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PREVALENCE AND CAUSES OF SELF-MEDICATION IN PREGNANT WOMEN REFERRING TO HEALTH CENTERS IN SOUTHERN OF IRAN

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ABSTRACT: Objective: The self-medication phenomenon is one of the acute health problems particularly in women and as encountering a sensitive period such as pregnancy is of critical importance. The present study has been conducted to determine the prevalence and causes of this phenomenon in the pregnant women in the city of Ahvaz, located in the west south of Iran. **Methods:** In this descriptive-analytical study 801 pregnant Women referring to seven health centers in Southern of Iran were selected randomly based on the family (medical) file number and by proportional distribution to each center as a research unit and semi-structured questionnaires were completed through interviews. The data were analyzed by Chi square test and logistic regression. **Results:** The findings showed that 30.6% of women use self-medication showed 30.6% self-medication in pregnant women. The most frequent group were those under the age of 25. Most frequent self-medication cases belonged to the age group less than 25 years. The most common self-medication cases were digestive disorders. There was a significant relation between among age ($P < 0.01$), gestational age ($P < 0.03$) and education ($P < 0.002$) with self-medication. The most common causes of synthetic drug use were mild diseases (19.8%), and high medical costs (35.4%), and harmlessness about herbal medications (68.8, 70.4 %). **Conclusion:** Due to the adverse effects of self-medication, particularly during pregnancy, which can lead to abnormal birth, it is necessary to take some measures raising the level of culture and preventing self-medication particularly in women.

INTRODUCTION: Disease and health are the two words which back to the history of human creation. From the ancient age, human being has been dealing with this concept and its associated factors; However, this concept, content, and the way to deal with And the way to deal with it have been various at different times¹. Today, progress and awareness have provided an impetus for people to play a greater role in their own health scope. In other words, people are eager to have more responsibility towards their own health and obtain appropriate health information from reliable sources to help them decide correctly on health care, thus caused self-medication to become one of the most important aspects of the health care system².

Self-medication regarded as the most common form of self-care is obtaining and using one or more drugs without medical supervision or prescription that includes herbal or synthetic remedies³. Self-medication is a behavior affected by various factors such as income, local culture, education, age and gender⁴.

Several studies have shown that women tend to use self-medication frequently and repeatedly to treat problems such as dysmenorrhea, menopausal symptoms remedy, menstrual disorders, mood disorders, osteoporosis prevention, pregnancy and breast feeding problems⁵.

Especially in unwanted pregnancy or when the mother is unaware of her pregnancy, self-medication may increase⁶. Studies show that the most common reasons of self-medication are re-using pre prescribed drugs, inability to afford medical expenses⁷, disease mark treatment by a physician, repeated prescriptions⁸ buying non-

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prescribed medications in drugstores⁹, wrong drug consumption culture, drug delivery to the people by some irresponsible pharmacies custodians, cheap drugs¹⁰ administered by non-pharmacist due to deficiency of pharmacies and pharmacists in those communities¹¹.

Self-medication is not limited to synthetic drugs so that, today, the numbers of official herbal medicines used in the treatment of diseases is growing compared to the total numbers of official medicines in the world is growing compared to the total numbers of official medicines in the world¹², and many pregnant women experience self-medicating with the notion that natural treatments using herbal medicines are not problematic with no maternal and fetal side effects¹³.

Studies in several countries have reported variations in using herbal medicine in pregnancy period, for example, in a study by Ernest¹, using herbal medicines in pregnancy varied from 12% (Australia - Norway) to 55% (in Africa)¹⁴. In a study conducted in Shahrekord (town), 51.9% of pregnant women had used herbal medicines remedies (15). According to the findings of some studies, the arbitrary use of herbal medicines during pregnancy can cause uterine contractions. Strandberg's¹ study showed that consumption of high amounts of licorice can increase the risk of premature delivery 2 to 3 times and during pregnancy can cause miscarriage¹⁶. Based on conducted studies, proper measures to reduce self-medication in the society are as follows:

Unconditional limitation of access to the drugs, especially harmful drugs, public education to rational drug consumption and limiting the number and types of medications keeping at home, improving the quality of health services and increasing access to community services provision system². Due to the increasingly widespread phenomenon of self-medication and one's direct role in selection and use of drugs, it is necessary to determine affecting factors on changing the behavior of individuals to access appropriate health behavior¹⁷⁻¹⁸, so the researcher intended to study the prevalence and causes of pregnancy-related problems of self-medication to take a step towards

improving the drug consumption culture and the health of mothers and women.

