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Pharmacists' Knowledge, Attitudes and Practices Towards Herbal Remedies In West Bank, Palestine

ORIGINAL

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Abstract

Background: There is an increasing trend towards consumption of complementary and alternative herbal products in many parts of the world.

Objectives: The purpose of this study was to investigate the knowledge and attitudes among pharmacists in West Bank, Palestine towards the use of herbs.

Methods: Self-administered questionnaire was designed as the study instrument and distributed among 350 qualified pharmacists working in government and private pharmacies in West Bank, Palestine.

Results: The response rate was 82.9% (290/350). The mean age of the pharmacists was 32.9 (SD=6.5) years. The majority of the pharmacist 238 (82.1%) worked in the community pharmacies and their experience in practice ranged from 1 to 26 years. Product package instructions and product representative were the most consulted by the pharmacists (128; 44.2% and 73; 25.2% respectively). General health tonic preparations were the most widely dispensed drugs (142; 48.9%), followed by cough preparations (55; 19.0%) and slimming agents (64; 22.1%). The Majority of pharmacists (195; 67.2%) believed herbal remedies were effective; however, about fifty percent of the pharmacists had concern about their safety. The knowledge of respondents about the indications of herbal medicine was good, but their awareness of interactions, contraindications and adverse effects was inadequate. The majority of Pharmacists (255; 87.9%) believed that herbal product should undergo increased regulation and (215; 74.9%) believed that information available about herbal and natural product isn't adequate.

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Conclusion: Many pharmacists in Palestine believed that herbal remedies were an effective alternative therapeutic option. Continuing education programs, for practicing pharmacists, in herbal medicine should be encouraged. This would enable pharmacists to provide competent, effective and holistic patient care.

Keywords
Pharmacists, Attitude, Knowledge, Herbal, West Bank, Palestine.

Introduction

The use of herbal medicines and natural health products by public are increasingly drawing the attention of regulators, researchers, and health professionals due to high levels of consumption Worldwide last decade [1]. This trend is also observed among the general practitioners who are now more interested and inclined towards the use of herbal drugs for the treatment of some common ailments [2].

In Palestine, there are numerous medicinal plants described for treatment of many diseases. Herbal medicine is considered an integral part of the Palestinian culture and plays a pivotal and indispensable role in the current public healthcare. The hills and mountains of Palestine are covered with more than 2600 plant species of which more than 700 are noted for their uses as medicinal herbs or as botanical pesticides [3].

Self-medication with conventional medicine is a common practice among Palestinian population along with concomitant use of herbal medicine. This is an area of great concern due to its potential for drug-herb interactions [4]. Moreover; several incidents of adulteration of herbal medicines with drug active ingredient, poor product quality, side effects and drug interactions is also reported from the region [5].

Since pharmacists are in the ideal position to provide patients with evidence-based information about their conventional and herbal remedies [6, 7], they are continuously challenged in terms of the knowledge they possess regarding the use, contraindications, safety, efficacy, drug-herb interactions and adverse effects of herbal medicines. Ensuring updated knowledge with respect to the correct use of herbal medicine from a pharmacist's perspective will, therefore, they are more queries from patients about herbal products than ever before [8]. Pharmacists also have the knowledge and experience to help patients determine when self-medication is appropriate and when the expertise of another healthcare provider is needed [9].

No studies designed to evaluate the current level of herbal medicine knowledge of pharmacists in Palestine. The main purpose of this study is to analyze pharmacists' knowledge, Practice and attitude towards dispensing of herbal products and to assess their perception towards the use of such products. The study also intends to address the existing potential of pharmacists to fill the role as information provider for patients who consume herbal products. In addition, this survey is intended to inform pharmacy regulators' and educators' decision making around this topic.

