2021

Prevalence and Perceptions of Herbal Medicine Use in Eastern Jamaica

Jacqueline Jepsen
Wright State University - Main Campus, jepsen.2@wright.edu

Prevalence and Perceptions of Herbal Medicine Use in Eastern Jamaica

Jacqueline C. Jepsen

Dr. Thomas Herchline, Wright State University Department of Medicine

Population, Public Health and Global Health

Scholarship in Medicine Final Report

☒ By checking this box, I indicate that my mentor has read and reviewed my draft proposal prior to submission

Abstract

Objective: The purpose of this research was to determine the prevalence of herbal medicine use in rural St. Mary Parish, Jamaica. It also aimed to identify which herbs are commonly used and gauge the population's general attitude toward herbal remedies vs conventional medicine.
Methods: A cross-sectional population survey was developed and distributed at eight different clinics throughout St. Mary Parish, Jamaica with a sample size of 68.

Results: It was determined that herbal medicine use is common amongst the Eastern Jamaican population, with 63% of subjects reporting its use. A wide variety of herbal remedies are utilized, with aloe vera, bissy, and castor nut being used by 100% of subjects reporting herb use. Furthermore, roughly 62% of subjects admitted that their health care provider was not aware of their herbal medicine use. The data did not reveal a predominant perception regarding the safeness of herbal medicine vs conventional medicine use, with 39% of responders feeling "not sure".

Key Words: herbal medicine, Jamaica, cross-sectional survey, drug-herb interactions

Introduction/Literature Review

The use of herbal medicine has become increasingly common across the globe, whether it be for the purposes of enhancing general health or treating specific ailments.[1,2] In 2002, the World Health Organization (WHO) estimated that nearly 80% of the population in developing countries utilized herbal medicine as a means of primary health care. WHO then published the Beijing Declaration, which encourages a collaboration between modern and traditional herbal medicine in order to promote equity in public health. It also emphasizes the importance of research to support the employment of herbal medicine as a means of safe and effective treatment.[3]

Despite this reported increase in popularity, there still exists a gap in knowledge regarding the specific herbs that are commonly used by different populations and whether they are being taken concomitantly with prescription drugs. Zhang et al. recognized this and narrowed their research to just the Australian population.[1] They conducted a cross-sectional population survey in order to determine the most popular medicinal herbs and the reasons for which they were used. Health enhancement was reported as the most common reason for using herbal medicine, however, a high percentage of the population used herbal medicine for the treatment of specific ailments or medical conditions. One finding of concern indicated that of those who did engage in herbal medicine use, less than half were aware of the potential adverse effects associated with herbal medicine. It was also alarming that over half of herbal medicine users concomitantly used prescription medicines to treat the same medical conditions. Even more concerning, though, was the finding that herbal medicine users were self-selecting herbal remedies without consulting a physician. While this study suggested that individuals are taking initiative of their own healthcare, it also implicated that patients greatly value the advice of

medical practitioners about whether they should engage in medicinal herb use. Thus, the study conducted by Zhang et al. emphasizes the important role that physicians play in influencing the healthcare choices of their patients. However, it also stresses the need for medical practitioners to receive more adequate education about herbal medicine so that they may help their patients avoid adverse effects.

As mentioned, the concomitant use of herbal medicine and conventional medicine can lead to serious adverse drug reactions. Researchers have recognized an increased reporting of drug-herb interactions, which are considered to be a reflection of the spike in herbal medicine use around the world. The Jamaican population in particular has demonstrated an extensive use of household herbs for various purposes. Therefore, Delgoda et al. and Picking et al. chose to investigate the prevalence of concomitant herb-drug usage amongst the Jamaican population.[2,3] The two studies utilized population surveys to determine that a majority of the population utilized medicinal herbs within the preceding year and that there was a high prevalence of concomitant herb-drug use. They were also able to discover fifty of the most frequently used herbs in Jamaica, which are listed in Table 1.[3] In accordance with the study conducted by Zhang et al., these studies also concluded that physicians in Jamaica have limited awareness of their patients' concomitant herb-drug. This further emphasizes a communication gap between physician and patient regarding self-medication with herbs, which poses a potential threat to patient health.

