



## EVALUATION THE AWARENESS OF COMMUNITY PHARMACISTS TOWARD THE RISKS OF DRUGS USE DURING PREGNANCY IN JORDAN

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### ABSTRACT

**Background:** Community Pharmacists (CP) have a great responsibility to improve drug use mainly among pregnant patients in their community. Many studies on the safety of medication during pregnancy were focus on teratogenic effect. The aim of this study was to investigate the respondents knowledge regarding drug safety during pregnancy period. **Methods:** An online study of 110 community pharmacists using a questionnaire will be perform during December 2021. The survey contained 27 questions, which will carry out in community pharmacies across Jordan. This questionnaire has three sections: demographic characteristics, response toward safety of prescribed drug and response toward safety of OTC drugs during pregnancy. **Results:** Only 100 community pharmacists response the survey. The majority of them (70%) considered alprazolam to be unsafe, while 15% of CPs consider it was used based on the risk-benefit. The majority of respondents (55%) showed amoxicillin is safe, but below than tenth showed(4%) that isotretinoin should only be used if the potential benefits could outweigh the risks. Among the unregistered analgesics, the majority of them (92.6%) knew that paracetamol is not teratogenic. Regarding multivitamins supplements half of pharmacists showed that vitamin A supplements are unsafe. **Conclusion:** Community pharmacist need more healthy programs to increase their knowledge toward using medications during pregnancy period. Pharmacy association have to give continuous education program to all pharmacists about teratogenicity of medications.

### 1. INTRODUCTION

Medication for pregnant women should not be completely avoided because some pregnant women may suffer from acute or chronic conditions that require medications.<sup>[1]</sup> More than three quarter of pregnant patients take a medications.<sup>[2]</sup> In addition, the use of medicinal herbs by these patients is estimated to vary between 7% and 55% in various geographic regions of the Middle East.<sup>[3]</sup> chronic use of drugs, herbs, and multivitamins can have adverse effects on pregnant woman.<sup>[4,5]</sup>

To prevent these side effects, pregnant women should receive training from healthcare professionals, including doctors and pharmacists. A study in Saudi Arabia found that pregnant women received counseling about drugs from brochures from doctors or pharmacists.<sup>[1]</sup>

Community Pharmacists (CPs) are the major affordable community health service providers. Although, they have counseling ability for their community. They have a major role in monitoring medication use during pregnant period. So, they must have sufficient knowledge of drugs to improve patient care. In addition, they should give

medication advice, medication information, medication evaluations, and adherence to treatment.<sup>[6]</sup>

One of the studies that published in Saudi Arabia on pharmacists practice. This study found that more than half of pharmacists do not give adequate drug recommendations.<sup>[7]</sup> Second study was conducted on 100 respondents to examine the ability of them to monitor drug interactions, compliance with drug regulations, and the involvement of local pharmacists in counseling patients.<sup>[7]</sup> One study showed that around all pharmacists do not follow regulatory requirements for dispensing antibiotics, and some of them recommend patients.<sup>[8]</sup>

Across sectional study was conducted in Jordan to assess the views and attitudes of the general public against the role of community pharmacists. This study reported that the importance of them in providing pharmaceutical care counseling.<sup>[9]</sup>

Another study was conducted in Tanzania among pharmacists to assess their knowledge of drug use during pregnancy. It discussed four common medications that are teratogenic or cause fetal side effects. This study showed that pharmacists do not have sufficient

knowledge of these drugs.<sup>[10]</sup> Same study was conducted in Brazil to assess respondents attendance towards drug distribution among pregnant women. It reveal that the pharmacists who distribute these drugs cannot interpret drug information in pregnant women.<sup>[11]</sup>

To our knowledge, no studies have been found to assess the knowledge of local pharmacists (PCs) about the safety of drugs during pregnancy. The objective of this study was to assess the knowledge of pharmacists about the safety of drugs during pregnancy.

## 2. METHODS

### 2.1. Study design

An online study of 110 community pharmacists using a questionnaire will be perform during December 2021. Ethical approval was obtained from the Jordanian Royal Medical Services committee prior to data collection.

