

The Prevalence, Attitude and Awareness of Herbal Medicine Products Use Among Pharmacy Practitioner in Jordan

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ABSTRACT

Background: There has been a universal increase in the use of herbal medicine products (HMPs). Herbal medicine considered to be the oldest form of healing and treating different diseases. **Objective:** The aim of this study is to determine the prevalence, attitude of HMPs use and awareness among pharmaceutical practitioner in Jordan. **Methods:** A descriptive cross-sectional survey was conducted using a self-administered questionnaire on a sample of 230 Jordanian pharmacy practitioner (pharmacist and pharmacy assistant), within 90 different private pharmacies in different cities of Jordan during the period of 6 months in the mid of 2018. The survey questionnaire included: the socio-demographic characteristics of participants, the source of information of the use of the HMPs, the attitude towards the use and safety of the HMPs and their combination with conventional drugs. **Results:** Out of 230 pharmacy practitioners interviewed in this study, the utilization rate of the HMPs use was just 41.7%. A large number of practitioners (58.3%) preferred conventional medicine because they believed that conventional medicine had better efficacy and better feedback than herbal products. A significant difference between pharmacist participants knowledge and work experience for more than 7 years (p -value=0.002). Majority of the participants (88.9%) reported that they had a narrow background about the safety of these products and hadn't satisfied information regarding herb-drug interaction. **Conclusions:** This study counteracts other studies reported in Jordan, the usage of herbal medicine products among pharmacy practitioners isn't prevalent and isn't disseminated. They had fair information's about the usage of the herbal products especially between the pharmacist, but they were less awareness about side effects and interactions of these products. It is crucial to refresh pharmacy practitioner knowledge periodically and enhance their information by arranging different programs focused on the rational use of these products, side effects and interactions by Jordanian pharmacist association, which had a potential role in this field. In addition, they must use reliable sources for information on herbal products in order to provide desired pharmaceutical care.

Key words: Conventional medicines, Herbal medicine products (HMPs), Pharmacy practitioner.

BACKGROUND

Conventional medicine is any agent that largely used by most healthcare professionals to treat any disease that infects humans and animals or to decrease the severity of any condition or diagnosis or prevention.¹

Herbal medicine considered to be the oldest form of healing and treating different diseases. The history of herbal medicine is part of the history of medicine itself and herbal knowledge came to Europe from the Middle East during the crusades.

Herbal medicine is classified as 'complementary' or 'alternative' in most countries, it stills the only type of medicine that widely available to much of the world's population.

Herbal medicines have been utilized in most traditional cultures and have had a vital impact on many systems, including Ayurvedic (Indian) medicine, traditional Chinese medicine, and conventional medicine.

There was a written record of Egyptian, Roman, Persian and Hebrew cultures reported that they

were used herbs to cure every complaint and diseases.²

Although herbal medicine is classed as 'alternative' or 'complementary' in most Western countries, it remains the only form of medicine widely available to much of the world's population.

Although herbal medicine is classed as 'alternative' or 'complementary' in most Western countries, it remains the only form of medicine widely available to much of the world's population.³

These medicines play a major part in the pharmaceutical market in all world countries. Many of these products are currently sold in pharmaceutical forms such as tablets, capsules, syrups, etc.... prescribed by physicians or over the counter for curing different conditions. It became a good business for several companies to produce and market safe and effective herbal preparations.

Most patients go to complementary medicines produced from a natural herbal source because they believe that they are safer, more effective and have fewer side effects than traditional synthetic medicine. In the other hand, consumers believed

that these types of medicines are more accessible than other traditional medicine in various health conditions such as (cold, cough, abdominal spasm, flatulence, etc.

There are an estimated 400,000 plants known today, but only a fraction of these have been studied or used medicinally. Many researchers believe that there are plants yet unrecognized for their healing powers. Pharmaceutical companies and others are actively investigating the potential of plants to provide new antibiotics and other medicines.⁴

Several factors are connecting with the increasing popularity of (HMPs) use, including individual dissatisfactions with conventional therapies, chronic diseases and cultural impacts.⁵

Herbs contain many naturally constituents that have biological activity. In fact, Herbs work in a similar manner to many pharmaceutical preparations, and some pharmaceutical medicines are still obtained from plants. For instance, (quinine) is the malaria medicine that extracted from the cinchona bark, and morphine, the pain killer medicine produced from the opium poppy fruits.

