



Unwanted Pregnancy and its Influencing Factors in the Northeast of Iran

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Received: 26 July 2015

Accepted: 22 November 2015

Abstract

Background: Unwanted pregnancies and their complications are one of the major problems facing women in the world. This study aimed to determine the factors that affect unwanted pregnancy in the population covered by the Shahrood University of Medical Sciences in 2013.

Methods: In this case-control study, 116 cases and 251 controls were randomly selected from those who referred to health care centers and they were studied. The data were analyzed using Univariate and multivariate logistic regression analysis.

Results: The mean age of the participants was 27.6±5.8 years and the average age of husbands was 31.8±6.2 years. Average number of parity was 1.2±1.2 and the number of children born alive was 1.2±1.1 and the average distance between the last and the current pregnancy (interval birth) was 32.4±37.7 months. Multivariate analysis of the data from the final model of the study showed that the use of non-secure methods of pregnancy prevention, rural residence, low education of the mother and the age of the last living child were the main risk factors of unwanted pregnancies ($P < 0.05$).

Conclusions: Encouraging qualified women to make use of reliable contraceptive methods specially more permanent methods and encouraging them to get the contraceptive devices from health care units with emphasis on proper training and regular retraining of clients, paying more attention to awareness raising of women in rural areas, and having appropriate birth spacing can be effective in reducing unwanted pregnancies.

Keywords: Unwanted childbearing, Unplanned childbearing, Unwanted pregnancy, Pregnancy, Iran.

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Please cite this paper as: Chaman R, Khosravi A, Norozi Khiabani M, Amiri M. Unwanted pregnancy and its influencing factors in the North East of Iran. Int J Health Stud 2015;1(2):14-17. doi: 10.7508/ijhs.2015.02.04

pregnancies may lead to unsafe abortions. Each year, approximately 20 million unsafe abortions occur worldwide, resulting in the deaths of 60 to 100 thousand mothers.⁶⁻⁸ Of these, 75% occur in developing countries, leading to the deaths of more than 200 women each day.⁵

According to some studies, one out of every four pregnancies in this country is unwanted. This means that unwanted pregnancies lead to approximately 250 thousand unwanted births each year⁹ as well as 80 thousand abortions.⁸ Septic abortion after an unwanted pregnancy is one of the five major causes of maternal mortality.¹⁰ Unwanted pregnancies increase the incidence of induced abortion, low birth weight, delayed prenatal care, and increased physical and mental side effects for the mother and the child. They also impose a financial burden on national health care.¹¹

The incidence of unwanted pregnancy has been reported in Vietnam (40%), Guatemala (32%), Nigeria (20%-28%), and Egypt (23.6%).¹²⁻¹⁵ In the United States it has been reported in various studies as between 11.4% and 50%.^{16,17} The results of a study conducted to determine the rate of unintended pregnancy in pregnant women who referred to health care centers in Tehran showed the rate was 31%. Among all pregnancies, 22% were unwanted by both parents, 3.7% were wanted by the women but unwanted by the spouse, and 5.3% were unwanted by the woman but wanted by the spouse.⁹ In other studies, the rate of unintended pregnancy was reported to be 34.9% in Kerman,¹⁸ 35.8% in Mashhad,¹⁶ 42% in Najaf Abad,¹⁹ 26.6% in Bandar Abbas,²⁰ and 60.7% in Ardebil.⁸

Various factors influence the incidence of wanted pregnancies, including lack of use of contraceptive methods, their failure when used, lack of knowledge as to their correct use, and social and cultural factors. Risk factors include age, number of pregnancies, low birth interval, and unhealthy behaviors such as delay in receiving prenatal care, tendency to abortion, etc. If these coincide with unwanted pregnancy, the threat to the health of mother and child is increased.^{19,21}

Given the importance of this issue, the current study aims to determine the factors influencing unwanted pregnancies in Shahrood, located in northeast Iran.

Materials and Methods

This case-control study was conducted with 367 married women aged 15 to 49 years old, 116 of whom were included in the case group. To increase the power of the study, twice this many (N=232) were included in the control group. Because of the probability of attrition in the control group, a larger number of

Introduction

Unwanted pregnancy is one of the most important public health and social issues related to family planning and reproductive health. It involves serious risks to the physical, psychological, and social wellbeing of the mother and child, as well as the health of the family and the society.¹ It may occur regardless of race and social or economic status.² "Unwanted pregnancy" refers to any pregnancy that is considered unwanted by one or both parents³ and to untimely pregnancies that occur before expected by the parents.⁴

