

Skin-to-skin contact and early initiation of breast feeding in Bangladesh: a cross-sectional study using MICS6, Bangladesh (2019) data

Md Fuad Al Fidah , Syeda Sumaiya Efa

To cite: Al Fidah MF, Efa SS. Skin-to-skin contact and early initiation of breast feeding in Bangladesh: a cross-sectional study using MICS6, Bangladesh (2019) data. *BMJ Paediatrics Open* 2023;7:e002163. doi:10.1136/bmjpo-2023-002163

Received 30 June 2023

Accepted 31 October 2023

ABSTRACT

Background To curb neonatal deaths, practices such as skin-to-skin contact (SSC) and early initiation of breast feeding (EIBF) can play an important role. Despite being effective, globally only 48% of newborns receive EIBF, and SSC is practised at varying prevalence (1%–74%) among low-income and middle-income countries.

Objectives The objective of the current study was to estimate the level of SSC and EIBF practice in Bangladesh and examine factors associated with SSC and EIBF.

Methods The cross-sectional study used data from the Multiple Indicator Cluster Survey, Bangladesh (2019). Women of reproductive age with live birth during the last 2 years were included in the analysis (n=8854). A p<0.05 as considered statistically significant (significance level of $\alpha=0.05$).

Results The prevalence of SSC and EIBF was 16.4% and 70.4%, respectively. Higher secondary or more level of education (AOR 1.43; 95% CI 1.07 to 1.90; p=0.016), skilled birth attendant's (SBA) assistance at birth (AOR 2.04, 95% CI 1.60 to 2.61; p<0.001) and receiving antenatal care (AOR 1.40; 95% CI 1.15 to 1.70; p<0.001) had higher odds of practising SSC. Having institutional delivery (AOR 0.35; 95% CI 0.28 to 0.43; p<0.001) and belonging to the richest category (AOR 0.78; 95% CI 0.65 to 0.94; p=0.008) had lower odds of practising EIBF. SSC and EIBF did not have a statistically significant association in the study.

Conclusion The prevalence of SSC in Bangladesh is quite low. However, EIBF prevalence can be considered as 'good'. Targeted interventions such as antenatal care, and assistance by SBA during birth can help in promoting SSC. To promote EIBF practice, interventions should focus on institutes providing delivery support and the richer strata of the society.

INTRODUCTION

The first 28 days after birth, known as the 'neonatal period', are critical for a child's life. It is a vulnerable time, with the survival of newborns at stake. In 2021, around 2.3 million newborns worldwide lost their lives within the first month. To put it simply, approximately 6400 neonates per day died that year.¹ Many low-income and middle-income countries (LMICs), including Bangladesh, have

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ The neonatal death toll in 2021 was almost 2.3 million worldwide.
- ⇒ Neonatal mortality rate in Bangladesh has decreased over the past years.
- ⇒ SSC and EIBF within the first hour of life promotes neonatal survival.

WHAT THIS STUDY ADDS

- ⇒ 16.4% and 70.4% mothers practise SSC and early initiation of breastfeeding (EIBF), respectively.
- ⇒ Being educated, receiving antenatal care and assistance of skilled birth attendant (SBA) during birth increases the chance of practising SSC.
- ⇒ Institutional delivery and richest category in wealth index lowers the likelihood of EIBF practice.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ Targeted interventions towards the richest category and proper institutional delivery can promote EIBF.
- ⇒ Promoting SBA assistance during birth and antenatal care can increase the prevalence of SSC.

made progress in reducing under-5 mortality rates. Bangladesh has witnessed a consistent decline in childhood mortality over the past two decades. In 2022, the neonatal mortality rate dropped to 20 deaths per 1000 live births, down from 27 deaths in 2017–2018.² Bangladesh achieved the Millennium Development Goals target 4 ahead of schedule.³ However, neonatal mortality rates remain high in most LMICs.⁴

To reduce neonatal deaths, the WHO has introduced Essential Newborn Care practices, which include crucial interventions such as thermal regulation, proper cord care and early initiation of breast feeding (EIBF).⁴ Thermal regulation involves skin-to-skin contact (SSC),⁵ where the naked newborn is placed in a prone position and covered with dry, pre-heated blankets or positioned on the mother's bare chest or abdomen. According



© Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

Research Wing, Bibliophile, Dhaka, Bangladesh

Correspondence to

Dr. Syeda Sumaiya Efa; ssefa@bibliophilebd.org

to UNICEF, SSC should be initiated immediately after birth and continued uninterrupted for at least an hour.⁶ Apart from regulating temperature, SSC also enhances mother–infant attachment, reduces infant stress and promotes breast feeding.⁷ Breast feeding within the first hour of life is known to promote neonatal survival by protecting the child from mortality due to sepsis, diarrhoea, hypothermia, pneumonia and infection.⁸ It is also critical to promote maternal health. Both the WHO and UNICEF recommend EIBF as the ideal practice.^{9,10} Despite overwhelming evidence behind the benefits and effectiveness of SSC and EIBF, globally only 48% of newborns receive EIBF,¹¹ as in many countries, it is customary to separate the newborn from the mother.⁵ According to the literature, SSC is practised at varying prevalence (1%–74%) among LMICs.¹² Bangladesh also has a low prevalence of SSC and EIBF at 28% and 60.8%, respectively.^{4,13}

The Sustainable Development Goal (SDG) sets a target of 12 deaths per 1000 live births by 2030 regarding neonatal mortality. SSC and EIBF can be important tools in achieving this target. The current study uses nationally representative Multiple Indicator Cluster Survey (MICS) 2019 survey dataset to assess the prevalence of SSC and EIBF in Bangladesh, their association with one another and explore the factors influencing these practices.

MATERIALS AND METHODS

Data overview

The current study used publicly available data from the MICS conducted in Bangladesh in 2019. The MICS is a repeated cross-sectional survey that targets different respondents each year. The datasets and results of these surveys have been published on the UNICEF website (<https://mics.unicef.org/surveys>). Each survey consists of several datasets. For the current study, the women dataset was used. Details of the MICS methodology can be found elsewhere.¹⁴ Women of reproductive age (15–49) who gave live birth during the past 2 years were included in the study. The procedure used to select children for this investigation is described in detail in figure 1. The initial study population was 68 709. At first, women who did not give a live birth in the past 2 years were excluded (59 424). Then participants with missing values and ‘DK’ (don’t know) responses for SSC and EIBF were excluded. A total of 8854 women were considered for analysis.

Operational definitions of the outcome variables

The current study considered two outcome variables: SSC and EIBF.

SSC: WHO defines SSC as ‘placing the baby naked on the mother’s bare chest, in a prone position covered by a cloth/blanket’.⁴

EIBF: It is defined as ‘putting newborns to the breast within the first hour of life’.¹⁰

For SSC, one question was asked to the mother: ‘Immediately after the birth, was (name) put directly on the

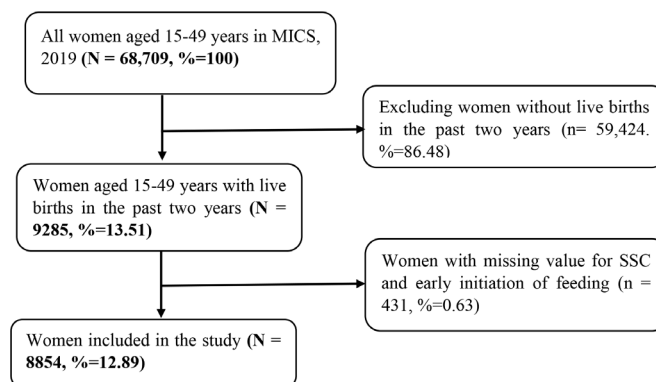


Figure 1 Selection of women of reproductive age (15–49 years) from the MICS, Bangladesh (2019). %=Percentage in respect to all women aged 15–49 years in MICS Bangladesh, 2019. MICS, Multiple Indicator Cluster Survey; SSC, skin-to-skin contact.

bare skin of your chest?’ For EIBF, the question was: ‘How long after birth did you first put (name) to the breast?’

Independent variables

Several independent variables were used in the study: maternal age, residence (urban/rural), sex of newborn (male/female), maternal education, antenatal care (yes/no), skilled birth attendant (SBA) at birth (yes/no), institutional delivery (yes/no) and wealth index quantile.

Participants who had even one antenatal visit during pregnancy were categorised as ‘yes’, otherwise ‘no’. The current study defined SBAs as the professionally trained health workers who can manage normal labour, delivery and can perform essential interventions (doctors, nurses or midwives, community SBAs and paramedic or medical assistant or subassistant community medical officers).

