Prevalence and Predictors of Unintended Pregnancy in Pakistan: Findings from Pakistan Demographic Health Survey 2012-13

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Abstract

Purpose: Unintended pregnancies may carry serious consequences for women and their families, including unsafe abortion, delayed prenatal care, poor maternal mental health, and poor child health outcomes. There is limited data available on the prevalence and predictors of unintended pregnancy from Pakistan. Thus, the objectives of this study were to determine the prevalence and determinants of unintended pregnancy in Pakistan.

Description: This secondary data analysis was performed on data from the 2012-13 Pakistan Demographic and Health Survey (PDHS). A total of 3,756 women were included in the analysis. Multiple logistic regression analysis was performed to identify the predictors of unintended pregnancy.

Results: The prevalence of unintended pregnancy in Pakistan was 19.4% (95% CI: 18.2% - 20.7%). The multivariable model showed that women who were more than 35 years of age (AOR 7.7, 95% CI: 4.2 - 14.2); had past history of spontaneous termination of pregnancy (AOR 1.4 times 95% CI: 1.1 - 1.8), had an unplanned last born child (AOR 14, 95%CI: 10.1 - 19.2); who were illiterate (AOR 2.5, 95% CI: 1.4 - 4.6); and belonged to lowest quintile of SES (AOR 3 95% CI: 1.7 - 5.4) were more at Odds of having an unplanned pregnancy as compared to their counterparts.

Conclusion: The prevalence of unintended pregnancy in Pakistan was high. Older women, women with a history of termination of pregnancy, uneducated women, and women from poor socioeconomic strata were more likely to experience unintended pregnancies than their counterparts.

Keywords: *Unintended Pregnancy; Pakistan; Prevalence; Predictors*

Introduction

Annually, an estimated 80 million unintended pregnancies (both mistimed and unwanted) occur worldwide [1]. One out of ten pregnancies ends in unsafe abortion, most of which are unplanned [1]. Globally, the prevalence of unintended pregnancy ranges from 13.4% [2] to 46.2%.

Worldwide, from 1995 to 2008 the rate of unintended pregnancy declined from 69 to 55 per 1000 women (20% decline) [3,4]. This decline was seen greater in the high-income countries (29%) as compared to low and low-middle income countries (20%) [4]. The highest rates of unintended pregnancies occurred in Africa (86/1000 women) and the lowest rate occurred in Europe (38/1000 women). However, during the same time period in Pakistan, the incidence of unintended pregnancies increased from 71 to 93 per 1,000 women of reproductive age [4]. In 2012, out of nine million pregnancies, about 4.2 million were unintended and of these almost 54% resulted in induced abortions.

Different series of questions have been used in PDHS (Pakistan Demographic Health Survey) and DHS (Demographic Health Survey) to assess pregnancy intention of women of reproductive age group. The questions were, "At the time you became pregnant, did you want to become pregnant, did you want to have a baby later on, or did you not want to become pregnant at all?" The three allowed options were wanted (planned), wanted the pregnancy to happen later (mistimed) and did not want at all (unwanted) [6,7]. Studies from Africa reported that older, unmarried women, women of higher parity, uneducated women, and women from poor socioeconomic strata are more likely to experience unintended pregnancies than their counterparts [8-10].

Unintended pregnancies are an important public health issue both in developed and in developing countries. Unintended pregnancies pose a significant burden not only on the woman herself but also for the whole family and have a substantial long-term social and economic consequences for the whole society. It is a key risk factor for adverse pregnancy and maternal outcomes, mainly related to unsafe abortion [1,11,12]. Unintended pregnancy has also been linked to low utilization of maternal health care, especially family planning services, as well as providing obstacles to women's empowerment and adequate reproductive health rights in Pakistan [5]. There is a lack of evidence on prevalence and predictors of unintended childbirth from diverse socioeconomic and demographic contexts at the national level. This study intends to identify factors that are associated with an unplanned pregnancy to help policymakers and program designers in Pakistan for identifying cost-effective interventions to prevent unplanned pregnancies.

