ABORTION PREVALENCE AND RISK FACTORS IN WOMEN OVER TIME: EVIDENCE FROM A COHORT REVIEW

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ABSTRACT

Fertility is lost in 15-25 percent of pregnancies due to spontaneous abortions. The number of nonspontaneous abortions in Iran has increased in recent years, according to nondocumentary figures, particularly in Kurdish territories. The focus of this research is to find out how common spontaneous abortions are among women aged 35 to 65, as well as what factors influence spontaneous abortion. The data was acquired during the Ravansar Non-Communicable Disease (RaNCD) cohort study's recruitment phase. All 4831 married women aged 35 to 65 who'd already previously gotten pregnant were included in this study. The abortion ratio was obtained by dividing the number of abortions by the number of live births, and a multivariate logistic logistic analysis was used to identify factors that influence abortion. A history of spontaneous abortion was reported by 25.7 percent of the women. The abortion rate among women was 0.10 percent. Women with a secondary education, first pregnancy and marriage at the age of 26, economic status, hyperthyroidism, and diabetes had a greater risk of abortion than women who exercised more, had a BMI of 18:9, or lived in rural areas. After taking into account all of the relevant factors, researchers discovered that women with high blood pressure had a 63 percent lower likelihood of nonspontaneous abortion, which is statistically significant (p value 0:05). Given the impact of disparities in education, age at first marriage, and age at first conceiving on the probability of spontaneous abortion, more consideration should be given to these individuals.

KEYWORDS:*Abortion, Analysis, Legal, Pregnancies, Spontaneous.*

1. INTRODUCTION

One of the most common pregnancy complications is spontaneous abortion. Abortion is defined as the removal of an embryo or fetus from the womb before it has reached a stable stage of life. According to studies, between 10% and 20% of women have spontaneous abortions. It's also worth noting that the majority of spontaneous abortions happen early in a pregnancy, making them easily confused with menstrual flow. In general, determining the prevalence of spontaneous and unwanted abortions is particularly difficult due to the possibility of false reporting in countries where legal abortion is prohibited. Furthermore, because most abortions are not reported to or recorded in the public health system, studying spontaneous abortion in low- and middle-income countries is difficult (1). In more than half of the instances, genetic diseases and chromosomal abnormalities were indicated as reasons for abortion. Uterine irregularities,

infectious diseases, and undiagnosed illnesses in the mother, the mother's age during pregnancy, previous background of abortion, age at first menstruation, menstrual disorders, the use contraceptive drugs, BMI > 25 kg/m2, environmental conditions, and the mother's lifestyle, including such smoking and caffeine use, being exposed to cigarette smoke, stress, and mobile phone radiation, and the mother's age at first menstruation, are all factors that inflict infertility(2).

Abortion is a traumatic experience for the woman. It affects her mental condition, which may lead to psychiatric problems including depression. Despite the fact that Iran's maternal abortion and miscarriage rates are steady, the number of new instances is growing. In reality, Iran is experiencing a demographic decline, owing in part to a rise in divorce and a decline in marriage among young men and women. While the nation tries to control population growth, a transparent feature on the cost of abortion might help people comprehend the situation. Contrary to popular belief, abortion is intricately tied to culture and religion variables, and Iran is a multiracial nation. Kurdish people lived largely in western Iran, where their culture and way of life were mixed. The purpose of this research is to find out how common abortion is among women aged 35 to 65 who participated in the Ravansar NonCommunicable Disease (RaNCD) cohort study, which was the first of its type among Kurdish people(3).

2. LITERATURE REVIEW

In her work, A Garca-Engudanos discusses miscarriage, which is among the most prevalent issues in human pregnancy. The World Health Organization (WHO) adopted the most widely accepted definition in 1977. Clinical pregnancies account around 12-15 percent of all pregnancies, but then when pregnancy miscarriages are included in, the percentage climbs to 17-22 percent. All scientists agree that uterine anomalies and paternal balanced chromosomal translocations are the only two causative causes. There have been a slew of new risk factors suggested. We address them in this revision (4).

In his study article, G. M. Stirrat specifies the data that should be gathered up to 28 weeks' gestation, while evaluation up to 20-22 weeks' or 500 g fetal weight must also be feasible. General practitioners and gynecologists should do what those who think is best for couples who do not meet these criteria, but no determination of recurrent miscarriage should be made. Women who satisfy the criteria are separated into two groups: those who have failed all of their prior pregnancies and those who have had one healthy baby following a string of miscarriages(5).