### 2.2. Questionnaire design

The survey contains multi questions, which will carry out in community pharmacies across Jordan.

This questionnaire has three sections: demographic characteristics, response toward safety of prescribed drug and response toward safety of OTC drugs during pregnancy.

Each question in the two sections will only have one of the following answers: First trimester safety, should consider patient risks and benefits, unsafe first trimester,

and I don't know. The drugs selected in the survey include:

(1) medications dangerous to the fetus, such as isotretinoin, phenobarbital, doxycycline, acid, etc. (2) Medications commonly used for health problems in women, including ciprofloxacin, amoxicillin, cephalixin, and oral contraceptives (3). Medicines used to treat other health problems that can occur during pregnancy, such as alprazolam for mood disorder, salbutamol for asthma and Lamotrigine as antiepileptic. (4) The most widely used dispensing antibiotics without prescription are those containing paracetamol, bufferin, dextromethorphan, gifenzine, diclofenac, and pseudoephedrine.

### 2.4. Data analysis

The data collected from the questionnaires was coded and entered into a custom-designed database using SPSS software.

## 3. RESULTS

Only 100 community pharmacists response to the survey. The approximate number of 70% of the sample ranges from 20 to 30 years. Approximately 84% of the respondents have more than 10 years experience. Around one half of them were satisfied with their patients in the pregnancy stage. Half of patients were asked if they pregnant or not. Another results shown in the table 1.

**Table 1: Demographic characteristics of the respondents.**

Age	Frequency	Percentage (%)
From 20 to 30	70	70
From 30 to 50	24	24
From 50 to 60	6	6
<i>Years of working</i>		
Less than 6 years	5	5
6-10 years	11	11
More than 10	84	84
<i>Asking for pregnancy stage</i>		
Always	50	50
Often	25	25
Looks pregnant	10	10
Never	15	15

Table 2 shows the respondents response to medication safety to pregnant woman. The majority of them (70%) considered alprazolam to be unsafe, while 15% of them reported that it was used based on the benefits outweigh the risks. Also, majority of them (62%) said cephalixin was safe, but very few of them (8%) reported that

doxycyclin should only be used if its potential benefits outweigh the risks. More than three quarter of them reported that isotretinoin was not safe to use during pregnancy. Further results are shown in table 2.

For CNS drugs, about one half of respondents reported that valproic acid is unsafe, and less than half of them determined that lamotrigine should only be used if

benefits outweigh the risks. Further results shown in table 2

**Table 2: pharmacists respondents toward prescribe drugs to pregnant woman.**

Medication	unsafe	benefits outweigh the risks	safe	I don't know
	N (%)	N (%)	N (%)	N (%)
Alprazolam	70 (70)	15 (15)	6 (6)	9 (9)
cephalexin	15 (15)	62 (62)	10 (10)	13 (13)
Budesonide, inhaled	6 (6)	79 (79)	10 (10)	5 (5)
Ciprofloxacin	60 (60)	8(80)	2 (2)	30 (30)
Isotretinoin	89 (89)	4 (4)	1 (1)	6(6)
Lamotrigine	8 (8)	61(61)	9 (9)	21 (21)
Contraceptive	65 (65)	22 (22)	5 (5)	8(8)
Paroxetine	30 (30)	58 (58)	3 (3)	9(9)
amoxicillin	5 (5)	20 (20)	55 (55)	20 (20)
Statins	71 (71)	10 (10)	5 (5)	14 (14)
doxycyclin	75 (75)	8 (8)	10(10)	7 (7)
Valproic Acid	45 (45)	44 (44)	3 (3)	8 (8)

Table 3 shows medications prescribe without prescription to pregnant woman. Among non-prescribed pain killer, majority of them (89%) knew that paracetamol is safe. About half of respondents reported that bufferin according to benefits outweigh the risks while NSAID may be used if benefits outweigh the

risks. Only 7% that guaifenesin donot know. About dietary supplements, 48% of CPs reported that Vitamin A supplements are not safe. Most of CPs (80%) said that St. John's wort is unsafe during the beginning of pregnancy.

