

MALARIA AND DEATH OF WOMEN OF CHILD-BEARING AGE IN KASSALA

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ABSTRACT

A retrospective, community-based survey of reproductive age mortality in refugees, acute internally displaced people, slum dwellers and urban population in Kassala Province Eastern Sudan. Slum dweller sector shows the highest reproductive age mortality rate 314/100,000 WRA, while urban sector shows the lowest rate 199/100,000 WRA. Maternal mortality rate is highest in IDP population and slum dwellers (168 & 126/100,000 WRA respectively) and lowest in urban population 47/100,000 WRA). Maternal mortality ratio is very high in slum dweller, IDP & refugee population (1,207, 1,192 and 914/100,000 live births respectively), and 367 per 100,000 live births in urban population. Malaria is the major cause of death in three sectors with exception of IDP where pregnancy related causes contribute to 70% of the deaths. This study shows the big toll of malaria on the health of females in child bearing age, the high discrepancy in reproductive age mortality and maternal mortality between different population sectors in the same location. It also discusses the causes of these deaths.

INTRODUCTION

Kassala state is located in the East of Sudan, bordering Eriteria. It covers 42, 33 Km². Its population is estimated at 1,584,000, with an annual growth rate of 2.51% between 1998-2003⁽¹⁾. The sex ratio of males per females is 97.8. The crude birth rate is 37.8% while the crude death rate is 10.2%. The population comprises of Hadandawa, Bani Amer, Amara, Bisharen and Halanga tribes which coexist with people from Northern Sudan and Falata tribes who are of West African origin. The urban population constitute 19.3% of the total population of the State. Over the last 30 years, Kassala State has faced an influxed of cross border migrants. The last conflict between rebels and the government in 1997 lead

to another wave of internally displaced people (IDPs) who settled near the main towns of the State. Internally displaced people constitute 10% of the State population⁽²⁾. Currently, Sudan hosts 110,000 refugees, 89,687 of whom in Kassala State⁽³⁾. They constitute 6% of the population. The general health facilities in Kassala are moderate. There are five hospitals and 79 beds per 100,000 people⁽⁴⁾. The proportion of births attended by skilled health personnel is 53%. The under 5 mortality rate is 148 and infant mortality rate is 101/1, 000⁽⁶⁾. Malaria, diarrhoea and tuberculosis are common diseases in the State. The prevalence of death rate associated with malaria is 32/1000⁽⁴⁾.

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In a hospital based study done at Kassala New Hospital (Obstetrics & Gynaecolog hospital), indirect causes of maternal deaths was 58.3%, with 30.2% of all deaths due to complicated malaria and 20.8% to severe anaemia. The later is also malaria related ⁽⁷⁾. It had also been noted that the majority of deaths came from refugees, IDPs and slum dwellers ^(8,9).

This study was conducted to find out maternal mortality at a community based level in the four major population sectors in Kassala, namely urban, refugees, IDPs and slum dwellers and to investigate the causes of deaths in female of reproductive age and the differences in causes and rates between the sectors.

METHOD

All deaths among women in reproductive age (WRA) 15-45 years were identified and reviewed to identify the cause of each death and ways to prevent it. It is a retrospective community-based survey, conducted in two phases, as described by WHO, Grubb, Fortney and Barylett 10,11,12,13,14,15,16,17. In phase one, all deaths in the community that occurred in a 12 months period before the study are identified. Deaths of females aged 15-45 are selected. Multiple sources for identification of deaths are used. This includes asking people in the community (such as health care providers; religious leaders; grave diggers and community leaders) if deaths among WRA have occurred. When deaths are identified, age, gender and full address of the respondents are recorded. In phases 2, death review is conducted through structured standard verbal autopsy questionnaire conducted by 5th year medical students.

RESULTS

The demographic characteristics of the population sectors studied are shown in table 1. The internally displaced people in this sector constitute 12.3%, refugees 41% of those in the State, while urban sector constitute 25% of the population.

