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Maternal Morbidity in Rural Andhra Pradesh

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ABSTRACT

Pregnancy constitutes a high risk of morbidity and mortality due to associated physiological stress. Many women do not die of causes related to pregnancy but suffer severe morbidities. In developing countries, pregnancy and childbirth related complications are the leading cause of disability among women aged 15-44 years. The objective of the present paper is to assess the extent of maternal morbidity and assess the factors responsible for it in rural Andhra Pradesh. An attempt is also made to understand the treatment seeking behaviour of the women for the morbidities.

The study revealed a high prevalence of maternal morbidity in rural areas of Andhra Pradesh. Especially in the less developed district, nearly 95 percent of the women experienced at least one of the morbidities and in the developed district it is 61 percent. *'Life threatening'* and *'Serious'* morbidities are experienced by 39 and 54 percent in the less developed; 15 and 46 percent of women in developed district respectively. High incidence of maternal morbidity in rural areas can be attributed to the combination of individual, household, community, medical as well as nutrition variables. Determinants of maternal morbidity at individual level are age, parity, education and work status; household variables are type of family, possession of land, availability of toilet with in the premises of house. In addition poor infrastructure facilities such as access to villages and non-availability of health care facilities further added to the level of maternal morbidity. Government's introduction of RCWHCs is not been effective in bringing down the morbidity levels due to lack of proper staff, particularly lady doctor. In spite of low levels of perception about maternal morbidities, relatively higher utilization of health services during antepartum period should be taken as an advantage for initiating complete antenatal services, i.e. beyond the coverage of women by TT injection and supply of IFA tablets. The governmental initiation of supplying protein-rich food to pregnant and lactating mothers through ICDS programme has significantly lowered the morbidity levels probably by lessening the levels of anaemia.

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Maternal Morbidity in Rural Andhra Pradesh

Introduction:

Maternal health received greater attention after the safe motherhood initiative was launched at an international conference held in Nairobi in 1987 (Mahler H, 1987). Maternal mortality estimates are used to highlight the plight of pregnant women in less developed countries. However, maternal mortality is just the tip of the iceberg of the health problems of women. Many women do not die of causes related to pregnancy but suffer severe morbidities. In developing countries, pregnancy and childbirth related complications are the leading cause of disability among women aged 15-44. The world development report estimated that 18 percent of the burden of disease for these women is due to maternal causes.

Pregnancy constitutes a high risk of morbidity and mortality due to associated physiological stress. This is more severe in developing countries where the risk of dying as a result of pregnancy is 10 to 20 times higher than that in the developed countries. There are a few studies on the specific problems of pregnancy. Most of the available studies are hospital based. However hospital based studies are not reliable because relatively a few women in developing countries deliver their infants in hospitals. These results thus are not representative of the population. Moreover, hospital based studies shed light only on the acute complications of pregnancy. Long-term consequences of pregnancy are not considered in hospital-based studies and, indeed are missing from almost all research. Very few longitudinal studies are available on the pattern of general morbidity amongst the rural pregnant women. A small prospective study conducted in a village in India reported that there are 16.5 pregnancy-related morbidities for every maternal death (Datta K K et al; 1980). Another analysis indicates that in developing countries for each maternal death, a further 10-15 women suffer serious impairments (Measham and Rochat, 1987 as cited in Bhatia. 1993). Based on some of these estimates it has been calculated that there are 8.25 million maternal morbidities every year worldwide (Walsh J.A.et al; 1989). Others have calculated that there are over 100 acute morbid episodes for

every maternal death, giving a global total of 62 million morbidities annually (Koblinsky M.A. et al; 1993). According to another estimate, in each year over 50 million women experience pregnancy related complications. Fifteen million of which lead to long-term illness or disability often because they have no access to medical care, because pregnancy has exacerbated already existing malnourishment or illness, or because the medical care that they do manage to access is substandard (Datta KK, 1980). These estimates, though crude and unreliable, point to the magnitude of maternal morbidity.

Women become ill during pregnancy and childbirth for many reasons. In poorer countries multiple disadvantages combine to put women at risk. Improving women's nutrition, general health and socio-economic status will reduce the maternal morbidities. Access to tetanus toxoid vaccination, iron supplementation and other simple technologies will reduce maternal morbidity. Appropriate maternity care during pregnancy and delivery will both prevent emergencies and save lives and lessen morbidity. A few hospital based studies (Melrose, 1989; Boes, 1987 a) and some community studies (Kwast et al; 1989; Bhatia, 1993) have identified lack of antenatal care as a risk factor for maternal mortality. The Demographic Health Survey (DHS) programme has made available nationally representative data on the receipt of antenatal and natal care for a large number of developing countries; for India, the National Family Health Surveys (NFHS), 1992-93 and 1998-99, performed the same functions. Evidence from NFHS-2 (1998-99) suggests that only a few women have access to antenatal care: only two-thirds of women (two in five rural women) had received one antenatal check up from a doctor or other health professional. It is almost unchanged from NFHS-1. Two out of three Indian women continued to be delivered by untrained attendants and a little more at home, usually in unhygienic conditions. Situation in Andhra Pradesh is better. NFHS-2 suggests that, 9 mothers out of 10 have an access to antenatal care. Despite the strong motivation to take antenatal care, 50 percent of mothers are still having home deliveries and traditional birth attendants assist 35 percent of mothers. The number of health problems reported by women in the first months after delivery is high. Ranging from 23 percent of women indicating problems in India (Bhatia JC, Clealand J, 1996) and 47 percent reporting at least one symptom in England (Glazzner CMA and Adballa M, 1993). Some may resolve with in weeks or months while others can become chronic.

Objective and Methodology:

The present paper is aimed to assess the extent of maternal morbidity and assess the factors responsible for it in rural Andhra Pradesh. Second is to understand the treatment seeking behaviour of the women for the morbidities. The data for the present paper is drawn from a larger community based study on maternal morbidity. The survey was carried out in Mahbubnagar and Guntur, which is less developed and developed districts respectively. In both the districts a PHC (primary health center) and a RCWHC (round the clock women health centre) are selected randomly. In each area ten percent of the villages are selected at random for the study. A total of 23 villages are thus selected for the study from both the districts. Details of the selected villages and sample are given in Table-1. In these villages the total listed households are 7966. Women who had been pregnant two years prior to the survey (i.e. between November 1999 to October 2001), irrespective of the outcome of pregnancy are covered in the survey. Thus in 1620 households, 1754 eligible women were identified for the study. Of them 1677 women were completely interviewed (95.6 percent).

