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Performance Assessment of Maternal Health Care Services Provided in the Marginal District of West Bengal: A Case Study of Dakshin Dinajpur District

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Abstract:

Public health is a very important issue for any country in the current geopolitical situation. As in the present day the awareness of health increases among the public, the state also shows more interest in maintaining the good health of its public. Issues that naturally come up in discussions about public Health infrastructure, Child health, Maternal Family planning and disease burden. Among these maternal health is a very important issue that should be given more importance in the present time. The health of the future citizens of any country depends on the provision of proper services related to maternal health, because a mother is responsible for bringing the future citizens of the state into the world. Actually maternal health refers to the health of women during pregnancy, childbirth and the postnatal period. In order to gain complete knowledge about the maternal health status of a region, a comprehensive review of various aspects related to maternal health such as antenatal care, delivery care and maternal mortality is required. In developing countries, maternal health infrastructure and services have not yet reached the highest level. As a result various problems associated with maternal health are now observed in developing countries. These issues motivate the health research to study maternal health. The present study attempts to make a thorough assessment of maternal health in Dakshin Dinajpur district. For this assessment various special and temporal data have been compiled mainly from various secondary sources. Besides, some qualitative methods such as focus groups discussion and in-depth interviews have been used to understand maternal health status. GIS techniques also have been used for data presentation. The main objective of the study was to highlight the various issues of maternal health in Dakshin Dinajpur district through a spatio-temporal review and highlights its various deficiency and inequalities, and of course, to make some rational recommendation about what to do in the future to make the maternal health system more accessible to delivery mothers. If this study was carried out

over a longer period and with the help of various primary data, more aspects could have been revealed. This is a limitation for this study.

Keywords: Maternal health, Antenatal care, Delivery care, Postnatal care, IUCD.

Introduction: Maternal health care coverage is the outcome of three domains of health service availability and utilization that includes antenatal care (ANC), care at delivery and post natal care (Arokiasamy & Pradhan 2013). Maternal health is a key indicator of women's health status. Strengthening of maternal health services is very important to ensure safe motherhood.

The child survival and safe motherhood, now a component of reproductive and Child Health Program, is initiated to achieve a substantial improvement in the health status of women and children in India. It includes early registration of pregnancy, at least three antenatal checkups, universal coverage with tetanus toxoid and iron and folic acid tablets, early detection and referral of at risk mothers, deliveries by trained personnel, facilities to manage obstetrical medical emergencies and birth spacing (G Sreekaanth et al 2020).

India is a rapidly growing developing country in the world, with the 17.64% decadal growth rate of population. In 2015, India was contributing annually to 45000 maternal death which is 15% of the global maternal mortality burden. India is placed at the world's second highest contributor to maternal mortality after Nigeria (58000, 19%) (WHO, 2015 as cited Panda & Subudhi, 2021)

In India, since the 1970s, the MCH programme was implemented as a means of preventing maternal deaths and vaccine-preventable child deaths and associated morbidities. In the 1980s, the MCH programme, especially, was sought to be promoted as a route to achieve successful coverage in family planning. However, this revised approach failed to invigorate in the performance of demographically backward states of India. The safe motherhood programme was introduced as a more effective intervention, and the RCH programme initiative was launched in the mid-1990s. Under the RCH programme, MCH services were expanded to cover reproductive health package as a whole. The RCH package included the earlier components of safe motherhood programmes, child survival including that of diarrhoeal diseases control. The full programme of RCH was launched as a new package in 1996 (Arokiasamy & Pradhan 2013).

In present context maternal and child health has been one of the most important aspects of the National Rural Health Mission (NRHM). Like all other states of India, services related to maternal health care are being treated very seriously in West Bengal. The following discussion will try to see what was the status of various services related to maternal healthcare in Dakshin Dinajpur district.

Objectives:

- i) To assess the utilization of Maternal Healthcare related services in different C.D. blocks of Dakshin Dinajpur district.
- ii)

Besides, to find out the deficiencies of services related to maternal healthcare in Dakshin Dinajpur district and recommend some important suggestions accordingly.

Database & Methodology: The present study is mainly based on secondary data. In this case various information related to maternal healthcare has been collected from CMOH office of Dakshin Dinajpur district. Among the data collected, the relevant information is presented through specific tables. Tabulated data has been analysed and presented by diagrams, made with the help of MS Excel. GIS techniques have been used in making necessary maps.

Discussion:

a) Antenatal care:

The current status of Antenatal care services in Dakshin Dinajpur district is shown with the help of table no. 1.

