

LIFE-TIME MATERNAL MORTALITY RISK - A COMMUNITY BASED STUDY BY SISTERHOOD METHOD

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SUMMARY

A new indirect technique i.e. sisterhood method was tried by interviewing 3584 respondents of age group 15 years and above and residing in intensive field practice area. Out of 345 total maternal deaths, 40 maternal deaths occurred during pregnancy, childbirth and puerperium and therapy. The life time risk of maternal death was estimated to be 0.009 or 1 in 106. Further, it was revealed that mortality risk is related to maternal age and is more at extremes of reproductive period. Estimate of maternal mortality ratio was 298/100,000 livebirths which refers approximately to the period of last decade. The survey was planned along with ongoing activities of the department, therefore, no extra budgetary allocation was required.

INTRODUCTION

In the context of national health policy, prevalent maternal mortality in India is high, specially when WHO'S interregional meeting on the prevention of maternal

mortality (1986) had strongly recommended that the member states of WHO should designate maternal mortality as one of the global indicators of "Health For All by the year 2000 AD."

Women in developing countries run 50 to 100 times the risk of dying during pregnancy or childbirth than women in

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developed countries. The life-time risk of women in a developing country dying during pregnancy or from pregnancy related illness is 1 :25 or 1 :40, this contrasts with one in several thousand risk for women in developed world Bhargav (1987).

The estimates are approximate due to a variety of constraints in collection of data. Several studies have revealed inadequacy of official statistics large proportion of maternal deaths took place at home on the way to hospital and at times were not reported. On the other hand, maternal mortality computed from hospital statistics is high as women with serious complications during pregnancy are hospitalised. Few household surveys on maternal mortality from developing countries have revealed main constraint as large sample size required to get statistically reliable estimate based on deaths in a recent fixed interval while prospective studies are expensive in terms of resources needed to follow up women over a period of time WHO (1986). However, for planning, implementation and evaluation of the programme, population based data on maternal mortality is vital. In view of this, the present study was planned a) to know population based maternal mortality by new indirect technique developed by Graham et al (1989) viz. Sisterhood method and b) to sensitise U.G. and P.G. students for research methodology and survey work.

MATERIAL AND METHOD

The present study was conducted in a cluster of three villages i.e. Pimpla, Lockandi and Chanai with a population of 8499, an intensive field practice area of department of Preventive and Social Medicine

S.R.T.R. Medical College, Ambajogai. All adults of 15 years and above and residents of the area were target population for the survey. The relevant information regarding name, age, sex, marital status along with answers to following four questions was recorded on pretested semi-open proforma.

1) How many sisters (born to same mother) have you ever had who were married ?

2) How many of these ever married sisters are alive now ?

3) How many of these ever married sisters are dead ?

4) How many of these dead sisters died while they were pregnant, during childbirth or during 6 weeks following the end of pregnancy or childbirth ?

The proforma was designed in vernacular language, in order to frame questions appropriately and elicit information from men and women. Two rounds were scheduled for complete coverage & it was ensured by proxy interview of non-contacted respondents with close relatives in the family.

The survey work was completed in 6 days by 5 teams. Each team was formed by a teaching staff member, one paramedical person, one postgraduate student and 3-4 undergraduate students posted under ROME programme. All team members were briefed in detail prior to data collection in class room setting and the details were again discussed after pilot study for due modifications. In each village with the help of map and prominent spots like temple, school etc, areas were allocated to all teams which were instructed to contact people and complete as many interviews as possible in a family before moving to next household.

Table I
MATERNAL MORTALITY ESTIMATES USING SISTERHOOD METHOD

Age group of respondents.	Number of respondents	Sisters ever married	Maternal deaths	Adjustment factor A ¹	Sister units of risk exposures.	Life time risk of maternal death q (w) (g=d/f)	Proportion of dead sisters dying of maternal causes
(a)	(b)	(c)	(d)	(e)	(f-ce)	(g=d/f)	(h)
15-	224	412	01	0.107	44	0.022	0.3333
20-	356	655	02	0.206	134	0.014	1.000
25-	395	705	04	0.343	242	0.017	0.4444
30-	494	860	03	0.503	433	0.007	0.1764
35-	439	875	08	0.664	581	0.014	0.1096
40-	389	758	04	0.802	608	0.007	0.1739
45-	275	500	02	0.900	450	0.004	0.0800
50-	288	552	03	0.958	529	0.006	0.0698
55-	187	328	05	0.986	323	0.015	0.1667
60*	537	915	08	1.000	915	0.009	0.0500
Total	3584	6560	40	-	4259	-	-

* Derived by multiplying the number of respondents by the average number of ever married sisters per respondent reported for the age groups. However for respondents in younger age group (15-24 yrs) likely to exclude those sisters yet to enter reproductive period, hence ranging factor 1.84 used to arrive at expected numbers i.e. 15-20 yrs , $224 \times 1.84 = 412$ as per Graham et al 20-25 yrs , $356 \times 1.84 = 655$

RESULT AND DISCUSSION

In the present study total 3584 respondents were interviewed. Table I shows overall estimated risk of maternal death 0.009 or overall life-time risk of dying during pregnancy, childbirth or pureperium as 1 : 106 which is less than the population based estimate of life-time risk of maternal death 0.17 or 1 : 59 as reported by Rajesh Kumar (1992). Further, it was observed that life time risk of dying during pregnancy, childbirth or pureperium was influenced by maternal age i.e. below 50 years risk 1 :104, below 40 years risk 1 :80, below 30 years risk 1 :60 and below 20 years risk 1 :44. This supports the fact that high risk exists at extremes of reproductive period in women.

Out of total 345 maternal deaths recorded, only 40 maternal deaths occurred during pregnancy, childbirth or puerperium and remaining 305 deaths were due to non-maternal concern thereby overall proportional mortality was 11.59% which is less than Haryana study. Moreover, proportional mortality declined to 4.63% in respondents over 50 years and above, and perhaps it may be as a result of recall errors or predominance of non-pregnancy, related causes with ageing.

In rural Maharashtra (Govt. of India, 1991) total fertility rate (TFR) is 3.9 (1988) which gives maternal mortality ration estimate of 298/100,000 live births. However, Rajeshkumar 1992 had reported maternal mortality ratio estimate as 328/100,000 (1980s)

which is high. In the present study, it was not possible to estimate trends as in each age group interval a small number of maternal deaths were observed.

In conclusion, a new indirect technique i.e. sisterhood method, maximises on the reported number of women years of risk exposure for a given sample size and the level of mortality in a community. It is inexpensive and quick and was possible to plan as a part of ongoing activities. Existing staff, vehicles, stationary etc. was utilised and hence no budgetory provision was required for transport, POL, TA DA etc. Moreover, it was a field exposure to know research methodology, and opportunity to interact with faculty members during survey.

Therefore, to attain the objective of reducing maternal deaths during pregnancy, childbirth or pureperium following are few recommendations. a) strengtning of MCH services with stress on expansion of coverage by ensuring transportaion and financial support to high risk cases from weaker section b) in service training of health functionaries at PHC/ subcentre for updating knowledge and skill c) community awareness and involvement for promotion of MCH programmes with the help of mahilamandal, youth, exservicemen, shcool teacher etc and d) development of institutions as a joint venture between govt./non-govt. agencies for monitoring and feed-back of programme activity.

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