The available data according to the safety of these products are limited especially the safety that can be associated with these products, which might be transient or serious outcomes in some cases.^{6,7}

However, Western herbalists, believe that herbs should be used in their complete form to be sure that the balance of chemical constituents in the plant is utilized. They suppose that herbal therapy is more useful in the treatment of many conditions especially chronic diseases, so they believe that herbal medicine is very effective with fewer side effects that are often experienced in conventional pharmaceutical therapy. but they also believed that herbal medicine can be extremely potent and, can cause serious adverse effects if it used incorrectly, unawareness of the use of drugs is very crucial for its effects on health, economic and social, and even those effects may exceed the damage to subsequent generations which requires the state to take effective measures in the awareness of drugs.

Also, some types of herbs can affect the body response to other prescribed or over-the-counter medicines, either increasing or decreasing the effects of these medicines. For example, St John's wort can be incompatible with birth control pills, and *Gingko biloba* can increase the risk of bleeding with anticoagulant (blood thinner) agents.⁸

There is no doubt that the issue of awareness and dissemination of culture in general among consumers has an important role in building society. Therefore, the issue of drug education, development of ideas and building a culture of medicine are very important to build a healthy person capable of achieving sustainable development.

In Jordan, the Ministry of Health and Jordanian food and drug administration (JFDA) established official guidelines for registration and regulation of (HMPs) which developed in 2001. The national office on TM/CAM is part of the Drug Directorate of the Ministry of Health; which established in 1999. Herbal medicines are sold in Jordan pharmacies as over the counter and prescription medicines without restriction.^{9,10}

In recognition of the special problems associated with herbal medicinal products, the CPMP (Committee on proprietary medicinal products) has issued specific guidelines dealing with quality aspects and manufacture.

The CPMP guidelines highlight the need for good control of the starting materials and the finished products and emphasize the importance of good manufacturing practice in the manufacture of herbal medicinal products.

The WHO has also published guidelines dealing with the quality control of medicinal plant materials.¹¹

The main purposes of this survey-based study were to analyze the prevalence, and awareness of herbal medicine products use among pharmacy practitioner. The study also desired to illustrate this population's attitudes and basic knowledge regarding the safety of herbal medicine.

MATERIALS AND METHODS

The survey protocol was approved by the Jordanians Ministry of Health and funded by Al Balqa Applied University.

This descriptive cross-sectional survey was conducted using a self-administered questionnaire on a sample of 230 Jordanian pharmacy practitioner (181 pharmacists and 49 pharmacy assistants) was randomly recruited which having 95% confidence intervals, and the margin of error was $\pm 5\%$, they worked in 90 different private pharmacies in different cities of Jordan during the period of 6 months in the mid of 2018.

HMPs referred to all herbal natural therapies that present and dispensed in most private pharmacies. No financial reward was offered. The average time of administration of the interviews was 15 minutes. The questionnaire was written in Arabic, to be applicable to all pharmacy practitioner (including pharmacy assistant) and then translated into English.

The questionnaire included four parts as follows: social demographic data (age, sex and the participants educational level). Body mass index (BMI) was calculated as the ratio of weight (kilograms) to the square of height (meters); the participants attitude towards the safety of (HMPs); the information sources for the usage and adverse effects of the (HMPs) and the attitudes of the consumer towards the need to consult a physician prior to (HMPs) use during treatment with ordinary drugs; also investigated the frequency, reason of use, source of information of the use of (HMPs) and adverse effects, finally, participants were asked to provide the most common herbal products that they had consumed or counselled to their patients as over the counter agents, we preferred to document the scientific name of the most important component of HMPs presented in selective pharmacies instead of trade names of the whole product.