Information regarding the delivery place from the survey was used to create the variable ‘institutional delivery’. Mother’s having a place of delivery as ‘respondent’s home’, ‘other home’ or ‘other’ were categorised as ‘no’, otherwise ‘yes’. The wealth index is an opportunistic method based on the premise that the possession of observable or readily requested assets, services and amenities correlates with the relative economic position of the household in the nation. Using it, the participants of the study were categorised into: poorest, poor, middle, rich and riches groups.¹⁵

Data analysis

In this study, descriptive statistics were presented in the form of frequency distribution, percentage, mean and SD. Continuous data (maternal age) were presented as median and IQR as the data were not normally distributed (KS value=0.086, $p<0.001$), while categorical variables were represented as counts and percentages. Mann-Whitney U test for continuous data and χ^2 test of association for categorical data were used to find out association between independent and outcome variables. All of the independent variables were used for creating a logistic regression model, and OR along with adjusted OR

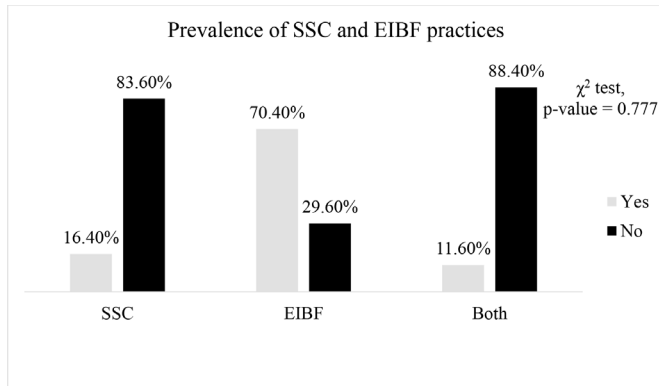


Figure 2 Prevalence of skin-to-skin contact (SSC) and early initiation of breastfeeding (EIBF) practices.

(AOR) were reported along with their corresponding CI. A $p < 0.05$ was considered statistically significant ($\alpha = 0.05$). Analysis was done using the jamovi software (V.2.3.26).¹⁶

This study uses secondary data obtained from the MICS, where all personally identifiable information has been removed to ensure anonymity. Informed consent was obtained from the participating mothers prior to conducting the survey.¹⁷ So, no ethical clearance was needed.

RESULTS

The number of participants in the current study was 8854. Among them, SSC was practised by only 16.4%

of participants. EIBF was practised by most of the cases (70.4%). The prevalence of both practices was 11.6%. There was no significant association between SSC and EIBF (figure 2).

Among the participants, the median (IQR) age of the mothers was 25 (21–30) years. Regarding sex, 48.6% were female and the majority (81.1%) lived in rural areas. In the current study, most of the mothers (50.4%) completed secondary level and received antenatal care (81.8%). SBA was present at birth for 55.6% of participants and frequency of institutional delivery was almost equal (yes=50.6%). Wealth index shows that most of the participants (24.2%) belonged to the poorest group.

The median (IQR) maternal age for those who practised SSC was 25 (21–29). SSC was found to be significantly associated with maternal age ($p = 0.011$), residence ($p < 0.001$), maternal education ($p < 0.001$), receiving antenatal care ($p < 0.001$), SBA at birth ($p < 0.001$), institutional delivery ($p < 0.001$) and wealth index ($p < 0.001$).

Most of the participants who practised EIBF lived in rural areas (82.7%). EIBF was statistically significantly associated with residence ($p < 0.001$), maternal education ($p < 0.001$), receiving antenatal care ($p < 0.001$), SBA at birth ($p < 0.001$), institutional delivery ($p < 0.001$) and wealth index ($p < 0.001$) (table 1).