Table 1: Particulars of the Sample Villages and Eligible women

Sample particulars	PHC	RCWHC	Total
MahbubNagar			
Total number of villages	6	9	15
Total households canvassed	1870	2604	4474
Total households identified	487	720	1207
Total eligible women selected	523	791	1314
Total eligible women canvassed	496	762	1258
Total eligible women not canvassed	27	29	56
Guntur			
Total number of villages	2	6	8
Total households canvassed	1191	2301	3492
Total households identified	100	313	413
Total eligible women selected	101	339	440
Total eligible women canvassed	100	319	419
Total eligible women not canvassed	1	20	21

Unlike a clinical study, a community based study on morbidities, which is based on self-reporting, is generally said to give not an accurate estimate. It is said that this type of study either underestimates or over estimates the morbidities. The underestimation may happen because of recall bias; different morbidities are remembered with different accuracy; overlooking of mild or asymptomatic conditions; and many conditions, which are perceived normal, are never reported. Over estimation may happen because of reporting of trivial conditions because of validation problems. Anticipating these problems, certain measures have been taken during the data collection process. For instance, the present study is confined to a recall period of two years. In addition to the recording of specified morbidities, provision is made in the questionnaire to collect information through open-ended questions as well. All the conditions reported by them were noted without any judgment. Since the present study does not have a scope for clinical examination, the reported symptoms are taken as the final. Care is taken with respect to classification of morbidities. The classification is done with the assistance of an expert Obstetrician and Gynaecologist.

Definition and classification of maternal morbidity:

The World Health Organization (1992) has defined obstetric morbidity as morbidity among women who have been pregnant (regardless of site or duration of the pregnancy) from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. Despite this definition, to define the maternal morbidity accurately is one of the major problems of research due to misclassifications. Maternal morbidity has many interwoven causes that range from physiology and anatomy to status of woman and political priority. Perceptions of what constitutes morbidity vary. Research to date has focused on complications that are measurable and potentially *'life threatening'*. The so-called minor complaints of pregnancy are rarely addressed even though these conditions may significantly impair women well-being and their ability to work. Different persons classified maternal morbidities differently. Some preferred to classify based on its severity, others based on duration. Srinivasan et.al. (1993) have classified maternal morbidity based on severity as 'Life threatening', 'Serious', and 'Mild'. A similar classification is adopted for the present paper (Table-2).

Table 2: Classifications of Various Morbidities by its Severity

Period	Life threatening	Serious	Mild
Antepartum	-Haemorrhage -Fits/ Convulsions	-Edema -Hypertension -Fever>3days -Severe vomiting -Jaundice -Pulmonary TB -Rheumatic heart disease	-Giddiness -Irritative urinary symptoms -Blurred vision -Anaemia -Epilepsy -Ulcer -No movement in foetus -Varicose veins
Intrapartum	-Haemorrhage -Fits/ Convulsions -Malaria -Ruptured uterus	-Labour more than18 hours -Vaginal or cervical tear -Caesarian section	-Any tear -Retained placenta -Inversion of uterus -Cord round neck
Postpartum	-Haemorrhage -Malaria	-Fever>3 days -Foul discharge -Shock/ loss of consciousness	-Breast swelling -Urinary infection -Infected tear with fever -Infected PS wound -Body pain -Diarrhea -Mental illness -Chest pain Vomiting etc.

Presentation of the Paper:

This paper is organized into seven sections. A brief review of literature on maternal morbidity and classification by its severity is presented in first section. In the second section, characteristics of the study population are discussed. The third section discusses how maternal morbidity is examined in the present study and subsequently focuses on various aspects of antepartum morbidities. Fourth section narrates the intrapartum morbidities and related aspects. Fifth section discusses about the postpartum morbidities. The sixth section focuses on the overall maternal morbidity and its determinants in the study villages. Conclusions and policy implications are given in the last section.

Characteristics of the study women:

In Mahbubnagar district 91 percent of the women in the surveyed villages are non-literate; in Guntur district the corresponding percentage is 50. Out of the other 50 percent of women in Guntur, 41 percent of them are educated above primary level (Table-3). Hindus constitute 92 percent in Mahbubnagar district and 77 percent in Guntur. The percent of backwards castes is very high in Mahbubnagar (70 percent) when compared to Guntur (23 percent). Eighty percent of the women in Mahbubnagar work for daily wages and in Guntur the corresponding percentage is 49. Median age at marriage for woman in Mahbubnagar is 15 years and in Guntur it is 16. The gap between marriage and cohabitation is less than a month in both the districts. The mean number of pregnancies per woman is 1.89 and 2.85 respectively in Guntur and Mahbubnagar districts. By reference date, 43 percent in Guntur and 31 percent in Mahbubnagar districts are primiparous women. Nearly 42 percent of women in Mahbubnagar and 22 percent in Guntur district had three or more number of children. The percent of pregnant women at the time of the study was 17 in Mahbubnagar and20 in Guntur; the remaining women have experienced pregnancy with in the reference period.

Maternal Morbidity:

Maternal morbidity includes morbidity during three specific phases, i.e. during antepartum period, intrapartum period, and postpartum period. In the present paper maternal morbidity is first assessed separately during each of these phases and subsequently it is assessed as a collective maternal morbidity.

Antepartum Morbidities:

A higher percent of women in the less developed district (87.7) suffered from antepartum morbidities than the women in the developed district (58.0) (Table-4). A majority of the women in both the districts were suffering from 'serious' complications but its percentages are very high in the less developed district (77.7) than in the developed district (49.6). A few women suffered from *'life threatening'* or *'mild'* complications during antepartum period.

