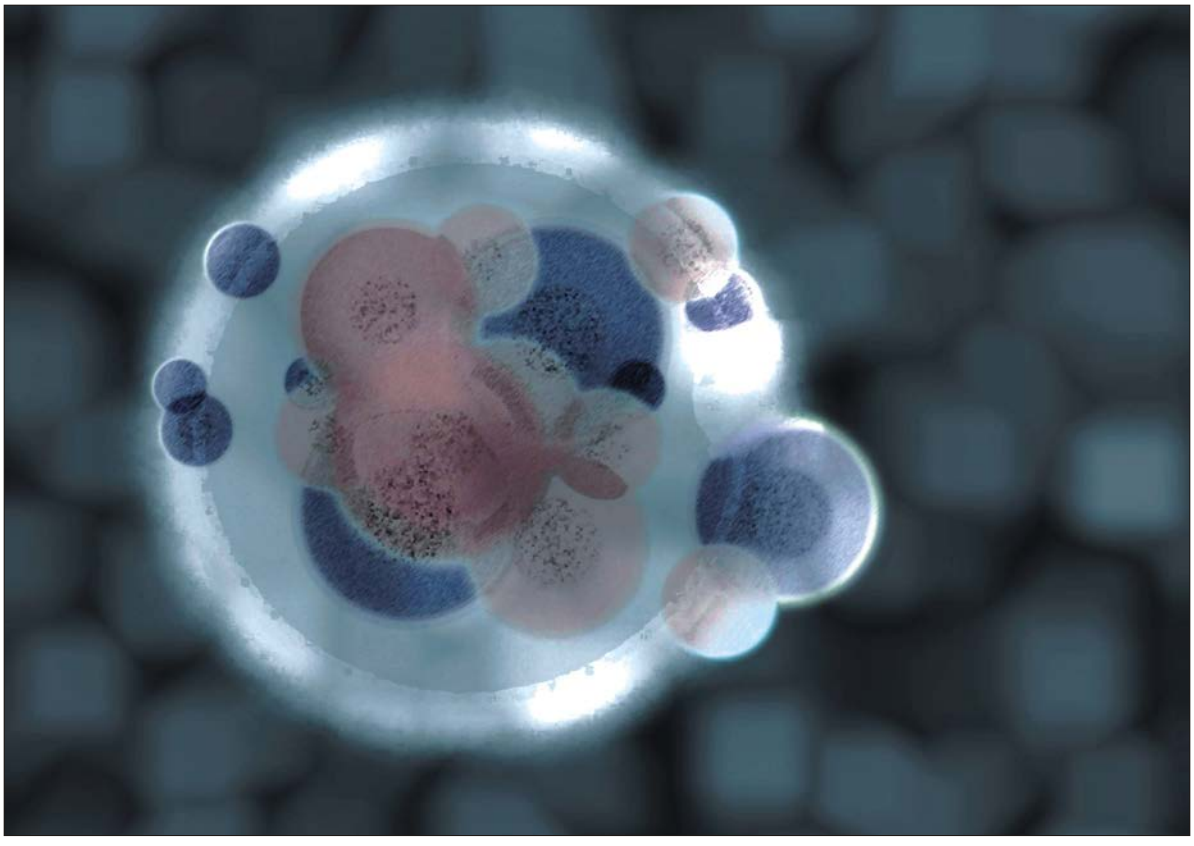

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Research Article
Herbal Medicine Use by People in Jordan: Exploring Believes and Knowledge of Herbalists and Their Customers