Nineteen herbal products were selected in our survey (*spirulina*, *Gingko biloba*, *ginseng*, *cranberry*, *Plantago ovate* (*Psyllium*), *cinnamon*, *thyme*, *garlic*, *chamomile*, *menthol*, *fenugreek*, *caraway*, *ginger*, *papaya*, *Silybum marianum*, *pumpkin seed*, *bran*, *linseed* and *vinegar*). These products were the most frequently used products by pharmacy practitioners.

STATISTICAL ANALYSIS

Each demographic question was tabulated and recorded as the percentage of the total survey. All statistical analyses were carried out using Statistical Analysis Software (Version 13.0; SAS Institute, Cary, NC). Basic knowledge assessed by using descriptive statistics, as well as data regarding safety and usage.

The distributions frequencies were obtained, and the chi-squared test was used to find out the relationship between all qualitative variables. A $p \leq 0.05$ revealed that there was a statistically significant difference between variables.

RESULTS

In the 90 private pharmacies visited, two hundred thirty surveys were completed over a 6-months period in the mid of 2018, 181(78.7%) pharmacist and 49(21.3%) pharmacy assistant. The Social demographic characteristics of the participants are summarized in Table 1.

The mean of age participants was 35.4 (SD=7.8) years. 142 (64.4%) were females and 88 (35.6%) were males. Most survey respondents

Table 1: Herbal medicine products survey: baseline social demographic characteristics of participants (N=230).

Characteristic	No. (%)
Sex	
Male	88 (35.6%)
Female	142 (64.4%)
Pharmacy practitioner	
Pharmacist	181 (78.7%)
Pharmacy assistant	49 (21.3%)
Age, year	
21-30	142 (64.4%)
31-40	44 (20.2%)
41-50	22 (9.7%)
>50	22 (9.7%)
Insurance Health Status	
Insured	152 (68.6%)
Uninsured	78 (31.4%)
Education	
Postgraduate	11 (4.4%)
bachelor	170 (73.9%)
Universal collage(diploma)	49 (21.3%)
No. of family members	
< 5	95 (43.3%)
6-10	124 (51.9%)
>11	11 (4.8%)
Years of experience	
Median = 7 years	
≤ 7 years	143 (62.2%)
> 7 years	87 (37.8%)

152(68.6%) reported being currently had insurance health status and most had 6-10 number of individuals in their family. The vast majority of pharmacy practitioners 170(73.9%) were registered pharmacists and had bachelor's degree in pharmacy, 49(21.3%) were assistant pharmacists that carrying diploma in pharmacy, Small population of the pharmacy practitioners 11(4.4%) had master's degree in pharmacy. The median of experience in years was 7 years.

A significant difference between pharmacist participants knowledge and work experience for more than 7 years (p-value=0.002) compared with participants with less than 7 years of work experiences.

Information regarding participant usage of herbal products is summarized in Table 2.

Approximately more than half of pharmacy practitioners (58.3%) were preferred to use conventional thereby compared to (41.7%) preferred herbal products if they experience any health condition. About 57 % of the participants were free of diseases, the remains cited different diseases encountered in the Jordanian community summarized in Table 2. (colon irritability, diabetes Miletus, hypertension, respiratory diseases, hyperlipidemia, elementary diseases, psychological diseases, obesity).

The great majority of the participants (95%) were concerned in herbal information; which obtained mainly from their previous study in pharmacy college (47%), (29%) from sales representatives and about (19%) from the social media.

Out of 134 (58.3%) survey respondents stated consuming at least one of these products in their lifetime for treating of their own conditions, and 44(19.1%) individuals taking six or more products concurrently.

The most common reasons reported by survey participants for preferring conventional medicine product summarized in Table 3. Approximately 144(62.4%) reported that conventional therapy had

better efficacy, better feedback than herbal therapy, definite side effects and better investigated and controlled; on the other hand, 112(48.9%) of responders believed that HMPs were safer and had fewer side effects than conventional therapy. About 75(32.4%) of participant believed that HMPs and conventional therapy had similar feedback. It is interesting to report that 41(17.8%) of pharmacy practitioner thought that herbal product didn't need either laboratory tests or monitoring as in some agents of conventional therapy.

