Maternal morbidity among adolescents in South Nyanza, Kenya

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Introduction

Adolescent girls face considerable health risks during pregnancy and childbirth, accounting for 15% of the Global Burden of Disease (GBD) for maternal conditions and 13% of all maternal deaths (WHO 2000). Adolescents aged 15-19 are twice as likely to die in childbirth and those under age 15 are five times as likely to die in childbirth as women in their twenties (UNICEF 2001). Unsafe abortion, pregnancy induced hypertensive diseases (Granja *et al.* 2001) and severe anaemia (Brabin *et al.* 2001) contribute to a large extent to high maternal mortality among adolescents. Some health risks associated with pregnancy and childbearing are more pronounced among adolescents than among older women (WHO, 2003A), due to the adolescents' physiological and psychological immaturity and their lack of adequate antenatal care and safe delivery (Chike-Obi 1993). Health problems experienced by adolescent mothers are confounded by parity, because parity one and low age often occur simultaneously. Hypertension found mainly among women having their first child is believed to be the most prevalent pregnancy complication that afflicts adolescent mothers (UN, 1989 cited in Zabin and Kiragu 1998).

Despite available evidence of considerable maternal health risk among adolescents, studies on maternal morbidity among adolescents in sub-Saharan Africa are scarce. Availability of reliable data is a major limitation – most studies rely on hospital-based data which are selective and represent only the sub-group of the population with access to health facilities. In line with the worldwide experience of lack of surveys on maternal morbidity, data to gauge the prevalence of maternal morbidity in Kenya are limited at both national and sub-national levels. Only an incomplete picture for Kenya of selected maternal morbidities can be drawn from a small number of studies of a reasonable size (Graham and Murray, 1999). Even though there are problems with self-reports of obstetric morbidity given that they are based on the women's perception of ill health, such reports are nevertheless useful since they give an indication of the women's health seeking behaviour.

A WHO funded Adolescents Safemotherhood Study (ASMS) in South Nyanza Region of Kenya conducted in 2002 represented a unique attempt to understand adolescent safe motherhood situation among a particularly vulnerable group in the country. The study has three components: a household-based survey of adolescent females aged 12-19; a qualitative study involving in-depth interviews with adolescents who have ever had a pregnancy wastage or a very early pregnancy (at age 15 years or younger); and a community assessment of availability and accessibility of reproductive health services. A representative sample of about 1200 adolescents were successfully interviewed and a total of 39 in-depth interviews conducted with those who had experienced very early pregnancies or unplanned pregnancies that did not result in a live birth.

Data and Methods

This paper uses information obtained from the survey and qualitative study components of the 2002 ASMS to examine experience of maternal morbidity among adolescents in the region. The individual questionnaire included a section on maternal morbidity experience for the last pregnancy. This section adopted the approach used in the Philippines Safe Motherhood Survey (National Statistics Office and Macro International, 1993), where respondents were asked if they had experienced given symptoms of various obstetric morbidities. The report on Verbal Autopsies for Maternal Deaths (WHO, 1994) will be used as a guide in the classification of standard obstetric conditions. The questionnaire incorporated symptoms for common morbidities during pregnancy and childbirth such as oedema (swellings of legs, face), blurred vision, turning pale/yellow, short of breath when carrying out normal household activities, obstructed/prolonged labour, haemorrhage, high fever, fits, etc. These will help assess the magnitude of life threatening obstetric morbidities such as anaemia, hypertension/ pre-eclampsia, haemorrhage and sepsis.

The data analyzed in this paper focus on 269 completed pregnancies among 245 adolescents, reported in the pregnancy histories section of the questionnaire. More detailed information on maternal morbidity was obtained for the last pregnancy, focusing on specific morbidity conditions during pregnancy, delivery /pregnancy termination, and the post-partum period (n=213) . Some limitations of the survey data analysed in this paper are worth mentioning and should be kept in mind when interpreting specific findings. First, the sample size is too small to permit rigorous statistical analysis for a comprehensive understanding of the important associations. In particular, the number of completed pregnancies cannot allow a comprehensive statistical analysis of factors associated with various maternal morbidity conditions. The small sample size for specific sub-groups implies that we do not have sufficient statistical power to detect all of the important relationships. Secondly, we recognize possible recall errors in retrospective reporting of pregnancy histories. The 12-19 year old adolescents provided pregnancy histories for all pregnancies they had ever experienced. Although most of these pregnancies were in the recent period, within the last three years preceding the survey, it is possible that the recall period could be a long as 5 years for a few pregnancies (e.g. if a 19 year old had her first pregnancy at age 14 years), making it difficult to accurately recall required information. Finally, the data accuracy depends on the respondents' perceptions which may be subjective.

