

ORIGINAL ARTICLE

Breastfeeding Practices (Initiation, Exclusivity, Duration) During the First Six Months of an Infant's Life among Caesarean Mothers in Selangor

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ABSTRACT

Introduction: During the first six months of an infant's life, breastfeeding practices are essential for an infant's growth as recommended by the World Health Organisation (WHO). Breastfeeding also helps to strengthen the bond between mother and child. In accordance with this, infants can obtain optimal nutrition through initiation, exclusivity, and optimal duration of breastfeeding practices. However, it is shown that a mother who undergoes caesarean delivery has higher chances to experience difficulties in breastfeeding than vaginal delivery mothers. Therefore, this study is aimed to determine the prevalence of breastfeeding practices among caesarean mothers during the first six months after delivery. **Methods:** This cross-sectional study was conducted in chosen government Health Clinics in Selangor from July to December 2021. A total of 424 mothers were recruited, and data on socio-demographic and breastfeeding practices were obtained. **Results:** In the first six months after birth, 50.9% of caesarean mothers exclusively breastfed their infants, and the prevalence of breastfeeding practices was 37%. Approximately 55.9% of mothers initiated breastfeeding between one and 24 hours, while 31.1% and 13.0% initiated breastfeeding within one hour and after 24 hours, respectively. Breastfeeding initiation is found to have a significant effect on the duration of breastfeeding ($\chi^2(4)=9.751, p\text{-value}=.045$) while, breastfeeding exclusivity is found significantly dependent on the time of breastfeeding initiation and duration, ($\chi^2(4)=11.88, p\text{-value}<.05$). **Conclusion:** From these findings, breastfeeding exclusivity is influenced by early initiation and predicts a longer duration of breastfeeding. Therefore, breastfeeding support during early postpartum from family members and healthcare providers are important in predicting positive breastfeeding outcomes.

Malaysian Journal of Medicine and Health Sciences (2022) 18(SUPP15): 72-79. doi:10.4783/mjmhs18.s15.11

Keywords: Caesarean delivery, Breastfeeding initiation, Exclusive breastfeeding, Breastfeeding duration

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INTRODUCTION

Caesarean delivery is a major surgery that requires a longer period for healing process than a vaginal delivery. An infant will be delivered through an incision in the mother's abdomen and uterus. This procedure will be performed depending on the mother and fetus situation upon labor. An observational study published stated that mothers who had a caesarean delivery have 80% more chances to experience complications than those who had a vaginal delivery (1). One of the complications that occurred was breastfeeding. Delayed initiation

and shorter duration have commonly been observed in women undergoing caesarean sections (2). Caesarean deliveries cause negative consequences such as stress, pain, fatigue, and delayed skin-to-skin contact between mothers and infants. Mothers who focus on their postpartum recovery process may affect breastfeeding initiation and continuation (3).

The percentage of Malaysian women initiating breastfeeding to their child after giving birth within one hour was 65.3%, as reported by the 2016 National Health and Morbidity Survey (NHMS). While less than half, which is only 47.1% of babies, were exclusively breastfed in their first six months of life, and the frequency of children still being breastfed by their mothers at two years of age was 39.4%. In Malaysia, caesarean section rate in Malaysian public hospitals is markedly increased

to 29.0% in 2017 from 15.7% in 2000, which has brought about significant shifts in breastfeeding practices. These include significant breastfeeding initiation changes, including exclusiveness and breastfeeding duration in the first six months of the infant's life. The prevalence of exclusive breastfeeding remains low than the WHO's recommended rate even though more campaigns involving awareness of breastfeeding's benefits were introduced to the mothers and public. Even though there was an increase shown in the frequency, from 23.3% in 2011 to 47.1% in 2016, the rate of babies exclusively breastfed up to six months still did not achieve the targets by global nutrition 2025 based on the NHMS report in 2016 (4).

Given all of the issues that have been raised, it is imperative to investigate the prevalence of breastfeeding practices among caesarean mothers in Selangor. Perhaps the findings of this study will aid in the management and reduction of breastfeeding difficulties experienced by caesarean mothers. Hence, it will consequently increase breastfeeding rates among the population.