Table 3: Socio-Economic Characteristics of the Eligible Women

Background characteristics	Percent of Eligible Women					
	Mahbubnagar			Guntur		
	PHC	RCWHC	Total	PHC	RCWHC	Total
Education						
Non-literate	92.3	90.3	91.1	39.0	52.4	49.2
Up to primary	2.0	2.8	2.5	9.0	9.1	9.1
Above primary	5.6	7.0	6.4	52.0	38.6	41.8
Religion						
Hindu	91.1	92.1	91.7	65.0	80.9	77.1
Muslim	4.8	2.8	3.6	5.0	2.8	3.3
Christian	4.0	5.1	4.7	30.0	16.3	19.6
Caste/Tribe						
Scheduled caste	16.9	24.3	21.4	33.0	23.8	26.0
Scheduled tribe	1.4	1.3	1.4	10.0	15.7	14.3
Other backward caste	72.4	68.8	70.2	27.0	22.3	23.4
Others	9.3	5.6	7.1	30.0	38.2	36.3
Work status						
Works at home	21.4	19.0	20.0	59.0	45.8	48.9
Works outside home	78.6	81.0	80.0	41.0	54.2	51.1
Age at first marriage						
<=15	70.2	72.6	71.6	15.0	42.6	36.0
16-18	27.2	24.2	25.4	57.0	41.4	45.1
19-20	2.0	2.6	2.4	16.0	10.0	11.5
20+	0.6	0.7	0.6	12.0	6.0	7.4
Parity						
1	5.0	7.0	31.2	15.0	9.4	42.7
2	34.9	28.9	26.9	40.0	43.6	35.1
3	29.0	25.5	18.5	33.0	35.7	9.3
4+	31.0	38.7	23.4	12.0	11.3	12.9
Pregnancy status						
Currently pregnant	13.7	19.4	17.2	25.0	19.1	20.5
Currently not pregnant, but once pregnant during reference period	86.3	80.6	82.8	75.0	80.9	79.5
Type of family						
Nuclear	52.8	44.0	47.5	49.0	53.9	52.7
Non nuclear	47.2	56.0	52.5	51.0	46.1	47.3
Total	**100.0 (496)**	**100.0 (762)**	**100.0 (1258)**	**100.0 (100)**	**100.0 (319)**	**100.0 (419)**

Table 4: Women Suffering from Types of Antepartum Morbidities

Morbidities	Percent of Women	
	Mahbubnagar	Guntur
Fits/Convulsions	2.5	0.5
Excessive Bleeding	1.5	0.7
Swelling of hands/feet	39.7	16.5
Fever > 3 days	35.5	1.4
High blood pressure	3.0	1.0
Severe vomiting	52.0	40.3
Tuberculosis	0.1	0.0
Heart disease	2.5	0.2
Blurred vision	23.6	3.3
Giddiness	38.1	16.2
Urinary problem	21.6	3.6
Varicose veins	0.5	0.7
No movements in fetus	6.8	0.5
Type of Morbidities		
'Life threatening'	3.7	1.2
'Serious'	77.7	49.6
'Mild'	6.3	7.2
Total women with any morbidity	87.7 (1104)	57.9 (243)
Total eligible women	**1258**	**419**

Antenatal Care:

The safe motherhood initiate proclaims that all pregnant women must receive basic, professional antenatal care (Harrison, 1990). Ideally antenatal care should monitor a pregnancy for signs of complications, detect and treat pre-existing and concurrent problems of pregnancy, and provide advice and counseling on preventive care, diet during pregnancy, delivery care, postnatal care, and related issues. The Reproductive and Child Health programme recommends that antennal care should cover the procedures to detect pregnancy complications apart from proving IFA tablets and TT injections. (Ministry of Health and Family Welfare, 1997,1998b).

More than 95 percent of the women in Guntur district and 79 percent of the women in the Mahbubnagar district had an antenatal check-up (Table-5). In both the districts, a majority went to a private hospital or a doctor. Most of the remaining women in Guntur district went to a primary health center or other Government hospitals (35 percent). In contrast a high percent of the women went to unqualified medical practitioners in Mahbubnagar.

Table 5: Particulars of Antenatal Care in Both the districts of Andhra Pradesh

Particulars of Antenatal care	Mahbubnagar	Guntur
Percent of women who had ANC	79.3	95.9
Place of ANC		
- Primary health centre/ Govt. hospital	16.1	41.4
- Private hospital/ Doctor	56.8	56.1
- Dais/RMPs/Traditional healers etc.	27.1	1.9
Total Women	**1258**	**419**

Perceptions about the severity of Antepartum Morbidities and Treatment Behaviour:

It is assumed that the decision to seek medical aid depends first on the individual perception towards ill health. If woman recognizes the problem and understands the likely consequences, it motivates her to seek treatment. Then comes the role of sophisticated medical diagnosis in identifying and treating an ailment. Therefore, demand for utilization of health services depends upon person's perception which in-turn is related to their awareness levels. In the present study a woman's perception of the severity of her symptoms was ascertained by asking her whether she felt that these symptoms are dangerous to her health or to the foetus and then about the treatment seeking behaviour. The findings reveal that, treatment-seeking behaviour is much higher than the knowledge levels of any particular illness in both the districts (Table-6). In Mahbubnagar district only 37.6 percent perceived these morbidities as serious but 70.5 percent had sought treatment. Similarly in Guntur district the percentage of women sought treatment (63.8) was higher than those who perceived the problem serious

(46.5). Perception by specific morbidity reveals that all those women who have suffered from *life threatening* morbidities considered their problem serious and all of them have sought treatment. Whereas in Mahbubnagar no women perceived the morbidities may be harmful to health of either mother or foetus. Treatment seeking behaviour of women shows that in both the districts a majority of women, 66 percent in Mahbubnagar and 80 percent in Guntur, went to private medical practitioners. In Mahbubnagar district nearly one third of the women (27.3 percent) went to local quacks, i.e. RMPS or traditional healers or Dais. Seventeen percent of women in Guntur preferred to go to public health facilities.

Reasons for not taking treatment for antepartum morbidities:

In Mahbubnagar out of 1104 women who suffered from one or the other antepartum morbidities, 29.5 percent never sought treatment for even a single morbidity. The main reason for not taking treatment is the lack of felt need. In addition a few women expressed that health facility is located at a far away place from their residence and the working timings of the health facility are inconvenient to them. A few women also mentioned that their family members did not allow them to go. Two women are absolutely ignorant about available facilities and they did not know where to go for a treatment. In Guntur district 243 women suffered from one or the other type of morbidities during antenatal period. One-third of these women (36.2 percent) never felt the need to take treatment because they thought these morbidities do not require a medical treatment. Like the women in Mahbubnagar, a few women in Guntur also felt that the working timings of the health center are not convenient for them.

Intrapartum Morbidities:

Intrapartum is the shortest phase compared to ante and postpartum periods. This phase is unpredictable and at any time during labour, complications may develop. Table-7 shows that more women in the less developed district (43.4 percent) had one or more morbidities during intrapartum period than the women in the developed district (23.4 percent). An analysis of problems by severity shows that, 36.7 percent of women in Mahbubnagar and 14 percent in Guntur have experienced *life-threatening* intrapartum morbidities. That is, more women suffered from life threatening problems during intrapartum period than during antepartum period.