Craig P. Griebel addresses the conventional therapy of surgical uterine evacuation, which is the treatment option in individuals who are in a state of instability. Recent research suggests that expectant or pharmacological treatment is acceptable for certain persons. Patients who have experienced a total spontaneous abortion are usually prescribed medication or undergo surgery. Expectant care for up to two weeks is often successful for women who have had an incomplete spontaneous abortion, and medical therapy has little further benefit. When patients are given the choice of selecting between treatment alternatives, expectant management is the most popular option. The success rate of expectant therapy for a missed spontaneously abortion varies, however intravaginal misoprostol medicine has an 80 percent success rate. Patients and their partners may have psychological problems as a consequence of a fetal death, which doctors should be aware of. For up to a year after a spontaneous abortion, women are more likely to

experience acute despair and worry. Counseling should be provided to handle guilt feelings, the mourning process, as well as how to cope with friends and family(6).

3. DISCUSSION

The Participants in the Research. The population for this cross-sectional study was drawn from centers participating in Prospective Epidemiological Research Studies in Iran, as part of the RaNCD cohort project (PERSIAN). The hiring process began in November of 2014 and completed in February of 2017. 10065 individuals volunteered to take part in the research and completed a written informed consent document. More information may be found elsewhere.

3.1 Inclusion and Exclusion Criteria:

Those with a track record of delivering were chosen from among all the competitors. The RaNCD prospective study required women to be willing to enroll and finish the study, sign a written permission declaration, and interact with the research team. We excluded those who had never been married or had never been pregnant for the context of this research.

3.2 Definition and Measurements:

Principal component analysis (PCA) was used to generate the key variable representing the family's economic state, socioeconomic status (SES), which included the participants' money and social features. As a consequence, the population was split into five quintiles: lowest, poorest, middle class, middle class, affluent, and wealthiest. For the weight evaluation, BIA equipment (In Body 770 BIOSPACE, Korea) was employed. The heights were measured using a stadiometer with a 0.1 accuracy.

To collect information about the subjects' physical activity, a 19-item inventory connected to light, moderate, and severe physical operations was used. After that, the Metabolic Equivalent of Task (MET) rate of the each exercise was calculated, and the Compendium of Physical Activities was used to evaluate daily MET rates of each participant. Low (MET 24-36.5 hours per week), moderate (MET 36.6-44.9 hours per week), and high (MET 36.6-44.9 hours per week) levels of physical activity were assessed (MET 45 hours per week). Based on 2015 criteria to measure the quality of healthy meals, the Healthy Eating Index (HEI) was divided into four categories. In this study, an abortion is defined as a self-reported pregnancy that was ended voluntarily before week 20. By subtracting the total of abortions even by number of live births, the miscarriage ratio was derived(7).

3.3 Statistical Methods-
Qualitative variables were scored on a scale of one to ten, while continuous data were reported as mean and standard deviation (percent). To begin, the risk factors for abortion were investigated using a univariate logistic regression analysis. Variables with p 0:3 were then added to the multiple model. Variables with a p 0:05 were preserved, while others were eliminated in a gradual (backward) manner. All of the studies were purged of missing data (less than 1 percent). For all of the studies, the STATA V.14 (STATA Corp LLC) program was employed. Statistical significance was defined as a P value of less than 0.05[8]. 2083 (58 percent) of the 4831 women who participated in the research resided in cities, whereas the remainder lived in rural regions. Between the ages of 13 and 16, 3472 (72.2%) of them had their first period. 2202 (45.9%) of those who took part had between one and five years of

education, and 3608 (74.8%) of the women had never married consanguineously. Over the course of their lives, 1241 women (25.7%) experienced at least one spontaneous abortion.

After adjusting for other factors, the risk of spontaneous abortion increased as the pregnancy rate increased; for example, the odds of abortion were 8.3 (6.6- 10.5) times greater in women who have had more than 6 pregnancies than in women who had 1-3 pregnancies. Women who married after the age of 26 had a 1.6 (1.02-2.4) times higher likelihood of having an abortion than women who married before the age of 26. Furthermore, the risk of abortion was 1.9 (1.3-2. 8) times greater in women who had their first pregnancy after the age of 26 than in the rest. Education level was a major driver of spontaneous fatal abortion; that is, the chance of abortion rose as education level increased (Table 1). Women with a secondary education had the highest rate of abortion (Figure 1) [9.

