Prevalence and Determinants of Self-reported Morbidity among Pregnant Women in Rural Areas of Pakistan

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Abstract:

Background **:** The maternal mortality ratio (MMR) in Pakistan is estimated at 400 maternal deaths per 100,000 live births. Prevalence of minor and major illnesses related with pregnancy and childbirth is much higher. However, most births in the rural areas take place at home, conducted by untrained traditional birth attendants. Data on the prevalence of maternal morbidity is, therefore, limited. Self-reporting of illnesses related with pregnancy and childbirth is generally considered as unreliable, as women's perception of the seriousness of the health problems is inadequate.

Method **:** The data were collected in a baseline survey that was conducted for an operations research project of the Ministry of Health, Government of Pakistan. The baseline survey comprised interviews with the ever-married women in the reproductive ages (15-49 years). For the selection of eligible women for the interview, a two-staged cluster random sampling procedure was applied. The response rate was 94.4% and interviews with 9,118 of the identified 9,655 females were successfully completed. The interviews were conducted by female interviewers having graduate degree or above. Completed questionnaires were edited and coded by a team of professional data editors.

Results : The prevalence of maternal morbidity in this study was 20%, which is considered to be high, although can be expected in this population. Nearly half of the women reported some kind of illness during pregnancy, which is also expected. This study also estimated that the unmet obstetric need among rural women was very high; this finding has policy implication, as the need for alternative and more operational indicators of maternal health is increasingly felt.

Conclusion : It is recommended that population-based studies and national surveys routinely incorporate well designed questions to elicit information on self-reported maternal morbidity; the same studies can also be used to identify the determinants of common obstetric problems and to estimate the unmet need of obstetric care.

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Pakistan is a developing country having high levels of pregnancy-related morbidity and mortality. The maternal mortality ratio (MMR) in the country is estimated at 400 maternal deaths per 100,000 live births. Prevalence of minor and major illnesses related with pregnancy and childbirth is much higher. However, most births in the rural areas take place at home, conducted by untrained traditional birth attendants. Data on the prevalence of maternal morbidity is, therefore, limited. Only the women having serious complications of pregnancy and childbirth are referred to a hospital; hence hospital records show only the tip of the iceberg.

Self-reporting of illnesses related with pregnancy and childbirth is generally considered as unreliable, as women's perception of the seriousness of the health problems is inadequate. [1] Even their perception about sickness and health in general has sometimes been called into question. [2] It is theoretically possible to ask, in a community survey, about major signs and symptoms associated with the commonest pregnancy-related illnesses, and try to use a computer algorithm to estimate the prevalence of these illnesses. There are many technical difficulties involved with this approach, including a lack of understanding of the local terms used for the various signs and symptoms. Nonetheless, this approach is the only viable option to estimate the prevalence and determinants of obstetric illnesses among rural populations of developing countries where access to health services is limited and medical record systems are imperfect. [3]

This paper presents the results of a community-based survey, conducted in 2003 in three rural districts of Pakistan, whereby women reporting a pregnancy during the last one year were asked about major signs and symptoms of common obstetric problems. Various combinations of the reported signs and symptoms were then entered into a computer program to identify the patterns associated with seven major obstetric complications, namely: anemia, hypertension, urinary tract infection, prolonged labor, vaginal tear, postpartum hemorrhage and puerperal pyrexia. Using logistic regression analysis, an attempt was then made to identify the biological determinants of these complications.

Methods

The data were collected in a baseline survey that was conducted for an operations research project of the Ministry of Health, Government of Pakistan. Sponsored by the UNFPA, this project aimed at improving maternal health indicators in three rural districts of Pakistan through health education to women and families, and better training of the Lady Health Workers (LHWs). The latter are the most peripheral health workers of the national primary health care program. Each LHW serves a population of 1000 (about 150 households). The LHW's main tasks are providing health and family planning education, prenatal, postnatal and newborn care, infant and child care and treatment of minor illnesses. LHWs are not trained to conduct deliveries, although some of them do. They are required to visit the woman immediately after delivery for providing newborn and postnatal care. They are also authorized to refer women to a hospital in cases of complications of pregnancy, childbirth or postpartum period.

The baseline survey comprised interviews with the ever-married women in the reproductive ages (15-49 years). For the selection of eligible women for the interview, a two-staged cluster random sampling procedure was applied. First, 60 LHWs were randomly selected from each of the three project districts. At the second stage, 50 households were randomly selected from the list of the household served by each selected LHW. The total number of households selected for the survey was thus 9,000. Because joint family system is common in the rural areas of Pakistan, some households included more than one eligible married couples; the total number of eligible women identified for interviews was 9,655.

The response rate was 94.4% and interviews with 9,118 of the identified 9,655 females were successfully completed. The major reason for failure to interview was non-availability of the eligible respondent at her home at the time of the visit of the interviewers.