Table 6: Perceptions of Antepartum Morbidities Experienced by the Women and the Treatment Particulars

Morbidities	Perceptions and Treatment Seeking Behaviour of Women in Both Districts (%)											
	Mahbubnagar						Guntur					
	Perceived as serious	Treatment sought	Place of treatment sought				Perceived as serious	Treatment sought	Place of treatment sought			
			Government		Private				Government		Private	
			PHC	Other hospitals	Clinic/ hospital	RMPs/ Dai etc.			PHC	Other Hospitals	Clinic/ hospital	RMPs/ Dai etc.
'Life threatening'												
Fits/Convulsions	75.0	84.3	3.7	0.0	59.2	37.0	100.0	100.0	0.0	0.0	100.0	0.0
Excessive Bleeding	73.6	78.9	0.0	0.0	86.6	13.3	100.0	100.0	0.0	0.0	100.0	0.0
'Serious'												
Swelling of hands/feet	13.6	45.8	0.4	9.1	76.4	13.9	23.1	60.8	11.9	0.0	88.1	0.0
Fever > 3 days	47.5	77.8	1.4	2.3	57.6	38.6	100.0	100.0	0.0	0.0	100.0	0.0
High blood pressure	55.2	97.3	5.4	8.1	81.0	5.4	50.0	100.0	0.0	25.0	75.0	0.0
Severe vomiting	30.4	66.9	2.5	4.5	68.2	24.6	23.0	62.7	14.1	6.6	76.4	2.8
Tuberculosis	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heart disease	68.7	87.5	3.5	3.5	64.2	28.5	100.0	0.0	0.0	0.0	0.0	0.0
'Mild'												
Blurred vision	29.2	51.1	5.2	3.2	59.8	31.5	7.1	7.1	0.0	0.0	100.0	0.0
Giddiness	25.8	56.7	2.2	4.7	68.0	25.0	27.9	52.9	16.6	5.5	77.7	0.0
Urinary problem	27.5	49.6	1.4	4.4	75.5	18.5	6.6	33.3	0.0	20.0	80.0	0.0
Varicose veins	50.0	66.6	0.0	25.0	50.0	25.0	33.3	100.0	0.0	33.3	66.6	0.0
No movements in fetus	56.4	81.1	4.3	2.9	68.1	24.6	50.0	100.0	0.0	0.0	100.0	0.0
Total	**37.6 (415)**	**70.5 (778)**	**3.6 (28)**	**5.4 (42)**	**66.5 (517)**	**27.3 (213)**	**46.5 (113)**	**63.8 (155)**	**11.6 (18)**	**6.5 (10)**	**80.0 (124)**	**1.9 (3)**

Table 7: Women Suffering from Types of Intrapartum Morbidities

Morbidities	Percent of Women	
	Mahbubnagar	**Guntur**
Excessive bleeding	20.4	13.1
Fainted during labour	13.0	0.8
Fits or convulsions	24.9	1.4
Labour more than 18 hours	27.2	5.1
Sac burst and even after 5 hours child was not born	6.1	3.9
Sac burst and the fluid was greenish colored	0.4	0.8
Baby was in breech position	1.4	3.9
Placenta previa	0.0	0.5
Twins/multiple births	0.1	0.2
Type of Morbidities		
'Life threatening'	36.7	14.0
'Serious'	6.7	9.4
Total women with any morbidity	43.4 (482)	23.4 (82)
Total eligible women	**1111**	**351**

Particulars of Place and Attendant at Delivery:

The place of delivery and type of attendants at delivery has an important bearing on intrapartum morbidities. An analysis by place of delivery in the Mahbubnagar district reveals that eighty one percent of women had delivery at home (Table-8), where as in Guntur district a majority of women had institutional delivery (76.5 percent). As indicated by place of delivery, untrained personnel such as untrained midwives or relatives or friends attended most of the births (78.1 percent) in the villages of Mahbubnagar district. In Guntur district qualified health personnel assisted three-fourths of the births. Even though five percent of deliveries in Guntur took place at home, technically trained personnel attended them, In contrast, only three percent of women had assistance by trained people during home delivery in Mahbubnagar.

Table 8: Percent of Deliveries by Place and Type of Attendant

Particulars of Antenatal care	Mahbubnagar	Guntur
Place of delivery		
PHC/ Govt. Hospital	4.4	20.5
Private Hospital	14.8	49.0
Home	80.8	30.5
Attendant at delivery		
Health Personnel	21.7	75.2
Dai /Relatives/ Neighbours	78.1	24.8
Total	**782**	**55**

Intrapartum Morbidities by Place and Type of Attendant at Delivery:

Incidence of morbidities by place of delivery reveals that a slightly higher percent of women (53.1) delivered at hospitals experienced intrapartum morbidities than those delivered at home (Table-9). Similarly in Guntur, a higher percent of women who had delivery at hospital (25) had experienced higher intrapartum morbidities than those who had a delivery at home (19.6). The hospital-based deliveries are more clearly associated with higher incidence of morbidity because of the tendency to go to hospitals only in case of emergencies.

In Mahbubnagar district a relatively more women attended by health personnel had suffered (53.3 percent) from intrapartum morbidities than those attended by unqualified health personnel (40.6 percent) (Table-10). In Guntur such differences are marginal. The higher incidence of morbidity is associated with deliveries assisted by health personnel is because of the tendency to seek qualified personnel's assistance only in the case of unmanageable situations in the less developed district.

Table 9: Types of Intrapartum Morbidities by Place of Delivery

Morbidity	Percent of Morbidities by Place of Delivery			
	Mahbubnagar		Guntur	
	Hospital	Home	Hospital	Home
'Life threatening'				
Excessive bleeding	17.8	21.0	11.4	16.8
Fainted during labour	16.4	12.2	0.8	0.9
Fits or convulsions	24.4	25.0	2.0	0.0
'Serious'				
Labour more than 18 hours	43.1	23.5	5.7	3.7
Sac burst & even after 5 hours child was not born	9.8	5.2	5.7	0.0
Sac burst & the fluid was greenish coloured	0.9	0.3	1.2	0.0
Baby was in breech position	3.2	1.0	5.7	0.0
Placenta previa	0.0	0.0	0.4	0.0
Twins/multiple births	0.0	0.1	0.4	0.0
Total women with morbidity	**53.1**	**41.1**	**25.0**	**19.6**

Intrapartum Morbidities and Perceptions of Women:

Perceptions of women related to intrapartum morbidities are shown in Table-11. Comparatively more women in Mahbubnagar district (63.5 percent) perceived the seriousness of various intrapartum morbidities than the women in Guntur (51.2 percent). In Mahbubnagar district sixty percent of women who suffered from either *'life threatening'* or 'serious' morbidities realised the seriousness of the morbidities. Where as in the developed district only half of the women (51 percent) suffering from morbidities realized seriousness. This is because since most of the deliveries in Guntur take place in an institute, thus women rely on doctors. They do not feel a necessity to know the details of seriousness of morbidities. Where as in Mahbubnagar, while most of the deliveries take place at home, more women get an opportunity to know about seriousness of intrapartum morbidities either through '*Dais*' or other women who have assisted during delivery.