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Abstract

Background and Objective: Many customers visit the local herbal medicine stores to seek treatments for their acute and chronic health conditions. No previous study has investigated customer and herbalist believes and knowledge with regards to the safe and efficient use of herbal medicines in Jordan. This study aims to explore herbal medicine use amongst the public in Jordan and to identify the most frequent herbal medicine used for the treatment of varied health conditions. Secondary aim includes assessing believes and knowledge of herbalists and customers on the use of herbal medicine. **Methodology:** A questionnaire based survey was conducted in order to explore believes and knowledge of herbalists and customers towards the safe and efficient use of herbal medicines in Amman, Jordan. Data were analyzed by SPSS. **Results:** The majority of herbalists (64%) believed that use of herbal medicine by customers with chronic conditions can help in their treatment or in reducing the doses of their conventional medicines. Herbalists (69%) tend to always refer their customers to their medical doctor/pharmacist when using herbal medicine and conventional medicine simultaneously. Herbalist's believes in herbal medicine use was not affected by their length of study experience, geographic location or their level of education. To treat their chronic conditions 58.5% of the customers were using herbal medicine. A high proportion (65.1 and 74.5%) of customers reported to have high believes in herbal medicine efficacy and safety over conventional medicine. Herbalists chose work experience (50.6%), family and friends, published papers, books and the internet to be their sources in obtaining their knowledge on herbal medicine use. Customers chose the herbalist to be their first choice as a source of knowledge on herbal medicine. **Conclusion:** There was a high believe in herbal medicine use by both herbalists and customers in Jordan. Customers obtain their knowledge primarily from the herbalists and herbalists obtain their knowledge primarily from their work experience. An urgent need for the concerned regulatory bodies to provide reliable source of herbal medicinal education pertaining to herbal medication use safety and efficacy is called for.

Key words: Herbalists, herbal medicine, herbal knowledge sources, socioeconomic status, customer

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Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

The use of herbal medicine together with conventional medicines is reported in many countries all over the world, regardless of their advancement or economic status[1,2]. According to the WHO report in 2008, 75% of the world's populations are using herbs for the management of basic healthcare needs, with over 60 billion American dollars invested in the trade market of herbal medicines[3].

Nowadays as the prevalence of chronic illnesses is rapidly increasing due to lifestyle changes[4], an increase in the use of various forms of conventional and/or complementary/ alternative medicines has been reported, especially herbal medicine[5]. Herbal medicine use was found to be highest amongst people in China (40%), followed by the USA (23.6%)[6,7] and Europe (18.8%)[8]. In the Mediterranean region, herbal medicine is being highly used by customers, with different studies reporting proportions ranging from 7.6-85.7%[9-12]. In the Gulf region, 43.2-76.0% of people were found to use herbal medicine[13].

Many herbal medicine used in different regions of the world have demonstrated significant adverse effects and herb-drug interactions[14]. Concerns over the quality and safety of such medicine have been also raised[6,15]. Inappropriate consumers' behavior with herbal medicine has been well acknowledged in the West[16]. In many countries around the world, such as Argentina[17] and the UAE[18], herbal medicines are widely available to consumers through herbal shops, where many customers buy herbal medicine without a prescription and with no regulatory control. Herb-drug interactions are a concern with over 46% of patients worldwide using different herbal medicines with conventional medicines for the treatment of various diseases[19]. Such concerns increase when 80% of these patients report their primary source of information regarding herbal medicine to be their friends or relatives[19]. In Jordan, use of herbal medicine is reported to be high[20,11,12], hence investigating the use and safety of herbal medicine has become a national priority.

This study aims to explore herbal medicine use amongst the public in Jordan and to identify the most frequent herbal medicine used for the treatment of varied health conditions. Secondary aim includes assessing believes and knowledge of herbalists and customers on the use of herbal medicine.

MATERIALS AND METHODS

Study settings and design: This cross-sectional study was conducted in East Amman (EA, low socioeconomic areas) and West Amman (WA, high socioeconomic areas), the capital of Jordan. The study was conducted over 3 month period, between March and June, 2016. This study was approved by the Scientific Research Ethical Committee at the Faculty of Pharmacy, Applied Science Private University (ethics approval No. 11/2014/2015).

A two-part face-to-face questionnaire was developed by the principal researchers and reviewed by three research experts for face validity. The questionnaire was then piloted with 10 pharmacy students and academics in order to test for clarity and logical flow of the questions.

The questionnaire was administered to participants by pharmacy students enrolled in the Phytotherapy course at the Applied Science Private University for the year 2015/2016 (n = 45). The students were trained on interview techniques to assist in carrying out this study and to insure uniformity in data collection between the students. Each student was asked to approach 10 herbalists and 10 customers. Many process measures were addressed to guarantee that data collected by the students was valid. Importance of authenticity of data was explained to the students before study commencement, no marks were given in return for the completed questionnaires and the study was proposed as an important learning process only. Participants were informed that all information provided was completely confidential and the results would only be presented anonymously.

