

AN ANALYTICAL REPORT ON DEATHS ARISING OUT OF STERILIZATION PROCEDURE IN TAMIL NADU 2008 and 2009

EXECUTIVE SUMMARY

Every year there are about 3.5 lakh sterilization operations performed in Tamilnadu. Among these nearly one third of the sterilization operations are performed in the private institutions and the rest in government institutions. In the recent past, deaths arising out of sterilization procedure per lakh sterilizations accounts the minimum of 6.7 in 2006-07 and the maximum of 11.8 in 2009-2010. The deaths arising out of sterilization procedure reported for the year 2008 and 2009 were 24 and 43 respectively. To understand the underlying factors that leads to deaths, it was proposed to conduct a survey covering all the 67 deaths occurred out of sterilization procedure during 2008 and 2009. The survey was conducted by D&E cell of the Directorate of Family Welfare with the help of respective Statistical Assistant and Block Health Statisticians of District Family Welfare Bureau (DFWB). A structured interview schedule was administered to collect the data by interviewing the close relatives of the deceased mothers. The Analysis of the data was done in the Directorate of Family Welfare by the Demography and Evaluation cell. The findings are summarized below.

SOCIO ECONOMIC PROFILE

- The deaths arising out of sterilization procedure are more in rural areas (76.1%) than in urban counterparts (23.97%)
- The deaths are found to be high among the SC/ST followed by other community
- The religion of the deceased was mostly Muslims followed by Hindus and the rest Christians

- Among the deceased 83.6% of them had the educational level of less than 10th standard and only 16.4 % had the education level of +2 and above? The corresponding figure is also the same for their spouses.
- The occupation of the deceased was House wives 74.6 % and their spouses was mostly coolies (71.6%).
- Most of the deceased mothers (92.5%) belong to below poverty line (BPL) category.

DEMOGRAPHIC CHARACTERISTICS

- The age specific deaths arising out of sterilization procedure is found to be high in the age group of (35-39) years followed by age group of (25-29) years, age group of (30-34) years and age group of (20-24) years
- The mean age at marriage was 20.9 years for the deceased mothers and 26.3 for their spouses.
- Most of them had 2 living children (76.1%), 22.4% had 3 and above children and only 1.5% had only one child.

ENVIRONMENT AND SANITARY CONDITIONS

- The houses of the deceased mothers were tiled (43.3%), Pucca (29.9 %), Katcha (13.4%) and others (13.4%)
- The flooring type was mostly cemented (79.1%) and the rest were mud, stone, mosaic and tiles.
- Most of the houses (92.5%) were electrified.
- There were only 26 houses (38.8%) with toilets and the rest (62.2%) had no toilets.
- The majority of them had the facility of drinking water –tap (61.2%) and the rest had to fetch water from the hand pumps (6.0%), Wells (3.0%), Ponds

(1.5%), Packed water (1.5%), Bore water,(1.5%) , OHT (23.9 %), Others (1.5 %).

- Majority of them shared a common kitchen (55.2%) and only (44.8%) had separate kitchen.

PREGNANCY AND DELIVERY CARE

- The antenatal registration was done for 88.1% deceased mothers and the rest of them were not registered during pregnancy for antenatal checkup or care.
- Most of the deceased mothers (74.6%) were registered within twelve weeks of pregnancy for antenatal care.
- Majority of the deceased mothers (64.4%) had 4 and above ante-natal check ups, 32.2% had one to three check ups and 3.4% of them did not have any ante-natal check up.
- The birth spacing between last two child was less than 1 year for only one mother (1.7%), 1-3 years for 39 mothers(66%) and above three years for 19 mothers (32.2%)
- Majority of the deceased mothers (83%) received IFA tablets during pregnancy whereas only 74.7 % had consumed the given tablets.
- The blood pressure recording was done for only 58.2% of the deceased mothers.
- The basic tests like Alb., Sugar, Blood group, VDRL, Scan and Hb were taken for 76.1, 76.1, 67.2, 65.7, 64.2 and 79.2 percent respectively among deceased mothers.
- Only 10 (14.9%) deceased mothers had the problem during pregnancy like breathlessness (2) Edema legs and face (2), Hypertension (2), Bleeding (2), Anemia (1) and others (1).

- Of the 56 deceased Women, 16 (28.6%) had normal deliveries and 40 had Caesarian (71.4%)

PLACE OF OPERATION, TECHNIQUE AND REFFERAL

- The deceased mothers had sterilization operation at Government Hospitals (31.3%), Teaching hospitals (14.9%), Primary Health Centres (22.4%), Private hospital (26.9 %) and Vol. organization (4.5%) respectively.
- More number of deaths arising out of sterilization procedure were found among who have undergone LSCS with sterilization (59.7%) and PS (23.9%).
- Of the 67 deceased mothers, about one third (28.4%) of the deaths occurred on the same day of operation, another one third (34.3%) within the first week and one third (37.3%) after one week.
- Out of 67 deceased mothers, 38 (56.7%) were referral cases.
- Among the 38 referral cases, 28 (73.7%) deaths occurred within the institution / hospital and the rest 10 (26.3%) deaths occurred during transit.
- Time taken for 47.4% of the deceased mothers to reach the referred institution was more than one hour, 31.6% had less than one hour and the remaining of them had not reported (21%).
- The main reason for referral was lack of specialist (63.2%) and lack of equipments (5.3 %) and lack of specialist, equipment and blood (13.2%)
- Of the 38, 9 (23.7%) were spent money for referral and 7 (18.4%) were not treated immediately due to absence of specialist.

CAUSES OF DEATHS

- The main causes of deaths arising out of sterilization procedure were Pulmonary Embolism (23.9%), Heart disease (10.4%), Aspiration (7.5%), Cortical venous thrombosis(6%), Cerebral venous thrombosis (1.5%), infection (4.5%), PPH(1.5%), Pulmonary edema (4.5%), ? CVA (3.0%). The

other causes such as septicemia with acute renal failure- Cardiac arrest, Rhabdomyolysis, Puerperal sepsis with septicaemia with multiple organ failure, sepsis, Anesthesia complications etc are also great concern.

- A few deaths occurred due to lack of treatment after detecting high risk problems during pregnancy.
- A few deaths occurred due to lack of treatment for post operative complications

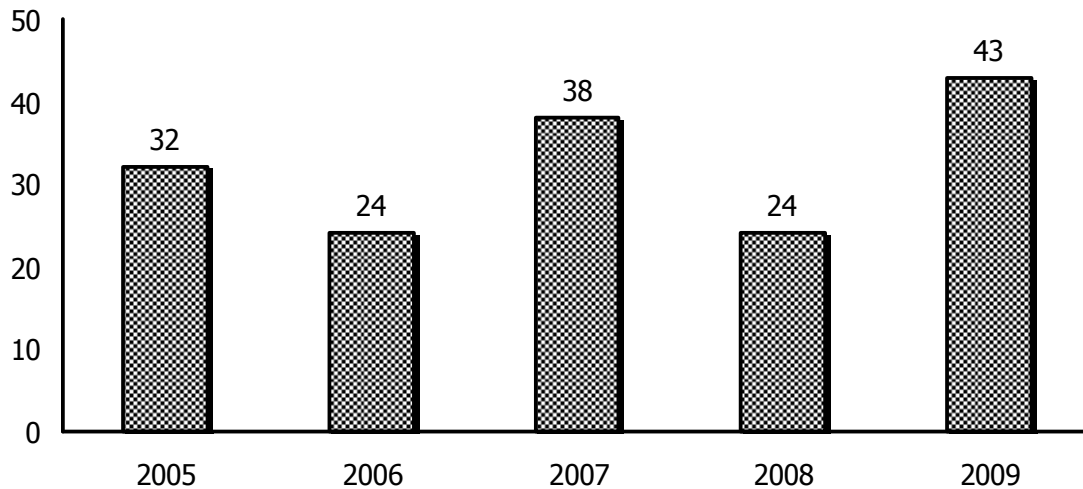
CONCLUSION

To conclude, it can be stated that the main causes of deaths arising out of sterilization procedure were due to Pulmonary Embolism, heart disease, Aspiration, CVT, infection, PPH and pulmonary edema etc., But, the poor socio-economic conditions of the deceased mothers coupled with low level of environmental and sanitation also play a crucial role in this regard. The other intervening factors were; late referral, technique (LSCS with sterilization), lack of proper treatment after detecting high risk during pregnancy and lack of treatment for post operative complication. About one third of the deaths occurred on the same day of operation is a great concern or shock and it needs proper post operative care and management.

