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Is Health System Giving Life Year Gain to Children In India?

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Abstract

Background: In developing countries, specifically in India, millions of women and newborns die or experience serious health problems related to pregnancy and childbirth each year and many women do not have the good fortune to be attended by skilled personnel during childbirth. This lack of skilled attendance could be considered as one of the major factors in maternal and infantile mortality. Each year 3.3 million babies or may be even more are stillborn, more than 4 million die within 28 days of coming into the world, and a further 6.6 million young children die before their 5th birthday. From 2006 to 2012 the average complicated neonatal admissions with low birth weight children's in virudhunagar district were 200. Also the researcher would like to found that how the Comprehensive Emergency Obstetric and New Born Care Centre (CEmONC) service gives opportunity to celebrate their 5th birthday for low birth children born in 2007 and to assess the factors determining the place of delivery and is Health system giving life year gain to Children?

Methodology: The present study was undertaken in Virudhunagar District of South Tamil Nadu with primary and secondary data. The Secondary data were collected from all CEmONC Centres under Tamil Nadu Health System Project (TNHSP) and beneficiaries under Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS) in 2007. Due to gives life year gain up to 5 years to children through these schemes. The primary data were collected from 200 who delivered their children with low Birth Weight (LBW) (<2.500 kg) in 2007. There are nine Public Hospitals in Virudhunagar district, namely Virudhunagar, Aruppukottai, Tiruchuli, Kariapatti, Rajapalayam, Watrap, Srivilliputtur, Sattur and Sivakasi and for the present study, Virudhunagar, Aruppukottai, Rajapalayam, Srivilliputtur, Sattur and Sivakasi government hospitals were selected as only these hospital have CEmONC services.

Results: A sample of 40 (20%) attended Antenatal care (ANC) for previous pregnancy, 120 (60%) had their last delivery in private hospitals, while 80 (40%) had their last delivery at Government Hospital. Determinants of choice of delivery place include free cost of treatment (100%), friendly attitude of community health workers (75%), and good care of doctors, nurses and village health nurses (90%), distance to health care centers (80%), and cash incentive (100%). There is significant differences between age (P<0.001), caste (P<0.001), education (P<0.001), annual income (P<0.001) and place of deliveries in Government Hospital and not significant with type of family (P>0.001). There is a significant difference between consumption of Iron and Folic Acid (IFA) tablets and Low Birth Weight (LBW) in the study areas (P<0.001). There is a significant difference between mother age at birth and LBW (P<0.001). There is a significant difference between birth interval and LBW (P<0.001). There is a significant difference between income of the respondents and postnatal care (P<0.001). There were 196 children got life year gain above five year through the TNHSP and MRMBS. Lack of care and money is one of the reasons for less than five deaths in the study areas.

Conclusion: Female education, female empowerment, attitude of health care workers and distance of health facilities to the people in most communities are factors to be addressed in reducing child morbidity and mortality rates and improving maternal health, thus achieving the Millennium Development Goals (MDGs) 4 and 5. To get this done, policy makers, health personal and community at large should join hands.

Keywords: ANC; Place of deliveries; Life year gain and cost; Millennium Development Goals (MDGs)

Introduction

In developing countries, millions of women and newborns die or experience serious health problems pertaining to pregnancy and childbirth each year. Maternal mortality has been a difficult issue to measure accurately in resource-poor settings [1]. In these environments, home delivery is usually the cheapest option, but is associated with attendant risks of infection and lack of available equipment should [2]. Each year 3.3 million babies or may be even more are stillborn, more than 4 million die within 28 days of coming into the world, and a further 6.6 million young children die before their 5th birthday.