Scientific name	Family	Local name	n	%
Momordica charantia L.	Cucurbitaceae	Cerasee	114	42.2
Bryophyllum pinnatum (Lam.) Oken	Crassulaceae	Leaf of Life	93	34.4
Aloe vera (L.) Burm. f.	Xanthorrhoeaceae	Sinkle Bible	68	25.2
Eupatorium odoratum L.	Asteraceae	Jack-in-the-Bush	61	22.6
Annona muricata L.	Annonaceae	Soursop	41	15.2
Zingiber officinale Roscoe	Zingiberaceae	Ginger	37	13.7
Solanum torvum Sw.	Solanaceae	Susumber	35	13.0
Allium sativum L.	Amaryllidaceae	Garlic	34	12.6
Piper amalago L.	Piperaceae	Jointer	28	10.4
Gliricidia sepium (Jacq.) Kunth ex Walp.	Fabaceae	Maranga	27	10.0
Stachytarpheta jamaicensis Hutch. & Dalziel	Verbenaceae	Vervine	26	9.6
Clerodendrum thomsoniae Balf.	Lamiaceae	Rice & Peas	25	9.3
Andrographis paniculata (Burm. f.) Nees	Acanthaceae	Rice Bitters	24	8.9
Rivina humilis L.	Phytolaccaceae	Dogblood	22	8.2
Morinda citrifolia Hunter	Rubiaceae	Noni	21	7.8
Opuntia cochenillifera (L.) *Mill.*	Cactaceae	Tuna	20	7.4
Polyscias guilfoylei (W. Bull) L.H. Bailey	Araliaceae	Aralia	19	7.0
Cymbopogon citratus (DC.) Stapf	Poaceae	Fever Grass	16	5.9
Chenopodium ambrosioides L.	Amaranthaceae	Semicontract	15	5.6
Rhytidophyllum tomentosum (L.) Mart.	Gesneriaceae	Search-mi-Heart	15	5.6
Bidens reptans (L.) G. Don	Asteraceae	Marigold	13	4.8
Petiveria alliacea L.	Phytolaccaceae	Guinea Hen Weed	13	4.8
Desmodium canum Schinz & Thell.	Fabaceae	Strongback	11	4.1
Priva lappulacea (L.) Pers.	Verbenaceae	Fasten-pon-coat	11	4.1
Citrus aurantiifolia (Christm.) Swingle	Rustaceae	Lime	9	3.3
Hyptis verticillata Jacq.	Lamiaceae	John Charles	9	3.3
Picramnia antidesma Sw.	Picramniaceae	Majoe Bitters	9	3.3
Artocarpus altilis (Parkinson) Fosberg	Moraceae	Bread Fruit	8	3.0
Cassia alata L.	Fabaceae	King of the Forest	8	3.0
Bambusa vulgaris Wendl. ex Nees	Poaceae	Bamboo	7	2.6
Lippia alba (Mill.) N.E. Br. ex Britton & P. Wilson	Verbenaceae	Colic Mint	7	2.6
Picrasma excelsa (Sw.) Planch.	Simaroubaceae	Bitter Wood	7	2.6
Pothomorphe umbellata (L.) Miq.	Piperaceae	Cowfoot	7	2.6
Bidens pilosa L.	Asteraceae	Spanish Needle	6	2.2
Cassia occidentalis L.	Fabaceae	Dandelion	6	2.2
Mentha × *piperita* L.	Lamiaceae	Peppermint	6	2.2
Pimenta spp. Lindl.	Myrtaceae	Pimento	6	2.2
Pseudelephantopus spicatus (Juss. ex Aubl.) C.F. Baker	Asteraceae	Dog Tongue	6	2.2
Smilax spp. L.	Smilacaceae	Sarsaparilla	6	2.2
Argemone mexicana L.	Papaveraceae	Thistle	5	1.9
Mikania micrantha Kunth	Asteraceae	Quaco Bush	5	1.9
Psidium guajava L.	Myrtaceae	Guava	5	1.9
Terminalia catappa L.	Combretaceae	Almond	5	1.9
Achyranthes indica (L.) Mill.	Amarantaceae	Devil's Horsewhip	4	1.5
Alysicarpus vaginalis (L.) DC.	Fabiaceae	Medina	4	1.5
Cannabis sativa L.	Cannabaceae	Ganja	4	1.5
Cecropia peltata L.	Urticaceae	Trumpet Tree	4	1.5
Cola acuminata (P. Beauv.) Schott & Endl.	Malvaceae	Bissy	4	1.5
Cordia globosa (Jacq.) Kunth	Boraginaceae	Black Sage	4	1.5
Justicia pectoralis Jacq.	Acanthaceae	Fresh Cut	4	1.5