I. Introduction

India is the first country to launch National Family Welfare Programme in 1951. It was taken up for implementation in Tamilnadu since 1956. The main objective of the Family Welfare Programme is to improve Maternal and Child Health by regulating fertility. CAFETERIA approach is adopted to provide contraceptive services to the eligible couples. Eligible Couples prefer to undergo sterilization when they decide their family size is completed. Every year, about 3.5 lakh sterilization operations are performed in Tamilnadu. Among these sterilized mothers, an average of 35 deaths after sterilization operations are reported and it is a great concern. The distribution of deaths arising out of sterilization procedure for the past 5 years are shown in graph.

TRENDS IN DEATHS ARISING OUT OF STERILIZATION PROCEDURE IN TAMIL NADU



sterilization during 2008 and 2009. A total of 67 deaths, of which 24 in 2008 and 43 during 2009, were selected to study the probable causes of deaths and its associated factors.

II. Objectives of the Study

The main objective of the study is to identify the causes of deaths after sterilization in Tamil Nadu.

The specific objectives of the study are:

- To study the selected socio-economic and demographic characteristics of the deceased mothers and their spouses
- To examine their environment and sanitary conditions of the deceased
- To analyze the deceased mothers by place of operation and quality of services
- To explore the Antenatal, natal and follow up services received by the deceased mothers
- To elucidate the risk or problem identified during the last pregnancy
- To find out the causes of deaths after sterilization and
- To suggest appropriate programme which is for preventing deaths arising out of sterilization procedure

III. Data and Methods

The survey methodology was adopted to study all the deaths due to sterilization operations during 2008 and 2009. A well developed interview schedule, considering socio-economic and demographic variables, environmental and sanitation, Ante natal, Natal and Post natal care, Problem during last pregnancy, place of sterilization operation, details about deaths after sterilization including referral details and causes of deaths, was administered to collect required information from the spouse or close relative of the deceased mothers.

The data was collected by the respective Block Health Statisticians during April 2010 to August 2010 under the supervision of District Statistical Assistant. The data processing was done at the Directorate of Family Welfare to generate report.

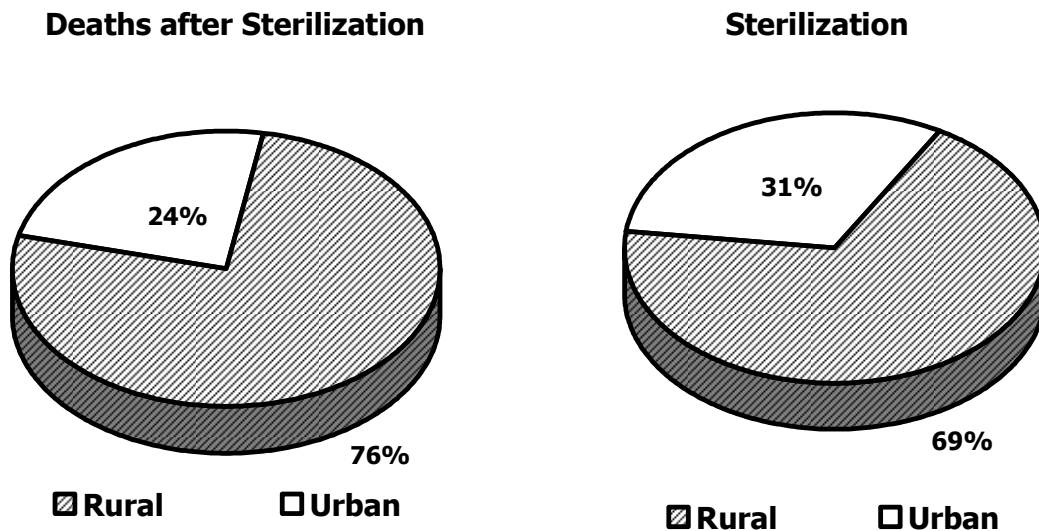
IV. Socio-economic and Demographic Characteristics of the Deceased

This chapter indicates the socio-economic and Demographic characteristics of the deceased mothers. An analysis of some socio-economic and demographic aspects is made in this chapter based on the data collected during the survey.

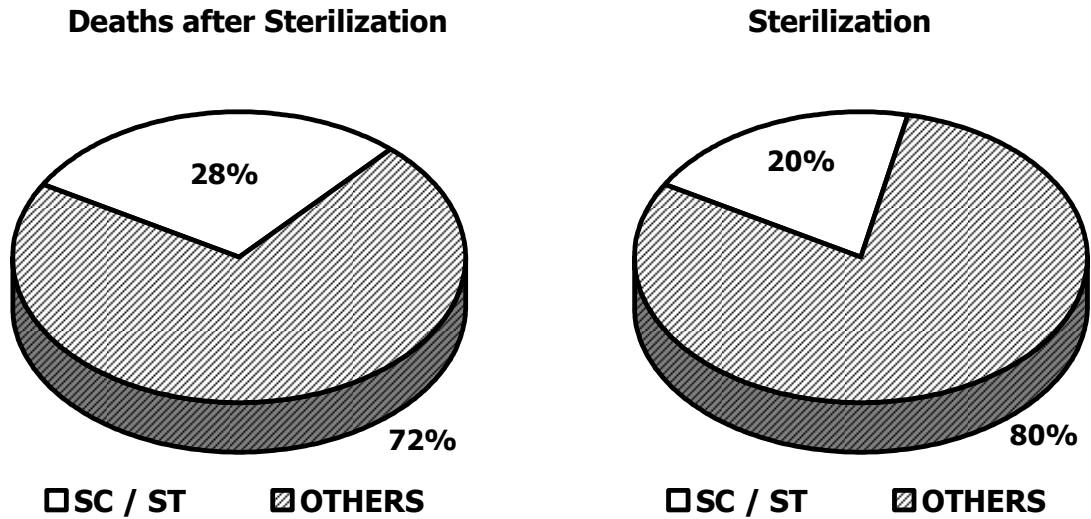
(i) Social Characteristics of the Deceased

This study includes 51 (76.1%) rural and 16 (23.9%) urban deceased mothers.

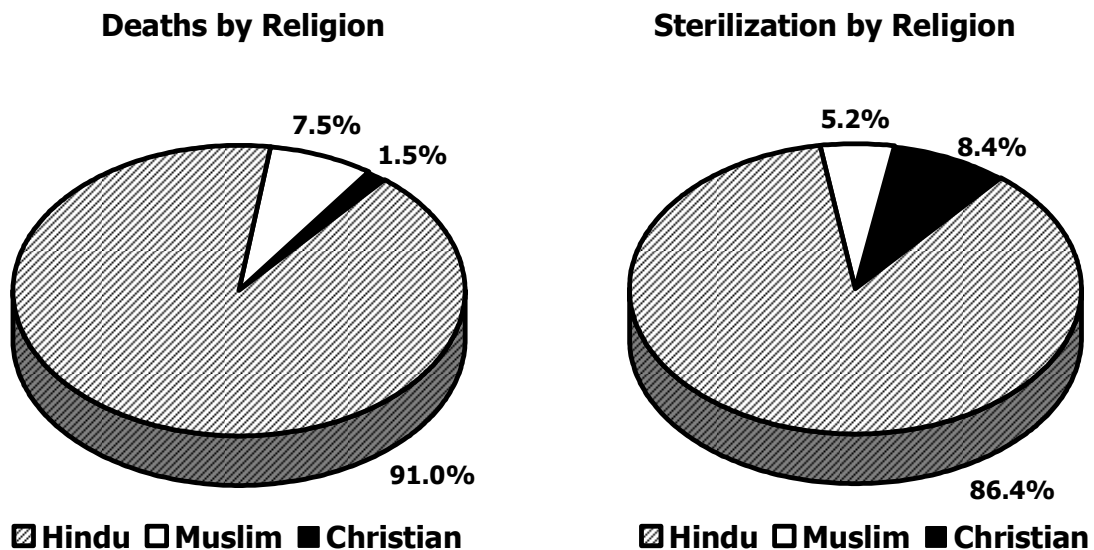
Fig. 4.1 - DISTRIBUTION OF DECEASED MOTHERS BY RESIDENCE



Out of total sterilization, 68.6% belong to rural area and 31.4 % belong to urban area whereas among total deaths arising out of sterilization procedure, 76.1% belong to rural area and 23.9% belong to urban area. Nearly 11 deaths per 1 lakh sterilization in rural area have reported where as in urban it was 7 deaths per 1 lakh sterilization. This shows that death after sterilization are more in rural area than urban area.

