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SHORT REVIEW

Herbal Solutions for Menopausal Problems: A Comprehensive Literature Review

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Abstract

Herbal remedies have been utilized for centuries to alleviate menstrual problems, offering a natural alternative to conventional treatments. Menstrual issues encompass a spectrum of symptoms, including pain, irregularity, and mood disturbances, which can significantly impact a person's quality of life. Herbal remedies offer a comprehensive approach, addressing both physical and emotional aspects of menstruation. One commonly used herb is chasteberry (*Vitex agnus-castus*), which has been shown to regulate hormonal imbalances and alleviate symptoms of Premenstrual Syndrome (PMS) and irregular cycles. Additionally, ginger (*Zingiber officinale*) and turmeric *(Curcuma longa)* possess anti-inflammatory properties, reducing menstrual pain and discomfort. Herbal teas containing ingredients such as chamomile *(Matricaria chamomilla)* and peppermint *(Mentha piperita)* can soothe cramps and promote relaxation. Dong Quai *(Angelica sinensis)* is a traditional Chinese herb known for its ability to regulate menstrual cycles and relieve menstrual pain by promoting blood circulation. Black cohosh *(Actaea racemosa*) is another herb used to alleviate menopausal symptoms, including hot flashes and mood swings, which may occur during menstruation. The adaptogenic herb ashwagandha *(Withania somnifera)* can help manage stress and anxiety associated with menstrual problems, supporting overall emotional well-being. Raspberry leaf *(Rubus idaeus)* is commonly used to tone the uterus and ease heavy menstrual bleeding. Herbal remedies offer a diverse array of options for managing menstrual problems, addressing both physical discomfort and emotional distress. However, it's essential to consult with a healthcare professional before incorporating herbal remedies into your regimen, especially if you have underlying health conditions or are taking medications, to ensure safety and efficacy.

Major Findings: Detailed review showing positive effects of herbs in reducing menstrual problems.

Keywords: Antimicrobial, Herbal Remedies, Hydration, Probiotics

1. Introduction

Menstrual problems affect millions of individuals worldwide, ranging from painful cramps and irregular cycles to mood swings and fatigue. While conventional treatments such as painkillers and hormonal medications are commonly prescribed, an increasing number of people are turning to herbal remedies for relief[1]. Herbal medicine, with its roots in traditional healing practices spanning cultures and civilizations, offers a natural and holistic approach to managing menstrual issues. This introduction explores the efficacy and benefits of herbal remedies in addressing menstrual problems, highlighting their historical significance and growing popularity in contemporary healthcare[2]. Throughout history, diverse cultures have relied on herbal remedies to alleviate menstrual discomfort and regulate menstrual cycles. Ancient texts from civilizations such as Egypt, China, and India document the use of medicinal plants to treat gynecological ailments, providing valuable insights into traditional herbal practices. These time-honored remedies continue to resonate today, as modern research increasingly validates their therapeutic properties[3].

Herbal medicine operates on the principle of harnessing the healing power of plants, which contain a myriad of bioactive compounds with medicinal

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properties[4]. Unlike synthetic medications, herbal remedies often work synergistically with the body, addressing underlying imbalances and promoting overall health and well-being. Furthermore, herbal treatments typically have fewer side effects and lower risk of dependency compared to pharmaceuticals, making them an appealing option for individuals seeking natural alternatives. In recent years, scientific work has shown them of action behind many herbal remedies used for menstrual problems[5]. Compounds found in herbs such as chasteberry, ginger, and Dong Quai have demonstrated hormone-regulating, anti-inflammatory, and analgesic effects, providing scientific rationale for their efficacy in managing menstrual symptoms[6]. As awareness of holistic approaches to health continues to grow, herbal remedies are gaining recognition as valuable tools in the management of menstrual problems. By honoring ancient wisdom and integrating modern scientific knowledge, natural drug shows a comprehensive and personalized method to menstrual well-being[7]. It is a complex, orchestrated sequence of events that occurs in the female reproductive system, typically lasting about 28 days, although variations are common. It involves several distinct phases, each characterized by specific hormonal changes and physiological processes[8].

The menstrual phase marks the starting point, starting with the shedding of the uterine lining in response to decreased levels of estrogen and progesterone. Menstrual bleeding occurs as the endometrial tissue and blood are expelled through the vagina, typically lasting 3 to 7 days[9]. Starting at the same time as puberty, the follicular stage lasts until ovulation. Follicle-Stimulating Hormone (FSH), which is released by the pituitary gland during this phase, promotes the growth of ovarian follicles in the ovary. While other dominating follicles deteriorate, one grows. Oestrogen is secreted by the growing follicle and encourages the uterine lining to thicken in anticipation of possible implantation[10].