Table 1. Fifty most commonly used medicinal herbs listed by prevalence[3]

Herbal medicine has become an increasingly popular means of treatment for various ailments. However, many plants are highly toxic or can produce adverse effects, especially when used in conjunction with conventional medicine or over-the-counter (OTC) drugs.[4,5] As various studies have found, physicians have limited awareness of the concomitant use of herbal medicine and conventional medicine. [1,2,3] Thus, further investigation of this topic is necessary so that physicians may be more effectively educated about popular herbal remedies and their potential adverse effects. Additionally, there is a need for further understanding of populations' general impression of the safeness of herbal drug use compared to prescription/OTC drug use. A broader

knowledge of medicinal plants and their uses is necessary to enhance pharmacovigilance and avoid potential adverse drug reactions associated with drug-herb co-administration.

Specific Aims

This research aims to determine the prevalence of herbal medicine use in rural St. Mary Parish, Jamaica. It also intends to identify which herbs are commonly used and to gauge the population's general attitude toward herbal remedies versus conventional medicine. It is predicted that results from this study will coincide with the results of similar studies that have been conducted.

Methods

Context/Protocol

A cross-sectional study was conducted among patients presenting for care at 8 different clinics throughout St. Mary Parish, Jamaica (yellow pins in Figure 1). Convenience sampling methods were used and an anonymous survey was interviewer-administered to all adult patients as they left the clinic. A total of 68 consenting subjects completed the survey. Subjects under the age of 18 were excluded from the study. For the purposes of this study, medicinal herbs were defined as any plant or plant part used to prepare home remedies. Conventional medicine consisted of both prescription and OTC drugs. Approval of this study was sought from the Wright State University IRB and was determined to be exempt from review.

