

Evaluation of the use of non-prescribed medications and herbs by pregnant women

Ahmed A. Elberry^{1,2*}, Abdulrahman A. Alahdal¹, Ameen M. Almohamadi¹, Areej M. Alshikhey¹,
Sabreen R. Al-jabrti¹, Samah M. Makki¹

¹ Department of Clinical Pharmacy, Faculty of Pharmacy, King Abdulaziz University, Jeddah, Saudi Arabia 21689

² Department of Pharmacology, Faculty of Medicine, Beni-Suef University, Beni-Suef, Egypt

berry_ahmed@yahoo.com

Abstract: The aim of the current study was to investigate and evaluate the use of non-prescribed drugs and herbs among pregnant women and to identify the impact of socio-demographics. A community-based, cross-sectional survey questionnaire was conducted in Jeddah, Saudi Arabia. The current study included 315 pregnant women and revealed that 17.1% of women used non-prescribed medications where 43.4 % of them used these medications based on previous experience. The most commonly used were supplementations with calcium, iron and folic acid. Only 31.3% of participant suffered from chronic disease, mainly anemia and most of them were complaining of back pain. Regarding herbs, 40.0% of the women have used one or more type of herbs, 36.5% of them used herbs without prescription where 47.8 %of them used these herbs based on their previous experience. The most commonly used non-prescribed herbs during 1st and 3rd trimester was mint, while ginger was the most commonly used in the 2nd trimester. Medication and herbs consuming patterns was affected by the socio-demographic variables. It conclusion, the use of non-prescribed drugs and herbs is still common during pregnancy and indicates a need for follow up and documentation about their safety in pregnancy.

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Key words: pregnancy, non-prescribed medications, herbal medications, misuse.

1. Introduction

Using drugs during pregnancy represents a special concern due to their potential teratogenic effects or their effect on the course of pregnancy and maternal health [1]. On the other hand, physiological changes that occur during pregnancy may affect the kinetics of the medications used during pregnancy. These changes may include placental enzymes, maternal blood flow and volume, distribution of drugs in this increased blood volume and renal clearance [2]. It was found that the use of non-prescribed medications during pregnancy is 1.5 times more than prescribed ones [3].

Most drugs can cross the placenta exposing the fetus to their pharmacological and teratogenic effects [4]. Although many drugs are not labeled for use in pregnancy, it was observed that both health-care providers and pregnant women vary substantially in their knowledge about the safe medications that they can use [5]. On the other hand, it was found that large number fetuses can be exposed to the potential risks of the medications as their mothers either were not aware about being pregnant or were in a need for treatment for their gestational problems [6]. Despite that the data and studies on most herbs are limited, several reports, even in well-developed Western countries in Europe, showed that the use of herbs during pregnancy is relatively high and frequent [7,8]. Therefore, the aim of this study was to investigate and evaluate the prevalence and use of non-prescribed medications or

herbs by the pregnant women and the effect of sociodemographic characteristics on this pattern of use.

2. Subjects and Methods

The study was a community-based, cross-sectional survey, conducted in Saudi Arabia from 30 September 2014 to 30 November 2014. The survey included pregnant women, each participant woman was asked to complete a self-administered questionnaire, available in Arabic and English language. The questions were simplified so that the majority of the women could understand them, no matter their level of education. The questionnaires were distributed through (friends, relatives, governmental and private sector hospitals in Jeddah). The questionnaire did not include patient's name or any other identifying information. Women were not paid for participating in the study. Sample size calculation was based on the study's primary objective that is to provide an estimate of non-prescribed drugs and herbs use among pregnant Saudi and non-Saudi women. The questionnaire used in the present study consisted of three main sections. The first section concerned about demographic data and data about their pregnancy and health. The second section of the questionnaire was concerned with drugs and supplemental intake, while the third section of the questionnaire was concerned about the herbal intake (table 1). Data were analyzed descriptively.