MATERIALS AND METHODS: The present study is a descriptive-analytical research on 801 pregnant women referring to health centers in the city of Ahwaz, located in the west south of Iran. To do this, initially, a formal letter of introduction from Ahwaz University of medical, were presented to selected health centers of Ahwaz.

After confirming the validity of the semi-organized questionnaire by ten faculty members half a dozen of the Faculty of Medical Sciences University of Southern of Iran, a preliminary study on 42 pregnant women was conducted to determine the reliability and sample volume size; based on preliminary studies, the relative frequency of self-medication in pregnant women was obtained 13.42, and the ratio of the prevalence of self-medication for any items specified in the questionnaire was approximately 20%, thus to determine the sample volume size using the formula of relativity in the

community $N = \frac{z^2 \frac{\alpha}{2} p^{\wedge} (1 - p^{\wedge})}{d^2}$ and considering

$d=5\%$, $p^{\wedge}=20\%$, the sample volume of 246 pregnant women attempting self-medication was obtained. To determine the sample volume in the community under investigation, regardless of the conductor lack of self-medication the ratios calculated in pilot study were obtained and finally, the sample volume size was calculated 794 people (246×42.13).

Moreover, the scientific reliability was confirmed through the Cronbach's alpha of 0.81. The health centers were chosen in a two-stage clustering-random way so that out of the 13 health centers in eastern region of Ahwaz, 4 (1, 4, 5 and 9) were selected based on random numbers. Among the health centers located in western region of Ahwaz 3 of 9 centers (1, 5, and 7) were selected based on random numbers table, then according to the population covered by each center, the numbers of samples in each center were selected (sampling with proportional allocation). Sampling at each center was conducted through the systematic random method, based on each family's medical

file in health centers. Then, the researcher and his assistance, fluent in Arabic attended in a physically appropriate place, at health center. After each of research subjects according to inclusion criteria (living in Ahwaz and consent to participate in research) and considering terms and conditions of withdrawal from the research (non-Iranian and religious minorities, and those who are not residents of Southern of Iran), accompanied by a written consent and noting that the questionnaire would be anonymous and confidential, and people are allowed to withdraw at any stage of the interview.

At first, the samples were justified in relation to objectives of the research and after defining any synthetic and herbal drugs, as well as medicinal plants, an interview was conducted and questionnaires were completed by the researcher and his assistance. Each person was interviewed for 20 minutes. Data were collected by a semi-organized questionnaire including open and closed questions, designed and tuned based on the studies. Questionnaires contained 17 demographic questions (age, education, occupation, reproduction status, Pregnancy age, etc.), and 25 questions related to self-medication (including The ways of Using medicine, consumed drugs type, duration and type of drug use, the reasons for use and etc.).

Detection of self-medication was based on answers of research units to related questions; if they gave positive answer to question number 18 (Have they had drug consumption without any prescription?), those people were located within the self-medication group and the interview continued; otherwise, only 17 general questions (demographic) were completed.

Initially, questionnaire data were transferred to SPSS software version 17 and from descriptive statistics such as frequency distribution and geometric diagrams, and for measuring self-medication with qualitative variables, Chi-square¹ and Fisher² tests were applied and based on the necessity, The GEE model (Generalized estimation equation¹) and for measuring self-medication with quantity variable (number of children), T-test or Mann-Whitney were applied. In this study, $P < 0.05$ is considered significant.

RESULTS: The results showed that from 801 pregnant women participated in the study, 30.6% were self-medicated and of this, 40 percent had used synthetic drugs, 13.1% herbal medicines and 46.9 percent had used medicinal plants. The highest prevalence occurred in ages 25 to 30 (38%), owners of academic degrees (37.56%), those who have delivered at least five times (68.6%) and a low-risk pregnancy (72.2 percent) and using simple statistical logistic we found that there is a significant relation between the age of (< 0.0001), educational level (< 0.0001), pregnancy number (0.0001) and pregnancy type (0.001) data of research units to self-medication (**Table 1**).

In this study, estimating the participants showed that the prevalence of self-medication among pregnant women without healthcare insurance is more (89.4%) and there was a statistically significant relation between self-medication and having healthcare insurance ($P = 0.002$) (**Table 1**). The mean of pregnancy age in women who applied self-medication is more than those without self-medication and through Mann-Whitney statistical test a significant relationship was observed between pregnancy age and self-medication ($p < 0.006$) (**Table 1**).