MATERIALS AND METHODS

This cross-sectional study was conducted at Kajang Health Clinic, Dengkil Health Clinic, Kota Damansara Health Clinic, and Kuang Health Clinic. These were four government clinics representing four from nine districts that were randomly selected to cover the population in Selangor, Malaysia. The duration of this study was 20 weeks from July to December 2021 that involved 424 caesarean mothers recruited during their postnatal checkup, family planning, or their infant's vaccination appointment after considering a 20% dropout rate.

Where,

s = required sample size, X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level ($0.05 = 3.841$), N = population size, p = expected prevalence (considered 0.5), P = the population proportion (assumed to be 0.50 since this would provide the maximum sample size, d = the degree of accuracy expressed as proportion (0.05)

Inclusion criteria include caesarean Selangor mothers aged 19 to 40 years old who have infants aged from six months to two years and only reside in the Selangor area during their postpartum confinement. The exclusion criteria for this study are mothers who gave birth to twins, currently pregnant and illiterate, either in Malay or English.

Research Instruments

A set of questionnaires consisted of sociodemographic characteristics, obstetric history, and caesarean delivery-related information and breastfeeding practices were distributed to and self-administered by participants.

Further details about this questionnaire study's design, validity, and reliability have been previously published (5, 6).

Sociodemographic Characteristics

The respondents completed the questionnaire that consists of demographic characteristics such as age, ethnicity, and working status either (a) yes (b) no for both mothers and spouse, race, education level such as (a) no formal education (b) primary school (c) PMR/SRP (d) SPM/STPM (e) diploma (d) degree (f) advanced degree, and estimated family income (per month) is in the first part of the questionnaire.

Current Obstetric History and Caesarean Delivery-Related Information

The second part of the questionnaire required information on the respondents' current obstetric history and caesarean delivery-related information. The mothers were asked regarding the number of living children, age of the last child, and condition of the child after birth either the child had jaundice, tongue-tie, or others, as well as duration of hospital stay and use of anesthesia during childbirth.

Breastfeeding Practices

Questions regarding breastfeeding initiation, infant's responses during breastfeeding initiation, maternal experience toward breastfeeding initiation and practice within 24 hours of caesarean section, and infant's feeding methods hospitalization were asked. In addition, information on infant feeding method including breastfeeding and/or formula milk as well as the time of introduction were obtained to investigate the duration and exclusiveness of breastfeeding. Several questions also were adapted from previous study regarding the breastfeeding support received from partner or family members and the difficulties mothers might experience during breastfeeding either physically or emotionally during the first 24 hours (6). Those questions were ranged from one to ten (one being extremely difficult, ten not at all difficult).

Data Collection

The research involved human respondents, commencing with a survey conducted during weekdays within the clinic's operating hours. Study participants were approached while waiting for their turn to meet the doctors or after completing their appointment at those clinics. Mothers have been informed of the study during their usual clinic visits and approached by the investigator with social distancing due to the COVID-19 situation. A few questions related to inclusion criteria were asked, and they were recruited if they met all of the study's inclusion criteria.

Study participants were provided with Respondent Information Sheet to explain on the purpose of the study and what they are required to do. Ample time was given

to subjects to read and consider their participation in the study. The Informed Consent Form was signed and dated if they agreed to participate. Then questionnaires were given for them to complete.

Statistical Analysis

Data were analysed using Statistical Package for the Social Sciences (SPSS) version 20.0 (IBM Corp., Armonk, N.Y., USA). The data were checked and cleaned before analysis. Data were tested for normality using Kolmogorov-Smirnov normality test. The sample has been described using descriptive statistics for the following data; socio-demographic data, obstetric history, and caesarean delivery information, time of breastfeeding initiation after caesarean delivery, infant's responses during breastfeeding initiation, maternal experience toward breastfeeding initiation, and practice within 24 hours of caesarean section, and infant's feeding methods during hospitalization. Pearson chi-square analysis was used to determine the relationship between success and outcomes between the time of breastfeeding initiation. Finally, the association between time of breastfeeding initiation on breastfeeding duration and exclusiveness was examined using multivariable logistic regression.

Ethical Considerations

Ethical approval was sought from UiTM Research Ethics Committee [REC/06/2021 (MR/382)] and Medical Research & Ethics Committee (MREC), Ministry of Health (MOH) Malaysia (NMRR-21-1020-59689).