Table No: 1
Status of Antenatal Care Services in Dakshin Dinajpur April 2021-March 2022

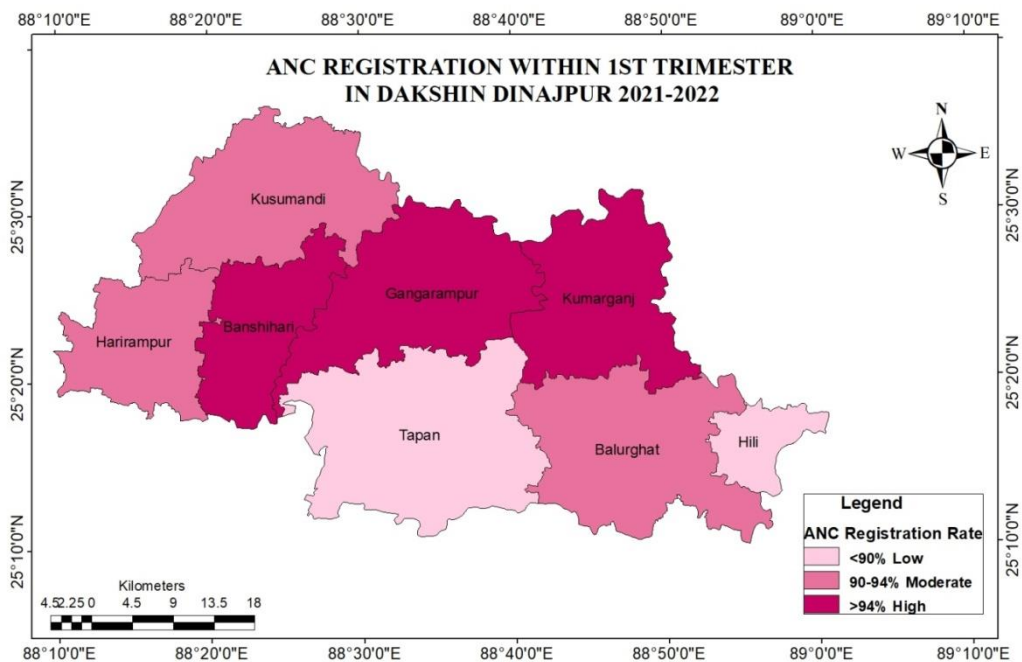
Indicators	Kushm andi	Banshiha ri	Hariramp ur	Gangarampu r	Tapan	Kumarganj	Balurghat	Hili
Total no of pregnant women registered for ANC	4073	2372	3175	4432	4269	3019	3381	1117
Out of the total ANC registered number registered within 1 st trimester(within 12 week)	3811 (93.57)	2280 (96.00)	2973 (93.64)	4186 (94.45)	3785 (88.66)	2847 (94.30)	3100 (91.69)	1005 (89.97)
% of pregnant women given TT1	88.78	95.83	87.56	94.45	91.36	89.47	92.22	93.55
% of pregnant women given TT2	78.98	90.69	84.98	85.83	83.98	79.73	85.98	84.33
% of PW provided full course 180iron and folic acid (IFA) tablets	83.72	80.59	77.07	84.77	77.70	87.78	81.87	84.33
% of PW provided full course 360 calcium tablets	1.89	34.47	31.52	5.78	19.98	0.36	26.47	57.57
% of PW received 4 or more ANC check ups	54.58	64.8	34.74	35.06	34.76	73.20	44.22	59.62
% of PW tested for hemoglobin (Hb) 4 or more than 4 time for respective ANC	81.19	70.02	77.83	83.69	76.47	74.43	78.53	76.45
% of PW having Hb level <11(out of total tested cases)	73.85	42.90	57.20	89.62	82.81	74.73	73.67	77.53

Source: Office of the CMOH, Balurghat, Dakshin Dinajpur

Table No. 1 shows detailed information about Antenatal Care in Dakshin Dinajpur District for the year 2021-22. From there it is seen that the ANC registration of pregnant women was highest in three blocks namely Gangarampur, Tapan and Kushmandi. It was more than 4000 in each block. ANC registration was moderate in Balurghat, Harirampur and Kumarganj blocks. On the other hand, ANC registration in Banshihari and Hili blocks was comparatively less. The lowest in Hili block, only 1117.