Herbalists: A random sample of herbalist shops, managed by a professional full-time herbalist (usually with 1-2 assistants) were identified by the research team and a convenience sample were recruited into the study. Herbalist shops included in the study were located in local shops, shopping malls and chain shops. Herbalists were interviewed at their herbal shops and a face to face validated questionnaire was completed following verbal consent provision. The herbalist questionnaire was designed to collect their demographic information including age, gender, level of education, practicing years (work experience) and their work location (to identify the area's socioeconomic status). The second part of the questionnaire included six closed (using 5 Likert scale) and one open question regarding source of knowledge about potential herbs-drugs interactions (Appendix 1). The six questions included in Part B were prepared to investigate specific information from the herbalists regarding believes and knowledge on the use of herbal medicine for patients with chronic diseases and herb-drug interactions.

Customers: All customers who visited the recruited herbalist shops during the study period (between 10 am and 10 pm), 6 days a week, were asked to participate in the study.

Appendix 1

Herbalist's questioner (Form 1)

Part A

Age group (years): 20-29 30-39 40-59 60+ Age:_____
Gender : Male Female
Level of education: Primary school Secondary school High school Diploma Bachelor degree Masters/ PhD degree
Work experience (years working as a herbalist): <5 5-10 >10
Herbal shop area location : West Amman East Amman

Part B

1- Do you believe that the use of herbal medicine by patients with chronic conditions could help in the treatment of their chronic diseases or in reducing the dose of their conventional medicines?
Always Usually Often Seldom Rarely

2- Do you make recommendations on dispensed herbal medicine from your shop to your customers seeking alternative treatments for their chronic diseases?
Always Usually Often Seldom Rarely

3- Would you recommend referring your customers to their medical doctor or pharmacist when using herbal medicine and conventional medicines simultaneously?
Always Usually Often Seldom Rarely

4- Do you recommend initiating private herbal clinics run by certified medical herbalists?
Strongly agree Agree, Neutral Disagree Strongly disagree

5- Do you get inquiries from your customers on the use of herbal medicine due to reaching desperation stages with their conventional drug therapy?
Always Usually Often Seldom Rarely

6- How do you rate your level of knowledge about the potential herbals-drugs interactions?
Very few Little Average Good Very good

- If your answer is average or more, what is the source of your information?

Customer's questioner (Form 1)

Part A

- Age group (years): 20-29 30-39 40-59 60+ Age:----------
- Gender: Male Female
- Level of education: Primary school Secondary school High school Diploma Bachelor degree Masters/PhD degree
- Living area: West Amman East Amman
- Nationality: Jordanian Non-Jordanian

Part B

1) In case you suffer from chronic diseases, what is it? No chronic conditions___ Diabetes (type 1 and 2) Hypertension High cholesterol Thyroid gland disorders other
   - In the case of the answer "other", mention the name of the disease?

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2) Do you use herbal medicine for the treatment of chronic health conditions?
Always Usually Often Seldom Rarely

   - If your above answer was (Always-Usually-Often), what is the name of the disease and herb used?

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3) Do you believe that the use of herbal medicine in the treatment of chronic diseases is effective?
Always Usually Often Seldom Rarely

4) Do you prefer to use herbal medicine for treatment of chronic diseases rather than conventional drugs?
Always Usually Often Seldom Rarely

5) Have you ever suffered from potential side effects which you could correlate to the use of herbal medicine?
Always Usually Often Seldom Rarely

6) Have you ever suffered from potential side effects, which you could correlate to the use of herbal medicine coincidently with your conventional medications?
Always Usually Often Seldom Rarely

7) What is the source of your knowledge about the use of herbal medicines?

Herbalists MD Pharmacist Other (specify) ----------

The customers were interviewed at herbal shops and the face to face validated questionnaire was completed following verbal consent provision.

The customer's questionnaire was designed to collect their demographic information including age, gender, level of education, living area (to identify the area's socioeconomic status) and nationality (Jordanian versus non Jordanian). The second part of the questionnaire included seven closed (using 5 Likert scale) questions regarding presence of chronic illnesses, attitude regarding the use of herbal treatment in the management of chronic conditions and knowledge about the use of herbal medicine (Appendix 1, Part B).

Sample size: As there were no official statistical data available on the numbers of the registered herbalists' shops in the city of Amman, a convenience sample of 120 herbalists were included in the study.

As for the customers, based on the population of Amman (2.600.000), sample size calculation using a margin of error of 5%, confidence level of 95% and response distribution of 50% equaled to 400 people.

Statistical analysis: Statistical analysis was performed using Statistical Package for Social Sciences (SPSS version 16, Chicago, IL, US). Descriptive analysis was carried out to determine the frequencies calculated for the categorical variables.