RESULTS

Sociodemographic Characteristics of the Respondents

A total of 424 mothers were included in the study of breastfeeding practices among caesarean mothers in their infant's first six months of life, with mean age of the mother and spouse are 31.6 ± 5.7 and 33.2 ± 6.8 years old, respectively. While, as for their infant, the mean age is 17.3 ± 7.4 months old. Mean household income of the participants are Ringgit Malaysia (R.M.) $4,308 \pm 1,800$. About two-thirds (63.7%) of the respondents were Malay, a third (31.1%) were Chinese, 3.8% were Indians, and 1.4% were others. A quarter (27.8%) of the respondents had SPM/STPM, followed by those with a diploma level of education, 27.4%. Of 424 respondents, 1.9% had no formal education, while 5.0%, 11.8%, 18.2%, and 8.0% of the respondents had primary, PMR, SRP, degree, and advanced level education, respectively. Approximately one-half (51.7%) of the mothers were not working, and 48.3% worked. In line with that, it is indicated that less (19.8%) of the respondent had worked from home, while 28.3% did not work from home. Of 424, over one-half (57.3%) of infant gender were boys while girls were (42.7%). Lastly, most mothers were multiparous followed by primiparous, nulliparous, and grand multiparous; 48.1%, 46.2%, 3.3%, and 2.4%, respectively (Table I).

Table I: Demographic characteristic of the study respondent in Selangor area, N=424

Variable	Mean \pm Std. Dev	n (%)
Age (in years)	31.6 ± 5.7	
Age of Spouse (in years)	33.2 ± 6.8	
Age of infant (in months)	17.3 ± 7.4	
Family Income (Ringgit Malaysia, RM)	$4,308 \pm 1,800$	
Ethnicity		
Malay		270 (63.7)
Chinese		132 (31.1)
Indian		16 (3.8)
Other		6 (1.4)
Education Status		
No formal education		8 (1.9)
Primary school		21 (5.0)
PMR/SRP		50 (11.8)
SPM/STPM		118 (27.8)
Diploma		116 (27.4)
Degree		77 (18.2)
Advanced degree		34 (8.0)
Working		
Yes		205 (48.3)
No		219 (51.7)
Work from home		
Worked from home		85 (41.5)
Did not work from home		120 (58.8)
Gender of infant		
Boy		243 (57.3)
Girl		181 (42.7)
Parity		
Nulliparous		14 (3.3)
Primiparous		196 (46.2)
Multiparous		204 (48.1)
Grand multiparous		10 (2.4)

Note: Data above were analysed by using descriptive test

Abbreviations: Std. Dev, standard deviations; n, frequency

Prevalence of Breastfeeding Practices among Caesarean Mothers in Their Infant's First Six Months of Life (Breastfeeding Initiation, Exclusivity, and Duration)

Table II indicates that over a third (37.0%) of caesarean mothers still breastfeed their infants during the data collection process. About 7.3% of the respondents stopped breastfeeding their infant within days, while majority of respondents (56.9 %) breastfed their babies between one month to one year, and 31.5% breastfed their babies for more than one year. It is further shown that 17.0% did not introduce their babies to formula feeding. In comparison, slightly more than one-half (58.3%) of respondents introduced their infants to formula feeds within a year, and 24.8% introduced infants to formula feed after one year. Meanwhile, 50.9 % of the respondents exclusively breastfed their babies during the first six months of life. Next, the breastfeeding

Table II: Frequency of breastfeeding practices among caesarean mothers in Selangor, N=424

Breastfeeding Practices	Frequency, n	Percentage, %
Are you still breastfeeding your baby?		
Yes	157	37.0
No	267	63.0
How long did you breastfeed your baby?		
Within days	31	11.6
One month to one year	152	56.9
More than one year	84	31.5
The age that baby start formula feeding		
Not yet started	72	17.0
0 to 12 months	247	58.3
13 to 24 months	105	24.8
Breastfeeding experience		
Very negative	10	2.4
Negative	33	7.8
Neither negative nor positive	119	28.1
Positive	177	41.7
Very positive	85	20.0
Time of breastfeeding initiation		
Within one hour	132	31.1
More than 1 hour to 23 hours	237	55.9
24 hours and more	55	13.0
Exclusively breastfed for six months after birth		
No	208	49.1
Yes	216	50.9

Note: Data above were analyzed by using descriptive test

experience frequency distribution indicates that less than 2.4% of the respondent had a very negative experience with breastfeeding, followed by 7.8%, 28.1%, 41.7%, and 20.0% had a negative, neither positive nor negative, positive and very positive breastfeeding experience, respectively.