Pregnant women die in India due to a combination of important factors, ranging from poverty, to ineffective or unaffordable health services [3]. Mavalankar et al. [4], states that the major causes of the high maternal mortality are lack of political, managerial and administrative will. All these culminate in a high proportion of home deliveries by unskilled relatives and delays in seeking care and this in turn adds to the maternal mortality ratios. In India, while 77% of pregnant women receive some form of antenatal checkup, only 41% delivered in an institution (International Institute for Population Science, 2007). Antenatal women are hesitant to avail Iron and Folic Acid (IFA) tablets as the tablets are bitter in taste and also feel sleepy/drowsiness. When they consume tablets, vomit immediately and become dull. After that women cannot go for their routine work. Educated women are aware of the utilities of the IFA and hence consume the tablets regularly unlike less educated counterparts [5].

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As population increases demand for health services also increase and hence necessitated the government to spend more on health care. The state has been investing large resources for health sector [6]. The Government of India has been implementing various programmers from time to time to tackle these issues. It launched the Reproductive and Child Health (RCH) programme in 1997, which aimed at universalizing immunization, ante-natal care and skilled attendance during delivery. Reduction of maternal mortality was an important goal of RCH-II that was launched in 2005. One of the main interventions was to provide emergency obstetric care at the first referral unit. Incentives were also given to staff to encourage round the clock obstetric services at health facilities [7]. Recently within two days two dozen new born deaths occurred in a government hospital in Dharmapuri district. Subsequently half a dozen mothers who gave birth died in government hospital at Nilgiris. Factors like lack of facilities including medical personal and ignorance of patients are responsible for this. Against this, there is a need for an in-depth exploration of issues relating to life year gain and therefore the present study has been taken up. The aim of the study is to assess the factors determining the place of delivery among pregnant women and to estimate life year gain to Children in Virudhunagar District of South Tamil Nadu. The Quality Adjusted Life Year (QALY) is a measure of disease burden, including both the quality and quantity of life lived. It is used in assessing the value for money of medical intervention. The QALY is based on the number of years of life that would be added by the intervention of health system project.

Methods

The present study was undertaken in Virudhunagar District of South Tamil Nadu with both primary and secondary data. The Secondary data were collected from all Comprehensive Emergency Obstetric and New Born Care (CEmONC) centres under Tamil Nadu Health System Project (TNHSP) and beneficiaries under Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS) for the year 2007. The primary data collected from 200 women, those who had their complicated children admitted on CEmONC centres with Low Birth Weight (LBW) (<2.500 kg) in 2007. Due to find out that the life year gains to children upto 5 years (from 2007 to 2012). There are nine Public Hospitals in Virudhunagar district, namely Virudhunagar, Aruppukottai, Tiruchuli, Kariapatti, Rajapalayam, Watrap, Srivilliputtur, Sattur and Sivakasi and for the present study, Virudhunagar, Aruppukottai, Rajapalayam, Srivilliputtur, Sattur and Sivakasi government hospitals were selected as only these hospitals have CEmONC services. A modest childbirth assistance scheme, named after Muthulakshmi Reddy, Tamil Nadu's first women doctor and social activist, was launched in 1987 and is known as the MRMBS. Initially, its beneficiaries were offered 300 as incentive to cover the expenses of childbirth. The amount was enhanced to 500 in 1995, 6000 in 2006 and it has been increased to 12000 in 2012. This is given to pregnant women living Below the Poverty Line (BPL) to compensate for the wage loss during pregnancy and for help in getting nutritious food to avoid low birth weight babies. The money was provided usually in two equal installments; the first in the seventh or later months of pregnancy and the second within three to six months after delivery.

In its present version, all BPL women who access the services of a primary health centre are eligible for the benefits, but the annual household income limit has been raised to 24000. The Sri Lankan repatriate women are also eligible for the benefits. However, the scheme continues to cover only the first two deliveries. While such incentive is not permitted for deliveries take place in private hospitals, there are difficulties like delay to avail the benefit in government hospitals.