The interviews were conducted by female interviewers having graduate degree or above. In each district, a team of three female interviewers worked under supervision of a male supervisor who was also responsible for the logistics, field editing of the questionnaires and quality of the data collected. The interviewers and supervisors had substantial previous experience of conducting field surveys. The female interviewers were given an intensive training of one week duration in

interview techniques and the questionnaire designed for the baseline survey. The questionnaire included questions on the household characteristics, age, marital status and duration of marriage and education of the eligible women and a short birth history of each woman. The women reporting a pregnancy during the preceding 12 months were given an extensive questionnaire asking about any illnesses during pregnancy, childbirth and the postpartum period. The signs and symptoms and duration of the reported illnesses were also recorded.

Completed questionnaires were edited and coded by a team of professional data editors. All data were entered into a computer database and was analyzed using SPSS for Windows. The groups of self-reported signs and symptoms associated with the seven commonest obstetric complications were identified as advised by an experienced obstetrician, as follows :

Results

A total of 9,118 ever married women of reproductive ages (15-49 years) were interviewed. Over 95% of the women were currently married at the time of the interview, while the remaining were either widowed or divorced or separated.

The mean age of the eligible women at the time of the interview was 36.5 years. Only 1% women were under 20 years of age, while 5.4% were between 20-24 years. A majority of women (51%) were in the age-bracket of 25-39 years, while about 25% were 45 years of age or older.

Only 25.9% women had received formal education, while the rest had never attended school. Among the literate, a little less than half (46%) had completed only primary education; 21.6% had completed secondary education, while 13% had post-secondary education. However, 60% of their husbands had received formal schooling, 24% having post-secondary education.

A little less than one fourth (23.7%) women had a pregnancy during the 12 months preceding the survey. Table (1) presents the

Pregnancy outcome	Percent
Live singleton birth	88.8
Live twin birth	1.3
Stillbirth	3.2
Miscarriage	5.9
Induced abortion	0.8
Total (n=2,157)	100.0

Table (1). Percentage distribution of women reporting a pregnancy during 12 months preceding the survey by pregnancy outcome

Birth attendant	Percent
Doctor	20.6
Lady Health Visitor (LHV)	8.7
Lady Health Worker (LHW)	1.4
Traditional birth attendant	56.1
Family member	9.0
Place of delivery	
Home	72.7
Government hospital	7.9
Private hospital	18.2
Total (n=1,915)	100.0

percentage distribution of these women by pregnancy outcomes.

The percentage distribution of live births by place of delivery and birth attendant is presented in Table (2).

Regardless of the outcome of their pregnancy, all women who reported a pregnancy that concluded during the previous 12 months were asked about the illnesses that they experienced during pregnancy, childbirth and postpartum period (n=2,157).

Interestingly, 75.5% of the pregnant women consulted a healthcare provider at least once during pregnancy for various reasons. However, only 13.6% women received adequate prenatal care, defined as three or more visits exclusively for seeking advice regarding pregnancy, to a qualified healthcare provider (doctor, nurse, LHV or LHW), the first visit being in the first trimester. About half of the women also reported some kind of problem during pregnancy, the commonest ones being lower abdominal pain (31.2%); followed by pallor, fatigue and weakness (26.3%); and severe vomiting (24.4%). Some of the other illnesses during pregnancy were fever, swelling over ankles, swelling over face, severe headache, shortness of breath and burning urine. The highest proportion of illnesses (32.5%) was reported during first month of pregnancy, which sharply declined in the second month to rise again during the seventh month (Fig. 1).

About 15% women experienced prolonged labor (labor pains lasting more than 12 hours), while another 9.5% had vaginal

Table (2). Percentage distribution of women reporting a live birth during 12 months preceding the survey by birth attendant and place of delivery.

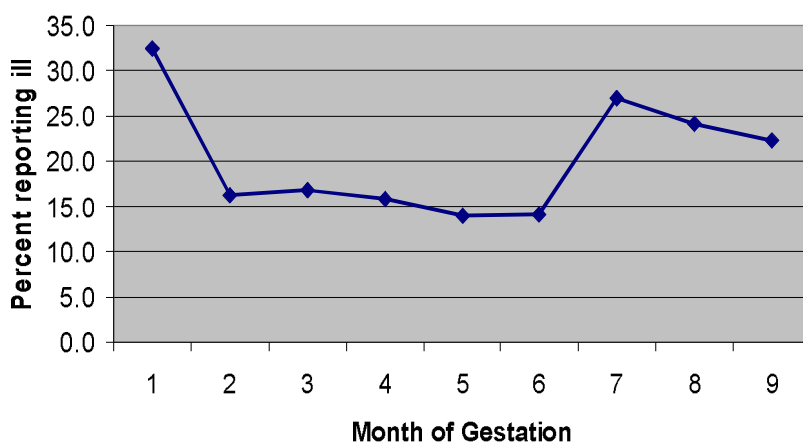| Birth attendant	Percent
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Fig. (1). Percent of women reporting an illness or health problem during pregnancy by month of pregnancy.

bleeding, 8.4% had delay in delivery of placenta, 6.5% experienced premature rupture of the membranes, and 1.1% reported a tear in the vagina. During the postpartum period, 37.3% women experienced high fever, 32% each had lower abdominal pain or severe weakness, 15% complained of excessive vaginal bleeding and 6% had foul vaginal discharge.

