The relationship between caesarean section and breastfeeding: evidence from the 2013 Turkey demographic and health survey

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Abstract

Background The mode of delivery influences breastfeeding practices. High caesarean section and low breastfeeding rates are important public health concerns for all developing countries. This study aimed to determine the relationship between caesarean section and early breastfeeding practices among primiparas. Methods Data for primiparas with a singleton birth (n = 777) obtained from the 2013 Turkish Demographic and Health Survey were used in this retrospective cohort study. Early initiation of breastfeeding within one hour of delivery and exclusive breastfeeding during the first three days after delivery were evaluated. Standardized incidence rates and standardized rate ratios of non-early initiation of breastfeeding and non-exclusive breastfeeding were calculated according to mode of delivery. Results The late initiation of breastfeeding and non-exclusive breastfeeding incidence rates were 42.7% and 41.0%, respectively. The standardized incidence rate of late initiation of breastfeeding among women with vaginal delivery was 35.34%, versus 50.49% for those with caesarean delivery. The standardized rate ratios for late initiation of breastfeeding and non-exclusive breastfeeding were 1.428 (95% CI: 1.212, 1.683) and 1.468 (95% CI: 1.236-1.762), respectively. Women that underwent caesarean section had a higher risk of late initiation of breastfeeding and non-exclusive breastfeeding during the three days following delivery, after controlling for socio-demographic and delivery-related factors. Conclusions This study provides evidence useful for implementing strategies to prevent unnecessary caesarean sections, which negatively affect not only maternal health, but also neonatal health as well. Promotion of mother-friendly policies by healthcare institutions that are implemented in a baby-friendly manner are essential.

Background

Breastfeeding is essential to the health of infants and young children. Colostrum is defined as the ‘perfect food’ for newborns, and the World Health Organization (WHO) (1) recommends that breastfeeding be initiated within one hour of delivery. In 2012 the World Health Assembly (WHA) endorsed a plan to increase the rate of exclusive breastfeeding (EBF) during the six months after delivery to ≥50% by 2025 (2).

Demographic and health surveys (DHSs) are nationally representative surveys that provide population, reproduction and child nutrition data in many countries, including Turkey. Trends for some indicators regarding breastfeeding in Turkey, according to the most recent five Turkey DHSs (TDHSs) are shown in the Figure 1. According to 2013 TDHS, 49.9% of newborns had early breastfeeding and 74.3% of newborns did not receive any type of nutrition prior to breastfeeding (3). In 57 low and middle-income countries in Asia, Latin America, the Middle East, Europe, and Sub-Saharan Africa in which DHSs were performed between 2000 and 2013 the overall rate of early initiation of breastfeeding (EIBF) was 39% and avoidance of prelacteal feeding was 49.2% (4). The rates of EIBF in WHO European Region Member States varies widely; the prevalence of EIBF for 1998-2012 were 4.6% in Bulgaria, 33.5% in Ireland, 66.5% in Luxembourg, 78.1% in Austria and 83.8% in Kyrgyzstan (5).

The Ministry of Health of Turkey (MoHT) has initiated multiple programs to improve maternal and child health. Hospital deliveries in Turkey have gradually increased from 91.3% in 2008 to 98.0% in 2013, along with a gradual increase in the number of baby-friendly hospitals. Following initiation of the “Baby-Friendly Health Institutions Program” in Turkey in 1991, 53.2% of hospitals were certified as baby-friendly by 2008 and the percentage of certificated baby-friendly hospitals increased to 72.2% in 2013 (6). The increase in hospital deliveries and implementation of policies that support breastfeeding in Turkey were expected to improve breastfeeding practices and breastfeeding-related indicators, but as seen in Figure 1 breastfeeding indicators are inconsistent and far from the child nutrition targets of the 65th WHA (2). This indicates the multifactorial nature of breastfeeding behaviour (7-8) and that the programs to improve breastfeeding practices need to be fine-tuned.

The mode of delivery is among the many factors that affect breastfeeding practices. In addition, studies reporting the negative consequences of caesarean section (C/S) on the well-being and behaviour of new mothers and the physiology of lactation during the early postpartum period continue to increase in number (9-13). C/S is considered major abdominal surgery, and post-surgical procedures for mothers and routine procedures for newborns can delay EIBF. After C/S new mothers are expected to care for their newborns within a few hours of delivery, while simultaneously coping with the expected early signs of the post-surgery period, including post-surgical pain (14), which can negatively affect EIBF. The quality of support that a new mother receives following C/S can help facilitate breastfeeding to a degree, but the negative effects of surgery and the physiological effects of C/S on lactation can persist.

