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Original Article

Social and health system factors contributing to maternal deaths in a less developed district of Kerala, India

Veetilakath Jithesh ^{a,*}, T.K. Sundari Ravindran ^b^a MPH Scholar, Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum 695 011, Kerala, India^b Professor, Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum 695 011, Kerala, India

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ABSTRACT

Background: Inequalities in risk of maternal deaths between high and low-income countries and within countries are the widest of any known health indicator. Understanding and addressing the factors underlying these inequalities are crucial for preventing avoidable maternal deaths.

Objective: To examine social and health system factors associated with maternal deaths in Wayanad, a less developed district of Kerala.

Methods: This was a qualitative study using a social autopsy tool covering all maternal deaths that occurred in Wayanad district from January 2010 to June 2011, and in-depth interviews with service providers at different levels.

Results and conclusions: Fourteen (14) of 15 maternal deaths reported during this period were included in the study. Women from the Scheduled Tribes accounted for a majority (64%) of maternal deaths, while constituting only 17% of the district's population. Thirteen of the 14 deaths took place after reaching a health facility.

Interactions between multiple social vulnerabilities (geographic remoteness, poverty, fear of health system and gender norms) and health system factors acted in synergy to compound the negative effects of each other. Geographic distribution of different levels of emergency obstetric care resulted in loss of precious time in receiving emergency care. Failure of Emergency Obstetric Care facilities to perform most of the signal functions of emergency obstetric care, including not stabilizing women before referral was a major factor. The reasons for this failure were as much related to risk-averse attitudes of health providers as to limited availability of personnel, equipments, and supplies.

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* Corresponding author. Present address: District RCH Officer, Wayanad, District Medical Office (Health), Mananthavady, Wayanad 670645, Kerala, India. Tel.: +91 9447316483.

E-mail address: drjithesh.v@gmail.com (V. Jithesh).<http://dx.doi.org/10.1016/j.jrhm.2015.12.003>

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1. Background

The life-time risk of a woman dying of maternal causes range between 1 in 30,000 women in Sweden to 1 in 6 women in Afghanistan and Sierra Leone, and is 1 in 43 for women in South Asia. These represent the widest gaps among all known health indicators. Similarly wide gaps in risk of maternal death exist within countries across the globe, irrespective of the level of development and of the state of the health care system.¹

Maternal mortality ratios are known to be much higher in rural as compared to urban locations and among the poorer groups than those with higher incomes.¹ Social and economic status of women has also been observed to contribute to inequalities in maternal mortality within countries. For example, maternal mortality data for England and Wales for 2003–2005 showed that women, whose husbands or partners were unemployed had an MMR that was 7 times higher than that for women with employed husbands and partners (68.5 vs 9.2), while Black Caribbean and Black African women had an MMR that was 4 and 6 times, respectively, higher than the MMR for white women (41.1 and 62.4 vs 11.1).²

Women seeking maternal health care from poorly functioning health systems may also be at a greater disadvantage than those served by a well-functioning health system. A qualitative descriptive study done in rural Vietnam in December 2004 showed that inadequate financing of primary health care, lack of human resources, absence of professional re-training, and inadequate equipment were serious structural constraints to providing adequate maternal health care.³ Other studies have identified lack of essential medicine and supplies such as antihypertensive drugs,⁴ non-availability of blood in rural areas,⁵ and non-use of evidence based techniques⁶ as other health system factors contributing to maternal deaths.

India's maternal mortality ratio varies widely across states. Assam had the highest maternal mortality ratio of 328 per 100,000 live births in 2010–2012, while Kerala had the lowest ratio of 66 per 100,000.⁷ Kerala generally has the best health indicators in India including an infant mortality of 11 per 1000 compared to all India figures of 34 per 1000.⁸ On the other hand, though Kerala has the lowest maternal mortality in India, the figure of 66 per 100,000 live births⁷ compares poorly with other countries with similarly high (99.5% in 2005–2006)⁹ institutional delivery rates, of around nine per 100,000 live births.¹⁰

Within the state of Kerala, there are gross regional and social disparities in maternal mortality. Areas such as Wayanad, Idukki and Attappadi (of Palakkad district) show poorer health indicators than rest of Kerala. Even within these districts, the situation of tribal population is believed to be worse than that of the general population. For example, Wayanad district, which had 2.6% of Kerala's population in 2011, accounted for 30% of all home deliveries and 6.8% of all maternal deaths in the state during 2010–2011.¹¹

The present study conducted in the Wayanad District of Kerala state in India during June to September 2011 explored social and health system factors contributing to the higher proportion of maternal deaths in the district. Wayanad district has the highest proportion of Schedule tribe population (17%) in Kerala. The district is covered by the Western Ghats

interspersed with dense forests and deep valleys, with few motorable roads in rural areas. Health facilities in the district include four government hospitals, nine Community Health Centers (CHCs) and 21 Primary Health Centers (PHCs). Of these, two hospitals are equipped to provide Comprehensive Emergency Obstetric Care (CEmOC) and three facilities to provide Basic Emergency Obstetric Care (BEmOC). The majority of the tribal population lives very far away from any of these facilities. The nearest facility for tertiary care is the Calicut Medical College Hospital, about two hour's journey from the nearest point of Wayanad and more than four to five hour's journey from the farthest points of the district.

2. Methodology

This was designed as a qualitative study. “Social autopsy” was the method used to examine maternal deaths. This consists of an interview process which seeks to identify social, behavioral, and health system contributors to maternal deaths and child deaths¹² in general, while this particular study looked at maternal deaths. Social autopsy compliments verbal autopsy in that while verbal autopsy looks at medical causes of deaths, social autopsy looks at socio-cultural and health system contributors with a purpose of modifying the milieu in which such deaths occur. Social autopsy in addition to identifying modifiable social and institutional risk factors, also serves two complimentary purposes: (a) to raise awareness in the community about the preventable nature of majority of maternal deaths and empowering the community to take effective steps to tackle the issue and (b) to provide policy makers with sufficient population level data to modify and innovate on existing maternal health interventions and strategies. It is with these three purposes in mind that this particular methodology was adopted for this study.

The study and the tools were approved by the Institutional Ethics Committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. Informed verbal consent was obtained from all the respondents in the presence of an independent witness, who then signed the consent form.

All cases of maternal death reported from 1 January 2010 to 30 June 2011 were compiled based on data obtained from the District Medical Office (Health), Wayanad, from the Federation of Obstetrics and Gynecologists of India (FOGSI) Kerala Chapter, and by contacting all the Junior Public Health Nurses (JPHNs)^c in the 204 sub Centers of the district. The final compiled list consisted of 15 maternal deaths that had taken place between February 2010 and June 2011; of which one was excluded because it did not fall within the definition of a maternal death.

^c A sub center – the lower most rung of the health system of Kerala – is staffed by a JPHN who caters to the preventive and promotive health care needs of the population. She is a grass-root level female worker who is the first point of contact between the community and the health system. She collects all health related data from community through house visits, including births and deaths. Her most important area of activity is maternal and child health.

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