

# Commonly used herbal remedies for the treatment of Primary Dysmenorrhea and Heavy Menstrual Bleeding by herbalists in Amman, Jordan: A cross-sectional survey

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## ABSTRACT

**Background:** Traditional herbal remedies are commonly prescribed by the local herbalists for female customers complaining of varied health problems. **Objectives:** The main goal of this study is to assess the perception of herbalists on the use of herbal remedies for the treatment of feminine health disorders; and to prepare two lists of the most commonly used herbal remedies for the treatments of Primary Dysmenorrhea (PD) and Heavy Menstrual Bleeding (HMB). **Method:** A questionnaire to investigate the beliefs, knowledge and behaviors of a random sample of local herbalists (n=53), on herbal remedies used for the treatment of feminine health disorders was used. Remedies used for the treatments of PD and HMB were reviewed using previously published evidence-based pharmacological studies. **Results:** Most of the herbalists (68.0%) do frequently get requests for herbal remedies to treat different feminine health disorders. Around two third of the herbalist (66.6%) showed to depend on their work experience as their main source of information on herbal medicine. Of the used herbal remedies, only *Zingiber officinale* was found clinically effective for the treatment of HMB. While herbalists recommended for 16 herbal species for the treatment of PD, *Cinnamomum ceylanicum*, *Foeniculum vulgare*, *Trigonella foenum-graecum*, and *Zingiber officinale* proved their benefits in reducing menstrual cycle complications. These treatments were associated with different mechanisms of actions. **Conclusion:** This study revealed that herbal remedies are commonly used for the treatments of feminine health disorders among the herbalists. Also, these findings shed the light on different herbal treatments that are associated with evidence-based pharmacological studies, for their efficiency and safety in the treatment of PD and HMB symptoms. As such, these treatments would be used as alternatives to the NSAIDs and other hormonal treatments, with not only lower side effects, but also with higher patients' acceptance.

**Keywords:** Jordan, traditional herbal remedies, heavy menstrual bleeding, primary dysmenorrhea.

## 1. INTRODUCTION

Primary dysmenorrhea (PD) and heavy menstrual bleeding (HMB) are very common complaints among women in their reproductive life. <sup>(1, 2)</sup> Both PD and HMB can interfere with women's life adversely affecting its quality socially and professionally. <sup>(3)</sup>

PD is defined as a lower abdominal pain with menstruation that is usually cramping in nature, typically begins only after ovulatory cycles are established. <sup>(4)</sup> It is one of the most common complaints by young women attending gynecologic clinics, affects more than 50% of menstruating women. <sup>(5)</sup> HMB is defined as excessive menstrual blood loss. <sup>(6)</sup> It was found the fourth most common reason for secondary gynecological referrals in England and Wales, with a prevalence of 20-30% among women. <sup>(7)</sup> Treatment is tailored according to the cause in addition to the patient's need. However, medical

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treatments are still the first line of therapy. The most commonly implemented medical therapies are either hormonal (combined oral contraceptive pills and progestin's) or non-hormonal (NSAIDs).<sup>(8)</sup>

At the national level, a study performed in 2015<sup>(9)</sup>, showed that the prevalence of primary dysmenorrhea in female university students aged between 19 and 24 years was 55.8%. In another similar study conducted in Jordan <sup>(10)</sup>, revealed that the majority of these patients were using analgesics (90.1%); including Ibuprofen (42%), Paracetamol (34%), Diclofenac salts (10%) and Prifinium bromide (5%).

NSAIDs have side effects, especially in long-term administration. The most common side effect is gastrointestinal tract irritation. Kidneys are also involved. On the other hand, most of the young women have no tendency to use hormones to reduce pain or bleeding.<sup>(9)</sup> Therefore, from the women's perspective, herbal medicines with fewer side effects are preferred over pain killers. Commonly, those young females may be unaware of the safe and efficient use of these treatments, Issa and Bashiti <sup>(11)</sup> has previously shown that most of the patients living in Jordan, especially the females, were depending on the herbalists as their main source of information, when using herbal treatments. Therefore, it is extremely important to medically address these complaints according to the patient's needs and demands, in order to ensure the safe and efficient use of these herbal treatments.

Many of the traditional medicinal systems are still depending on the use of different plant species for the treatment of PD and HMB, which belong to different families and Genes. The majority of these herbs were acting as uterine spasmolytics, or as spasmogenics, used in different forms, including powder, extracts or as herbal teas. <sup>(12)</sup> Of the studies herbal treatments are *Blue cohosh*, *Equisetum arvense*, *Hydrastis canadensis*, *Rubus idaeus*, *Vinca major*, *Achilla millefolium*, *Zingiber officinale*, *Cinnamomum ceylanicum*, *Vitex-agnus castus*, *Foeniculum vulgare*, *Matricaria aurea*, *Trigonella*

*foenum-graecum*, *Echinophora platyloba*, *Valeriana officinalis*, *Zataria multiflora*, *Stachys lvanbulifolia*, *Anethum graveolens*, *Apium graveolens*, *Crocus sativus*, *Pimpinella anisume* and Pine. These plants were found to be effective in reducing menstrual cycle pain and complications. <sup>(13, 14)</sup>

Up to our knowledge, the ethnobotanical practices, beliefs and knowledge of herbalists, on using herbal remedies for the treatment of feminine health disorders were not explored yet. Of special interest are the herbal remedies commonly used for the treatment of PD and HMB.

