

Status of maternal health care services: An assessment study in slums of Kolkata

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ABSTRACT

Background and Aims: Mothers constitute an important and priority group in any community due to their high pregnancy related morbidities and mortality. The prevention of pregnancy related complications was possible with proper utilisation of maternal health care services. This study was conducted with the aim of assessing the utilisation of maternal health care services among mothers with younger child aged ≤ 3 years in slums of Kolkata, West Bengal and to find out the factors associated with it. **Methodology:** It was a community-based, observational study with cross-sectional design conducted in slums of Kolkata from June 2017 to May 2018. 30 slums [under Kolkata municipal corporation] were selected by cluster sampling technique using probability proportionate to size method. 10 mothers were selected from each slum and a total of 300 mothers were selected for the study. A pre-designed, pre-tested, structured schedule was used for data collection. **Results:** The mean age of the mothers was 23.83 (± 3.64) years with the age ranging from 18 to 35 years. 75.7% mothers were registered in 1st trimester of pregnancy and 100% mothers received ≥ 4 antenatal check-ups. But only 78% mothers consumed ≥ 100 IFA tablets and only 23.3% mothers consumed ≥ 360 calcium tablets in antenatal period. 80.3% of the mothers had unsatisfactory utilisation of maternal health care services. Unsatisfactory utilisation of maternal care services was significantly associated with the younger age of the mothers, a smaller number of pregnancies and teenage marriage. **Conclusion:** Utilisation maternal health care services was not satisfactory among mothers in slums of Kolkata. Awareness generation and behaviour change communication among mothers is necessary for proper utilisation of the services.

Keywords: Kolkata, low birth weight, maternal health, slums, utilisation

Introduction

Mothers constitute an important and priority group in any country, especially in developing countries due to their high morbidities and mortality.^[1] Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period.^[1]

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The maternal health condition is improving throughout the world due to worldwide organised effort. The global maternal mortality rate [MMR] declined by 44%, from 385 deaths to 216 deaths per 100,000 live births in the time period of 1990 to 2015.^[2] Two regions, Sub-Saharan Africa and South Asia have 88% of maternal death worldwide. South Asia has MMR of 182 per 100,000 live births or 66,000 maternal deaths in a year.^[1,2]

Though the world made remarkable progress in the field of maternal and child health millennium development goal 4 and 5 could not be achieved.^[2,3] Despite India being amongst the top 5 countries in terms of absolute numbers of maternal deaths, India's MMR was reduced from 420 per 100,000 live births in

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1990 to 167 per 100,000 live births in 2013 and to 130 per 10,000 live births in 2016.^[4-6]

Most of the maternal deaths are preventable by early detection of different risk factors and appropriate, affordable management at proper time. The appropriate utilisation of ante natal, intra natal and post-natal care services by the pregnant women could reduce pregnancy related complications and maternal morbidities and mortality. However, in India, utilisation of maternal health care services was not satisfactory from NFHS 4 and DLHS 4.^[7,8] In West Bengal, MMR was 113 per 100,000 live births and 68% maternal deaths occur in 20-29 years age group.^[6] Utilisation of maternal health care services by mothers in West Bengal (From NFHS-4)^[9] was as follows: 4 or more antenatal visits -76.5% (urban-78.1%), 100 or more Iron Folic Acid [IFA] tablets consumption - 28.1% (urban-31.6%), post-natal check-up within 2 days-61.1% (urban-68.6%), institutional delivery - 75.2% (urban-83.70%).^[9]

The Government of India launched the National Health Mission and National Urban Health Mission on 2013 with some special strategies to improve the health care services for slum dwellers. Yet slums in urban areas were neglected, but those areas were leaving a large scope for improvement. When evaluation of RCH programme was done (DLHS-3), it was found that utilisation of maternal health services was poor among slum dwellers. Improvement of maternal health care service will not only put a positive impact on maternal health, but also on the health of the new born, since prevention of low birth weight depends entirely on good quality antenatal care, and previous studies also report these.^[10,11] Studies to assess the maternal health care in slums especially in the slums of Kolkata was quite rare. With this background, the current study was conducted to assess the utilisation and to find out the associates of maternal health care services and also to identify the factors associated with low birth weight among mothers with younger child ≤ 3 years in slums of Kolkata.

Methods

Study design

The study was a community-based, observational study with cross-sectional design conducted in slums of Kolkata from June 2017 to May 2018. Approval from IEC of All India Institute of Hygiene and Public Health was obtained and date was 15.11.2017.