The most frequent use of synthetic & herbal drugs, and medicinal plants was observed in the second trimester of pregnancy (the 4 to 6-month age) (**Table 2**) and 59.6% of them had previous self-medication experience before pregnancy, in addition, a significant relation between self-medication and self-medication experience before pregnancy has been observed by taking a simple logistic test. (0.0001) (**Table 1**). Generally, in the logistic regression model Among those variables which have signified by simple logistic test, only age ($OR = 0.3$, $P = 0.01$), education level ($OR = 10.9$, $P = 0.002$) and gestational age ($OR = 0.9$, $P = 0.03$) of research units had significant relations with self-medication (**Table 3**).

The most frequent self-medication items often belonged to digestive disorders (38.80%), disorders related to pregnancy (30.52 percent), genitourinary disorders (25.26%) as well as respiratory problems (8.42 percent) and according to medicinal group, synthetic drugs are mostly used as antibiotics (44.8

percent), curing digestive diseases (19.3 percent), anemia (14.2 percent), skin problems (13.2%) and cold (8.1%) and the herbal medicines most often used as a treatment of digestive disorders (50%), skin diseases (34.4 percent) and cold (15.6%) ; the medicinal plants most frequently used as a treatment of digestive disorders (66.9%), hypoglycemia (17.8%), treatment of anemia (5.1%)

and treatment of renal disorder (5.1 %) and finally cold treatment (5.1 percent). Synthetic drugs are commonly used for mild diseases (19.8%) and disorder the expensive medical costs (35.4 percent), harmlessness of herbal products is the most frequent reason why they are most used (68.8, 70.4 percent) (**Table 4**).

TABLE1: ABSOLUTE & RELATIVE FREQUENCY DISTRIBUTION OF DEMOGRAPHIC FEATURES OF PREGNANT WOMEN DIFFERENTIATED BY DRUG CONSUMPTION METHOD

| Demographic Features | | Drug Consumption without any prescription | Prescribed Drug Consumption | PValue |
|--|------------------------------|---|-----------------------------|-----------------|
| | | N=213 | N=437 | |
| | | N (%) | N (%) | |
| Age | Less than 25 Years | 103(42%) | 210 (37.8%) | 0.0001 < |
| | 25-30 years | 93(38%) | 28.2%(157) | |
| | More Than 30 years | 50(20%) | 189(34%) | |
| Education Level | Lower Than Diploma | 74(30.2%) | 340(61.2%) | 0.0001 < |
| | Diploma | 79(32.24%) | 131(23.6) | |
| | Being Educated in University | 92(37.56%) | 85(15.3%) | |
| Occupation | housekeeper | 174(71%) | 478(86%) | 0.0001 < |
| | Employed | 71(29%) | 78(14%) | |
| Having Health Insurance | Yes | 26(10.6%) | 451(81.1%) | 0.002 < |
| Book | No | 219(89.4%) | 105(18.9%) | |
| Delivery Number | 1< | 168(68.6%) | 322(58%) | 0.0001 < |
| | 2 to 4 | 74(30.2%) | 207(37.2%) | |
| | ≤5 | 3(1.2%) | 27(4.8%) | |
| Pregnancy Type | Low Risk | 177(72.2%) | 473(76.1) | 0.001 < |
| | Risky | 52(21.2%) | 121(28.2) | |
| | I don't know. | 16(6.5%) | 12(8.7%) | |
| Non-prescribed Drug Consumption Prior to Pregnancy | Yes | 146(59.6%) | 248(44.46%) | 0.0001 < |
| | No | 99(40.4%) | 308(55.4%) | |
| Pregnancy Age Standard Deviation±Average | | 6.63±32.3 | 7.9±30.4 | 0.006 |

TABLE 2: ABSOLUTE AND RELATIVE FREQUENCY OF TAKING DRUGS WITHOUT A PRESCRIPTION, ACCORDING TO TRIMESTER OF PREGNANCY

| Drug use according to trimester | | N (%) |
|--|---------------------------------------|------------|
| Synthetic drugs every 3 months from pregnancy | Up to three-month | 41(41.8%) |
| | From 4 to 6-month age | 49(50%) |
| | From seven-month age to delivery time | 8(8.2%) |
| Synthetic drugs every 3 months of pregnancy | Up to three-month | 10(31.2) |
| | From 4 to 6-month age | 16(50%) |
| | From seven-month age to delivery time | 6(18.8%) |
| Synthetic drugs in every 3 months of pregnancy | Up to three-month | 48(42.7%) |
| | From 4 to 6-month age | 44.3% (51) |
| | From seven-month age to delivery time | 16(13%) |

The highest average duration of use was for the medicinal plants with 1.93 ± 7.77 days. Most abundant form of synthetic, herbal drugs and

medicinal plants use included edibles (79.5 percent), edibles (78.2%) and boiled remedies (70.5 percent). The most common place to provide

synthetic, herbal remedies and medicinal herbs was drugs kept at home (55.45 percent), pharmacy (78.2 percent) and grocery (56.45 percent), respectively. Abundant source of information on the types of

drugs consumed, included physicians for synthetic drugs (42 percent), books and magazines (18.7%) for herbal medicines and friends and family (62.6 percent) for medicinal plants.

