Factors associated with community based essential newborn care practice among mothers who delivered at home in Fogera district, North West, Ethiopia

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ABSTRACT

Background
Almost all (99%) neonatal deaths ascend in developing countries and three-quarters of them occurred in their first 1 week of life. Promotion of essential newborn care practices regardless of gestational age, where it is born, or its size is one of the strategies; however, little is known about essential newborn care practice in Ethiopia.

Methods
A community based cross-sectional study was carried out in 2018 from 814 mothers who delivered in the last six months and a multi-stage sampling was applied. Data was collected by nurses and midwives, and cleaned by EPI INFO software version 7. Data was analyzed using SPSS software version 21. Bivariable and multivariable logistic analyses were deployed to identify the association.

Results
In this study 373 (45.8%) with 95% CI (42.1-49.4) had good essential newborn care practice. Having one under five children AOR =1.37; 95% CI (1.10-1.85), mothers who gained training about community-based essential newborn care AOR = 1.97; 95% CI (1.44-2.68) and women whose spouse involved AOR = 3.95; 95% CI (2.75-5.65) were the independent predictors of good essential newborn care practice.

Conclusions and Recommendations
In this study greater than half of the mothers were not practicing the recommended essential newborn care practice. The numbers of under-five children, Health extension workers give training about community-based newborn care practice and Spousal involvement were variables which are significantly associated factors with beneficiary newborn care practice. Therefore, routine counseling to all mothers, refreshment training to HEWS and spousal involvement is important to increase utilization of essential newborn care practice in the community.

Keywords: Essential Newborn Care Practice, Newborn, Associated Factors

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INTRODUCTION

The world health organization suggested essential newborn care to comprehend care that every newborn baby need, regardless of gestational age, where it is born, or its size and should be applied immediately after the baby is born which includes cleanliness, thermal protection (immediate drying and wrapping) of the baby after delivery, delay

bathing, management of illness, early initiation of breastfeeding, understanding and reacting to potential neonatal problems as new innovative strategies must be applied.[1]

Every, year approximately 4 million babies die in the first 28 days life: from these three-quarters of neonatal deaths occurred in their first 1 week of life and at least 1 million newborn dies on their first day of life. Astonishingly almost all (99%) neonatal deaths ascend in resource low and middle-income countries, but even though little progress is seen, two-thirds of those burdens concentrated in south-central Asia and sub-Saharan Africa including Ethiopia.[2]

Despite the global neonatal mortality rate weakened 40 percent from33 deaths per 1,000 live births in the year 1990 to 20 in the year 2013, the proportion of under-five deaths that occur within the neonatal period has increased from 37 percent in 1990 to 44 percent in 2013, because declines in the neonatal mortality rate are slower than those in the death rate for elder children.[3] By using 16 proven companied cost-effective interventions preconception, Antenatal, intrapartum and postnatal care at outreach, family, community, and facility-based clinic, we can avert an estimated 41–72% of neonatal deaths worldwide.[1]

The basic principle (10 steps) of "warm chine" which are extremely important for thermal protection of newborns are not difficult to implement at birth, during the next few hours and days at home or health institution. Practices contrary to WHO recommendations different study showed that, applying of these important component was low: only 38% were had good cord care, 42% optimal thermal care, and 57% were considered to have had adequate neonatal feeding[4] and clean instrument was used for cutting the cord of 87% of the newborn babies, while about 34% of them were reported to have had their first bath immediately after delivery. Initiation of breastfeeding immediately after birth was practiced in only about 19% of the cases.[5,6] The essential newborn care wrapping, early initiation of

breastfeeding skin to skin contact were very low (below 50%) in rural Nepal.[7,8]

