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Institutional Delivery and Travel Pattern of Antenatal Health Check-up: A Case Study of Nannilam Block, Tamil Nadu, India

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ABSTRACT

Introduction: Institutional delivery means giving birth to a child in a health centre or hospital under the overall supervision of well-trained health personnel. There are more facilities available to handle the situation and save the life of the mother and child. Skilled attendance at delivery is to reduce the maternal mortality.

Study Area: Nannilam Block in Thiruvarur District, Tamil Nadu is chosen as a study area.

Study Sample: Secondary data of childbirth attendance collected from the Government General Hospital and Primary Health centres of Nannilam Block during the year 2010 to 2015. Further, 600 pregnant women were selected from the seven hospitals of Nannilam Block who have been visiting for antenatal health check-ups. They are the respondents of this present study.

Objectives: The objective of the present study is a) to identify the trends of institutional delivery and b) to analyse the travelling pattern of women for antenatal health check-up services provided by the General Hospital and Primary Health Centres in Nannilam Block.

Conclusion: In Nannilam block there is one General Hospital (GH) and six Primary Health Centres (PHC) providing healthcare facilities for the residents. According to the childbirth attendance from 2010 to 2015, the highest number of childbirth was registered in the Nannilam general hospital. This childbirth statistics (2010 to 2015) clearly indicates that the child birth was decreasing with increasing years. However, the child birth has been increased remarkably in Nannilam hospital after 2012; 187 in 2013, 204 in 2014 and 1017 in 2015.The northern parts of Nannilam block particularly west to east frontier zones/areas are highly inaccessible for the utilization of healthcare. Any health centres do not cover these areas. Similarly, the central and southwestern parts are also not in the limits of hospital service area.

Keywords: Institutional delivery, Childbirth, Antenatal care, Travel pattern

I. INTRODUCTION

Institutional delivery means giving birth to a child in a health centre or hospital under the overall supervision of well -trained health personnel. There are more facilities available to handle the situation and save the life of the mother and child. Skilled attendance at delivery is an important indicator in monitoring progress towards Millennium Development Goal-5 to reduce the maternal death ratio by three quarters between 1990 and 2015. In addition to skilled attention, it is important that mothers deliver their babies in an appropriate situation, where lifesaving equipment and hygienic

conditions can also help to reduce the risk of complications that may cause death or illness to the mother and the child. Over the past decade, interest has grown in examining influences on care-seeking behaviour. Hence, this present study investigates the institutional delivery in Nannilam block, Thiruvarur district, Tamil Nadu, India with a particular focus on assessing the childbirth attendance.

Over View

Prenatal and postnatal health care utilization services are imperative strategies to decrease maternal morbidity and mortality. Prenatal care is the optimistic approach to overcome the prospective hindrance before and after delivery. Regardless of the complications, it is indispensable for pregnant women to visit the health facility for antenatal care. Maternal health care utilization services are essential for maternal and neonate health and safety during pregnancy, delivery and the postnatal period (Frost, J.J. 2001; Khan, N., S. Khan, N. Khan and S. Khan. 2013). It is estimated that over half a million women die of pregnancy related reasons around the globe. In low income countries, primary cause of death in childbearing age is pregnancy related complications (Patton, G.C., Viner, R.M., Linh, L.C., Ameratunga, S., Fatusi, A.O., et al., 2010).