The survey data were complemented with information from 39 in-depth interviews with a selected sample of these adolescents who had experienced very early pregnancies (at age 15 years or below) or unintended pregnancies that did not result in a live birth. The qualitative data from in-depth interviews are analysed by conducting a thematic content analysis. The qualitative data processing and analysis involved: coding and classifying responses; identifying key responses for various themes; and summarizing data to identify emerging patterns. Some excerpts from the in-depth interviews are presented verbatim to give a clearer picture of the circumstances and consequences of teenage pregnancies in the study population. However, most of the geographical information in the excerpts are anonymised to protect identity of the respondents.

Results

Experience of obstetric morbidity

- ***What are the main problems experienced by adolescents during pregnancy, labour/delivery and post-partum period?***

For all ended pregnancies reported by the respondents (n=269), they were asked whether they experienced any medical problems during each of the pregnancies: during pregnancy, labour/delivery or post-partum period.

Table 1 Problems reported (non-probed) during pregnancy

Problem experienced	Per cent$
Headache	14.1
Abdominal pains	20.1
Malaria	10.8
High fever	3.0
Vomiting	4.5
Other problems	13.8
No problem	48.3
No. of cases	269

$ percentages do not sum to 100 since some reported multiple problems

The most commonly reported problems during pregnancy were abdominal pains, headache and malaria. Malaria, in particular, is a major concern during pregnancy in the study population. These are often accompanied by headache and high fever which are the most common symptons. Despite the well recognized limitations of self reported morbidity conditions, such reports provide useful indicators of health care seeking behaviour.

Among those who experienced problems, 72 percent received medical care from Doctor/nurse, 13% received medical care from TRA/herbalist/other, and 15 per cent received no medical care. Those who did not seek care from a health professional reported 'saw no need' or 'TBA could manage' as the main reason (39%), followed by transport problems (i.e health facility being too far or lack of transport -18%). Other reasons reported included opposition from husband/relatives (9%), services being expensive (6%), poor services (3%) and other reasons (24%).

The most commonly reported problems during delivery/pregnancy termination were prolonged labour, excessive bleeding and possible infection (Table 2). Although no problems were reported for the majority of deliveries, prolonged labour was reported in a significant proportion of cases (about one quarter). Symptoms of infection and haemorrhage were also reported in more than 10 percent of the cases.

Table 2 Problems experienced during labour/delivery /pregnancy termination

Problem experienced	Per cent$
Long labour, lasting more than 12 hours	25.3
Excessive bleeding, life threatening	11.2
High fever, foul smelling discharge	11.2
Convulsions not caused by fever	1.9
Headache	0.7
Abdominal pains	1.9
Other problems	3.0
No problems	61.7
No. of cases	269

$ percentages do not sum to 100 since some reported multiple problems

Among those who reported various problems during labour /delivery /pregnancy termination, 31 per cent sought treatment from a doctor/nurse, 18 per cent sought treatment from non-professionals (TBA -10%, herbalist-3%, other -5%), and the remaining 51 per cent did not seek treatment from anyone. The reasons given for not seeking medical care were: saw no need /TBA could manage (56.3%); Transport problems - facility too far or lack of transport (23.6%); services expensive (5.5%) and other reasons (14.5%).

In most cases, no problems were reported during the post-partum period, although there were indications of abdominal pains and malaria/headache being reported by significant proportions.

Table 3 Problems reported (non-probed) during 6 weeks following delivery /termination

Problem experienced	Per cent$
Abdominal pains	8.2
Malaria	4.8
Headache	4.1
Excessive bleeding	1.1
Other problems	8.9
No problems	76.6
Number of cases	269

$ percentages do not sum to 100 since some reported multiple problems

Among those who experienced post-partum problems, 35 per cent sought treatment from a doctor, 33 per cent sought treatment from non-medics (TBA /herbalist /other), and 32 per cent did not seek treatment from anyone.

Obstetric morbidity conditions during last pregnancy

Respondents were then asked whether they experienced specific obstetric morbidity conditions during their last pregnancy, labour /delivery /pregnancy termination, and the post-partum period .