RESULTS

Responses of herbalists: A total of 120 herbalists were approached and 102 responded to the survey, giving a response rate of 85.0%. The mean age of the herbalists was 45.13 (SD =16.38) years, with the highest frequency (33.7%) being in the age range of 40-60 years. The majority (61.1%) of

the herbalists were allocated in EA (lower socioeconomic areas). Results showed that 43.0% of the herbalist's had more than 10 years of experience, followed by 39.0% having 5-10 years of working experience and only 18.0% reported less than 5 years of experience.

As for education, 42.7% were holding a high school degree, 18.8% had diploma degrees and 9.4% had a bachelor degree. The rest of the herbalists reported no education qualification degrees. Younger herbalists (with shorter work experience) were found to have significantly ($p = 0.007$) higher level of education compared to the older herbalists (longer work experience).

Herbalist's believes toward herbal medicine use: Many herbalists believe that the use of herbal medicine by patients with chronic conditions could always/usually help about 64% in the treatment of their chronic diseases or in reducing the dose of their conventional medicines. Many herbalists (75%) reported making recommendations on dispensed herbal medicine to their customers seeking alternative treatments for the management of their chronic diseases on an always/usually basis. Many herbalists (69%) always/usually recommend referring their customers to their medical doctor/pharmacist when using herbal medicine simultaneously with conventional medicine. More than half of the herbalists (55%) strongly agreed/agreed with the need to initiate private herbal clinics run by certified medical herbalists. More than half of the herbalists (58.0%) always/usually get inquiries from their customers on the use of herbal medicine due to reaching desperation stages with their conventional drug therapy use.

Herbalist's perception towards the use of herbal medicine versus herbalists work experience were evaluated, showing that years of experience made no significant effect on the level of recommendations made by the herbalists while dispensing herbal medicine to customers. Years of experience showed no significant effect on all other reported herbalists' attitudes as well (Table 1).

Responses of customers: A total of 306 out of 400 customers agreed to participate in this study (response rate = 76.5%), with 52.8% females and mean age of 35.92 (SD=16.19) years, with the majority (40.2%) being in the age range of 30-39 years. Most respondents were Jordanians (71.4%) and were residence of WA (62.5%). As for educational level, a high proportion (67.9%) of the customers were holding a university degree, with significantly more males holding a university degree compared to females (35.7% females vs. 66% males, $p = 0.037$).

Customers reported different ailments as the reason for their use of herbal medicine (65.1%). Seventy customers (34.9%, n = 200) had chronic conditions including hypertension, diabetes mellitus, dyslipidemia and thyroid gland disorders. The rest had other different health conditions, with no significant variations between the two genders found ($p = 0.074$) (Table 2).

Majority (n = 306, 65.2%) were using 46 medicinal herbs to treat 32 different health ailments with no significant differences between females (67.9%) and males (62.0%), $p = 0.074$ (Table 3).

Volatile oils containing plants such as rosemary, fenugreek, lavender, chamomile, thyme, dill, sage, fennel, anise, mint and ginger were the most widely used herbs. This was followed by fixed oil containing plants (e.g: Olive oil) and laxatives anthroquinons containing plants (e.g., Senna), in addition to other reported minor groups (Table 3).

Customer's believes toward herbal medicine use: About two third (65.2%, n = 306) of the customers (60.8% female vs. 70.0% male, $p = 0.311$) believed that herbal medicine was effective in treating various health conditions (with frequencies ranging from often to usually to always) (Fig. 1).

Among the chronically ill customers (n = 70), 58.5% were using herbal medicine to treat their chronic health conditions (with frequencies ranging from often to usually to always), with no significant differences between the two gender

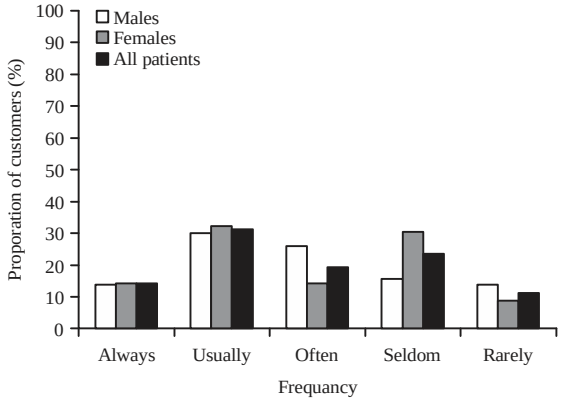

Fig. 1: Proportions of customers (n = 306) who believe that the use of herbal medicine in the treatment of different health aliment is effective