### **Study settings and design**

#### **Research tool (questionnaire)**

This cross-sectional study was conducted in Amman; Jordan. The study was conducted over two months, between January and February 2019.

A face-to-face interview to complete the questionnaire was developed by the principal researchers and reviewed by three research experts. The questionnaire was then piloted with 10 medical students and academics to test for clarity and logical flow of the questions.

The developed questionnaire was designed to collect herbalists 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 scales) investigating their knowledge, behaviors, and beliefs in regard to herbal remedies used for the treatment of feminine health disorders.

Two open-ended questions on the most commonly used herbs for the treatment of patients with PD or HMB symptoms were also reported. The symptoms for the PD and HMB, and the differences between them were verbally explained for the herbalists' prior to answering these questions.

### **Study sample**

According to Oran and Al-Eisawi <sup>(15)</sup>, the quality of the herbal shops were determined to be either as a specialized herbal shops that are selling herbal products, incense, and spices, or as a non-specialized herbal shops, who are selling herbs in addition to other grocery products. A random sample of herbalist shops distributed among the East and the West of Amman, managed by a professional full-time herbalists (usually with 1 to 2 assistants) was identified by the research team. As there were no official statistical data available on the numbers of the registered herbalists' shops in the city of Amman, a convenient sample of 53 herbalists was included in the study.

Herbalists were interviewed at their herbal shops, and a face to face questionnaire was completed following verbal consent, without time limit and according to ISE code of ethics ([www.ethnobiology.net/ethics.php](http://www.ethnobiology.net/ethics.php)). The Arabic language was used for the questionnaire and the interview. Participants were informed that all information provided was completely confidential and the results would only be presented anonymously.

Data collection regarding the used herbal remedies was comprised of the local Arabic common names of the plants; and the indication for their use. The Arabic names of these plant species were used to search for their botanical names, utilizing the previously published studies <sup>(15-19)</sup>; that investigated the available plant species in the Jordanian market (regardless of their sources), and as reported by other researchers in the Royal Society for the Conservation of Nature.

Herbal remedies composed of mixed herbs were excluded from this study, as the exact compositions of these mixtures were unknown.

### **Literature Review**

A literature review was conducted for the plant species that have been mentioned by the interviewed herbalists using their botanical names. The available information about different *in vivo*, *in vitro* and clinical

studies of these species were collected from various electronic sources like PubMed, SciFinder, Elsevier, Springer, Scopus, Science Direct, Google Scholar and Web of Science, apart from these locally available books and peer-reviewed journal were also used to collect information.

The findings of this review will be used to evaluate the benefits of the used herbal remedies for the treatment of patients with PD and HMB. Also, it can be used to increase the awareness of the users on the importance of using only the scientifically evaluated evidences regarding the efficiency and safety of herbal remedies, by launching campaigns which would discuss these findings in order to prevent and protect female users of herbal therapy.

### **Data analysis**

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS version 16, Chicago, IL, US). Statistical tests including one-way analysis of variance were conducted to determine the associations between socio-demographic variables and knowledge/ perception of study participant regarding herbal treatments. The descriptive analysis was carried out using percentage for qualitative variables. The chi-square test was used to calculate P-values for categorical variables. P-values of less than 0.05 were considered significant.

### **Results**

#### **Socio-demographic characteristics of the herbalists**

A total of 53 herbalists participated in the study, with no female herbalists were found. The majority (54.8%) of the herbalists were allocated in East of Amman (lower socioeconomic areas). The mean age of the herbalists was 42.86 years, with the highest frequency (37.8%) being in the age range of 40-49 years. Data showed that the highest proportion (43.4%) of the herbalist's had more than 10 years of experience. As for education, 43.4% were holding a high school degree only, with no education qualification degrees.

**Table 1. Demographic characteristics of herbalists involved in the study**

<b>Independent variable</b>	<b>Frequency (n=53)</b>	<b>Percent (%)</b>
<b>Age</b>		
18 – 29	6	11.3 %
30 – 39	12	22.6 %
40 – 49	20	37.8 %
50 – 59	12	22.6 %
60+	3	5.7 %
<b>Gender</b>		
Male	53	100%
<b>level of education</b>		
Primary school	11	20.8 %
Secondary school	8	15.1 %
High school	23	43.4 %
Diploma	5	9.4 %
Bachelor's degree	6	11.3 %
<b>Work experience</b>		
Less than 5 years	11	20.8 %
5 – 10 years	19	35.8 %
More than 10 years	23	43.4 %
<b>Residential area</b>		
West of Amman	24	45.2 %
East of Amman	29	54.8 %

### **Herbalist's perceptions on the use of herbal medicine**

Herbalists' knowledge, beliefs, behavior and practices toward herbal remedies used for the treatment of feminine health disorders are shown in Table 2. This study showed that years of experience made no significant effect on the perception and level of recommendations made by the herbalists while dispensing herbal remedies for female patients with feminine health disorder. On the other hand, regardless of the duration of their work experience, most of the herbalist (66.6%) showed to depend on their work experience as their main source of information on herbal

medicine, followed by (25.0%) of them used the internet as a source of information.

Many herbalists (60.4%) do frequently (always/usually) get requests for herbal remedies to treat different health conditions by female patients related to their feminine health, as the majority (68.0%) of these patients reached desperation stages with their conventional therapy used. Consequently, herbalist would also make recommendations to customers who are seeking alternative treatments for feminine disorders on always/usually basis (64.1%). As expected, older herbalists with a longer work experience reported making more often (69.4%) recommendations on dispensed

herbal medicine compared to the younger herbalists with shorter work experience.

