

Factors associated with timely initiation of breastfeeding in Al-Hassa province, Saudi Arabia

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العوامل المصاحبة للبدء بالإرضاع من الثدي في الوقت المناسب في محافظة الحسا في المملكة العربية السعودية
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الخلاصة: توصي منظمة الصحة العالمية بوضوح بالتبكير في البدء بالإرضاع من الثدي (في غضون ساعة من الولادة). وتقدم هذه الدراسة تقييماً لمعدل انتشار بدء الإمهات بإرضاع ولدانهم من الثدي في الوقت المناسب في محافظة الحسا في المملكة العربية السعودية. وقد أجرى الباحثون مقابلات مع الإمهات اللاتي يراجعن من أجل تسجيل ولدانهم في مراكز الرعاية الصحية الأولية، وعملوا على تقييم مختلف المتغيرات الاجتماعية والديموغرافية والخدمات الصحية والتوليدية ذات الصلة، بما في ذلك أي مشكلات في الثديين، قد يكون لها أي تأثير على معدلات البدء بالإرضاع من الثدي في الوقت المناسب. واتضح للباحثين أن 91.9% من مجمل الولدان المدروسين الذين يبلغ عددهم 906 وليداً قد أرضعوا من الثدي، في حين أن 8.1% منهم لم يرضعوا من الثدي مطلقاً، وأن 11.4% من الولدان قد بدئوا بإرضاعهم من الثدي في الوقت المناسب (في غضون الساعة الأولى من حصول الولادة). كما اتضح للباحثين من إجراء التحوُّف اللوجستي، أن المنبئات المستقلة عن الإرضاع من الثدي في الوقت المناسب هي: عدم إعطاء الطعام قبل الإرضاع (معدل الأرجحية = 13.7)، والسكن في الأرياف (معدل الأرجحية = 4.2)، وعدم وجود مشكلات في الثديين (معدل الأرجحية = 3.4)، والولادة الثانية أو الثالثة (معدل الأرجحية = 2.9)، والولادة أكثر من أربع ولادات (معدل الأرجحية = 2.4). أما الإمهات اللاتي يُحتمل أن يتعرضن إلى اختطار تأخير البدء بالإرضاع من الثدي، فينبغي استهدافهن بالحرص على الإرضاع من الثدي خلال الرعاية السابقة للولادة.

ABSTRACT The World Health Organization recommends early initiation of breastfeeding (within 1 hour of giving birth). This study assessed the prevalence of timely initiation of breastfeeding by mothers of neonates in Al-Hassa province, Saudi Arabia. Mothers attending for birth registration at primary health care centres were interviewed and various sociodemographic, obstetric and health service related variables as well as breast problems were assessed for any influence on timely breastfeeding rates. While 91.9% of the 906 neonates studied were breastfed (8.1% were never breastfed), only 11.4% were given timely breastfeeding (within 1 hour after birth). Logistic regression revealed that the independent predictors of timely breastfeeding were: not giving prelacteal feed (OR 13.7), rural/heggar residence (OR 4.2), absence of breast problems (OR 3.4), parity 2 or 3 (OR 2.9) and parity 4+ (OR 2.4). Mothers at risk of delayed breastfeeding initiation should be the target of breastfeeding promotion during prenatal care.

Facteurs associés à l'initiation précoce de l'allaitement au sein dans la province de Al-Hassa (Arabie saoudite)

RÉSUMÉ L'Organisation mondiale de la Santé recommande l'initiation précoce de l'allaitement au sein (dans l'heure suivant la naissance). L'étude a évalué la prévalence de l'initiation de l'allaitement au sein en temps opportun chez des mères de nouveau-nés dans la province de Al-Hassa (Arabie saoudite). Les mères qui se sont rendues dans des centres de soins de santé primaires pour l'enregistrement de la naissance de leur enfant ont été interrogées. Diverses variables sociodémographiques, obstétricales et sanitaires ainsi que les problèmes mammaires ont été évalués en tant que facteurs influant sur les taux de réussite de l'allaitement au sein. Alors que 91,9 % des 906 nouveau-nés étudiés ont été allaités au sein (8,1 % n'en ont jamais eu ce mode d'allaitement), seuls 11,4 % ont bénéficié d'une initiation précoce (dans l'heure suivant la naissance). L'analyse de régression logistique a révélé que les facteurs prédictifs indépendants d'une initiation de l'allaitement au sein en temps opportun étaient les suivants : l'absence d'administration d'un biberon avant la lactogénèse (O.R. 13,7), un lieu de résidence rural ou désertique (O.R. 4,2), l'absence de problèmes mammaires (O.R. 3,4), une parité de deux ou trois enfants (O.R. 2,9) ainsi qu'une parité de plus de quatre (O.R. 2,4). Les mères risquant de retarder la mise en route de l'allaitement au sein doivent être ciblées par les campagnes de promotion de ce mode d'alimentation pendant les soins prénatals.