Methods

Study design, settings and study subjects

This is a cross-sectional study that was conducted in four of the largest cities in Palestine; Ramallah, Hebron, Bethlehem and Nablus. The study commenced in December 2014 and continued for 3 months. A total of 290 pharmacists were included in the study based on their geographical distribution (i.e north, middle, and north), with a response rate of

82.9%. Pharmacists from all specialties working in hospitals, independent and chain pharmacies were enrolled in the study after obtaining an informed consent. A typical pharmacy in Palestine is usually operated by 1 licensed pharmacist and an assistant who work for about 8–12 hours per day, 6 days a week. Those who were not willing to participate or did not return the questionnaire within the stipulated time were excluded.

Questionnaire

The content of the questionnaire was reviewed by four research experts for face validity, and it was piloted with 12 pharmacists in order to judge the time needed for administration and to test for clarity and logical flow. Questions was designed using the precedence set by similar studies [10, 11, 12]. To obtain details of the participant's information. There were two sections. The first section requested details of the participant's demographic information, such as age, gender, education level, and employment status. In the second section, the questionnaire included open-ended and closed questions about the participant's current practice, behaviors towards and knowledge about use of herbal remedies.

Data collection and ethical consideration

The questionnaire was administered to participants by 4 final-year Pharmacy students who had been trained in interview techniques and who were supervised by the research staff. The study was approved by a Local Ethics Committee and all participants signed their informed consent. A written consent form was obtained from each participant who wished to participate in the study. Participants were told that all information provided was completely confidential and the results would be presented anonymously.

SPSS software for statistical analysis was used. Descriptive statistics such as frequency distributions were obtained. Data were analyzed using SPSS v. 19.0. Categorical variables were described using frequency distribution and percentages. Mean and standard deviation were calculated for age variables and median for experience.

Results

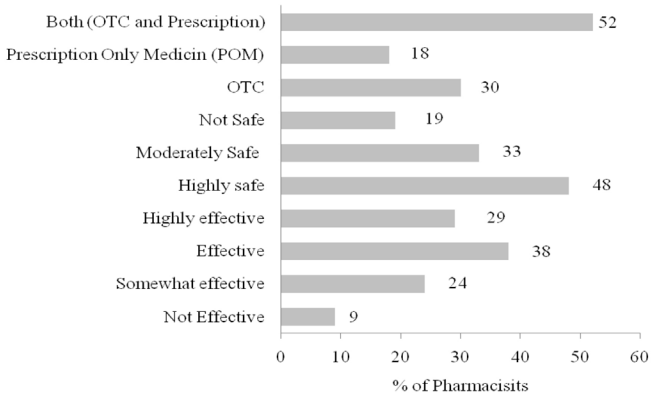
A total of 350 registered pharmacy practitioners were approached. Only 303 responded to the survey with 290 pharmacy practitioners having all questions completely answered. The average response rate was 82.9%. The demographics of the respondents are presented in **Table 1**. The mean age of the pharmacists was 32.9 (SD=6.5) years, with varying degree of education; 5.8% with diploma, 76.9% with Bachelor degree in Pharmacy, 11.0% with Master Degree; 4.2% with Pharm. D. and only 2.1% with Ph.D. More females were responded to the questionnaire than males (58.9% vs 41.1%). The majority of the pharmacists (67.9%) worked in the community pharmacies and their experience in practice ranged from 1 to 26 years, the median years of experience were 6.8 years.

Table 1. Demographic information for participated Pharmacists (n=290).

Variables	Frequency (%)
Age (in years)	
20-29	149 (51.3)
30-39	102 (35.1)
>40	32 (11.0)
Average (mean, SD)	(32.9, 5.8)
Gender	
Female	171 (58.9)
Male	119 (41.1)
Experience (in years)	
<5	62 (21.2)
5-10	151 (52.3)
>10	77 (26.5)
Degree of education	
Diploma	17 (5.8)
Bachelor degree	223 (76.9)
Master degree	32 (11.0)
Pharm D degree	12 (4.2)
PhD degree	6 (2.1)