The C/S rate in Turkey is 48% according to 2013 TDHS data. (Figure 1) (3). In 2017 the C/S rate increased to 53.1%, and the primary C/S rate was 25.79% (15). As C/S rates remain high in many countries, including Turkey, and lack of breastfeeding continues to be a major public health concern globally, the relationship between C/S and breastfeeding requires further clarification. As such, the present study aimed to determine the attributable effect of C/S on breastfeeding using 2013 TDHS data, while controlling for the effects of such additional factors as socio-demographics and delivery-related factors.

Methods

Data for the study were culled from the 2013 TDHS, which used a weighted multistage, stratified cluster sampling approach. This sampling design aimed to ensure that the survey provided estimates with acceptable precision for all of Turkey. Interviewer-administered structured questionnaires were used to collect data for the survey. In 2013 TDHS, the women’s questionnaire was designed for women listed in households aged between 15 and 49 years. This questionnaire collected data on maternal health characteristics, such as mode of delivery and breastfeeding experiences of women between 2008 and 2013. 2013 TDHS data were analysed for the present study using a retrospective cohort design, so as to determine the relationship between mode of delivery and early breastfeeding practices. In total, 9746 women were interviewed for the 2013 TDHS. In order to eliminate any possible effects of previous birth experiences, only data for women that gave birth in hospital to their first and only live child within five

years of the survey were included in the present study. Consequently, the final subset of data consisted of 777 women. A flow diagram of the study sampling is shown in Figure 1.

According to breastfeeding indicators developed by WHO (16) and used for the 2013 TDHS (3), EIBF (breastfeeding that begins within one hour of delivery) and EBF (feeding only with breast milk) for the first three days post-delivery were used to define the outcome variables. Accordingly, initiation of breastfeeding ≥1 hour after delivery or no breastfeeding were classified as non-EIBF. Feeding newborns any nutrition in addition to breast milk or no breastfeeding in the first three days following birth was considered as non-EBF.

Independent variables were categorized as socio-demographic and delivery-related data. Socio-demographic data, included maternal age, level of education (the three levels were none-some primary school, primary school-some secondary school, and secondary school-university), occupation, place of residence (rural or urban), residential region (Northern, Southern, Eastern, and Western Anatolia) and socio-economic status. Socio-economic status was determined using a wealth index of household assets and was grouped into quintiles (poorest, poorer, middle, richer, richest). Delivery-related data included mode of delivery (vaginal delivery [VD] and C/S), place of delivery (public hospital or private hospital), and sex of newborn. The chi-square test was used to evaluate relationships between independent and outcome variables. Binary logistic regression analysis was performed using data for the two main outcomes: non-EIBF and non-EBF.

Data were analysed using IBM SPSS Statistics for Windows v.23.0 (IBM Corp., Armonk, NY). The focus of statistical analysis was to determine if mode of delivery had any effect on breastfeeding practices; therefore, the incidence of non-EIBF and non-EBF in the VD and C/S groups were compared. Relative risks (RRs) were calculated as unadjusted measures of comparison, and then standardized incidence rates (SIRs) and standardized rate ratios (SRRs) were determined. Based on logistic regression analysis results, residential region and mothers' level of education were used as control variables.

The direct standardization method was used for standardization. The non-EIBF and non-EBF incidence rates in the VD and C/S groups were calculated for each combination of mothers' level of education and residential region. The entire study group was used as the standard population. Maternal level of education and region-specific incidence rates were projected to the standard population, and SIRs in the C/S and VD groups were calculated. Then, SRRs were calculated by dividing the SIRs in the C/S group by the SIRs in the VD group. Statistical significance for all analyses was set at alpha <0.05 and 95% confidence intervals (CI) were obtained using bivariate and multiple logistic regression.

Results

Mean age of the 777 primiparas was 26.3 ± 5.3 years. In all, 47.7% of the participants had a less than secondary school level of education, 17.4% were in the 1st wealth index quintile, 77.9% lived in urban areas, 26.4% were from the Eastern Anatolian Region and 60.5% were employed. In total, 58.9% of the

deliveries occurred in public hospitals and 53.7% of all deliveries were via C/S. Among the newborns, 56.4% were male. The frequency of non-EIBF and non-EBF was 42.7% and 41.0%, respectively (Table 1).