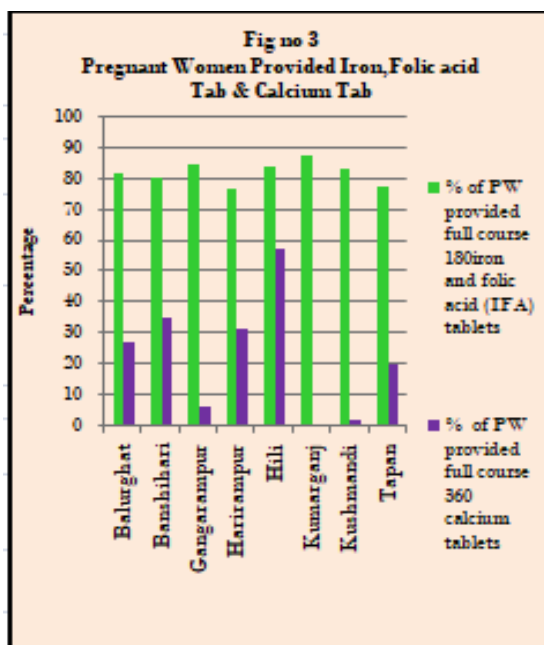
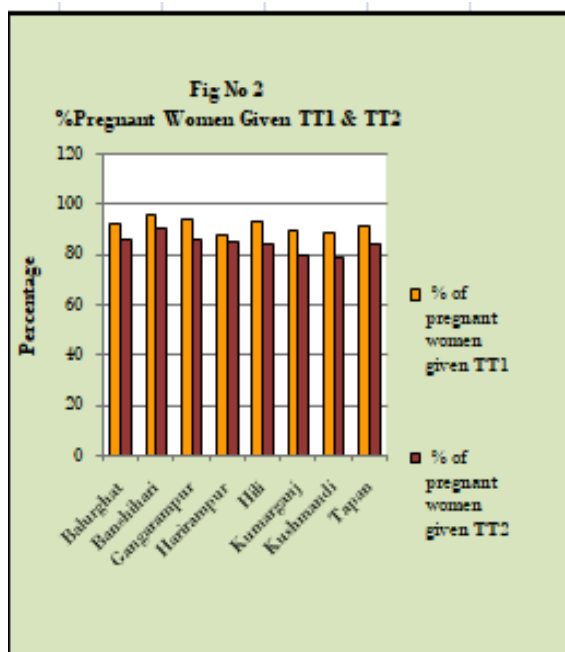
ANC registration within 12 weeks of pregnancy (1st Trimester) is very important for antenatal services. Observing from Table No. 1 and Fig No. 1, it is seen that Banshihari, Gangarampur and Kumarganj are the most leading blocks in terms of registration in the 1st trimester. Each of these had percentages above 94% in this case. On the other hand, the blocks which are maintained 90%-94% percentage are Balurghat, Harirampur and Kushmandi blocks. On the other hand, the two blocs lagging behind in percentage of ANC registration were Healy and Kushmandi. In both of these the ANC registration rate did not cross 90%.

Fig No:1 ANC Registration



Tetanus vaccine is especially important for pregnant women to prevent infections during pregnancy and delivery. Apart from this, tetanus vaccine is also important to prevent respiratory failure, nervous system related disorders and premature birth in children in the mother's womb. It is clearly observed from table number 1 & Fig no. 2 that five blocks

Banshihari, Gangarampur, Hili, Balurghat and Tapan have shown good results in giving TT 1 dose to pregnant women. The percentage of each block was more than 91%. On the other hand Kusumundi Harirampur and Tapan, these three blocks were slightly behind other blocks. The percentage of these three blocks was below 90%. Blocks which have shown good activity in providing TT 2 vaccine to pregnant women are Banshihari, Balurghat and Gangarampur. Each block had a percentage above 85% in this regard. In the remaining five blocks the percentage was between 79%-85%.



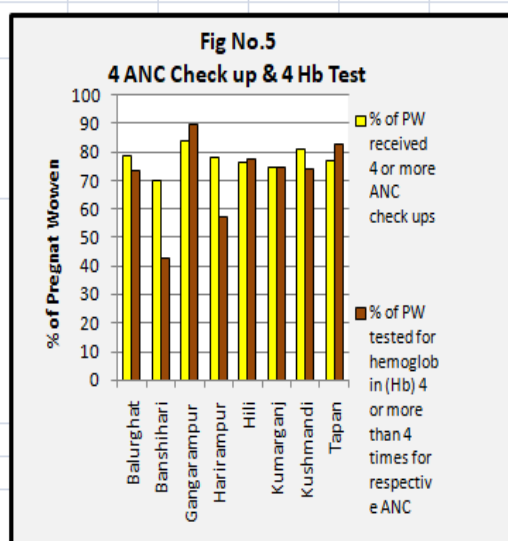
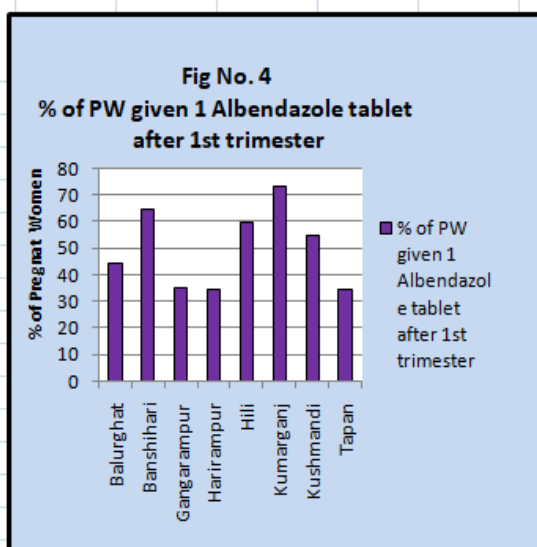
IFA tablets that combine iron and folic acid provided as an oral suspension to pregnant women are very important for the health of pregnant women and unborn babies. This cost effective initiative helps to reduce anemia related to iron deficiency in women on one hand and supports linear growth of children on the other. It is also helpful in preventing low birth weight in children. Pregnant women are given a full course of 180 iron folic acid (IFA) tablets. Table number 1 & Fig no. 3 shows that three blocks Kumarganj, Gangarampur and Hili have the best results in the district in providing IFA tablets. In this case, it is seen that 84% of pregnant women in three blocks have been distributed IFA tablets. On the other hand, 80%-84% of pregnant women in Kushmandi, Balurghat and Banshihari blocks have been provided with IFA tablets. Tapan and Harirampur blocks were slightly behind in this regard and the percentage of these two blocks was below 78%.