Fig. 4.2 - DISTRIBUTION OF DECEASED MOTHERS BY CASTE

Among the total sterilization performed, 88% belonged to other community and only 22 % belongs to SC / ST. Among the 67 deceased mother, 71.6% belong to other community and 28.4% belong to SC and ST. It is estimated that 12 deaths per 1 lakh sterilization among SC&ST community had reported. But it was 9 death per 1 lakh sterilization among other community. Hence, the deaths after sterilization were more among the SC and ST community.

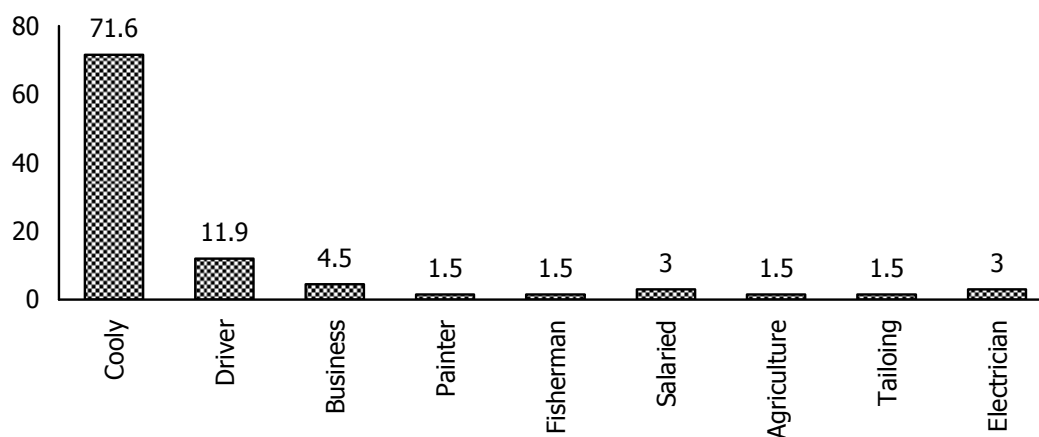
Fig. 4.3 - DISTRIBUTION OF DECEASED MOTHERS BY RELIGION

While compared with religion wise percentage of sterilization performance, the percentage of deaths were more among Hindus and Muslims Community. Among Hindus, it was 10 per 1 lakh sterilization. The deaths were very low among Christian than Muslim and Hindus. Nearly 14.5 deaths had reported per 1 lakh sterilization among Muslim. Christian it was 2 per 1 lakh sterilization. The literacy level reveals that most of them (83.6%) had only Std X and less than Std X and the rest of them had the literacy level of +2 and above. The corresponding figures for their spouses were also 83.6 percent and 16.4 percent respectively

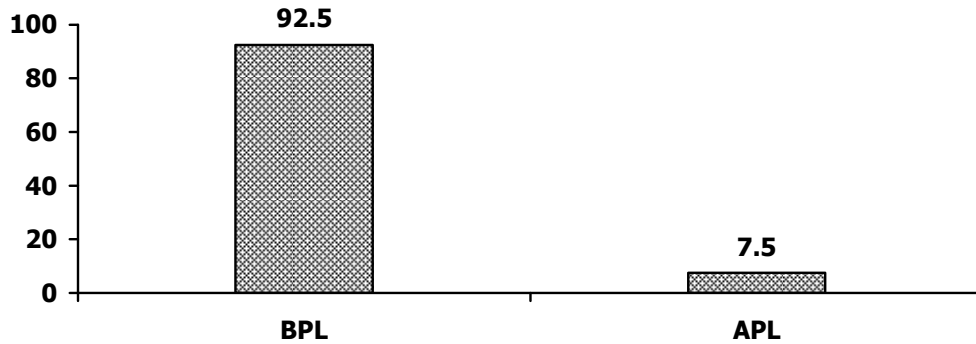
(ii) Economic Characteristics of the Deceased

The Economic characteristics in terms of occupation and monthly income reveals that most of the spouses of the deceased mothers were cooly (71.6%).

Fig. 4.4 – PERCENTAGE OF THE SPOUSE BY THEIR OCCUPATION



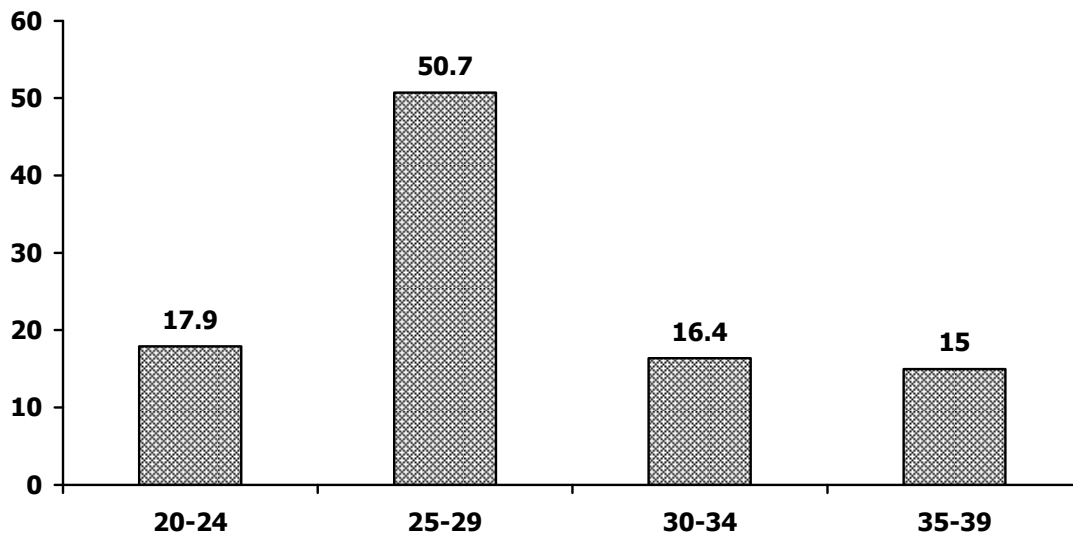
The occupation of others were Driver (11.9%), Business men (4.5%), Electrician (3%), Salaried (3%), Agriculture (1.5%), Tailoring (1.5%), Painter (1.5%) and Fisherman (1.5%) whereas the occupation of the deceased mothers was mostly house wives (74.6%) and Cooly (23.9%). Only one (1.5%) was Agriculturist.

Fig. 4.5 - INCOME STATUS OF THE DECEASED FAMILY

The Family income reveals that among the 67 deaths after sterilization, 62 (92.5%) were belong to below poverty line (BPL) and only 5 (7.5%) were belong to above poverty line (APL). It shows that the deaths after sterilization were found mostly in low socio-economic status mothers.

(iii) Demographic Characteristics of the Deceased

The Demographic characteristics are analyzed to highlight the age group of the deceased mothers, age at marriage and number of living children.

Fig. 4.6 – PERCENTAGE OF DECEASED MOTHERS BY THEIR AGE GROUP

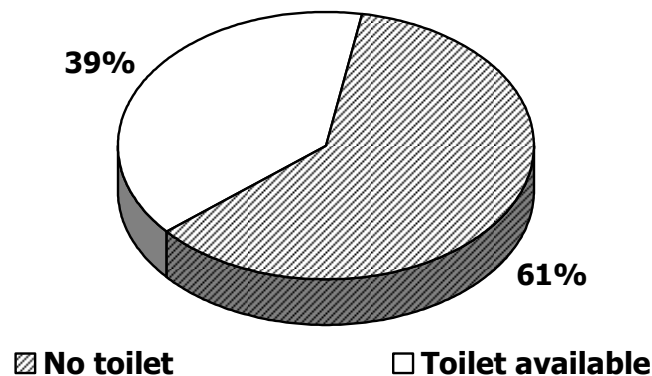
Looking at the distribution of deceased mothers according to their age group, of the total 67, 12 (17.9%) were in the age group 20-24 years, 34 (50.7%) were in the age group of 25-29 years, 11(16.4%) were in the age group of 30-34 years and 10 (15.0%) were in the age group of 35-39 years. The age specific death after sterilization reveals that highest no. of 20 deaths per 1 lakh sterilization were reported among the sterilization in the age group of 35-39 followed by 11 deaths per 1 lakh sterilization in the age group of 25-29 years. The mean age at marriage was 20.9 years for the deceased mother and 26.3 for their spouses.

An analysis of number of living children reveals that 76.1% of the deceased mothers had 2 living children, 22.4% had 3 and above living children each and only 1.5% had only one child. The Socio-economic and Demographic Profile of the deceased mothers shows that the deaths arising out of sterilization were mostly found in rural areas and among BPL mothers with low level of education. They were mostly Muslims and Hindus with low income level.