Table 4 Percent who confirmed experiencing specific obstetric morbidity conditions during their last pregnancy, delivery or post-partum

Obstetric morbidity condition	Per cent$		
	During pregnancy	During Labour/ delivery	Post-partum period
Ill with high fever	27.2	8.5	8.5
Have swellings of the legs or face	20.7	3.8	0.5
Experienced blurred vision	31.9	8.0	4.7
Prolonged labour	-	17.4	-
Severe abdominal pain	35.7	-	6.6
Fits, not caused by high fever	0.9	0.0	0.0
Bleeding /haemorrhage	1.9	6.1	2.8
Foul-smelling discharge	2.3	1.9	1.9
Experienced Jaundice	-	1.4	0.9
Shortness of breath	11.7	9.4	2.3
Paleness	12.7	4.2	1.4
Other conditions	5.2	0.9	4.7
No problems at all	23.5	53.1	62.0
No. of cases	213	213	213

$ percentages do not sum to 100 since some reported multiple problems

The most commonly reported problems during pregnancy were severe abdominal pains (36%), blurred vision (32%), illness with high fever (27%) and swellings of legs or face (oedema – 21%). Other problems during pregnancy reported by at least 10 percent of the respondents included paleness and shortness of breath. Consistent with reports for all pregnancies, the most commonly reported problem at the time of delivery or pregnancy termination during the last pregnancy was prolonged labour (17%). Although the majority of respondents reported no problems during the post-partum period, there were indications that illness with fever, experience of blurred vision, shortness of breath and haemorrhage affected significant proportions during delivery and/or postpartum period.

- ***To what extent do adolescents experience multiple complications/ problems during pregnancy, labour/delivery or post-partum?***

Only about 20 per cent of the respondents reported no problems at all during pregnancy, delivery or post-partum period. Most (81%) experienced at least one obstetric morbidity condition, with the majority (59%) reporting multiple complications (Table 5).

Table 5 Reported multiple complications during pregnancy, delivery and post-partum

Number of complications	Percent	Cumulative percent (at least)
0	18.8	100.0
1	22.1	81.3
2	13.1	59.2
3	12.7	46.1
4	14.1	33.4
5	6.1	19.3
6	2.8	13.2
7	6.1	10.4
8	2.8	4.3
9	0.5	1.5
10	0.5	1.0
11	0.5	0.5
All cases	213	213

There was a high correlation between experience of complications during pregnancy and delivery or post-partum periods. Those who experienced problems during pregnancy were significantly more likely to do so during delivery or post-partum period. For instance, only 12 percent of those who experienced no problems during pregnancy reported one or multiple problems during delivery, compared to 32 percent of those who experienced one problem and 58% of those who experienced multiple complications during pregnancy. Similarly, those who experienced problems during delivery were highly likely to do so during the post-partum period. Only four percent of those who experienced no problems during delivery reported multiple complications during the post-partum period, compared to 29 percent of those who had experienced multiple complications during delivery.

- ***What factors are associated with experience of specific obstetric morbidity conditions?***

Experience of obstetric morbidity conditions by background characteristics

Table 6 gives the distribution of specific obstetric morbidity conditions by background characteristics of the respondents. Although there is no evidence of significant differences in the experience of most obstetric morbidity conditions by respondents age, the results suggest that the younger adolescents were significantly more likely to experience prolonged labour than their older counterparts. Almost 30 per cent of those aged under 16 years during their last pregnancy experienced prolonged labour, compared to less than 10 per cent of the 18-19 year olds. There were also indications that the younger adolescents were more likely to experience haemorrhage or infections (foul smelling discharge) than the older adolescents. The patterns for birth order are consistent with that of age, suggesting possible increased risk of prolonged labour, haemorrhage and infection for first pregnancies.

Table 6 Percent who experienced various obstetric morbidity conditions by background characteristics