Contraceptive pills were used by 24.8 percent of women who'd already previously undergone an abortion. It was observed that taking tablets defends against spontaneous abortion after modifying the factors. As a result, women who used contraceptive tablets had a 22 percent lower risk of abortion than women who used alternative contraceptive methods, which was statistically significant. The odds ratio of abortion = 1.1 was not substantially increased by secondhand smoking (95 percent C.I: 1.0-1.3). (96 percent confidence interval: 1.0-1.3). People with the greatest socioeconomic status were more likely to have an abortion (Table 1). Higher SES, previous history of hyperthyroidism, and diabetes, as well as females with a secondary education, marriage, and first pregnancy age of further than 26 years, had a higher abortion ratio than those without. Women with high blood pressure, a high level of physical activity, and a BMI of less than 18:9, as well as those who lived in rural regions, had a lower mean termination ratio(Figure 1)(8).

TABLE 1: THE FINDINGS OF THE LINEAR REGRESSION MODEL EVALUATING RISK VARIABLES OF SPONTANEOUS ABORTION AND DESCRIPTIVE STATISTICS OF THE SELECTED POPULATION (9).

Variables	Total N (%)	Abortion N (prevalence)	Abortion ratio Mean (SD)	Adjusted OR (95% CI)
Total (%)	4831 (100)	1241 (25.7)	0.10 (0.2)	
Menstruation start age				
<12 years	1031 (21.4)	276 (26.8)	0.11 (0.2)	1
13-16 years	3472 (72.2)	891 (25.7)	0.11 (0.2)	0.9 (0.8-1.1)
>17 years	306 (6.4)	64 (20.9)	0.07 (0.1)	0.7 (0.5-1.0)
Pregnancy number				
1-3	1799 (37.3)	255 (14.2)	0.09 (0.2)	1
4-5	1376 (28.5)	420 (30.5)	0.14 (0.3)	4.5 (3.7-5.5)
≥6	1648 (34.2)	558 (33.8)	0.10 (0.2)	8.3 (6.6-10.5)
First pregnancy age (year)				
15	611 (12.7)	169 (27.6)	0.08 (0.2)	1
15-20	2469 (51.2)	620 (25.1)	0.09 (0.2)	0.9 (0.8-1.2)
21-25	1159 (24.1)	286 (24.7)	0.11 (0.2)	1.3 (0.9-1.6)
≥26	581 (12.1)	155 (26.7)	0.20 (0.4)	1.9 (1.3-2.8)
First marriage age (year)				
≥15	1406 (29.1)	375 (26.7)	0.08 (0.2)	1
16-20	2338 (48.4)	593 (25.4)	0.10 (0.2)	1.2 (0.9-1.4)
21-25	728 (15.1)	174 (23.9)	0.12 (0.2)	1.2 (0.9-1.6)
≥26	358 (7.4)	98 (27.4)	0.19 (0.4)	1.6 (1.0-2.4)
Level of education				
Illiterate	1791 (37.3)	433 (24.1)	0.06 (0.1)	1
1-5 years	2202 (45.9)	582 (26.4)	0.12 (0.3)	1.8 (1.5-2.1)
6-9 years	461 (9.6)	123 (26.8)	0.14 (0.3)	2.4 (1.8-3.2)
10-12 years	243 (5.1)	62 (25.5)	0.18 (0.4)	2.4 (1.6-3.5)
≥13 years	111 (2.1)	41 (36.9)	0.23 (0.3)	3.5 (2.1-5.8)
Place				
Urban	2083 (58.0)	772 (34.7)	0.12 (0.3)	1
Rural	1507 (42.0)	469 (31.1)	0.09 (0.2)	0.9 (0.8-1.1)
Consanguineous marriage				
No	3608 (74.8)	934 (25.9)	0.10 (0.2)	1
First degree	678 (14.1)	172 (25.4)	0.11 (0.3)	0.9 (0.8-1.2)
Second degree	541 (11.1)	135 (2.9)	0.09 (0.2)	0.9 (0.8-1.2)
Smoking status				
No	4548 (94.4)	1166 (25.6)	0.11 (0.2)	1
Current	105 (2.2)	22 (20.1)	0.05 (0.1)	0.7 (0.4-1.2)
Former	165 (3.4)	48 (29.1)	0.07 (0.1)	1.2 (0.8-1.7)
Secondhand smoking				
No	2446 (50.6)	599 (24.5)	0.10 (0.2)	1
Yes	2385 (49.4)	642 (26.9)	0.11 (0.3)	1.1 (1.0-1.3)
BMI				
<18.9	52 (1.1)	7 (14)	0.09 (0.2)	1
19-24.9	965 (20.1)	229 (23.7)	0.11 (0.2)	1.9 (0.8-4.6)
25-29.9	1952 (40.6)	504 (25.8)	0.12 (0.2)	2.2 (0.96-4.9)
30-34.9	1381 (28.8)	380 (27.5)	0.09 (0.2)	2.4 (1.1-5.5)
>35	452 (9.4)	115 (25.4)	0.9 (0.2)	2.3 (0.9-5.3)