In terms of level of education, 58.9% of the women with the lowest level of education (none-some primary school) were non-EIBF, as compared to 41.2% of those with a primary school-some secondary school level of education and 40.8% of those with a secondary school -university level of education (P = 0.013). Conversely, 45.3% of the women with the highest level of education (secondary school-university) were non-EBF, as compared to 38.0% of those with a primary school-some secondary school level of education and 36.1% of those with a none-some primary school level of education (P = 0.096). The relationship between place of residence and non-EBF was significant and more of the non-EBF women had an urban residence (43.0%) (P = 0.033). There wasn't a significant relationship between other socio-demographic variables (age, wealth index quintile, region and occupation), and non-EIBF or non-EBF (P > 0.05) (Table 2).

The women that underwent C/S were more likely to be non-EIBF and non-EBF than those that had VD (48.4% vs. 36.1% [P < 0.001] and 48.4% vs. 32.3% [P < 0.001], respectively). There wasn't a significant relationship between place of delivery and newborn gender, and non-EIBF or non-EBF status (Table 3). Logistic regression analysis results showed that maternal level of education and residential region were related to non-EIBF. The women with the lowest level of education and those that lived in Eastern Anatolia had the highest risk of non-EIBF. Mode of delivery was the only variable that was significantly related to both non-EIBF and non-EBF. The risk of non-EIBF was 2.07-fold higher and the risk of non-EBF was 1.94-fold higher in the women that had C/S (95% CI: 1.50, 2.87 [P < 0.001] and 95% CI: 1.40, 2.67 [P<0.001], respectively). None of the other study variables were significantly related to non-EBF (Table 4).

In order to determine the risk of non-EIBF and non-EBF associated with C/S, the crude and adjusted incidences in the C/S and VD groups were compared. The incidence of non-EIBF was higher in the C/S group (48.4%) than in the VD group (36.1%) and C/S significantly increased the risk of non-EIBF (RR: 1.341; 95% CI: 1.132, 1.589). On the other hand, the incidence of non-EBF was 48.4% in the C/S group, versus 32.3% in the VD group (RR: 1.499; 95% CI: 1.253, 1.794). Based on direct standardization, the SRR for non-EIBF was 1.428 (95% CI: 1.212, 1.683), versus 1.468 for non-EBF (95% CI: 1.236, 1.762) (Table 5).

Discussion

The present findings show that after controlling for the effects of socio-demographic and delivery-related characteristics the women that had C/S had a 1.428-fold higher risk of non-EIBF and a 1.468-fold higher risk of non-EBF than those that had VD (Table 5). In response to a growing body of evidence scientists stated, "Never before in the history of science has so much been known about the complex importance of breastfeeding for both mothers and children" (17). Mode of delivery is among the factors that play an important role in breastfeeding practices. C/S can negatively affect the physiology of lactation and can cause adverse events that hinder maternal contact with the neonate, resulting in intolerable post-surgical maternal pain and an increase in the level of need for intensive care required by neonates, both of which

can negatively affect breastfeeding (10,14,18-20). The present study's multivariate analysis indicates that maternal level of education, residential region and mode of delivery are significantly related to non-EIBF and that mode of delivery has a significant relationship with non-EBF. The literature shows that maternal level of education is among the most significant determinants of breastfeeding behaviour (21); however, findings related to the effect of maternal level of education on breastfeeding behaviour are inconsistent. Studies from Iran (22) and Bahrain (23) reported that as the maternal level of education increases the likelihood of breastfeeding decreases, whereas studies from Argentina (24) and Italy (25) show there is a positive association between maternal level of education and the likelihood of breastfeeding. Based on the present study's findings, we think that the benefits of colostrum were well known to the mothers with a high level of education due to their use of modern information resources (healthcare professionals, scientific books and the Internet); therefore, they were highly motivated to feed colostrum to their newborns and fully cooperated with healthcare personnel when they were in-patient, even though their intention for EBF in the days following delivery did not continue in all cases. These results indicate that maternal level of education might be a potential confounder.