(V) Environmental and Sanitary Conditions

An analysis of deaths after sterilization by environmental and sanitary conditions are discussed below:

Fig. 5.1 – TOILET FACILITIES



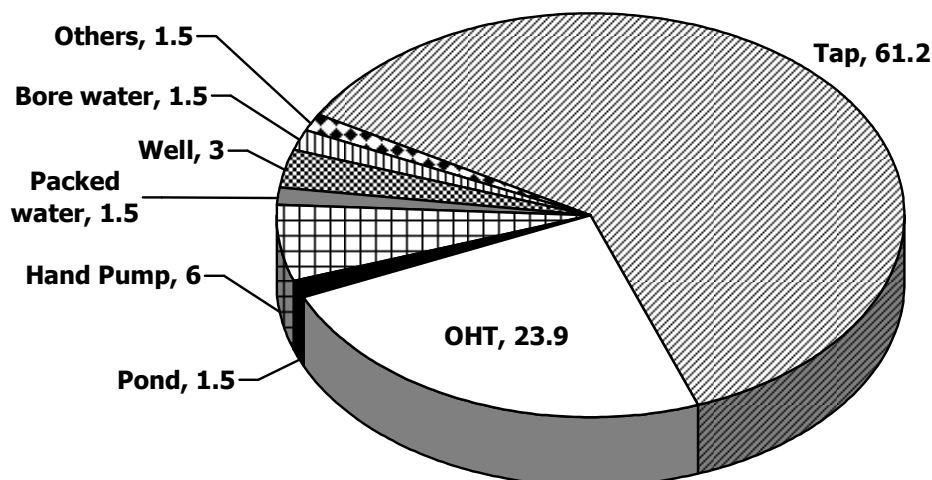
Most of the residence of the deceased mothers had no toilet facilities. It shows that deaths were mostly found among the mothers with low environmental and sanitary conditions.

Housing type:

The housing type was Pucca for 20 (29.9%) deceased mothers, Kutcha for 9 (13.4%), tiled for 29 (43.3%) and other category 9 (13.4%). The flooring type of these houses was cement, mud, stone, mosaic and tiles among 53(79.1%), 11(16.4%), 1 (1.5%), 1 (1.5%) and 1 (1.5%) deceased mothers respectively. It was found that 62 (92.5%) houses were electrified and only 5 (7.5%) houses were not electrified.

Source of Drinking Water:

Fig. 5.2 – SOURCE OF DRINKING WATER



The sources of drinking water was tap (61.2%), OHT (23.9%), Pond (1.5%), Hand Pump (6.0%), Packed water (1.5%), Well (3.0%), Bore water(1.5%) and other (1.5%). They mostly (58.2%) used wood to cook their food and few (31.3%) used gas stove for preparation of their daily food.

Fig. 5.3 – PERCENTAGE OF KITCHEN AVAILABILITY IN THE DECEASED MOTHER’S HOUSE

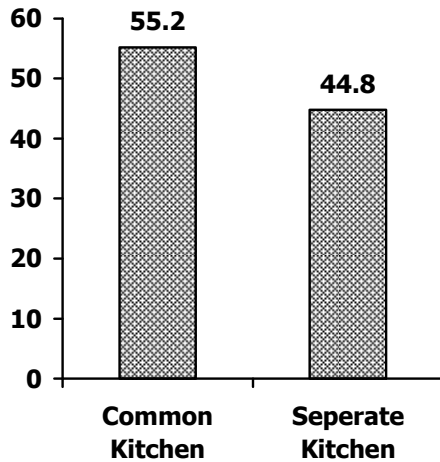
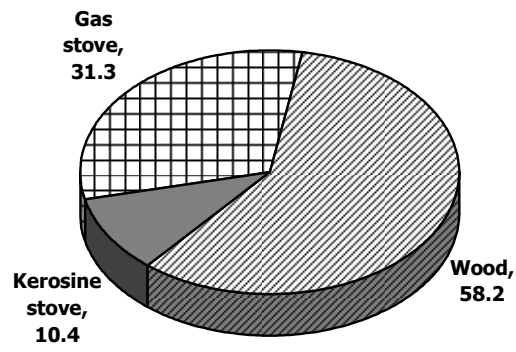


Fig. 5.4 – PERCENTAGE OF KITCHEN COOKING WERE USED IN THE DECEASED MOTHER’S HOUSE



A majority of them (55.2%) shared common kitchen and only 44.8% had separate kitchen facilities. The environmental and sanitary conditions of majority of the deceased mothers was not up to the level. It is also a major concern to improve environmental and sanitary conditions of People in general.

(VI) Pregnancy and Delivery Care

The Pregnancy and Delivery Care received by the deceased mothers are more important to view the quality of the service delivery to some extent. This study reveals that antenatal registration was done for 59 (88.1%) mothers and the rest of the eight mothers(12%) were not registered during pregnancy. The mothers were mostly registered in Health Sub Centre (79.7%) for antenatal check up and a few was registered in Health Post / Maternity Centres (5.1%); Government Hospital (10.2%) and Private Hospital (5.1%). The duration of pregnancy at the time of registration was less than 12 weeks (74.6%) and 13 – 28 weeks (25.4%).

AN Checkup

It is pertinent to say that 2 (3.4%) of the deceased mothers did not have any check up during pregnancy, 19(32.2%) had one to 3 check ups each and 38(64.4%) had 4 and above check ups during the last pregnancy. Birth spacing between last two child was < 1 year for 1 mother (1.7%), 1 – 3 years for 39 mothers (66%) and above three years for 19 mothers (32.2%).

Fig. 6.1 – A.N. REGISTRATION

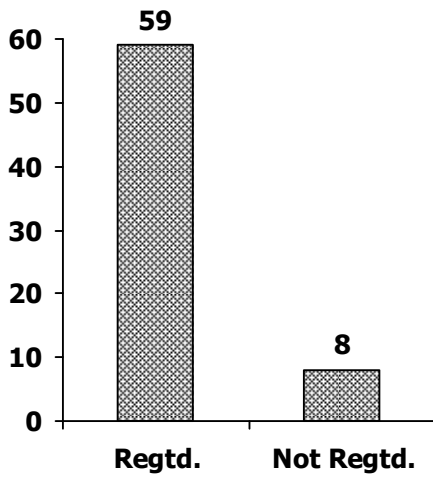
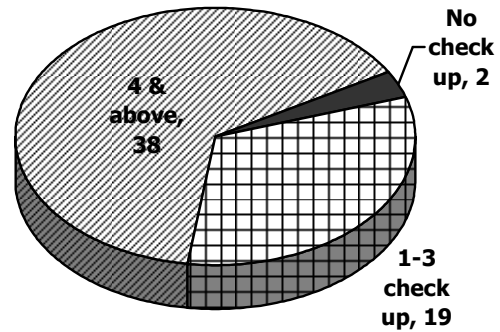
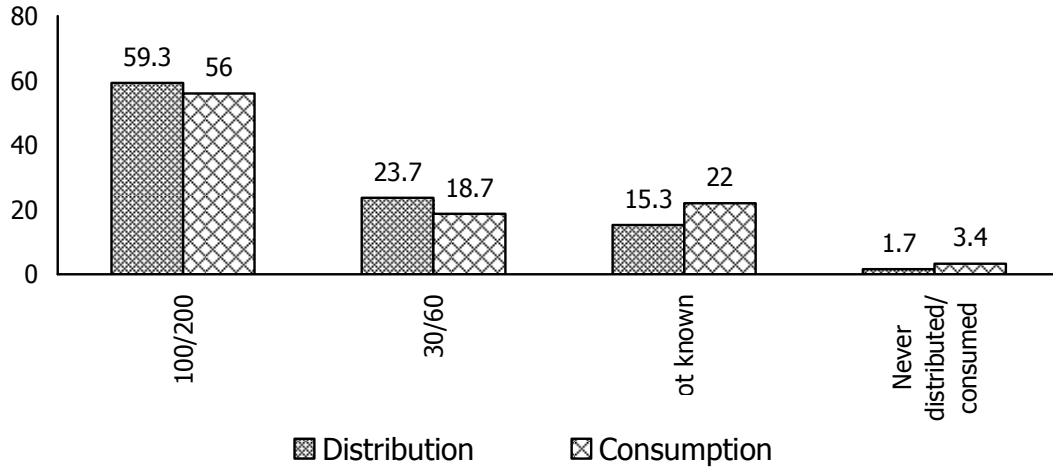


Fig. 6.2 – DECEASED MOTHERS RECEIVED NO. OF ANTENATAL CHECK-UPS



The distribution of mothers by number of FST / IFA tablets received shows that majority of mothers (59.3%) received 100 or 200 IFA tablets, 23.7% received 30 or 60 tablets, 1.7% never received any IFA tablet and not known (15.3%), where as only 56% were consumed 100 Or 200 IFA tablets, 18.7% consumed 30 or 60 tablets, 3.4% did not consume any IFA tablet and not known (22.0%).