Furthermore, our study revealed that infant feeding methods during hospitalization among mothers who had caesarean delivery, about 204 (48.1%) of infants were fed with breast milk and formula milk together with breastfeeding (mixed feeding). Meanwhile, about 186 (43.9%) of infants were exclusively breastfed and 34 (8.0%) were fed with formula milk, respectively.

The Effect of Initiation on Exclusiveness and Duration of Breastfeeding in the First Six Months of an Infant's Life

From the fitted model, 12.2% of the exclusiveness in breastfeeding was determined, and it could accurately predict 61.8% of those that exclusively breastfed their babies in the first six months. It shows that the breastfeeding experience and breastfeeding initiation had a significant effect on the exclusiveness of breastfeeding in the first six months among Malaysian mothers in Selangor that undergone caesarean section.

Referring to Table III, almost a quarter (24.5%) of caesarean mothers very often or often felt embarrassed to breastfeed their infants in a public area. Most mothers very often or often felt comfortable (77.2%), and one-half (50%) felt confident that breast milk was adequate to breastfeed their infants. Nearly half (48.4%) of mothers very often or often experienced difficulty moving due to pain and experienced tiredness during breastfeeding.

Table III: Maternal experience toward breastfeeding initiation and practice within 24 hours post-caesarean section, N=424

Variables	Very Often	Often	Sometimes	Seldom	Never
Felt embarrassed to breastfeed in an open area	43 (10.1)	61 (14.4)	136 (32.1)	116 (27.4)	68 (16.0)
Felt comfortable to breastfeed	102 (24.1)	225 (53.1)	89 (21.0)	8 (1.9)	0 (0.0)
Felt confident that breast milk was adequate	72 (17.0)	140 (33.0)	140 (33.0)	57 (13.4)	15 (3.6)
Felt difficult to move due to pain	108 (25.5)	97 (22.9)	170 (22.9)	20 (4.7)	29 (6.8)
Experienced tiredness during breastfeeding	88 (20.8)	117 (27.6)	122 (28.8)	75 (17.7)	22 (5.2)
Felt worried or sad	94 (22.2)	32 (7.5)	108 (25.5)	190 (44.8)	0 (0.0)
Felt headache or dizziness	15 (3.5)	52 (12.3)	109 (25.7)	150 (35.4)	98 (23.1)
Had nausea	10 (2.4)	47 (11.1)	99 (23.3)	150 (35.4)	118 (27.8)
Feeling sleepy	14 (3.3)	66 (15.6)	178 (42.0)	123 (29.0)	43 (10.1)
Experienced perceived no milk supply	44 (10.4)	96 (22.6)	163 (38.4)	94 (22.2)	27 (6.4)
Experienced cracked nipple	16 (3.8)	44 (10.4)	99 (23.3)	139 (32.8)	126 (29.7)
Experienced inverted nipple	15 (3.5)	38 (9.0)	72 (17.0)	119 (28.1)	180 (42.5)
Experienced having breast pain as baby sucks	10 (2.4)	62 (14.6)	132 (31.1)	141 (33.3)	79 (18.6)

Note: Data above were analysed by using descriptive test. The results are presented in n (%)

About one-third (29.7%) of mothers reported very often or often felt worry or sadness, 15.8% headache or dizziness, and 13.5% had nausea after undergoing caesarean delivery. About a third (33%) of mothers reported very often or often experienced perceived a lack of milk supply. Approximately less (14.2%) and (12.5%) of mothers experienced cracked nipples and inverted nipples, respectively. Only 17% of mothers had breast pain as baby suckles during breastfeeding.

