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Socio-demographic and reproductive health profile of women who experienced signs of obstetric fistula: Results from Pakistan Demographic and Health Survey (PDHS) 2006–2007

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ABSTRACT

Objective: to examine the socio-demographic profile of women experiencing signs of obstetric fistula and factors contributing to the development of this condition in Pakistan.

Methods: secondary data analysis of Pakistan Demographic and Health Survey 2006-07, which for the first time measured signs of obstetric fistula, using a questionnaire at a population level. For the present study, questions directly related to obstetric fistula signs were used to construct a dependent variable. Data were analysed by descriptive and logistic regression analysis, to examine factors associated with development of fistula.

Findings: among women of reproductive age (n = 9134, aged 15–49 years), some 277 (3.0%, 30 per 1000 women who ever gave birth) experienced obstetric fistula signs, whereas 103 (1.1% of all women) were still experiencing the condition at the time of survey. In a logistic regression model, women from the Punjab region (OR = 5.67, 95%CI = 2.10–15.31), women who delivered by caesarean section (OR = 1.91, 95% CI = 1.06–3.42) and reported having complications during pregnancy were more likely to develop obstetric fistula (OR = 1.96, 95%CI = 1.19–3.16).

Conclusions: Obstetric fistula is one of the neglected public and reproductive health concerns in Pakistan. To eliminate this preventable tragedy, there is a need for better emergency obstetric care facilities and the availability of a fistula repair service throughout the country.

Introduction

Globally, maternal morbidity and mortality are a critical public health concern, particularly in low socio-economic countries. In these countries, a large number of women become critically ill and disabled because of the complications they faced during pregnancy and child-birth. Worldwide, an estimated 300 million women suffer from pregnancy and child-birth related complications (DE Bernis, 2007). One of the most devastating examples of maternal morbidity is Obstetric Fistula. Obstetric fistula usually develops when a women undergoes a prolonged labour without receiving timely obstetric care. Clinically, obstetric fistula is a condition in which a hole is formed between the labouring mother's vagina and bladder and/or rectum due to restricted blood flow to these body parts during prolonged obstructed labour. As a result the women have uncontrolled leakage of urine or faeces and in severe conditions there is incontinence of both urine and feces (Bangser, 2006; Tebeu et al., 2012).

Each year an estimate of 50,000–100,000 women develop obstetric fistula worldwide (Tunçalp et al., 2015), in addition around two million women are living with an untreated condition. This condition has been more prevalent in Sub-saharan Africa and Asia, with the pooled incidence of around 1.13 per 1000 women of reproductive age calculated from community-based studies (Adler et al., 2013). In Pakistan where the gravity of maternal mortality and morbidity is alarming, an estimated 3500 cases of obstetric fistula occur every year (Srichand, 2016).

If left untreated, Obstetric fistula can lead to chronic health problems, such as skin infection, neurological disorders, renal failure or infertility (Koblinsky et al., 2012). Obstetric fistula negatively affects the health of both the mother and the baby, as the obstructed labour may result in stillbirth (Tebeu et al., 2012). Women who experience obstetric fistula not only suffer from serious medical problems, they

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also experience disastrous psychological and social effects (Ahmed and Holtz, 2007). Development of obstetric fistula changes the lives of the women completely and in most cases they never come back to their normal life routine again. Because of the resulting bad odour from the constant urinary and/or faecal incontinence, women suffer shame, depression, humiliation and social segregation. Women with fistula become isolated from friends and family and this may lead to divorce as well. In addition, as many of these women are not involved in any economically gainful activity become an economic burden on the society (Ahmed and Holtz, 2007; Wall, 2006).

Once it has developed Obstetric fistula, although preventable, can only be cured with surgery once it has developed. The developed world has long been able to prevent and treat obstetric fistula; however in developing countries, including Pakistan, this preventable morbidity stills affects a number of women. Previous epidemiological studies have identified different factors that contribute to the development of obstetric fistula which includes child marriage, risky traditional birth methods, and availability of poor antenatal care facilities (Tebeu et al., 2012; Polan et al., 2015). The incidence rate of fistula is higher at those places where access to obstetric care is limited. However, in developing countries poverty and malnutrition are considered as the root causes of fistula (Muleta, 2006; Odu, 2013). It is important to prevent and manage fistula in order to improve the maternal health status.