Methods

PDHS Survey methods

Data for this study were derived through online archives of the Pakistan Demographic and Health Survey (PDHS) 2012 - 2013 funded by the United States Agency for International Development (USAID) with technical and logistical support from MEASURE DHS project. PDHS was the third survey conducted in Pakistan under the umbrella of the global Demographic and Health Survey (DHS) program. The primary objective of the 2012-13 PDHS was to provide reliable estimates of key fertility, family planning, maternal, and child health indicators at the national, provincial, and urban and rural levels. The National Institute of Population Studies (NIPS) coordinated the design and selection of the sample with the Pakistan Bureau of Statistics (PBS). The sample for the survey provided representation from urban and rural areas of the four provinces and Gilgit Baltistan, as defined in the 1998 Population Census. A total of 72850 enumerations areas were used in the sampling frame. Of them, 26543 were urban enumerations areas and 46307 were rural villages/mouzas/dehs. In Urban areas, each enumeration block consisted of about 200 to 250 households on an average, which were further grouped into low-, middle-, and high-income categories. For this survey, a two-stage sample design was adopted. In the first stage, 500 primary sampling units (PSU) 248 urban areas and 252 rural areas were selected using a probability proportional to size sampling scheme. A fresh listing of households in the selected PSU was compiled by trained PBS staff. This new listing was carried out from August to December 2012. The second stage of sampling involved selecting households. At each sampling point, 28 households were selected by applying a systematic sampling technique with a random start. This resulted in 14,000 households being selected (6,944 in urban areas and 7,056 in rural areas). The overall response rate was 96.1%.

In the larger survey, four types of questionnaires: Household Questionnaire, Woman's Questionnaire, Man's Questionnaire, and Community Questionnaire, were used. The contents of the Questionnaires were adapted from measure DHS program [7]. For this analysis, data

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were extracted from the Woman's questionnaire [8]. Teams of trained data collectors comprising of a supervisor, a field editor, one male interviewer, and three female interviewers collected the data. NIPS recruited and trained the data collectors. Data quality was ensured by the supervisory staff that monitored the fieldwork.

In PDHS, a total of 14,569 ever-married women age 15 - 49 were identified in the 12,943 households interviewed (an average of 1.13 women per household) using a standard questionnaire. Of them, 13,558 ever-married women aged 15 - 49 were successfully interviewed, yielding a response rate of 93 percent. The principal reason for non-response among eligible women was the failure to find individuals at home despite repeated visits to the household. Response rates were lower in urban areas than in rural areas.

Variables

Outcome variable

The primary outcome of this study was the mother's pregnancy intention. This variable was based on the question "When you got pregnant, did you want to get pregnant at that time?" This question had binary responses (1-Yes, 2-No).

Independent variables

Several independent variables were considered including age of mother, parity (children ever born), educational status (no education, primary, secondary, or higher), place of residence (rural or urban), wealth index (poorest, poor, middle, richer, richest), if the pregnancy prior to the current one was desired (yes or no), history of termination of pregnancy (yes or no), currently breastfeeding (yes or no) and history of contraception use (yes or No).

Data analysis

The data were analyzed using IBM SPSS version 19. Logistic regression analysis was performed to determine the predictors of unintended pregnancy. Univariable analysis was carried out to calculate the crude odds ratio with 95% confidence intervals (CIs). Variables with Wald p-value of 10% at univariable analysis were kept in the multivariable model. The goodness of fit of the model was assessed using a Hosmer and Lemeshow test. Odds ratio (OR) and their corresponding 95% confidence intervals (CI) were presented. Multicollinearities were assessed between selected variables including age and parity and educational status and wealth index. The Variance Inflation Factor (VIF) of 10 and above or a Tolerance $(1-R^2)$ of close to zero was considered as an indicator of Multicollinearity.

Results

Demographic characteristics

A total of 3756 pregnant women were included in this analysis. The median age of these women was 30 years (interquartile range (IQR) 22, 38) with 18.4% < 25 years, 58.3% between 25 - 35 years and 23.3% > 35 years of age. About a quarter (25.6%) were resident of Baluchistan province, 20% of Punjab, 19.9% of Sindh, 18.8% of Khyber Pakhtunkhwa, 11.7% of Gilgit-Baltistan, and 4% were residents of Islamabad. The majority of participants (64%) resided in rural areas while the rest (36%) were urban residents. Furthermore, 70% had no formal education while 11.1% and 13% had primary education and secondary education, respectively. The median parity of women was 6 (IQR; 2, 10).

Prevalence of unintended pregnancy (Figure 1)

Nationwide, on an average, 19.5% of the study subjects reported their current pregnancies as unintended (95% CI: 18.2% - 20.7%). The prevalence of unplanned pregnancy was highest in the province of Baluchistan (36.2%; 95% CI: 32.8% - 39.7%) and was lowest in Gilgit-Baltistan (6.6%; 95% CI: 5% - 8.6%). Important factors associated with the greater prevalence of unintended pregnancy were