Bivariate analysis in the present study shows that there is a significant relationship between place of residence and non-EBF (43.0% of the non-EBF women lived in urban areas, versus 33.9% in rural areas [P = 0.033]), while there isn't a significant relationship between place of residence and non-EIBF (Table 2). Adewuyi et al. (19) and Pandey et al. (26) reported that the non-EIBF rate is lower in women from rural residences, based on DHSs. The significance of the relationship between place of residence and non-EBF in the present study disappeared in multivariate analysis. As such, we think that place of residence alone did not have a significant effect on breastfeeding practices of the women that delivered in hospitals. The non-EIBF rate (51.2%) was highest in the present study's women from Eastern Anatolia, which is the least developed region of Turkey, whereas the non-EIBF rate was highest (51.2%) in those from Western Anatolia (the most developed region) (Table 2). The difference in ORs between these two regions was significant according to regression analysis (Table 4), indicating that residential region could potentially be consider another confounder.

In the present study the risk of non-EIBF and non-EBF was calculated, and was observed to be related to C/S. The relative risk of non-EIBF was 1.341 (95% CI: 1.132-1.589) when the C/S and VD groups were compared without adjustments. After controlling for maternal level of education and residential region, the SIR was 1.428 based on the adjusted incidence rates for non-EIBF, which indicates that the risk of non-EIBF in the women that had C/S was 1.428-fold higher (95% CI, 1.212-1.683) than in those that had VD. The risk of non-EBF three days after delivery in the women that had C/S was 1.468-fold higher (95% CI, 1.233-1.748) after adjusting for maternal level of education and residential region.

According to secondary analysis of the WHO Global Survey (27) using data from several countries, the adjusted OR for EIBF was 0.28 (95% CI: 0.22-0.37; P <0.001) for women that had C/S, indicating an evidently high risk of non-EIBF in cases of C/S. Prior et al. (9) also observed that the EIBF rate in cases of C/S was low; their calculated pooled OR was 0.57 (95% CI: 0.50, 0.64; P < 0.00001). Regan et al. (28) reported that women that had successful VD were 1.42-fold more likely to be EIBF than women that had a

planned C/S after a previous C/S (95% CI: 1.30-1.56) and that those that had C/S after an unsuccessful attempted VD were 1.15-fold more likely to be EIBF than women that had a planned C/S after a previous C/S (95% CI: 1.01, 1.31).

The results of the present study should be considered with respect to some limitations. The present study was based solely on data obtained from the 2013 TDHS; therefore, factors associated with breastfeeding not included in the survey were not analysed. As such, it is possible that mode of delivery and breastfeeding are correlated with hospital characteristics (such as type, region and size) in which the women delivered; however, the 2013 TDHS data was not sufficient for evaluating this possibility. In addition, the data could not be used to determine if any of the women delivered babies in hospitals that were not baby-friendly. Moreover, the 2013 TDHS did not collect data about the women's pre-delivery intentions to breastfeed. It is possible that some of the women had decided not to breastfeed or not to use ideal breastfeeding practices before delivery, but such data were not included in the 2013 TDHS. The number of deliveries that could be considered unnecessary C/S was not known and it could not be determined if any of the women had valid barriers to breastfeeding. The survey also did not include any data concerning the number of women that had instrumental or anaesthetic VD, which can cause a delay in mother-baby contact.

On the other hand, the present study has some strengths that should be acknowledged. The study was based on a subsample of a nationally representative survey that gathered high-quality data. The retrospective cohort design of the study facilitated a thorough examination of the relationship between C/S and breastfeeding practices. Several potential influences were excluded through the selection procedure for the study sample and some other confounders were controlled for via standardization; thus, the measurement of the effect of C/S on breastfeeding practices was refined.

Conclusions

According to the present findings, C/S significantly increases the risk of non-EIBF and non-EBF, after controlling for socio-demographic and reproductive characteristics of mothers. This indicates that unnecessary C/S negatively affects not only maternal health but also neonatal health as well. Policies that promote breastfeeding and the incorporation of mother-friendly policies in baby-friendly hospitals are essential for increasing the rates of both EIBF and EBF.