One effective way to improve maternal and new-born health is for the mothers to deliver in a healthy atmosphere with adequate maternal care. Proper delivery care for all births is an important indicator for both maternal and child health. The benefits of delivering births in an institution is related to the life-saving equipment and hygienic conditions that help reducing the risk of complications that may result in death or illness to the mother or the child. It is observed that the mothers prefer to deliver births in an institution that had a lower rate of maternal mortality (Dixit, 2013). For example, Southern states such as Kerala and Tamil Nadu had more than 95% of deliveries in centres with healthcare facilities and had maternal mortality ratios of only 66 and 90 maternal deaths per 100, 000 live births, respectively, in 2012. By contrast, Central and Northern regions had only 25 to 45 per cent institutional deliveries. In Uttar Pradesh and Rajasthan, the maternal mortality ratios were 292 and 255 per 100, 000 live births, respectively, in 2012 (RGI, 2013). In recent decades, several studies have attempted to determine the socio-economic and demographic factors affecting the utilization of institutional delivery. Most studies in the literature documented a negative correlation between increased levels of fertility and the utilization of institutional deliveries (Agha and Carton, 2011; Amponsah and Moses, 2009; Kebede, Gebeyehu, and Andargie, 2013; Magadi, Diamond, and Rodrigues, 2000; Sonneveldt, Plosky, and Stover, 2013). Some studies have further found that geographical access may have a greater effect on utilization of services than socio-economic factors. Over the past two decades there has been an increasing interest in the field to examine how the utilization of maternal and child health (MCH) care services influence subsequent utilization of maternal and child health services in developing countries, including India (Agha and Carton 2011; Dixit, Dwivedi, and Ram, 2013a; 2013b; Kesterton, Cleland, Slogett et al. 2010; Sugathan, Mishra and Retherford, 2001).

Study Area

Nannilam block in Thiruvarur district is chosen as a study area. It is one among the 11 blocks of Thiruvarur district; it has 58 villages and 25,653 homes. According to the 2011 census, the Nannilam block had a population of 124,733 with 62,713 males and 62, 020 females. There were 993 women for every 1000 men. The block had a literacy rate of 77.25.

Significance of the Present Study

The utilization of maternal care services depend on a number of factors. Planning Commission of India (1999) evaluated functioning of the Community Healthcare Centres taking into account the availability and accessibility factors. More than one-

third (37.6 percent) of women in Tamil Nadu had faced at least one delivery complication. This district had a delivery complication that ranges from 42.1 to 61.4 percent. Hence, this present study examines the trend of institutional delivery and travelling pattern of women for antenatal check-up to the respective hospitals of Nannilam block.

Objectives

The aim of the present study is to examine the institutional delivery and travel pattern of antenatal health check-up in Nannilam block and it has the following objectives.

1. To identify the trends of institutional delivery and
2. To analyse the travelling pattern of pregnant women for receiving antenatal health check-up services provided by the General Hospital (GH) and Primary Health Centres (PHC) in Nannilam Block.

II. METHODOLOGY

The secondary data for institutional delivery and child birth was collected from the government general hospital and primary health centres of Nannilam Block during the year 2010 to 2015. The primary data (questionnaire) was collected from the maternal women aged 19 to 35 years who have been visiting hospital for checkups. Accordingly, 600 pregnant women were selected from the seven hospitals of Nannilam Block and they are the respondents of this present study. Further, simple frequency and percentage techniques are used in order to arrive at dependable conclusion. Additionally, to depict the map of travel pattern of womenArcGIS9.1 software was used.

Geographical Disparity

Trend of Institutional Delivery in Nannilam Block (2010-2015)

In Nannilam block the total institutional delivery (Table-1) was 551 in the year 2010, 459 in 2011, 365 in 2012, 324 in 2013, 448 in 2014 and 313 in 2015. This clearly indicates that the childbirth was decreasing with increasing years. However, in Nannilam (Figure -1) government general hospital the institutional delivery has been increased remarkably 187 in 2013, 204 in 2014 and 1017 in 2015.