Study setting

The study was conducted in 30 slums registered under Kolkata Municipal Corporation [KMC], Kolkata, West Bengal.^[12,13]

Study population

Mother and her youngest child whose age was ≤ 3 years were the study population. The inclusion criteria were mothers whose youngest child's age was ≤ 3 years and the exclusion criteria were mothers who could not give interview and those mothers

who did not give informed written consent for participation in the study.

Sample size calculation and sampling technique

According to the data found in District Level Household Survey-4 (WB, Urban)^[14], the full antenatal care had lowest coverage, [40.0%].

So, in the current study the sample size was: $(Z\alpha/2)^2PQ/L^2$

$$= (1.96)^2 \times 40.0 \times 60.0 / (0.20 \times 40.0)^2$$

$$= 145$$

$P = 40.0$, $Q = 100 - 40.0 = 60.0$, $L =$ Allowable relative error = 20% of P [0.20×40.0]

In the study cluster sampling was done.

Considering design effect of 2, the final sample size was = $145 \times 2 = 290$.

In the study, WHO 30 cluster survey or EPI survey method was used.

So, from each cluster, $290/30 = 10$ study participants were selected.

Finally, $300 [30 \times 10]$ study participants were selected for the study.

After obtaining information from KMC, a list was made showing 2000 registered slums present under KMC with population. From this list, 30 clusters (slums) was selected by cluster sampling using probability proportionate to population size method.

After going to the centre of the selected slum with the help of local maps and local people, at first, one direction was chosen randomly with the help of random number table or number from a currency note.^[15] Then, the first house number was chosen randomly with the help of random number table or currency note. If a mother was present in that house, then that was the first study subject. If the mother was not present, then the next and other neighbouring houses were visited continuously till all the 10 mothers were encountered in the selected slum.^[15] The same procedure was followed in rest of the 29 selected slums. If 2 mothers were present in one house, the mother of younger child was considered as study participant.

Study Tools and Technique

Face to face interview was conducted with the help of a pre-designed, pre-tested, structured schedule to collect data. The review of maternal child protection card and previous medical records was also done during data collection.

Table 1: Scoring patterns of different outcome variables used in the study

Variables used for scoring	Score	Score	Score
	Status of maternal health care services	Maternal health care services for prevention of LBW	Status of maternal health care utilisation
Measurement of Blood pressure in each trimester	Yes:1, no: 0	Yes :1, no: 0	-
Measurement of weight in each trimester	Yes: 1, no: 0	Yes: 1, no: 0	-
Urine for protein done in each trimester	Yes: 1, no: 0	Yes: 1, no: 0	-
Haemoglobin examination done in each trimester	Yes: 1, no: 0	Yes: 1, no: 0	-
Per abdominal examination done in each trimester	Yes: 1, no: 0	Yes: 1, no: 0	-
Date of registration: 1 st trimester	Yes: 1, no: 0	Yes: 1, no: 0	Yes: 1, no: 0
100 IFA tablets consumed in antenatal period	Yes: 1, no: 0	Yes: 1, no: 0	Yes: 1, no: 0
360 Calcium tablets consumed in antenatal period ^[54]	Yes: 1, no: 0	Yes: 1, no: 0	Yes: 1, no: 0
Albendazole tablets consumed in antenatal period	Yes: 1, no: 0	Yes: 1, no: 0	Yes: 1, no: 0
Antenatal advices given[for each advice:1]	0-7	0-7	-
Number of home visits in post-natal period [for each home visits: 1]	0-5	-	-
Score Range	0-21	0-16	0-4

Study variables

In the study, 3 dependant variables were considered:

1. The utilisation of maternal health care services.
2. The status of maternal health care services
3. The Low Birth Weight

The scoring was shown in the Table 1 below:

Operational definitions

1. Teenage marriage: The age of marriage of a woman <20 years was considered as teenage marriage.
2. Status of maternal health care services score:

Satisfactory: Score >18 [$>75^{\text{TH}}$ percentile of attained score] was taken as satisfactory status of maternal health care services.

Unsatisfactory: Score ≤ 18 [$\leq 75^{\text{TH}}$ percentile of attained score] was taken as unsatisfactory status of maternal health care services.

3. Maternal health care services utilisation score:

Satisfactory: Score >3 [$>50^{\text{TH}}$ percentile or median of attained score] was taken as satisfactory utilisation of maternal health care services.