As such, more than half of the herbalists (60.3%) believe that the use of herbal remedies by females with health disorders could help in the treatment of their

symptoms, or in reducing the dose of their conventional medicines. And therefore, about half of the herbalists (52.9%) declare their preferences to use herbal treatment over conventional medicine.

**Table 2: Cross tabulation of herbalist's perceptions toward herbal remedies used for treatment of feminine health disorders based on the length of their work experience (n = 53)**

Frequencies (%)					
	<5 (n = 11)	5-10 (n= 19)	>10 (n = 23)	Total (n = 53)	p- value
<b>Herbalists distribution between the two areas of study (East Amman: West Amman)</b>					
	54.5:45.5	57.8:42.2	52.1:47.9	54.8:45.2	0.636

**Do you get requests for herbal remedies to treat different health conditions by female patients related to their feminine health?**

Always	18.2%	21%	26.1%	22.6%	0.458
Usually	36.4%	36.8%	39.1%	37.8%	
Often	27.2%	21%	21.7%	22.6%	
Seldom	9.1%	15.8%	28.7%	11.3%	
Rarely	9.1%	5.3%	4.3%	5.7%	

**Do you make recommendations or dispensed herbal medicine from your shop to your customers seeking alternative treatments for their feminine health?**

Always	18.2%	15.8%	30.4%	22.6%	0.333
Usually	45.5%	42.1%	39.1%	41.5%	
Often	18.2%	26.3%	17.4%	20.8%	
Seldom	9.0%	10.5%	13.0%	11.3%	
Rarely	9.0%	5.3%	0%	3.8%	

**Do you get inquiries from these patients on the use of specific herbal remedies due to reaching desperation stages with their conventional drug therapy?**

Always	27.3%	21.1%	17.4%	20.8%	0.468
Usually	45.5%	42.1%	47.8%	47.2%	
Often	9.1%	21.1%	21.7%	18.9%	
Seldom	9.1%	5.3%	8.7%	7.5%	
Rarely	0%	10.5%	4.3%	5.6%	

What is the source of your information? If the previous questions were “always” or “Usually”					
Book	0%	0%	6.7%	2.8%	0.839
TV and radio	0%	0%	0%	0%	
Supplier agency	11.1%	0%	6.7%	5.6%	
Internet	22.2%	33.4%	20.0%	25%	
Social media	0%	0%	0%	0%	
Experience	66.6%	66.6%	66.6%	66.6%	

**Do you believe that the use of herbal remedies by these patients could help in the treatment or in reducing the dose of their conventional medicines?**

Always	18.2%	26.3%	21.7%	22.6%	0.765
Usually	45.5%	31.6%	39.1%	37.7%	
Often	18.2%	21.1%	26.1%	22.6%	
Seldom	9.0%	10.5%	8.7%	9.4%	
Rarely	9.0%	10.5%	4.3%	7.5%	

**Do you prefer the use of herbal treatment over conventional medicine?**

Always	27.3%	21.1%	17.4%	20.8%	0.727
Usually	36.4%	26.3%	34.8%	32.1%	
Often	18.2%	21.1%	26.1%	22.6%	
Seldom	9.0%	15.8%	13.0%	13.2%	
Rarely	9.0%	15.8%	8.7%	11.3%	

**Science- based evaluation of herbal remedies used for treatment of HMB and PD**

Table 3 and Table 4 summarize the available information about different in vivo, in vitro and clinical studies for the commonly used herbal remedies, investigating their effects on HMB and PD treatment, respectively.

In this study, herbalists recommended for 14 different herbal remedies to treat HMB (Table 3). The most prescribed herbs were *C. ceylanicum* (45.2%), *Arum palaestinum* (32%), and *Anastatica hierochuntica* (24.5%). Unfortunately, none of the top three prescribed herbs, was found to have any previously published evidence-based

pharmacological studies, to proof the claimed benefits upon using these herbs for the treatment of HMP symptoms, or reducing the amount of menstrual cycle bleeding.

Although, only a small percentage of herbalists (11.3%) prescribed *Z. officinale* for the treatment of HMP, a randomized placebo-controlled clinical trial<sup>(20)</sup> showed a significant decrease in the amount of menstrual cycle bleeding among the patients who used *Z. officinale* over placebo.

While herbalists recommended for 16 different herbal remedies for the treatment of PD (Table 4). The most frequently prescribed herb was *C. ceylanicum* (28.3%). Recently, both in vivo and clinical studies showed a

significant benefit for this herb in reducing the intensity of PD. They also revealed to prescribe other herbs including; *F. vulgare*, *T. foenum-graecum*, and *Z. officinale* as an effective treatment for PD. Several clinical studies proved the benefits for these herbs as effective and safe treatments for reducing menstrual cycle pain and therefore, it can be used in the treatment of PD.

Of the plant species that were not specifically studied for their efficiency in decreasing the symptoms of PD, but still poses different mechanisms that may be potentially used in decreasing the symptoms of PD, including the extract of *A. hierochuntica* that was found to increase level of estrogen with antinociceptive action and anti-inflammatory effects. In addition, *P. dactylifera* extract was showed to increase estrogen and progesterone hormones.