Abbreviations

MoHT: Ministry of Health of Turkey

TDHS: Turkey Demographic Health Survey

EIBF: Early initiation of breastfeeding

EBF: Exclusive breastfeeding

VD: Vaginal delivery

C/S. Caesarean section

CI: Confidence Interval

Declarations

Ethics approval and consent to participate

The Senate of Hacettepe University Ethics Commission approved the questionnaires and data collection procedures of the 2013 TDHS (No: 88600825/433-389). Specific ethics approval was needed to conduct the present study. This study was a secondary analysis of the 2013 TDHS dataset.

Consent for publication

Not applicable.

Availability of data and materials

The data belonged to 2013 TDHS and can be acquired using a formal application submitted to the Hacettepe University Institute of Population Studies via their official website at http://www.hips.hacettepe.edu.tr/tnsa/download.php.

Competing interests

The authors declare there are no conflicts of interest—financial or otherwise—associated with this study.

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Authors' contributions

NPE contributed to the hypothesis conception and conducted the literature review, manuscript drafting and write-up; TE contributed to the hypothesis conception, conducted the analysis and critically revised the manuscript. All authors have read and approved the final version of the manuscript submitted for publication.

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Tables

Table 1. Delivery and breastfeeding characteristics of primiparas of the 2013 Turkey demographic and health survey

	N	%
Delivery-related characteristics		
Place of delivery		
Public hospital	458	58.9
Private hospital	319	41.1
Mode of delivery		
VD	360	46.3
C/S	417	53.7
Sex of newborn		
Male	438	56.4
Female	339	43.6
Breastfeeding practices		
Within one hour after delivery		
EIBF	445	57.3
Non-EIBF[1]	332	42.7
In the first three days after delivery (n = 776)		
EBF	458	59.0
Non-EBF[2]	318	41.0

[1] *Non-EIBF= initiation of breastfeeding ≥1 hour after delivery or no breastfeeding*

[2] *Non-EBF = any nutrition in addition to breast milk in the first three days after delivery or no breastfeeding.*

Table 2. Bivariate analysis of socio-demographic and breastfeeding practices of primiparas of the 2013 Turkey demographic and health survey

Socio-demographic characteristics		Breastfeeding practices				
		Non-EIBF[1] (N=777)	Total	Non-EBF[2] (N=776)	Total	P
Age groups (years)	15-19	43.4	53	34.6	52	
	20-24	43.7	270	38.9	270	0.439[3]
	25-29	40.4	255	37.6	255	0.090[4]
	30-34	46.7	135	51.1	135	
	35-39	45.1	51	45.1	51	
	40-49	15.4	13	53.8	13	
Education	None- some primary school	58.9	73	36.1	72	0.013[3]
	Primary school-some secondary school	41.2	371	38.0	371	0.096[4]
	Secondary school-university	40.8	333	45.3	333	
Wealth index	Poorest	48.9	135	30.4	135	0.212[3]
	Poorer	46.5	172	40.9	171	0.078[4]
	Middle	37.0	165	42.4	165	
	Richer	40.0	150	44.7	150	
	Richest	41.9	155	45.2	155	
Residence	Urban	41.5	605	43.0	605	0.190[3]
	Rural	47.1	172	33.9	171	0.033[4]
Region	West	37.9	190	42.6	190	0.058[3]
	South	38.4	99	36.4	99	0.560[4]
	Central	40.0	160	40.6	160	
	North	43.1	123	46.3	123	
	East	51.2	205	38.7	204	
Occupation	Working	41.9	470	42.1	470	0.571[3]
	Not working	44.0	307	39.2	306	0.420[4]

[1] *Non-EIBF = initiation of breastfeeding ≥1 hour after delivery or no breastfeeding*

[2] *Non-EBF = any nutrition in addition to breast milk in the first three days after delivery or no breastfeeding.*

[3] *P value for non-EIBF.*

[4] *P value for non-EBF.*

Table 3. Breastfeeding practices of primiparas according to delivery related features of the 2013 Turkey demographic and health survey

Delivery-related features	Breastfeeding practices				
	Non-EIBF[1] (N=777)	Total	Non-EBF[2] (N=776)	Total	P[3,4]
Mode of delivery					
VD	36.1	360	32.3	359	<0.001[3]
C/S	48.4	417	48.4	417	<0.001[4]
Place of delivery					
Public hospital	43.4	458	40.0	457	0.626[3]
Private hospital	41.7	319	42.3	319	0.526[4]
Sex of newborn					
Male	43.6	438	42.1	437	0.573[3]
Female	41.6	339	39.5	339	0.469[4]

