Frequency of self reported abortion and associated factors in Iran

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ABSTRACT

Background: There are few reliable Iranian-induced abortion data. The aim of this paper was to investigate the prevalence and socioeconomic characteristics of women and men who report having had or been a partner in an abortion. **Materials and Methods:** A cross-sectional survey of women and men aged 15–49 years referred to the health center that randomly selected from 110 health center that was used. **Results:** Data from 1520 women and men surveys were analyzed. One in 10 women and one in 12 men had experienced or been a partner in an abortion. In adjusted analyses, women and men in the 34–49 age group [adjusted odds ratio (AOR) 0.62, 95% (CI) 0.41, 0.96], the importance of religion in fertility (AOR = 0.42; 95% CI 0.26, 0.67), dissatisfied general health (AOR = 0.52; 95% CI 0.32, 0.87), and history of unwanted pregnancy for twice (AOR = 2.32; 95% CI 1.43, 3.77) and history of unwanted pregnancy for three-time or more (AOR = 2.69; 95% CI 1.59, 5.49) were associated with significantly increased odds of abortion. Haven't heard of medication abortion, that is, abortion with tablets (AOR = 0.43; 95% CI 0.29, 0.67) was associated with significantly reduced odds of abortion. **Conclusions:** The findings contribute to scarce information about abortion in Iranian. Due to the high prevalence of abortion and the country's population growth policy, Iranian women need a full range of sexual and reproductive health services, including contraceptive counseling and accessible abortion care.

Keywords: Abortion, associated factors, frequency, Iran, self-reported

Introduction

Unintended pregnancy is a significant public health concern, defined as a mistimed, unplanned, or unwanted pregnancy at conception.[1] In 2012, 40% of all pregnancies were unwanted. Of these, 50%, 13%, and 38% resulted in an abortion, miscarriage, and unplanned birth, respectively.[2] Each year from 2010 to 2014, around 25 million unsafe abortions occurred worldwide, most of which (97%) occurred in developing countries. The proportion of unsafe abortions was highest in countries with highly restrictive abortion laws: 13% of all abortions in countries in which abortion was legal were unsafe, compared with 75% in countries where abortion was completely banned or allowed only to save the woman's life or physical health.[3-5]

Abortions can be either spontaneous or induced. Induced abortions can be illegal (intentional) or legal (therapeutic).[6]

Forty-six million out of 210 million pregnancies lead to abortion each year, and half of these abortions are unsafe. Laws forbidding law to abort in many countries cause unsafe abortions in 3–4% of cases.[7,8] Between 1990–94 and 2015–19, the global rate of unintended pregnancy has declined, while the proportion of unintended pregnancies that end in abortion has increased. As a result, the global average abortion rate in 2015–19 was roughly the

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same as estimates for 1990–94[9,10] According to the randomized method results, a systematic review of the overall prevalence of pregnancy and abortion in Iranian pregnant women's prevalence rate among 773 persons was 21.4.[10,11] Although unsafe abortion is recognized as a global health issue, it is difficult to collect reliable information, especially in countries where abortion is illegal.[10,12]

Complications after abortion are divided into immediate and delayed complications. The perforation of the uterus and the loss of Tunisia are immediate complications. Delayed complications include hemorrhage, infection, ectopic pregnancy, cervical stenosis, and Asherman syndrome.[13]

Iran has experienced an extraordinary fertility decline in recent decades: The country's total fertility rate has fallen from 5.3 children per woman of reproductive age in 1988 to 2.0 children in 2000.[14] Despite this fertility decline, many pregnancies are reported as being unwanted or mistimed in Iran. Access to legal abortion is limited, propelling many women to undergo clandestine, unsafe abortions. Thirty-four percent of pregnant women surveyed in October 2000 reported their pregnancies as unintended: 16 percent reported their pregnancies as unwanted and 18 percent as mistimed.[15,16] Although data are limited in Iran, some recent population- and hospital-based studies show strong indications that many unwanted pregnancies were terminated by clandestine, unsafe abortions.[15-19]