Multivariable logistic regression analysis shows that SSC was significantly associated with maternal education, having antenatal care and presence of SBA at birth. Practising SSC increases with the higher secondary or more

Table 1 Characteristics of the participants and their association with SSC and EIBF

Characteristics	Total	SSC		P value (χ^2 test)	EIBF		P value (χ^2 test)
		Yes (n=1456)	No (n=7398)		Yes (n=6236)	No (n=2618)	
Maternal age, median (IQR)	25 (21–30)	25 (21–29)	25 (21–30)	0.011*	25 (21–30)	25 (21–30)	0.536*
Sex (female), n (%)	4303 (48.6)	681 (46.8)	3622 (49.0)	0.127	3058 (49.0)	1245 (47.6)	0.203
Residence (rural), n (%)	7183 (81.1)	1136 (78.0)	6047 (81.7)	<0.001	5158 (82.7)	2025 (77.3)	<0.001
Maternal education				<0.001			<0.001
Preprimary or none	816 (9.2)	81 (5.6)	735 (9.9)		630 (10.1)	186 (7.1)	
Primary	2073 (23.4)	259 (17.8)	1814 (24.5)		1550 (24.9)	523 (20.0)	
Secondary	4462 (50.4)	770 (52.9)	3692 (49.9)		3118 (50.0)	1344 (51.3)	
Higher secondary or more	1503 (17.0)	346 (23.8)	1157 (15.6)		938 (15.0)	565 (21.6)	
Antenatal care (yes), n (%)	7246 (81.8)	1313 (90.2)	5933 (80.2)	<0.001	4956 (79.5)	2290 (87.5)	<0.001
SBA at birth (yes), n (%)	4925 (55.6)	1099 (75.5)	3826 (51.7)	<0.001	3023 (48.5)	1902 (72.7)	<0.001
Institutional delivery (yes), n (%)	4478 (50.6)	1013 (69.6)	3465 (46.8)	<0.001	2650 (42.5)	1828 (69.8)	<0.001
Wealth index				<0.001			<0.001
Poorest	2146 (24.2)	244 (16.8)	1902 (25.7)		1678 (26.9)	468 (17.9)	
Poor	1811 (20.5)	273 (18.8)	1538 (20.8)		1317 (21.1)	494 (18.9)	
Middle	1740 (19.7)	284 (19.5)	1456 (19.7)		1236 (19.8)	504 (19.3)	
Rich	1674 (18.9)	346 (23.8)	1328 (18.0)		1110 (17.8)	564 (21.5)	
Richest	1483 (16.7)	309 (21.2)	1174 (15.9)		588 (22.5)	1483 (16.7)	

*Mann-Whitney U test.
EIBF, early initiation of breastfeeding; n, frequency; SBA, skilled birth attendant; SSC, skin-to-skin contact.



education (AOR 1.43; 95% CI 1.07 to 1.90; $p=0.016$). Mothers who received antenatal care (AOR 1.40; 95% CI 1.15 to 1.70; $p<0.001$) and SBA assistance at birth (AOR 2.40; 95% CI 1.60 to 2.61; $p<0.001$) had higher odds of practising SSC compared with those who did not (table 2).

Regarding EIBF, multivariable logistic regression analysis shows a significant association with institutional delivery and wealth index. Having institutional delivery (AOR 0.35; 95% CI 0.28 to 0.43; $p<0.001$) and belonging to the richest group (AOR 0.78; 95% CI 0.65 to 0.94; $p=0.008$) had lower odds of practising EIBF than not having institutional delivery and belonging to the poorest group, respectively (table 2).

DISCUSSION

The results of the current study show the SSC and EIBF practices among mothers with live births in the past 24 months. There have been other similar studies previously conducted that provide important and valuable insights regarding SSC practices.^{4,7} However, the current study uses nationally representative data taken from a nationwide survey providing a larger scope than some of the previous studies⁴ and is more recent,⁷ making it more relevant. Also, the current study aimed to examine the EIBF practices in tandem which is absent from other studies. In resource poor settings such as Bangladesh, practices such as SSC and EIBF can be instrumental to prevent neonatal death. Hence, it is important to find out the prevalence of these two practices and factors associated with both.

SSC is an excellent way of thermal regulation, which is considered as one of the key practices recommended by the WHO to promote neonatal survival. This free-of-cost, natural intervention also provides other benefits such as promoting maternal and child bonding, breast feeding, etc. Unfortunately, social customs of many countries' separate mothers from the newborns and hamper SSC practice.⁵ Along with SCC, EIBF is also known to promote neonatal survival.⁸ The current study found a low prevalence of SSC of only 16%. However, EIBF practice was seen in 70.4% of participants.