Table 10: Type of Intrapartum Morbidities by Persons assisted during delivery

Morbidity	Percent of Morbidities by Assistance at Delivery			
	Mahbubnagar		Guntur	
	Health Personnel	Dai/ Other	Health Personnel	Dai/ Ohter
'Life threatening'				
Excessive bleeding	15.1	24.5	35.4	70.8
Fainted during labour	14.4	13.7	2.4	4.2
Fits or convulsions	32.1	28.4	6.1	0.0
'Serious'				
Labour more than 18 hours	35.1	26.6	17.1	16.7
Sac burst and even after 5 hours child was not born	9.7	5.2	17.1	0.0
Sac burst and the fluid was greenish colored	1.0	0.3	3.7	0.0
Baby was in breech position	2.7	1.1	17.1	0.0
Placenta previa	0.0	0.0	1.2	4.2
Twins/multiple births	0.0	0.1	0.0	4.2
Total women morbidity	**53.3**	**40.6**	**23.4**	**22.9**

Postpartum Morbidities

Sixty one percent of women in Mahbubnagar, and 27 percent of women in Guntur experienced one or more morbidities during postpartum period (Table-12). In the Mahbubnagar district 19.4 percent suffered from *'life threatening'* postpartum morbidities, 41.2 percent suffered from *'serious'* morbidities. In Guntur district 7 percent of women suffered from *'life threatening'* and an equal percent from *'serious'* problems. A small percentage of women reported of *'mild'* morbidities.

Postpartum Morbidities by Place of Delivery:

When compared to hospital-based deliveries, a higher percentage of women who had delivery at home complained of one or more morbidities in Mahbubnagar district. In Guntur such differences are not clearly evident (Table-13).

Table 11: Perceptions of Women about Seriousness of Intrapartum Morbidities

Morbidity	Percent of Women	
	Mahbubnagar	Guntur
'Life threatening'		
Excessive bleeding	64.3	30.4
Fainted during labour	64.8	66.6
Fits or convulsions	66.4	80.0
'Serious'		
Labour more than 18 hours	73.6	61.1
Sac burst and even after 5 hours child was not born	82.3	92.8
Sac burst and the fluid was greenish colored	80.0	33.3
Baby was in breech position	87.5	100.0
Placenta previa	0.0	100.0
Twins/multiple births	0.0	100.0
Total women perceived seriously	**63.5**	**51.2**
	(306)	**(42)**

Table 12: Type of Postpartum Morbidities Perceived Serious by Women

Morbidity	Percent of Women	
	Mahbubnagar	Guntur
'Unconsciousness >15mts.	5.9	0.0
Fits/convolutions	4.4	0.0
Excessive bleeding	14.8	7.7
Fever >3 days	38.2	4.6
Discharge that smell	5.4	2.6
Pain in lower abdomen	35.7	4.3
Puss in tares	0.6	3.7
Changes in mental make-up	0.1	0.9
Breast apses	1.3	0.0
Pain/burning sensation while urinate	0.1	0.3
Type of Morbidities		
'Life threatening'	19.4	7.7
'Serious'	41.2	7.4
'Mild'	0.4	2.8
Total women with any morbidity	61.0	27.0
	(678)	(63)
Total eligible women	**1111**	**351**

Table 13: Type of Postpartum Morbidities Experienced by Place of Delivery

Morbidity	Percent of Morbidities by Assistance at Delivery			
	Mahbubnagar		Guntur	
	Hospital	Home	Hospital	Home
'Life threatening'				
Unconsciousness >15mts.	6.6	5.8	0.0	0.0
Fits/convolutions	5.6	4.1	0.0	0.0
Excessive bleeding	12.7	15.4	6.6	10.3
'Serious'				
Fever >3 days	29.6	40.3	5.3	2.8
Discharge that smell	5.2	5.4	0.8	6.5
Pain in lower abdomen	25.8	38.1	4.1	4.7
'Mild'				
Puss in tares	0.9	0.5	4.9	0.9
Changes in mental make-up	0.0	0.2	1.2	0.0
Breast apses	0.9	1.4	0.0	0.0
Pain/burning sensation while urinate	0.0	0.1	0.4	0.0
Total women with morbidity	**51.2**	**63.4**	**18.0**	**17.8**

Table 14: Postpartum Morbidities by Type of Assistance

Morbidity	Percent of Morbidities by Assistance at Delivery			
	Mahbubnagar		Guntur	
	Health Personnel	Dai/ Other	Health Personnel	Dai/ Ohter
'Life threatening'				
Unconsciousness >15mts.	6.4	5.4	0.0	0.0
Fits/convolutions	5.9	3.7	0.0	0.0
Excessive bleeding	14.8	13.7	26.7	45.8
'Serious'				
Fever >3 days	34.3	36.2	23.3	8.3
Discharge that smell	6.8	4.6	5.0	25.0
Pain in lower abdomen	28.4	34.7	16.7	20.8
'Mild'				
Puss in tares	2.1	0.2	21.7	0.0
Changes in mental make-up	0.0	0.2	5.0	0.0
Breast apses	1.3	1.3	0.0	0.0
Pain/burning sensation while urinate	0.0	0.1	0.0	0.0
Total women with morbidity	**54.5**	**62.8**	**17.0**	**20.7**

Postpartum Morbidities by Type of Assistance at Delivery:

Assistance during delivery by qualified person helps in lessoning the extent of postpartum morbidities. Though not significant, relatively a less percent of women tend to experience postpartum morbidity if qualified person assists them in both the districts (Table- 14).