Although the bark extract of *Pinus pinea* has not been

previously evaluated for its use in the treatment of PD, extracts of other species of the genus *Pinus* were used for the preparation of the oil extract commercially known as Pycnogenol®. This extract has showed a potential analgesic effect on menstrual pain.<sup>(21)</sup> and benefits persist even after discontinuation.<sup>(22)</sup>

Unfortunately, *A. palaestinum* and *Origanum syriacum* were of the commonly prescribed herbs for the treatment of PD, with not any available evidence-based pharmacological studies in the literature to support the beneficial use of these herbs in reducing PD complications.

In regard to the source of these plants, they were mainly native to Jordan, except of *C. ceylanicum*, *Z. officinale*, *A. racemosa* and *P. pinea* were imported from different sources.

**Table 3. Evidence-based pharmacological studies for the use of herbal remedies for the treatment of patients with HMB, based on different in vivo, invitro and clinical studies**

Herbal products (Arabic local name)	Family	Source	Herbalists (%) (n=53)	Scientific-based evidences
<i>Cinnamomum ceylanicum</i> ( <i>Qirfah</i> )	Lauraceae	Introduced from Srilanka	45.2%	No documents
<i>Arum palaestinum</i> ( <i>Luf</i> )	Araceae	Native	32%	No documents
<i>Anastatica hierochuntica</i> ( <i>Kafmaryam</i> )	Brassicaceae	Native	24.5%	No documents
<i>Zingiber officinale</i> ( <i>Zanjabil</i> )	Zingiberaceae	Introduced from India	11.3%	Randomized, placebo- controlled, clinical trial indicates an effective complementary treatment for heavy menstrual bleeding. <sup>(20)</sup>

Herbal products (Arabic local name)	Family	Source	Herbalists (%) (n=53)	Scientific-based evidences
				Placebo-controlled, clinical trial, has shown A significant decrease in the amount of hemorrhage premenstrual cycle. <sup>(23)</sup>
				Controlled, clinical trial found ginger may be considered as an effective therapeutic option for heavy menstrual bleeding. <sup>(24)</sup>
<i>Actaea racemosa</i> (Black cohosh)	Ranunculaceae	Introduced from America	11.3%	No documents
<i>Thymus capitatus</i> (ZaterFaresy)	Lamiaceae	Native	9.4%	No documents
<i>Trigonella foenum-graecum</i> (Hulbah)	Leguminosae	Native	7.5%	No documents
<i>Coriandrum sativum</i> (Kwzbarah)	Umbelliferae	Native	7.5%	No documents
<i>Matricaria aurea</i> (Babonej)	Compositae	Native	5.7%	No documents
<i>Salvia triloba</i> (Meirameieh)	Labiatae	Native	5.7%	No documents
<i>Starch*</i> (Nasha)			5.7%	No documents
<i>Ficus carica</i> (Al-Tin)	Moraceae	Native	5.7%	No documents
<i>Pinus pinea</i> (Sanubir)	<a href="#">Pinaceae</a>	Un defined	3.8%	No documents
<i>Phoenix dactylifera</i> (Tamura)	Palmaceae	Native	1.9%	No documents

\*starch was reported as natural inert polysaccharide obtained from plant origin and available at the herbalists' shops

**Table 4. Evidence-based pharmacological studies for the use of herbal remedies for the treatment of patients with PD, based on different in vivo, invitro and clinical studies**

Herbal products	Family	Source	Herbalists (%) (n=53)	Scientific-based evidences
<i>Cinnamomum ceylanicum</i> ( <i>Qirfah</i> )	Lauraceae	Introduced from Srilanka	28.3%	Clinical trial found Cinnamon can reduce the intensity of primary dysmenorrhea. <sup>(25)</sup>
				An in vivo study on isolated rats had shown significantly decreased the spontaneous uterine contractions. <sup>(26)</sup>
<i>Arum palaestinum</i> ( <i>Luf</i> )	Araceae	Native	22.6%	No documents
<i>Origanum syriacum</i> ( <i>Za'tar</i> )	Labiatae	Native	17%	No documents
<i>Anastatica hierochuntica</i> ( <i>Kafmaryam</i> )	Brassicaceae	Native	24.5%	<i>A. hierochuntica</i> aqueous extract was tested in rabbit females; finding suggests that extract may increase level of estrogen. <sup>(27)</sup>  Evaluation of the antinociceptive effects of the essential oil from aerial parts of <i>A.hierochuntica</i> in experimental models, found a partial blockage of the antinociceptive action by naloxone, suggests that its participation of an opioid mechanism. <sup>(28)</sup>

Herbal products	Family	Source	Herbalists (%) (n=53)	Scientific-based evidences
				<p>In a study investigated the antinociceptive and anti-inflammatory effects of the aqueous extract and the chloroform fraction of <i>A. hierochuntica</i> plant in Swiss albino mice and Wistar rats, both extracts have significantly inhibited edema formation, demonstrated that <i>A. hierochuntica</i> has potential central and peripheral antinociceptive effects as well as anti-inflammatory activity.<sup>(29)</sup></p>
<i>Foeniculum vulgare</i> (Shumar)	Umbelliferae	Native	15%	<p>Clinical trial indicates that <i>F. vulgare</i> can be used to relieve dysmenorrheal signs and menstrual duration.<sup>(30)</sup></p>
				<p>Clinical trial suggested <i>F. vulgare</i> as a safe and efficacious plant for reducing menstrual cycle pain and it can be used in the treatment of dysmenorrheal.<sup>(31)</sup></p>
				<p>A study found <i>F. ulgare</i> has useful effects such as anti-inflammatory, antipyretic, and analgesic.<sup>(32)</sup></p>