The attitude of pharmacy practitioner about stopping conventional medicine while using herbal products summarized in Table 4, about 176(76.5%) of the participants believed that the conventional medicine shouldn't stop during the usage of herbal products.

More than half of the pharmacy practitioner 52.00% in our sample reported that they give counselling to patients about the herbal uses and 36.9% reported that sometimes, just in special cases they advise these products.

Although the pharmacist's knowledge about uses of selected herbs was

Table 2: HMPs use.

Current medical condition(s)	No (%)
Coronary artery disease/hypertension	19 (8%)
diabetes mellites	16 (7%)
Rheumatism	2 (1%)
Respiratory problem	21 (9%)
Gastrointestinal problem	58 (25%)
Central nervous system problem	9 (4%)
Obesity	21 (9%)
Hyperlipidemia	5 (2%)
Current use of herbal products	
Yes	96 (41.7%)
No	134 (58.3%)
Frequency of herbal products used	
< 5 times	152 (66%)
6-10 times	45 (19.4%)
>10	33 (14.6%)
No. Herbal products used	
< 5	164 (71.2%)
6-10	44 (19.2%)
>11	22 (9.6%)

Table 3: The common reasons of consuming conventional and herbal medicine product among pharmacy practitioner.

HMPs	No. (%)	Conventional therapy	No. (%)
Safer and had fewer side effects	112 (48.9%)	Better efficacy and had faster recovery	144 (62.4%)
Similar feedback with conventional medicine	75 (32.4%)	Better feedback	144 (62.4%)
Less cost and more available	64 (27.7%)	Definite side effects	140 (60.7%)
Didn't need neither laboratory tests nor monitoring	41 (17.8%)	Better controlled and investigated	144 (62.4%)

Table 4: Pharmacy practitioner attitude regarding stopping conventional medicine while using herbal products.

The attitude	n (%)
Stop conventional medicine	23(10.2%)
Don't stop conventional medicine	176(76.5%)
Sometimes	31(13.3%)

better than pharmacy assistants, their information's about the adverse effects of those herbs weren't accurate is shown in Table 5. and had narrow background about herb drug interactions as it is shown in Table 6, about 93(40.4%) of pharmacy practitioner didn't have to satisfy information regarding possible interactions between these products and conventional medicines.

A total of 21 different selected herbs that considered to be the most important active ingredient in HMPs that present in pharmacies. These products were the most frequently used by participants or advise their patients to use it as over the counter products.

The selected herbal products were (*Spirulina*, *Gingko biloba*, *ginseng*, *Cranberry*, *ovate (Psyllium)*, *Cinnamon*, *Thyme*, *Garlic*, *Chamomile*, *menthol*, *fenugreek*, *caraway*, *ginger*, *papaya*, *Silybum marianum*, *Pumpkin seed*, *bran*, *linseeds* and *vinegar*) were shown in Table 7.

DISCUSSION

This study suggested that the usage of herbal products among Jordanian pharmacy practitioners is very narrow and isn't as expected. This finding is incomparable to other studies where the usage of herbal medicine between pharmacists is widespread. It is possible that some people preferred unconventional herbal medicine because they believe that herbal medicine is more natural than modern conventional drugs.

Table 5: Pharmacy practitioner knowledge of the use and side effects of selected herbal products.

Herbal products selected	usage (%)	Side effects (%)
<i>cranberry</i>	63.2%	2%
<i>Ginseng</i>	51.9%	0%
<i>Ginko biloba</i>	51%	4%
<i>Cinnamon</i>	48.1%	10%
<i>Ginger</i>	46.2%	2%
<i>Thyme</i>	44.3%	0%
<i>Garlic</i>	42.0%	10%
<i>Caraway</i>	39.6%	0%
<i>Linseeds</i>	38.7%	10%
<i>Menthol</i>	33%	2%
<i>Spirulina</i>	25.5%	30%
<i>Bran</i>	26.4%	0%
<i>Fenugreek</i>	22.6%	2%
<i>Vinegar</i>	21.7%	30%
<i>Papaya</i>	17.9%	5%
<i>Chamomile</i>	16%	0%
<i>Silybum marianum</i>	16%	35%
<i>pumpkin seed</i>	7.5%	5%
<i>Plantago ovate (Psyllium)</i>	3.8%	30%

Table 6: Pharmacy practitioner awareness towards drug-herb interactions.