[1] *Non-EIBF = initiation of breastfeeding ≥1 hour after delivery or no breastfeeding.*

[2] *Non-EBF = any nutrition in addition to breast milk in the first three days after delivery or no breastfeeding.*

[3] *P value for non-EIBF.*

[4]*P value for non-EBF.*

Table 4. Logistic regression analysis of breastfeeding, socio-demographic and delivery-related characteristics of the 2013 Turkey demographic and health survey

	Non-EIBF			Non-EBF		
	OR	95% CI	P	OR	95% CI	P
Socio-demographics						
Age	0.96	0.74-1.44	0.548	1.08	0.93-1.25	0.331
Level of education						0.917
No education and some primary	1	Reference		1	Reference	
Primary school and some sec.	0.56	0.33-0.97	0.038	1.00	0.57-1.76	0.99
Secondary school and university	0.53	0.29-0.99	0.047	1.08	0.57-2.03	0.813
Wealth index			0.636			0.762
Poorest	1	Reference		1	Reference	
Poorer	1.05	0.63-1.75	0.848	1.40	0.82-2.38	0.214
Middle	0.74	0.41-1.32	0.301	1.35	0.74-2.45	0.325
Richer	0.93	0.49-1.77	0.835	1.46	0.76-2.80	0.261
Richest	0.94	0.47-1.89	0.864	1.31	0.64-2.66	0.460
Place of residence						
Rural	1	Reference		1	Reference	
Urban	0.91	0.60-1.40	0.670	1.20	0.78-1.85	0.406
Residential region			0.145			0.712
West	1	Reference		1	Reference	
South	0.93	0.55-1.56	0.799	0.81	0.47-1.37	0.422
Central	1.07	0.67-1.70	0.782	1.00	0.63-1.58	0.993
North	1.24	0.77-2.01	0.379	1.19	0.74-1.92	0.469
East	1.62	1.03-2.57	0.038	1.09	0.69-1.73	0.707
Occupation						
Working	1	Reference		1	Reference	
Not working	1.03	0.74-1.44	0.864	1.07	0.76-1.50	0.703
Delivery-related characteristics						
Place of delivery						
Public hospital	1	Reference		1	Reference	
Private hospital	0.93	0.66-1.30	0.664	0.83	0.59-1.16	0.279
Mode of delivery						
VD	1	Reference		1	Reference	
C/S	2.07	1.50-2.87	<0.001	1.94	1.40-2.67	<0.001
Sex of newborn						
Female	1	Reference		1	Reference	
Male	1.12	0.83-1.50	0.472	1.16	0.86-1.56	0.339

Table 5. Unadjusted Relative Risk (RR), Standardized Incidence Rate (SIR) and Standardized Relative Ratio (SRR) for non-EIBF and non-EBF according to mode of delivery of the 2013 Turkey demographic and health survey

Breastfeeding practices	Unadjusted incidence rate (%)		Unadjusted RR for C/Ss 95% CI	SIR[1] (%) 95% CI		SRR[1] 95% CI
	VD	C/S		VD	C/S	
Non-EIBF[2]	36.111	48.441	1.341 (1.132-1.589)	35.343 (30.307-0.379)	50.485 (45.659-5.310)	1.428 (1.212-1.683)
Non-EBF[3]	32.312	48.441	1.499 (1.253-1.794)	33.405 (28.332-8.478)	49.044 (44.082-54.007)	1.468 (1.233-1.748)

[1] Standardized rates and ratios were calculated by controlling for residential region and level of education. The entire sample (n = 777 for non-EIBF and n = 776 for non-EBF) was used as the reference population for standardization.

[2] Non-EIBF refers to initiation of breastfeeding at one hour or later after delivery or never breastfeeding.

[3] Non-EBF refers to providing any food other than breast milk during the first three days after delivery or never breastfeeding.