Herbal products	Family	Source	Herbalists (%) (n=53)	Scientific-based evidences
<i>Matricaria aurea</i> (Babonej)	Compositae	Native	13.2%	No documents
<i>Actaea racemosa</i> (Black cohosh)	Ranunculaceae	Introduced from America	7.5%	A randomized controlled trial shows lack of support for their use for dysmenorrhea. <sup>(33)</sup>
<i>Thymus capitatus</i> (ZaterFaresy)	Lamiaceae	Native	5.7%	No documents
<i>Trigonella foenum-graecum</i> (Hulbah)	Leguminosae	Native	5.7%	A clinical study found <i>T. foenum-graecum</i> has great importance in treating dysmenorrhea. <sup>(34)</sup>
				A prospective, open-labeled, randomized, standard-controlled study suggested <i>T. foenum-graecum</i> as efficacious, safe, cost effective, and well tolerated treatment for dysmenorrhea. <sup>(35)</sup>
				Controlled Trials study indicates very limited evidence of effectiveness as a treatment for dysmenorrhea. <sup>(36)</sup>
<i>Sesamum indicum</i> (Simsim)	Pedaliaceae	Introduced from India	3.8%	No documents
<i>Starch</i> (Nasha)			3.8%	No documents
<i>Petroselinum sativum</i> (baqdunis)	Umbelliferae	Un defined	3.8%	No documents
<i>Coriandrum sativum</i> (Kwzbarah)	Umbelliferae	Native	1.9%	No documents
<i>Pinus pinea</i>		Un defined	1.9%	Randomized controlled

Herbal products	Family	Source	Herbalists (%) (n=53)	Scientific-based evidences
<i>(Sanubir)</i>				clinical trial showed that <i>Pycnogenol</i> has a potential analgesic effect on menstrual pain. <sup>(21)</sup>
				A controlled clinical study found the analgesic-sparing effect increases with duration of supplementation and benefits persist even after discontinuation. <sup>(22)</sup>
<i>Zingiber officinale</i> <i>(zanjabil)</i>	Zingiberaceae	Introduced from India	1.9%	Crossover clinical trial study found <i>Z. officinale</i> effective in relieving pain in girls with primary dysmenorrhea. <sup>(37)</sup>
				Randomized controlled clinical trials provide suggestive evidence for the effectiveness of ginger powder during the first 3-4 days of menstrual cycle for primary dysmenorrhea. <sup>(38)</sup>
				A clinical study shows a limited evidence of effectiveness. <sup>(36)</sup>
<i>Phoenix dactylifera</i> <i>(Tamur)</i>	Palmaceae	Native	1.9%	In a study performed on female vistar rats, <i>P. dactylifera</i> extract was given in peritoneum for 14 days. Results show that increasing the amount of estrogen and progesterone hormones. <sup>(39)</sup>

## Discussion

In agreement with previous studies performed by Abdelhalim *et al.* (40) and Issa & Bashiti (11), this study showed that herbal medicine continued to be commonly used by many herbalists in Jordan. The herbalists who participated in this research appear to usually prescribe varied species of herbs for their customers complaining of different women's health complications, including treatments for patients with symptoms of HMB and PD.

On the other hand, most of the herbalists revealed that their source of information on the use of herbal treatments was their work experience. For that reason, health care providers including medical doctors (MD), nurses and pharmacists are requested to play an essential role in increasing patient's awareness on the safe and efficient use of herbal remedies.

Of the commonly used herbal treatments that had previously proved to be effective in the treatment of PD and HMP was *Z. officinale*, which had clinically demonstrated a significant decrease in the symptoms related to these disorders compare to placebo<sup>(36-38)</sup>, with similar effect to that for ibuprofen in relieving menstrual pain.<sup>(41, 42)</sup> Although *C. ceylanicum* was highly recommended in the treatment of both disorders, it failed to prove its efficiency in the treatment of HMB, due to the lack of studies investigating this use. Nevertheless; clinically it demonstrated its efficacy in decreasing the symptoms of PD <sup>(25, 26)</sup>, with no specific mechanism of action was determined yet <sup>(43)</sup>.

Clinical trials found that *F. vulgare* and *T. foenum-graecum* as efficacious, safe, and cost effective treatments for PD. In addition, *A. hierochuntica* and *P. dactylifera* extracts were showed to increase levels of estrogen and/or progesterone hormones, with antinociceptive action, analgesic and anti-inflammatory effects, in *in vivo* studies. Therefore, these treatments may be considered as potential treatments for PD, if farther clinical studies were conducted, in order to determine the safe and efficient does.

While Pycnogenol®, is a commercial product prepared from extract of different *Pinus species* composed of oligomers of five to seven flavan-3-ol units <sup>(44)</sup>, has shown a potential analgesic effect on menstrual pain<sup>(21)</sup>. With the extract prepared from the *P. pinea* that is used for the treatment of PD and HMP has similar effect to Pycnogenol; could not be evaluated in this study.

In this study, herbal treatments used for PD and HMB complications appear to have different mechanism of action. Mainly linked to reducing menstrual blood loss, pain intensity and duration of the period, as well as the inhibition of uterine contractions. Hormonal effects by increasing the levels of estrogen and/ or progesterone hormones were also reported. In addition, bonding to opiate receptors, with analgesic, anti-fever, and anti-inflammatory effects were also potential mechanisms.

Therefore, varied herbal women's treatment options can be available, if an appropriate clinical trials of potentially useful herbal medicines were further investigated.<sup>(45)</sup> As such, elucidation of the efficacy, potential side effects or herb-drug interactions, dosage and pharmaco-therapeutic actions of these treatments are necessary.