Characteristic	n(%)	p-value
Gender		0.804
male	62(70.0%)	
female	95(67.0%)	
Age, year		0.980
21-30	107(75%)	
31-40	30(66.9%)	
41-50	15(67.7%)	
50>	10(45%)	
Work experience		0.208
=< 7 years	93(65.2%)	
> 7years	67(77.0%)	

Table 7: The attitudes of pharmacy practitioner regarding giving advice of using herbal products for patients.

Characteristic	Counseling on herbs n(%)	p-value
Gender		0.804
Male	62(70.0%)	
Female	95(67.0%)	
Age, year		0.980
21-30	55(23.9%)	
31-40	39(17%)	
41-50	155(67.7%)	
50>	10(45%)	
Work experience		0.002*
=< 7 years	74(23.2%)	
> 7years	154(66.9%)	

Although WHO documented that some herbal products are very potent, and their safety is not clear. In addition, these products could be dangerous and toxic when consumed in combination with conventional agents. Majority of pharmacy practitioner participating in our study convinced that conventional therapy had better efficacy, and better feedback than herbal therapy, they believed that conventional medicine had definite side effects and better control than unconventional medicine; this finding is incomparable to other study conducted in Jordan in 2016 among pharmacy College students and nonpharmacy students), they recorded that the majority of pharmacy student (80%) use medicinal herbs as alternative therapy to modern medication, in addition; they reported that their family was the main source of their herbal knowledge, and most of them were used herbal medicine to treat abdominal pain.¹²

Other study conducted in Jordan among pharmacists documented that the majority of pharmacists believed that advanced educational courses about pharmacological and toxic effects of herbal medicine products were essential.¹³

In 2010, other study conducted among the pharmacists in Abu Dhabi reported that the use of herbal medicine is more prevalent, and they were aware of the uses of these products, but they had similar results regarding herbal side effects and herbal-drug interactions.¹⁴

Another study that opposed our study finding had previously evaluated the prevalence of using herbal medicine among pharmacist was at Kuwait in 2007 recorded that most pharmacists preferred herbal products instead of conventional pharmaceuticals.¹⁵

In addition other study conducted in 2013 at Nigeria reported that majority of pharmacist preferred using herbal medicine and they believed that herbal medicine is safer and more efficacious but they agree with our study that pharmacists had very poor information's about herbal side effects or herbal-drug interaction, they recommended many training courses regarding indication and safety of these products.¹⁶

The cross-sectional study was conducted in Gondar, Northwest Ethiopia, reported good attitude regarding herbal medicines, they were rarely dispensing these products. And they had limited knowledge on herbal medicine information.¹⁷

Another study was done in the occupied Palestinian territory between Dec 2014, and March 2015, among 350 pharmacists. Only 133 (38%) pharmacists reported that herbal medicine is very effective and 171 (49%) believed that they are very safe. The product packaging and medical representatives were common sources of information. Health tonic preparations were commonly dispensed drugs, followed by cough preparations. Majority of pharmacists reported that herbal products were effective, 50% of pharmacists unsure regarding their safety. They had good knowledge about the uses of herbal medicines, but they had

similar findings to our study regarding awareness of interactions and adverse effects that they were inadequate.¹⁸

A cross-sectional study in Saudi Arabia was conducted in 2012 documented that 9.1% just interested in herbal medicines lack of time was the most common barriers that limit discussing herbal medicine products, lack of scientific evidence that supports herbal medicine use and lack of reliable resources, or lack of knowledge of herbal medicines, so it is necessary to educate and training pharmacists.¹⁹