SSC, despite providing numerous health benefits at virtually free of cost, is one of the least practised interventions in LMICs.⁴ The findings of our study reiterate this as the prevalence of SSC was only 16%. This prevalence rate was higher than the prevalence rate in India (14.5%)¹⁸ and Nigeria (10%)⁷ but lower than Nepal (16.5%),¹⁸ Ethiopia (24.3%)¹⁹ and Vietnam (88.7%).²⁰ Other studies conducted in Bangladesh showed a much higher prevalence (28%⁴ and 26%⁷). However, the first study was limited to only 10 districts and included samples from only district level households. The reason can be intuitively understood as people from urban areas are more likely to be aware of the benefits of SSC practices.⁴ The second study was conducted using data from a survey from 2014.⁷ Studies have shown us that children

born by caesarian section (CS) are less likely to have EIBF.⁷ Studies have also indicated that the prevalence of CS was 67.4% in 2023, in comparison to 23.9% in 2014.²¹ This change in the prevalence of CS can contribute to the decline of prevalence of SSC practice in the current study. Various reasons can be attributed to the low prevalence of SSC in Bangladesh, such as cultural beliefs that separating mothers from babies are good for the health of the baby as it is thought that the women's body is colder than the baby,²² non-institutionalised birth, lack of healthcare workers and resources in hospitals to ensure SSC, maternal or neonatal complications that prevents SSC.^{4,5,23} The current study found a statistically significant association between residence and SSC practice. However, another study conducted in 2017 did not report such finding.⁷ One possible reason for this association might be that mothers living in urban areas are more likely to receive expert care during delivery and counseling regarding SSC. Mother with higher level of education had higher odds of practising SSC. One possible explanation can be that education raises awareness regarding the benefits of SSC. One of the major findings of the current study is the higher odds of practising SSC among mothers receiving antenatal care.⁴ Antenatal care raises awareness among mothers regarding the benefits of SSC and actively encourages them to practice it. In the current study, it was found that assistance of SBA during birth also increases the odds of practising SSC among mothers, as supported by findings of other studies.⁷ SBAs are trained individuals who are aware of the importance of SSC.

EIBF is crucial for neonates as it promotes neonatal survival. The current study reports a prevalence of 70.4% in Bangladesh, higher than other LMICs such as India (41.5%),²⁴ Ethiopia (75.2%)²⁵ and Indonesia (57%).²⁶ However, it is still low in comparison to countries like Sri Lanka (88.5%), Nepal (86.5%) and Angola (98.4%).²⁷ According to the WHO classification, the rate of EIBF prevalence found in this study can be considered as 'good'.²⁸ The current study found that institutional delivery lowers the odds of practising EIBF as supported by other studies.^{7,29} There might be several reasons behind this finding, such as: usually in Bangladesh, many prefer home delivery due to reasons such as poverty, religious beliefs, misconception regarding institutional delivery, etc,¹³ procedures of health facility (conduction of neonatal assessment), mothers having caesarian section may be physically unable to initiate breast feeding.³⁰ Another interesting finding in the study was that mothers from the richest quintile have lower odds of practising EIBF than mothers from the poorest quintile. This is supported by another study conducted in 2018,¹³ although another study conducted in 2020 found that mothers with a higher family income had higher odds of practising EIBF.³¹ Studies suggest that mothers from the richest quintile generally prefer caesarian section, as they generally enjoy more comfort and hence may feel anxious regarding labour pain.³² which is known