Table 1: Cross tabulation of herbalist's believes and knowledge toward herbal medicine use based on the length of their study experience (n = 102)

Work experience (years)	Frequencies (%) Less than 5 years (n = 18)	5-10 years (n= 40)	More than 10 years (n = 44)	Total of the population (n = 102)	p- value
Herbalists distribution between the two areas of study (East Amman: West Amman)					
	58.8: 41.2	62.1: 37.9	61.5: 38.5	61.1: 38.9	0.975
Do you believe that the use of herbal medicine by patients with chronic conditions could help in the treatment of their chronic diseases or in reducing the dose of their conventional medicines?					
Always	22.2	15.4	39.5	27.0	0.491
Usually	33.3	43.6	32.6	37.0	
Often	27.8	30.8	20.9	26.0	
Seldom	11.1	7.7	4.7	7.0	
Rarely	5.6	2.6	2.3	3.0	
Do you make recommendations on dispensed herbal medicine from your store to your customers seeking alternative treatments for their chronic diseases?					
Always	16.7	28.2	39.5	31.0	0.139
Usually	44.4	38.5	48.8	44.0	
Often	27.8	17.9	2.3	13.0	
Seldom	11.1	10.3	4.7	8.0	
Rarely	0.0	5.1	4.7	4.0	
Would you recommend referring your customers to their medical doctor or pharmacist when using herbal medicine and conventional medicines simultaneously?					
Always	38.9	20.5	34.9	30.0	0.077
Usually	38.9	30.8	46.5	39.0	
Often	16.7	25.6	2.3	14.0	
Seldom	0.0	10.3	9.3	8.0	
Rarely	5.6	12.8	7.0	9.0	
Do you recommend initiating private herbal clinics run by certified medical herbalists?					
Strongly agree	16.7	17.9	34.9	25.0	0.141
Agree	50.0	20.5	30.2	30.0	
Neutral	16.7	35.9	18.6	25.0	
Disagree	16.7	15.4	9.3	30.0	
Strongly disagree	0.0	10.3	7.0	25.0	
Do you get inquiries from your customers on the use of herbal medicine due to reaching desperation stages with their conventional medicines?					
Always	22.2	5.1	30.2	19.0	0 .203
Usually	33.3	43.6	37.2	39.0	
Often	38.9	38.5	23.3	32.0	
Seldom	5.6	10.3	9.3	9.0	
Rarely	0.0	2.6	0.0	1.0	
How do you rate your level of knowledge about potential herb-drug interactions?					
Very good	5.6	2.6	16.3	9.0	0.092
Good	27.8	23.1	20.9	23.0	
Average	38.9	30.8	20.9	28.0	
Little	11.1	35.9	18.6	24.0	
Few	16.7	7.7	23.3	16.0	

Table 2: Percentages of customers with chronic or non-chronic health conditions and acquiring herbal medicines (n = 200)

Genders	Frequencies (%) Diabetes mellitus	Hypertension	Dyslipidemia	Thyroid gland	Other
Females	3.6	16.1	7.1	5.4	67.9
Males	16.1	10.0	12.0	0.0	62.0
Total	9.5	13.2	9.4	2.8	65.1

groups (60.8% female vs. 56.0% male, p = 0.410) (Fig. 2a). Despite the finding that the majority (74.5%) of the chronically ill customers had certainty about herbal medicine safety (72.0% male vs. 76.8% female patients, p = 0. 539) (Fig. 2b), a proportion (19.9%) of them had concerns regarding potential side effects, which they could correlate to the use of herbal medicines simultaneously with their chronic medications (16.0% male vs. 19.7% female patients, p = 0.608) (Fig. 2c). About half (50.9%) of the chronically ill costumers (53.5% female vs. 48.0% male, p = 0.879) had preferences to use herbal medicine over conventional medicine in treating their chronic health conditions (with frequencies ranging from

Table 3: A list of different health conditions treated with herbal medicines as mentioned by the interviewed customers visiting the selected herbal shops (n = 306)

