birth.** Further follow up analyses attempted to determine why there was a delay in initiating the first breastfeeding. The main themes were that the baby was in the nursery, and the mother was tired, or had health issues, which was found to be due to anesthetics, and/or pain from surgery. Moreover, those women who described not breastfeeding in the first hour due to health issues (mostly due to anesthetics) were significantly more likely to have given birth by cesarean ( $n=28$ , 93.3%) as opposed to vaginally ( $n=2$ , 6.7%) (degrees of

freedom [df]=1,  $N=60$ ,  $\chi^2=45.07$ ,  $p < 0.001$ ). The results of the data indicated that a mother who started breastfeeding within the first 24 hours by method of birth was found to be significantly related (df=1,  $N=60$ ,  $\chi^2=11.88$ ,  $p=0.001$ ) (Table 2). When a mother started breastfeeding her baby after 24 hours by method of birth was also found to be significantly related (df=1,

**Table 1** - Postnatal socio-demographic data of mothers in this study.

Characteristics	Vaginal birth (n=30)	Cesarean (n=30)	Total (n=60)
	n (%)		
<b>Education level</b>			
Primary	3 (10.0)	2 (6.7)	5 (8.3)
Intermediate	0 (0.0)	4 (13.3)	4 (6.7)
Secondary	16 (53.3)	9 (30.0)	25 (41.7)
Undergraduate	10 (33.0)	13 (43.3)	23 (38.3)
Postgraduate	1 (3.3)	2 (7.0)	3 (5.0)
<b>Work status</b>			
Employed full time	2 (6.7)	8 (26.7)	10 (16.7)
Employed part time	4 (13.3)	2 (6.7)	6 (10.0)
House wife	24 (80.0)	20 (66.7)	44 (73.3)

**Table 2** - Mothers' postnatal experiences related to breastfeeding in the first and after 24 hours of birth.

Characteristics	Vaginal birth (n=30)	Cesarean (n=30)	P-value
	n (%)		
<b>Initiation of breastfeeding</b>			
Within one hour following birth	5 (16.7)	0 (0.0)	0.052
Within 24 hours following birth	29 (96.7)	18 (60.0)	0.001
After 24 hours following birth	1 (3.3)	12 (40.0)	0.001
<b>Method of feeding 24 hours postpartum</b>			
Breastfeeding	1 (3.3)	0 (0.0)	
Formula	1 (3.3)	13 (43.3)	<0.001
Both breast and formula	28 (93.3)	17 (56.7)	0.001
<b>Ease of breastfeeding in the first 24 hours of birth</b>			
Yes	20 (66.7)	9 (30.0)	0.004
No	10 (33.3)	21 (70.0)	
<b>Pain affecting breastfeeding ability</b>			
Yes	6 (20.0)	20 (66.7)	<0.001
No	24 (80.0)	10 (33.3)	
<b>Baby being placed directly on mother's skin soon after birth</b>			
Yes	19 (63.3)	4 (13.3)	<0.001
No	11 (36.7)	26 (86.7)	

N=60,  $\chi^2=11.88$ ,  $p=0.001$ ). The probability of delayed initiation of breastfeeding (>24 hrs) was found to be 12 times more likely when the birthing method was by cesarean section as opposed to vaginal birth (Table 2).

**Method of feeding 24 hours after birth, and subsequently.** Further chi-square analyses to evaluate the differences in feeding preferences across birthing methods identified a difference in the number of women who exclusively formula fed (df=1, N=60,  $\chi^2=13.42$ ,  $p<0.001$ ) (Table 2).

**Formula. Formula feeding in the first 24 hours of birth.** Healthy term infants are routinely transferred to the newborn nursery during the postnatal stay (not rooming-in). A formula is given to babies as a daily routine. Forty percent (n=24) of women reported that their babies were fed formula without their permission in the hospital, 31.7 % (n=19) of women did not know, and 28.3 % (n=17) of women reported that their babies were fed formula with their permission. No one had explained to them how the introduction of formula could negatively influence breastfeeding. Fatigue (90%, n=27), pain (86.7%, n=26), and attachment difficulties (70%, n=21) were the primary reasons for giving formula as cited by women post cesarean section (Table 3). Frequency analyses were conducted to identify why some babies were given a formula in the first 24-hours after birth (Table 3).

**Ease of breastfeeding attachment to the breast 24 hours following birth.** A test of the relationship between the method of birth, and the ease with which a newborn could be breastfed suggested the variables were interdependent: (df=1, N=60,  $\chi^2=8.08$ ,  $p=0.004$ ).

The probability of a baby breastfeeding easily 24 hours after birth was 2.2 times more likely following a vaginal birth (Table 2). Of the 30 women who had a cesarean, most (n=20, 66.7%) were hindered by post-operative pain (Table 2).