Unsatisfactory: Score ≤ 3 [$\leq 50^{\text{TH}}$ percentile or median of attained score] was taken as unsatisfactory utilisation of maternal health care services.

4. Maternal health care services for prevention of LBW

Satisfactory: Score >14 [$>50^{\text{TH}}$ percentile or median of attained score] was taken as satisfactory status of ante natal care services.

Unsatisfactory: Score ≤ 14 [$\leq 50^{\text{TH}}$ percentile or median of attained score] was taken as unsatisfactory status of antenatal care services.

5. Low Birth Weight [LBW]: Birth weight is less than 2500 gm irrespective of gestational age.^[16]

Method of Data Collection

For data collection house to house visit was done. All the participants were explained about the purpose of the study. Anonymity and confidentiality were assured to the participants. After taking informed written consent, the participants were interviewed individually. In case of any disease or health problem reported by the study participant, appropriate advice was given to her or she was referred to the hospital. Approval from Institutional Ethics Committee of A.I.I.H. & P.H., and Kolkata Municipal Corporation was obtained to conduct the study. All the ethical issues were addressed accordingly during the study period.

Data analysis

Data was analysed using SPSS software, version 16 [IBM]. Frequency distribution tables and appropriate statistical tests of significance were done. P value <0.05 was taken as cut off for statistically significant association.

Results

Socio-demographic characteristics

The mean age of the mothers was 23.83 (± 3.64) years and age range was 18 to 35 years, among them 62.9% were in the age group of 19 to 24 years. 78.3% study participants were Hindu by religion and 73% belonged to other caste. 38.7% mothers completed their primary school education and 4.0% mothers were illiterate. 85.3% mothers were homemakers. 60.7% of the study participants belonged to upper lower [IV] socio economic class according to Modified Kuppusawamy Scale [January 2019]. 6.7% of the mothers got married before 18 years of age, and the mean age of marriage was 19.94 (± 1.73) years ranging from 17 to 26 years.

Table 2: Distribution of mothers according to status of different maternal health care services [n=300]

Variables		Number (%)
Time of registration	1 st trimester	227 (75.7)
	2 nd trimester	73 (24.3)
Measurement of BP in each trimester	Done	208 (69.3)
	Not done	92 (30.7)
Measurement of weight in each trimester	Done	283 (94.3)
	Not done	17 (5.7)
Abdominal examination in each trimester	Done	211 (70.3)
	Not done	89 (29.7)
Haemoglobin examination in each trimester	Done	227 (75.7)
	Not done	73 (24.3)
Urine for albumin examination in each trimester	Done	199 (66.3)
	Not done	101 (33.7)
IFA Tablet consumption	<100	66 (22.0)
	≥100	234 (78.0)
Calcium tablet consumption	≥360	70 (23.3)
	<360	230 (76.7)
Albendazole tablet consumption	Yes	292 (97.3)
	No	8 (2.7)
Ante natal care advices given on Diet	Yes	300 (100.)
	No	0 (0.0)
Rest and sleeping	Yes	290 (96.7)
	No	10 (3.3)
Personal hygiene	Yes	285 (94.6)
	No	15 (5.4)
Danger signs of pregnancy	Yes	300 (100.)
	No	0 (0.0)
Exclusive breast feeding	Yes	281 (93.7)
	No	19 (6.3)
Drug intake restrictions	Yes	290 (96.7)
	No	10 (3.3)
Advices on place of delivery	Yes	300 (100.)
	No	0 (0.0)
Actual Place of delivery	Private health facility	60 (20.0)
	Government health facility	240 (80.0)
Numbers of home visits by health workers after delivery	1	111 (37.1)
	2	142 (47.2)
	3	40 (13.3)
	4	6 (2.0)
	5	1 (0.3)

Status of maternal health care services

From Table 2, it could be seen that, 75.7% of the mothers were registered in 1st trimester. Measurement of blood pressure in each trimester was done for only 69.3% of mothers. Haemoglobin was examined in each trimester among 75.7% of the mothers. 22.1% mothers consumed <100 IFA tablets for 100 days. Only 23.3% mothers consumed ≥360 calcium tablets for 180 days. 2.7% mothers did not consume Albendazole tablets. 6.3% and 3.3% mothers did not receive antenatal advices about exclusive breast feeding and restrictions of taking drugs without physician's advice respectively. Only 47.2% mothers received two home visits by health workers during their postnatal

period. All the mothers had ≥4 ANC visits and appropriate doses of TT vaccine.