## Significant statement

Results from this study emphasize on the need for increasing the knowledge and improving the practice of herbalists when it comes to dispensing herbal remedies for the treatment of different feminine health disorders; especially PD and HMB conditions, to ensure the safe and efficient use of these treatments. What's more important is to provide female patients with sufficient information on the use of herbal treatments, in order to protect them from the possible unwanted side effects or treatments complications.

## Conclusion

Herbal treatments have been widely used among the herbalists in Amman-Jordan, for the treatment of different feminine health disorders, including PD and HMB symptoms. Although a number of herbal treatments

mentioned by these herbalists had previously been studied for their efficiency, the majority of these herbs have not been studied yet for these indications. Therefore, further scientific evaluations are necessarily, as these drugs stand as potential effective and safe treatments for PD and HMB symptoms.

### Limitations

It was difficult for external validity to justify the generalization from this small sample size. Therefore, an extended study with a larger sample size is required.

Due to patient's privacy issues, we could not interview

those who used herbal remedies for the treatment of PD or HMB symptoms. Therefore, further survey study on female patients, who used these treatments previously, is required in order to investigate the benefits of these remedies on the treatment of PD or HMB symptoms.

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### Conflict of interest statement

The authors declare they have no conflict of interest.

## REFERENCES

1. Dilley A, Drews C, Lally C, Austin H, Barnhart E, Evatt B. A survey of gynecologists concerning menorrhagia: perceptions of bleeding disorders as a possible cause. *Journal of women's health & gender-based medicine*. 2002 Jan 1;11(1):39-44.
2. Vincenzo De Sanctis M, Soliman A, Bernasconi S, Bianchin L, Bona G, Bozzola M, Buzi F, De C, Sanctis MD, Tonini G, Rigon10 F. Primary dysmenorrhea in adolescents: prevalence, impact and recent knowledge. *Pediatric Endocrinology Reviews (PER)*. 2015 Dec;13(2):465-73.
3. Munro MG, Critchley HO, Fraser IS. The FIGO systems for nomenclature and classification of causes of abnormal uterine bleeding in the reproductive years: who needs them?. *American journal of obstetrics and gynecology*. 2012 Oct 1; 207(4):259-65.
4. Marc A.Fritz and Leon Speroff. *Clinical Gynecologic Endocrinology And Infertility*, 8th Edition, chapter 14:579-580. received from <https://books.google.com/>. 2010
5. Karim Anton Calis, Vaishali Popat, Devra K Dang, Sophia N Kalantaridou, and Mert Erogul. Dysmenorrhea. received from <https://emedicine.medscape.com>. 2018 Oct.
6. Davies J, Kadir RA. Heavy menstrual bleeding: An update on management. *Thrombosis research*. 2017 Mar 1;151:S70-7.
7. Hapangama DK, Bulmer JN. Pathophysiology of heavy menstrual bleeding. *Women's Health*. 2016 Jan;12(1):3-13.
8. Fisher C, Adams J, Hickman L, Sibbritt D. The use of complementary and alternative medicine by 7427 Australian women with cyclic perimenstrual pain and discomfort: a cross-sectional study. *BMC complementary and alternative medicine*. 2016 Dec;16(1):129.
9. Jaafarpour M, Hatefi M, Najafi F, Khajavikhan J, Khani A. The effect of cinnamon on menstrual bleeding and systemic symptoms with primary dysmenorrhea. *Iranian Red Crescent Medical Journal*. 2015 Apr;17(4):e27032.
10. Al-Jefout M, Seham AF, Jameel H, Randa AQ, Luscombe G. Dysmenorrhea: prevalence and impact on quality of life among young adult Jordanian females. *Journal of pediatric and adolescent gynecology*. 2015 Jun 1;28(3):173-85.
11. Issa RA, Basheti IA. Herbal Medicine Use by People in Jordan: Exploring Beliefs and Knowledge of Herbalists and Their Customers. *Journal of Biological Sciences*. 2017;17(8):400-9.
12. Livdans-Forret, Anna B.; Harvey, Phyllis J.; Larkin-Thier, Susan M. Menorrhagia: A synopsis of management focusing on herbal and nutritional