A little over 6% of women had a normal birth in a hospital, while 3.1% women were hospitalized for delivery through Cesarean section. Besides these women, another 4% were hospitalized some time during pregnancy, childbirth or postpartum period for treatment of an obstetric complication. The reasons for hospitalization included dilatation and curettage, assisted vaginal delivery, vaginal bleeding,

obstetric complication, the 'unmet obstetric need' in this population was approximately 13%.

Based upon the self-reported symptoms, seven clusters of symptoms – each defining an obstetric complication – were identified. Table (3) presents the frequency of these obstetric complications. Altogether, 20.2% women experienced these rather serious problems during pregnancy, childbirth or postpartum period.

Logistic regression models were used to identify the leading biological determinants of each of the seven obstetric complications thus identified. The models included age, parity, past history of stillbirth and an indicator of birth spacing during last five years as independent variables. The last two of these variables consistently stood out to be the most significant determinants of each of the

Table (3). Percent of women having obstetric complications identified on the basis of self-reporting of symptoms.

Obstetric complication	Percent
Anemia	4.5
Puerperal pyrexia	4.4
Hypertensive disease of pregnancy	4.3
Prolonged labor	3.3
Vaginal tear	1.3
Urinary tract infection	1.2
Postpartum hemorrhage	1.2

Table (4). Adjusted odds ratios and 95% confidence limits of the two outstanding biological risk factors of obstetric complications in three rural districts of Pakistan*.

Obstetric complication	Risk Factor	
	Past history of stillbirth	3+ pregnancies during last five years
Anemia	1.5 (1.2, 2.1)	2.8 (2.3, 3.6)
Puerperal pyrexia	1.3 (0.7, 2.9)	3.4 (2.7, 4.3)
Hypertensive disease of pregnancy	1.8 (1.3, 2.4)	3.0 (2.3, 3.8)
Prolonged labor	1.5 (1.0, 2.1)	3.2 (2.4, 4.2)
Vaginal tear	2.0 (1.2, 3.4)	3.2 (2.1, 4.9)
Urinary tract infection	1.7 (1.0, 3.0)	3.0 (1.9, 4.8)
Postpartum hemorrhage	2.5 (1.6, 4.0)	3.3. (2.2, 5.1)

prolonged labor and other obstetric complications. Since 20% women had experienced a serious

seven complications (Table 4).

Adjusted for age, parity, past history of stillbirth and 3+ pregnancies during last five years

using logistic regression models separately for each complication; see text for details.

Discussion

There are many studies on the prevalence and determinants of maternal mortality but precious little work has been done on similar lines on maternal morbidity. The main reason for this anomaly is the lack of adequate and precise information on obstetric morbidity. The use of self-reporting of obstetric illnesses and their management to measure the burden of obstetric complications in the population and the unmet need of obstetric care is relatively uncommon. Many researchers believe that women's perception of morbidity is less than precise to reliably measure these indicators. However, the use of easily identifiable and distinguishable symptoms reported by women in response to simple unbiased questions is justified in the absence of hospital data in developing countries where a majority of births occur at home. Clustering of the self-reported symptoms into clinically significant disease classes is a logical approach, which may be used to estimate the prevalence and the determinants of obstetric complications in the community.

In this paper, it is shown that self-reporting of obstetric illnesses may be useful in estimating the prevalence and determinants of maternal morbidity. The precision and reliability of self-reporting may be further enhanced through better developed questionnaires using local terminology and a combination of qualitative and quantitative methods. [4]

The prevalence of maternal morbidity in this study was 20%, which is considered to be high, although can be expected in this population. Nearly half of the women reported some kind of illness during pregnancy, which is also expected. This study also estimated that the unmet obstetric need among rural women was very high; this finding has policy implication, as the need for alternative and more operational indicators of maternal health is increasingly felt. (5,6) As expected, a majority of births took place at home and were conducted by traditional birth attendants. Women consulted a qualified healthcare provider only when they had a problem. Although a significant proportion of women visited a healthcare provider during pregnancy, very few received adequate prenatal care. Problems associated with pregnancy, childbirth and postpartum period were, therefore, recognized and referred later in the course of the illness.

It is recommended that population-based studies and national surveys routinely incorporate well designed questions to elicit information on self-reported maternal morbidity; the same studies can also be used to identify the determinants of common obstetric problems and to estimate the unmet need of obstetric care.

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