Table 1: Survey Questions

What is your nationality?
How old are you?
What is your occupation?
What is your level of education?
What is your standard of living?
Are you smoker?
What is your current month of pregnancy?
What is the number of previous pregnancies?
What is the number of your children?
What is the number of embryos in current pregnancy?
Are you suffering from any symptoms during pregnancy?
Are you suffering from any disease?
Do you take any supplements or medications during pregnancy?
How did you get your non prescribed medicine? and did you feel better after using it? were there any side effects experienced after using it? and did you need to go to the doctor to treat the exact side effect?
What do you think the best way to consume medications during pregnancy?
Do you take any kind of herbs during pregnancy?
From where you get the advice to use those herbs? and did you feel better after using it? were there any side effects experienced after using it? and did you need to go to the doctor to treat the exact side effects?
What do you think the best way to consume herbs during pregnancy?

3. Results

From 315 pregnant women who were included in the study, 310 (98.4%) completed the questionnaire. The present study revealed that 1.9% of the pregnant women did not use any medications during current pregnancy, while 98.1% used different medications; 81% were prescribed medications while 17.1% were non-prescribed (Figure 1).

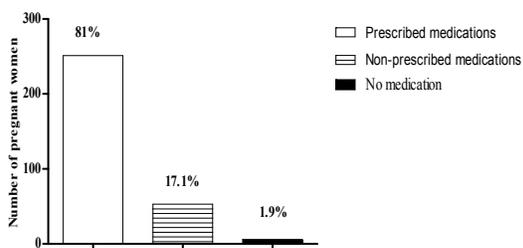


Figure (1): Prevalence of prescribed and non-prescribed medications among pregnant women.

Regarding the non-prescribed medications, 43.4 % of the pregnant women used them based on previous experience, 26.4 % sought advice from pharmacist and others sought advice from relatives or media (5.7 %, 1.9 % respectively) (Figure 2).

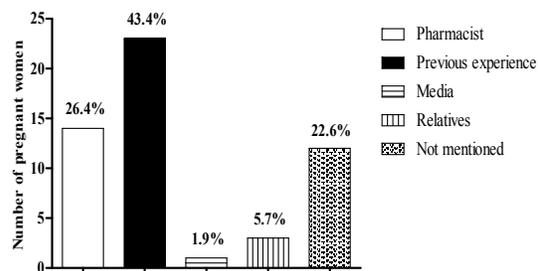


Figure (2): The source of non-prescribed medication.

The most commonly used non-prescribed medications were Calcium, Iron and Folic acid (47.2%, 43.4% and 43.4% respectively) while antibiotics and multivitamins were used less frequently (7.5% and 13.2% respectively) (Figure 3A). On the other hand, iron folic acid and calcium were the most commonly used prescribed medications (94.4%, 91.6% and 85.2% respectively) compared with antibiotics and analgesics that were used less frequently (8% and 15.5% respectively) (Figure 3B).

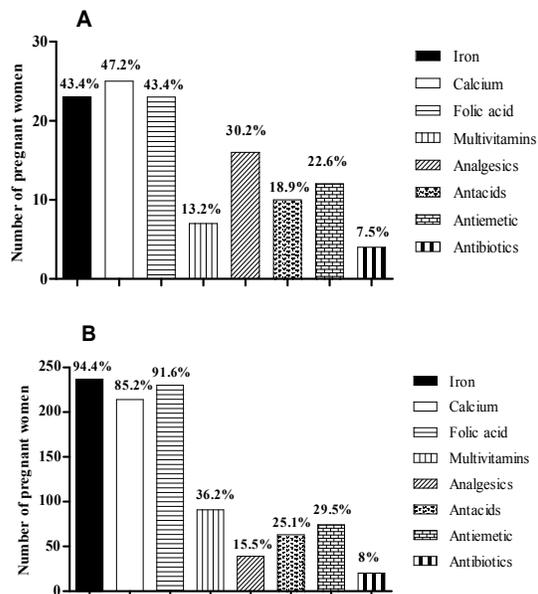


Figure (3): Percentages of non-prescribed (A) and prescribed (B) medications used.