Perceptions about Postpartum Morbidities and Treatment Behaviour:

About 44 percent of women in Mahbubnagar and 27 percent in Guntur perceived the postpartum morbidities as serious (Table-15). Even though only a few perceived that the morbidities were serious, 74 percent of women in Mahbubnagar and 54 percent of women in Guntur have sought treatment. A majority of these women in Mahbubnagar district (59 percent) went to unqualified personnel while three-fourths of them (73 percent) in Guntur went to private hospital.

Table 15: Postpartum Morbidities Perceived Serious by Women and Care Seeking Behaviour

Morbidities	Perceived as serious	Sought treatment	Place of Treatment		
			PHC/ Govt. Hospital	Pvt. Hospital	Dais / RMPs etc.
Perceptions and Treatment Seeking Behaviour of Women in Mahbubnagar (%)					
'Life threatening'					
Unconsciousness >15mts.	31.8	33.3	9.0	36.3	54.5
Fits/convolutions	69.3	42.8	0.0	76.1	23.8
Excessive bleeding	40.0	55.7	6.5	48.9	44.5
'Serious'					
Fever >3 days	32.9	75.7	5.5	36.6	57.7
Discharge that smell	40.0	41.6	4.0	44.0	52.0
Pain in lower abdomen	47.1	62.2	2.8	29.5	67.6
'Mild'					
Puss in tare	71.4	85.7	0.0	83.3	16.6
Changes in mental make-up	50.0	50.0	0.0	0.0	100.0
Breast apses	60.0	80.0	0.0	50.0	50.0
Pain/burning sensation while urinate	100.0	100.0	0.0	0.0	100.0
Total	**43.8 (297)**	**73.9 (501)**	**6.8 (34)**	**36.3 (182)**	**59.1 (296)**
Perceptions and Treatment Seeking Behaviour of Women in Guntur (%)					
'Life threatening'					
Unconsciousness >15mts.	0.0	0.0	0.0	0.0	0.0
Fits/convolutions	0.0	0.0	0.0	0.0	0.0
Excessive bleeding	14.8	14.8	25.0	75.0	0.0
'Serious'					
Fever >3 days	50.0	93.7	26.6	60.0	13.3
Discharge that smell	11.1	33.3	0.0	100.0	0.0
Pain in lower abdomen	40.0	66.6	0.0	90.0	10.0
'Mild'					
Puss in tare	38.4	84.6	27.2	72.7	0.0
Changes in mental make-up					
Breast apses	0.0	0.0	0.0	0.0	0.0
Pain/burning sensation	0.0	0.0	0.0	0.0	0.0
while urinate	0.0	0.0	0.0	0.0	0.0
Total	**27.0 (17)**	**54.0 (34)**	**23.5 (8)**	**73.5 (25)**	**8.8 (3)**

Reasons for not Seeking Treatment:

In Guntur district the women did not seek any treatment for postpartum morbidities because they did not consider it necessary. Where as in Mahbubnagar district a majority of the women could not afford to bear the cost and also felt the treatment was not necessary A few women could not go because their family members did not allow them to go.

Overall maternal morbidity in the study villages:

Maternal morbidity includes morbidity during three specific periods, i.e. Antepartum, Intrapartum and Postpartum. Baring a few women in Mahbubnagar, most of them (94.8 percent) suffered from at least one type of maternal morbidity. Relatively this percentage is less in Guntur district (61.1). Similarly vast differences are noted between the districts in its severity of morbidities. In Mahbubnagar district, 38.6 percent of the women suffered from *'life threatening'* maternal morbidities, 54.1 percent from *'serious'*, and 2.3 percent from *'mild'* morbidities. In Guntur district, the respective percentages are 14.8, 46.1, and 0.02.

Determinants of Maternal Morbidity:

Maternal morbidity is the outcome of not only biological factors but also of demographic and socio-economic conditions, and availability of health facilities. Maternal morbidity is classified into two types: which would pose a threat to a woman's life, and which cause serious damage to a woman's health. A logistic regression is carried out to identify the determinants of *'life threatening'* or *'serious'* maternal morbidity. The description of the variables is given in the Table-16.

Determinants of 'life threatening' Maternal Morbidities:

The results of the logistic regression show that (Table-17), women from less developed district are more likely to suffer from '*life threatening'* maternal morbidities than women from a developed district. Women from Mahbubnagar district are likely to suffer 0.341 times more from '*life threatening'* maternal morbidities than the women in Guntur district.

Table 16: Description of Dependent and Explanatory Variables

Type of Variable	Description
Dependent Variable	***Life threatening Maternal morbidity*** *(Having any morbidity=1,Otherwise=0)* ***Serious Maternal morbidity*** *(Having any morbidity=1,Otherwise=0)*
Explanatory Variables	***District*** *(Guntur=1, Mahbubnagar=0)* **Current Age** (continuous) **Parity** (continuous) **Education** (Above primary level= 1,Otherwise=0) **Caste** (Forward caste=1, Otherwise=0) **Type of family** (Nuclear=1, Otherwise=0) **Land Assets** (Having land=1, Otherwise=0) **Work status** (Work out side home=1, at home=0) **Antenatal care** (Had care=1, Otherwise=0) **Place of delivery** (Institution=1, Otherwise=0) **Type of Health Centre** (PHC=1, RCWHC=0) **Presence of Lady Doctor** (Available=1, Otherwise0) **Anganwadi worker** (Available=1, Otherwise0) **Distance from all Weather road** (continuous) **Household Transportation** (Having vehicle=1,Otherwise=0) **Toilet facility** (With in premises=1,Otherwise=0)

The socio-economic variables, which have shown a significant (at 0.001 percent) association with *'life threatening'* maternal morbidities are 'woman's age', 'parity', and 'her work status'. In addition, 'educational level of woman', 'utilization of antenatal care', 'type of health centre', 'presence of a lady doctor in the village', and 'availability of toilet in the premises of household' are significant determinants at 0.5 percent level. 'Possession of agricultural land by the household', 'presence of an anganwadi worker in the village', and 'distance from all weather road', are significant determinants of '*life threatening*' maternal morbidities at 0.1 percent level.