**Table 3: Response of pharmacists to use of over-the-counter (OTC) medications during pregnancy.**

Medication	unsafe	benefits outweigh the risks	safe	I don't know
	N (%)	N (%)	N (%)	
Acetaminophen	7 (7)	2 (2)	90(90)	1(1)
Bufferin	11 (11)	51 (51)	20 (20)	20(20)
Bismuth subsalicylate	51 (51)	20 (20)	20 (20)	8 (8)
Caffeine	7(7)	13 (13)	70 (70)	10 (10)
Dextromethorphan hydro bromide	26 (26)	10 (10)	49 (49)	15 (15)
Guaifenesin	53 (53)	30 (30)	10 (10)	7 (7)
St. John's Wort	80 (80)	5 (95)	10 (10)	5 (5)
NSAID	51 (51)	17 (17)	12 (12)	30 (30)
Pseudoephedrine hydrochloride	19 (19)	35 (35)	35 (35)	11 (11)
Supplement Vitamin A	48(48)	20 (20)	10 (10)	22 (22)

#### 4. DISCUSSION

Knowledge of the pharmacists for medication use in pregnant period. The major functions of them as

healthcare professionals is to ensure the safety of drugs during pregnancy.

This function can be provided by advice and give information on medications to pregnant women.<sup>[6]</sup> Research on pharmacists' knowledge of the safety of medications during pregnancy is low. This is the first study that we know of evaluating them). Numerous medications have proven to associate with increased risks of birth defects.<sup>[7]</sup> To prevent pregnant women and fetuses from the teratogenic effects of certain medications, the US Food and Drug Administration (FDA) has developed five categories (A, B, C, D, and X) for potentially drugs powerful. Class D or X teratogenic drugs are generally considered high dangerous drugs.

Many antihypertensive and antiepileptic drugs are grade D or X.<sup>[12]</sup> In addition, there are many medications of varying degrees that can harm the fetus, depending on the time of use and the dose of taken.<sup>[12]</sup> This study showed that the respondents are not knowledgeable enough to give information on the safety of drug used in pregnant woman. It has been shown that community pharmacists do not always provide good advice to pregnant women.<sup>[13,14]</sup>

Lack of planned or specific education and training on drug use during pregnancy may consider the major factor of lack knowledge on drug safety during pregnancy.

The respondents knowledge of the risks of using different drugs during pregnancy differ from one medication to another. Most of the respondents in this study identified medications with possible teratogenic effects, such as Guaifenesin and Dextromethorphan hydro bromide that are not safe in the first period. The majority of them reported that (such as amoxicillin, paracetamol) that are safe for pregnant patients.

Same results were shown in the previous publish study in Palestine, which showed that approximately over than three quarter of pharmacists determined that isotretinoin is teratogenic during pregnancy.<sup>[15]</sup>

Another study involving gynecologists, showed the same result.<sup>[16]</sup> Morgan et al. showed that less than quarter of gynecologists correctly determined that tetracycline could be used in pregnant patients, depend in on a risk-benefit assessment. Less than 50% of respondents in this study correctly identified proxetine and valproic acid are teratogenic during pregnancy.

Our results are similar to those of a previous study, which showed that 35% of proxetine is not safe during pregnancy and 38.9% of pharmacists correctly identified valproic acid are not safe during pregnancy.<sup>[4]</sup> Our results are similar to those of a previous study, which showed that one third of respondents reported that proxetine and valproic acid are contraindications during pregnancy and one third of physicians correctly identified proxetine and valproic acid are contraindications during pregnancy.<sup>[4]</sup>

Pharmacists can play a major role in choosing and giving drug information or advice on the safety of drug dispense without prescription, supplements, and herbal products for use during pregnancy.

Most OTC medications have side effects during pregnancy.

Further results showed that pharmacists have not enough information to provide information on the safety of herbal and over-the-counter medicines for use during pregnancy, pregnant women in South Africa use a significant amount of medicines and herbs over-the-counter.<sup>[1]</sup>

## 6. CONCLUSION

Community pharmacist need more healthy programs to increase their knowledge toward using medications during pregnancy period. Pharmacy association have to give continuous education program to all pharmacists.

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