Plate No: 1. Awareness Meeting with Teenage mother Plate No.2 Antenatal Care Service

Calcium tablets help pregnant women to reduce the risk of preeclampsia and eclampsia (hypertensive disease). The performance of blocks in Dakshin Dinajpur district is not very good in providing full course of 360 calcium tablets to pregnant women. Only Hili, Banshihari and Harirampur blocks have done some work but the rest of the blocks are far behind in this regard.

Deworming of pregnant women by using Albendazole 400 mg tablet can prevent low birth weight of children. It can also reduce neonatal mortality up to 14% within one month of birth. Fig no. 4 clearly depict that Kumarganj and Banshihari blocks have shown significant performance in providing albendazole tablets to pregnant women. In these two blocks the percentage in this case is between 64%-74%. In this case the percentage was above 50% in Hili and Kushmandi blocks. On the other hand, in the remaining 4 blocks, the percentage was between 34%-44%.



Providing a pregnant woman with the four antenatal care services prescribed by WHO is essential to maintain the health of the mother and her unborn child. Kushmandi and Gangarampur are the two leading blocks in providing 4 antenatal care services. In this case the percentage of two blocks was above 80%.The remaining six blocks were slightly behind, with percentages ranging between 70%-78%.

Low hemoglobin levels in pregnant women can cause adverse effects in their pregnancy and can also cause various pregnancy related complications. So it is important to always keep the level of Hemoglobin correct. Therefore, at least 4 Hb tests are recommended for pregnant women. For pregnant women with four or more hemoglobin tests, the leading blocks in this parameter are Gangarampur, Tapan and Hili blocks, with a percentage between 77%-90%.The two blocks lagging behind in this regard were Banshihari and Harirampur, with percentages ranging between 42%-58%.The percentage of remaining blocks is above 70%.(Fig no.5)

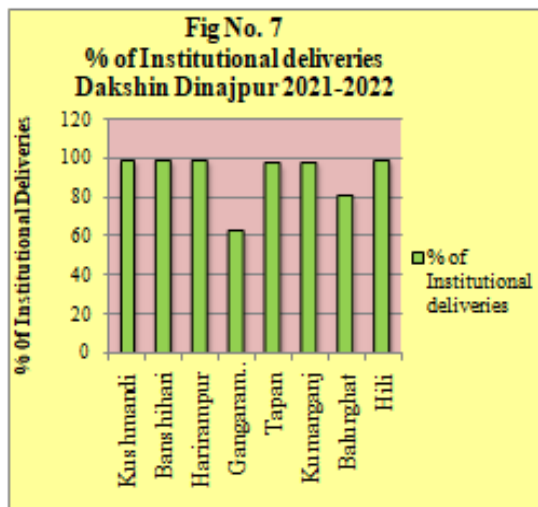
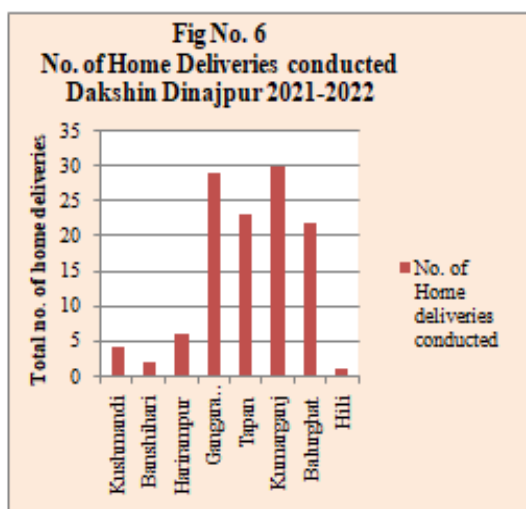
b) Delivery care: Delivery care refers to the care that a mother receives during childbirth. If every delivery of a child is performed by skilled health personnel, it can drastically reduce infant and maternal mortality. Therefore delivery care is tried to ensure delivery by skilled health personnel. The status of delivery care in South Dinajpur district is presented below through table number 2.