| Variables	Total N (%)	Abortion N (prevalence)	Abortion ratio Mean (SD)	Adjusted OR (95% CI)
Physical activity daily METs				
24-36.5	1036 (21.4)	261 (25.2)	0.11 (0.3)	1
36.6-44.9	3302 (68.4)	862 (26.1)	0.11 (0.2)	1.1 (0.9-1.3)
≥45	492 (10.2)	118 (23.9)	0.08 (0.2)	1.0 (0. 8-1.4)
Use contraceptive drug				
No	812 (16.8)	240 (29.5)	0.13 (0.3)	1
Yes	4013 (83.2)	996 (24.8)	0.10 (0.2)	0.8 (0.6-0.9)
Socioeconomic status				
1st quantile (the poorest)	968 (20.1)	236 (24.4)	0.08 (0.2)	1
2nd quantile	966 (20.0)	222 (22.9)	0.09 (0.2)	0.9 (0.7-1.1)
3rd quantile	962 (19.9)	242 (25.1)	0.09 (0.2)	1.0 (0.8-1.3)
4th quantile	968 (20.1)	248 (25.6)	0.11 (0.3)	1.0 (0.8-1.3)
5th quantile (the richest)	962 (19.9)	291 (30.2)	0.15 (0.3)	1.4 (1.1-1.8)
Thyroid				
No	4546 (94.1)	1159 (25.5)	0.10 (0.3)	1
Hypo	261 (5.4)	73 (27.9)	0.1 (0.2)	1.1 (0.8-1.5)
Hyper	24 (0.5)	9 (37.5)	0.14 (0.2)	1.8 (0.7-4.5)
Blood pressure				
No	4465 (92.7)	1158 (25.9)	0.11 (0.2)	1
Yes	353 (7.33)	76 (21.5)	0.12 (0.3)	0.6 (0.5-0.8)
Goodness of fit model				
Sensitivity	19.15%			
Specificity	95.25%			
Accuracy	75.97%			
Positive predictive value	57.79%			
Negative predictive value	77.63%			
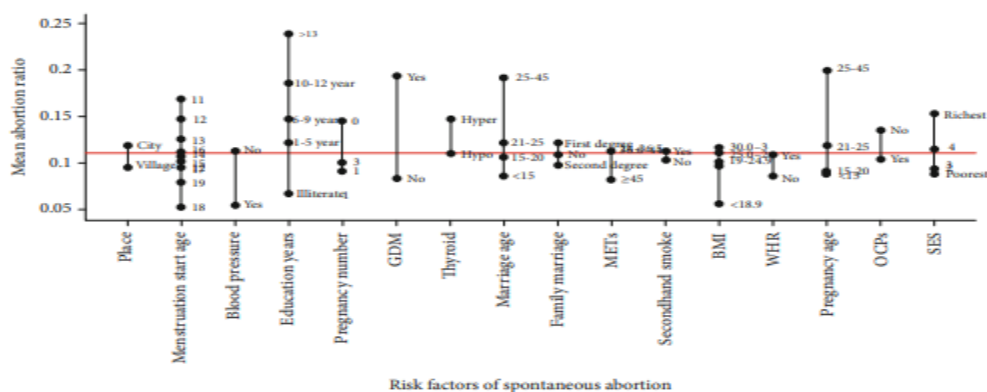
Figure 1: Mean abortion ratio based on the studied variables in the participants of RaNCD (8).