Other research published in 2015 about the knowledge and attitude of medical students in Tamale, Ghana about using Herbal medicine and found that most students consume herbal medicine and get good outcomes.²⁰

The usage of herbal products influences their compliance with the prescribed conventional regimen. Despising of the herbal medicine by the pharmacist for patients being more dangerous if we know that the greatest number of patients with chronic diseases are using herbal products without any knowledge of their physician or pharmacist; some surveys reported that many patients don't inform their physicians about the usage of herbal medicines use and don't even physicians don't ask the patient about these products.²¹ The same findings were found in the European area, there are plenty of herbs that have been widely used as a traditional prescription without any information about their toxicity. The lack of health education programs that warn the public of the risks of consuming the traditional products particularly, high-risk populations and the pharmacist role is critical in the area.

The usage of certain types of herbs together with conventional medicine is crucial in some conditions, such as warfarin drug. Some herbal products such as garlic, ginseng and ginkgo when used with warfarin, it may increase the anticoagulant effect of warfarin and increase the susceptibility of bleeding.^{15,22}

The pharmacist should ask the patient if he/she is using any herbs in order to avoid probable drug-herb interactions. In addition, pharmacy practitioner should know these drug-herb interactions in order to educate their patients.

This study detects that pharmacy practitioners were capable to give the right information about the usage of selected herbal products more than drug-herb interactions. The same results found in other studies.^{24,25}

As the increasing of herbal medicine use, the responsibility of the pharmacist will be increased to be more aware of all information about these products. It was reported in this study that the most dominant of respondents were concerned about getting more information about herbal products.

All pharmacy practitioner should have basic information's about herbal products in order to give useful pharmaceutical care for patients.

Majority of participants in different studies obtained their herbal information during their studying in pharmacy schools.²⁵

The other interesting finding was that about one-third of participants were taken herbal information from sales representatives and media, these sources are not usually under control of any foundation to confirm the accuracy and the quality of such information. The same results found among Missouri pharmacists were documented.²⁶

The results of our survey suggest that information about herbal products should be provided to the pharmacy practitioners not just as an obligatory course in Pharmacy Colleges but also should organizing continuous education programs and training courses in order to enhance practitioner herbal knowledge.²³

CONCLUSION

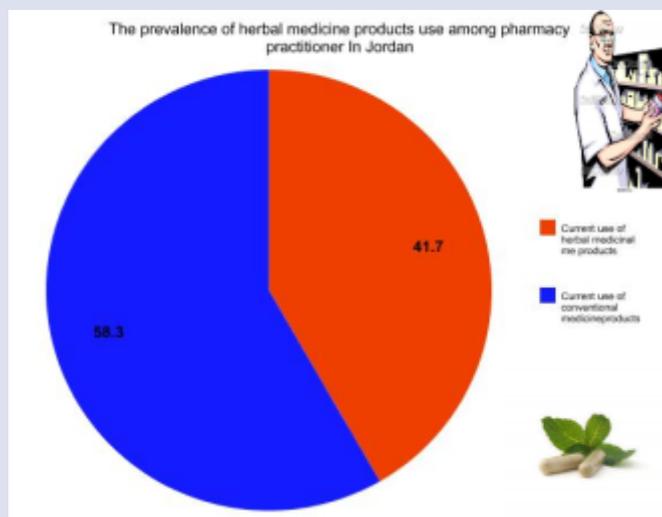
This study counteracts other studies reported in Jordan, the usage of herbal medicine products among pharmacy practitioners isn't prevalent and isn't disseminated in Jordan. They had fair information's about the usage of the herbal products especially between the pharmacists, but they were less awareness about side effects and interactions of these products. Because of these herbal products being over the counter agents and requested from large number of patients it is very important to refresh pharmacy practitioner knowledge periodically and enhance their information by arranging different programs focused on rational use of these products, side effects and interactions by Jordanian pharmacist association, which had a potential role in this field. In addition, they must use reliable sources for information on herbal products in order to provide desired pharmaceutical care.

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GRAPHICAL ABSTRACT



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