Table No: 2
Status of Delivery Care in Dakshin Dinajpur District, April 2021-March 2022

Indicators	Kush mandi	Banshih ari	Hariram pur	Gangaram pur	Tapan	Kumarga nj	Balurghat	Hili
No. of Home deliveries conducted	4	2	6	29	23	30	22	1
No. of home deliveries attended by Non SBA (Skill birth attendant)	4	2	6	29	23	30	22	1
No. of Institutional deliveries conducted	1184	690	1454	49	920	1407	93	273
% of Institutional deliveries	99.66	99.71	99.59	62.82	97.56	98.39	80.87	99.64
Total C-Section deliveries conducted	0	0	0	0	0	0	0	0

Source: Office of the CMOH, Balurghat, Dakshin Dinajpur

The first topic to be discussed is home delivery for pregnant women. From table no. 2 and figure no. 6, it is seen that different blocks of Dakshin Dinajpur district still unexpectedly maintain home delivery practice. In Hili, Banshihari, Kushmandi and Harirampur blocks its number is very less (out of 6). But the number of home deliveries in the remaining four blocks is between 22-30, which is very worrying. More worrying is that every home delivery attended by Non SBA (Skilled Birth Attendant).Such practices can cause terrible harm to the mother and child.



Looking at the institutional deliveries this year, it is seen that the total number of institutional deliveries in South Dinajpur district is highest in Harirampur, Kumarganj, Kushmandi and Tapan blocks. On the other hand, the number of institutional deliveries is comparatively less in Banshihari, Hili, and Balurghat and Gangarampur blocks.

Now let us come to the discussion of institutional delivery percentage. In this case it appears from Fig no. 7 that the four blocks which have shown significant results are Banshihari, Kushmandi, Hili, Harirampur and Kumarganj. Institutional delivery percentage is above 98% for each block. On the other hand, the remaining three blocks are a little behind in the percentage of institutional delivery. However, Gangarampur block is lagging behind in the percentage of institutional delivery, with a percentage of 62.82%.

By observing the information related to C section delivery from table number 2, it is seen that C section delivery has not been performed in any block of the district.

c) Pregnancy outcome and details of newborn: In this segment of discussion, various issues related to birth will be analyzed. The following table no.3 shows the various information related to this.

Table No. 3
Status of Pregnancy Outcome and Details of Newborn, Dakshin Dinajpur 2021-2022

Indicators	Kushma ndi	Banshihari	Hariram pur	Gangaram pur	Tapan	Kumarg anj	Balurghat	Hili
Total no. of live birth	1185	679	1442	78	934	1423	113	274
Total Still birth	3	13	18	1	9	14	2	0
Total birth conducted	1188	692	1460	79	943	1437	115	274
% of live birth	99.75	98.12	98.77	98.73	99.05	99.03	98.26	100.00
Total no. of Abortion (Spontaneous)	118	69	52	6	121	88	129	66
No. of newborn weighed at birth	1185 (100)	679 (100)	1434 (99.45)	78 (100)	934 (100)	1419 (99.71)	110 (97.35)	274 (100)
No. of newborns having weight less than 2.5 kg	159 (13.42)	122 (17.97)	283 (19.63)	0	243 (26.02)	296 (20.80)	33 (29.20)	36 (13.14)
No. of newborns breastfed within 1 hour of birth	1143 (96.46)	662 (97.50)	1398 (96.95)	78 (100)	863 (92.40)	1396 (98.10)	104 (92.04)	273 (99.64)

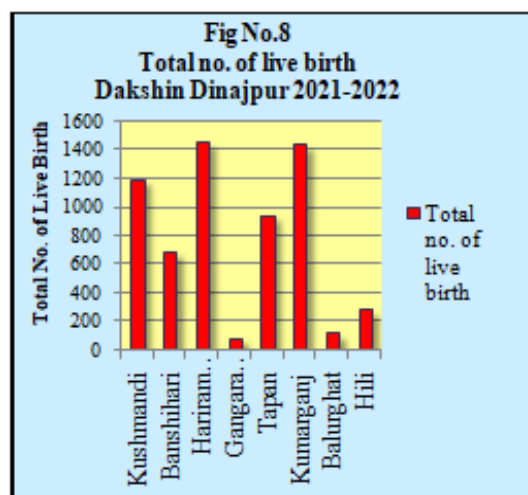
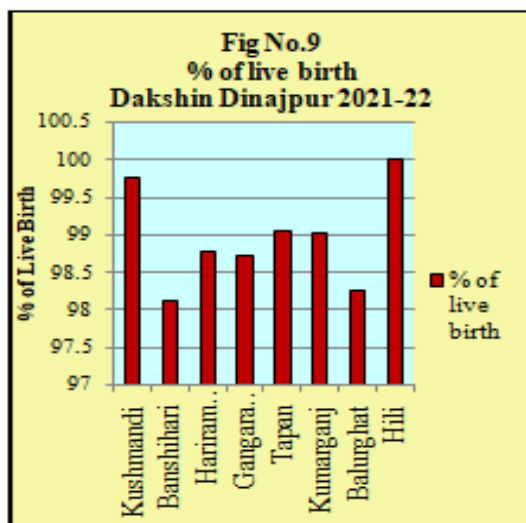
Source: Office of the CMOH, Balurghat, Dakshin Dinajpur
 Within parenthesis percentage figure are given



Plate No.3. ASHA worker taking weight of newborn

At the beginning of the discussion, if we review the block wise number of live births in South Dinajpur district, it is seen from Fig no. 8 that the blocks leading in the number of live births are Harirampur, Kumarganj and Kushmandi. On the other hand, the number of live births was less in Hili, Balurghat and Gangarampur blocks. Observing the percentage of live birth from Fig no. 9 shows that Hili block is the best. But the performance of the rest of

the blocks is also good enough. Note that the live birth percentage of each block is above 98%, which is quite promising.