Table 17: Logistic Regression Analysis of Maternal Morbidity in district

Dependent variables	Maternal Morbidity		
	B	S.E.	Exp (B)
'Life threatening'			
District *	-1.075	.216	.341
Current Age *	.050	.017	1.052
Parity *	-.205	.066	.814
Education **	-.442	.221	.643
Caste	.103	.197	1.108
Type of Family	-.027	.120	.974
Land Assets ***	-.264	.149	.768
Work Status *	-.756	.156	.470
Antenatal Care **	.369	.163	1.446
Place of delivery	.097	.152	1.102
Type of Health Center **	-.296	.140	.744
Presence of Lady Doctor **	-.451	.182	.637
Availability of Anganwadi Worker ***	-.518	.324	.596
Distance from all Weather road ***	-.047	.032	.954
Household Vehicle	.101	.138	1.106
Toilet facility **	-.668	.316	.513
Distance to drinking water	-.112	.219	.894
'Serious'			
District *	-1.986	.249	.137
Current Age	.005	.022	1.005
Parity	-.064	.084	.938
Education	.104	.234	1.110
Caste	.028	.206	1.028
Type of Family ***	-.228	.149	.796
Land Assets ***	-.251	.176	.778
Work Status ***	-.298	.190	.743
Antenatal Care *	.853	.199	2.347
Place of delivery *	-.651	.201	.521
Type of Health Center **	-.341	.171	.711
Presence of Lady Doctor *	-.522	.183	.593
Availability of Anganwadi Worker	-.430	.550	.650
Distance from all Weather road	-.018	.048	.982
Household Vehicle	-.082	.191	.922
Toilet facility ***	-.424	.277	.654
Distance to drinking water	-.244	.228	.783

*Indicates significance at .001 percent level.
**Indicates significance at 0.5 percent level
***Indicates significance at 0.1 percent level

The results have shown that parity level of a woman is negatively associated with '*life threatening*' maternal morbidities. That is primiparous or low parity women are 0.814 times more likely to suffer from '*life threatening*' maternal morbidities than the later parity women. This is because women in rural areas marry at an early age and have first pregnancy while they are still in adolescent age. At this age, girls' reproductive physiology is still in formative stage and the first pregnancy at this age may become detrimental to her health. Again in some villages, especially in Mahbubnagar district, women have relatively more number of children. Thus they continue to bear children for longer years of life. Pregnancy at later ages is again harmful to women's health. Findings have also revealed that with increase in age the chances of '*life threatening'* maternal morbidities increase by 1.052 times.

Women's work status is negatively related to the *'life threatening'* maternal morbidity. Which means nonworking women suffer 0.470 times more than the working women from *'life threatening'* maternal morbidity. In rural areas, especially in less developed district, most of the women generally work for daily wages. It may be possible that women who experienced *'life threatening'* morbidities could not go to work for some period.

The educational level of woman showed an inverse relation with maternal morbidity. In the present analysis it is revealed that if a woman is educated up to primary level, the chances of her suffering from '*life threatening*' maternal morbidity reduces by 0.643 times.

Household indicators that showed significant association with '*life threatening'* maternal morbidities are: 'possession of agricultural land', and 'a toilet with in the premises of the household'. Possession of agricultural land can be considered as one of the indicators of a household's economic situation in rural areas. The ownership of land is a significant determinant of '*life threatening'* maternal morbidity. The women belong to landless household are likely suffer 0.768 times more than women from a household having agricultural land. Availability of toilet facility in the premises of the house can be considered as one of the indicators of better quality of life, especially in terms of health. It is revealed that if there is no toilet with in the premises of house, women of that household are more likely to suffer from *'life threatening'* maternal morbidity by 0.513 times more than the women who have a toilet facility in the premises of house.

Some of the health facilities and community developmental indicators that have an impact on '*life threatening'* maternal morbidities in rural areas are: 'presence of lady doctor with in a village', 'type of health center', 'utilization of antenatal care', 'presence of anganwadi worker in the village', and 'distance to all weather road'. The women belonging to villages with ordinary PHC are less likely to have *'life threatening'* maternal morbidity than the women belonging to villages under RCWHC. The women from the areas covered by RCWHC suffer 0.744 times more from *'life threatening'* maternal morbidities than the women from the areas covered under ordinary PHC. The contradiction has aroused from the fact that the RCWHCs are established in backward areas where the existing health facilities are poor. Even though the RCWHCs are established two years prior to the present study, there is no increase in the utilization of the RCWHC services by the women because of the absence of the staff at the centre, particularly in Mahbubnagar district. Another health variable, which is found highly significant with *'life threatening'* maternal morbidity is the absence of lady doctor in a village. If there is no lady doctor in a village, women of that village may suffer 0.637 times more than the women who have a lady doctor in the village. In the absence of lady doctor the women have a tendency to delay in seeking treatment which would aggravate the morbid situation and lead to the *'life threatening'* maternal morbidities.

Another unforeseen outcome of the study is a positive association between utilization of antenatal care and incidence of *life threatening'* maternal morbidities. Ideally antenatal care should monitor a pregnancy for signs of complications, detect and treat pre-existing as well as concurrent problems of pregnancy, provide advice as well as counseling on preventive care, diet, delivery care, postnatal care, and related issues. However most of the antenatal care in the study areas is confined to taking of TT injection in the study villages thus increase in the coverage of women under antenatal care had no significant impact on lowering the overall '*life threatening'* maternal morbidities. Rather it reflects the quality of antenatal care being provided to women. Even though many women have been seeking care during antepartum period it did not benefit them, as women and their family members are not convinced about the need for a woman to seek health services during the other two phases, intrapartum and postpartum periods. Therefore poor utilization of health services during other two phases has contributed

to over all '*life threatening'* maternal morbidities despite the utilization of services during antepartum period.

The governmental initiation that showed a significant influence in reducing '*life threatening'* maternal morbidities is the presence of Anganwadi worker in the village. Women from the villages which do not have an Anganwadi worker, are likely to suffer 0.596 times more from '*life threatening'* maternal morbidities than the women from villages which have an Anganwadi worker. As a part of ICDS programme, Anganwadi worker helps in providing nutritional supplements and educate the women about basic nutrition. In areas where a majority are dependent on daily wages and have poor food practices, distribution of nutritious food supplements are likely to reduce anaemia levels among pregnant women. Therefore these nutritional supplements may have helped in reducing the occurrence of '*life threatening'* maternal morbidities.

A community developmental indicator that showed a negative association with '*life threatening'* maternal morbidities is the 'distance from all weather road from a village'. Women from the villages, which are not connected by all weather roads, are likely to suffer 0.954 times more than the women from villages which have proper roads throughout the year. This is because during intrapartum period, medically an emergency may arise at any time. Thus the woman has to be taken to a hospital with out a delay. Longer the distance of village from all weather road occurrence of '*life threatening*' maternal morbidity is high.