It has also reviewed limited studies on the prevalence of unwanted pregnancies or abortions in male sexual partners. The first study on the prevalence of unwanted pregnancies in Iranian men was written by the present research team. Prevalence of unwanted pregnancies in a survey in Tehran in 2017 that surveyed married men reported that 37% of these men's partners experienced at least one unwanted pregnancy.[20]

Iran needs to come up with a new comprehensive and multi-level program to increase the TFR to its optimum level of 2.2. At the same time, policymakers should address specific important issues such as a possible surge in illegal abortions and unwanted pregnancies.[21] Those who would suffer the most in Iran are most likely the lower-income families. Accordingly, this could lead to an increase in the socioeconomic gap between the privileged and the impoverished in the long run.[22,23] Approximately rate-induced abortion among female sex workers in Iran was reported as 47%.[12,24]

Comprehensive data on women's characteristics in Iranian women associated with abortion is scant, and no study has been published about surveying the frequency of abortions in men. There is an information gap. This information is essential for health service planning and delivery and the prevention of unwanted pregnancy and abortion. This study aimed to investigate the prevalence of abortion and the distribution of sociodemographic characteristics associated with abortion among a representative sample of women and men of reproductive age in Iranian.

This study was conducted from the beginning of June 2017 to the end of November 2017, using data from 1520 women and men aged 15–49 years.

Materials and Methods

Study design

The current study has a cross-sectional design. The Ethics Committee of Mazandaran University of Medical Sciences approved this study (IR.MAZUM.REC.96.3019).

Sample and recruitment

The recruited sample consisted of married women and men of reproductive age (15–49 years old), living in the southern part of Tehran. Subjects were referred to the health centers to receive healthcare services. All the participants signed a written consent form. The exclusion criteria included being a bachelor, widowed, divorced, or unable to respond to the survey questions due to a lack of proper verbal communication in the Persian language.

Calculating the sample size

Sampling Method: A stratified random sampling method was utilized by Mozhgan Zendehdel, who randomly selected 62 out of 110 health centers) with the help of random numbers through the computer) in the southern part of Tehran. Participants referring to these centers were selected by using convenient sampling. Calculating the Sample Size: According to the census received from the Planning and Management Organization of Tehran, men and women aged 15–49 constituted a population of 898,577 people in 2016. The sample size was calculated based on a recent study, according to which the prevalence rate of unwanted pregnancies was 30%.[25] Overall, 1013 women and 507 men participated in this study. In addition, the questionnaire was completed by all of the participants, and no samples were excluded.

$$n = \frac{p(1-p)Z\frac{\alpha}{2}}{d^2}$$

p = 30%

d = 5%

$$Z\frac{\alpha}{2} = 1.96$$

(1)

Substituting parameters into equation (1) results in:

$$n = \frac{3.84 * 0.3 * 0.7}{(0.05)^2} = 336$$

336 (18 - 25) women

336 (18 - 25) men

336 (26 - 40) women

336 (26 - 40) men

336 (41 - 49) women

336 (40 - 49) men

336 * 3 = 1008 sample women

336 * 3 = 1008 sample men   (2)

However, the number of married men aged (15–25) was very low because of the increased marriage age. Moreover, the numbers of men referred to health centers were substantially smaller than women, which resulted in the smaller men samples. As a matter of fact, we considered 507 men and 1013 women samples in our study (overall = 507 + 1013 = 1520).

Research tools

The questionnaire consisted of several sections as follows: 10 questions were related to demographic information sex, such as the age of the participant and her/his spouse, the education level of the participant and her/his spouse, employment, satisfaction with health status, and participants' perception of the importance of religion in fertility choices.

One question was included for unwanted pregnancy history. Six questions were related to abortion; "The history of abortion?", "History for the number of unwanted pregnancies?", "In case of unintended pregnancy, what would you do?", "which of this statement comes closest to how you feel about abortion in Iran? Women should be able to obtain an abortion only in specific circumstances, Women should not be able to obtain an abortion under any circumstances ","Have you heard of medication abortion, that is, abortion with tablets?" and "DO you think medication abortion is available in Iran?".