Many destructive and unnecessary bad neonatal practices were widespread in the public: 83.92% of the deliveries were conducted at home and new blade was used to cut the umbilical cord in 63.82%, unimportant powder was applied regularly, Bathing the baby instantly after birth was frequently practiced in 76.60% and weirdly 29.92% initiated breastfeed after 24 hours in India.[9] In Ghana, the overall prevalence of beneficiary newborn care, including good cord care practice , optimal thermal care, and initiation of breastfeeding within one hour was very low 15.8% only.[6] A Large Cross-Sectional Community-Based Study of essential newborn Care Practices in Tanzania displayed that the majority of mothers delivered at home and greater than half of the women stated drying the baby, over one third described covering the baby within 5 minutes of delivery, 85% preparing a cloth for drying the child, 95% of these women reported that the cord was cut with a clean razor blade, 10% reported that their baby was dipped in cold water immediately after delivery, 28% reported putting something on the cord to help it dry, Skin-to-skin contact between mother and baby after delivery was rarely practiced and only 18% breastfeed within an hour.[10] A population-based study in Ethiopia revealed that the overall prevalence of essential newborn care practice was 81.1% in Mekele,[11] 40.6% in Mandura District,[12] 26.7% in AksumTown,[13] and 59.5% in Southwest Ethiopia.[14]

Newborn care practices at home and in health facilities in 4 regions of Ethiopia: wrapping the baby before delivery of the placenta 82.3% and dry cord care 65.2%. Bathing during the first 24 hours of life, 74.7%, application of butter and other substances to the cord 19.9%.[15]

In Ethiopia, neonatal mortality is still high even though the government of Ethiopia applies many interventional strategies, including perinatal death surveillance and response assessment to alleviate these burdens and the neonatal mortality rate was 29

deaths per 1,000 live births, and the postneonatal mortality rate was 19 deaths per 1,000 live births.[D,E]

In Ethiopia and other African countries adoption of the WHO recommended beneficiary newborn care practice is still low.[6,12,14, 16,17]

As a result of little facility delivery rates and great neonatal mortality rate, the Federal Ministry of Health in Ethiopia established a policy to improve maternal, child and neonatal health interventions through prenatal and postnatal home visits which practiced by kebele HEWs.

There is very limited information about newborn care practices in Ethiopia especially in this region because many strategic indicators that are designed by the WHO ones are not currently measured by routine surveys. Therefore, this study well important to show the factors that contributes to the adoption of essential newborn care practice in Fogera District.

METHODS AND MATERIALS
Study Design and Period
A community-based cross-sectional study was conducted in Fogera District from January first to January thirty 2018.

Study Area
Fogera is found in south Gondar zone, Amhara National, Regional State in North West Ethiopia, and it is far from the capital city of Ethiopia (Addis Ababa) by 625 kilometers. The district is bounded on the South by Dera district, on the West by Lake Tana, on the North by the River Rib which separates it from the Libo Kemkem district, on the North East by Ebenat district, and on the East by Farta district. District Fogera have 44 kebeles (small administration), 9 Health centers and 44 health posts. Majority of the populations are farmers and Christian. And the report made by the district Health office disclosed that, women of reproductive age constitute approximate 43, 227 (21%) of the population and an estimated 5685 deliveries takes place annually.

Study Populations
The source populations and the study population: all reproductive age women who gave birth within the last six months in the district and all reproductive age women who gave birth within six months in the randomly 9 selected Kebeles respectively.

Sample Size Determination
The sample size was determined using the formula of single population proportion with the assumption of the prevalence of good newborn care practice in Metekel Zone 40.6%,[12] $Z \, a/_2$ =1.96 with 95 confidence interval and 5% of marginal error and design effect 2 then, the final sample size was 814 including 10% none response rate.

Sampling Procedures
The multi-stage sampling procedure was employed to select the required 814 sample size. At least 20% (9 kebeles) were selected randomly from the total by using lottery method. Then we did a survey to select mothers who delivered in the last six months in the selected kebeles. Finally from all surveyed mothers, proportional allocation was employed for 9 kebeles and at the end we used systematic random sampling techniques to select study participants. For a mother who was not present during the day of data collection, revisit was done in another time or day.

Outcome Variable
Essential newborn care practice

Operational Definitions
Good feeding practices defined as initiating breastfeeding within the first 1 hour after birth.[12,13,16]

Good baby bathing: the practice of newborn baby bathing only after 24 hours of birth. [12,13,16]

Good care of cord: defined as type of device used to cut the cord which includes new razor blade, sterilized pair of scissors, material used to tie the cord (clean thread), and nothing was apply on the cord.[12,13,16]

Optimal thermal care defined as a newborn after birth was first dried, wrapped in clean dry cloth.[12,13,16]

These all the above beneficial newborn care practices was dichotomized as good and poor.