Analysis and Discussion

Of total sample of 200, 32% belongs to the age group of less than 21 years and 2% are above 36 years. It can be understood that 66% of respondents follow the Indian constitution of marriage age because they are married in the age group of 22-35. Around 75% of the respondents belong to Hindu religion and only 5% belongs to Muslim as is shown in Table 1. It is noted that a large amount of 80 respondents belongs to MBC category and 52 respondents are SC. Basically Virudhunagar

Attributes	Total (in No's)	Percentage
Age		
Less than 21	64	32
22-35	132	66 (P<0.001)
Above 36	4	2
Religion		
Hindu	150	75
Christian	40	20 (P<0.001)
Muslim	10	5
Caste		
MBC	80	40 (P<0.001)
BC	68	34
SC	52	26
Education		
Illiterate	100	50
Primary level	44	22
Middle level	36	18 (P<0.001)
High School and Higher Secondary	20	10
Type of the Family		
Nuclear	196	98 (P>0.001)
Joint	4	2
Annual Income of the Family (in)		
<24000	12	6
24001-50000	88	44
50001-75000	80	40 (P<0.001)
>75001	20	10
Electricity connections		
yes	176	88
No	24	12
Drinking Water		
Well	8	4
Hand pump	64	32
Tap water	124	62
Others	4	2
Open and running	120	60
No draining system	80	40
Type of house		
Kutcha	10	20
Semi Pucca	32	64
Pucca	8	16
Separate room for kitchen		
Yes	3	6
No	47	94
Toilet facility		
Yes	1	2
No	49	98
Separate bad room		
Yes	2	4
No	48	96
Source: Primary data.		

Table 1: Socio economic background of the respondents.

District has low female literacy as compared with their counterparts during the census periods-1991, 2001 and 2011. Only 50% of the respondents were illiterate and only 10% were above high school level. It can be understand that there is no graduate in the study area. Notably 98% belongs to nuclear family system. Like in any other Indian society here too joint family system is breaking faster towards nuclear family as could be seen from the table.

Mostly in Virudhunagar district females work in max box, fireworks and printing industries. But their salary is very low compared with other districts. Around 44% of respondents belong to the income group of 24001-50000. Their spouses work in construction sector and took contract work in firework industries. Also 88% of the respondents have electricity connection in their home.

Only 4% of the respondents utilize well for their drinking water supply; 62% use tap water and 2% purchase water from private source. 40% of the respondents do not have drainage system in their villages. Only 2% of the respondents having toilet facility in their home. 64% of the respondents have semi pucca house and only 16% possesare pucca houses. Surprisingly 94% of the respondents did not have separate room for kitchen in their houses. From the table it is observed that 2% of the respondents are having separate room for bed in their homes. From the above discussion it is inferred that a sizable sample households are form BPL category.

The services at government hospitals are poor especially in developing countries including India. Hence child birth took place largely in private hospitals. However, the state's incentive scheme-MRMBS-has encouraged the pregnant mothers to be admitted in government hospitals. The confidence levels of the people are very low on service of the government hospital. The following Table 2 reveals that ANC attendance, place of delivery for their previous pregnancy.

All women need access to antenatal care in pregnancy, skilled care during childbirth, and care and support in the weeks after childbirth. It is particularly important that all births are attended by skilled health professionals, as timely management and treatment can make the difference between life and death [8]. In some developed countries, it is possible that women to decide to give birth safely at home and conversely developing countries, conditions are not safe enough to encourage women especially those living in rural and remote areas to deliver at home [9]. In the study area only 20% respondents attended ANC for previous pregnancy. A maximum if 60% had their previous deliveries in private hospitals. Table 3 reveals that the choice of government hospitals as a place of delivery after launched MRMBS in Tamil Nadu.

Free of cost for treatment, cash incentive scheme and free medicine are the reasons for the choice of government hospitals as place of delivery in Virudhunagar District of South Tamil Nadu. 90% have reported that care of doctors, nurses and Village Health Nurses (VHN) influenced to get admitted in government hospitals.