Herbs (common english names)	Indications
Obesity	Marjoram, Rejal-alasad, senna, cinnamon and cumin
High cholesterol	Rosemary, fenugreek, garlic, hawthorn and cinnamon
High blood pressure	Garlic, rosemary, cinnamon, hibiscus and thyme
Insomnia	Lavender and lemon balm
Irritable bowel syndrome	Flax seed, anise, cumin, mint, caraway, thyme and marjoram
Constipation	Senna and colycynth
Nasal congestion	Chamomile
Oily skin	Olive oil, sweet almond oil and aloe vera
Benign prostatic hyperplasia	Oak, honey and flax seed
Bronchitis	Thyme and guava leaves
Cold and flue	Chamomile, ginger and zhorat (mixed herbs)
Cough	Thyme, ginger, wormwood, guava leaves and turmeric
Diabetes	Parsley, wormwood and cinnamon
Psoriasis	Watercress, olive oil and toyon
Urinary tract infection	Rosemary and cranberry
Renal colic	Dill
Abdominal colic	Sage and iva herb
Flatulence	Fennel and anise
Hay fever and seasonal allergy	Anise and chamomile
Atherosclerosis	Hawthorn
Kidney stones	Pumpkin seeds, parsley, tuber fleece flower, khella and leaf linden
Stimulate for blood circulation	Nutmeg
Anti-anxiety	Anise, caraway, mint, sage, thyme and chamomile
Acne	Yellow musk, rose water and yeast
Rheumatism	Licorice with turmeric, red pepper with parsley, ginger and rosemary
Varicose vain	Mustard oil
Indigestion	Mint, thyme and ginger
Hair loss	Flax seed
Anemia	Fenugreek
Dandruff	Aloe vera oil
Nausea	Ginger
Anti-oxidants	Rosemary

often to usually to always) (Fig. 2d). In spite of this interest in herbal medicine use, only 8.5% of them were found to combine herbal medicine with their conventional medicine. This combination was preferred by more females (10.7%) than males (6.0%, p = 0.879).

Customer's knowledge about herbal medicine use: Regarding customer's source of knowledge on using medicinal herbs, 43.4% declared that their first source was the herbalist, followed by the pharmacist (13.2%) and the medical doctor (8.5%), with no significant differences between the genders (p = 0.161). Around one third of the customers (34.9%) were found to depend on other sources such as 'the word of mouth' from friends and family describing traditional recipes that were inherited over generations. Internet, Television, books and magazines were other reported sources (Fig. 3).

DISCUSSION

This study revealed a wide range of herbal medicines being used by patients with chronic conditions in Jordan. It also revealed a great believe in such use, by both herbalists and customers. This was the first study to unveil herbalist's interest in initiating private herbal clinics run by certified medical herbalists to better counsel patients using conventional medications. Herbalists' primary source of knowledge on herbal medicine use was limited to their previous experience only, while customers reported that herbalists are their first choice in obtaining herbal medicine source of knowledge. Hence, the study called for regulatory bodies to provide reliable source of medicinal herbs information and education for herbalists, pertaining to herbal medication use safety and efficacy.

This study revealed that personal use of herbal medicine in Jordan is very common, with over half of the customers were found to use it, for both chronic and non-chronic

