



# Evaluation of Medication Use and Drug Abuse During Pregnancy in Tehran

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## Abstract

**Background:** Medication consumption and drug abuse are considered important socio-economic and medicolegal issues all around the world. The significance of the problem is highlighted during pregnancy.

**Objectives:** We aimed to evaluate the prevalence of medication and drug consumption during pregnancy in Tehran.

**Methods:** In this descriptive study, we selected several maternity hospitals as the sources of our study population. All women of postpartum period willing to participate in the study were included. We prepared self-designed questionnaires to be filled out by trained personnel while interviewing women face to face. All the data were collected and analyzed by SPSS16 software.

**Results:** In this study, we evaluated 3279 mothers who delivered in 10 different hospitals in Tehran. The result showed that the most common medications used during pregnancy were iron (85.2%), folic acid (81.7%), and calcium (48.2%). In this population, insulin, levothyroxine, and antihypertensive medications were used in 7.1%, 5.9%, and 1.8% of the mothers, respectively. Overall, 14.5% of our population used medications for medical conditions during pregnancy. Cigarette smoking, alcohol, and substance abuse before or during pregnancy had a very low prevalence in comparison with other developed countries.

**Conclusions:** The use of medication during pregnancy increases the risk of several complications. Careful pharmaceutical monitoring during pregnancy and national surveys are recommended for obtaining up-to-date information and making a better decision by policymakers.

**Keywords:** Pregnancy Complications, Socioeconomic Factors, Prenatal Care

## 1. Background

Drug consumption and drug abuse, especially in pregnant mothers, may cause some complications and unwanted problems during and after pregnancy. Statistical information about this subject is very valuable and necessary (1, 2). Research in this field is very essential due to the lack of data in our patients and the fact that this information will change with time. In 2012, a study was done in Tehran about maternal and neonatal complications of substance abuse in Iranian pregnant women (3).

## 2. Objectives

We decided to do this study in several hospitals in Tehran. It is very important that all pregnant women be asked about past and current drug history in perinatal visits. Every two years, the Canadian Centre on Substance Abuse (CCSA) produces a new report in substance abuse in

Canada series, with each edition shedding much-needed light on an important drug and alcohol-related issue (4). Pregnancy is a certain period of life; some drugs may be very harmful to the fetus and they must be switched to less harmful ones. In this sensitive period, some mothers are ready to change bad habits because of their adverse effects on the fetus.

## 3. Methods

This is a descriptive study, with the inclusion criteria of all pregnant women delivered in a limited period and the exclusion criteria of mothers unwilling to cooperate with the study.

After the determination of sample size, different hospitals of the city were selected (governmental, private, and charity hospitals). We addressed a heterogeneous population in this study. A standard questionnaire based on the

research topic about drug and drug abuse during pregnancy was prepared and completed by a group of trained personnel during interviews with mothers. The study protocol was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences and written consent was obtained from the mothers.

The information was extracted and analyzed with SPSS-16. We used mean, median, and standard deviation for quantitative variables and frequency and percentage for qualitative variables.

#### 4. Results

The study was conducted on 3279 mothers who were admitted to different maternity hospitals of Tehran between September 2014 and February 2015. The hospitals were selected with cluster sampling method; three hospitals were governmental and seven hospitals were private, non-governmental, charitable hospitals. A total number of 3279 patients were examined including 1041 patients (31.7%) in government hospitals and 2238 patients (68.3%) in private hospitals. Cesarean section was done in 71% (44.3 - 94%) of cases. The mean weight of newborns was  $3109.7 \pm 524.5$  grams (600-6100 grams). The mean age of the mothers was  $28.3 \pm 5.4$  (12 - 49 years). About 21 mothers (0.64%) were single. About 2015 mothers (64.5%) lived in Tehran city and 770 (23.6%) were from Tehran's suburb areas. Most mothers (97.5%) received very good perinatal care by obstetricians (57.1%) or midwives (42.9%).

The most widely used medicine by mothers was iron 82.2%, folic acid 81.7%, multivitamins 71.5%, Calcium 48.2%, Omega-3 2.2%, and other supplements and vitamins < 1%.

Six hundred and seven (18.5%) mothers during pregnancy had diseases including diabetes mellitus in 234 mothers (7.1%), hypothyroidism in 112 (3.4%), hypertension in 58 (5.9%), and other diseases in 58 (1.8%). In addition, 20 (0.6%) needed to have surgeries. The course of the disease was different and included less than one month in 126 mothers (20.8%), 1 - 3 months in 154 (25.4%), 3 - 6 months in 95 (15.6%), 6 - 8 months in 49 (8.1%), 9 months in 89 (14.7%), and in 94 mothers (15.4%), it was unclear. Generally, 484 mothers (14.75%) used different medicines that are summarized in Table 1. The period of special drug use was less than one month in 90 (18.6%), 1 - 3 months in 66 (13.6%), 6 - 8 months in 36 (7.4%), and more than 9 months in 292 (60.3%).

#### 5. Discussion

We conducted a prospective study in 10 different maternity hospitals in 3279 pregnant mothers. These hospitals were located in different parts of the city and we tried

**Table 1.** Distribution of Medicine Consumption in Mothers

Drug Groups	No. (%)
Hormonal	236 (48.76)
Cardiologic	103 (21.28)
Antibiotic	30 (6.20)
Sedative	28 (5.79)
psychology	19 (3.93)
Gastroenterology	19 (3.93)
Corticosteroid	9 (1.85)
Anticoagulant	7 (1.45)
Antifungal	7 (1.45)
Narcotic	7 (1.45)
Supplement	7 (1.45)
Others	12 (2.48)
Total	484 (100)

to involve a heterogeneous population concerning socioeconomic status.