Fig. 6.3 – PERCENTAGE OF DISTRIBUTION AND CONSUMPTION OF IFA TABLETS



The Blood pressure recording was done only for 58.2% mothers and 9.0% mothers were ignored in Blood Pressure recording and the status of Blood Pressure recording was not known for 32.8% of the deceased mothers. The other basic test like Albumin, Sugar, Blood Group, VDRL, Scan and Hb were taken for 76.1, 76.1, 67.2, 65.7, 67.2, 64.2 and 79.1 percent respectively among deceased mothers. It was not known for 10.4 percent of deceased mothers.

Fig. 6.4 – MOTHERS WITH ANTE NATAL PROBLEM

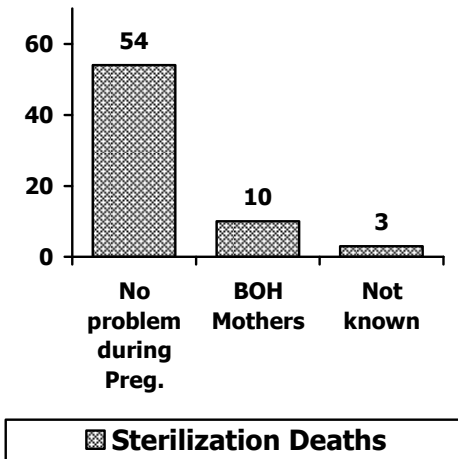
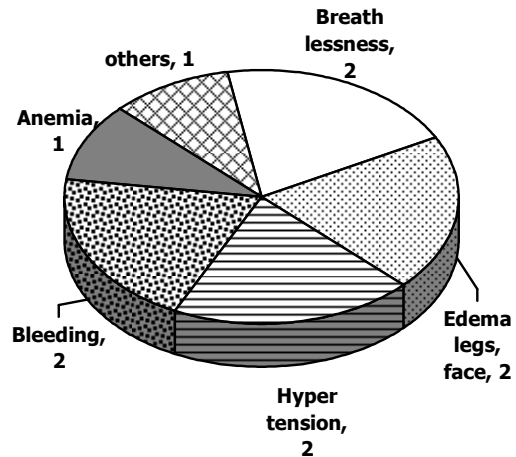


Fig. 6.5 – BOH MOTHERS FACING PROBLEM DURING ANTE NATAL PERIOD



It was also found that among 67 mothers, 15% of deceased mothers (10) had the problem during pregnancy. The reported problems were; breathlessness (2), Edema legs and face (2). Hypertension (2), Bleeding (2), Anemia (1) and others (1).

(VII) Deaths after Sterilization: Place of operation, Technique and referral

The classification of deaths after sterilization by place of operation explores that among 67 deaths during 2008 and 2009, 31.3% of deceased mothers(21) had undergone sterilization operation in Government Hospital, 14.9% in Teaching Hospital(10), 22.4% in Primary Health Centres(15), 4.5% in Voluntary Organization (3) and 26.9% in Private Nursing Homes(18). While Comparing the deaths during 2008 by place of operation with that of deaths after sterilization in 2009, it is to say that there is an increasing trend of deaths in Government Hospitals from 7(29%) to 32.6%(14), and in private nursing home from 21%(5) to 30.2%(13).

Fig. 7.1 – PERCENTAGE DISTRIBUTION OF DECEASED MOTHERS BY PLACE OF OPERATION

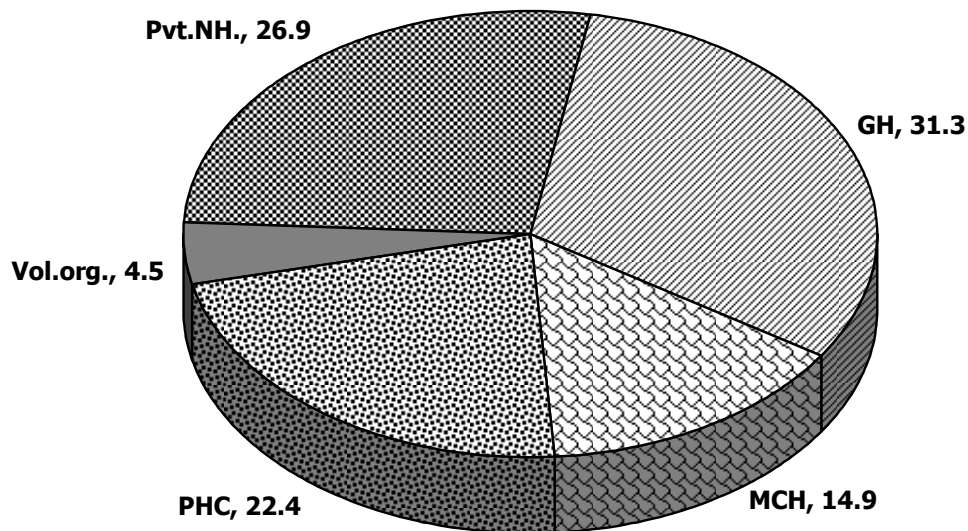
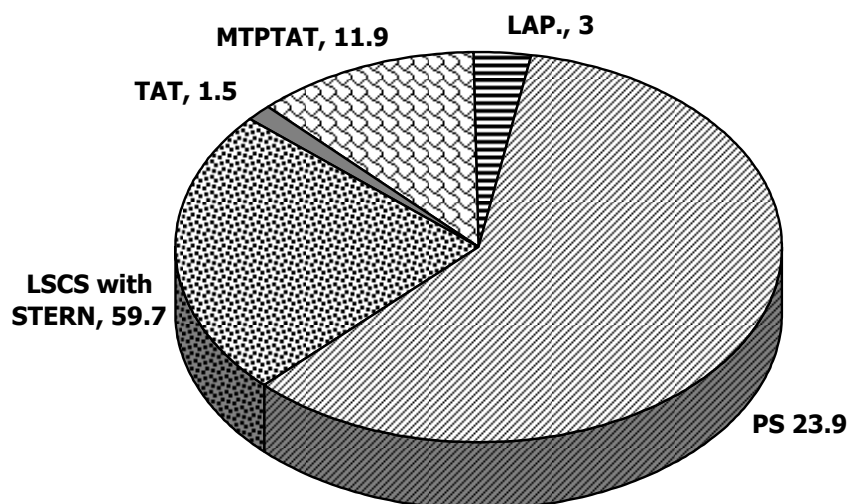


Fig. 7.2 – PERCENTAGE DISTRIBUTION OF DECEASED MOTHERS BY STERILIZATION TECHNIQUE



The analysis of deaths due to sterilization by technique wise during 2008 and 2009 revealed that the 60% of deaths was found among those who accepted LSCS with sterilization, followed by P.S.(23.8%), MTP with Tubectomy (11.9), Laparoscopic (3%) and Plan TAT (1.5%).

The distribution of deaths by number of days after sterilization operation shows that about one third of deaths occurred on the same day of Operation, another one-third in the first week and one third after first week. Out of 19 deaths reported on the same day nearly 47.4% of deaths (9) arising out of LSCS with sterilization. Out of 23 deaths reported from 1 to 6 days 65.2% of death arising out of LSCS with sterilization. out of 25 deaths reported after 1st week 64.0% of deaths arising out of LSCS with sterilization. The details are given in the diagram.