Despite the fact that the overall incidence of maternal abortion and miscarriages in Iran has become less than 0.02 percent, the psychological consequences of abortion (such as grief) and its medical complications may lead to a range of psychiatric illnesses in families and women. In one study, the highest incidence of spontaneous abortion was determined to be about 26%, whereas other studies found it to be between 10% and 31%. Although the rate of abortion in just this study was similar to that seen in other studies, this finding cannot be applied to the whole community. While the woman is uninformed of her pregnancy, she may have an abortion in the first few weeks of her pregnancy. Furthermore, in jurisdictions where contraception is outlawed, such as Iran, determining the actual burden of various forms of abortion is difficult. In this

scenario, ladies are concealing the genuine cause for their abortion in effort to get medical treatment(10).

Age at first marriage and age at first pregnancy, according to the results of this research, are both substantial risk factors for spontaneous abortion. As a consequence, women in their first marriage and pregnant after turning 26 had a 57 percent and 87 percent greater chance of abortion, respectively, than women in other age groups. This result was also consistent with earlier studies. Scientists think that having a child and marrying later in life increases the chance of abortion, fatal and chromosomal abnormalities, and pregnancy-related disorders. As a consequence, it is important to undertake frequent examinations and tests on the controlled growth of foetuses in pregnant women of senior age, as previously noted.

According to the results of this study, secondhand smoking raised the incidence of spontaneous abortion, albeit not considerably. However, similar studies found a strong link between second-hand smoking and an increased incidence of abortion. Smoking is not safe at any stage of pregnancy; consequently, pregnant women should avoid being exposed to tobacco pollution. As a prophylactic measure, contraceptive pills lowered abortion rates by 78 percent, which was consistent with earlier data. It might be because contraceptive tablets have medical qualities in addition to contraception and are occasionally used to avoid ovarian cysts or strengthen follicles. Taking progesterone hormones as advised by a gynecologist is another therapy option for minimizing the risk of abortion. As a consequence, hormonal contraceptives containing progesterone may have a part in safeguarding spontaneous abortion (4).

According to a prior research, when the number of births grew, the risk of abortion increased. The incidence of spontaneous abortion rose as education levels climbed, placing women with a secondary schooling at the highest risk. Many research have indicated that unfavorable pregnancy consequences are more noticeable in women with greater education; nevertheless, a study in northwest Ethiopia came to a different result. When women with a secondary education marry later in life, variables such as their age at first marriage and first pregnancy, both of which are possible causes for spontaneous abortion, might increase the likelihood of an abortion. When shown in this study, as one's SES rises, the likelihood of having an abortion rises as wellTaking all of the factors into consideration, it was discovered that expectant mothers with such a higher socioeconomic status are 1.36 times more probable to have an abortion. A substantial link between spontaneous abortion and SES has been shown in numerous previous investigations (6).

Women with high blood pressure had a higher incidence of spontaneous abortion than women lacking high blood pressure, and only 6.2 percent of sudden abortion patients had high blood pressure. After adjusting for other conditions, it was shown that women with hypertension had a reduced risk of spontaneous abortion. Blood pressure and spontaneous abortion were shown to have no significant association in a Finnish research. This finding might be attributable to the fact that hypertensive moms get better health treatment, allowing them to avoid abortion. One of the study's shortcomings was that participants were required to complete self-report questionnaires, which might make distinguishing between spontaneous and nonspontaneous abortions difficult. Families and women in Iranian culture, as well as in places where norms still exist, such as Kurdish communities, are ashamed of any sort of abortion. Furthermore, an induced abortion is illegal if there is no medical reason that has been authorized by forensic medicine and an expert. We don't have a comprehensive picture of the true frequency and types

of abortion as a consequence of these limitations. The investigator watched the PERSIAN cohort procedure in the RaNCD cohort trial and used a local and female interviewer for the women to guarantee that the questions were answered appropriately. The participants were advised that their replies would be kept confidential by the interviewer(9).

4. CONCLUSION

Identifying risk variables in a population-based research is crucial in countries like Iran, where the psychosocial repercussions of abortion may be frequent. The likelihood of spontaneous abortion rises with the number of babies, age at first marriage, age at first pregnancy, and degree of education, according to our data. While all of these elements have risen in recent years in unison with women's socioeconomic growth in Iran, it is vital to avoid abortion among these women. In reality, actions on abortion and its risk factors should be conducted via the media, counseling, supplementary education, and training both for the individuals and medical care professionals. While most Iranian cities provide basic health care and maternity care provided by midwives and gynecologists, high-risk women need additional high-quality treatment.

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