Table 2 Association of SSC and EBF with characteristics of participants

Predictors	SSC			EBF			P value	AOR (95% CI)	P value	AOR (95% CI)	P value
	OR (95% CI)	P value	AOR (95% CI)	OR (95% CI)	P value	AOR (95% CI)					
Maternal age	0.99 (0.98 to 1.00)	0.002	1.00 (0.99 to 1.00)	1.00 (0.99 to 1.01)	0.466	1.00 (0.98 to 1.00)	0.352	0.99 (0.98 to 1.00)	0.416		
Sex (female)	0.92 (0.82 to 1.03)	0.127	0.94 (0.84 to 1.06)	1.06 (0.97 to 1.16)	0.3	1.03 (0.94 to 1.13)	0.203	1.03 (0.94 to 1.13)	0.572		
Residence (rural)	0.79 (0.69 to 0.91)	<0.001	0.97 (0.83 to 1.13)	1.40 (1.25 to 1.57)	0.706	1.08 (0.95 to 1.23)	<0.001	1.08 (0.95 to 1.23)	0.233		
Maternal education											
Primary	1.29 (0.99 to 1.69)	0.054	1.08 (0.83 to 1.42)	0.88 (0.72 to 1.06)	0.559	1.02 (0.83 to 1.25)	0.171	1.02 (0.83 to 1.25)	0.856		
Secondary	1.89 (1.49 to 2.41)	<0.001	1.21 (0.93 to 1.58)	0.69 (0.58 to 0.82)	0.149	1.06 (0.87 to 1.29)	<0.001	1.06 (0.87 to 1.29)	0.568		
Higher secondary or more	2.71 (2.09 to 3.52)	<0.001	1.43 (1.07 to 1.90)	0.49 (0.40 to 0.59)	0.016	1.01 (0.81 to 1.26)	<0.001	1.01 (0.81 to 1.26)	0.951		
Antenatal care (yes)	2.27 (1.89 to 2.72)	<0.001	1.40 (1.15 to 1.70)	1.80 (1.58 to 2.06)	<0.001	0.90 (0.78 to 1.04)	<0.001	0.90 (0.78 to 1.04)	0.151		
SBA at birth (yes)	2.87 (2.53 to 3.27)	<0.001	2.04 (1.60 to 2.61)	0.35 (0.32 to 0.39)	<0.001	0.99 (0.80 to 1.25)	<0.001	0.99 (0.80 to 1.25)	0.964		
Institutional delivery (yes)	0.39 (0.34 to 0.44)	<0.001	1.21 (0.96 to 1.52)	0.32 (0.29 to 0.35)	0.114	0.35 (0.28 to 0.43)	<0.001	0.35 (0.28 to 0.43)	<0.001		
Wealth index											
Poor	1.38 (1.15 to 1.67)	<0.001	1.11 (0.92 to 1.35)	0.74 (0.64 to 0.86)	0.274	0.89 (0.76 to 1.04)	<0.001	0.89 (0.76 to 1.04)	0.133		
Middle	1.52 (1.27 to 1.83)	<0.001	1.04 (0.85 to 1.26)	0.68 (0.59 to 0.79)	0.709	0.94 (0.80 to 1.10)	<0.001	0.94 (0.80 to 1.10)	0.448		
Rich	2.03 (1.70 to 2.43)	<0.001	1.22 (1.00 to 1.48)	0.55 (0.48 to 0.63)	0.051	0.86 (0.74 to 1.02)	<0.001	0.86 (0.74 to 1.02)	0.075		
Richest	2.05 (1.71 to 2.46)	<0.001	1.04 (0.84 to 1.30)	0.43 (0.37 to 0.49)	0.72	0.78 (0.65 to 0.94)	<0.001	0.78 (0.65 to 0.94)	0.008		

Reference category: SSC: no; EIBF: no; sex: male; residence: urban; antenatal care: no; SBA at birth: no; institutional delivery: no; maternal education: preprimary or none; Wealth index: poorest.
 EIBF, early initiation of breast feeding; SBA, skilled birth attendant; SSC, skin-to-skin contact.



to hamper EIBF.^{13,33} Breast feeding has been identified as one of the few positive healthy behaviours that is more prevalent among the lower socioeconomic groups in LMICs.¹³ Inability to buy breastfeeding alternatives can be a possible explanation for this behaviour.¹³

The current study did not find a statistically significant relationship between SSC and EIBF practices. Factors such as societal culture, hospital policies such as keeping the baby for observation immediately after delivery, various maternal factors like complication, effect of anaesthesia may influence the relationship between SSC and EIBF. Other potential factors that may influence the association between SSC and EIBF may be lack of knowledgeable SBA, access to alternative feeding practices such as infant formula, institutional policy like keeping the baby in the nursery or under observation where EIBF is established despite no SSC. More research is needed to establish causal relationship between the two factors in Bangladesh context.

The current study had some limitations. First, data were taken from mothers who were asked to remember prior events. Hence, there is a chance of recall bias as in some cases the birth may have happened 2 years prior to the interview. Second, this was a cross-sectional study in nature and thus a causal relationship between the independent and outcome variables could not be established. Finally, several variables such as parity, mother's current occupation were not available from the dataset and hence were not included in the study. Despite these limitations, the current study provides unique perspective regarding prevalence and factors associated with the practices of SSC and EIBF. As both of these practices are crucial for neonatal survival, it is important to monitor these practices on a population level to better identify the barriers to their uptake and formulate targeted policies to improve the overall condition.