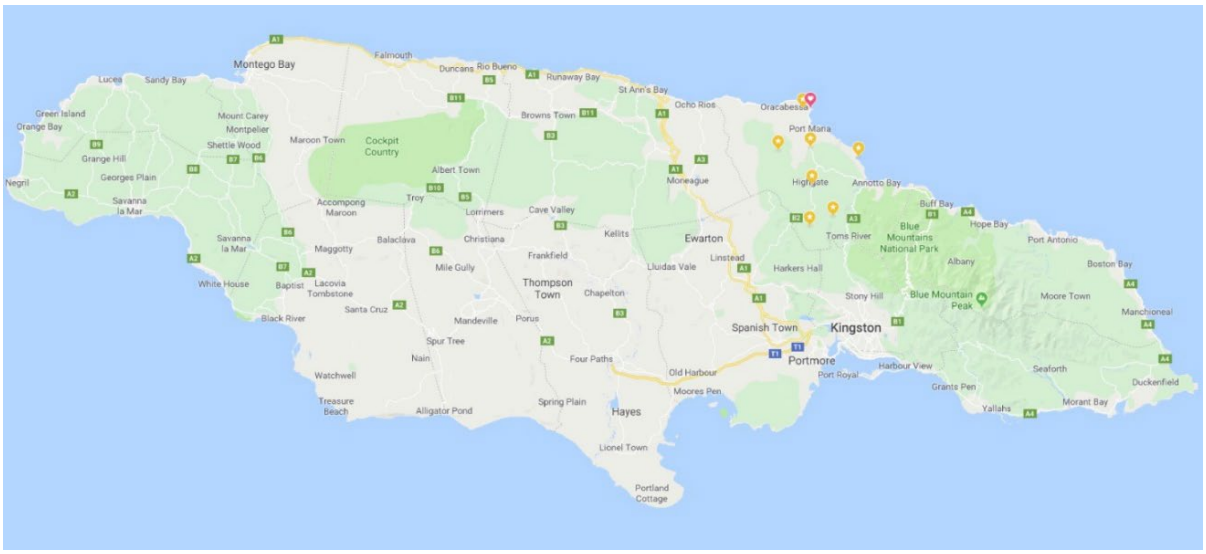

Figure 1. Clinic locations in eastern Jamaica identified by yellow pins

Data Collection

The survey (Figure 2) included of a list of commonly used herbs in Jamaica. The findings of Picking et al.[3] and various internet searches were considered when determining which herbs should be included in the survey. There was also an option for the subjects to write in any herbs they used that were not listed. The survey inquired about the subjects' use of herbal medicine in conjunction with conventional prescription medicine/OTC drugs and the subjects' perception of herbal remedies compared to conventional medicine. Information regarding demographic information, including age and sex, was collected. Anonymity was maintained by excluding patient identifiers such as name and address.

Herbal Medicine Questionnaire

"Herbal Medicine" is defined as the art or practice of using herbs and herbal preparations to maintain health and to prevent, alleviate, or cure disease.

"Conventional Medicine" is defined as the usual methods of healing or treating disease that are taught in Western medical schools. Prescription and over-the-counter drugs are considered to be a practice of conventional medicine.

1. What is your sex? M or F
2. What is your age? _____
3. In the past year, have you used herbs for medicinal purposes? Yes No

   If yes, please indicate which herbs you have used (mark all that apply):

Aloe vera	[ ]	Lime	[ ]
Bissy (Bizzy, Kola nut)	[ ]	Love bush	[ ]
Castor nut	[ ]	Rice bitters	[ ]
Cerasee	[ ]	Rosemary	[ ]
Dogblood	[ ]	Search-mi-heart	[ ]
Fever grass	[ ]	Sinkle Bible	[ ]
Garlic	[ ]	Soursop	[ ]
Ginger	[ ]	Susumber	[ ]
Guava Leaves	[ ]	Tamarind leaves	[ ]
Guinea hen weed	[ ]	Vervine	[ ]
Jack-in-the-bush	[ ]	Other: _____	
Leaf of Life	[ ]		

4. Do you use these herbs alone or with conventional medicines (prescription/over-the-counter drugs)?
   a. Alone
   b. With conventional medicines
5. Is your medical practitioner aware of your herb use? Yes No
6. For the following statements, please indicate if you agree, disagree, or are not sure:

Statement	**Agree**	**Disagree**	**Not Sure**
I would turn to herbal medicine if conventional medicine did not treat my medical problem	[ ]	[ ]	[ ]
Herbal medicine is safer than conventional medicine	[ ]	[ ]	[ ]
There is no harm in taking herbal medicine with conventional medicine	[ ]	[ ]	[ ]
I prefer herbal medicine to prescription medication because it is less expensive	[ ]	[ ]	[ ]
Herbal medicine is more helpful than prescription medication from the doctor	[ ]	[ ]	[ ]

Figure 2. Sample of administered survey

Data Analysis

Data entry, as well as quantitative and categorical analyses, utilized Microsoft Excel spreadsheet functions. The proportions of each medicinal herb reported to be used by participants were calculated. Statistical analyses were not conducted.