Data Collection Tools

A closed-ended structure questionnaire was developed after reviewing relevant literature to include all the possible variables that address the objective of this study. It developed in English and translated into the local language (Amharic), finally, retranslated into English.

Data was collected by 4 Nurses and 5 Midwives health Professionals using interview and supervised by 3 supervisors.

Data Quality Assurance

To ensure the quality of data, one day training was given for data collectors on the overall procedure of data collection process. The questionnaire was pre-tested before the actual data collection time on 41 participants (5% of the sample) outside the actual study area.

The supervisors were closely following the day-to-day data collection process, and ensured the completeness and consistency of questionnaire that administered each day. The supervisors were randomly verified at least on the 10% of the completed questionnaire for inter-interviewer consistency. The collected data was reviewed and checked for completeness before data entry and all were complete.

Data Processing and Analysis

Data cleanup and cross-checking was done before analysis and all were coded, entered and cleaned using EPI INFO windows -version7 statistical software; and analyzed using SPSS version-21. Both descriptive and analytical, statistical procedures were utilized.

To reduce the excessive number of variables and resulting instability, only Variables in binary screening found at a p-value less than 0.2 were further considered into multiple logistic regressions to avoid confounders. The Hosmer-Lemeshow goodness of fit test was performed and it is 0.964 Logistic regression analysis was performed to describe explanatory variables. Odds ratio (OR) with 95% confidence interval (CI) was applied to assess the strength of association between independent and outcome predictors. For all statistically significant tests p-value < 0.05 was used as a cutoff point.

Ethical Clearance

Ethical clearance was obtained from Institutional Ethical Review Committee of Debre Tabor University, permission letter from each district health office bureau and informed consent from each respondent. Personal identifies were excluded during and after data collection and all the data were kept confidentially.

RESULTS

Socio-demographic Characteristics

In this study, a total of 814 mothers were included with a response rate of 100%. All most half 396 (48.6%) of the age distributions of the respondents were found between the age of 30-39.Greater than half 439 (53.9 %) the respondents were developing their first pregnancy below the age 20. less than two-thirds 472(58.1%), 490 (60.2%) and 502 (61.7%) of the respondents were unable to read and write, found in the medium wealth and had only one under five children respectively (Table 1).

Table 1 Socio-demographic characteristic of the respondents in Fogera district, Amhara National Regional State, Ethiopia 2018

Variables	Number	Percent
Age of mother at first marriage		
10-14	93	11.4
15-20	633	77.8
>20	88	10.8

Age of the mother at first pregnancy		
<20	439	53.9
20-35	375	46.1
Age of the mother during data collection		
≤19	45	5.5
20-29	229	34.3
30-39	396	48.6
≥40	94	11.5
Marital status of the mother		
Married	741	91.0
Non-married	34	4.2
Separated	22	2.7
Divorced	17	2.1
Maternal education		
Unable to read and write	472	58.1
Able to read and write	219	26.9
1-8 grade	93	11.4
9-12 grade	24	2.9
College and above	6	0.7
Educational status of the father		
Unable to read and write	400	49.1
Able to read and write	259	31.8
1-8 grade	104	12.8
9-12 grade	37	4.5
College and above	14	1.7
Occupation of mother		
Housewife	86	10.6
Farmer	672	82.6
Daily Worker	36	4.4
Government employed	20	2.5
Economic status of the family		
Very poor	40	4.9
Poor	112	13.8
Medium	490	60.2
Rich /better	172	21.1
Number of under-five children		
1	502	61.7
2-3	312	38.3

Maternal Health Services

From the total respondents approximately three fourth 600(73.7%) of the respondents were going to antenatal care follow up, but only 46(5.7%) of them visited the facility four times and above. Approximately half 427 (52.5%) of the households were visited by health extension workers during their pregnancy time and greater than half 441 (54.2%) of the respondents were used family planning during data collection. One fifth 158 (19.4) of the pregnancies were unintended and 311(38.2%), 253(31.1%), 250(30.7%) of the newly delivered babies were placed on the earth, beside the mother and give to another person respectively (Table 2).