From Table 3, it could be seen that 232 (77.3%) of the mothers had unsatisfactory status of maternal health care services. Unsatisfactory status of maternal health care services was significantly associated with younger age of the mothers, a smaller number of pregnancies and teenage marriage of the mothers.

From Table 4, it could be seen that 80.3% of the mothers had unsatisfactory utilisation of maternal health care services. Unsatisfactory utilisation of maternal health care services was significantly associated with lower age of the mothers, a smaller number of pregnancies of the mothers and teenage marriage of the mothers.

From Table 5, it could be seen that 16.3% of the babies were LBW.

LBW was significantly associated with younger age of the mothers, unsatisfactory maternal health care services utilisation, unsatisfactory status of maternal health care services, gestational diabetes mellitus, teenage marriage of the mothers and <100 IFA tablet consumption during antenatal period by the mothers.

Discussion

From the current study, it was observed that the utilisation of maternal health care services among mothers in slums of Kolkata was not satisfactory. 75.7% of the mothers were registered in the first trimester. Measurement of blood pressure and haemoglobin examination in each trimester was done for nearly 70% of the mothers. 22.1% of the mothers consumed <100 IFA tablets for 100 days and only 23.3% of the mothers consumed ≥360 calcium tablets for 180 days. Only 47.2% of the mothers received 2 home visits by health workers during their postnatal period. 77.3% of the mothers had unsatisfactory status of maternal health care services and it was significantly associated with younger age of the mothers, a smaller number of pregnancies and teenage marriage of the mothers. 80.3% of the mothers had unsatisfactory utilisation of maternal health care services and it was significantly associated with lower age of the mothers, a smaller number of pregnancies of the mothers and teenage marriage of the mothers. 16.3% of the babies were low birth weight babies. LBW was significantly associated with younger age of the mothers, unsatisfactory maternal health care services utilisation, unsatisfactory status of maternal health care services, gestational diabetes mellitus, teenage marriage of the mothers, and <100 IFA tablet consumption during antenatal period by the mothers.

At first, the findings of the current study were discussed with the findings from the **NFHS 4 and DLHS 4 [Kolkata]**.

Registration of pregnancy in first trimester was 75.7% which corroborated with the findings of NFHS 4 [Kolkata].^[17] The

Table 3: Association of unsatisfactory status of maternal health care services with different variables [n=300]

Variables		Status of maternal health care services		Total	χ^2 , df, p
		Unsatisfactory [≤ 18 score]	Satisfactory [>18]		
		Number (%)	Number (%)		
Age [years]	<23	95 (96.9)	3 (3.1)	98 (100.0)	5.04, 1, 0.001*
	≥ 23	137 (67.8)	65 (32.2)	202 (100.0)	
Religion	Hindu	178 (75.7)	57 (24.3)	235 (100)	1.21, 1, 0.79
	Others	54 (83.1)	11 (16.9)	65 (100)	
Caste	Others	172 (78.5)	47 (21.5)	219 (100)	0.78, 1, 0.41
	SC, ST, OBC	60 (74.1)	21 (25.9)	81 (100)	
Literacy status of mothers	Below middle school	131 (80.4)	32 (19.6)	163 (100)	1.98, 1, 0.17
	Middle school and above	101 (73.7)	36 (26.3)	137 (100)	
Occupation of mothers	Homemaker	197 (77.0)	59 (23.0)	256 (100)	0.84, 1, 0.67
	Working for pay	35 (79.5)	9 (20.5)	44 (100)	
Per capita income [INR]	≤ 2000	147 (76.6)	45 (23.4)	192 (100)	0.89, 1, 0.58
	>2000	85 (78.7)	23 (21.3)	108 (100)	
Total number of pregnancies	2	200 (79.7)	51 (20.3)	251 (100)	0.78, 1, 0.03*
	>2	32 (65.3)	17 (34.7)	49 (100)	
Teenage marriage [in years]	Yes	108 (90.0)	12 (10.0)	120 (100)	4.05, 1, 0.001*
	No	124 (68.9)	56 (31.1)	180 (100)	
Total		232 (77.3)	68 (22.7)	300 (100)	

*p value < 0.05 was taken as statistically significant cut off

Table 4: Association of unsatisfactory utilisation of maternal health care services and different variables [n=300]