A developed egg, or ovum, is released from the dominant ovarian follicle during ovulation. This usually happens 14 days before the next menstrual period begins, during the menstrual cycle.A spike in the pituitary gland's Luteinizing Hormone (LH) causes the follicle to burst, releasing the egg into the fallopian tube, where it may be fertilized by sperm[12]. The luteal phase lasts from the moment of ovulation until the beginning of the following menstrual cycle. Following ovulation, the ruptured follicle becomes the corpus luteum, which secretes progesterone and some oestrogen. Progesterone thickens the uterine lining and encourages blood vessel growth, preparing it for potential embryo implantation. If fertilization and implantation do not occur, hormone levels decline towards the end of the luteal phase, which causes the uterine lining to shed and menstrual, thus initiating the menstrual cycle[13].

Hormones produced by the pituitary gland, ovaries, uterus, and hypothalamus interact intricately to control these phases of the menstrual cycle, coordinating the reproductive activities required for menstruation and fertility[14]. A wide range of anomalies in the menstrual cycle that impact the timing, duration, frequency, and intensity of menstrual bleeding are collectively referred to as menstrual abnormalities. A person's ability to procreate, maintain emotional stability, and maintain physical health can all be severely impacted by these anomalies[15]. Here are some common types of menstrual abnormalities: The term "Amenorrhoea" describes the lack of menstrual cycles. It can be categorized as secondary (when menstruation stops after previously being established) or primary (when menstruation has not started by the age of 16). Hormonal imbalances (such polycystic ovarian syndrome or thyroid diseases), severe weight loss or gain, intense exercise, stress, some drugs, and structural abnormalities in the reproductive organs are among the causes of amenorrhoea[16]. Menstrual cycles longer than thirty-five days and infrequency or irregularity are characteristics of oligomenorrhea. Oligomenorrhea is frequently caused by hormonal imbalances, thyroid issues, PCOS, excessive exercise, and stress[17]. Menorrhagia is the term used to describe unusually heavy or protracted menstrual flow that lasts longer than seven days and is frequently accompanied by the passage of large blood clots. Hormonal abnormalities, uterine fibroids, polyps, adenomyosis, Pelvic Inflammatory Disease (PID), blood coagulation problems, and specific drugs are among the causes of menorrhagia[18]. Severe menstrual cramps and agony, known as dysmenorrhea, usually happen right before or during the menstrual cycle. Menstrual pain without an underlying medical issue is known as primary dysmenorrhea, whereas pelvic

inflammatory disease, fibroids, or endometriosis can induce secondary dysmenorrhea[19].

Menstrual cycles that are irregular vary in length, and periods happen at random. Uneven menstrual periods can be caused by hormonal imbalances, stress, significant weight fluctuations, thyroid conditions, Polycystic Ovarian Syndrome (PCOS), and the perimenopause[20]. Identifying and treating underlying reasons through medical examination, lifestyle changes, and specific interventions such hormone therapy, medication, or surgery are frequently necessary in the management of menstrual irregularities. To properly diagnose and treat menstrual abnormalities and support reproductive health and general well-being, seeking medical counsel isimperative[20,21]. PCOS, also known as polycystic ovarian syndrome, is a hormonal condition that is prevalent in women who are fertile. It is typified by irregular menstruation periods, elevated testosterone levels, and ovarian cysts. Acne, weight gain, hirsutism (excessive hair growth), and irregular periods are among the symptoms[22]. Heart disease, type 2 diabetes, and infertility are all becoming more likely by PCOS. Although the precise reason is uncertain, environmental and genetic factors most certainly have a role. The goal of treatment is to manage symptoms. It may involve hormonal contraceptives, drugs to control menstrual cycles, lifestyle modifications, and fertility therapies for individuals who want to get pregnant[23]. Because they upset the delicate hormonal balance required for regular menstrual function, endocrine disorders are a major contributor to irregular menstruation[24]. The endocrine system, which is made up of glands that create and release hormones controlling several body processes, including menstruation, is impacted by these illnesses. Menstrual regularity can be affected by several endocrine diseases in the following ways[25]. High levels of androgens, or male hormones, and insulin resistance are the hallmarks of PCOS, which can cause ovarian cysts, irregular or nonexistent menstrual cycles, and other symptoms like acne and hirsutism[26]. Elevated insulin levels brought on by insulin resistance can cause the ovaries to produce extra androgens, which can interfere with ovulation and monthly regularity[27].