Of the approximately 210 million pregnancies that occur annually worldwide, around 38% are unwanted. Of this number, 76 million occur in developing countries. Unwanted pregnancies occur for two reasons: failure to use contraceptive methods, and failure of contraceptive methods when they are used.⁵ Unwanted

participants (N=251) in urban and rural health care centers and health homes were studied. The members of the case group were pregnant women whose pregnancies were either unplanned or considered unintended by the parents. The cases were women who had first been referred to the health care center in 2013 and despite the use of contraceptives had unintentionally become pregnant. The sampling method used in selecting cases in rural areas was the total enumeration method. The source population of the control group was women who had been using a contraceptive method before or during their periods and did not become pregnant. Members of the control group were randomly selected from the population of the same health care center after using the first part of the Family Planning Document to screen for eligibility. The required data were collected through data collection forms, including a researcher-written questionnaire. The suitability and face validity of the questionnaire's content were confirmed by experts. Part of the required data was also extracted from household files, and part was obtained through interviews. It should be noted that some of the required data were not available in the household files of the two groups and were obtained either over the telephone or when the mothers next visited the health care center. Data collection was done using a questionnaire including a number of questions regarding maternal and marital age, education level of the mother and her husband, work status of the woman, spouse's occupation, number of living children, last contraceptive method used prior to the recent pregnancy, number of parity, the interval between the last and the current pregnancy (months), the age of the last child in years, household income, place of residence (rural/urban), and source of contraceptive devices.

Data analysis was performed using logistic regression, and crude and adjusted odds ratios were calculated. After doing the descriptive analysis of the variables and comparison of the mean

scores with t test, crude odds ratios for each of the risk factors in the univariate analysis were separately calculated, and all variables with at least one layer at a significance level of less than 0.2 were entered into the full model. Multivariate analysis was then conducted using a forward stepwise logistic regression analysis. In this type of analysis, the variables are added to the full model one at a time in order of importance until the final model is formed with a set of important variables. At the end of this stage, variables with a level of significance lower than 0.05 are selected as having a significant statistical relationship with unwanted pregnancy.

Results

The mean age of the participants was 27.6 ± 5.8 years, and the mean age of their husbands was 31.8 ± 6.2 years. The couples were married, on average, for 6.9 ± 5.8 years. The mean number of pregnancies was 1.5 ± 3.0 , the mean number of parity was 1.2 ± 1.2 , the mean number of children born alive was 1.2 ± 1.1 , and the average interval between the last and the current pregnancy was 32.4 ± 37.7 months (Table 1).

The results of logistic regression showed that with a significance level of less than 0.05, there existed a significant statistical difference in the odds in unintended pregnancy between the case and control groups with respect to the following variables: mother's education, spouse's education, spouse's occupation, number of previous pregnancies, contraceptive methods used, and place of residence. No significant statistical difference existed between the two groups in other variables such as mother's age, mother's occupation, number of living children, and place where contraceptive devices were received ($P < 0.05$). Table 2 shows the results of the logistic regression.

Table 1. Mean values of some variables in the case and control groups

Variable	Case (Intended Pregnancy)	Control (Unwanted Pregnancy)	t-test
	Mean \pm SD	Mean \pm SD	
Mother's age	27.3 \pm 5.5	28.4 \pm 6.4	0.07
Spouse's age	31.5 \pm 5.9	32.6 \pm 6.8	0.09
Years of being married	6.4 \pm 5.5	7.9 \pm 6.3	0.02
Number of pregnancies	1.2 \pm 1.4	2.2 \pm 4.9	0.004
Number of parity	1.1 \pm 1.2	1.5 \pm 1.2	0.001
The interval between the last and the current pregnancy (months)	28.9 \pm 33.4	40.1 \pm 44.8	0.006
Number of living children	1.1 \pm 1.1	1.4 \pm 1.1	0.003
The age of the last child in years	3.1 \pm 1.8	3.5 \pm 1.4	0.045

In multivariate logistic regression analysis, the mother's having more than 12 years of education (OR=0.33, 95% CI (0.12-0.94)), age of the couple's last child, contraceptive method, and place of residence (rural vs. urban) were the most important factors affecting unintended pregnancy. Results indicated that with an increase in the education of mothers in the case group, the risk of unwanted pregnancy decreased compared to the illiterate layer. In other words, we can say that as the mother's education increased, the odds of unintended pregnancy in the case group as compared to the control group decreased. Also, regarding the variable of the last child's age, the layer whose children were less than one year old had the highest chance of unintended pregnancy compared to the control group, and the layer whose children were more than three years old had the least chance of unwanted pregnancy compared to the control group. The highest chance of

Table 2. Results of univariate analysis of risk factors studied in the two groups

Variable	Odds ratio (OR)	95% CI	P
Mother's age	1.4	0.8-2.3	0.26
Mother's education	0.7	0.51-0.99	0.04
Mother's occupation	0.67	0.32-1.4	0.29
Spouse's education	0.78	0.64-0.94	0.01
Spouse's occupation	1.3	1.1-1.6	0.01
Number of previous pregnancies	1.7	1.2-2.4	0.004
Number of living children	1.07	0.7-1.6	0.7
Household's income (More than 4,000,000 R)	0.7	0.45-1.2	0.2
Contraceptive method	1.2	1.1-1.3	0.001
Place of receiving contraceptive devices	1.0	0.9-1.1	0.8
Place of residence	2.0	1.3-3.2	0.003

unwanted pregnancy in the variable of contraceptive method was found in the layer of 'other methods' which included interrupted and was insecure methods. Finally, in the variable of place of residence, the greatest risk of unwanted pregnancy was found in the layer of rural (Table 3).