Determinants of 'Serious' Maternal Morbidities in Rural Areas:

Women belonging to less developed district are more likely to suffer from *'serious'* maternal morbidities as well. Women from Mahbubnagar suffer 0.137 times more than the women from Guntur with '*serious'* maternal morbidities. The main determinants of *'serious'* maternal morbidities in rural areas are: 'utilization of antenatal care', 'place of delivery', 'presence of a lady doctor in the village', 'type of health centre', 'woman's work status', 'type of family', 'possession of agricultural land by the household', and 'presence of toilet in the premises of household' (Table-17).

Incidence '*serious*' maternal morbidities showed a positive association (2.347) with utilization of antenatal care. The findings need to be interpreted with caution. The Governmental initiation to cover all the women with a minimum of two TT injections and IFA tablets has been very successful over the years. In addition relatively utilization of health services is high during antepartum period than during other two periods because traditionally pregnancy is valued high and thus many women feel care during pregnancy is necessary. Therefore most of the women during pregnancy contact health personnel, either qualified or unqualified, thus showing a positive association between '*serious'* morbidities and utilization of antenatal care.

Women who have a delivery at home are likely to suffer 0.521 times more from '*serious*' maternal morbidities than the women who have a delivery in an institution. Assistance of qualified person is essential especially during intrapartum period. The findings revealed that presence of lady doctor with in a village, reduces the occurrence of '*serious*' maternal morbidities by 0.593 times. Especially during intrapartum period women prefer a lady doctor and absence of lady doctor compel women to seek care from unqualified health personnel. That is why despite all other facilities in RCWHC, the absence of lady doctor has not motivated people to utilize RCWHC for delivery. For the same reason, women from areas covered by RCWHC continued to suffer 0.711 times more from '*serious*' maternal morbidities.

The work status of women is negatively related to *'serious'* maternal morbidities. As mentioned earlier, in rural areas most of the women are willing to go to work for wages. They do not go to work probably because of the ill health. Thus it is likely that non-working women are 0.743 times more likely to suffer from '*serious*' maternal morbidities than the workingwomen.

Findings revealed that, if a woman is living in a non-nuclear family, she is more likely to suffer from '*serious*' maternal morbidities (0.796 times) than the woman living in a nuclear family. This is because a woman's relative position is lower in the non-nuclear families, which probably compels woman to participate in work against the basic physical requirement of rest during pregnancy. Women in nuclear families are able to take necessary rest during pregnancy, where as in non-nuclear families the expectations of 'ideal' behaviour do not allow women to have necessary rest.

A negative association is found between occurrence of '*serious*' maternal morbidities and household possession of land assets. If a woman belong to a household, which has no agricultural land, she is 0.778 times more likely to suffer from '*serious*' maternal morbidities than the woman whose household has a land. Availability of toilet facility with in the premises of house showed a direct bearing on '*serious*' maternal morbidities as well. The results revealed that occurrence of '*serious*' maternal morbidities increases 0.654 times more in the households, which have no toilet facility with in the premises of a house.

Conclusion

The study revealed high prevalence of maternal morbidity in rural areas of Andhra Pradesh. Ninety five percent in the less developed district and 61 percent in the developed district suffered from at least one morbidity. Similarly more women in less developed district experienced '*life threatening'* (35 percent in Mahbubnagar, and 15 percent in Guntur) as well as *'serious'* maternal morbidities (54 percent in Mahbubnagar and 46 percent in Guntur).

High incidence of maternal morbidity in rural areas can be attributed to the combination of individual, household, community, medical as well as nutritional variables. However the individual variables like age and parity need to be viewed with in the context of socio-cultural setting. Prevalence of first pregnancy in adolescent age and continued levels of high parity at later ages among some section of women are beyond the control of individual decisions. Her family and the immediate community to which she belongs influence the decisions. In a society where a majority of the women are illiterate, education above primary level helps woman to keep away from *'life threatening'* morbidities in rural areas but not from '*serious*' maternal morbidities.

In rural areas even though women are occupied in income generating occupations, whether their work status has helped the women to improve individual conditions is not clear because most of the women are engaged as daily wagers. Probably there could be an inverse relation. Due to illness, women may not have engaged in income generating activities. Substantiating to this argument, household's economic situation such possession of land, irrespective of type and extent, showed an impact in lowering the maternal morbidities.

Some of the family indicators such as type of family showed an impact on the '*serious*' maternal morbidities. In non-nuclear families, culturally conditioned beahviour acted adversely to their overall health, by compelling them to participate in household work as against the medically advised minimum rest.

Certain basic facilities either with in the household or in a community have shown its impact on occurrence of maternal morbidity. Having a toilet with in the premises of household has a significant influence in reducing maternal morbidity. Similarly lack of all weather roads in the villages added to the prevalence of morbidity in some villages.

The Government's efforts to improve the over all maternal health of women has not been effective due to poor functioning of RCWHCs, particularly in backward areas. Non-availability of proper health care facilities have forced women to seek health care from private doctors or unqualified personnel. The presence of lady doctor in likelihood of lowering morbidity indicates how the lack of proper staff forces women to rely on untrained health care providers, i.e. RMPs or dais.

Relatively high utilization of health services, despite low levels of perception about seriousness of the morbidities is a common feature particularly related to obstetric health (Srinivasa and others, 1997; Mayanak and others, 2001; and Matthews and others, 2001). High utilization of antenatal care and seeking of care for various morbidities become ineffective as substantial percentage of women in less developed district depended on quacks.

The untrained '*Dais*' also act as catalysts to morbidity levels, especially during intrapartum period. Women go to qualified medical persons during intrapartum period only when the situation became unmanageable to '*Dais*'. Therefore in many of such situations mortality is avoided, but morbidity persisted in the postpartum period. The governmental initiation of supplying protein-rich food to pregnant and lactating mothers through ICDS programme has significantly lowered the '*life threatening*' morbidity levels probably by lessening the levels of anaemia.

The study suggests various insights from the policy point of view. Bringing a change in individual and familial indicators is very essential, but it requires long-term approaches. In the short run improving health care and infrastructure facilities will help in bringing down the morbidity levels. Making round the clock health centers more effective in functioning by providing a lady doctor, improving the condition of roads, and covering more villages with ICDS programme can help in declining the morbidity levels in rural areas. Thus government's initiation in these spheres is very much required. However further decline in maternal morbidity requires improving the educational levels, awareness levels of women so that they would be able to take necessary precautions and use medical care.

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