Variables	Frequency (%)
Employment status	
Community Pharmacy	197 (67.9)
Hospital Pharmacy	67 (23.1)
pharmaceutical industry	12 (4.0)
sales and marketing	8 (3.0)
Academic	6 (2.0)
Categories of drugs that are most commonly dispensed	
Cough preparations	55 (19.0)
General Health Tonic	142 (48.9)
Slimming agents	64 (22.1)
Others (Insomnia, Low Mood, children immunity)	29 (10.0)
Source of information	
Product package instructions	128 (44.2)
product representatives	73 (25.2)
Formal pharmacy education	63(21.7)
Via the Internet	26 (8.9)

Figure 1: General Opinion of community pharmacists to the effectiveness, safety and dispensing.



According to pharmacists' opinions; general health tonic preparations (like gensing) were the most widely dispensed drugs, followed by cough preparations (19%) and slimming agents (22.1%). About two thirds of pharmacists believed herbal remedies were effective or very effective, despite the finding that about fifty percent of the pharmacists had concern about their safety. About fifty of Pharmacists (52.0%) considered the mode of dispensing of herbal products to be both over the counter (OTC) and prescription only medicines, 18.0% reported it is prescription-only-medicines (POM), and 30% reported it is over-the-counter **Figure 1**.

According to the current practice of dispensing of herbal products from Palestinian pharmacies; herbal products were reportedly dispensed "always" or "frequently" by 52.0% of pharmacists from their pharmacies. However only 44.1 % of the respondents reported providing "always" patient advice on the safe use of herbal products and 45.9% of the respondents reported frequent receiving inquiries ' always' or 'often' regarding the use of herbal medicine. A total of 90 pharmacists believed that mostly middle aged customers seek counseling on herbal drugs and only 8% responded "always use of herbal products for self- treatment **Table 2**.

Pharmacists' beliefs and attitudes toward herbal products were assessed. Almost 71.0% of the respondents agreed or strongly agreed on the be-

Table 2. Pharmacists' current practice with regard to herbal products (n=290).

	Frequency (%)			
	Always *more frequent*	Often *frequent*	Sometimes *less frequent*	Rarely
Do you dispense herbal products from your pharmacy	52 (17.9)	99 (34.1)	113 (39.0)	26 (9.0)
Do you advise consumers on safe use of herbal medicine	128 (44.1)	84 (29.0)	46 (15.9)	32(11.0)
Do you get inquiries from consumers regarding the use of herbal medicine	46(15.9)	87 (30.0)	116 (40.0)	41 (14.1)
Have you ever used herbal medicines for self-treatment before	23 (7.9)	75 (25.9)	136 (46.9)	56 (19.3)

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Table 3. Pharmacists' perception towards the use of herbal products (n=290).

	Frequency (%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
herbal medicines have beneficial effect	26 (8.9)	180 (62.0)	44(15.1)	32 (11.0)	8 (3.0)
Herbal product should undergo increased regulation	64 (22.1)	191 (65.9)	26 (9.0)	6 (2.0)	3(1.0)
Information available about herbal and natural product isn't adequate	112 (38.6)	103(35.5)	46 (15.9)	17 (5.9)	12 (4.0)
herbal medicines have less side effects than conventional medicines	43(14.8)	147 (50.7)	85 (29.3)	8 (2.8)	7 (2.4)
Study of herbals should be mandatory in pharmacy curriculum	95 (33.8)	168 (57.9)	6 (2.1)	12 (3.1)	9 (3.1)

Table 4. Pharmacists' knowledge of indications, precautions and interactions of selected herbs (n=290).