Folic acid was the most commonly used non-prescribed medications during 1st trimester (41.5%), while iron was the most commonly used during 2nd and 3rd trimester (37.7% and 28.3% respectively) (Figure 4).

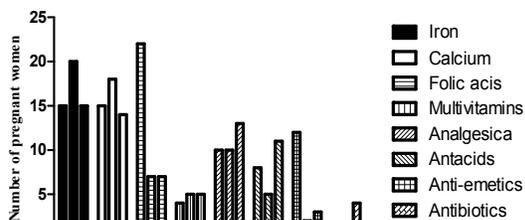


Figure (4): Percentages of non-prescribed medication used during 1st trimester, 2nd trimester and 3rd trimester.

At the time of data collecting, 68.7% of pregnant women did not suffer from any chronic disease, while 31.3% suffered from chronic disease, mainly anemia (17.1%) (Figure 5A). Regarding the symptoms, most of the pregnant women (68.4%) were complaining of back pain. However, 8.4% had no symptoms of pregnancy (Figure 5B).

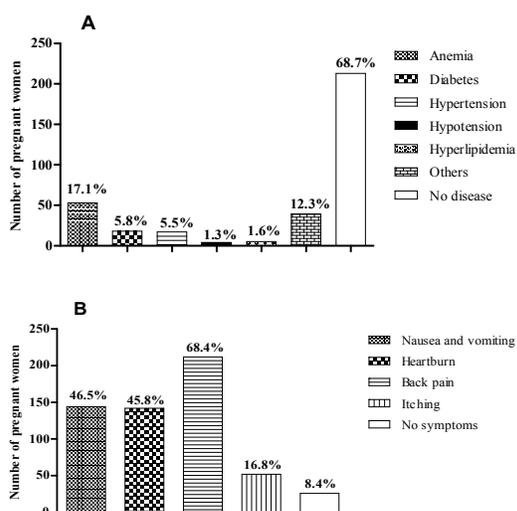


Figure (5): Proportion of diseases (A) and symptoms (B) that have been suffered by pregnant women.

Regarding the use of herbs, it was found that (40.0%) of the pregnant women have used one or more type of herbs, (3.5%) used herbs with prescription and (36.5%) used them without prescription while (60.0%) did not use any herb during their pregnancy (Figure 6).

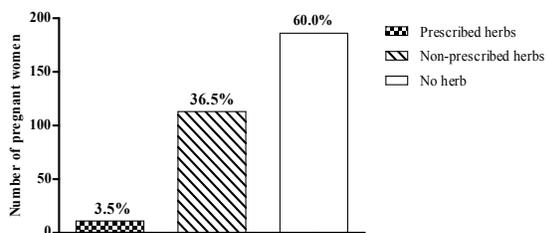


Figure (6): Prevalence of using herbs during pregnancy.

The current study revealed that (47.8 %) of pregnant who used non-prescribed herbs did so based on their previous experience or based on advice from relatives, media or pharmacist (45.1 %, 6.2 % , 0.9 % respectively) (Figure 7).

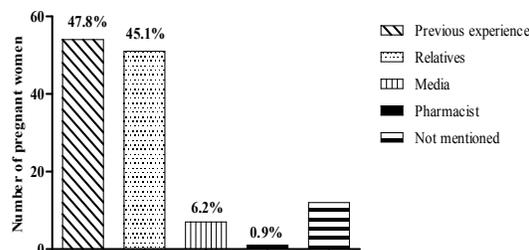


Figure (7): Source of non-prescribed herbal advice for pregnant women.

The most commonly used non-prescribed herbs during 1st trimester were mint in the 1st and 3rd trimester trimesters (71.7% and 54% respectively) while ginger was the most commonly used in the 2nd trimester (32.7%) (Figure 8). The major reasons that lead to the utilization of the herbs are shown in (Table 2).



Figure (8): Percentages of non-prescribed herbs used during 1st trimester, 2nd trimester, and 3rd trimester.