Results

A total of 278 people were invited to complete the anonymous survey, of which 68 agreed to do so and were included as subjects in this study. Based on these numbers, the survey response rate was determined to be 24.5%.

Herbal Medicine Use

Of the 68 total subjects, 43 (63%) reported using herbs for medicinal purposes within the past year. Table 3 identifies the sex of all study participants, as well those who reported herbal medicine use. It also reveals that 60% of females and 66.7% of males admitted to using herbal remedies.

Study Participants	Total	Using Herbal Medicine
Female	45	27
Male	21	14
Did Not Specify	2	2
Total	**68**	**43**

Table 3. Sex of all study participants, as well as those who used herbal remedies

Table 4 stratifies the subjects who admitted to using herbal therapies into six different age categories. The prevalence of herbal therapy use was highest among subjects between the ages of 30-39 (90%), and lowest among subjects that fell within the 60-69 age group (44.4%).

Age	Total	Using Herbal Medicine	Male	Female	Did Not Specify
18-29	16	9	3	6	
30-39	10	9	4	5	
40-49	13	8	2	5	1
50-59	12	7	1	5	1
60-69	9	4	2	2	
70+	8	6	2	4	
Total	**68**	**43**	**14**	**27**	**2**

Table 4. Stratification of those using herbal medicine into six different age groups

Types of Herbs Used for Medicinal Purposes

The specific types of herbs that were used was also determined. Table 5 lists the herbs reported by the surveyed populations, as well as the proportion of the population that used them. The most frequently cited herbs were aloe vera, bissy, and castor nut, which were used by 100% of the subjects who admitted to herb use. Coconut oil and marijuana were the least frequently cited herbs with 2.33% of subjects reporting their use.

Herbs: Common Name (Scientific Name)	**Number of Subjects**	**Percentage of Subjects**
Aloe Vera/Sinkle Bible (*Aloe vera*)	43	100%
Bissy (*Cola acuminate*)	43	100%
Castor Nut (*Ricinus communis*)	43	100%
Ginger (*Zingiber officinale*)	35	81.40%
Lime (*Citrus aurantiifolia*)	30	69.80%
Soursop (*Anonna muricate*)	28	65.10%
Garlic (*Allium sativum*)	27	62.80%
Fever Grass (*Cymbopogon citratus*)	22	51.20%
Rosemary (*Croton linearis*)	20	46.50%
Leaf of Life (*Bryophyllum pinnatum*)	18	41.90%
Guinea Hen Weed (*Petiveria alliacea*)	17	39.50%
Cerasee (*Momordica charantia)*	16	37.20%
Dogblood (*Rivina humilis*)	12	27.90%
Guava Leaves (*Psidium guajava*)	11	25.60%
Susumber (*Solanum torvum*)	11	25.60%
Search-mi-Heart (*Rhytidophyllum tomentosum*)	9	20.90%
Love Bush (*Cassytha filiformis*)	8	18.60%
Vervine (*Stachytarpheta jamaicensis*)	8	18.60%
Jack-in-the-Bush (*Eupatorium odoratum*)	7	16.30%
Tamarind Leaves (*Tamarindus indica*)	7	16.30%
Mint (*Mentha spp.*)	3	6.98%
Coconut Oil (*Cocos nucifera*)	1	2.33%
Marijuana (*Cannabis sativa*)	1	2.33%

Table 5. Herbs most commonly used for medicinal purposes according to study participants. Percentages may not add up to 100% as some participants reported using more than one herb.