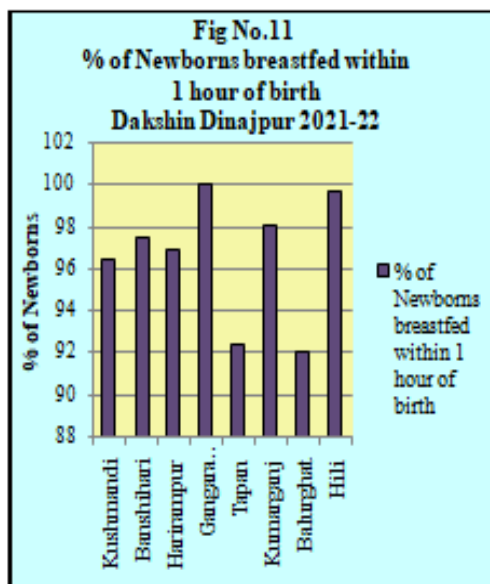
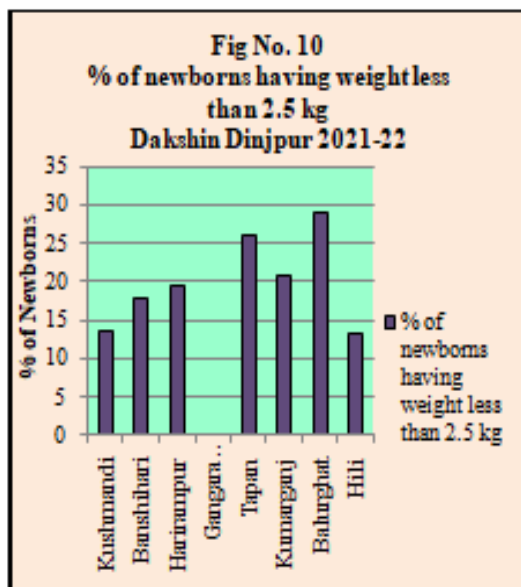
We know that cases of still birth are very unfortunate and undesirable. Apart from Hili block, these incidents occurred in the rest of the blocks but very less in number. It can undoubtedly be said that this has been possible due to the good delivery of antenatal care services to every corner of the district.

Abortion (spontaneous) is not expected in any expectant mother. The main reason for such ablation is that women in rural areas do not receive proper care during the pregnancy period and have to work a lot at home and on farmland. This unexpected incident happened mostly in Balurghat (129) Tapan (121) and Kushmandi (118) blocks. The least occurred in Gangarampur (6) block.

Child's weight measured after birth is a very important indicator for the child's future. By knowing the birth weight, it is possible to predict the child's future health, psychosocial development, growth, and chances of survival. No. of newborn weighed at birth judging with respect to this parameter, it is seen that the percentage rate in this case is 100% in five blocks of the district. In the remaining three blocks, this rate is more than 97%.

A healthy baby is born at approximately 37-40 weeks and weighs more than 2500 grams. In Indian children this average has been found to be 2500-3000 grams. If the weight is less than this, the children may face some health problems especially childhood diseases are more likely to be affected. Such babies require special care immediately after birth, so they have to be admitted to the NICU (Neonatal Intensive Care Unit). Judging the blocks of the district with respect to this parameter of newborn whose weight is less than 2.5 kg, it is seen (Fig no.10) that the best condition was in Gangarampur block. 100% of children in this block weighed more than 2.5 kg. On the other hand in Hili, Kushmandi, Banshihari and

Harirampur blocks the percentage of 2.5 low birth weight babies was below 20%. However, the percentage for this parameter in Kumarganj, Tapan and Balurghat blocks was between 20%-30%.



Antibodies in breast milk help protect the baby from illness. It is the ideal nutrition for baby, which helps in the balanced growth and development of the baby. It also protects the baby from asthma and skin problems due to allergies. Breastfeeding the baby is also beneficial for the mother's health. In terms of this parameter, the best performance is seen (Fig no. 11) in three blocks in Dakshin Dinajpur district namely Gangarampur (100%), Hili (99.64%) and Kumarganj (98.10%) blocks. In the remaining blocks the percentage was between 92% - 98%.

d) Post Natal Care (PNC): The information on two important issues related to post-natal care in Dakshin Dinajpur district is presented in table no. 4 below.