Table IV shows variable of breastfeeding exclusivity by fitted model. This table depicted that the odds ratio indicates that those with very negative experiences were 0.207 less likely to breastfeed exclusively in the first six months than those with very positive experiences (95% CI = 0.048, 0.892). Also, those that had a negative experience were 0.186 (95% CI exp(B) = 0.074, 0.466), while those with neither negative nor positive breastfeeding experience were 0.299 less likely to breastfeed their babies exclusively in the first six months (95% CI = 0.161, 0.556). Those who had a positive experience were 0.596 times less likely to breastfeed their babies exclusively in the first six months (95% CI = .338, 1.051). The results further indicate that the likelihood of breastfeeding exclusively for the first six months among those working relative to those not working is 1.141 times (95% CI = 0.758, 1.717).

Meanwhile, as for time of initiation, the model indicates

Table IV: Variable of breastfeeding exclusivity by fitted model, N=424

Variable	Regression Coefficient (b)	Adjusted Odds Ratio (95% CI)	Wald Statistic	P-value
Breastfeeding Experience				
Very negative	1.58	0.21 (0.05, 0.89)	4.46	0.035
Negative	1.69	0.19 (0.07, 0.47)	12.86	0.000
Neither Negative nor Positive	1.21	0.30 (0.17, 0.56)	15.55	0.000
Positive	0.52	0.60 (0.34, 1.05)	3.19	0.074
Length of Pregnancy (weeks)	0.06	1.06 (0.97, 1.17)	1.59	0.208
Working	0.13	1.14 (0.76, 1.72)	0.40	0.527
Time of Breastfeeding Initiation				
First hour after delivery	0.74	0.48 (0.24, 0.97)	4.23	0.040
Between one to 24 hour after delivery	0.46	0.63 (0.33, 1.21)	1.93	0.165
Gender of Infant	0.09	0.91 (0.60, 1.39)	0.19	0.666

^aBold values indicate significance of p-value ($p < 0.05$).

Note: Data above were analyzed by using logistic regression test.

Abbreviations: CI, confidence interval

that those who initiated breastfeeding in the first hour after delivery are 0.478 more likely to breastfeed their infants exclusively for six months than those who initiated breastfeeding after 23 hours (95% CI = 0.237, 0.966). The odds of exclusively breastfeeding was 0.631 for those who started between one hour and 24 hours compared to those who initiated after 24 hours (95% CI = 0.329, 1.209). Finally, the odds ratio for an infant's gender is 0.912, which is near to one, and the 95% confidence interval (0.601, 1.385) includes one.

Further understanding on how breastfeeding initiation affects breastfeeding duration was then analysed using a multinomial logistic regression model as shown in Table V. The multinomial logistic regression model with the time of breastfeeding initiation is better at predicting the duration of breastfeeding than the breastfeeding experience (p -value < 0.05). The intercept-only model is insignificant, but the model fitting improved by adding some predictors. Notably, on including the breastfeeding experience, the Bayesian Information Criteria (BIC) changed from 155.175 to 124.597, showing improved model fitting. Nonetheless, including the time of breastfeeding initiation increases the BIC value to 142.576, showing a slight fitness improvement. Considering the coefficient p-values, all are less than 0.10, deducing that they could be retained in the model.

Pearson chi-square (p -value = 0.546) and deviance (p -value = 0.418) show that the multinomial logistic regression model with predictor variables indicates a good fit to the data. The Nagelkerke R-square indicates that the fitted model accounts for 11.1% of the variance

Table VI: Relationship between breastfeeding initiation with exclusivity and duration during the first six months of an infant life

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.875 ^a	4	0.018
Likelihood Ratio	12.090	4	0.017
Linear-by-Linear Association	8.462	1	0.004
N of Valid Cases	267		

^aBold values indicate significance of p-value ($p < 0.05$).

Note: Data above were analyzed by using chi square test.

Abbreviations: df, degrees of freedom

for the duration of breastfeeding among the caesarean mothers in Selangor. Cox and Snell also indicate that the model accounts for 9.4% of all variances. As a result, it can be stated that the proportion of variance for breastfeeding duration among caesarean women in Selangor ranged between 9.4% and 11.1%. The classification table indicates that the multinomial logistic regression with the three predictor variables predicts 57.3% of cases precisely.

Lastly, the chi-square test for independence is used as depicted in Table VI to test whether there is a relationship between the length of breastfeeding (success) and the time of breastfeeding initiation. The results show that breastfeeding exclusivity is dependent on the time of breastfeeding initiation and duration where (χ^2 (4) = 11.88, (p -value < 0.05) where the number of 267 respondents was from those mothers who stopped breastfeeding their child during the study.