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Introduction

The benefits of breastfeeding for the health and well-being of the mother and baby are well documented. The World Health Organization recommends early initiation of breastfeeding (within 1 hour of giving birth) during which period colostrum is secreted with its well known benefits [1,2]. Establishment of lactation within hours after birth may have important consequences on the biological and emotional health of the newborn [3]. It could reduce neonatal mortality [4] and is associated with longer duration of breastfeeding [5]. The mother also receives positive benefits due to release of oxytocin which causes uterine contraction and reduces maternal blood loss [6,7]. The early initiation of breastfeeding hastens mother–infant interactions and promotes a strong and healthy relationship between mother and child [8]. All these effects could contribute to the achievement of the Millennium Development Goals. Despite these positive effects of early breastfeeding initiation and its economic advantages, little attention has been paid by health care practitioners and policy-makers to this simple preventive strategy [9].

Recent data on the pattern and correlates of the timing of breastfeeding initiation in newborns are scanty in many countries including Saudi Arabia. This study aimed to estimate the prevalence of timely initiation of breastfeeding and factors influencing it in Al-Hassa province, Saudi Arabia.

Methods

Setting and sample

This cross-sectional study was carried out in Al-Hassa, Saudi Arabia during June and July 2009. Al-Hassa is the largest province in Saudi Arabia's Eastern region with a population of 908 366. Maternity care in Al-Hassa is provided through a network of 62 primary health care centres (PHCCs) covering urban,

rural and *hegar* (Bedouin desert collection) areas. Eligible candidates were all infants attending for birth registration in PHCCs within 2 weeks of birth. Mothers were counselled and assured that the data collected would be handled confidentially. They were requested to give verbal informed consent before the interviews. The study was approved by Al-Hassa Directorate of Health.

The sample size was calculated using *Epi-Info* statistical program. During 2008 a total of 15 132 live births were registered in Al-Hassa. A pilot study on 50 infants (not included in the full-scale study) revealed that about 10% of them breastfed within 1 hour after birth. The sample size was calculated to be about 818 infants with worst acceptable level of 8% and 95% confidence level. It is expected that this sample could be recruited during the 2-month period of the study.

Data collection

Mothers were interviewed at the PHCCs by Arabic-speaking female nurses who were oriented about the study and trained in data collection. Data were completed from the family file and maternity cards kept at PHCCs and also from the hospital discharge form.

The data collected covered: family residence (urban or rural/*hegar*) and income (self-assessed as satisfactory or unsatisfactory); mother's age, education, work and parity; presence of breast problems after birth (e.g. engorgement, nipple sores and fissures); mode of delivery (spontaneous vaginal delivery or caesarean section/ventouse) and place of delivery (private or government clinic); admission to neonatal care unit;

infant's sex, gestational age and birth weight; giving prelacteal feeds to infants (e.g. water, glucose water, teas and herbal preparations); and experiencing "rooming in" (mother and infant not separated after birth). Gestational age at birth was defined as the number of completed weeks of gestation based on the estimated delivery date in the clinical record. Preterm delivery was defined as a live infant delivered at < 37 weeks gestation and low birth weight was defined as a live infant weighting < 2500 g at birth. Mothers were asked about whether they had initiated breastfeeding and how long after giving birth. The outcome variable (timely initiation of breastfeeding) was expressed as the proportion of infants who first suckled within 1 hour of birth.

Data analysis

Data were analysed using *SPSS*, version 17. The chi-squared test was used as the test of significance for comparison of categorical variables. Significant predictors of timely breastfeeding initiation at bivariate analysis were entered into a logistic regression analysis using the forward stepwise Wald method to determine the independent predictors of the outcome variable. Odds ratios (OR) and their 95% confidence intervals (CI) were calculated. $P \leq 0.05$ was chosen as the level of statistical significance.