Though cash incentive scheme is welcomed by pregnant women and their spouses, many times the money is not utilized for improving the nutritional status. Instead, it is used for household expenditure. Also the money is not released on time and it is found that in most of the cases incentive is given after the deliveries.

About 80% felt that the government hospitals are located in close proximity (short distance) therefore they preferred government hospitals, 75% confessed as friendly attitude of community health workers and 60% observed as free transportation. The innovative but free 108 ambulance service has been effectively helping to transport the patients to health care centers all over the country and it is more effective in Tamil Nadu.

Attributes	Total (in No's)	Percentage
Antenatal attendance in Previous Pregnancy		
Yes	40	20
No	160	80
Place of Delivery in Previous Pregnancy		
Government Hospitals	80	40
Private Hospitals	120	60
Source: Primary data.		

Table 2: ANC attendance, place of delivery in previous pregnancy.

Sl. No.	Reasons	Responses	Percentage
1	Free of Cost for Treatment	200	100
2	Cash Incentive (MRMBS)	200	100
3	Free Medicine	200	100
4	Good care of Doctors, Nurses and VHN	180	90
5	Distance of Health Centres	160	80
6	Friendly attitude of Community Health Workers	150	75
7	Free Transport (108 Ambulance)	120	60
Source: Primary data.			

Table 3: Reasons for the choice of government hospital as place of delivery.

Reducing under-five mortality is now a global concern. In 2001 as part of the MDGs for health, nations pledged to ensure a two-thirds reduction in under-five mortality between 1990 and 2015 [10]. Although under-five mortality is declining worldwide as a result of socioeconomic development and implementation of child survival interventions, still nearly 8.8 million children die every year before their fifth birthday. India alone accounted for 21% of the world's under-five deaths occurring in 2008 [11-15] owing to its large size of population (Table 4).

Table 4 shows that while only four percent of the respondents did not consume IFA tablets, only four percent of the respondents consumed more (100) number of IFA tablets. Due to poverty and ignorance many did not eat nutritious food during the pregnancy. One fourth of the respondents (24%) consumed 60 tablets (up to 2 months). There is a significant difference between consumption of IFA tablets and LBW in the study areas ($P<0.001$). It is observed that 32% of respondents have less than 21 ages at the time of birth. 66% of the respondents belong to 22-35 age groups at the time of birth. There is a significant difference between mother age at birth and LBW ($P<0.001$). 70% of the respondents did not follow the birth interval. Eight percent of respondents each followed birth interval of one year and three years. Respectively only 10% followed the birth interval at least for five years. There is significant different between birth interval and LBW ($P<0.001$).

Health is a state subject under the constitution of India and in the directive principles of state policy. The state is changed with the responsibility of raising the level of nutrition and standard of living and improving public health. Therefore, health care expenditure by the state government may help understand variation in health among them and reason for slow improvement in the health status of the country [6].

Four percent of the respondents did not spend for ANC as their houses are located nearer to government hospitals. 72% of the respondents spent above 501 for ANC care. There is significant between income and expenditure for ANC. Eight percent of the respondents

spent less than 1000 for postnatal care. It can be understand that 38% and 54% spent 1001-5000 and above 5001, because they had complications due to LBW. There is a significant difference between income of the respondents and number of days stay for postnatal care in government hospital (P<0.001).

In this regard it becomes imperative to understand the cost of institutional deliveries. Table 5 reveals that expenditure for institutional deliveries and life year gain to LBW Children.

The Table 6 explores that total LBW children stood at 200 and among them only four children died under five. This is due to lack of care of the parents and irregular management of diets. Two children died due to dengue fever, one is low growth of brain and another one was affected by jaundices in the study areas. The doctors refer the complicated children to medical college hospital but the parents are not willing to go there because they are living under BPL condition and feels that distance of hospital is far from their villages. It is one of the reasons for fewer than five deaths. There were 196 children got life year gain above five year through TNHSP and MRMBS. Lack of care and money is one of the reasons for fewer than five deaths in the study areas. While the total cost for the entire institutional deliveries was worked out ` 1200000 in 2007, the total cost per institutional deliveries was estimated at 6000.

