



Unintended Pregnancy in Iran: Prevalence and Risk Factors

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Abstract

Objectives: Unintended pregnancy, as one of the main issues in reproductive health, is defined as a mistimed or unwanted pregnancy all over the worlds. This study aimed to determine the prevalence and risk factors of unintended pregnancy among Iranian women.

Materials and Methods: As part of a survey on twin or multiple pregnancies in Tehran, Iran, this cross-sectional study considered a total of 5152 deliveries in 103 hospitals during 2015. The required data were gathered at the time of delivery or within the next 2-3 days from physically unstable women. The sampling was carried out within two weeks. All women, regardless of method of delivery, being primiparous or multiparous, and pregnancy outcome were included in the study.

Results: According to the results, the prevalence of unintended pregnancy in Iran was estimated 19.81%. Based on univariate analysis, the mean age of mothers, the mean age of fathers, number of pregnancies, and number of deliveries in unintended pregnancies were significantly higher than those in intended pregnancies. In addition, the prevalence of unintended pregnancy among housewives, as well as women with low levels of education and income was high. According to multiple logistic regression analysis, economic status and number of deliveries were the main predicting factors of unintended pregnancy.

Conclusions: In general, the prevalence of unintended pregnancy in Iran is lower than that in other countries. However, preventive actions and health education programs still should be undertaken for mothers in order to minimize the prevalence of unintended pregnancies, thereby reducing the consequences for mother and baby.

Keywords: Unintended pregnancy, Risk factors, Iran

Introduction

Unintended pregnancy, as one of the major issues in reproductive health, is defined as a mistimed or unwanted pregnancy worldwide, especially in low-income countries (1,2).

It can cause serious consequences for mother, baby, family, and even the community (3,4). Unsafe and induced abortions, delayed and inadequate antenatal care, higher risk of mental health problems such as postpartum depression, and high maternal morbidity and mortality are some important problems experienced by mothers with unintended pregnancy (2,3,5-11). Furthermore, poor nutrition, low birth weight, mental retardation, physical and mental problems, low Apgar score, inadequate vaccinations, and more neonatal and infant mortality rate are child health outcomes of unintended pregnancy (2,3,7,8,12,13).

Based on the results of studies conducted in different parts of the world, the reported prevalence of unintended pregnancy varies from 23.5% in Ethiopia (3) to 55.4% in Brazil (1). The prevalence also varies in Iran, from 16% to 61% (14,15), to such a degree that based on the results

of a meta-analysis as well as nationwide studies, this prevalence is 30% to 35% (12).

Wide range of factors including non-use or inappropriate use of contraceptive methods, socioeconomic status (SES), age, number of previous children, marital status, and education level are associated with unintended pregnancy (16-18).

Despite the importance of the issue, few studies have addressed it in Iran; therefore there is a need to comprehensively analyze the issue on a large sample size and determine different risk factors. Considering the abovementioned, the aim of this study was to determine the prevalence, as well as demographic and socioeconomic risk factors of unintended pregnancy among Iranian women.

Materials and Methods

Being part of a survey on twin or multiple pregnancies in Tehran, Iran, this cross-sectional study considered 5152 deliveries in 103 hospitals during 2015. In this regard, all women, regardless of method of delivery, being primiparous or multiparous, and pregnancy outcome were

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included in the study. Furthermore, data were gathered from medical centers owning obstetrics and gynecology wards. The data were collected at the time of delivery or within the next 2-3 days from physically unstable women, and 103 trained midwives or nurses were responsible for data collection. The sampling was carried out during a period of two weeks. More details about design and methodology of this project are reported elsewhere (19-22).

In this study, the interested outcome was unintended pregnancy that was self-reported by the women under the study. Out of 5170 pregnancies, 5152 cases were included since the status of unintended pregnancy was not obvious in 18 cases.

The economic status is assessed through three popular methods including asset-based, consumption expenditure, and income (23,24). In this study, we used asset-based approach to calculate the economic status of pregnant women. According to this method, the cases were asked about having some assets at their home, including vacuum cleaner, handicraft carpet, three-dimensional TV, side-by-side refrigerator, a microwave, laptop computer, freezer, dish washing machine, private car, smart phone, area of residence, and the number of rooms. Principal component analysis (PCA) was used to compute the score of the economic status of participants.