Results

Out of 906 infants studied, 833 (91.9%) were breastfed and only 8.1% were never breastfed. However, Table 1 shows that

Table 1 Timing of breastfeeding initiation among the study infants

Time after birth (hours)	No.	%
< 1	103	11.4
1–23	322	35.5
24–72	317	35.0
> 72	91	10.0
Never breastfed	73	8.1
Total	906	100.0

Table 2 Maternal, neonatal and hospital variables affecting timely initiation of breastfeeding among the study infants

Variable	Total No.	Timely initiation		Significance		OR (95% CI)
		No.	%	χ^2 -value	P-value	
Total	906	103	11.4			
Mother's age (years)						
< 20	37	4	10.8			1 ^e
20–35	737	84	11.4	0.01	0.9	1.1 (0.4–3.6)
> 35	132	15	11.4	0.01	0.9	1.1 (0.3–4.1)
Residence						
Urban	499	25	5.5	44.6	< 0.001	1 ^e
Rural/hegar	407	78	19.2			4.5 (2.7–7.4)
Education						
Less than secondary	458	52	11.4			1 ^e
Secondary	293	36	12.3	0.2	0.7	1.1 (0.7–1.8)
Above secondary	155	15	9.7	0.3	0.6	0.8 (0.4–1.6)
Occupation						
Working/student ^a	100	8	8.0	1.3	0.3	1 ^e
Housewife	806	95	11.8			1.5 (0.7–3.5)
Family income						
Satisfactory	717	83	11.6	0.15	0.7	1 ^e
Unsatisfactory	189	20	10.6			0.9 (0.5–1.6)
Parity						
1	206	11	5.3			1 ^e
2 or 3	319	57	17.9	17.4	< 0.001	3.9 (1.9–8.0)
4+	381	35	9.2	2.7	0.1	1.8 (0.9–3.4)
Breast problems^b						
Yes	137	5	3.6	9.5	0.002	1 ^e
No	769	98	12.7			6.0 (1.4–35.7)
Infant's sex						
Male	455	61	13.4	3.8	0.052	1 ^e
Female	451	42	9.3			0.7 (0.40–1.03)
Gestational age						
Preterm	118	4	3.4	8.6	0.003	1 ^e
Full-term	788	99	12.6			4.1 (1.4–13.3)
Birth weight						
Low birth weight	66	2	0.3	4.9	0.03	1 ^e
Average weight	840	101	12.0			4.4 (1.0–26.2)
Place of delivery						
Private clinic	183	7	3.8	13.0	< 0.001	1 ^e
Government hospital/PHCC	723	96	13.3			3.9 (1.7–9.2)
Type of delivery						
Operative delivery ^c	161	6	3.7	11.3	< 0.001	1 ^e
Spontaneous vaginal delivery	745	97	13.0			3.9 (1.6–10.0)
Admission to neonatal care unit						
Yes	87	2	2.3	11.3	< 0.001	1 ^e
No	819	101	12.3			3.9 (1.6–10.0)
Prelacteal feeding^d						
Yes	288	4	1.4	41.7	< 0.001	1 ^e
No	618	99	16.0			3.9 (1.5–11.0)
Rooming in						
No	254	4	1.6	33.6	< 0.001	1 ^e
Yes	652	99	15.2			11.2 (3.9–36.1)

^aTeacher (n = 76), nurse (n = 7) or student (n = 17); ^bEngorgement, nipple sore and fissures; ^cCaesarean section (n = 142) or ventouse (n = 19); ^dWater, glucose water, tea or herbal preparation; ^eReference group.
PHCC = primary health care centre; OR = odds ratio; CI = confidence interval.

Table 3 Logistic regression analysis of significant independent predictors of timely breastfeeding initiation

Variable	Significance		OR (95% CI)
	β-value	P-value	
Prelacteal feeding			
Yes	-		1 ^a
No	2.6	< 0.001	13.7 (4.9–38.6)
Residence			
Urban	-		1 ^a
Rural/hegar	1.4	< 0.001	4.2 (2.6–6.8)
Breast problems			
Yes	-		1 ^a
No	1.2	0.011	3.4 (1.3–8.7)
Parity			
1	-		1 ^a
2 or 3	1.1	0.003	2.9 (1.4–5.8)
4+	0.9	0.02	2.4 (1.1–4.9)

^aReference group.

Constant = -7.0; $\chi^2 = 119.4$; $P < 0.001$; % correctly predicted = 88.6%.