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women aged > 35 years (52.4%), those with median parity of 7, without formal education (77.8%) and those classified as poorest on wealth index (35.7%).
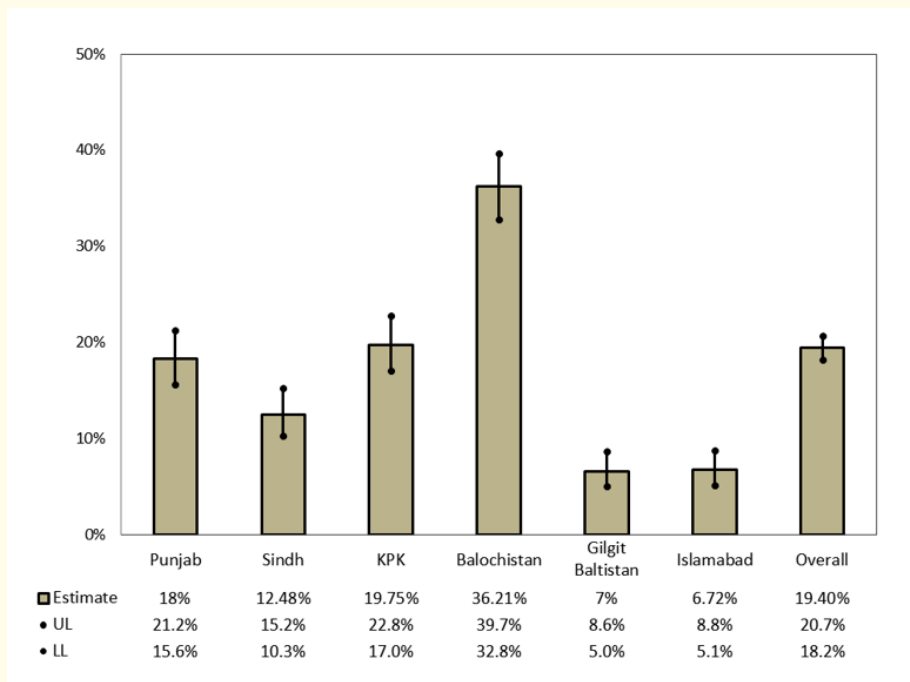

	Punjab	Sindh	KPK	Balochistan	Gilgit Baltistan	Islamabad	Overall
☐ Estimate	18%	12.48%	19.75%	36.21%	7%	6.72%	19.40%
● UL	21.2%	15.2%	22.8%	39.7%	8.6%	8.8%	20.7%
● LL	15.6%	10.3%	17.0%	32.8%	5.0%	5.1%	18.2%

Figure 1: Prevalence of unintended pregnancy in Pakistan.

Predictors of unintended pregnancy

Multivariable analysis showed the risk of unplanned pregnancy increased with increasing age; the odds of having an unintended pregnancy in women of 25 - 35 years was 3.7 (95% CI: 2.1 - 6.4) and in women of age > 35 years was 7.7 (95% CI: 4.2 - 14.2) compared to women of age < 25 years. Uneducated women were 2.5 (95% CI: 1.2 - 4.6) times more likely to have an unintended pregnancy as compared to women with higher education. Compared to the richest women, the poorest women were 3 (95% CI: 1.7 - 5.4) times more likely to have an unintended pregnancy. Women who terminated their last pregnancy were 1.4 times more likely to experience unintended pregnancy (95% CI: 1.1 - 1.8), women who did not want the last born child were 14 times more likely having an unintended pregnancy (95%CI: 10.1 - 19.2) as compared to those who wanted their last-born child. The Goodness of fit (Hosmer Lemeshow test) p-value was (0.782).

Determinants	Intended Pregnancy (n = 3027)	Unintended pregnancy (n = 729)	Crude OR	95% CI	
Age					
Mean Age	30.1±5.6	35.6 ± 5.6	1.2	1..1	1.3
< 25 years	22.2%	2.6%	1		
25 - 35 years	61.5%	45.0%	6.2	3.9	10.0
> 35 years	16.3%	52.4%	27.4	17.0	44.1
Parity	4.3 ± 2.3	6.9 ± 2.3	1.5	1.4	1.6
Province					
Punjab	20.4%	18.2%	1		
Sindh	21.7%	12.5%	0.6	0.5	0.9
Khyber Pakhtunkhwa	18.6%	19.8%	1.2	0.9	1.5