This study also investigated whether subjects were using medicinal herbs as monotherapy or in conjunction with prescription or OTC drugs. Of those who engaged in herbal medicine use, the majority (72.1%) used herbs alone. Only 18.6% of people used herbal medicine with conventional medicine, with the majority (37.5%) being between the ages of 60-69.

Herbal Medicine Use			
Age	**Alone**	**With Rx/OTC Drugs**	**Did Not Specify**
18-29	7	2	0
30-39	8	0	1
40-49	7	0	1
50-59	3	2	2
60-69	1	3	0
70+	5	1	0
Total (43)	**31**	**8**	**4**

Table 6. Number of subjects that reported using herbal remedies alone and with prescription/OTC drugs categorized by age group

Perceptions of Herbal Medicine Use

Responses to the survey regarding opinions about herbal medicine and conventional medicine use are displayed in Table 7. Twenty-five (36.8%) subjects were not sure if herbal medicine is safer to use than conventional medicine and 22 (32.4%) believed that herbal medicine was safer. Furthermore, 30.9% of subjects believed that there was no harm in taking herbal medicine concomitantly with conventional medicine, while 32.4% of subjects disagreed that it was safe to use herbal therapies with conventional medicine.

Herbal Medicine is Safer than Conventional Medicine		There is No Harm in Taking Herbal Medicine with Conventional Medicine
Agree	22	21
Disagree	17	22
Not Sure	25	20
Did Not Specify	4	5
Total	**68**	**68**

Table 7. Perception of safeness of herbal medicine and conventional medicine

Discussion of Herbal Medicine Use with Health Care Practitioner

Table 8 displays responses of subjects who reported using medicinal herbs. Although not all subjects provided a response, only 13 (30.2%) individuals indicated that their health care practitioners were aware of their medicinal herb use.

Health Care Practitioners are Aware of Herb Use	
Yes	13
No	21
Did Not Answer	9
Total	**43**

Table 8. Health care practitioner awareness of herbal therapy use

Discussion

Given the popularity of herbal medicine use amongst the world's population, it is important for health care providers to be aware of when and how herbs are being used in order to enhance pharmacovigilance. Furthermore, WHO published the Beijing Declaration to encourage a collaboration between modern and traditional herbal medicine, promote health equity, and emphasize the importance of research to support the use herbal medicine as a means of safe and effective treatment.[3]

In this cross-sectional study, an anonymous survey was administered to determine the answers to the following questions: What is the prevalence of medicinal herb us in rural St. Mary Parish, Jamaica? What are the most commonly used herbs and are they used concomitantly with conventional forms of medicine? What is the perception of herbal medicine vs conventional medicine amongst this population? Are health care practitioners aware of patient herb use? The answers to these questions are significant within the context of the specific patient population, but may also be applicable to global populations, as well. This research responds to the need for further investigation of herbal medicine use involving both prescription and OTC medicine, as indicated by previous studies.[2]

The findings of this study reveal that herbal medicine use is common amongst the Eastern Jamaican population, with 63% of subjects admitting to using herbal therapies within the past year. Demographic information was collected (Tables 3&4), which indicated that 60% of females and 66.7% of males admitted to using herbal remedies, and that most herbal medicine users fell between the ages of 30-39. In addition, a wide variety of herbal remedies were utilized, with aloe vera, bissy, and castor nut being used by 100% of subjects reporting herb use (Table 5). These results differed from the findings of Delgoda et al., whose research showed that mint was the most frequently used herb with 76.3% of Jamaicans reporting its use. Delgoda et al. also reported that only 20% of subjects reported using aloe vera.[2] These differences in data were not expected but may be attributed to different sample sizes or survey distribution in different locations within Jamaica.

The majority (72.1%) of subjects using medicinal herbs used them alone instead of with conventional medicine. In this way, subjects minimize the risk of adverse reactions caused by co-administration of medicinal herbs with prescription or OTC drugs. This was not expected, as the

findings of Delgoda et al. revealed that the majority of their subjects admitted to the co-administration of herbs and prescription medication.[2] Of those who did use medicinal herbs with conventional medicine (18.6%), most were between the ages of 60-69. Consistent with these results were those of Picking et al., which determined that the majority (42.9%) of those using herbal therapies with conventional therapies were 65 years and older.