Fig. 7.3 – % INTERVAL FOR DEATHS AFTER STERILIZATION

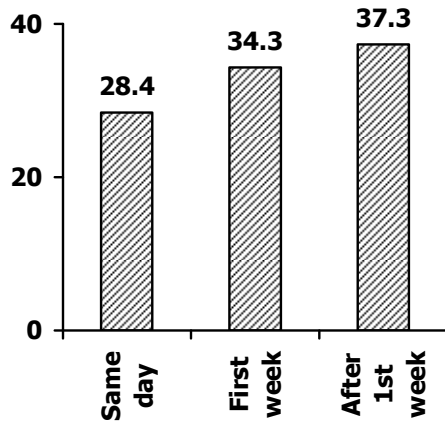
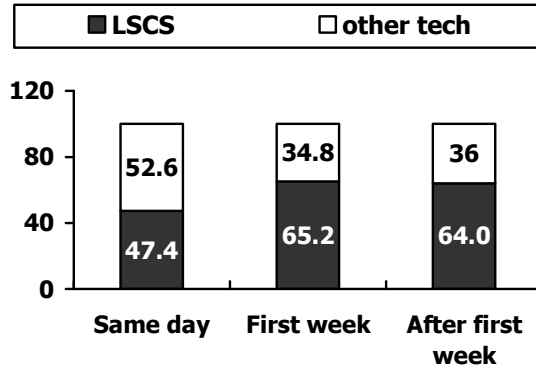
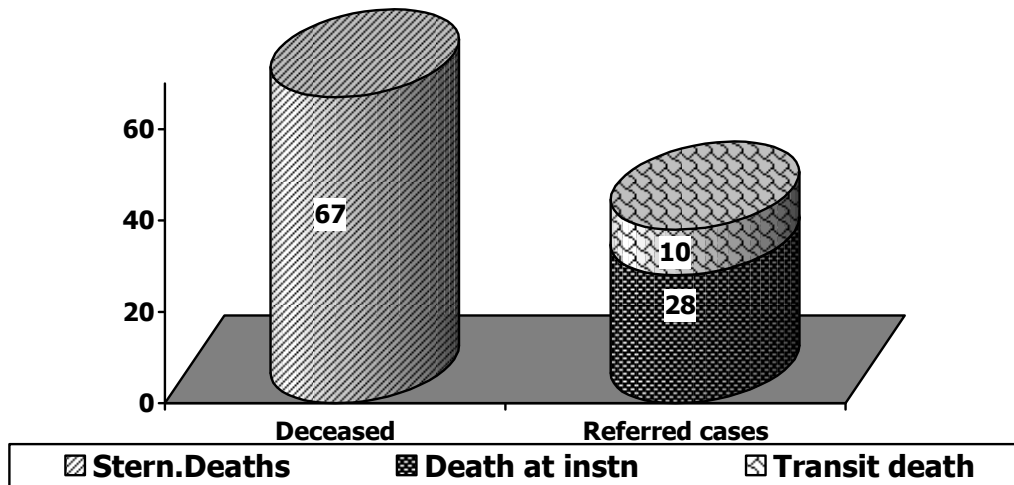


Fig. 7.4 – % DISTRIBUTION OF LSCS WITH STERILIZATION AND OTHER TECHNIQUE AMONGT THE DECEASED



The analysis of deaths after sterilization during 2008 and 2009 by referral cases revealed that out of 67 deaths, 56.7% (38) were referred from one institution / hospital to other hospital / institutions.

FIG. 7.5 – DISTRIBUTION OF REFERRAL CASES AMONG THE DECEASED



Among these referred cases (26.3%) 10 deaths occurred during Transit and other 28 deaths (73.7%) occurred in Government institutions. The time taken to reach the referral institutions was less than one hour (31.6%), between one and two hour (18.4%), between two to 5 hours (21.0%) and more than 5 hours (7.9%)

respectively. Such information was not available for 8 deceased mothers. It is noted that all the referral institutions except one (4.5%) had facilities to treat complications. The reason for referral is said to be lack of specialist (63.2%), lack of equipment (5.3%), lack of specialist and equipment (2.6%).

(viii) Causes of deaths arising out of sterilization procedure

The analysis of causes of deaths due to sterilization for the reference year 2008 and 2009 elucidate that 23.9 percent of the deaths were due to Pulmonary Embolism, 10.4 percent were due to Heart diseases, 7.5 per cent were due to Aspiration, 1.5%, 4.5% each were due to PPH and infection and 6% were due to Cortical venous thrombosis. The other causes were? CVA (3%), Septicemia with acute renal failure, cardiac arrest (1.5%), Rhatomyolysis (1.5%), cerebral venous thrombosis (1.5%), ?cerebral hemarriah (1.5%), Puperal sepsis with septicemia with multi organ failure (1.5%), Sepsis (3.0%), DIC with acute pulmonary Odema (1.5%) etc. The details are given in the table VII in the Annexure.

ANNEXURE

I) DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTIC OF THE DECEASED MOTHERS

Table 1.1. - Distribution of deceased mothers by Residence

Residence	No. of deaths	%
Rural	51	76.1
Urban	16	23.9
Total	67	100.0

Table 1.2. - Distribution of deceased mothers by Caste

Caste	No. of deaths	%
SC/ST	19	28.4
BC	37	55.2
Others	11	16.4
Total	67	100.0

Table 1.3. - Distribution of deceased mothers by Religion

Religion	No. of deaths	%
Hindu	61	91.0
Muslim	5	7.5
Christian	1	1.5
Total	67	100.0

Table 1.4. - Distribution of deceased mothers by age group

Age Group	No. of deaths	%
20-24	12	17.9
25-29	34	50.7
30-34	11	16.4
35-39	10	15.0
Total	67	100.0

Table 1.5. - Distribution of Deceased Mother by Educational level.

Literacy level	No. of deaths	%
Illiterate	8	11.9
Up to 5 th Std.	16	23.9
Upto 8 th Std.	18	26.9
Up to 10 th Std.	14	20.9
Upto +2 std.	9	13.4
Diploma	0	0.0
Degree	2	3.0
Total	67	100.0

Table 1.6. - Educational level of the Spouse

Literacy level	No. of deaths	%
Illiterate	9	13.4
Up to 5 th Std.	16	23.9
Upto 8 th Std.	13	19.4
Up to 10 th Std.	18	26.9
Upto +2 std.	8	11.9
Diploma	2	3.0
Degree	1	1.5
Total	67	100.0

Table 1.7. - Occupation status of the deceased mothers

Occupation	No. of deaths	%
Cooly	16	23.9
House wife	50	74.6
Agriculture	1	1.5
Total	67	100.0

Table 1.8. - Occupation status of the Spouse

Occupation	No. of deaths	%
Cooly	48	71.6
Electrician	2	3.0
Business	3	4.5
Painter	1	1.5
Fisherman	1	1.5
Driver	8	11.9
Salaried	2	3.0
Agriculture	1	1.5
Tailoring	1	1.5
Total	67	100.0

Table 1.9. - Income status of the deceased family

Category	Number	%
BPL	62	92.5
APL	5	7.5
Total	67	100.0

Table 1.10. - Age at marriage of the deceased mothers & Legal min. age at marriage

Sex	Mean age at marriage	No. of marriages held below the legal min. age at marriage
Men	26.3	4
Women	20.9	5

Table 1.11. - Distribution of deceased mothers by Number of Living children

Living children	No. of deaths	%
One	1	1.5
Two	51	76.1
Three & above	15	22.4
Total	67	100.0

II) ENVIRONMENTAL & SANITATION STATUS OF THE DECEASED MOTHERS

SL. NO.	Environment & Sanitation Factors	2008		2009		Combined	
		Nos.	%	Nos.	%	Nos.	%
I	Housing Type						
	Pucca	9	37.5	11	25.6	20	29.9
	Kutchra	3	12.5	6	14.0	9	13.4
	Tiled	7	29.2	22	51.2	29	43.3
	Others	5	20.8	4	9.3	9	13.4
	Total	24	100.0	43	100.0	67	100.0
II	Flooring Type						
	Cement	21	87.5	32	74.4	53	79.1
	Mud	2	8.3	9	20.9	11	16.4
	Stone	1	4.2		0.0	1	1.5
	Mosaic			1	2.3	1	1.5
	Tiles		0.0	1	2.3	1	1.5
	Total	24	100.0	43	100.0	67	100.0
III	Household Electrified						
	Yes	24	100.0	38	88.4	62	92.5
	No	0	0.0	5	11.6	5	7.5
	Total	24	100.0	43	100.0	67	100.0
IV	Toilet Facilities						
	Yes	11	45.8	15	34.9	26	38.8
	No	13	54.2	28	65.1	41	61.2
	Total	24	100.0	43	100.0	67	100.0
V	Source Of Drinking Water						
	Tap	16	66.7	25	58.1	41	61.2
	OHT	4	16.7	12	27.9	16	23.9
	Pond	1	4.2		0.0	1	1.5
	Hand pump	1	4.2	3	7.0	4	6.0
	Packed water	1	4.2		0.0	1	1.5
	Well		0.0	2	4.7	2	3.0
	Bore water		0.0	1	2.3	1	1.5
	Others	1	4.2		0.0	1	1.5
	Total	24	100.0	43	100.0	67	100.0
VI	Kitchen Cooking ware						
	Electric stove		0.0		0.0	0	0.0
	Gas Stove	9	37.5	12	27.9	21	31.3
	Kerosne stove	3	12.5	4	9.3	7	10.4
	Wood	12	50.0	27	62.8	39	58.2
	Coal		0.0		0.0	0	0.0
	Total	24	100.0	43	100.0	67	100.0
VII	Is Separate Room for Kitchen						
	Yes	9	37.5	21	48.8	30	44.8
	No	15	62.5	22	51.2	37	55.2
	Total	24	100.0	43	100.0	67	100.0