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Balochistan	23.1%	36.2%	1.8	1.4	2.2
Gilgit Baltistan	12.9%	6.6%	0.6	0.4	0.8
Islamabad (ICT)	3.3%	6.7%	2.3	1.5	3.4
Area					
Urban	37.1%	31.6%	1		
Rural	62.9%	68.4%	1.3	1.1	1.51
Education					
Higher	6.3%	4.3%	1		
Secondary	14.1%	8.4%	0.9	0.6	1.4
Primary	11.4%	9.6%	1.2	0.8	2.0
No education	68.2%	77.8%	1.7	1.1	2.5
Wealth Index					
Richest	12.6%	6.0%	1		
Richer	14.5%	16.0%	2.3	1.6	3.4
Middle	17.8%	16.3%	1.9	1.3	2.8
Poorer	24.0%	25.9%	2.3	1.6	3.2
Poorest	31.2%	35.7%	2.4	1.7	3.4
Currently breastfeeding					
No	76.2%	72.0%	1		
Yes	23.8%	28.0%	0.8	0.7	1.0
Ever had a terminated pregnancy	44.0%	60.1%	1.9	1.6	2.3
Last Child Wanted					
Wanted	97.5%	59.1%	1.00		
Wanted no more	2.5%	40.9%	27.2	20.4	36.3
Not using contraception	62.4%	64.3%	1.1	0.9	1.3

Table 1: Comparison and univariable analysis of determinants of unintended with an intended pregnancy.

Determinants	OR	95% CI	
Age			
< 25 years	1		
25 - 35 years	3.7	2.1	6.4
> 35 years	7.7	4.2	14.2
Parity	1.2	1.1	1.3
Place of residence			
Urban	1		
Rural	1.1	0.8	1.4
Education			
Higher	1		
Secondary	0.9	0.6	1.3
Primary	1.3	0.8	1.9
No education	2.5	1.4	4.6
Wealth Index			
Richest	1		
Richer	3.6	2.1	6.3
Middle	2.9	1.7	5.0
Poorer	1.9	1.1	3.2
Poorest	3.0	1.7	5.4
Ever had a terminated pregnancy	1.4	1.1	1.8
Last Child Wanted			
Wanted	1		
Wanted no more	13.9	10.1	19.2

Table 2: Multivariable analysis of determinants of unintended pregnancy.

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Discussion

The prevalence of unintended pregnancy was 19.5% in this nationally representative sample. This prevalence of unintended pregnancy suggests the large unmet need for family planning. Women's age, parity, educational level, socioeconomic status, termination of last pregnancy, and unintended pregnancy of their last child are independent predictors of unintended pregnancy among married Pakistani women of reproductive age.

Women with no education also experienced higher rates of unintended pregnancy than women with higher education. Prior studies support the finding that increased education has a positive effect on female empowerment, reproductive health, and maternal health. Furthermore, female education is considered as the most significant investment that can be made in the developing world. Studies have also shown that more educated women usually have more knowledge about the use and benefits of contraceptives, which helps them in planning their families. For example, improved levels of education enable women to contribute economically, socially, and politically to their nation's development, promote smaller family size, and lead to the improved health status of the children. Furthermore, women with education usually have their first sexual experience later, marry later, want smaller families, and are more likely to use contraception than less educated women, thus experiencing less unintended pregnancies. Some of these studies suggest that as the woman's educational status increases, the chances of unintended pregnancies decrease [13,14] while the other shows either no significant association [15,16] or significant positive association with unintended pregnancy [17,18]. Therefore, increasing the level of education among women may be one effective strategy to promote contraceptive use and a subsequent reduction in unintended pregnancies in countries like Pakistan.

Of note, women living in urban areas have greater access to modern family planning methods as compared to those who are living in rural areas, which results in increased unintended pregnancy rates in rural, as compared to urban, areas [15]. In a study from rural Pakistan, the reported prevalence of unintended pregnancy was 33.8%.

Higher socioeconomic status was associated with less likelihood of unintended pregnancy. Wealthier women likely have greater access to providers, educational information, and can afford contraceptive methods. Therefore, the burden of unintended pregnancies is concentrated in socially disadvantaged women, which is supported by the literature as well [15,19-22].

Few studies have examined the relationship between the intent of the last pregnancy and an intention for future pregnancy. In this study, the data showed that if the last child was the result of unintended pregnancy, this was associated with an increased likelihood of unintended pregnancy. This finding can be explained by the fact that the women who did not want to have a child in the past might not want more children in the future either, resulting in unintended pregnancy.

Limitation of the Study

This study has some limitations. First, the surveyor asked about the experiences of the past five years leading to recall bias that may lead to over or underestimation; Second, despite the statistical association between independent and outcome variables causality cannot be established. Another limitation of this study is that information was not collected on factors, such as accessibility and availability of health facilities at the village level that might influence the relationship between pregnancy intention status.

Conclusion

In conclusion, this study found a high prevalence of unintended pregnancy in Pakistan. Age, education, socioeconomic status and intention of the last child are predictive of unintended pregnancy. The study results are critical and raise the need for programs and strategies to improve the availability and accessibility of family planning services, which is crucial for reducing unintended pregnancy among the study population. Increased access should be accompanied by an improvement in the quality of care and the availability of information about the effective utilization of family planning methods.

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