Variables		Utilisation of maternal health care services		Total Number (%)	χ^2 , df, p
		Satisfactory [>3 score]	Unsatisfactory [≤ 3 score]		
		Number (%)	Number (%)		
Age [years] of mothers	<23	5 (5.1)	93 (94.9)	98 (100.0)	11.5, 1, 0.001*
	≥ 23	54 (26.7)	148 (73.3)	202 (100.0)	
Literacy status of mothers	Below middle school	29 (17.8)	134 (82.2)	163 (100)	0.79, 1, 0.34
	Middle school and above	30 (21.9)	107 (78.1)	137 (100)	
Occupation of mothers	Homemaker	52 (20.3)	204 (79.7)	256 (100)	0.461, 1, 0.497
	Working for pay	7 (15.9)	37 (84.1)	44 (100)	
PCI of mothers [INR]	≤ 2000	48 (25.0)	144 (75.0)	192 (100)	9.6, 1, 0.051
	>2000	11 (10.2)	97 (89.8)	108 (100)	
Total number of pregnancies	≤ 2	38 (15.1)	213 (84.9)	251 (100)	9.9, 1, 0.001*
	>2	21 (42.9)	28 (57.1)	49 (100)	
Teenage marriage	Yes	6 (5.0)	114 (95.0)	120 (100)	7.2, 1, 0.001*
	No	53 (29.2)	127 (70.8)	180 (100)	
Total		59 (19.7)	241 (80.3)	300 (100)	

* p value < 0.05 was taken as statistically significant cut off.

findings of the current study were different from NFHS 4, in case of ≥ 4 ante natal visits [100% vs. 84.6% in NFHS 4], ≥ 100 IFA tablets consumption [78% vs. 42% in NFHS 4], institutional deliveries [100% vs. 94.8% in NFHS 4] etc.

Institutional Delivery was found to be 100% in the current study which was similar to DLHS 4^[18] [98.3%]. But the findings were different in the current study than DLHS 4, Kolkata^[18] data in case of ≥ 100 IFA tablets consumption [78% vs. 38.7% in DLHS 4], registration in first trimester [75.7% vs. 59.9% in DLHS 4] etc.

These better findings in the current study from NFHS 4 and DLHS 4 might be due to better reinforcement of maternal health care services at field level among vulnerable slum population in slums of Kolkata.

Now, the findings of the current study were discussed with the findings of other previous studies. Regarding registration, 24.3% mothers registered their pregnancy in the second trimester in the current study. In a study done by Mukhopadhyay *et al.*^[19] in Bankura, 30.7% of the mothers had registered their pregnancies after 1st trimester. 54.2% mothers registered their pregnancies after first trimester in a study done by Acharya *et al.*^[20] in Delhi.

Regarding health care service, the measurement of blood pressure and weight, palpation of abdomen, examination of haemoglobin and urine for albumin was done in each trimester among 69.3%, 94.3%, 70.3%, 75.7%, 66.3% of mothers, respectively, in the current study. Blood pressure measurement in early trimester was important for detection of pre-existing hypertension and in late trimester for detection of pre-eclampsia. Regular weight measurement and urine for

Table 5: Associations of low birth weight [LBW] with different variables [n=300]

Variables		LBW		Total Number (%)	χ^2 , df, p
		Yes Number (%)	No Number (%)		
Age [years] of mothers	<23	34 (34.7)	64 (65.3)	98 (100.0)	8.9, 1, 0.001*
	≥ 23	15 (7.4)	187 (92.6)	202 (100.0)	
Literacy status of mothers	Below middle school	28 (17.2)	135 (82.8)	163 (100)	0.19, 1, 0.67
	Middle school and above	21 (15.3)	116 (84.7)	137 (100)	
Occupation of mothers	Homemaker	42 (16.4)	214 (83.6)	256 (100)	0.007, 1, 0.93
	Working for pay	7 (15.9)	37 (84.1)	44 (100)	
PCI of mothers [INR]	≤ 2000	34 (17.7)	158 (82.3)	192 (100)	0.74, 1, 0.39
	> 2000	15 (13.9)	93 (100)	108 (100)	
Maternal services utilisation	Satisfactory [>3 score]	3 (5.1)	56 (94.9)	59 (100)	6.8, 1, 0.009*
	Unsatisfactory [≤ 3 score]	46 (19.1)	195 (80.9)	241 (100)	
Maternal health care services delivery	Satisfactory [>14 score]	2 (2.4)	80 (97.6)	82 (100)	15.94, 1, 0.001*
	Unsatisfactory [≤ 14 score]	47 (21.6)	171 (78.4)	218 (100)	
GDM	Absent	48 (17.7)	223 (82.3)	271 (100)	3.9, 1, 0.048*
	Present	1 (3.4)	28 (96.6)	29 (100)	
Hypertension	Absent	46 (17.0)	224 (83.0)	270 (100)	0.97, 1, 0.32
	Present	3 (10)	27 (90.0)	30 (100)	
Anaemia	Absent	42 (15.7)	226 (84.3)	268 (100)	0.805, 1, 0.37
	Present	7 (21.9)	25 (78.1)	32 (100)	
Total number of pregnancies	≤ 2	46 (18.3)	205 (81.7)	251 (100)	4.5, 1, 0.048
	> 2	3 (6.1)	46 (93.9)	49 (100)	
Teenage marriage	Yes	35 (29.2)	85 (70.8)	120 (100)	5.1, 1, 0.001*
	No	14 (7.8)	166 (92.2)	180 (100)	
100 IFA consumed in antenatal period for 100 days	No	32 (48.5)	34 (51.5)	66 (100)	6.4, 1, 0.001*
	Yes	17 (7.3)	217 (92.7)	234 (100)	
Total		49 (16.3)	251 (83.7)	300 (100)	