Table 3. Multivariate analysis of risk factors discussed in the two groups

Variable	OR	95 % CI for OR	P- V
Education of mother			
- Less than 8 years			
- 8-12 years	1.45	0.86-2.6	0.2
- More than 12 years	0.33	0.12-0.94	0.03
Age of the last child			
- No child	1	-	-
- Less than one year	5.0	2.0-12.4	< 0.0001
- Between one and three years	4.1	1.9-8.8	< 0.0001
- More than three years	1.5	0.7-3.2	0.28
Contraceptive methods			
- No method	1	-	-
- Edible pills	3.9	1.7-9.0	0.001
- Condom	7.4	3.3-16.8	<0.001
- I.U.D	5.4	1.4-21.4	0.015
- Others	15.8	7.0-35.5	< 0.001
Place of residence			
- Urban	1	-	-
- Rural	5.9	3.0-11.5	< 0.001

Discussion

The results of data analysis showed that the use of unreliable contraceptive methods, mother's education, age of the last child, and place of residence are risk factors for unwanted pregnancy.

Based on the findings of this research, in univariate and multivariate analyses, unreliable contraceptive methods compared to permanent methods dramatically increase the odds ratios of unwanted pregnancy. This finding is consistent with other studies conducted in Iran.^{19,22-24} Studies conducted in other countries²⁵⁻²⁷ demonstrated the role of unreliable preventive methods in increasing the incidence of unwanted pregnancies, which is consistent with the recent finding. These results emphasize the importance of improving the quality of family planning services and counseling to correct the use of contraceptive methods.

Place where contraceptive devices were received showed no significant relationship with unwanted pregnancies, which is not consistent with the study by Ghazizadeh and colleagues.²³ Since health care centers provide the clients with free preventive services and they are more consistent with the clients in terms of gender and culture, they can play an important role in educating the clients.

The results of the univariate analysis showed that an elementary level of education increased the chance of unintended pregnancy as compared to a higher education level. This is consistent with some studies^{22, 28-31} but is not consistent with findings by Beigi and colleagues.²⁴ It can be claimed that educated mothers try to determine the size of the family via more precise planning.

The results of the multivariate analysis also showed that when the age of the last child is less than two years, the chance of unintended pregnancy is greater than when the age of the last child is two years or more. This finding is not consistent with the findings of some studies conducted in Iran.^{22,24,32} In the univariate analysis, the spouse having an elementary or junior high school

level of education increased the chance of unintended pregnancy as compared to the higher education layer. The strength of this association was greater in the multivariate analysis, and it was also significant in the illiterate layer (multivariate). This finding is in line with the study by Kahnemoui Aghdam and colleagues,³² and it also indicates that educated men can have a better involvement in reproductive health.

In this study, the majority of women were between 21 and 35 years old. Comparing women in this age group with women less than 20 years old or more than 35 years old showed no significant relationship between age and unintended pregnancy. However, several other studies within and outside the country have reported the opposite finding.^{22,28-33} One possible reason for this discrepancy is the higher percentage of women in this study who were in the 21 to 35 age group.

Based on the findings of this study, no significant relationship was observed between the parents' occupations (used as indirect estimates of household income) and unwanted pregnancy. This finding was confirmed in several other studies.^{24,30} Ghazizadeh and colleagues in their study have reported a relationship between a women's job and unintended pregnancy;²³ this is not consistent with recent findings.

In this study, a statistically significant association was not observed between number of living children and likelihood of unwanted pregnancy, whereas several other studies have confirmed the link between the two.^{24,30}

Based on the findings of this study, a significant association was observed between place of residence and unintended pregnancy; the incidence of unintended pregnancy was higher in the rural population than in urban areas. Perhaps one of the reasons is that many city dwellers have access to informational resources and have higher awareness levels and better planning with regards to pregnancy.

Given the effects of pregnancy interval, contraceptive method, and place of residence on unwanted pregnancy, encouraging qualified women (10- to 49-year-old married women) to use contraceptive methods, particularly more permanent methods; motivating them to receive contraceptive devices from healthcare centers that emphasize proper training and high retention of clients; paying greater attention to raising awareness in women in rural areas; and having appropriate birthing facilities can be effective in reducing unwanted pregnancies in the city.

Acknowledgement

We would like to thank the all mothers that participated to the study.

Conflict of Interest

The authors declared that they have no conflict of interest.

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