Analysis

The data were analyzed using SPSS 25 software. Having a history of abortion was considered as the dependent variable. Mean and the standard deviation were used to describe the quantitative results, while percentages explained qualitative results. The significance level was considered less than 0.05. Univariate and multivariate logistic regression analyses were utilized to identify the predictive factors associated with history of abortion.

Results

Demographic information

The participating 66.6% women and 33.4% men were divided into two age groups, 15–33 and 34–49. The number of people in the two groups was almost equal group 15–33 = 49.9% and group 34–49 = 51.1%, 83% had a high-school diploma or less, and 62.4% were employed. 67.7% of women and men had relative satisfaction with their general health status [Table 1].

Differences in characteristics between participants with and without a history of abortion

The age of the participants showed a significant relationship with the history of abortion ($P = 0.001$). The highest rate of the history of abortion, 11.8%, was experienced by women and men aged 34 years old and more, and the lowest rate of experienced abortion was reported in the age group of 15–33 years old with a frequency of 6.1% ($P = 0.001$). Participants with a history of abortion had lower education level ($P = 0.025$, Table 1), their wives were over 33 years old ($P = 0.001$), had a spouse with a low level of education ($P = 0.025$), were satisfied with their general health status ($P = 0.001$), and believed in the importance of religion infertility ($P = 0.001$).

As shown in Table 2, history of abortion was associated with an unwanted pregnancy ($P = 0.001$). Furthermore, there was a relationship between the questions "In case of unintended pregnancy, what would you do?", "Which of these statements comes closest to how you feel about abortion in Iran?", "Have you heard of medication abortion, that is, abortion with tablets?" and "Do you think medication abortion is available in Iran?" with the history of abortion ($P = 0.001$).

Multivariable logistic regression models are presented in Table 3. Adjusted for sociodemographic characteristics, the odds of the history of abortion were higher among 34 plus years old (0.61 times, 95% CI 0.04–0.99). Those who believed in religion's importance were 0.48 times more likely to experience a history of abortion (95% CI 0.26–0.79). Also, the odds of abortion were higher for two-time unwanted pregnancies (2.33 times, 95% CI 1.43–3.81), and even higher for three and more unwanted pregnancies (2.89 times, 95% CI 1.60–5.36). However, the width of the confidence interval in both cases is wide.

Also, the other findings people who did not know or heard the name of abortion drugs had a protective role and experienced less induced abortion (0.43 95% CI 0.29–0.67).

Discussion

This research is the first of its kind in Iranian to collect comprehensive data to investigate the prevalence, experiences of, and factors associated with abortion among a national sample of women and men. In this study, 1013 married women and 507 married men participated, and none of these were related. A total of 1520 people participated.

In the current survey, we found that 9.4% of married women (one in 11 women married) and 8.1% of married men (one in 12 men) in the Southern district of Tehran, Iran, had at least one

Table 1: Comparing socio-demographic characteristics among those with (*n*=136) and without (*n*=1384) a history of abortion, women referred to health clinics in Tehran province, Iran		
Variables	**Frequency Mean±SD** **Frequency**	**Percentage Mean±SD** **Percentage**
Sex participants		
Women	1013	66.6
Men	507	33.4
Age		
15-33 years	758	49.9
34-49 years	762	50.1
Education		
Diploma and less	1261	83
Beyond diploma	259	17
Employed		
No	949	62.4
Yes	571	37.6
Partner 's age category		
15-33 years	662	43.6
33 > Years	858	56.4
Partner 's education		
Diploma and below	1190	78.3
Beyond Diploma	330	21.7
Important of religion		
Unimportant	266	17.5
Important	1254	82.5
Are you satisfied with your general health status		
Good	299	19.7
Not bad	1029	67.7
Bad	192	12.6
History of unwanted pregnancy		
None	884	58.2
At least once	636	41.8
History of abortion		
Yes	136	8.9
No	1384	91.1
History of unwanted pregnancy		
1	451	29.7
2	124	8.2
3>	61	4
No	884	58.2
In case of unintended pregnancy, what would you do?		
I wouldn't consider abortion	1109	73
I would consider abortion	411	27
Which of these statements comes closest to how you feel about abortion in Iran?		
Women should be able to obtain an abortion only in specific circumstances	1199	78.9
Women should not be able to obtain an abortion under any circumstances	321	21.1
Have you heard of medication abortion, that is, abortion with tablets?		
Yes	363	23.9
No	1157	76.1
DO you think medication abortion is available in Iran?		
Yes	1003	66
No	517	34