It can cause menstrual irregularities. Hyperthyroidism may lead to shorter, lighter periods or even amenorrhea due to increased metabolism and altered hormone levels. Hypothyroidism can result in heavier, longer periods or irregular cycles due to decreased metabolism and disruptions in hormone production[28]. Disorders affecting the pituitary gland, such as hyperprolactinemia (elevated prolactin levels), can disrupt the menstrual cycle. Conditions like Cushing's syndrome (excess cortisol) or congenital adrenal hyperplasia (enzyme deficiencies) can impact hormone levels and cause menstrual irregularities. Elevated cortisol levels in Cushing's syndrome can disrupt the hypothalamic-pituitary-ovarian axis, leading to irregular periods or amenorrhea[30]. Uncontrolled diabetes, particularly type 1 diabetes, can affect menstrual regularity due to fluctuations in blood sugar levels and insulin resistance. Overall, endocrine disorders can disrupt the intricate hormonal interplay necessary for normal menstrual function, leading to a variety of menstrual irregularities ranging from absent periods to heavy bleeding. Proper diagnosis and management of underlying endocrine disorders are crucial for restoring menstrual regularity and promoting reproductive health[31].

2. Herbal Therapy for Menstrual Abnormalities

2.1 Traditional Chinese Treatment for Menstrual Irregularities

To reestablish harmony and balance among the body's energy systems, Traditional Chinese Medicine (TCM) provides a few therapeutic options for irregular menstrual cycles (Table 1)[32]. These treatments are based on the principles of Yin and Yang balance, Qi (vital energy) flow, and the concept of meridians. Here are some common TCM treatments for menstrual irregularities:

2.2 Acupuncture

Thin needles are inserted into certain body locations during acupuncture treatments in order to promote Qi flow and correct balance. Acupuncture sites on the lower abdomen, back, and legs that are associated with the reproductive system may be used to treat irregular menstruation. Menstrual abnormalities can be lessened in symptoms, pain, and cycle regulation with the aid of acupuncture[33].

2.3 Chinese Herbal Medicine

Chinese herbal formulae are customized by a TCM practitioner based on each person's unique pattern of disharmony. Herbs that are often used to regulate menstruation cycles, tonify Qi and blood, and relieve period discomfort include Chinese yam (*Dioscorea opposita*), Peony (*Paeonia lactiflora*), and Dong Quai (*Angelica sinensis*). Herbal medicines are sometimes used in conjunction with acupuncture for maximum effectiveness. They can be prescribed as teas, pills, powders, or tinctures.

2.4 Dietary Therapy

The focus of TCM dietary therapy is on providing the body with nourishment that supports hormonal balance and enhances general health. Foods that are thought to encourage a healthy menstrual cycle and replenish the blood include dark leafy greens, legumes, seeds, and root vegetables. Because certain foods are thought to be "dampening" or "cooling" in nature, TCM practitioners may also advise against consuming them altogether or in moderation because they may make menstrual irregularities worse[34].

3. Qi Gong and Tai Chi

Qi Gong and Tai Chi are ancient Chinese exercises that combine gentle movements, breathwork, and meditation to promote the flow of Qi and balance Yin and Yang energies. Practicing Qi Gong or Tai Chi regularly can help reduce stress, improve energy levels, and support overall well-being, which may in turn help regulate menstrual cycles[35].

These traditional Chinese treatments for menstrual irregularities are often used holistically, addressing not only the symptoms but also the underlying imbalances within the body. It's essential to consult with a qualified TCM practitioner for a personalized treatment plan tailored to your specific needs and constitution[36].

3.1 Herbs Good for Healthy Menstrual Cycle

3.1.1 Chasteberry (Vitex Agnus-Castus)

Vitex agnus-castus, often known as the chastetree, is a member of the *Lamiaceae* family and has been used as a popular medicine for 2000 years to treat infertility and irregular menstrual cycles. When it came to the stabilisation of the menstrual cycle, serum prolactin levels, and free testosterone levels in women with polycystic ovarian syndrome, the effects of low-dose oestrogen and Vitex agnus-castus were comparable[37].