TABLE 3: LOGISTIC REGRESSION MODEL WITH SIGNIFIED VARIABLES WITH THE SIMPLE LOGISTIC REGRESSION IN PREGNANT WOMEN

| Signified Variables | PValue | OR |
|--|--------|-------|
| Age | 0.01 | 0.3 |
| Education Level | 0.002 | 10.9 |
| Pregnancy Age | 0.03 | 0.9 |
| Ethnicity | 0.23 | 0.5 |
| Occupation | 0.35 | 0.6 |
| Having healthcare insurance | 0.35 | 0.5 |
| Disease Experience | 1 | 4.3 |
| Disease Type | 0.98 | 1.6 |
| Pregnancy Type | 0.99 | 0.000 |
| Non-prescribed Drug Consumption Prior to Pregnancy | 0.12 | 0.5 |
| Pregnancy Number | 0.99 | 0.000 |
| Delivery Number | 0.99 | 7.9 |
| Living babies Number | 0.99 | 1.2 |

TABLE 4: THE FREQUENCY DISTRIBUTION OF THE DRUG IN PREGNANT WOMEN ACCORDING TO THE TYPE OF MEDICATION WITHOUT A PRESCRIPTION

| Self-Medication Reasons | Synthetic Drugs | Herbal Remedies | Medicinal Plants |
|---|-----------------|-----------------|------------------|
| | N (%) | N (%) | N (%) |
| Convenient Access | 5(5.2%) | 0(0%) | 2(1.7%) |
| Mild Disease | 19(19.8%) | 2(6.3%) | 19(16.5%) |
| Pre-experience of the disease | 47(49%) | 5(15.6%) | 9(7.8%) |
| Not taking serious the disease | 4(4.2%) | 2(6.3%) | 0(0%) |
| Costly medical expenses | 34(35.4) | 7(21.9%) | 21(18.3%) |
| Lack of healthcare insurance | 2(2.1%) | 0(0%) | 6(5.2%) |
| Lack of time | 2(2.1%) | 0(0%) | 3(2.6%) |
| The drug at home | 2(2.1%) | 0(0%) | 0(0%) |
| Experiencing good result from self-medication | 15(15.6) | 2(6.3%) | 9(7.8%) |
| Lack of faith in doctors practice | 3(3.1%) | 3(9.4%) | 9(7.8%) |
| Harmless herbs and medicinal plants | 3(3.1%) | 22(68.8%) | 81(70.4%) |
| Inexpensive herbs and medicinal plants | 0(0%) | 2(6.3%) | 9(7.8%) |
| herbs and medicinal plants | 1(1%) | 3(9.4%) | 16(13.9%) |
| Using before pregnancy | 1(1%) | 1(3.1%) | 10(8.7%) |
| Other | 13(13.5) | 1(3.1%) | 1(0.9%) |

The most common recommenders to synthetic drugs consumption, herbal remedies and medicinal plants have been the drug consumer (65.30%) the drug consumer (46.87%) and friends and family (52.17 percent). In addition, 95.10 percent were satisfied with the consumed drugs, and the most frequent complications of the use of self-medication, was reported for digestive disorders (65.21%) and 62.85% of them declared that consumed drug had cured them and 33.46%

believed that the consumed drug was innocuous for their fetus and 48.97% of them were willing to use herbal products during pregnancy, and only 13.87% believed that taking these combinations require a doctor's prescription. Consequently 28.1 and 26.12% of them stated that the concurrent use of herbal and synthetic drugs may interact (pharmaceutically), and the effects of multivitamins with herbal remedies may be changed.

DISCUSSION: In this study, 30.6% of pregnant women have experienced self-medication that is higher than the mean score of mothers' behavior in Shams research in terms of self-medication aspect (12%) (19), and is less than the Helst research in Norway (2008) (57.8%)²⁰.