Institutional Delivery in Nannilam Block 2010-2015

Sl. No	Place of Hospital	2010	2011	2012	2013	2014	2015	Total	Rank
1	Nannilam (GH)	158	157	149	162	187	204	1017	I
2	Anaikuppam(PHC)	156	121	73	73	81	29	533	II
3	Peralam(PHC)	74	69	38	38	60	23	302	III
4	Poonthottam(PHC)	60	54	70	16	57	24	281	IV
5	Pavatakudi(PHC)	52	25	11	11	40	26	165	V
6	Ubyavedhanthapuram(PHC)	30	19	16	16	10	4	95	VI
7	Kollapuram(PHC)	21	14	8	8	13	3	67	VII
	Total	**551**	**459**	**365**	**324**	**448**	**313**	**2460**	

Table-1

Among the seven hospitals (Table-1) in Nannilam block, the Nannilam Government General has attended highest institutional delivery 1017 (Ist Rank) during the year 2010 to 2015. Similarly, the primary health centres namely Anaikuppam 533 (IInd Rank), Peralam 302 (IIIrd Rank), Poonthottam 281 (IVthRank), Pavatakudi 165 (Vth Rank), Ubyavedhanthapuram 95 (VIth Rank) and Kollapuram 67 (VIIth Rank) conducted deliveries. During these periods, the total institutional delivery was 2,460 in general hospital and primary health centre of Nannilam block.

Travel Pattern of Antenatal Health Check-up of women

Distance is an important factor determining the travelling pattern of an individual's travel between the healthcare centre and their houses. This affects the spatial interaction of the healthcare seekers who usually choose shorter distance. Further, the table-2 illustrates that 24.71 per cent of the pregnant women respondents are coming from the distance of less than the one kilometre. Similarly, 9.87, 30.88 and 34.54 per cent of the respondents are arrived from two, three and more than three kilometres respectively for the antenatal care/health check-ups to the hospitals.

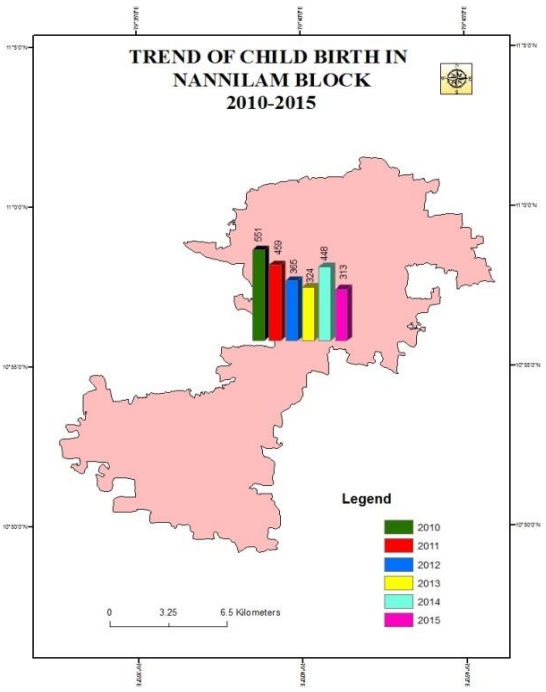

Figure-1

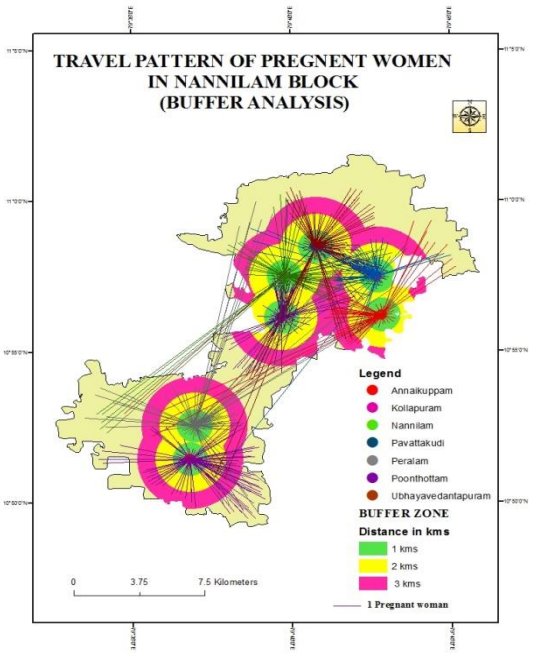

Figure-2

The seven hospitals are classified in to high (<1km), moderate (2km), low (3km) and very low accessibility area in Nannilam block. The figure-2 demonstrates that the buffer zones of Nannilam block. There are three buffer zones to show the travel pattern of pregnant women for antenatal health check-ups of each hospital in Nannilam block. The first buffer zone extent within one kilometre is shown in light green colour, the second zone demonstrated in yellow colour extends from one to two kilometres and the third zone extent from two to three kilometres is shown in violet colour. Beyond this buffer zone/area, more than three kilometres are considered as inaccessible zones.