Background Characteristic	Percent who reported condition during pregnancy, delivery or post-partum									Cases
	Fever	Oedema	Blurred vision	Abdo. pains	Prolo. Labour	Haemo-rrhage	Disch-arge	Short-ness of breath	Pale-ness	
Age group					**		*			
< 15 years	40.2	15.3	33.9	32.2	28.8	13.6	8.5	23.7	8.5	59
16-17	32.6	25.3	35.8	42.1	15.8	8.4	7.0	23.2	17.9	95
18-19	35.6	20.3	35.6	37.3	8.5	6.8	0.0	13.6	15.3	59
Birth order					*					
First	37.0	22.4	33.9	37.6	20.0	10.3	6.7	21.2	13.9	165
Higher	31.1	16.6	39.6	39.6	8.3	6.3	2.1	18.8	16.7	48
Wanted pregnancy?		**		**	*					
Yes	28.3	10.0	28.3	26.7	10.0	8.3	3.3	15.0	13.9	60
No	38.6	25.5	37.8	42.5	20.3	9.8	6.5	18.8	16.7	153
Marital status			*							
Married	35.3	25.0	41.4	39.7	17.2	11.2	4.3	18.1	14.7	116
Unmarried	36.1	16.5	27.8	36.1	17.5	7.2	7.2	23.7	14.6	97
Residence		***				*				
Urban	33.8	33.8	32.5	37.5	22.5	13.8	6.3	18.8	12.5	80
Rural	34.5	13.5	36.8	38.3	14.3	6.8	5.3	21.8	15.8	133
In school?								**		
Yes	38.2	19.1	29.4	33.8	23.5	5.9	7.4	29.4	17.6	68
No	34.5	22.1	37.9	40.0	14.5	11.0	4.8	16.6	13.1	145
Education										
None /pri.inc	35.1	21.2	33.8	41.1	15.9	8.6	7.3	22.5	15.2	151
Pri. Complete	37.1	21.0	38.7	30.8	21.0	11.3	1.6	16.1	12.9	62
All	35.7	21.1	35.2	38.0	17.4	9.4	5.6	20.8	14.6	213

*- Chi-Square $p<0.1$; ** - $p<0.05$; *** - $p<0.01$.

Pregnancy wantedness shows perhaps the most consistent pattern with the reported obstetric morbidity conditions. Unwanted pregnancies were consistently associated with higher experience of obstetric morbidity conditions, especially oedema, abdominal pains and prolonged labour. Although there is likely to be a strong association between marital status and wantedness of a pregnancy, with pregnancies among the unmarried being more likely to be unplanned, there is no evidence of higher obstetric morbidity experience among unmarried adolescents.

The experience of obstetric morbidity conditions does not show a strong association with socio-economic background characteristics, especially school attendance or educational attainment. However, adolescents residing in urban areas seem more likely to report oedema and haemorrhage than their rural counterparts.

Obstetric morbidity conditions and outcome of pregnancy

The patterns of obstetric morbidity conditions by pregnancy outcome are inconclusive, perhaps due to the small number of cases of pregnancy wastage. Despite the small numbers, there is some evidence that excessive bleeding was associated with pregnancy wastage (Table 7). Excessive bleeding was reported in four in ten pregnancies that ended in abortion or still birth, compared to less than one in ten of the pregnancies that ended in a live birth.

Table 7 Experience of specific obstetric morbidity conditions by pregnancy outcome

Column per cent

Obstetric morbidity condition	Outcome of pregnancy		
	Pregnancy wastage#	Premature delivery	Full-term delivery
Ill with high fever	46.7	37.2	33.0
Have swellings of the legs or face	6.7	19.1	25.2
Experienced blurred vision	46.7	35.1	33.0
Severe abdominal pain	46.7	43.6	32.0
Prolonged labour	6.7	20.2	16.5
Bleeding /haemorrhage ***	40.0	6.4	7.8
Foul-smelling discharge	6.7	6.4	4.9
Shortness of breath	33.3	17.0	22.3
Paleness	20.0	18.1	10.4
No. of cases	15	94	103

*- Chi-Square p<0.1; ** - p<0.05; *** - p<0.01.
$ percentages do not sum to 100 since some reported multiple problems
# percentages should be interpreted with caution since cases are too few

Understanding the context of obstetric morbidity among adolescents in South Nyanza

This section will explore the context of obstetric morbidity among adolescents in South Nyanza. Data from qualitative interviews will be used to better understand the context of obstetric morbidity within the study population. Particular attention will be placed on health seeking behaviour and barriers to essential obstetric care among adolescents in the study population.

Cases permitting, multivariate analysis (logistic regression) will examine the independent effect of specific background factors on maternal morbidity. By introducing specific background characteristics to the model in successive stages, the analysis will explore, for instance, whether the higher experience of prolonged labour among younger adolescents may be due to the fact that younger adolescents are more likely to experience first or unwanted pregnancies, both of which are associated with increased experience of prolonged labour.

A comparison of patterns of obstetric morbidity reported in the study population with those reported in similar studies elsewhere will provide an indication of the magnitude of the problem at the study setting, relative to other developing country settings.