3.1.2 Dong Quai (Angelica sinensis)

It is known as the "female ginseng"; it regulates menstrual cycles and tonifies the blood. It is used

Table 1. List of herbs containing chemical constituents to treat menstrual problems

Drug (Biological name)	Geographical source	Use	Chemical constituents
Rehmannia Root (*Rehmannia glutinosa*)	China	Maintain the blood, produces fluids	Sterol, campesterol, catalpol, rehmannia, some alkaloids
Dong Quai Root (*Angelica sinensis*)	China	Antiemetic, regulates menstruation, smooth muscle relaxant	Vitamin B12, ferulic acid, ligustilide, folic acid, choline, iron
Peony Root (*Paeonia lactiflora*)	China	Antimicrobial, astringent, anti-inflammatory	Monoterpene glycosides: paeoniflorin, benzoylpaeoniflorin; sterols
Liquorice Root (*Glycyrrhiza uralensis*)	China	Moves and reinforces vital energy, anti-inflammatory, spasmolytic	Triterpenoid saponins: glycyrrhizin, Flavonoids: liquiritin, quercetin
Ligusticum rhizome (*Ligusticum wallichii*)	China	Transmit blood and vital energy, improve uterine contractions	Ferulic acid, cnidilide, ligustilide alkaloids: Tetramethylpyrazine
Codonopsis Root (*Codonopsis pilosula*)	China	Reinforces vital energy, Maintain fluids, boost digestion	Phytosterols, triterpenes, saponins, polysaccharides
Poria Fungus (*Poria cocos*)	China	Creates vital energy by raising assimilation, nervine	Polysaccharide: pachymarose, organic acids: pachymic acid, etc.
Chasteberry Fruit (*Vitex agnus castus*)	Europe	Manage regulation of the female reproductive system	Monoterpene: agnuside, euroside, aucubin; flavonoids: vitexin

to relieve menstrual cramps, irregular periods, and menopausal symptoms[38].

3.1.3 Raspberry Leaf (Rubus idaeus)

It tones the uterus and supports overall reproductive health and helps reduce menstrual cramps, regulates menstrual flow, and prepares the uterus for childbirth.

3.1.4 Ginger (Zingiber officinale)

Anti-inflammatory and analgesic properties help relieve menstrual cramps. Improves circulation and reduces nausea associated with menstruation

3.1.5 Turmeric (Curcuma longa)

It contains curcumin, which has anti-inflammatory and antioxidant properties and helps reduce inflammation, alleviate menstrual pain, and support hormonal balance.

3.1.6 Black Cohosh (Actaea racemosa)

It balances hormone levels and relieves symptoms of menopause. And it may help regulate menstrual cycles and alleviate menstrual discomfort[39].

3.1.7 Peppermint (Mentha piperita)

It relieves spasmodic properties help relax the muscles of the uterus and it relieves menstrual cramps and gastrointestinal discomfort.

3.1.8 Ashwagandha (Withaniasomnifera)

It is an adaptogenic herb that helps the body adapt to stress. Supports hormonal balance and may improve fertility.

3.1.9 Red Clover (Trifolium pratense)

It is rich in phytoestrogens, which help regulate estrogen levels. And it supports hormonal balance and may alleviate symptoms of menopause.

3.1.10 Evening Primrose (Oenothera biennis)

It is rich in Gamma-Linolenic Acid (GLA), which helps regulate hormone levels. It is used to alleviate symptoms of PMS, including breast tenderness and mood swings[40].

3.1.11 Maca (Lepidium meyenii)

The adaptogenic herb that supports hormonal balance and energy levels. It may help regulate menstrual cycles and alleviate symptoms of menopause.

3.1.12 False Unicorn Root (Chamaelirium luteum)

The tonic herb that supports reproductive health and hormonal balance. It is used to regulate menstrual cycles and promote fertility.

3.1.13 Cramp Bark (Viburnum opulus)

Antispasmodic properties help relieve menstrual cramps and uterine spasms and it supports smooth muscle relaxation and eases menstrual discomfort.

3.1.14 Motherwort (Leonurus cardiaca)

Calming herb that helps relieve anxiety and stress-related menstrual symptoms. And it supports uterine tone and regulates menstrual cycles[41].

3.1.15 Licorice Root (Glycyrrhiza glabra)

It contains phytoestrogens that support hormonal balance, and it helps regulate menstrual cycles and alleviate symptoms of PMS.

3.1.16 Skullcap (Scutellaria lateriflora)

It is a Nervine herb that helps reduce stress and anxiety and it supports relaxation and may alleviate tension-related menstrual symptoms.