Table V: Model fitting information of effects of breastfeeding initiation on duration of breastfeeding, N=424

Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	P-value
Intercept	104.953	155.175	76.953 ^a	0	0	.
Breast-feeding experience	103.074	124.597	91.074	14.121	8	0.079
Time of breast-feeding initiation	106.704	142.576	86.704	9.751	4	0.045

Note: The chi-square statistic is the difference in -2 log-likelihoods between the final and reduced models. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

^aThis reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

^bBold values indicate significance of p-value ($p < 0.05$).

Abbreviations: AIC, Akaike Information Criterion; BIC, Bayesian Information Criterion; df, degrees of freedom

DISCUSSION

Prevalence of Breastfeeding Practices among Caesarean Mothers in Their Infant's First Six Months of Life (Breastfeeding Initiation, Exclusivity, and Duration)

These findings demonstrate that breastfeeding prevalence remained low than recommendation by WHO. Only 31.1 % of the study participants initiated breastfeeding within one hour and 49.1% of the them did not breastfeed their babies exclusively in the first six

months after birth. This is in line with a study carried out explained how most women introduce formula milk and other foods to infants under six months due to perceived inadequate breast milk (7). The findings of this study are also similar to a meta-analysis of 17 studies which stated clearly caesarean section is associated with 79 % lower odds of timely breastfeeding initiation as compared to vaginal births (8).

In particular, approximately 48.1 % of the mothers practiced both breastfeeding and formula milk as the feeding method during hospitalization, followed by 43.9 % were exclusively breastfed and 8.0 % were formula fed. These findings were similar to a study in Turkey which found that majority of the caesarean mothers practiced non-exclusive breastfeeding during the first three days after delivery at hospitals (18).

The Effect of Initiation on Exclusiveness and Duration of Breastfeeding in the First Six Months of an Infant's Life

It was found that breastfeeding experience and breastfeeding initiation had a significant effect on the exclusiveness of breastfeeding in the first six months among the Malaysian mothers in Selangor that underwent caesarean. This breastfeeding positivity or negativity was measured by maternal experience. Notably, 95% confidence interval contains one, which shows that the likelihood of exclusively breastfeeding for the first six months does not differ significantly among those with a very positive experience and those with a positive experience. Nonetheless, a negative breastfeeding experience lowered the likelihood of exclusive breastfeeding in the first six months. Lower breastfeeding initiation and increased breastfeeding difficulties in women who have had caesarean section deliveries may be due to a physiologic influence on lactogenesis (9, 10). Breast milk production was significantly lower in the first five days postpartum in women who had caesarean sections than women who had vaginal births (9). Similarly, another study discovered that delayed lactation was significantly higher in mothers who delivered via caesarean delivery versus those who delivered vaginally (11). It is hypothesized that caesarean section delivery disrupts the hormonal pathway that stimulates lactogenesis, either due to maternal stress or decreased oxytocin secretion, and can impair milk production (9, 11-12).

Concerning that, further findings indicated that the likelihood of breastfeeding exclusively for the first six months among those working mothers is slightly higher than those who were housewives. It is also affirmed by the findings for the research done (13), which explains how challenging it is for working mothers to practice and continue breastfeeding practice once they returned to work. However, positive breastfeeding outcomes are predicted when working mothers received breastfeeding supports from spouse, family members, friends and even

employers. The employers might play a role by providing a breastfeeding-friendly workplace including support system and facilities to express and store expressed breastmilk.

These findings highlighted that breastfeeding initiation was found to significantly impact the mother's exclusiveness of breastfeeding in Selangor, Malaysia. According to UNICEF, in 2018, about 42% of infants worldwide started breastfeeding within the first hour of life. However, our study far behind from the global rate with only 31.1% initiated breastfeeding within the first hour of life. Meanwhile, further analysis suggested that those who initiated breastfeeding in the first hour after delivery are 0.478 more likely to breastfeed their babies exclusively for six months than those who initiated breastfeeding after 24 hours. These summaries concluded that breastfeeding initiation significantly affects exclusiveness in the first six months of an infant's life. In a study by Johar et al. (2021), only 49% of mothers who experienced caesarean delivery introduced breastfeeding one hour after childbirth (5). A systematic review on delayed breastfeeding introduction and the rate of infant survival found that a group of newborns who were exclusively breastfed immediately after birth had higher chances of surviving than those who were breastfed more than 24 hours after childbirth. The results obtained during the study confirm previous findings that birth by caesarean section is the most significant hurdle to the early initiation of breastfeeding among infants (15). Therefore, continuous and significant efforts are needed to improve rate of timely initiation of breastfeeding within first hour after delivery as it predicts longer breastfeeding continuation and exclusivity in the first six months.