The goals of the study were obviously described to all women, at the commencement of the study. Moreover, privacy and secrecy of eligible women were guaranteed. They were also assured that they could withdraw at any time of the study. Furthermore, unwritten informed consent was obtained from all subjects prior to the beginning of the study.

Statistical Analysis

Continuous and categorical variables were displayed as mean (standard deviation) and frequency (percentage), respectively. In addition, chi-square test, Fisher exact test, 2 independent *t* test, and logistic regression were used to analyze the data. Moreover, to examine the efficacy of the logistic regression models, Akaike information criterion (AIC) of models was calculated, and the final model was determined according to the lowest AIC. All statistical analyses were done using Stata software (Version 13.0; Stata Corp LP, College Station, TX Stata). Finally, *P* value less than 0.05 was considered as the significance level.

Results

In the present study, 5152 pregnancies were included. According to the results, the prevalence of unintended pregnancy was 19.81% ($n=1021$, 95% CI: 18.75-20.92%). The mean age of participants was 29.23 years (95% CI: 29.08-29.38 years), and the mean ages of women in intended and unintended pregnancies were 29.00 (S.D: 5.35) and 30.10 (S.D: 5.75) years, respectively. More demographic and clinical comparison are provided in

Table 1. Comparison of Interested Variables in Intended and Unintended Pregnancies

Variables	Intended	Unintended	P
Maternal age, mean (SD)	29.00 (5.35)	30.10 (5.75)	0.001
Paternal age, mean (SD)	33.33 (5.77)	34.56 (6.37)	0.001
No. of pregnancies, mean (SD)	1.15 (0.98)	1.72 (1.17)	0.001
No. of deliveries, mean (SD)	0.81 (0.75)	1.39 (0.97)	0.001
History of miscarriage, No. (%)			0.103
Yes	809 (78.39)	223 (21.61)	
No	3322 (80.65)	797 (19.35)	
History of recurrent miscarriage, No. (%)			0.548
Yes	29 (76.32)	9 (23.68)	
No	4100 (80.22)	1011 (19.78)	
Mother's occupation, No. (%)			0.008
Housewife	3580 (79.64)	915 (20.36)	
Employed	540 (83.98)	103 (16.02)	
Mother's education, No. (%)			0.001
Illiterate	146 (72.64)	55 (27.36)	
Under diploma	894 (74.19)	311 (25.81)	
Diploma	1639 (79.68)	418 (20.32)	
College degree	1430 (85.83)	236 (14.17)	

Table 1. As shown in Table 1, the mean age of mothers ($P=0.001$), the mean age of fathers ($P=0.001$), number of pregnancies ($P=0.001$), and number of deliveries ($P=0.001$) in unintended pregnancies were significantly higher than those in intended pregnancies. Moreover, compared to employed women (16.02%), unintended pregnancy was more prevalent among housewives (20.36%) ($P=0.008$). In terms of mothers' education level, unintended pregnancy was more common among women with low education levels ($P=0.001$).

Moreover in this study, concentration index was measured to assess the relationship between economic status and unintended pregnancies. According to the results, women with a lower economic status were more prone to experience unintended pregnancies. Concentration index was -0.082 (95% CI: -0.114 to -0.050).

Multiple logistic regression (with the lowest AIC) showed that after controlling the confounding effect, a significant relationship was found between SES ($P=0.012$) and the number of deliveries ($P=0.001$) with the unintended pregnancy. As depicted in Table 2, an increase in economic status score caused a significant decrease in the odds of unintended pregnancy (adjusted OR: 0.936, 95% CI: 0.889-0.986), and for raising the number of deliveries by 1 unit, the adjusted odds of unintended pregnancy had a 2.17-time increase (95% CI: 1.794-2.647).