Herbs	Statement	% correct answer
Arnica tincture	Indication: minor skin irritation and bruises	200(69.0)
Ginseng	Indication: non-insulin-dependent diabetes mellitus, colds and flu and erectile dysfunction	208 (71.7)
Ginger	Indication: motion sickness and pregnancy-associated nausea and vomiting.	254 (87.6)
Chamomile	Indication: inflammation, anxiety and insomnia	256 (88.3)
St John's wort	Interaction: oral contraceptives (reduces efficacy)	133 (45.9)
Ginkgo biloba	Interaction: aspirin (inhibits platelets and increases the risk of bleeding)	137 (47.2)
Echinacea	Dose: 2-3 ml standardized tincture extract three times daily for 7 to10 days	236 (81.4)
Echinacea	Liver toxicity: It should be avoided in combination with leflunomide and methotroxate	202 (69.7)
Valerian	Should be used cautiously in patients using benzodiazepines	203 (70.0)
Maca root	Should be avoided in patients with goiter	135 (46.6)
Ginseng	Interaction with oral hypoglycemic agents and aspirin	178 (61.4)

neficial effects with the use of herbal medicines, while the majority 88.0% agreed that herbal product should undergo increased regulation. About two thirds respondent (65.5%) agreed on the fact that herbal medicines have less side effects than conventional medicine, however, only 5.2% of the respondents disagreed or strongly disagreed. The majority 74.1% strongly agreed or agreed that information available about herbal and natural product isn't adequate **Table 3**.

The leaflet insert in the herbal medicines (44.2%), followed by product representative (25.2%), formal pharmacy education (21.7%) and via internet (8.9%) were the major sources of information consulted about herbal Products **Table 1**

Nine herbal drugs namely Arnica tincture, Ginseng, Ginger, Chamomile, St John's wort, Ginkgo biloba, Echinacea, Valerian and Maca root were selected to evaluate the pharmacists knowledge about the safety of herbs **(Table 4)**. The pharmacists were asked 9 match questions pertaining to the therapeutic use, herb-drug interaction, adult dose and the most common side effect of the selected herbs. When participating pharmacists were asked to self-rate their knowledge about herbs the majority believed that their knowledge was good to excellent, it was observed that pharmacists had good knowledge of the therapeutic indication with a average 80.0% However, only 49.7% of the participants could recognize possible side effects and

Table 4. Pharmacists' knowledge of indications, precautions and interactions of selected herbs (n=290).

Characteristics	Awareness of pharmacists towards drug-herb interactions	p-value	Beliefs of the effectiveness herbal products	p-value
Age (in years)				
20-29	68	0.11	65	0.43
30-39	52		73	
>40	44		70	
Gender				
Male	53	0.08	51	0.02
Female	66		78	
Experience				
<5 years	66	0.09	70	0.61
5-10 years	55		67	
>10 years	46		68	
Pharmacy Type				
Community	82	0.01	67	0.56
Hospital	58		72	
Degree of education				
Diploma	55	0.11	70	0.58
Bachelor degree	57		68	
Master degree	80		61	
PhD	78		59	

drug-herb reported in the literature between the selected herbs and common drugs used in the management of chronic diseases like hypertension and diabetes **Table 4**.

Concern about drug-herb interactions and perceived effectiveness of herbal product versus demographic data were tested using cross tabulation. The community pharmacists were more aware that there are drug-herb interactions than those working in hospital pharmacies (82% vs 58%; p=0.01) and females were found to be more believe in the effectiveness of the herbal products (78% vs 51%; p=0.02) as it is shown in **table 5**.

Self- perceived knowledge and herb-drug interactions was tested using the same approach. Those pharmacists who considered themselves to be knowledgeable "very good or excellent knowledge about herbal products had more positive attitudes towards the effectiveness of these remedies and less concern about drug-herb interaction (44.1% versus 19.0%, P < 0.001)

Discussion

This study was subject to limitations. Herbal and natural medicine topics remain controversial and still have potential for producing bias. Therefore caution should be considered when interpreting the results of this study. Data collection is limited to a single time point, so changes over time were not assessed. Furthermore, there may have been errors by the pharmacists in recollecting some information.