Conclusion

Despite the high level of ANC attendance among the pregnant women in the study area, a good number of pregnant women still chose to deliver at Government Hospital after September 2006 for availing the financial assistance. A total of 40 respondents (20%) attended ANC for previous pregnancy, 120 (60%) had their last delivery in the private hospital, while 80 (40%) had their last delivery at Government Hospital. Determinants of choice of delivery place include free cost of treatment (100%), friendly attitude of community health workers (75%), good care of doctors, nurses and village health nurses (90%), proximity to health care centers (80%), and cash incentives (100%).

Variables	No. of Respondents	Percentage
Consumption of IFA Tablets		
Not consumed	8	4
30	44	22 (P<0.001)
60	48	24
90	92	46
100	9	4
Mother Age at Birth	-	5
Less than 21	64	32 (P<0.001)
22-35	135	66
Above 36	4	2
Birth Interval		
No Interval	140	70
1	16	8
2	20	10
3	16	8 (P<0.001)
5	8	4
Source: Primary data		

Table 4: Reason for LWB in virudhunagar district.

Expenditure (in)	Total (in No's)	Percentage
ANC		
Zero expenditure	8	4
Less than 500	48	24 (P<0.001)
Above 501	144	72
Postnatal Care		
Less than 1000	16	8
1001-5000	76	38 (P<0.001)
Above 5001	108	54
Source: Primary data		

Table 5: Expenditure for ANC and postnatal care.

Total LBW Children	Deaths under Five	Life Year Gain Children	Cost per Institutional deliveries (in)
200	4	196	6000
Source: CEmONC annual reports, Tamil Nadu Health System Project, Chennai, 2007 and primary data.			

Table 6: Expenditure and life year gain to LBW children.

There is significant different between age (P<0.001), cast (P<0.001), education (P<0.001), annual income (P<0.001) and place of deliveries in Government Hospital and not with type of family (P>0.001). There is significant different between consumption of IFA tablets and LBW in the study areas (P<0.001). There is significant different between mother age at birth and LBW (P<0.001). 70% of the respondents not follow the birth interval. Only 10% follow the birth interval at least for five years. There is significant different between birth interval and LBW (P<0.001).

About 72% of the respondents spent above 501 for ANC care it is included that opportunity cost of the attended. There is significant between income and expenditure for ANC. It is can be understand that 38% and 54% spends 1001-5000 and above 5001, because they had complicated by LBW and leads to increase the number of day stay in hospital. There significant different between income of the respondents and postnatal care (P<0.001).

Today above 80% of the people come forward to take treatment in government hospital for deliveries and they prefer less the services of Untrained Dai. Due to incentive scheme likes MRMBS and CEmONC for mothers and child care government hospitals are preferred. The continuous follow-up leads to reduce the maternal (MMR) and child deaths (IMR). There were 196 children got life year gain above five years through the TNHSP and MRMBS. Lack of care and money is one of the reasons for fewer than five deaths in the study areas.

Suggestion

Providing health care to newborns and potential mothers are essential for reducing IMR and MMR, thereby improving the health status. All complicated maternal cases should be advised to stay in hospital itself and take care of their children's health after discharged from the hospital. Every woman must be utilizing their MRMBS case only for their health not for household expenditure. The medical personal should focuses on emphasizing the hygienic practices not only to mothers but also to attendants. The state should release the cash incentive on time. Moreover, 50% of the incentive may be given as cash and remaining may be provided as goods like dry fruits, nutrition supplements etc., which are liked by pregnant women. Attractive bill bounds should place on advantage points like PHCs to educate and motivate the pregnant women to avail the facilities in the government hospitals.

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