Table 2: Reasons that lead to the utilization of the herbs among pregnant women:

Ginger	Habit, nausea, relaxant, cold, sore throat, abdominal pain.
Thyme	Habit, cold, relaxant.
Mint	Mental relaxant, abdominal pain, habit, irritable bowel syndrome, nausea, analgesic, dyspepsia, hurt burn.
Anise	Relaxant, abdominal pain, flatulence, habit, easy delivery, allergy, cough, cold, nausea.
Chamomile	Mental relaxant, cough, abdominal pain, habit.
Cinnamon	Easy delivery, habit, relaxant.
Latency	Habit, flatulence, irritable bowel syndrome, abdominal pain, relaxant.
Turmeric	Habit, relaxant.
Fenugreek	Irritable bowel syndrome, abdominal pain.

Approximately, 50.7% of pregnant women preferred consuming herbs during their pregnancy via prescription and 20.7% trust any reliable opinion while 10.7% have used herbs without any advice. On the other hand, 3.2% preferred to consult a pharmacist and 0.7% did not like to use herbs at all during pregnancy

and the remaining (14.2%) did not mention their opinion in consuming herbs (Figure 9).

Table 3 shows the correlation between using of prescribed, non-prescribed medication and herbs with sociodemographic factors.

Table 3: Socio-demographic relationship of pregnant women with prescribed and non-prescribed drugs & herbs.

Demographics [% (n)]	Prescribed medications [% (n)]	Non-prescribed medications [% (n)]	Prescribed herbs [% (n)]	Non-prescribed herbs [% (n)]
Pregnant women's age (in years): < 20 [3.9% (12)] 20-29 [59.3% (184)] 30-40 [35.8% (111)] >40 [1.0% (3)]	[100% (12)] [84.8% (156)] [73.0% (81)] [66.7% (2)]	[0% (0)] [13.6% (25)] [24.3% (27)] [33.3% (1)]	[8.3% (1)] [3.3% (6)] [3.6% (4)] —	[25% (3)] [31.5% (58)] [45.9% (51)] [33.3% (1)]
Pregnant women's education: No studying [0.9% (3)] Elementary education [5.2% (16)] Intermediate education [5.8% (18)] Secondary education [25.5% (79)] University graduates [58.7% (182)] Postgraduate education [3.9% (12)]	[33.3% (1)] [87.5% (14)] [77.8% (14)] [82.3% (65)] [81.9% (149)] [66.7% (8)]	[66.7% (2)] [12.5% (2)] [16.7% (3)] [15.2% (12)] [16.5% (30)] [33.3% (4)]	— [6.3% (1)] [5.6% (1)] [1.3% (1)] [4.4% (8)] —	[100% (3)] [31.3% (5)] [55.6% (10)] [32.9% (26)] [34.6% (63)] [50% (6)]
Pregnant women's occupation: Employee [26.4% (82)] Student [16.8% (52)] Housewife [56.8% (176)]	[75.6% (62)] [90.4% (47)] [80.7% (142)]	[23.2% (19)] [9.6% (5)] [16.5% (29)]	[3.7% (3)] [5.8% (3)] [2.8% (5)]	[40.2% (33)] [26.9% (14)] [37.5% (66)]
Pregnant women's standard of living: Below the average [2.6% (8)] Average [81.3% (252)] Above the average [16.1% (50)]	[75.0% (6)] [83.0% (209)] [72.0% (36)]	[25.0% (2)] [15.5% (39)] [24.0% (12)]	— [4.0% (10)] [2.0% (1)]	[37.5% (3)] [34.5% (87)] [46.0% (23)]
Smoking: Smoker [1.6% (5)] Non smoker [98.4% (305)]	[40.0% (2)] [81.6% (249)]	[20.0% (1)] [17.0% (52)]	— [3.6% (11)]	[20.0% (1)] [36.7% (112)]
Stage of pregnancy: 1st trimester [12.3% (38)] 2nd trimester [26.1% (81)] 3rd trimester [61.6% (191)]	[84.2% (32)] [79.0% (64)] [81.2% (155)]	[13.1% (5)] [18.5% (15)] [17.3% (33)]	[10.5% (4)] [1.2% (1)] [3.1% (6)]	[31.6% (12)] [30.9% (25)] [39.8% (76)]
Number of previous pregnancies: None [25.2% (78)] 1 – 4 [64.5% (200)] >4 [10.3% (32)]	[89.7% (70)] [79.5% (159)] [68.7% (22)]	[9.0% (7)] [18.5% (37)] [28.1% (9)]	[5.1% (4)] [3.5% (7)]	[25.6% (20)] [41% (82)] [34.4% (11)]
Number of embryos in current pregnancy: I do not know [13.9% (43)] 1 embryo [84.5% (262)] Twins [1.6% (5)]	[72.1% (31)] [82.1% (215)] [100% (5)]	[18.6% (8)] [17.2% (45)]	[4.7% (2)] [3.1% (8)] [20.0% (1)]	[30.2% (13)] [37.4% (98)] [40.0% (2)]
Number of children: None [33.2% (103)] 1 – 3 [54.8% (170)] 4 – 6 [9.7% (30)] >6 [2.3% (7)]	[89.3% (92)] [75.9% (129)] [80.0% (24)] [85.7% (6)]	[9.7% (10)] [21.8% (37)] [16.7% (5)] [14.3% (1)]	[4.9% (5)] [2.9% (5)] [3.3% (1)]	[25.2% (26)] [43.5% (74)] [33.3% (10)] [42.9% (3)]