CONCLUSION

The benefits of both SSC and EIBF practices are important for the neonate and the mother. The current study indicates a low prevalence of SSC, which must be addressed immediately if Bangladesh is to achieve the SDG target. Initiatives like baby-friendly hospitals, encouraging SBAs to promote SSC and EIBF following birth, focusing on raising awareness among the poor and uneducated, and community-based interventions are crucial to promote these practices. Institutional delivery by following recommended protocols, antenatal care and assistance of SBA during birth can also be an important tool in promoting SSC. Further research should be conducted to shed light on the efficacy of these interventions for improving SSC and EIBF practices.

Acknowledgements The authors are indebted to UNICEF for sharing the data.

Contributors Conceptualisation: MFAF; Methodology: MFAF and SSE; Formal analysis and investigation: MFAF and SSE; Writing—original draft preparation: MFAF; Writing—review and editing: SSE; Supervision: SSE; Guarantor: MFAF.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available in a public, open access repository. The study used data from MICS6 Survey, Bangladesh (2019) which is publicly available at <https://mics.unicef.org/surveys>.³⁴

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iD

Md Fuad Al Fidah <http://orcid.org/0000-0002-6695-6342>

REFERENCES

- 1 UNICEF. Neonatal mortality - UNICEF DATA. 2023. Available: <https://data.unicef.org/topic/child-survival/neonatal-mortality/> [Accessed 23 May 2023].
- 2 National Institute of Population Research and Training and The DHS Program. Bangladesh DHS 2022 - key indicators report, Dhaka, preliminary reports. 2023.
- 3 Ijdi R-E, Tumlinson K, Curtis SL. Exploring association between place of delivery and newborn care with early-neonatal mortality in Bangladesh. *PLOS ONE* 2022;17:e0262408.
- 4 Ali NB, Priyanka SS, Bhui BR, et al. Prevalence and factors associated with skin-to-skin contact (SSC) practice: findings from a population-based cross-sectional survey in 10 selected districts of Bangladesh. *BMC Pregnancy Childbirth* 2021;21:709.
- 5 Moore ER, Bergman N, Anderson GC, et al. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database Syst Rev* 2016;11:CD003519.
- 6 Kuamoto RS, Bueno M, Riesco MLG. Skin-to-skin contact between mothers and full-term newborns after birth: a cross-sectional study. *Rev Bras Enferm* 2021;74:e20200026.
- 7 Singh K, Khan SM, Carvajal-Aguirre L, et al. The importance of skin-to-skin contact for early initiation of breastfeeding in Nigeria and Bangladesh. *J Glob Health* 2017;7:020505.
- 8 Victora CG, Bahl R, Barros AJD, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet* 2016;387:475–90.
- 9 Weltgesundheitsorganisation and UNICEF. *Global strategy for infant and young child feeding*. Geneva: WHO, 2003.
- 10 UNICEF and WHO. *Capture the Moment – Early initiation of breastfeeding: The best start for every newborn*. New York: UNICEF, 2018. Available: https://www.unicef.org/media/48491/file/%20UNICEF_WHO_Capture_the_moment_EIBF_2018-ENG.pdf
- 11 UNICEF. *The State of the World's Children 2021: On My Mind – Promoting, protecting and caring for children's mental health*. UNICEF, 2021. Available: <https://www.unicef.org/reports/state-worlds-children-2021>
- 12 Abdulghani N, Edvardsson K, Amir LH. Worldwide prevalence of mother-infant skin-to-skin contact after vaginal birth: a systematic review. *PLOS ONE* 2018;13:e0205696.
- 13 Ekholuenetale M, Mistry SK, Chimoriya R, et al. Socioeconomic inequalities in early initiation and exclusive breastfeeding practices in Bangladesh: findings from the 2018 demographic and health survey. *Int Breastfeed J* 2021;16:73.
- 14 BBS and SID. *Final report on household income & expenditure survey 2016*. Ministry of Planning, 2019. Available: https://drive.google.com/file/d/1TmUmC-0M3wC5IN6_tUxZUvTW2rmUxMce/view
- 15 Croft TN, Marshall AMJ, Allen CK. *Guide to DHS statistics*. Rockville, Maryland, USA: ICF, 2018.
- 16 jamovi. The Jamovi project, 2023. n.d. Available: <https://www.jamovi.org>
- 17 BBS and U. Bangladesh. *ProgotirPathay, Bangladesh Multiple Indicator Cluster Survey 2019*. BBS, UNICEF, Dhaka, 2020. Available: https://www.unicef.org/bangladesh/media/3281/file/Bangladesh%202019%20MICS%20Report_English.pdf