- supplements, and chiropractic. The journal of the Canadian chiropractic association, 2007; 51(4):235–246.
13. Van Andel, Tinde, et al. Medicinal plants used for menstrual disorders in Latin America, the Caribbean, sub-Saharan Africa, South and Southeast Asia and their uterine properties: a review. *Journal of ethnopharmacology*, 2014; 155(2): 992-1000.
  14. Bahmani, Mahmoud, et al. Effect of Iranian herbal medicines in dysmenorrhea phytotherapy. *Journal of Chemical and Pharmaceutical Research*, 2015; 2: 519-526.
  15. Oran SA, Al-Eisawi DM. Ethnobotanical survey of the medicinal plants in the central mountains (North-South) in Jordan. *Journal of Biodiversity and Environmental Sciences*. 2015;6(3):381-400..
  16. Abu-Irmaileh BE, Afifi FU. Herbal medicine in Jordan with special emphasis on commonly used herbs. *Journal of Ethnopharmacology*. 2003 Dec 1;89(2-3):193-7.
  17. Afifi FU, Abu-Irmaileh B. Herbal medicine in Jordan with special emphasis on less commonly used medicinal herbs. *Journal of Ethnopharmacology*. 2000 Sep 1;72(1-2):101-110.
  18. Alzweiri M, Al Sarhan A, Mansi K, Hudaib M, Aburjai T. Ethnopharmacological survey of medicinal herbs in Jordan, the Northern Badia region. *Journal of Ethnopharmacology*. 2011 Sep 1;137(1):27-35.
  19. Darwish RM, Aburjai T, Al-Khalil S, Mahafzah A. Screening of antibiotic resistant inhibitors from local plant materials against two different strains of *Staphylococcus aureus*. *Journal of Ethnopharmacology*. 2002 Mar 1;79(3):359-64.
  20. Eshaghian R, Mazaheri M, Ghanadian M, Rouholamin S, Feizi A, Babaieian M. The effect of frankincense (*Boswelliaserrata*, oleoresin) and ginger (*Zingiberofficinale*, rhizoma) on heavy menstrual bleeding: A randomized, placebo-controlled, clinical trial. *Complementary therapies in medicine*. 2019 Feb 1;42:42-7.
  21. Kohama T, Suzuki N, Ohno S, Inoue M. Analgesic efficacy of French maritime pine bark extract in dysmenorrhea: An open clinical trial. *The Journal of reproductive medicine*. 2004 Oct;49(10):828-32.
  22. Suzuki N, Uebaba K, Kohama T, Moniwa N, Kanayama N, Koike K. French maritime pine bark extract significantly lowers the requirement for analgesic medication in dysmenorrhea: a multicenter, randomized, double-blind, placebo-controlled study. *The Journal of reproductive medicine*. 2008 May;53(5):338-46.
  23. Javan R, Yousefi M, Nazari SM, Amiri P, Mosavi Jarrahi A, Modiramani P, Naghedi Baghdar H. Herbal medicines in idiopathic heavy menstrual bleeding: a systematic review. *Phytotherapy research*. 2016 Oct;30(10):1584-91.
  24. Kashefi F, Khajehei M, Alavinia M, Golmakani E, Asili J. Effect of Ginger (*Zingiberofficinale*) on Heavy Menstrual Bleeding: A Placebo-Controlled, Randomized Clinical Trial. *Phytotherapy research*. 2015 Jan;29(1):114-9.
  25. Jahangirifar M, Taebi M, Dolatian M. The effect of Cinnamon on primary dysmenorrhea: a randomized, double-blind clinical trial. *Complementary therapies in clinical practice*. 2018 Nov 1;33:56-60.
  26. Alotaibi M. The effect of cinnamon extract on isolated rat uterine strips. *Reproductive biology*. 2016 Mar 1;16(1):27-33.
  27. Ali, B. H., Baker, R. K., Mohammed, T. U., & Hassn, H. A. *Anastaticahierochuntica L.* used as an alternative of conjugated estrogen (Premarin) in rabbit females. *Journal of Advances in Chemistry*, 2014; 9(1): 1783-1786.
  28. Qnais, E., Modallal, N., Bseiso, Y., Wedyan, M., & Alkhateeb, H. Evaluation Of The Antinociceptive Effects Of The Essential Oil From Aerial Parts Of *Anastatica Hierochuntica* In Experimental Models. *Evaluation*, 2017; 3:112-122.
  29. Alatshan, A., Qnais, E., Wedyan, M., Bseiso, Y., Alzyoud, E., Banat, R., & Alkhateeb, H. Antinociceptive and Antiinflammatory Activities of