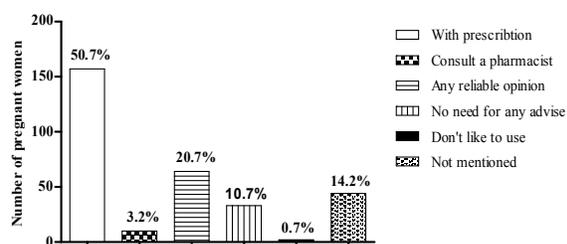


Figure (9): Percentages of pregnant women's views in the use of herbs.

4. Discussion

The present study showed that 17.1% of the pregnant participants used non-prescribed medications and the main source of those medications is the previous experience. This is in accordance with the findings of Refuerzo et al. (2005) [9], who found that 14.1% of the pregnant women used non-prescribed medications. Regarding the comorbidities, anemia which is a substantial health problem in many developing countries, was found to be the most commonly associated disease in the current study (17.1%). In a retrospective Chinese study, 26.2% pregnant women experienced anemia especially in the 3rd trimester [10]. In a Palestinian study in 2007, Sawalha [11] revealed that the total intake of iron among pregnant participants was 63.3%. Moreover, the present study showed high percentage of iron intake (94.4% prescribed and 43.4% non-prescribed) mostly in 2nd and 3rd trimester. However, pregnant women should take in consideration the side effects of using excess non-prescribed iron especially on the gastrointestinal tract [12].

Several studies indicated that calcium intake during pregnancy can improve the maternal and fetal bone health and can increase the calcium level in their milk during lactation [13, 14]. Moreover, their babies were found to have better bone mineralization and lower blood pressure in their later life [15]. Consequently, the current study revealed that the most of participant pregnant women started taking non-prescribed calcium during the second trimester of pregnancy. However, side effects of calcium such as belching, gases, calcium stones and constipation should be taken in consideration. In addition, the majority of pregnant women have started using folic acid during the 1st trimester of pregnancy. Many studies have proven that folic acid decreases neural tube defects by about 70% as well as the risk of other poor pregnancy outcomes [16,17]. Some adverse effects of using excess non-prescribed folic acid that pregnant women should be aware include irritability, confusion and sleep disturbance [17]. Although the use of vitamins has increased over the past two decades, there is evidence suggests that many vitamins

may be unsafe for use in pregnancy [18]. Beside vitamin and mineral supplementations, the current study revealed that analgesics, antiemetics, antacids and antibiotics represented a major concern as non-prescribed medications used by pregnant women. This finding is a major problem and necessitates working to encourage patient education as antiemetics and antibiotics are prescription-only medications and should be discouraged to be used as non-prescribed [19].