- 18 Crowe S, Prost A, Hossen M, *et al.* Generating insights from trends in newborn care practices from prospective population-based studies: examples from India, Bangladesh and Nepal. *PLOS ONE* 2015;10:e0127893.
- 19 Nigatu D, Abeje G, Mekonnen AG, *et al.* Maternal health service uptake is associated with a higher skin-to-skin care practice in Ethiopia: result from a national survey. *Biomed Res Int* 2020;2020:8841349.
- 20 Giang HTN, Duy DTT, Vuong NL, *et al.* Prevalence of early skin-to-skin contact and its impact on exclusive breastfeeding during the maternity hospitalization. *BMC Pediatr* 2022;22:395.
- 21 Ahmed MS, Islam M, Jahan I, *et al.* Multilevel analysis to identify the factors associated with caesarean section in Bangladesh: evidence from a nationally representative survey. *Int Health* 2023;15:30–6.
- 22 Darmstadt GL, Syed U, Patel Z, *et al.* Review of domiciliary newborn-care practices in Bangladesh. *J Health Popul Nutr* 2006;24:380–93.
- 23 Alenchery AJ, Thoppil J, Britto CD, *et al.* Barriers and enablers to skin-to-skin contact at birth in healthy neonates - a qualitative study. *BMC Pediatr* 2018;18:48.
- 24 Senanayake P, O'Connor E, Ogbo FA. National and rural-urban prevalence and determinants of early initiation of breastfeeding in India. *BMC Public Health* 2019;19:896.
- 25 Lucha TA, Mengistu AK. Factors associated with early initiation of breastfeeding among children less than 24 months old: the 2019 Ethiopian mini demographic and health survey. *Arch Public Health* 2022;80:164.
- 26 Gayatri M, Dasvarma GL. Predictors of early initiation of breastfeeding in Indonesia: a population-based cross-sectional survey. *PLOS ONE* 2020;15:e0239446.
- 27 Takahashi K, Ganchimeg T, Ota E, *et al.* Prevalence of early initiation of breastfeeding and determinants of delayed initiation of Breastfeeding: secondary analysis of the WHO global survey. *Sci Rep* 2017;7:44868.
- 28 WHO. *Infant and young child feeding: a tool for assessing national practices*. Geneva, Switzerland: WHO, 2003. Available: <https://apps.who.int/iris/bitstream/handle/10665/42794/9241562544.pdf>
- 29 Kundu S, Azene AG, Kundu S, *et al.* Prevalence of and factors associated with early initiation of breastfeeding in Bangladesh: a multilevel modelling. *Int Health* 2023;15:403–13.
- 30 Raihana S, Alam A, Huda TM, *et al.* Factors associated with delayed initiation of breastfeeding in health facilities: secondary analysis of Bangladesh demographic and health survey 2014. *Int Breastfeed J* 2021;16:14.
- 31 Hasan M, Hassan MdN, Khan MSI, *et al.* Prevalence and determinants of early initiation of Breastfeeding among mothers in Dhaka city, Bangladesh: a cross-sectional study. *SN Compr Clin Med* 2020;2:2792–8.
- 32 Ahmmed F, Manik MMR, Hossain MdJ. Caesarian section (CS) delivery in Bangladesh: a nationally representative cross-sectional study. *PLOS ONE* 2021;16:e0254777.
- 33 Azzeh FS, Alazzeh AY, Hijazi HH, *et al.* Factors associated with not breastfeeding and delaying the early initiation of breastfeeding in Mecca region, Saudi Arabia. *Children (Basel)* 2018;5:8.
- 34 UNICEF. Data from: multiple indicator cluster survey (MICS) version 6. BANGLADESH. 2019. Available: <https://mics.unicef.org/>