III) ANTENATAL AND NATAL CARE OF THE DECEASED MOTHERS

SL. NO	Particulars	2008		2009		Combined	
		Nos.	%	Nos.	%	Nos.	%
1	Did the mother had BOH in the previous Pregnancy						
	Yes	1	4.2	6	14.0	7	10.4
	NO	23	95.8	32	74.4	55	82.1
	NA		0.0	5	11.6	5	7.5
	Total	24	100.0	43	100.0	67	100.0
2	Last Pregnancy						
	Wanted	23	95.8	34	79.1	57	85.1
	Unwanted	1	4.2	9	20.9	10	14.9
	Total	24	100.0	43	100.0	67	100.0
3	No. of M.T.P. done						
	Antenatal Registration						
	Yes	23	95.8	36	83.7	59	88.1
	No	1	4.2	7	16.3	8	11.9
	Total	24	100.0	43	100.0	67	100.0
4	Place of Registration						
	HSC	18	78.3	29	80.6	47	79.7
	HP/MC	2	8.7	1	2.8	3	5.1
	GH	3	13.0	3	8.3	6	10.2
	Pvt.		0.0	3	8.3	3	5.1
	Total	23	100.0	36	100.0	59	100.0
5	Duration of Registration						
	<12 weeks	15	65.2	29	80.6	44	74.6
	13-28 weeks	8	34.8	7	19.4	15	25.4
	29-32 weeks		0.0		0.0	0	0.0
	33-40 weeks		0.0		0.0	0	0.0
	Total	23	100.0	36	100.0	59	100.0
6	Number of Check ups						
	Nil	1	4.3	1	2.8	2	3.4
	1-3 check up	10	43.5	9	25.0	19	32.2
	4 and above	12	52.2	26	72.2	38	64.4
	Total	23	100.0	36	100.0	59	100.0
7	Interval since previous delivery /AB						
	< 1 year	1	4.3		0.0	1	1.7
	1-3 years	16	69.6	23	63.9	39	66.1
	>3 years	6	26.1	13	36.1	19	32.2
	Total	23	100.0	36	100.0	59	100.0

SL. NO	Particulars	2008		2009		COMBINED	
		NO.	%	NO.	%	NO.	%
8	IFA tablets distributed						
	Nil	0	0.0	1	2.8	1	1.7
	30 Tablets	2	8.7	2	5.6	4	6.8
	60 Tablets	7	30.4	3	8.3	10	16.9
	100 Tablets	9	39.1	21	58.3	30	50.8
	200 Tablets	2	8.7	3	8.3	5	8.5
	Not known	3	13.0	6	16.7	9	15.3
	Total	23	100.0	36	100.0	59	100.0
9	IFA tablets Consumed						
	Nil			2	5.6	2	3.4
	30 Tablets	2	8.7	1	2.8	3	5.1
	60 Tablets	6	26.1	2	5.6	8	13.6
	100 Tablets	9	39.1	19	52.8	28	47.5
	200 Tablets	2	8.7	3	8.3	5	8.5
	Not known	4	17.4	9	25.0	13	22.0
	Total	23	100.0	36	100.0	59	100.0
10	Diagnostics services Received						
	Alb	20	90.9	31	72.1	51	76.1
	Sugar	20	90.9	31	72.1	51	76.1
	Blood group	18	81.8	27	62.8	45	67.2
	VDRL	18	81.8	26	60.5	44	65.7
	HIV	18	81.8	27	62.8	45	67.2
	Scan	17	77.3	26	60.5	43	64.2
	Hb%	21	95.5	32	74.4	53	79.1
	Not known	3	13.6	4	9.3	7	10.4
	Total	24	109.1	43	100.0	67	100.0
11	Blood pressure recording						
	BP taken	16	66.7	23	53.5	39	58.2
	Not known	8	33.3	14	32.6	22	32.8
	Not taken		0.0	6	14.0	6	9.0
	Total	24	100.0	43	100.0	67	100.0

IV) PROBLEM DURING THE LAST PREGNANCY DEDUCTED DURING THE ANTENATAL PERIOD

SL. NO.	Particulars	2008		2009		Combined	
		Nos.	%	Nos.	%	Nos.	%
1	Did the mother had any AN problem						
	Yes	4	16.7	6	14.0	10	14.9
	No	20	83.3	34	79.1	54	80.6
	Not known		0.0	3	7.0	3	4.5
	Total	24	100.0	43	100.0	67	100.0
2	List the Problem						
	Breathlessness	1	25	1	16.7	2	20.0
	Edema legs, face		0	2	33.3	2	20.0
	Hypertension	1	25	1	16.7	2	20.0
	Bleeding	1	25	1	16.7	2	20.0
	Anemia		0	1	16.7	1	10.0
	Others	1	25		0.0	1	10.0
	Total	4	100	6	100.0	10	100.0
3	Who deducted the Problem						
	Doctor	3	75	2	33.3	5	50.0
	Family members	1	25	2	33.3	3	30.0
	VHN/ANM		0	2	33.3	2	20.0
	Total	4	100	6	100.0	10	100.0
4	Problem deducted in the early stage						
	Yes	4	100	3	50	7	70
	No	0	0	1	16.7	1	10
	Not known	0	0	2	33.3	2	20
	Total	4	100	6	100	10	100
5	Treatment Given						
	Yes	4	100	5	83.3	9	90.0
	No	0	0	1	16.7	1	10.0
	Total	4	100	6	100.0	10	100.0
6	Referred & Attended to hospital						
	Yes	2	50	4	66.7	6	60.0
	No	2	50	1	16.7	3	30.0
	Not known		0	1	16.7	1	10.0
	Total	4	100	6	100.0	10	100.0

V) DELIVERY AND DELIVERY CARE OF THE DECEASED MOTHERS**Table 5.1 - Normal Delivery**

Sl. No.	Place	2008	2009	Combined	%
1	G. H.	2	2	4	25.0
2	G.P.H.C.	2	4	6	37.6
3	H.S.C.	1	1	2	12.5
4	Vol. Organisation	1	-	1	6.2
5	Pvt. NH.	2	-	2	12.5
6.	Transit	-	1	1	6.2
	Total	8	8	16	100.0

Table 5.2 – Caesarian Section

Sl.No.	Place	2008	2009	Combined	%
1	G.H.	12	17	29	72.5
2	G.P.H.C	1	-	1	2.5
3	Pvt. NH.	2	8	10	25.0
	Total	15	25	40	100.0

Table 5.3 – Medical Termination of Pregnancy

Sl.No.	Place	2008	2009	Combined	%
1	G.H.	-	1	1	12.5
2	G.P.H.C	-	1	1	12.5
3	Pvt.NH.	1	3	4	50.0
4	Vol.Org.	-	2	2	25.0
	Total	1	7	8	100.0

Table 5.4 – Other Method

Sl. No.	Place	2008		2009	Combined	%
		LAP/ MTP	LAP	PLAIN TAT		
1	G.P.H.C	-	1	1	2	66.7
2	Pvt. NH.	-	1	0	1	33.3
	Total	0	2	1	3	100

Table 5.5 - OUT COME OF DELIVERIES

Sl. No.	Place	LB	SB	Imm. given to LB	No. of low birth weight baby-<3 Kg.
1	G.H.	33	-	31	17
2	G.P.H.C	7	-	7	3
3	HSC	2	-	2	2
4	VOL.ORG.	1	-	1	-
5	Pvt.NH.	11	1	11	7
6	TRANSIT	1	-	1	1
	Total	55	1	53	30

**VI) STERILISATION OPERATION;
 AVAILED SERVICES, INTERVAL OF STERILISATION AND REFERRAL**

Table 6.1 - Distribution of deceased mother by Place of operation during the year 2008

Sl. No.	Place of Operation	Total stern.	%
1	Government Hospitals	7	29
2	Teaching Hospitals	5	21
3	Primary Health Centres	7	29
4	Private Nursing Homes	5	21
	Total	24	100

Table 6.2. - Distribution of deceased mother by technique wise during the year 2008

Sl. No.	Technique	Total	%
1	P.S.	8	33.0
2	LSCS with Sterilisation	15	62.5
3	M.T.P. with Tubectomy	1	4.2
	Total	24	100.0

Table 6.3 - Distribution of deceased mother by Place of operation during the year 2009

Sl. No.	Place of operation	Stern	%
1	Government Hospitals	14	32.6
2	Teaching Hospitals	5	11.6
3	Primary Health Centres	8	18.6
4	Vol.Organisation	3	7.0
5	Private Nursing Homes	13	30.2
	Total	43	100.0

Table 6.4. - Distribution of deceased mother by technique wise during the year 2009

Sl. No.	Technique	Total	%
1	P.S.	8	18.6
2	LSCS with Sterilisation	25	58.1
3	Laparoscopic	2	4.7
4	M.T.P. with TAT	7	16.3
5	TAT	1	2.3
	Total	43	100.0

Table 6.5 - Technique wise and interval for sterilization death during 2008.