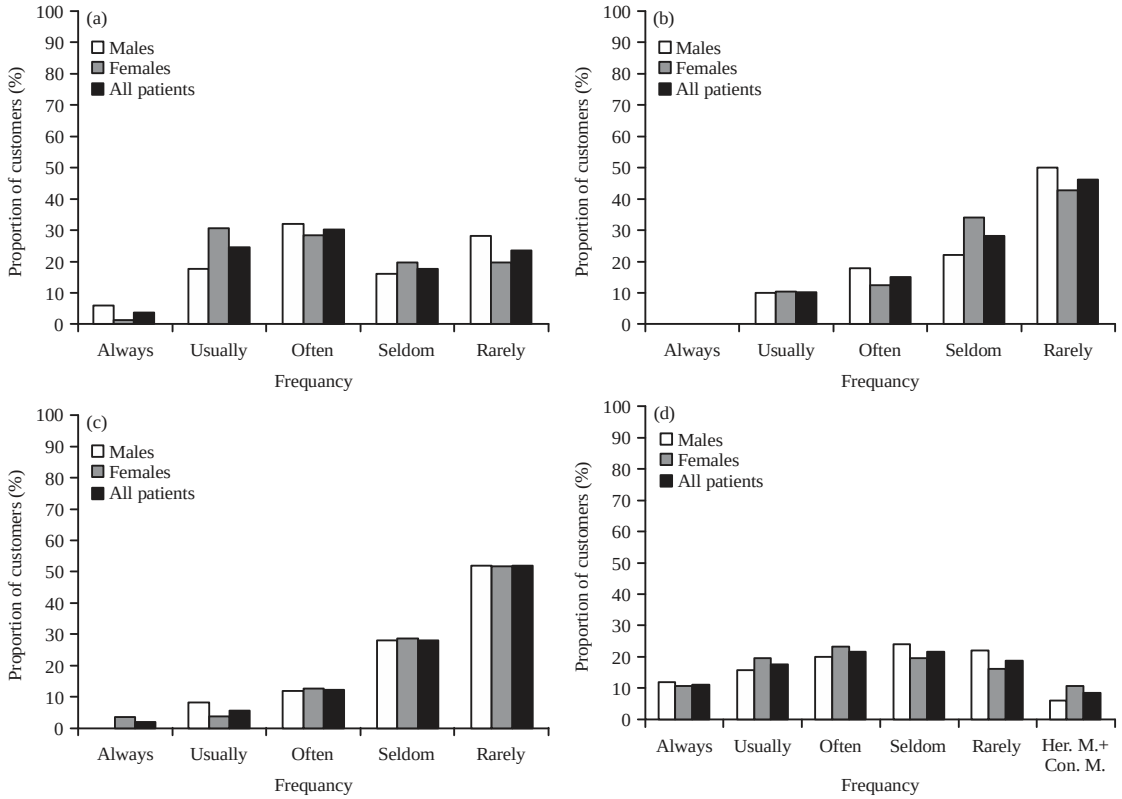

Fig. 2(a-d): Proportion of customers with chronic conditions (n = 70), (a) Who used herbal medicine for the treatment of chronic health conditions, (b) Who showed concerns on herbal medicine safety, (c) Who suffered from potential side effects, which they could correlate to the use of herbal medicine coincidently with conventional medicines and (d) Who prefer to use herbal medicine for the treatment of chronic diseases rather than conventional medicine or a combination of both

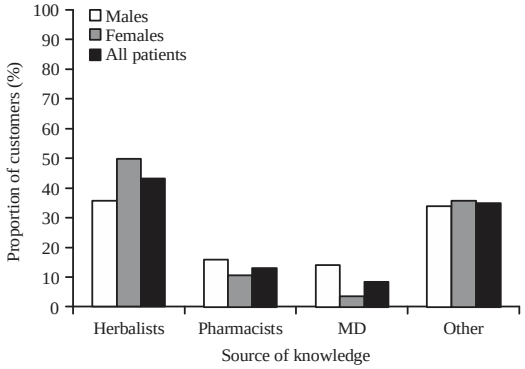

Fig. 3: Proportion of customers (n = 200) reporting their source of knowledge about the use of herbal medicine, Medical doctor (MD)

health conditions. High use of herbal medicine has been reported previously by many studies conducted in Jordan. Khader *et al.*[21] reported high rate of herbal medicine use in the Northern areas of Jordan with a prevalence of (87.3%), while Qunaibi *et al.*[22] reported high use in Amman the capital.

Considering high herbal use by patients, herbalists' low educational level has been a concern for many years. Across the years, studies had constantly shed light on this long standing problem. An old similar study performed in Jordan by Abu-Irmaileh and Afifi[23] and one very recent study performed in Lebanon by Deeb *et al.*[24], indicated that most of the herbalists involved in their studies had low educational levels. Previous studies had addressed the low educational levels for the herbalists, offering supportive training programs to increase their knowledge[25-27]. Results of this study showed that none of the interviewed herbalists was previously provided by any scientific education or training, to enable them to provide information on herbal medicine use and safety to their customers. On the contrary, herbalists reported dependence on non-scientific resources to gain knowledge regarding the use and safety of herbal medicine. It was however promising to see that younger herbalists in Jordan tend to be more educated, with over 70% of them having high school or other higher educational degrees. Such results may pave the way for a potential progress in the herbalists' role as healthcare

participants that can contribute to the health care system in Jordan, a country where the population relied greatly on herbal medicine use for the treatment of different health aliments.

Despite the fact that most of the interviewed customers in this study were residents in WA, most of the corresponding herbalist's stores were allocated in EA. Such herbalists had longer working experience and higher confidence levels in herbal medicines use in treating chronic diseases. Therefore, herbalists experience and confidence were found to be the driving force behind customer's choice of the herbal stores they visit.