Discussion

In the present study, the prevalence of unintended pregnancy in Iran was estimated 19.81%. Furthermore,

Table 2. Adjusted Odds Ratio for Assessing the Relationship of Independent Variables With Unintended Pregnancy

Wanted	Odds Ratio	Standard Error	Z	P Value	95% CI	
Maternal age	0.996	0.012	-0.350	0.730	0.974	1.019
Paternal age	0.986	0.010	-1.390	0.166	0.967	1.006
Mother's occupation	1.262	0.185	1.590	0.113	0.947	1.682
Economic status	0.936	0.025	-2.510	0.012	0.889	0.986
No. of pregnancies	1.136	0.091	1.590	0.112	0.971	1.329
No. of deliveries	2.179	0.216	7.850	0.000	1.794	2.647
History of miscarriage	0.881	0.123	-0.910	0.362	0.671	1.157
Mother's education	1.074	0.071	1.070	0.284	0.943	1.223

according to univariate analysis, the mean age of mothers, the mean age of fathers, number of pregnancies, and number of deliveries in unintended pregnancies were significantly higher than those in intended pregnancies. Moreover, unintended pregnancy among housewives was more prevalent than that among women with low education level and low economic status. Accordingly, based on multiple logistic regression analysis, economic status and number of deliveries, after controlling the confounding effect of other variables, were the main predicting factors of unintended pregnancy.

Our review of the literature found that there is some variation among countries in terms of reported prevalence of unintended pregnancy; as for instance, the prevalence is lower in Iran compared to other countries. Likewise, the prevalence was reported to be 23.5%-27.1% in Ethiopia (3,25), 35.9% in South-Western Nigeria (22), 27% among Canadian women (26), and 45% among married women in Kenya (16). Furthermore, the experience of one unintended pregnancy was 40% in Australia (27), and also only 44.4% of 4244 pregnancies were planned in Mchinji, Malawi District (28). In rural areas of India, unwanted and mistimed births were reported to be 27% and 12%, respectively (7). Accordingly, unintended pregnancies were mostly reported in America (51%), Democratic Republic of the Congo (51.4%), and Brazil (55.4%) (2,29). In comparison with these reported prevalence rates, our study found lower prevalence of unintended pregnancy.

Based on previous studies conducted in different parts of Iran, the prevalence of unintended pregnancy varies from 16% to 61% (1,14,15). While according to the results of the meta-analyses, as well as nationwide studies, this prevalence is 30% to 35% (12), though it is slightly higher than the result of our study. These differences in the reported prevalence of unintended pregnancy in studies may be attributed to the variation in study setup, population characteristics, and sample size. In addition, unwanted pregnancy is not measured with one mere specific method around the world (30).

One reason for low prevalence in our study possibly was the characteristics of our study population, as we included only married women, while review of the literature

outlined that unintended pregnancy was high among unmarried women (1,3,26,31).

Given that unwanted pregnancy has many complications for the mother and the baby (3,4), and imposes a lot of costs on society (32), it should be managed with regard to health planning and family planning (33,34). Even running educational programs around health literacy in preventing unwanted pregnancy are of considerable importance (30,35).

Our study revealed that unintended pregnancy was more prevalent among housewives, less educated, and poorer women, these findings were in line with those of local and international studies (11,26,36,37). In a study by Cheraghi et al in Iran, the prevalence was high among housewives and low-educated women (18). Moreover, in the study of Hall et al in Malawi, the prevalence of unintended pregnancy was low among women of higher SES (28). Generally, SES is regarded as one of the main determinants of health (23).

In our study, the prevalence was high in older age groups; hence, the number of deliveries was one of the main predictors of unintended pregnancy. These findings are consistent with previous researches in Iran, as well as other countries (11,17,18,26). The justification for this finding could be that, older mothers had delivered all intended number of children before and don't want anymore. Based on a case-control study in Iran, number of previous alive children was the main predictor of unintended pregnancy (18). In contrast, some studies reported high prevalence of unintended pregnancy in young age groups (1,16,26).

Strengths and Limitations

The main strength of the present study was high statistical power because of sample size. In addition, consideration of important risk factors such as economic status and its estimation using the PCA method was other strengths of the study. The main limitation was that only married women were included in the study.

Conclusions

To conclude, the prevalence of unintended pregnancy was estimated to be 19.81% in Iran, and economic status and

number of deliveries were the main predicting factors. Moreover, it was found that the prevalence of unintended pregnancy in Iran was lower than that in other countries. However, it is recommended that preventive actions, as well as health education programs still should be undertaken for mothers in order to minimize the prevalence of unintended pregnancy; thereby reducing the consequences for mother and baby.

Conflict of Interests

Authors declare that they have no conflict of interests.

Ethical Issues

The Ethical Committee of Royan Institute, Tehran, Iran, approved this study (Ethical code: 91000357).

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