induced abortion. Other factors such as increasing age, having two or more unwanted pregnancies, religious belief, and poor financial status had a significant relationship with the increase in the prevalence of abortion. We were suggesting that some men may be unaware that their sexual partner has had an abortion. A systematic review and meta-analysis by Batul Shahraki Mojahed

in 2019 revealed that the prevalence of induced abortion in Iran was 21%. And in a systematic review and meta-analysis by Saeed Dastgiri of the overall induced abortion rates from Iran based on the random effect model was 26.84 per 1000 fertile women.[11,26] As well as this meta-analysis shows the induced abortion rate of 58.1 per 1000 fertile women (aged 15–49) at

Characteristics	No (abortion)	Yes (abortion)	P
Table 2: Univariable associations with respondent characteristics to intended abortion (*n*=1520)			
Sex participants (*n*=1520)			
Women	918 (90.6)	95 (9.4)	0.44
Men	466 (91.9)	41 (8.1)	
Age (*n*=1520)			
15-33 years	712 (93.9)	46 (6.1)	0.001
34-49 years	672 (88.2)	90 (11.8)	
Education (*n*=1520)			
Diploma and less	1139 (90.3)	122 (9.7)	0.025
Beyond diploma	245 (94.6)	14 (5.4)	
Partner 's age category (*n*=1520)			
15-32	622 (94)	40 (6)	0.001
>33	762 (88.8)	96 (11.2)	
Partner 's education (*n*=1520)			
Diploma and below	1076 (90.4)	114 (9.6)	0.025
Beyond Diploma	308 (93.3)	22 (6.7)	
Important of religion (*n*=1520)			
Unimportant	1172 (93.5)	82 (6.5)	0.001
Important	212 (79.7)	54 (20.3)	
Are you satisfied with your general health status (*n*=1520)			
Good	283 (94.6)	16 (5.4)	0.001
Medium	947 (92)	82 (8)	
Not good	154 (80.2)	38 (19.8)	
History of unwanted pregnancy (*n*=1520)			0.001
1	383 (84.9)	68 (15.1)	
2	84 (67.7)	40 (33.3)	
3>	36 (59)	25 (41)	
In case of unintended pregnancy, what would you do? (*n*=1520)			0.001
I wouldn't consider abortion	1042 (94)	67 (6)	
I would consider abortion	342 (83.2)	69 (16.8)	
Which of these statements comes closest to how you feel about abortion in Iran? (*n*=1520)			0.001
Women should be able to obtain an abortion only in specific circumstances	1113 (92.8)	86 (7.2)	
Women should not be able to obtain an abortion under any circumstances	271 (84.4)	50 (15.6)	
Have you heard of medication abortion, that is, abortion with tablets? (*n*=1520)			0.001
Yes	299 (82.4)	64 (17.6)	
No	1085 (93.8)	72 (6.2)	
Do you think medication abortion is available in Iran? (*n*=1520)			0.001
Yes	894 (89.1)	109 (10.9)	
No	490 (94.8)	27 (5.2)	

the global, continental national, and local, regional levels.[26] But our estimate of abortion among women who had ever been pregnant shows the induced abortion rate of 89 per 1000 fertile women (aged 15–49) isn't consistent with the other Iranian estimate derived from a national survey. We tried to include the number of participants as well as men in the study.