Further results indicated that the gender of the baby does not have a significant effect on whether a mother would exclusively breastfeed for the first six months. The odd ratio is 0.912, close to one, and the 95% confidence interval (.601, 1.385) contains one. Thus, the gender of the baby does not affect mothers who exclusively breastfeed them for the first six months. However, it was proved that breastfeeding initiation significantly affect the duration of breastfeeding. Those who initiate breastfeeding early predicts a longer duration of breastfeeding exclusivity. It is in line with the study done in 2019, which the findings highlighted that exclusive breastfeeding was directly proportional to the time taken by the mother to initiate breastfeeding to the newborn (16). In our study, 63% of our respondents stopped breastfeeding. It was reported that they had negative experience such as difficulty in positioning and latching of the infants during brastfeeding. This finding could be linked to the fact that these women experiencing limited movements due to pain from the caesarean surgery. This finding aligned with a study conducted in the United States which suggest that women who had undergone caesarean faced difficulties in latching and positioning,

limited movements as well as frustration due to the need for assistance which further affect breastfeeding practices (17).

Lastly, it is found that there is enough evidence to highlight that breastfeeding success (exclusivity and duration) is independent of the time of breastfeeding initiation (18). Hence, these findings depicted that early breastfeeding initiation, longer duration of breastfeeding exclusivity and continuation are closely related and may forecast a successful breastfeeding journey among caesarean mothers in Selangor, Malaysia.

CONCLUSION

It was established that the proportion of breastfeeding among the Selangor mothers that exclusively breastfed their baby during hospitalization was less than half from the studied population. Nevertheless, it was established that the proportion of those that used the formula during hospitalization was lower than 15.0%. It means that approximately 85.0% of mothers in Selangor breastfed their infants or used both breastfeeding and formula during their hospitalization. The proportion of those who exclusively breastfed their infants in the first six months was 50.9%, which is quite close to data reported in 2016 National Health and Morbidity Survey (NHMS).

The breastfeeding experience significantly affect whether the mothers would breastfeed exclusively breastfeed their babies for the first six months after birth. Those who had negative experiences in breastfeeding were more likely to stop breastfeeding within six months after birth. Those that had negative breastfeeding experiences were less likely to exclusively breastfeed their babies for the first six months after birth. It is suggested that in Selangor, Malaysia, mothers' exclusive breastfeeding for the first six months is affected by their breastfeeding experience and breastfeeding initiation period, but not the length of pregnancy and gender of the baby. The duration of breastfeeding was influenced by breastfeeding experience and breastfeeding initiation. Moreover, the time of breastfeeding initiation had a significant impact on breastfeeding duration (success of breastfeeding).

The recommendations are tailored concerning the main research findings and the gaps that could help extend the research. First, since breastfeeding experiences were found to have a significant impact on exclusive breastfeeding, the experience should be at least be made better. For instance, the mother would be encouraged to stay with the baby after birth and educated on the right positioning and attachment. Further, the mothers should avoid giving dummies, teats, and complementary feeds and breastfeed the babies on-demand or as needed. The second major finding indicated that initiation had a significant effect on the exclusiveness of breastfeeding in the first six months of the baby after birth. Thus, as recommended, the mother should stay with their

babies as much as possible in the same room. Also, practicing skin-to-skin contact should be encouraged earlier and avoidance of supplement feeds. Since this study recruited only mothers in the Selangor area, thus, limiting the results' generalization. Nonetheless, the study could expand its scope and include more states in Malaysia to represent the Malaysian population.

ACKNOWLEDGMENTS

We would like to thank the Director-General of Health Malaysia for his permission to publish this article and the Selangor State Health Director for the approval to access the clinics to recruit study participants, staff from the health clinics, and all the mothers as participants.

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