Despite that acetaminophen is considered to be the analgesic and antipyretic of choice during pregnancy, hepatotoxicity occur in overdose in infants born to women who took large therapeutic dose late in pregnancy. Therefore, it is important to encourage women to use acetaminophen only when necessary and in the appropriate therapeutic dose [20]. In addition, Riley (2005) found that 22% of women used antacids during the second trimester, and 35% during the third trimester [21]. Most clinicians recommend that antacids should be withheld until diet manipulation and modification have been shown to be unsuccessful [20].

Data of the present study indicated that sociodemographics have impacted the medication use pattern. It was observed that the use of non-prescribed medications was directly proportional to the age of the pregnant women and to the number of previous pregnancies which may be attributed to the expanding experience of the women with age and previous pregnancies as well as their dependence on personal experience. In the current study, non-educated pregnant women have used non-prescribed medication most often. This is in accordance with a study that has been done in United States which revealed that greater use of non-prescribed medications is usually associated with lower levels of education [22]. This was in contrast to a study that has been done in Brazil [25], and Palestine [11] which showed that lower educational level was a great influence for the pregnant women not to take a supplement during pregnancy [23]. This contrast in Brazil and Palestine may be attributed to the financial problems and the lack of governmental insurance. Controversially, the present study revealed that low income correlated with high supplementation intake because they don't have the possibilities to follow up in clinics forcing them to buy non prescribed medication. Moreover, the present study showed that there is increased rate of frequent use of non-prescribed medications and herbs among employee pregnant women which may be attributed also to the lack of time to seek medical advice and to their dependence on advice from their colleagues.

Several studies showed that pregnant women use herbs based on their own knowledge, or advice from friends and relatives. Taking herbs without medical

consultation is an important health concern because of the lack of studies on the potential side effects of herbs in pregnancy, and the potential interactions with other drugs [24,25,26]. Although the majority of women discontinue taking herbs once they are aware of their pregnancies, many others commence taking them on the advice of their maternity care providers [27]. In the present study, less than half of the pregnant women (47.8 %) have used herbal medications. This was in accordance with several studies that have documented the frequent use of herbal drugs during pregnancy including United Kingdom (56%) [28], Italy (48%) [29] and Norway (36%) [27]. In the current study, mint was the most commonly used herb during pregnancy mainly in the 1st trimester as a mental relaxant. Moreover, ginger is found to be used more frequently also based on its known effect in relieving nausea. However, pregnant women should be careful with ginger due to its potential effect on uterine contractions, interference with the absorption of dietary iron as well as fat-soluble vitamins interact with acid inhibiting drugs [30]. In addition, Anise have been used also frequently in the 3rd trimester for its carminative and calming effect, There are no known adverse effects from anise other than it may increase the action of warfarin, so women on warfarin should be careful and advised not to use it [31].

On the other hand, the frequent use of cinnamon in the last trimester of pregnancy was attributed to its effect on relaxation, anxiety and wellbeing. [32]. The main limitation of the present study was that the small sample size and the lack of follow up after birth, the survey was done in the city of Jeddah only and does not depict the status in other communities which might have better explained the distribution of study variables. Moreover, the recall among respondents might not have been accurate.

Conclusion and recommendations

The current study showed that the use of non-prescribed drugs and herbs is still a common problem during pregnancy and indicates a need for documentation about their safety and effect on pregnancy. Patient awareness and education about prescribed, non-prescribed and herbal medications should be provided by all health-care providers. Patients should be instructed to follow the directions carefully and to use the medications for the shortest necessary period of time.

Corresponding Author

Ahmed Abdullah Elberry, MD, PhD.
Department of Clinical Pharmacy, Faculty of Pharmacy, King Abdul-Aziz University,
Jeddah 21589, Saudi Arabia.

Phone: +966 543430919. Fax: +966 12 6951696

E-mail: berry_ahmed@yahoo.com

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