Figures

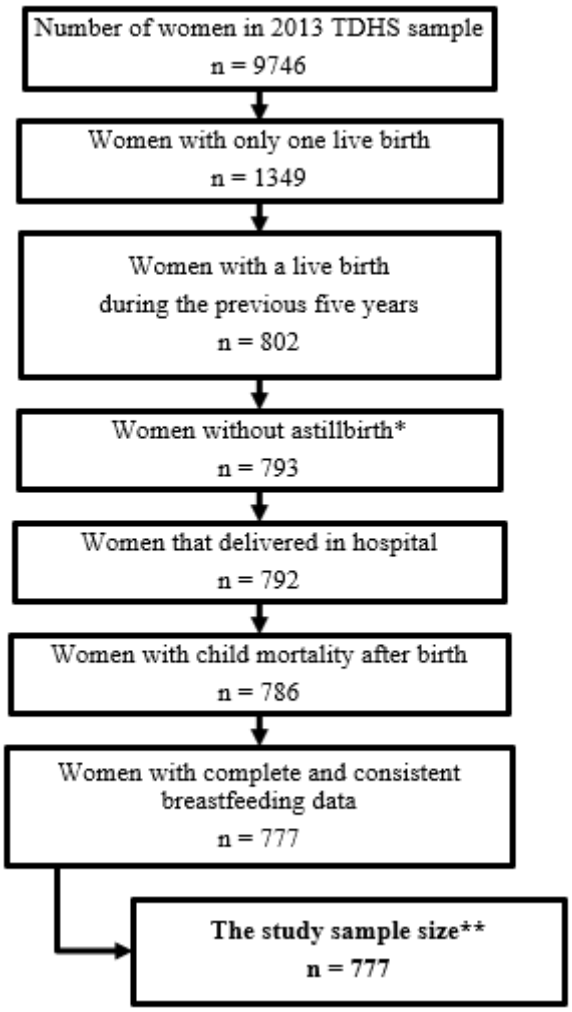

Figure 1

Flow diagram of the study sampling (2013 TDHS).*Women with a history of stillbirth were excluded from the study, even if they had a live birth during the previous five years. **The study sample consisted of primiparas that gave birth in hospital during the previous five years, did not have child death or stillbirth and had complete and consistent breastfeeding data.

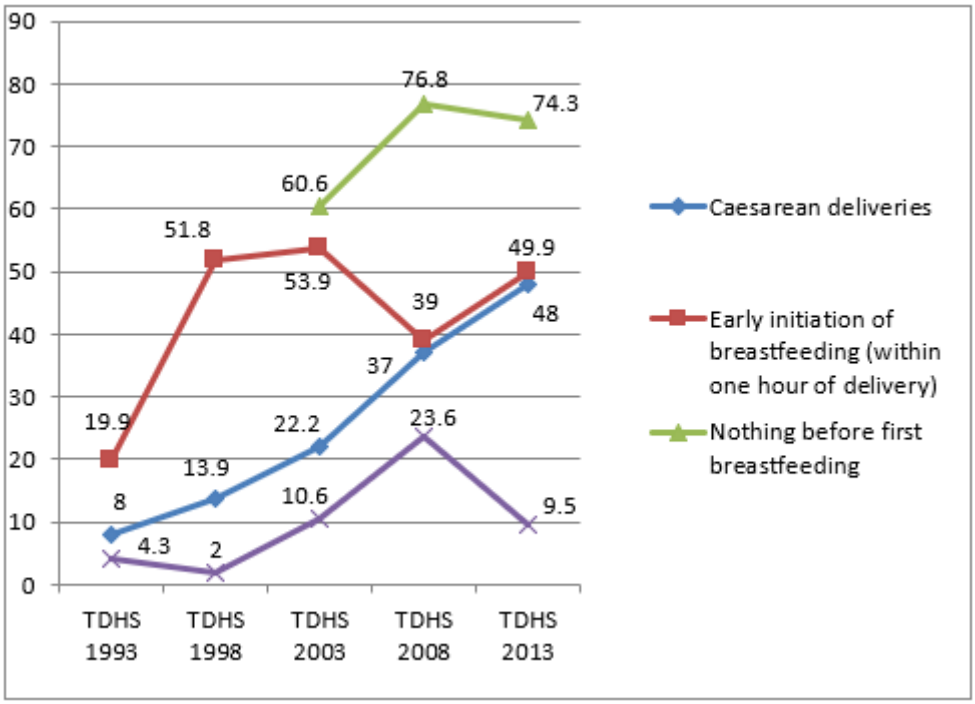

Figure 2

Breastfeeding trends and related indicators in Turkey, according to TDHSs. Note: 1993-2013 TDHS reports are available at http://www.hips.hacettepe.edu.tr/eng/publicitions.shtml.