

## Can Indirect Estimation of Maternal Mortality Improved by Combining the Sisterhood Method with Orphanhood Method

“Improving indirect estimation of maternal mortality”

Adil Yahia Waddad  
Najran University  
KSA

### COLUMN ARTICLE

#### Introduction

The study concerned with a social study, targeted towards maternal deaths in Sudan. With a view of improving maternal mortality estimation indirectly [2], the aim was to combine between (MMRatio) with the Orphanhood probability of surviving to estimate adult mortality, to arrive at a mathematical linkage between the two methods, and to estimate maternal mortality for Sudan given the transition that is taking place in the community. The mathematical Linking between the two methods, based on Brass's discovery on which he stated that the relationship between logits of two sets of life tables is linear [3].

#### Discussion

The data based on maternal death recorded in the last 12 months that preceded the Sudan 2008 census, and orphanhood deaths collected in the same census.

#### Estimated MMRatio

The MMRatio calculated from the Sisterhood method augmented with the Orphanhood probability of surviving, using Logit system in one model in order to estimate a recent maternal mortality ratio and to build a life-table for women in age group 15-49 in Sudan.

Age group	Logits of (1-P <sub>x</sub> )	Estimated logits of MMRatio*	Estimated MMRatio**
15-19	0.508	1.163	0.104
20-24	0.452	1.156	0.105
25-29	0.384	1.148	0.105
30-34	0.302	1.137	0.106
35-39	0.230	1.128	0.107
40-44	0.111	1.113	0.108
45-49	0.013	1.101	0.110

$$* \text{Logit (MMRatio)} = 1.099 + 0.127 \text{ Logit (1 - P}_x)$$

\*\*Anti Logits of the estimated MMRatio Logits

Source: Sudan 2008 census [4].

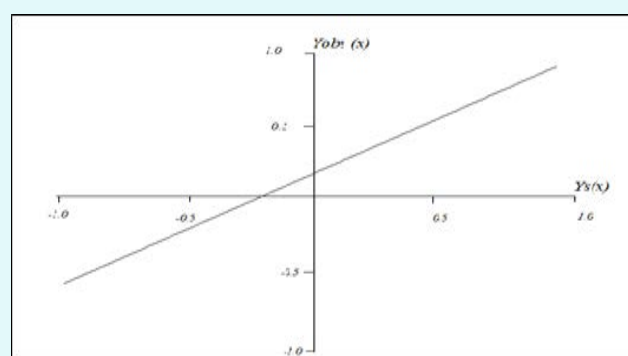


Figure 1: Curve fitting of maternal mortality and probability of dying.

Logits of maternal mortality and probability of dying related in a regression model taking MMRatio as a dependent variable,  $\alpha$  and  $\beta$ , used to construct a life table for females in the age groups 15-49.

### Conclusion

Values of  $R^2$  and  $r$ , suggests, that, the whole variation on the dependent variable MMRatio, explained by the variation on the Probability of dying, with a very strong positive relationship. The combined method suggested a maternal mortality ratio of 541 per 100,000 live births. Where MMRatio calculated from 2008 census data estimated at 508 per 100,000 live births. Based on the method applied, the life table showed that women in age group 15-19, expected to live only 31.7 years at birth.

**Keywords:** *Maternal mortality; Indirect technique; Orphanhood Method and Sisterhood Methods*

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