The value of interprofessional learning and practice has been acknowledged extensively and integrating herbalists in the health care system has many potential benefits. In a previous study performed in New Zealand by Cottingham *et al.*[28], it was found that there is a need for greater understanding and communication between health practitioners and herbalists in order to support and coordinated effective healthcare within the New Zealand health care system. In Jordan, both herbalists and pharmacists showed interest in attending educational courses on herbal medicine use at pharmacy schools to improve their ability to council their customers[29]. This added to the importance of training the herbalists on medicinal herbal use and emphasizes the importance of designing integrated educational diplomas and workshops with pharmacists and medical doctors being involved. Learning together how to perform and deliver correct and safe herbal medicine preparations, especially those used for the most frequent medical conditions, with special emphasis on treatments safety and efficiency is vital. Interestingly, more than half of the herbalists showed interest in establishing interprofessional herbal clinics, that can offer consultations and personalized treatment which involves herbal and conventional medicines.

Using herbal medicine with conventional medicine can cause serious interactions and side effects. Several studies showed alarming evidence for possible herb-drug interactions[30,6,15,14]. In spite of that, participants of this study and previous similar studies in Jordan showed high use of herbal medicine with conventional medicine[20], an issue that deserved a large awareness campaign in the country. In addition, herbalists in the country require training on herbal medicine and also the legal and regulatory issues surrounding herbal medicine use need to be publicized. Drug registration authorities and the committees at the Ministry of health as well as the ministry of industry and trade can be involved in upgrading the herbalists practice and in establishing a new association that can provide fundamental local herbal medicine knowledge (e.g., safety, product quality) to the herbalists and other health care providers.

In aim to keep patients informed about possible effects, side effects and herbal-drug interactions, they need to be closely monitored in order to achieve their therapeutic goals and outcomes. Many previous studies chose medical doctors, naturopathics, pharmacists or herbalists as health professionals who can be consulted for herbal medicine information[30-32]. In this study, herbalists were rated as the most preferable source of information by the customers. These findings agreed with other similar studies performed previously in Lebanon[33] and in Jordan[22]. The studies also reported that many patients do not inform their doctors or pharmacists about herbal medicine use, nor do professionals ask about herbal medicine use during patient's history records. Therefore, community pharmacists need to be vigilant while counseling their patients regarding the use of herbal medicine with prescription medications[34,35].

Female customers showed higher interest in using herbal medicine over conventional medicine when compared to male customers. This was linked to their higher believe in herbal medicine safety. They also showed higher awareness regarding herb-drug interactions; hence they showed low interest in using combination between herbal medicine and convention medicine. They also showed weaker believes in the efficiency of herbal medicine to treat the varied health conditions, which was justified by their higher concerns about potential herb-drug interactions.

CONCLUSION

Many herbalists believe that the use of herbal medicine by customers with various chronic conditions could help in the treatment or in reducing the dose of the conventional medicines used; for which they do referrer these customers to their medical doctor/pharmacist when using them simultaneously. Similarly, the majority of the chronically ill customers had certainty about herbal medicine efficiency in treating different health conditions, with concerns regarding potential side effects, which they could correlate to the use of herbal medicines simultaneously with their chronic medications. In addition, many of the herbalists agreed with the need to initiate private herbal clinics run by certified medical herbalists to advise customers with the safe and efficient use of herbal medicine, especially when they get inquiries from them after reaching desperation stages with their conventional drug therapy use. Data of present study showed that years of experience made no significant effect on

the level of recommendations made by the herbalists while dispensing herbal medicine to their customers. Among the herbal medicine used, volatile oils containing plants were the most widely used herbs.

SIGNIFICANCE STATEMENTS

This study discovers that a high proportion of people in Jordan have strong believes in herbal medicine efficacy and safety over conventional medicines. Such findings are beneficial in highlighting the significant role of the herbalists in the country and the importance of designing and delivering structured education to upgrade their knowledge and hence customer service. This study will help the researcher to uncover the most important source of education on herbal medicine use for customers in Jordan, hence identifying a potential important cause of treatment failure not fully explored yet. Results of this study shed light on the importance of upgrading herbalists' knowledge and practice and calls on the policy makers in the country to take quick actions that can pave the way towards an efficient and safe herbal medicine use by all.

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