**Pain after birth affecting breastfeeding.** The next analysis evaluated whether the method of giving birth affected perceptions of pain, and therefore, the ability to breastfeed the baby 24 hours after giving birth. These were found to be dependent and statistically significant (df=1, N=60,  $\chi^2=13.30$ ,  $p<0.001$ ). The probability of pain affecting breastfeeding 24 hours after birth was found to be 3.3 times more likely when the mother gave birth by cesarean as opposed to vaginally (Table 2).

**Skin-to-skin contact immediately following birth.** Finally, an evaluation was made of the baby being placed directly onto the mother's skin after birth, and how this related to the method of giving birth. Placing a baby "skin-to-skin" immediately following birth was found to be dependent on the method of birth, and was statistically significant (df=1, N=60,  $\chi^2=15.86$ ,  $p<0.001$ ). The probability of a baby being placed skin-to-skin following birth was approximately 4.8 times more likely following a normal vaginal birth (Table 2). Participating mothers stated that they appreciated the value of skin-to-skin contact for bonding with their newborns. Some also felt it helped them to initiate breastfeeding, while others did not know its benefits. The time spent in skin-to-skin contact immediately after birth for those who achieved it, was commonly less than 10 minutes (one to 5 minutes, n=16 (26.7%), and 6-10 minutes (n=5, 8.3%), and only one (1.7%) mother had their baby skin-to-skin for 11-15 minutes.

**Table 3 -** Frequency of reasons given for feeding formula 24 hours after birth.

Variables	Vaginal birth	Cesarean
	n (%)	
Too tired	12 (40.0)	27 (90.0)
Pain	8 (26.7)	26 (86.7)
Ease of attachment (No)	10 (33.3)	21 (70.0)
Insufficient milk	8 (26.7)	13 (43.3)
Latch issues	12 (40.0)	10 (33.3)
Ease of attachment (Yes)	20 (66.7)	9 (30.0)
Poor sucking	6 (20.0)	5 (16.7)
On medication	0 (0.0)	4 (13.3)
Painful breasts/nipples	3 (10.0)	4 (13.3)
Baby not interested	1 (3.3)	2 (6.7)
No support	1 (3.3)	1 (3.3)
Unsettled baby	1 (3.3)	1 (3.3)

**Discussion. Difference in breastfeeding for vaginal versus cesarean birth.** Clear differences were found between mothers who gave birth vaginally, and those by cesarean section, particularly in terms of initiating breastfeeding within 24-hours after birth. Results indicate that women who gave birth vaginally were more likely to initiate breastfeeding within the first 24 hours, whereas mothers who gave birth by cesarean section were more likely to introduce formula. This finding would appear to be related to significant levels of discomfort post-surgery. This is consistent with Pérez-Ríos et al,<sup>7</sup> who indicated that there is a negative association between cesarean section and breastfeeding initiation among women of reproductive age in Puerto Rico.

**Cesarean birth and breastfeeding.** In the current study, mothers who gave birth by cesarean were significantly more likely to report that pain after birth negatively affected breastfeeding. These results correspond to those by Shawky and Abalkhail,<sup>11</sup> who indicated that cesarean section is one of the main factors contributing to the early cessation of breastfeeding, and that women who have had a cesarean section are at higher risk of stopping breastfeeding early than mothers who have given birth vaginally. Significantly, more women who gave birth by cesarean reported that pain from the operative site made it difficult to hold or care for their baby, or to sit up and breastfeed.

**Rooming-in.** It is common practice at KAUH for healthy term infants to be cared for in the newborn nursery, and they are routinely given a formula by the nurses. In other Western cultures, there is a growing trend for the newborn to stay in the same room as their mother, precisely to facilitate breastfeeding, maternal confidence, and skin-to-skin contact.<sup>12</sup> This is not a common practice in Saudi Arabian hospitals. The benefits of rooming-in are stimulating mother-baby interaction, encouraging breastfeeding, and promoting infant well-being.<sup>13</sup> These findings are consistent with the Baby-Friendly Hospital Initiative (BFHI) and WHO/United Nation's Children Fund (UNICEF) who suggest that mothers should breastfeed within an hour of giving birth, and should room-in with their baby for at least the first 24 hours after birth.<sup>1</sup>

In conclusion, the findings recommend to help women who gave birth by cesarean could usefully concentrate on appropriate pain management strategies to facilitate better breastfeeding experiences at KAUH. Additional help could also make skin-to-skin contact easier, leading to better breastfeeding outcomes. This is supported by Hung and Berg,<sup>14</sup> who suggested the use of skin-to-skin contact in the operating room as an intervention to facilitate early breastfeeding. In addition, this researcher recommends that KAUH change their daily routine of transferring healthy term infants to the newborn nursery, and routine use of formula. Rooming-in is recommended by the BFHI and WHO/UNICEF for at least the first 24-hours after birth and breastfeeding should commence within half an hour of giving birth.

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