Table 2 Maternal health service of the respondents in Fogera District Amhara National Regional State, Ethiopia 2018

Variable	Number	Percent
ANC follow up		
No	214	26.3
Yes	600	73.7
The frequency of ANC visit		
1	270	33.2
2-3	343	42.1
≥4	46	5.7
Delivery attendant		
Family	558	68.6
TBA	256	31.4
Did you go for PNC/ visited by HEWS after delivery		
No	490	60.2
Yes	324	39.8
HEWS visit your home during pregnancy		
No	387	47.5
Yes	427	52.5
Did you use family planning currently		
No	373	45.8
Yes	441	54.2
Type of family planning they used		
POP	60	13.6
COC	20	4.5
Depo-Provera	349	79.1
Implanol	12	2.7
Where did you place the newborn after delivery		
On the earth	311	38.2
Beside the mother	253	31.1
Give to another person	250	30.7
Ever heard about immediate newborn care		
No	310	38.1
Yes	504	61.9
Neonatal death in the last 5 year		
No	787	96.7
Yes	27	3.3
Pregnancy intended		
No	158	19.4
Yes	656	80.6

Newborn Care Practice

All most all 781(95.6%) used new cord-cutting instruments, to keep the babies warm most 749 (86%) were immediately drying and wrapping. Immediately bathing was a norm for this society with half 418 (51.4%) of the newborn babies bathed before 24 hours. About half 467 (57.7%) were initiated within the first hour of delivery. Even though spousal

involvement is the most important factor for maternal and neonatal health, only 189(23.2%) of their husbands went with them for maternity services/ any other health interventions and although

one function of health extension works is giving training about newborn care for pregnant mothers, only 289(35.5%) of them were given training by health extension workers (Table 3).

Table 3 Newly born care practice among mother who delivered in fogera district Amhara National Regional State, Ethiopia 2018

Variable	Number	Percent
Birth attendant wash her hand		
No	152	18.7
Yes	662	81.3
Clean cloth for a new baby		
No	438	53.8
Yes	376	46.2
Clean cord tie		
No	296	36.4
Yes	518	63.6
Cord cutting instrument		
Old	33	4.1
New	781	95.9
Drying and wrapping the newborn baby		
No	65	8
Yes	749	92
Thermal care		
Drying and covering	760	93.4
Not drying and covering immediately	54	6.6
Bathing		
< 24 hours	418	51.4
≥24 hours	396	48.6
Breastfeeding in the first time		
<1 hour	468	57.5
≥1hours	346	42.5
Water to wash the newborn		
Cold	172	21.1
Hot	642	78.9
Yes	388	47.7

Personal, Health Extension and Health Service Characteristics

Majority 662(81.3%) of the respondent's marriage decider were their families. Only 289 (35.5%) of the

mothers were gained information about community-based newborn care practice during their monthly meeting with HEWS (Table 4).

Table 4 Personal and health service characteristics of the respondents in Fogera District Amahara National Regional State Ethiopia 2018

Variable	Number	Percent
Decision of marriage		
Family	662	81.3
My own	86	10.6
Both	66	8.1
Mothers gained training about ENBCP		
No	525	64.5
Yes	289	35.5
Spousal involvement during ANC/any other health intervention		
No	625	76.8
Yes	189	23.2
Did the mother support by her husband /other relatives		
No	222	27.3
Yes	592	72.7
Distance from the health facility		
> 60 minutes	494	60.7
≤60 minutes	320	39.3

Factors Associated with Essential Newborn Care Practice

In bivariable analyses, age of the mother during data collection, educational status, occupation, household income, antenatal care follow up, HEWS gives training about CBNBC, distance from a health facility, the number of under-five children, health extension worker visit home during pregnancy, Spousal involvement during ANC/any other health intervention and intended pregnancy were associated with essential newborn care practice.

The number of under-five children, HEWS give training about ENBCP and Spousal involvement during ANC/any other health intervention were the only significantly associated factors with the practice of essential newborn care in multivariable Logistic regression analyses. Had one under five children 1.37 times more likely to practice essential newborn care practice than mothers who had 2-3 under-five children with AOR =1.37; 95% CI (1.10-1.85). Mothers who took training about CBENCP were 1.97 times more likely to practice essential newborn care practice than women who didn't take CBENCP training with AOR = 1.97; 95% CI (1.44-2.68). Women whose Spousal involved during ANC/any other health intervention were 3.95 times higher to practice essential newborn care as compared to women whose spousal did not involve during ANC/any other health interventions with AOR = 3.95; 95% CI (2.75-5.65) (Table 5).