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Table 1: The demographic characteristics of sectors studied:

Sector	Urban	Slum dwellers	Refugees	IDP camps	Total
Population	88,709	69,276	36,575	19,540	214,1000
WRA*	21,199	16,557	6,142	4,158	48,056
Expected live births	2,727	1,739	547	587	5,600

Women of reproductive age.

121 deaths of WRA occurred in the four population sectors (table 2).

Table 2: Number of deaths among various populations:

Sector	Urban	Slum dwellers	Refugees	IDP camps	Total
All deaths	42	52	17	10	121
Maternal deaths	10	21	5	7	43
% of maternal deaths	23.8	40.3	29.4	70	35.5

Slum dwellers showed the highest reproductive age mortality rate of 314/100,000 WRA, while urban sector showed the lowest rate of 199/100,000WRA (table 3).

Table 3: Rates of deaths:

Rate	Urban	Slum dwellers	Refugees	IDP camps
Reproductive age mortality rate*	199	314	268	240
Maternal mortality rate*	47	126	81	168
Maternal mortality ratio**	367	1207	914	1192

* Per 100,000 WRA.

** Per 100,000 LB.

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Maternal mortality rate is highest in IDP and slum dwellers populations, 168 & 126/100,000 WRA respectively and lowest in the urban population, 47/100,000 WRA. Maternal mortality ratio is very high in slum dwellers, IDP and refugee populations (1207, 1192, and 914/100,000 live births respectively). It was 367/100,000 live births in the urban population.

Malaria had been found to be the major cause of death in three sectors with the exception of IDP sector where pregnancy related causes contributed to 70% of the deaths (table 4).

Table 4: Major causes of reproductive age deaths:

Sector	Urban	Slum dwellers	Refugees	IDP camps
Cause No. 1	Malaria (35.7%)	Malaria (15.4%)	Malaria (23.0%)	Pregnancy related (70.0%)
Cause No. 2	Pregnancy related (23.8%)	Pregnancy related (40.5%)	Pregnancy related (29.4%)	Malaria (20.0%)

DISCUSSION

This study shows the large discrepancy of reproductive age mortality between the three vulnerable sector of the population and the urban sector, although all live in the same locality. World wide 1,600 women die everyday due to complications of pregnancy and childbirth. This is 585,000 at a minimum annually. Ninety per cent of these deaths occur in Asia and Sub-Saharan Africa, 10% in other developing countries and less than one per cent in the developed world ^(18, 19). Forty per cent of these deaths occurs in Africa, whereas only 20% of the world births take place in this continent. Between 25% and 33% of all deaths of women in reproductive age are due to complications of pregnancy and child-birth ⁽²⁰⁾.

In Sudan maternal mortality is estimated at 660 per 100,000 live births ⁽¹⁸⁾. In the Safe Motherhood Survey conducted in 1999, maternal mortality for Kassala was found to be 553 per 100,000 live births ⁽⁵⁾. This data on maternal mortality was obtained by indirect sisterhood method. Figures obtained give a general national or State estimate, but will not show inter-sectoral variation of mortality. This study was conducted using reproductive age mortality survey (RAMOS), its results are most useful for evaluating the magnitude of maternal mortality and other other causes of death among WRA, ^(13,18).

Malaria is a public health problem throughout the world. Of the estimated 300 million cases reported each year world wide, more than 90% occur in Sub-Saharan Africa. It causes maternal anaemia as well as spontaneous abortions, stillbirths and small for gestational age babies. This study shows malaria to be either a leading cause or a second cause of death in women of reproductive age. It also showed that even when maternity health services improve as in the urban sector, malaria is still the leading cause of death.

In urban sector, improvement of reproductive health services results in a maternal mortality below the national estimate and SMS estimate for the State.

CONCLUSION

Different population sectors in the same location show a high discrepancy in reproductive age mortality and maternal mortality.

Malaria is the major cause of deaths in women in child-bearing age.

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