This study revealed that pharmacists` personal use of herbs in Palestine is high. This finding is similar to other studies where the use of herbal therapy among pharmacists is widespread [10, 11, 12]. In general people believe that herbal thera-

py is natural and safe than conventional products [5]. This is not always true as it is reported that some herbal medicines are potent and their safety is not as evident as people think. Also they can exert high potential drug-herb interaction when are taken in combination. Some studies reported that many patients do not inform their physicians about herbal medicines use nor do physicians ask about it [13, 14, 15].

This study revealed that pharmacists in general are well equipped with information regarding the indications for use of commonly dispensed herbs; however they are less likely to be well-informed about potential side effects and herb–drug interactions.

These results are similar to those found in neighbor countries; Abahussain et al. have found that one third of the examined pharmacists in Kuwait did not have enough information about potential interactions between herbs and conventional medicines [17]. Similarly, in 2010 a cross-sectional study was conducted among 115 community pharmacists in Saudi Arabia to detect knowledge, attitudes and practices towards herbal remedies. In general, pharmacists had poor awareness about potential herb-drug interactions, While 56% of participating pharmacists expressed concerns about the safety of herbal remedies [17]. This could be due to pharmacists not perceiving herbal products as conventional medications are, having side effects and the potential for interactions and contraindications. Now evidence based medicine and reports of interaction with herbal products in the literature can help to negate this perception of harmlessness; however, nothing will substitute for appropriate direct education in this area [8].

Use of herbal therapy together with conventional medicines is reported in USA [18]. Gulf region [10] and the Mediterranean area [19] as common practice by patients. Many herbal products found to be used in these regions have demonstrated significant adverse effects and herb-drug interactions, including increased risk of bleeding with warfarin therapy in combination with ginkgo and increased digoxin levels with St. John's wort [20, 21, 22]. It's worth noting that the prevalence of chronic illnesses such as hypertension, diabetes and cardiovascular diseases is rapidly increasing in Palestine due to a number of factors including lifestyle changes [23]. Pharmacists in Palestine need to be vigilant while counseling their patients regarding the use of herbal products with prescription medications. Patients should be informed about possible effects, side effects and drug interaction and closely monitored to achieve the therapeutic goals and outcomes.

The vast majority of pharmacists in this study are interested in getting more information and training regarding herbal products as reported in other studies [24, 25]. In addition to facts about products themselves, pharmacy school education must provide knowledge of the fundamental natural product issues (eg, safety, product quality) and, most importantly, the ability to evaluate claims regarding natural products [26, 27]. The legal and regulatory issues surrounding natural products must be included; specifically, Drug registration Authorities and committees at the Ministry of health and its impact on pharmacy practice are essential.

The other important finding was that the majority (69.4%) of participants chose package leaflet and considered sales representatives as a source of herbal information. Also the majority mainly informed on the dispensing mode of these products by the sales/ marketing representatives. This is a common practice in Palestine and these sources may not be reliable and often are not under the oversight of the regulatory authority, which may lead to potential errors in dispensing 'Prescription Only' herbal medicines, leading to high risk of adverse reactions

The main role of the pharmacists is to ensure that a patient's drug therapy is appropriately indicated, and that the most effective, safe, and convenient

ones are used by the patient. Pharmacists can contribute enormously in drug therapy outcome and patient's quality of life by taking direct responsibility for patients' drug related needs. It is therefore essential for pharmacists to be knowledgeable on all aspects of herbal medicine to be able to provide accurate information to consumers on the safe use of herbal products. There is also an urgent need for the concerned regulatory bodies to identify a reliable source of drug information pertaining to herbal medications.

Conclusion

Many pharmacists in Palestine believed that herbal remedies were an effective alternative option and a high proportion of pharmacists thought they were safe. Continuing education programs, for practicing pharmacists, in herbal medicine should be encouraged. This would enable the pharmacists to be able to advise and identify patients who are seeking alternative remedies for chronic health problems. Scientific research on and the registration of herbal medicines would further assist in providing the best possible patient care.

Conflict of interest

Non

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