The average age of mothers was  $28 \pm 5.4$  years that show the average childbearing age in this study is a little high. It seems that it requires sociological surveys and appropriate measures by policymakers. The number of single mothers (21, 0.6%) was relatively low when compared to other countries (5, 6). In the US, this trend has been increasing since 40 years ago from 8% in the 1960s to 24% in 2012 (7) and the same trend has reported in European countries.

Maternal education was at a suitable level and most of the mothers received good prenatal care. Iron was the most widely used drug during pregnancy with 85.2%, followed by folic acid, multivitamins, and calcium (81.7%, 71.5%, and 48.2%, respectively). Most of these drugs were prescribed by physicians and they are routine prenatal care drugs in our country. Omega-3 and vitamin B6 had consumption rates of 2.2% and 0.9%, respectively, and other vitamins were used with a very low percentage (about 5%).

The mothers' need for iron doubles during pregnancy and this requirement cannot be met by regular diet (8, 9). In a recent study, it was shown that the daily intake of iron supplement could prevent neonatal anemia and low birth weight (10). Harvard study showed even small amounts of iron decrease 12% risk of anemia and 3% low-birth-weight (11, 12). It is recommended that all pregnant women receive ferrous sulfate supplementation from 16 weeks of pregnancy and continue it until three months after delivery. Other vitamins and minerals are also needed during pregnancy, especially in developing countries and poor socioeconomic conditions. Folic acid can prevent some congen-

ital anomalies and it must be used even before pregnancy. For unplanned pregnancy, it is recommended to use a daily dose of 400 IU folic acid and folic acid rich food (13-15). Diabetes mellitus was the most common disease (7.1%). In a study, the overall incidence of diabetes was 6.7% that was similar to our study but in over 30-year-old women, it was 8.5% and in women with a diabetic relative increased to 11.6%. It was also shown that with a combination of risk factors, it increased to 61% (16-18). The rates of hypothyroidism and hypertension were 5.9% and 1.8%, respectively. In a study, the prevalence of subclinical hypothyroidism was 5.1% in the white race (Caucasoid) and 1.7% in African and Mexican people (19). Hypertension is a major problem during pregnancy and about 2 to 3% of mothers are afflicted during pregnancy. Overall, 14.5% of mothers used medicines for specific diseases. The most common drugs were insulin, Levothyroxine, antibiotics, sedatives, neurologic, and gastrointestinal-related drugs. The duration of their use was very different. In 96.6%, consultation with a physician had been done and only 3.4% were without consultation.

Alcohol consumption may have some unwanted effects on the mother-fetus dyad. It can easily cross the placenta and may be a teratogen. Alcohol may have some bad effects on the brain, heart, and lung. It may cause the fetal alcohol syndrome. Some learning and physical disabilities may be permanent during life. The main side effects occur in the initial weeks of life; therefore, it must be stopped as soon as possible. There is no direct relationship between the amount of consumption and severity of complications but maternal factors like age, race, and genetic and its pattern are responsible. According to a report by the US center of disease control and prevention (CDC), during the years 2006-2010, alcohol consumption in pregnant women was 6.7% (20-28).

In our study, the prevalence was 0.6% in 21 mothers that decreased to 19 during pregnancy. The results indicate the low alcohol consumption in our country that is related to regional and cultural beliefs, but despite the privacy of the questionnaires, it is possible some mothers were not interested to declare it.

A Canadian study showed that 19.4% of pregnant women used FDA category C, D, or X drugs at least once. It also showed that more drugs were used in women with chronic diseases, lower age, and multiple pregnancies (29).

Cigarette smoking was prevalent in 1.8% of the mothers before pregnancy and continued in 51 (1.6%) during pregnancy; more than 50% used it during pregnancy and in 29% used more than 10 cigarettes in a day.

It has been proven that 12 to 20% of smoking mothers during pregnancy may be at risk of falling their babies (30-32). Continuation of smoking increases the risk of com-

mon cold, cough, and otitis media in the baby (33). Smoking during pregnancy may cause decreased birth weight, preterm labor, and infant death. Passive smoking also endangers the mother and fetus (34-37). Fortunately, in our socio-cultural condition, smoking is less common in women than in men, especially in young girls and child-bearing ages.

Different types of illicit drugs were used by 26 pregnant women (0.8%). It must be considered that the fetus may have even withdrawal syndrome during pregnancy. Congenital malformation, low birth weight, intrauterine growth retardation, prematurity, and perinatal infections may increase (38). Some mothers may use more than one drug and in a study, it was shown that more than 50% of the addicted mothers used alcohol and cigarettes simultaneously (2, 39).

It is necessary to use some medicines for special illnesses during pregnancy. In our study, 157 mothers (4.8%) had special diseases even before pregnancy like diabetes, hypothyroidism, hematologic, and cardiologic problems. In this situation, it is very important that we use the minimum dose and the safest drugs for the mother and fetus. In conclusion, the use of medication or drugs during pregnancy increases the risk of several complications. Careful pharmaceutical monitoring during pregnancy, as well as national surveys every two to three years, is recommended for obtaining up-to-date information and making better decisions by our policymakers.

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## Footnotes

**Authors' Contribution:** Sara Sanii: Corresponding author and editor; Mohammad Kazemian: The main author; Minoo Fallahi: Cooperating author; Seyed Abolfazl Afjeh: Cooperating author; Seyed Hossein Fakhraee: Cooperating author.

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