Interval	P.S.	LSCS	MTP with Tub	Total	%
0 – 1 day	2	3	1	6	25
1-6 Days	3	4	-	7	29
7-27 Days	3	8	-	11	46
Total	8	15	1	24	100

Table 6.6 Technique wise and interval for sterilization death. during 2009

Interval	P.S.	LSCS	MTP with Tub	Lap	Plain TAT	Total	%
0 – 1 day	3	6	2	2	-	13	30.2
1-6 DAYS	1	11	3	-	1	16	37.2
7-27 DAYS	4	7	1	-	-	12	27.9
1month but <42 days	-	1	1	-	-	2	4.7
Total	8	25	7	2	1	43	100

Table 6.7. - Referral Cases - 2008

Sl. No.	Details	2008			
		P.S.	LSCS	Total	%
I	Referred Out				
	Teaching hospital	2	-	2	13
	Govt.Hospital	1	5	6	38
	Primary Health Centre	3	2	5	31
	Vol.organisation	-	-	0	0
	Private N.H.	2	1	3	19
	Total	8	8	16	100
II	Referred In				
	Teaching hospital	5	4	9	81.8
	Govt.Hospital	-	-	-	-
	Vol.organisation	-	-	-	-
	Private N.H.	1	1	2	18.2
	Total	6	5	11	100
III	Outcome of Treatment				
	Institutional Death	6	5	11	68.8
	Transit Death	2	3	5	31.3
	Total	8	8	16	100

Referral Cases - 2009

Sl. No.	Details	2009					
		P.S.	LSCS	MTP with TAT	Lap.	Total	%
I	Referred Out						
	Teaching hospital	-	-	-		-	-
	Govt.Hospital	-	7	-		7	32
	Primary Health Centre	5	-	2	1	8	36
	Vol.organisation	-	1	1	-	2	9
	Private N.H.	-	3	2	-	5	23
	Total	5	11	5	1	22	100
II	Referred In						
	Teaching hospital	3	6	-		9	52.9
	Govt.Hospital	1	1	2		4	23.5
	Vol.organisation	-	2	-		2	11.8
	Private N.H.	-	1	1		2	11.8
	Total	4	10	3		17	100
III	Outcome of Treatment						
	Institutional Death	4	10	3	-	17	77.3
	Transit Death	1	1	2	1	5	22.7
	Total	5	11	5	1	22	100

Table 6.8. - Status of the Referral Cases for Sterilization Deaths

DETAILS	2008	%	2009	%
No. of cases treated	24		43	
No. of cases referred	16	66.7	22	51.2
Total time taken from the onset of the problem to reach the referral institution				
one and < one hour	5	31.3	7	31.8
Two and < two hours	0	0	7	31.8
> 2 hour and < 5 hours	5	31.3	3	13.6
more than 5 hours but less than one day	2	12.5	1	4.5
Not known	4	25	4	18.2
Total	16	100	22	100.0
Whether the referral institutions had facilities to treat the complication				
Yes	16	100	21	95.5
No	0		1	4.5
Total	16		22	100.0
Type of treatment received in the referee institution				
Nil	2	12.5	4	18.2
First Aid	3	18.8	2	9.1
Possible treatment	10	62.5	13	59.1
Not known	1	6.25	3	13.6
Total	16	100	22	100.0
Type of treatment received at Referral institution				
Nil	1	6.25	2	9.1
Possible treatment	6	37.5	16	72.7
Not known	9	56.3	4	18.2
Total	16	100	22	100.0

DETAILS	2008	%	2009	%
Reason for Referral				
lack of specialist	10	62.5	14	63.6
lack of equipments	2	12.5	0	0.0
lack of specialist&equipment	0	0	1	4.5
Decrease urine output	0	0	1	4.5
Critical condition	0	0	2	9.1
Due to anesthesia complication	0	0	1	4.5
Others	0	0	1	4.5
Lack of specialist,equipmentand blood	3	18.8	1	4.5
Not known	1	6.3	1	4.5
Total	16	100	22	100.0
Who referred to the next referral				
Doctor	16	100	21	95.5
Self referral	0		1	4.5
Total	16		22	100.0
Whether mother was Admitted and then referred	13	81.3	21	95.5
Whether mother was Referred even before admission	2	12.5	0	0.0
Not known	1	6.3	1	4.5
Total	16	100	22	100.0
Whether any record available for referral from the institution either with the patient or in the hospital				
Yes	14	87.5	21	95.5
No	2	12.5	1	4.5
Total	16	100	22	100.0
Amount spent for each referral				
Yes	3	18.8	6	27.3
No	13	81.3	16	72.7
Total	16	100	22	100.0

DETAILS	2008	%	2009	%
Was there delay in mobilising funds for transport				
Yes	0	0	1	4.5
No	16	100	20	90.9
Not known	0	0	1	4.5
Total	16	100	22	100.0
Time taken to initiate treatment in the institution on reaching the hospital				
Yes	3	18.8	4	18.2
No	8	50	13	59.1
Transit death	5	31.3	5	22.7
Total	16	100	22	100.0
Reasons for the delay in initiating treatment				
informal payment				
Mobilizing specialists			1	4.5
Mobilizing blood				
Paramedical workers				
Not known	3	18.8	2	9.1
Not applicable	5	31.3	5	22.7
No delay	8	50	14	63.6
Total	16	100	22	100
Whether the relatives were allowed during the process of treatment				
Yes	11	68.8	14	63.6
No	0	0	3	13.6
Not applicable	5	31.3	5	22.7
Total	16	100	22	100.0

VII) CAUSE OF STERILISATION DEATH

SL NO	CAUSE OF DEATH	2008		2009	
		NOS.	%	NOS.	%
1	Pulmonary embolism	8	33	8	18.6
2	Heart Disease	4	17	3	7.0
3	PPH	1	4.2		0.0
4	Infection	1	4.2	2	4.7
5	Pulmonary edema	1	4.2	2	4.7
6	Cardiac venous thrombosis	3	13	1	2.3
7	CVA	1	4.2	1	2.3
8	Septicemia with acute renal failure, cardiac arrest	1	4.2		0.0
9	Rhabdomyolysis	1	4.2		0.0
10	Cerebral venous thrombosis	1	4.2		0.0
11	?cerebral hemorrhage	1	4.2		0.0
12	Purpl sepsis with septicemia with multiorgan failure	1	4.2		0.0
13	Sepsis		0	2	4.7
14	DIC with acute pulmonary edema		0	1	2.3
15	Aspiration		0	5	11.6
16	Cardiac shock with acute respiratory failure		0	1	2.3
17	Asphyxia		0	1	2.3
18	Pulmonary embolism with irreversible shock with cardiac arrest		0	2	4.7
19	Intestinal obstruction		0	1	2.3
20	Renal problem		0	1	2.3
21	Stomach pain after LSCS with sterilisation		0	1	2.3
22	CVT, left hemiplegia		0	1	2.3
23	Anesthesia complication		0	1	2.3
24	Pulmonary arrest		0	1	2.3
25	Urine not decretion		0	1	2.3
26	Pulmonary edema ARDS		0	1	2.3
27	Cardio respiratory arrest? Pulmonary embolism? Septicemia shock		0	1	2.3
28	Post LSCS / AC - Exabration of Bronchia Asthma? Hypoxia seizure and shock		0	1	2.3
29	CVA, multiple cerebral intact meningo encephalities		0	1	2.3
30	Hypovolumic shock and cerebral hypoxia with Dateralwall Ischemia due to respiratory arrest		0	1	2.3
31	Amniotic fluid embolism with shock following LSCS with stern		0	1	2.3
32	Peripheral vein thrombosis due to sterilisation		0	1	2.3
	Total	24	100	43	100.0