- Anastaticahierochuntica and Possible Mechanism of Action. *Indian Journal of Pharmaceutical Sciences*, 2018; 80(4):637-646.
30. Ghodsi Z, Asltoghiri M. The effect of fennel on pain quality, symptoms, and menstrual duration in primary dysmenorrhea. *Journal of pediatric and adolescent gynecology*. 2014 Oct 1;27(5):283-6.
  31. Sultana A, Lamatunoor S, Begum M, Qhuddsia QN. Management of Usr-i-Tamth (Menstrual Pain) in Unani (Greco-Islamic) Medicine. *Journal of evidence-based complementary & alternative medicine*. 2017 Apr;22(2):284-93.
  32. Bokaie M, Farajkhoda T, Enjezab B, Khoshbin A, Mojgan KZ. Oral fennel (*Foeniculumvulgare*) drop effect on primary dysmenorrhea: effectiveness of herbal drug. *Iranian journal of nursing and midwifery research*. 2013 Mar;18(2):128.
  33. Dennehy CE. The use of herbs and dietary supplements in gynecology: an evidence-based review. *Journal of midwifery & women's health*. 2006 Nov 1;51(6):402-9.
  34. Bhatia H, Sharma YP, Manhas RK, Kumar K. Traditional phyto remedies for the treatment of menstrual disorders in district Udhampur, J&K, India. *Journal of ethnopharmacology*. 2015 Feb 3;160:202-10.
  35. Inanmdar W, Sultana A, Mubeen U, Rahman K. Clinical efficacy of *Trigonella foenumgraecum* (Fenugreek) and dry cupping therapy on intensity of pain in patients with primary dysmenorrhea. *Chinese journal of integrative medicine*. 2016 May; 25:1-8.
  36. Pattanittum P, Kunyanone N, Brown J, Sangkomkamhang US, Barnes J, Seyfoddin V, Marjoribanks J. Dietary supplements for dysmenorrhoea. *Cochrane Database of Systematic Reviews*. Published by John Wiley & Sons, Ltd. 2016; (3) Art. No.: CD002124. DOI: 10.1002/14651858.CD002124.pub2.
  37. Rad HA, Basirat Z, Bakouei F, Moghadamnia AA, Khafri S, Kotenaei ZF, Nikpour M, Kazemi S. Effect of Ginger and Novafen on menstrual pain: A cross-over trial. *Taiwanese Journal of Obstetrics and Gynecology*. 2018 Dec 1;57(6):806-9.
  38. Daily JW, Zhang X, Kim DS, Park S. Efficacy of ginger for alleviating the symptoms of primary dysmenorrhea: a systematic review and meta-analysis of randomized clinical trials. *Pain Medicine*. 2015 Dec 1;16(12):2243-2255.
  39. Moshtaghi, A. A., et al. Effects of phoenix dactylifera on serum concentration of estrogen, progesterone and gonadotropins in adult female rats. 2010; 9: 117-124.
  40. Abdelhalim A, Aburjai T, Hanrahan J, Abdel-Halim H. Medicinal plants used by traditional healers in Jordan, the Tafila region. *Pharmacognosy magazine*. 2017 Jan;13(Suppl 1):S95.
  41. NamavarJahromi B, Tartifizadeh A, Khabnadideh S. Comparison of fennel and mefenamic acid for the treatment of primary dysmenorrhea. *International Journal of Gynecology & Obstetrics*. 2003 Feb;80(2):153-7.
  42. Pizzorno JE, Murray MT, Joiner-BeyH. *The Clinician's Handbook of Natural Medicine E-Book*. Elsevier Health Sciences; 2016 Jan 5; 15(4):244-245.
  43. Jahangirifar M, Taebi M, Dolatian M. The effect of Cinnamon on primary dysmenorrhea: a randomized, double-blind clinical trial. *Complementary therapies in clinical practice*. 2018 Nov 1;33:56-60.
  44. KIM, Sang Min, et al. A comparison of Pycnogenol® and bark extracts from *Pinus thunbergii* and *Pinus densiflora*: Extractability, antioxidant activity and proanthocyanidin composition. *J Med Plants Res*, 2012, 6(14): 2839-49.
  45. Fisher CY, Adams J, Frawley JE, Hickman LD, Sibbritt DW. Is there a role for Western herbal medicine in treating cyclic perimenstrual pain and discomfort? *Australian and New Zealand Journal of Obstetrics and Gynaecology*. 2019 Feb;59(1):154-6.

## تصميم وتوصيف الأعشبية عبر العلاجات العشبية شائعة الاستخدام لعلاج عسر الطمث ونزيف الحيض من قبل المعالجين بالأعشاب في عمان ، الأردن: دراسة مقطعية لأملوديبين بيزيلات لتعزيز الفعالية العلاجية

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### ملخص

**المقدمة:** عادة ما يصف المعالجون بالأعشاب المحليون العلاجات العشبية التقليدية للزبائن اللاتي يشكين من مشاكل صحية متنوعة. **الأهداف:** الهدف الرئيسي من هذه الدراسة هو تقييم تصور المعالجين بالأعشاب حول استخدام العلاجات العشبية لعلاج الاضطرابات الصحية النسائية. وإعداد قائمتين من العلاجات العشبية الأكثر استخداماً لعلاج عسر الطمث (PD) ونزيف الحيض (HMB). المنهجية: تم استخدام استبيان للتحقيق في معتقدات ومعرفة وسلوكيات عينة عشوائية من المعالجين بالأعشاب المحليين (ن = 53) حول العلاجات العشبية المستخدمة في علاج الاضطرابات الصحية الأنثوية. تمت مراجعة العلاجات المستخدمة في علاجات PD و HMB باستخدام الدراسات الدوائية القائمة على الأدلة المنشورة مسبقاً. النتائج: معظم المعالجين بالأعشاب (68.0%) يتلقون طلبات في كثير من الأحيان للعلاجات العشبية لعلاج الاضطرابات الصحية النسائية المختلفة. أظهر حوالي ثلثي المعالجين بالأعشاب (66.6%) أنهم يعتمدون على خبرتهم العملية كمصدر رئيسي للمعلومات عن طب الأعشاب. من العلاجات العشبية المستخدمة ، تم العثور فقط على *Zingiber officinale* الزنجبيل فعالاً سريريًا لعلاج HMB في حين أوصى المعالجون بالأعشاب بـ 16 نوعاً من الأعشاب لعلاج PD، أثبتت *Cinnamomum ceylanicum* القرفة و *Foeniculum vulgare* شومر و *Trigonella foenum-graecum* الحلبة و *Zingiber officinale* الزنجبيل فوائدها في الحد من مضاعفات الدورة الشهرية. ارتبطت هذه العلاجات بآليات مختلفة للعمل. **الخلاصة:** كشفت هذه الدراسة أن العلاجات العشبية تستخدم بشكل شائع لعلاج اضطرابات صحة المرأة بين المعالجين بالأعشاب. أيضاً ، تلقي هذه النتائج الضوء على العلاجات العشبية المختلفة المرتبطة بالدراسات الدوائية القائمة على الأدلة ، من أجل فعاليتها وسلامتها في علاج أعراض PD و HMB. على هذا النحو، يمكن استخدام هذه العلاجات كبديل لمضادات الالتهاب غير الستيروئيدية والعلاجات الهرمونية الأخرى ، ليس فقط مع آثار جانبية أقل ، ولكن أيضاً مع قبول من المرضى بشكل أكبر.

**الكلمات الدالة:** الأردن ، العلاجات العشبية التقليدية ، نزيف الحيض ، عسر الطمث.

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