There are a number of social and economic factors that could lead to this miserable injury and also the condition is reflective of the quality of the health system. In Pakistan, limited data are available on this maternal morbidity and the available published research in the area of obstetric fistula mostly comes from hospital based studies and few from community studies. In addition, most of the available literature focuses on the surgical aspect. As there is paucity of population- based research, the current study was designed with the objective to determine the prevalence and potential factors contributing to the development of obstetric fistula using the data from 2006-07 Pakistan Demographic and Health Survey (PDHS).

Methods

Data set

The current study used data from the Pakistan Demographic and Health Survey (PDHS), 2006-07. So far in Pakistan, three demographic and health surveys were conducted in the years, 1990-91, 2006-07 and 2012-13. PDHS 2006-07 is the second nationally representative household survey conducted in Pakistan, and this survey was part of the international demographic and health survey (DHS) project. The survey was carried out by National Institute of Population Studies (NIPS), Islamabad, Pakistan with the technical and financial support from ORC Macro International Inc. Calverton, USA and the United States agency for International development (USAID) respectively. During the survey 10,023 women aged 12–49 were interviewed, to collect data on a variety of demographic and health (especially maternal and child health) related variables (NIPS, 2008).

Study design

Reported here is a secondary data analysis of the nationally representative household survey (PDHS 2006-07).

Study sampling and participants

PDHS used a stratified, two-stage random sampling method to obtained a nationally representative sample of over 95,000 households from Pakistan excluding the Federally administrated National Areas (FANA), Federally administrated Tribal areas (FATA) and restricted military areas. During the first stage 1000 clusters (390 and 610 sample points from urban and rural areas respectively) were selected. The second stage selected around 100,000 households using the systematic random sampling technique. Briefly, the survey provides a reliable estimate of the health and demographic parameters at national, urban, rural, and provincial levels (each as a separate domain). To minimize language barriers the survey was administered by trained interviewers in either Urdu (national language) or the regional languages, depending on the preference of household members. The survey followed a standard protocol and the same questions were used in all four provinces of Pakistan.

PDHS 2006-07, was the first and only nationally representative household survey conducted in Pakistan in which questions relating to obstetric fistula were included to collect information about this morbidity at a population level in the country. For this study, participants were ever married women (n = 9134), aged between 15 and 49 years who had given birth to at least one child (NIPS, 2008).

Measurements

Women experiencing signs of obstetric fistula was taken as the dependent variable for the study. The dependent variable was constructed using the response from the survey question specifically related to obstetric fistula. The question was asked of all the respondents. The question used for the study was, “Have you ever experienced a condition of continuous leaking of urine and/or faeces following childbirth?” The affirmative response was recoded as 1 indicating the signs of obstetric fistula condition, where as a negative and other responses was recoded as 0 and considered as not having obstetric fistula.

Independent variables were grouped into socio-demographic and reproductive health variables based on the evidence from the literature. Socio-demographic variables include the respondent's current age, place and region of residence, education level, household wealth index, age at marriage and parity. Reproductive health indicators consist of child size at birth, the number of antenatal visits, place of delivery, delivery by caesarean section, reported labour duration and reported complications during pregnancy. The Coding plan of the variables used in this study is given in Table 1.

Statistical analysis

Data were analysed using the softwares SPSS v16.0 and SAS v9.1. Descriptive statistics and logistic regression were used for analysis. Frequencies were generated for all categorical variables and study participant characteristics were compared with the signs of obstetric fistula using Chi-square (χ^2) test, and Chi-square test for trend for ordinal variables. Binary logistic regression analyses (Univariate and multivariate) were used to access the factors associated with the development of obstetric fistula.

Multicollinearity between all independent study variables were assessed before including them in a multivariable logistic regression model using SPSS software. Linear regression models, including all independent study variables, were run and collinearity diagnostics were assessed. Variables showing lack of multicollinearity between covariates were included in the multivariable logistic regression model. Based on the multicollinearity result the variable “Place of delivery” was excluded from the multivariable logistic regression model. Because of the high number of missing values (n = 9134, missing n = 6004, final n = 3130) for the variable ‘ labour duration’, this was also excluded.

A multivariate adjusted model was performed after excluding the missing data for some of the variables (n = 4026). However, additional analysis was performed to assess the possible impact of missing values before running the multivariate adjusted model. For additional analysis, study participants were divided into two groups, Group 1 (participants without missing values and included in the main analysis) and Group 2 (participants with missing information and excluded from the multivariate analysis). Comparisons have been made for all important