Table 5 Factors associated with ENC practice by multiple logistic regression analysis, fogera district, Amhara, Ethiopia 2018

Variables	ENBCP		COR (95%CI)	AOR (95%CI)
	Poor	Good		
The current age of Mother				
≤19	30	15	1	
20-29	142	134	1.93(0.99—3.47)	
30-39	220	176	1.6(0.85—3.10)	
≥40	49	45	1.84(0.88—3.85)	

Occupation of mother				
Housewife	40	46	1	
Farmer	372	300	0.7(0.45—1.1)	
Daily Worker	22	14	0.55(0.25—1.22)	
Government employed	7	13	1.62(0.59—4.44)	
Economic status of the household				
Very poor	22	18	1	
Poor	45	67	1.82(0.8—3.72)	
Medium	283	203	1.86(0.45—1.65)	
Rich /better	87	85	1.19(0.56—2.38)	
Number of under-five children				
1	255	247	1.43(1.07-1.90)*	1.37(1.10—1.85)*
2-3	186	126	1	1
ANC follow up				
No	128	86	1	
Yes	313	287	1.37(0.99—1.87)	
HEWS visit your home during pregnancy				
No	219	168	1	
Yes	222	205	1.2(0.91—1.59)	
Mothers gained training about ENBCP				
No	317	208	1	1
Yes	124	165	2.01(1.52-2.71)*	1.97(1.44—2.68)*
Distance from a health facility				
> 60 minutes	279	215	1	
≤60 minutes	162	158	1.27(0.95—1.68)	
Spousal involvement during ANC/any other health intervention				
No	386	239	1	1
Yes	55	134	3.94(2.77—5.60)*	3.95(2.75--5.65)*
Pregnancy intended				
No	98	60	1	1
Yes	343	313	1.49(1.24—2.13)*	0.79(0.54-1.14)

***Significant at p≤0.05**

DISCUSSION

The findings of this study showed that the practice of good essential newborn care in the district was 373 (45.8%) with 95% CI (42.1-49.4)   45.8 % and it was lower with a study conducted in tertiary care hospital of India (53.3%),[18] in Mekelle City, North Ethiopia among postnatal mothers, 81.1%,[11], in Jimma Zone, Southwest Ethiopia 59.5% (95 % CI: 57.6 %, 61.3 %),[14] and in Gulomekada District, Eastern Tigray, Ethiopia 92.9 % and the possible reason for this high prevalence of essential newborn care practice in Gulomekada District was level of knowledge, with (80.4 %) study participants had good knowledge on essential newborn care.[19]

The possible reason for high prevalence of essential newborn care practice in Mekelle City, may their residence, and educational status: because urban populations have a chances to gate information about essential newborn care from different mass media and have accesses to health institution and urban inhabitants are more educated than rural inhabitants, urban residence mothers had good knowledge of essential newborn care and the degree of acceptance of the health extension program by the community in urban and rural population was difference.[11,12,19] The high prevalence of India might

be due to socio-demographic and socio-cultural factors.

This study was high compared with a study done in rural Eastern Uganda 11.7 %,[16] in the Lawra District of Ghana 15.8%,[6] in Damot pulasa Woreda, southern Ethiopia 24%.[17]

The low adoption of all beneficial newborn care practices in rural Eastern Uganda might be related to extremely poor quality of services, especially at ANC follow up and deep-rooted, devastated cultural practices and rituals for newborns in the community.[20]

In this study bathing the baby immediately after birth was practiced in 51.4% and initiated breastfeeding less than one hour was 57.5%, but a study conducted in India showed that let bathing practiced was 76.60% and surprisingly 29.92% initiated breastfeed after 1 day of delivery in Urban Slums of Meerut, UP India.[9]

A ten year back study in rural Uganda revealed that early bathing of the baby and putting something on the umbilical cord were acceptable practices among mothers, fathers, grandparents, older children who take care of other children.[21]

Covering of newborn instantaneously after birth is compulsory for prevention of hypothermia, which is one of the principal causes of neonatal losses (, but a study conducted in a block of the Bhauch district of Gujarat, which had their own typical mode of thinking, feeling and common beliefs and attitudes, sentiments and ideas, non-wrapping of the newborn was common. The prime reason for non-wrapping being the newborn care practice of "Chatti puja"; where in the child was not draped until the seventh day of his life.[22]