Table No. 4
Status of Post Natal Care (PNC), Dakshin Dinajpur 2021-2022

Indicators	Kushma ndi	Banshihari	Hariram pur	Gangaramp ur	Tapan	Kumarg anj	Balurghat	Hili
% of women receiving post partum check ups within 48 hours of delivery	95.2	96.2	95.6	97.1	97.2	96.8	97.0	97.3
% of women receiving post partum check ups between 48 hours and 14 days	98.8	99.2	98.7	99.4	99.7	98.9	99.4	99.7

Source: Office of the CMOH, Balurghat, Dakshin Dinajpur

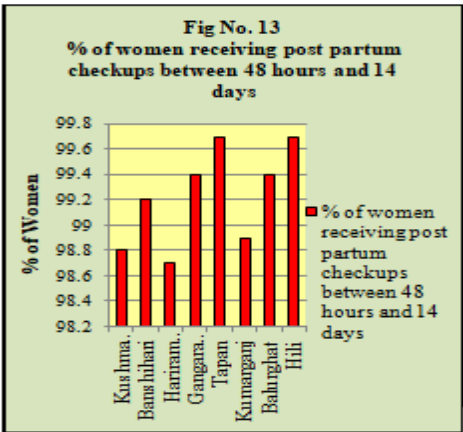
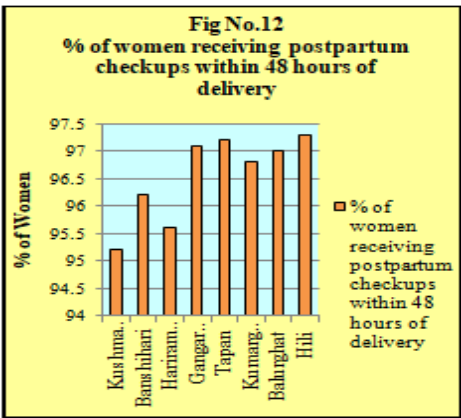
Maternity care does not end with the birth of the baby. The role of postnatal care becomes important after the birth of the baby. Through post natal care, mothers are tried to be mentally and physically strengthened after the birth of the child. In addition, instructions are given regarding the care of the child and different guidelines are given. Generally, 6-8 weeks after the birth of the child can be identified as the postnatal period. Currently, postpartum family planning is also part of quality postnatal care. Two important parameters related to postnatal care will be discussed below.



PlateNo.4. Post Natal care service provided at home

Judging by the first parameter of postnatal care i.e. percentage of women received post partum check up within 48 hours of delivery, it is seen that (Fig no. 12) the performance of all the blocks in the district is good. Eight blocks have percentages between 95%-97.5%.

Regarding the second parameter of post natal care, it is seen that (Fig No. 13) the percentage was between 98.7%-99.7% in eight blocks of the district.



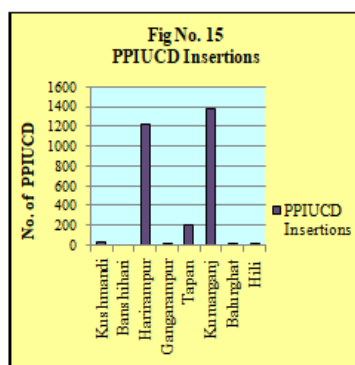
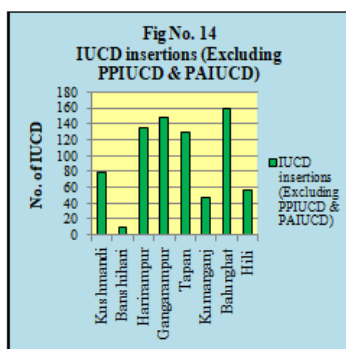
e)Family Planning related to Maternal Health: By using modern contraceptive methods, on the one hand, married women can be prevented from getting unintended pregnancies, on the other hand, unwanted births can be prevented and high-risk pregnancies can also be prevented. Which helps in overall better maternal health and prevent unwanted events like maternal mortality and infant mortality. Most importantly, by taking family planning services, women can increase the interval between two pregnancies, which improves the health of women and their babies. Therefore, Family planning is must necessary thing to improve maternal health. An attempt will be made below to highlight some parameters related to family planning in Dakshin Dinajpur district.

Table No. 5
Status of Post Natal Care (PNC), Dakshin Dinajpur 2021-2022

Indicators	Kushma ndi	Banshihari	Hariram pur	Gangaram pur	Tapan	Kumarg anj	Balurghat	Hili
Number of interval IUCD insertions (excluding PPIUCD and PAIUCD)	79	10	135	148	130	46	159	56
Number of Post partum (within 48 hours of delivery) IUCD insertions	34	8	1227	23	214	1376	19	121
Number of complications following IUCD insertions	23	31	2	24	12	0	12	1

Source: Office of the CMOH, Balurghat, Dakshin Dinajpur

The first parameter of family planning i.e. No. of IUCD insertions. Looking at the block wise performance in 2021-2022, it is seen that (Fig no. 14) the blocks which have performed well are Balurghat, Gangarampur, Harirampur and Tapan blocks. All the 4 blocks managed to deliver over 130 IUCD during this period. The performance of the remaining blocks is not very significant in this case. But in this case the name of the block behind in terms of performance is Banshihari.