Hence, in Iran, the information related to the number of abortions could be prone to information bias. It should be noted that induced abortion is illegal. Because abortion is a sin in Islam and is taboo, men and women usually do not inform in the poll.

In the current survey with a cross-sectional survey by Amir Erfani, data for analysis came from 2,934 married women aged 15–49 who completed the 2009 Tehran Survey of Fertility. An estimated 8.7 of every 100 known pregnancies ended in abortion.[27] This study was consistent with our research. One of the findings Roya Rashidpouraie *et al.*[28] in this crosssectional study was that defining illegal abortion as a criminal act can be one of the factors to reduce abortion claims. So this study was consistent with our findings.

Compared with women, a lower proportion of men who had ever been a partner in pregnancy reported being a partner in an abortion (8.1%), suggesting that some men may be unaware that their sexual partner has had an abortion. Our study information is consistent with a valid study, a cross-sectional survey in 2017 of women and men by Heather Rowe *et al.*[29] in Australia. Men 17.6% compared with women 24% and men were less likely than women to report abortion. In homogeneous cases, a study by Masoumeh Mirza Moradi *et al.*[30] in 2013 with 950 women participants 15–45 years old registered prevalence of unwanted pregnancy was 19% and the outbreak of induced abortion 14.5%.

Table 3: Univariable associations with respondent characteristics to intended abortion (*n*=1520)		
Characteristics	Unadjusted OR (95%CI)	Adjusted OR (95%CI)
Age (*n*=1520)		
15-33 years	Ref	Ref
34-49 years	0.61 (0.04-0.99)	0.62 (0.41–0.96)
Education (*n*=1520)		
Diploma and less	Ref	
Beyond diploma	1 (0.6-1.68)	
Partner 's age category (*n*=1520)		
15-32	Ref	
>33	0.97 (0.58–1.62)	
Partner 's education (*n*=1520)		
Diploma and below	Ref	
Beyond Diploma	1.05 (0.57–1.93)	
Important of religion in fertility (*n*=1520)		
Unimportant	Ref	Ref
Important	0.48 (0.26-0.79)	0.42 (0.26-0.67)
Are you satisfied with your general health status (*n*=1520)		
Good	Ref	Ref
Medium	0.42 (0.2-0.87)	0.39 (0.19-0.82)
Not good	0.52 (0.31–0.87)	0.52 (0.32–0.87)
History of unwanted pregnancy (*n*=1520)		
1	Ref	Ref
2	2.33 (1.43–3.81)	2.32 (1.43–3.77)
3>	2.89 (1.60-5.36)	2.96 (1.59–5.49)
In case of unintended pregnancy, what would you do? (*n*=1520)		
I wouldn't consider abortion	Ref	
I would consider abortion	0.81 (0.46–1.43)	
Which of these statements comes closest to how you feel about abortion in Iran? (*n*=1520)		
Women should be able to obtain an abortion only in specific circumstances	Ref	
Women should not be able to obtain an abortion under any circumstances	1.07 (0.62–1.84)	
Have you heard of medication abortion, that is, abortion with tablets? (*n*=1520)		
Yes	Ref	Ref
No	0.43 (0.27–0.71)	0.43 (0.29-0.67)
Do you think medication abortion is available in Iran? (*n*=1520)		
Yes	Ref	
No	1.25 (0.63–2.48)	

This study did not agree with our research that the difference in sampling location could answer this difference.

Findings Worldwide: An estimated 44% of pregnancies were unintended in 2010–14, 55% of unintended pregnancies ended in abortion in developing regions.[31] This study wasn't consistent with our research.

The second finding of the study was the effect of age on the prevalence of abortion [adjusted odds ratio (AOR) 0.62 95% confidence interval (CI) 0.41–0.96], the abortion rate was highest among women aged 34–49 (60 per 1,000 women), was 32.5 per 1,000 among those aged 15–34.