This study also examined the perceptions of the population regarding the safeness of herbal medicine vs conventional medicine use, with 36.8% of responders feeling "not sure" about the topic. Furthermore, 30.9% of subjects perceived no harm in using medicinal herbs with conventional medicine. Thus, as demonstrated in Table 7, the data did not reveal a predominant perception regarding the safeness of herbal vs conventional medicine use. This lack of a clear consensus remained true for each of the five statements listed under Section 6 of the survey (Figure 2). These findings may indicate the need for more patient education from physicians to help prevent adverse reactions between medicinal herbs and conventional therapies.

It is particularly concerning that nearly half of subjects who admitted to medicinal herb use also reported that their health care provider was not aware of it. These findings are consistent with those of and Zhang et al., Delgoda et al., and Picking et al.[1,2,3] The lack of physician awareness highlights an existing gap in communication between patient and provider with regards to self-medication with herbal remedies. If physicians are unaware of medicinal herb use, they are less likely to counsel patients about potential adverse reactions between herbal and conventional therapies, which may prove to be detrimental to the health of their patients. The present risk for adverse drug-herb interactions implicates a need for laboratory-based analyses of specific combinations and their potential adverse effects guided by the existing literature's determination of commonly used herbs.

Conclusion

This study was not without limitations. The first limitation was the relatively small sample size. Data was collected over a two-week period at 8 different clinics within the same parish of Jamaica. This also limited the diversity of the subject population. Generalizability is another limitation of this research, as it utilized a very specific subject population. The most common herbs used by this population may vary from those used in other populations based on availability and suitable climate for growth. The outcomes of this research were also influenced by recall bias. In the future, this study should be expanded to include adolescents from the clinics to provide further information about the co-administration of herbs and conventional therapies. This study could also be furthered by administering the same survey to a rural population within the United States and comparing the differences in herb use and perceptions of herbal medicine. Ultimately, this research concludes that herbal medicine use is very common amongst the rural eastern Jamaican population. A wide variety of herbal remedies are used, but aloe vera, bissy, and castor nut were among the most common herbs (100%). The data did not reveal a predominant perception regarding the safety of herbal medicine vs conventional medicine. Most subjects admitted that their health care provider was not aware of their herbal medicine use, which emphasizes a gap in provider-patient communication and may pose a threat to patient health. It is important for physicians to inquire about medicinal herb use so that they can appropriately counsel patients about potential adverse reactions based on the herbs and prescription/OTC drugs being taken.

References

1. Zhang AL, Story DF, Lin V, Vitetta L, Xue CC. A population survey on the use of 24 common medicinal herbs in Australia. Pharmacoepidemiology and Drug Safety. 2008;17(10):1006-1013. doi:10.1002/pds.1610.
2. Delgoda R, Younger N, Barrett C, Braithwaite J, Davis D. The prevalence of herbs use in conjunction with conventional medicines in Jamaica. Complementary Therapies in Medicine. 2010;18(1):13-20.
3. Picking D, Younger N, Mitchell S, Delgoda R. The prevalence of herbal medicine home use and concomitant use with pharmaceutical medicine in Jamaica. Journal of Ethnopharmacology. 2011; 137(1): 305–311.
4. Vickers A, Zollman C, Lee R. Herbal Medicine. Western Journal of Medicine. 2001;175(2):125–128. doi:10.1136/ewjm.175.2.125.
5. Lazarou J, Pomeranz BH, Corey PN. Incidence of adverse drug reactions in hospitalized patients: a meta-analysis of prospective studies. Jama. 1998;279(15):1200–1205. doi: 10.1001/jama.279.15.1200.