Pregnant Women Travelled (Distance) between Residence to Hospital

Table-2

Sl. No	Name/Place of the Hospitals	Number of Pregnant Women Travelled								Total
		< 1km	%	2km	%	3km	%	>3km	%	
1	Nannilam (GH)	32	32.00	11	11.00	20	20.00	37	37.00	**100**
2	Anaikuppam (PHC)	12	11.70	2	1.96	51	50.00	37	36.34	**102**
3	Poonthottam (PHC)	24	24.00	13	13.00	34	34.00	29	29.00	**100**
4	Peralam (PHC)	22	28.20	9	11.50	18	23.00	29	37.30	**78**
5	Pavattakudi (PHC)	27	33.75	9	11.25	13	16.25	31	38.75	**80**
6	Kollapuram (PHC)	13	16.25	15	18.75	25	31.25	27	33.75	**80**
7	Ubhayavedantapuram (PHC)	18	30.00	Nil	Nil	24	40.00	18	30.00	**60**
Total		**148**		**59**		**185**		**208**		**600**
Percentage			**24.71**		**9.87**		**30.88**		**34.54**	**100**

In Nannilam block, of the 600 respondents 148 pregnant women have reached all the health centres/hospitals from the high accessibility area/zone (< 1km). 59 persons are travelled from moderate accessibility area/zone (2km). 185 pregnant women have moved from the low accessibility area/zone (3km). However, 208 child bearing women have travelled from inaccessibility area/zone (>3km). To the Nannialm general hospital 32, 11 and 20 pregnant women travelled from high, moderate and low accessible area/zone respectively and 37 women were from the inaccessible area/zone.

Likewise, 12, 2 and 51 pregnant women have come from high, moderate and low accessible area/zone correspondingly and 37 pregnant women were from remote area/zone to the Anaikuppam primary health centre. To the Poonthottam primary health centre, pregnant women have travelled from high (24), moderate (13) and low (34) accessible area/zone and also from far-off places (29). For the Peralam primary health centre, pregnant women approached from high (22), moderate (9) and low (18) reachable area/zone and also from the inaccessible areas (29) are identified. To the Pavattakudi primary health centre 27, 9 and 13 pregnant women have travelled from high, moderate and low accessible area/zone and 31 women were from the inaccessible area/zone. To the Kollapuram primary health centre, pregnant women have visited from high (13), moderate (15) and low (25) reachable area/zone and also from the inaccessible areas (27). Similarly, to the Ubhayavedantapuram primary health centre 18 and 24 pregnant women travelled from high and low accessible area/zone and 18 women were from the inaccessible area/zone.

The northern parts of Nannilam block particularly west to east frontier zones/areas are highly inaccessible. Similarly, the central and south western parts are also not in the limits of hospitals service area. These areas are not covered by any government health centres.

III. CONCLUSION

The institutional delivery was decreasing with increasing years in government general and primary health centres of this region. The travel pattern for antenatal health check-up of women was highly accessible to the health centres of Nannilam Block, Thiruvarur District, Tamil Nadu, India.

IV. RECOMMENDATION FOR FUTURE RESEARCH

This research observed the institutional delivery and antenatal check-ups in Government General Hospital and Primary Health Centres of Nannilam block. However, it failed to address the institutional delivery and antenatal check-ups in private hospitals. Furthermore, there is a need to examine the reasons for decreasing institutional delivery in Government Health Centres in this area.

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