In the survey Erfani in 2014, the highest prevalence of abortion was in the age group of 30 to 35 in Tehran.[18] This difference with our finding may be due to the increase in marriage age in recent years.In the study of Rila Ratovoso *et al.*[32] in 2016, with 3179 participants in Madagascar, the age of induced abortion is more in the age group of 25–35 years.

In the present study, participants whose religion was important in their reproductive decisions experienced more abortion than participants whose faith did not matter in their reproductive choices [adjusted odds ratio (AOR) 0.42 95% confidence interval (CI) 0.26-0.67]. But Amir Erfani and colleagues in 2011, the study of induced abortion in Tehran reported of people who well as among those who reported a low level of religiosity, experienced more abortions.[27] A Survey in Australia by Heather Rowe[29] in 2017 also played a protective role, and people whose religion was important in fertility experienced fewer induced abortions [adjusted odds ratio (AOR) 0.55 95% confidence interval (CI) 0.35 – 0.87].

A study by Amir Erfani and Kevin McQuillan in 2008[14] showed a significant inverse relationship between the total abortion rate and the degree of religiosity across Iran's provinces: the higher the religiosity score index, the lower the total abortion rate. Despite this negative relationship, provinces with low abortion rates often clearly differ in their degree of religiosity.

Another finding of the study was that participants who reported general health were not good experienced more abortion [adjusted odds ratio (AOR) 0.52 95% confidence interval (CI) 0.32-0.87]. In a systematic review by Batul Shahraki Mojahedin 2019, one of the fundamental causes of induced abortion was related to maternal health.[11]

In adjusted analyses, women and men, the experience of the history of unwanted pregnancy for twice [adjusted odds ratio (AOR) 2.32, 95% confidence interval (CI) 1.43, 3.77] was associated with significantly increased odds of abortion and for the third time and more unwanted pregnancy [adjusted odds ratio (AOR) 2.64, 95% confidence interval (CI) 1.59, 5.49] is related to induced abortion.

Several studies confirm this important factor in the present cross-sectional study.[11,26,30,32]

One of the other findings people who did not know or heard the name of abortion drugs had a protective role and experienced less induced abortion [adjusted odds ratio (AOR) 0.42 95% confidence interval (CI) 0.29–0.67]. I did not find any study in this regard. People who are looking for abortion drugs know the names of the drugs.

Authors should discuss the results and how they can be interpreted from the perspective of previous studies and of the working hypotheses. The findings and their implications should be discussed in the broadest context possible. Future research directions may also be highlighted.

Conclusions

The results contribute to the limited information about abortion in Iranian and identify priorities for action at both clinical and population levels. Because teaching contraceptives and sexual health to male and female clients in health centers is prohibited, the need for evidence-based methods for unwanted contraceptive counseling and abortion counseling and prevention is understood. It is recommended that men and women of childbearing age have access to the above information.

This study helps identify subgroups of women in particular need of services and counseling to prevent unintended pregnancy. Any shifts in the country's current population policy and family planning program may affect the incidence of abortion in Iran, given couples' strong motivation to achieve a small family size. Currently, Iran's government has identified the country's below-replacement total fertility rate (1.8) as a threat to future development and has recommended a doubling of its population. Should this political debate result in a new population policy in which family planning services and counseling are limited, it is likely that the incidence of unsafe, clandestine abortion will increase.

Institutional review board statement

The Mazandaran Medical Sciences Research Ethics Committee and Tehran Medical Sciences Research have approved the study protocol with approval number IR.MAZUM. REC.96.3019, and all survey participants provided written, informed consent before completing any questionnaires. In this study, all participants were 16 years old or above, and none of them were considered minors. Moreover, in Iran, the age of maturity for girls is nine lunar years old.[33] Hence, there was no need to obtain consent from the parents/guardians of the participants.

Informed consent statement

Informed consent was obtained from all subjects involved in the study.

Conflicts of interest

There are no conflicts of interest.

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