The most frequent self-medications belonged to medicinal plants (46.9 percent). In Forester¹ and his colleagues study in Australia (20) and in a study by Nordeng¹ et al in Norway (2004)²¹, the prevalence of herbal remedies was 36 and 51.18 percent, respectively. In Hepner¹ study, the prevalence of herbal medicine use was 7% (22). A study conducted by Gaffney¹ in Australia (2004) showed that 32% of pregnant women use herbal remedies for at least 36 weeks (23). Refuerzo et al study in America (2005) found that 89% of pregnant women used food supplements and 1.4% applied herbal remedies (23). In Tabatabai study, 8.30% of pregnant women used herbal medicines arbitrarily²⁴. Highest frequency belonged to the age group of less than 25-year-olds (42%), which is consistent with the results of Tabatabai's study in Kazeroon (town) (24), while Shams and colleagues studies (2007) showed that the highest incidence occurs in age group between 20 to 30-year-olds (19) that it may be due to the difference in the age range of the two studies.

The most prevalence was seen in people with a university education (37.56 percent) so that higher education level, more self-medicating. Some research results show that the prevalence of self-medication in educated people is more because of their access to information about drugs²⁵. While another study found that increasing the level of education leads to a reduction in self-medications, changing the drug consumption⁹.

Housewives without health insurance were in the first prevalence group that is consistent with the results of Kazeroon study case²⁴. It is clear that having health insurance which reduces some costs of treatment makes insured mothers more eager to visit a doctor instead of self-medicating during illness¹⁹. The results of the present study is consistent with Shams and colleagues case¹⁹, While the study conducted in Tehran (2006) showed no statistically significant relation between

the self-medication and the different health insurance groups among the studied population (Tehran citizens)².

The present study found a significant correlation between the number of deliveries, alive babies and self-medication ($P < 0.05$) through the Mann-Whitney test that is consistent with Doostdar and colleagues study Guilan (province). Heppner study, showed that the prevalence of herbal medicines use is more common in multi-par women²² while Tabatabai found no significant relation between herbal self-medication and parity ($p = 0.6$)²⁴.

In Holst²⁷ and Nordeng studies²¹, the prevalence of herbal medicine use among nulliparous women was more that is inconsistent with the present study. Although parity was examined as a factor influencing the self-medication, in Review researches this relationship is not clear. The mean gestational age in women with self-medication is more than women without self-medication ($P < 0.006$), which is consistent with Nordeng results ($P < 0.001$)²¹.

In this study, self-medication in pregnant women with a risky pregnancy for various reasons (hypertension, gestational diabetes, decreased amniotic fluid, intrauterine growth retardation, infertility, etc.) has been less than those with low-risk pregnancies ($P = 0.001$) which may be due to the increase in the number of prenatal cares and health inspectors warnings about possible side effects on the pregnancy, therefore, the pregnant women avoided taking any arbitrarily medication without consulting to physician, moreover, there has been no similar study yet.

The most frequent self-medication cases belonged to, in this study, digestive disorders (80.38%) and pregnancy related disorders (52.30 percent), consistent with Kazeroon study case²⁴. In Shams study, the most common self-medication cases occurred in the treatment of anemia, digestive, respiratory, neurological, psychological diseases¹⁹, while in Nordeng study (2004), the most common cases of self-medication were in herbal medicines of cold and respiratory diseases, the most prevalent reasons for self-medication in this study were mildness of illness, expensiveness of

medicinal costs and harmlessness of herbal products (2002) that is consistent with Shanker study. In Kerman City, reusing prescribed drugs, inability to afford the physician's fee and the costly medical services have been the most common reasons for self-medication²⁸, which is consistent with the current study.

The most abundant source of information on the types of consumed drugs, include physicians for synthetic medicines, books and magazines for herbal remedies, and friends and family for medicinal plants that is similar to Helst study (2008), who announces the most abundant source of information, as family and friends (61.8%), the individual (32 percent), health inspectors (22.4%) and books and magazines (18.1 percent)²⁰. In Helen¹ (2010), the most common source of information for using complementary medicines, were family, friends and the media²³, while in the Nordeng study (2004), the most sources of herbal remedies information (77.3 percent), were groceries and drugstores²¹. In Arak (town), the most important sources of information for pregnant women were health centers midwives (81 percent), and family physicians (55%)¹⁹.

In pregnant women, the individual herself was the advisor of taking synthetic and herbal drugs, and friends and family played the main roles to suggest medicinal plants, that is consistent with Tabatabai (2009)²⁴ and Nordeng (2004)²¹ studies. A review of findings showed that in the studied self-medicated population, the abundance is very high. Ultimately, it is required to use strategies to promote the correct culture of drug consumption and prevent the possible problems and difficulties of arbitrary consumption.

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