* p value < 0.05 was taken as statistically significant cut off

albumin test could also detect preeclampsia. The growth of foetus could be assessed by abdominal examination and weight measurement. Regular haemoglobin examination could detect anaemia in pregnancy. Hence, all health personnel should be counselled about the importance of all the measurements in each trimester.

In terms of utilisation of health care services, 22.1% mothers consumed <100 IFA tablets in the current study. 18.0% mothers consumed <100 IFA tablets in a study done by Awasthi *et al.*^[21] in Nepal and the proportion was different from the current study but only 13.03% mothers consumed ≥ 100 IFA tablets in a study done by Danasekaran *et al.*^[22]

Birth weight is an important outcome of the status of utilisation of health services. 16.3% babies were LBW in the current study. In Chi square test, the LBW was significantly associated with age of mother, teenage marriage of the mothers, 100 IFA tablet consumption during antenatal period and unsatisfactory utilisation scores. The proportion of LBW was 17% among new-born in a study by Kumar *et al.*^[23] which was quite similar to the current study. 18% of the babies were LBW in a study by Jogia *et al.*^[24] in Gujarat. Jogia *et al.*^[24] also found that odds of having LBW babies were significantly higher in uneducated mothers, multigravida, mothers with <4 ANC visits etc., which was quite different from the current study.

Conclusion

As per the above study the status of utilisation of services was not satisfactory among mothers in slums of Kolkata. Utilisation of maternal health care was not satisfactory also in different states of India and it was evident from different studies.^[22-27] Some important items of antenatal care like delayed registration of pregnancy, lack of performing essential measurements timely, deficiency in giving essential antenatal advices, inadequate post-natal home visits etc., reflect the unsatisfactory utilisation of services in slums of Kolkata. Most of the unsatisfactory utilisation of services is preventable and can be easily be improved by appropriate, intensified and proactive interventions.

The primary health care has an important role in improving the utilisation of maternal health care services.^[28] The integration of maternal and child health care with primary health care was an intelligent cost-effective strategy for improvement of maternal and child health not only in India but also in all over the world since long time.^[29] The sub centres, primary health centres and Angwanwadi centres [integrated child development scheme centres] are the first contacts of mothers with health care system. These centres can serve mothers in different ways like iron folic acid and calcium tablet distribution, timely examination and referral of high-risk mothers, counselling for birth preparedness and complication readiness, birth spacing, counselling for essential advices for pregnant mothers and

motivating the mothers for utilising public health services etc., The maternal and child health care services are integral part of sub centres and primary health centres in India. Recently, the Government of India launched Ayushman Bharat scheme where maternal and child health care services will be provided from health and wellness centres to the tertiary care level and the services will reduce the out of pocket expenditure for maternal and child health care, and improve the service utilisation by them.^[30] Proper infrastructure, health education and awareness generation among mothers and field level workers will play a very important role in giving birth to healthy babies from healthy mothers. In spite of a plethora of robust programmes for maternal health, maternal morbidities and mortality still plague this nation. Therefore, awareness programmes and appropriate infrastructure development for stringent utilisation of all maternal health care services is very essential to reach the goal set for MMR in SDG before 2030.

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Conflicts of interest

There are no conflicts of interest.

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