The Second Parameter is No. of PPIUCD insertions. PPIUCD is Post Partum IUCD which is given to mothers within 48 hours of giving birth. It is reversible contraception, long acting, highly effective and very safe. ASHA workers pre-counsel mothers to take PPIUCD because health workers use the opportunity to provide PPIUCD while in the medical system to improve future health of mothers. Table number 5 and Fig no. 15 shows that Kumarganj and Harirampur blocks have shown significant performance in terms of PPIUCD insertions. The total number of PPIUCD insertions in these two blocks in 2021-22 was 1376 and 1227 respectively. The performance of Kushmandi, Banshihari and Balurghat blocks is very disappointing in this regard.

The incidence of complications after IUCD insertions is very low. Table no.5 shows that there is no incidence of complications in Kumarganj block and the problem is negligible in Hili and Harirampur blocks. However, few complications are noticed in the remaining blocks.

Major Findings and Suggestions:

Findings:

- 1) Some blocks show a 10%-20% shortfall in ANC registration of expectant mothers within 12 weeks.
- 2) A shortfall of 10%-13% in some blocks is also observed in providing the much-needed TT1 injection to expectant mothers. Some blocks are significantly behind in providing TT2 injections.
- 3) There is also reluctance to take IFA tablets, which are very essential for pregnant women. Where it would have been better if the percentage was at least above 95%, in some blocks the percentage is between 77%-84%.
- 4) The status of the program to provide calcium tablets is also very dismal although it is also essential for pregnant women. In some blocks health workers could not provide it to even 10% of pregnant women.
- 5) It goes without saying how important 4 ANC checkups are for the health of the mother and the unborn child, but there is a lot of inadequacy in this regard as well. In this case, the percentage range of blocks in the district is 70%-84%.
- 6) The issue of Hb test of pregnant women is fairly good in two blocks, but some blocks are far behind in this regard which is quite worrying.
- 7) Home delivery is not at all desirable in today's well-organized health infrastructure but this undesirable thing is still happening in every block of the district. In some blocks it is excessive. More worrying is that all these home deliveries are being conducted by Non SBA (Skill birth attendants).
- 8) Another noteworthy point is that no c-section delivery was conducted in government medical institutions during 2021-22.
- 9) The percentage of live births is quite appreciable in the district but there are some unfortunate incidents like still births in the blocks but the number is not very high.

- 10) Another concern is that the total number of abortions (spontaneous) in the district is high. Which indicates that some women are not getting proper care during pregnancy period.
- 11) The performance of the district is quite good in terms of measuring the weight of children after birth and breastfed the newborn 1 hour of birth.
- 12) A matter of considerable concern regarding children is the percentage of children weighing less than 2.5 kg. This range is between 13%-30% for different blocks of the district.
- 13) Overall district performance in providing PNC services is promising.
- 14) In terms of IUCD and PPIUCD insertions related to family planning, some blocks have performed significantly but some blocks are lagging behind.

Suggestions:

- i) Health workers should pay attention to increasing the health awareness of the stakeholders of maternal care i.e. pregnant mothers. Health workers should go door to door if necessary to increase the awareness of pregnant women about regular light physical activity, healthy eating, adequate sleep, immunization practices.
- ii) Pregnancy period is one of the most crucial period of a woman's life and requires positive involvement of the woman as well as her husband or father of the child. Health workers should encourage pregnant women to have their husbands compulsorily accompany them during check-ups at health centers.
- iii) If there are six villages or 5000 population under a sub center in rural areas then the sub centers can provide maternal care services well. Most of the sub centers in South Dinajpur district have to serve a larger population than this. Therefore, the quality of service should be increased by reducing the workload by setting up some new sub centers.
- iv) Health workers should ensure that every mother in the ANC participates in the Village Health and Nutrition Day (VHND).
- v) 24X7 obstetric care is available in only two out of 19 PHCs in Dakshin Dinajpur district. 24X7 Obstetric care services should be started immediately in the remaining 17 PHCs to extend maternal care to remote areas of the district.
- vi) A Mother's Hub has been opened at Rampara Chenchra PHC in the district to take good care of expectant mothers before delivery. Where mothers from remote areas come and get admission 1 month before delivery and get nutrition. Such mother hubs should be set up immediately in every Rural hospital and PHC of the district.
- vii) Low birth weight weak babies require extra special care after birth. This care can be provided through SNCU set up. Every rural hospital and remote PHC needs to build SNCU infrastructure immediately.
- viii) Actually if the team belonging to a sub center i.e. CHO, 1st ANM, 2nd ANM, ASHA workers maintain proper coordination among themselves and do supervision and monitoring work time to time then the mothers belonging to that health center will get quality care surely.

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