OR = odds ratio; CI = confidence interval.

only 103 (11.4%) of all infants were breastfed within 1 hour after birth, i.e. had timely initiation of breastfeeding, and 91 (10.0%) of them were not breastfed until more than 72 hours after birth.

Timely breastfeeding was more likely to be reported by mothers with rural/hegar residence, of second and third parity, without breast problems, with full-term or average weight infants, having spontaneous vaginal delivery, delivered in government hospitals or primary health care centres, with infants not admitted into the neonatal care unit, delivered in facilities practising rooming in and not giving prelacteal feeds to infants (Table 2).

Logistic regression revealed that the independent predictors of timely breastfeeding were: not giving prelacteal feeds (OR 13.7), rural/hegar residence (OR 4.2), absence of breast problems (OR 3.4), parity 2 or 3 (OR 2.9) and parity 4 or more (OR 2.4) (Table 3). The multiple logistic regression model correctly predicted 88.6% of mothers initiating timely breastfeeding.

Discussion

In the present study only 8.1% of mothers did not initiate breastfeeding. The rates of never-breastfeeding previously reported in Saudi Arabia from both local and national studies ranged from 1.4% to 13.1% [10–15]. This relatively high prevalence of breastfeeding initiation at birth indicates the willingness of Saudi mothers to breastfed [10,13].

Despite the encouraging percentage of breastfeeding initiation (91.9%), the timing of initiation was not optimal. Only 11.4% of mothers initiated breastfeeding within 1 hour after birth and 10% initiated breastfeeding 72 hours or more after birth, which means that colostrum was not given to the baby. The first milk (colostrum) present at birth is critical in boosting an infant's immune system and encouraging the passage of the first stool. Breastfeeding should be initiated as soon as possible after delivery, preferably within 1 hour of birth [16]. In a recent study in Saudi Arabia, 23.2% of babies were breastfed within 1 hour after birth and in about 28.0% of babies initiation was delayed beyond 6

hours after birth [10]. Previous studies in Egypt reported that 69.7% and 36.0% of babies were breastfed within 2 hours after birth [9,17]. In Lebanon, 18.3% of the mothers initiated breastfeeding within half an hour after birth [18]. In many parts of the world, the rates of early initiation of breastfeeding are extremely low: for example, 17% in Eastern Europe and Central Asian countries, and 33% in the Asia-Pacific region [19]. The highest rates (about 50%) are in Latin America, the Caribbean, East and North Africa. In South Asia, 24%–26% of babies born in Bangladesh, India and Pakistan are breastfed within the first hour of birth, whereas the corresponding rates for Nepal and Sri Lanka are 72% and 75% respectively [20–22].

Breastfeeding is multi-factorial in nature and different factors will be at play depending on individual circumstances. In a multivariate logistic regression model, the independent predictors of timely initiation were prelacteal feeding and mother's residence, breast problems and parity. A number of hospital practices during the intrapartum and very early postnatal period are potentially detrimental to initiation of breastfeeding [23]. For example, a prelacteal feed was given to about one-third of babies in our study. Previous studies in Egypt reported that about 60% of infants were prelacteally fed sugar-water, tea or both [17,24]. The corresponding figure was 14% in Nepal [22] and 45% in India [25]. Previous studies reported an association between prelacteal feeding and delayed breastfeeding [9,17,26]. Researchers suggested that prelacteal feeding result in the baby receiving insufficient breast milk possibly leading to lactation failure [9] and that giving prelacteal glucose to the infant weakens the suckling stimulus [27]. Furthermore, preventable problems of the breast, e.g. nipple cracks and breast engorgement, were shown by others to be risk factors for the late initiation of breastfeeding [26].

In conclusion, this high prevalence of initiation of breastfeeding, despite delays in initiation after delivery, indicates a willingness of Saudi mothers to breastfeed. The practice of prelacteal feeding is of great concern in this population and should be discouraged. The information obtained from this study may be used by policy-makers to improve the promotion of breastfeeding initiation. The full implementation of the 10 steps of the Baby Friendly Hospital Initiative will promote timely breastfeeding initiation. All women should be encouraged to breastfeed soon after birth, with extra attention paid to identifying and giving extra support to those women at higher risk of not initiating timely breastfeeding. A nationwide survey is warranted to provide a better picture about timing of initiation of breastfeeding.

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