The finding of this study discovered that mothers who were advised (discussed) about CBNC practices during monthly mother meeting with their relatives and health extension workers at least two times was statistically significant with ENBCP. The likelihood of practicing the ENBC was 2 times higher among those women who had gotten training as compared to those women who had not got training about ENBCP during monthly mothers' group meeting (AOR=1.97,95%CI=1.44--2.68) and this study was similar to a study done in Awabel District, East Gojjam Zone, Ethiopia (AOR=4.77, 95%CI=1.11--19.79).[23] This obvious that there could be a discussion about essential newborn care practice and sharing their previous experiences freely that was important for new born.

Educational status was critical predictable significant variable with essential new care practice in those women who attend primary and above education was 7.0 times more likely to practice ENBC as compared with those women who were unable to read and write with (AOR=7.02, 95% CI = 2.27-21.73).[5,11,12,14,23] In Bangladesh those mothers with no education, those with secondary or higher levels were associated with clean cord care (AOR) = 1.3, 95% CI=1.0-1.9] and early breastfeeding (AOR = 1.6, 95% CI= 1.2-2.2)[24] and in Mekelle city newborn care practice was definitely associated with those mothers who were educated was 2 times (AOR = 1.94; 95% CI =1.07-3.50) compared with that of no had formal education. But educational status was had no significant effect on this study. The possible reason may be due to the fact that essential newborn care practice is a simple, non-complex, non-costly, easily affordable and which didn't need special knowledge and training to practice it.[25]

In this study, mothers who got training about ENBCP during mothers group meeting at least two times were 2 times had good essential newborn care compared with those mothers who did not attend the meeting (AOR=1.97; 95% CI=1.44-2.68 and it was similar to a study conducted in Damot pulasa Woreda those mothers who had got ENBC advice during ANC visit or other meetings were 83.4% more likely practiced ENBC practice as compared to women who did not got the advice (AOR =0.114, P = 0.0001, CI = 0.058–0.221).[17]

The reason could be the health care providers could discuss essential newborn care practice during ANC visit.

Another variable which was significant in this study was the number of under-five children: mothers who had 1 under-five child were 1.37 times more likely practiced essential newborn care practice compared with mothers who had 2 and above under-five children and the reason why it happened may be computed the mothers time to give appropriate child care.[26]

Evidence from other areas of maternal and child health in rural Ghana suggests: men had little involvement in physically performing newborn care tasks, but are involved as suppliers of money and as the decision maker for care seeking when mother or babies were needed health seek.[27]

Engage men in maternal and newborn health can increase care-seeking, improve home care practices, and support more equitable couple communication and decision making for maternal and newborn health.[28] In the current study spousal involvement during ANC/any other health intervention had been practiced essential newborn care were 4 times compared with that of mothers whose spousal didn't involve (AOR= 3.95; 95%CI=2.75--5.65) and other study shared this idea that recently delivered women know at least one neonatal danger sign was significantly associated with husband involved in the mother's facility visit (AOR: 1.3, 95% CI 1.1–1.5).[29,30] It was also supported by a similar study: women unsupportive of male involvement in maternal care (AOR= 3.5, 95% CI; 1.2-10) were more likely associated with unaccompanied male partners. The major reasons reported by women for not being accompanied by their male partners were, being preoccupied with work, lack of awareness on the possible complication during pregnancy, a misconception that the ANC is the concern of women's only, males' feeling shame to accompany them to visit and lack of responsibility.[30] So the involvement of male partners increases open discussion with their wives about maternal and child health issues and creating awareness in utilizing maternal and child health services.

CONCLUSION
In this study, greater than half of the mothers were not practicing the WHO recommended essential newborn care practice. Late initiation of breastfeeding and early bathing of the newborn was the most problem of the community in the study area. Therefore, most essential newborn interventions were not reaching the newborns.

The number of under-five children, HEWS gives training about community-based newborn care and spousal involvement during antenatal care /any other health intervention were the only significantly associated factors with the practice of good essential newborn care.

Routine counseling to all mothers about essential newborn care during antenatal care, delivery, and postnatal care will be the most important. And also, counseling to all mothers about the importance of family planning to space or to limit their children. Refresh training to Health extension Worker will be essential and spousal involvement is the most important issue for child health.

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