3.1.17 Fenugreek (Trigonella foenum-graecum)

It is Rich in phytoestrogens and supports hormonal balance.And it helps regulate menstrual cycles and may increase lactation in breastfeeding mothers[42].

3.1.18 Nettle Leaf (Urtica dioica)

It is Nutrient-rich herb that supports overall health and vitality and it helps alleviate menstrual cramps and supports healthy blood flow.

3.1.19 Yarrow (Achillea millefolium)

Astringent and anti-inflammatory properties help reduce heavy menstrual bleeding. And it supports uterine tone and regulates menstrual flow[43].

3.1.20 Angelica Root (Angelica archangelica)

It is known as "female ginseng" in Traditional Chinese Medicine. And it regulates menstrual cycles, alleviates menstrual cramps, and supports hormonal balance. These herbs can be used individually or in combination to support a healthy menstrual cycle. It's important

to consult with a qualified herbalist or healthcare professional before using herbs, especially if you have any underlying health conditions or are taking medications[44].

4. Dietary and Lifestyle Recommendations

Dietary practice and personal quality of life are directly related. Complex carbs, such as those found in whole grains, legumes, vegetables, and fruits, are the focus of a suggested diet, whereas polyunsaturated vegetable oils, refined sugar, alcohol, and caffeine-containing foods and beverages are to be avoided. Additionally, it is advised to consume fewer dairy products and animal fats[45]. Reduced adipose aromatase activity and improved oestrogen metabolism, and excretion are also benefits of weight loss strategies. Stress has the potential to alter hormone synthesis and trigger the release of a variety of other hormones that can compete with sex hormones. The expectations imposed on women nowadays may contribute to a protracted "stress overload" which may negatively affect the balance of hormones and result in irregular menstruation. Regular exercise improves blood circulation, raises endorphin and neurotransmitter levels and is crucial for stress reduction[46].

4.1 Healthy Menstrual Cycle

A healthy menstrual cycle now for a healthier tomorrow. A woman's regular menstrual cycle throughout her reproductive years indicates that her ovarian hormones and other endogenous compounds are in balance. Menstrual issues like primary dysmenorrhea and dysfunctional uterine haemorrhage may be signs of underlying hormonal abnormalities that could later affect fertility and cause menopausal issues. Interventions that can assist in balancing these variables may not only be beneficial in addressing menstruation disorders, but they may also reduce the likelihood of future hormone-related issues[47].

5. Conclusion

In conclusion, herbal remedies offer a promising approach to managing menstrual problems by addressing both the underlying causes and symptoms. With a rich history spanning various cultures and traditions, these natural remedies provide a holistic alternative to conventional treatments. Herbs like chasteberry, Dong Quai, and ginger have demonstrated efficacy in regulating hormonal imbalances, alleviating menstrual pain, and promoting overall reproductive health. Furthermore, the adaptogenic properties of certain herbs, such as ashwagandha and the soothing effects of peppermint and raspberry leaf contribute to emotional well-being during menstruation. However, it's essential to approach herbal remedies with caution and consult with a healthcare professional to ensure safety and efficacy, especially when combining herbs with other medications or treatments. By integrating herbal medicine into comprehensive healthcare plans, individuals can find personalized solutions to manage menstrual problems and enhance their overall quality of life naturally.

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6. Author Contribution

Conceptualisation: Niyati Shah, Chintan Aundhia; Literature search & Analysis: Mamta Kumari Drafting: Piyushkumar Sadhu; Reviewing and Approval : Mamta Kumari; Final Approval: Niyati Shah. All authors have read and agreed to the published version of the manuscript.

7. References

1. Arnsten J. HIV infection and bone mineral density in middle-aged women. Clin Infect Dis. 2006; 42:1014-20. https://doi.org/10.1086/501015 PMid:16511769
2. Biggs W, Demuth R. Premenstrual syndrome and premenstrual dysphoric disorder. Am Fam Physician. 2011; 84(8):918-24.
3. Casablanca Y. Management of dysfunctional uterine bleeding. Obstet Gynecol Clin North Am. 2008; 35(2):219-34. https://doi.org/10.1016/j.ogc.2008.03.001 PMid:18486838
4. Laufer A, Breech M. Menstruation in girls and adolescents: using the menstrual cycle as a vital sign. Pediatrics. 2006;

118(5):2245-50. https://doi.org/10.1542/peds.2006-2481 PMid:17079600
5. Silverthorn DU. Human physiology: an integrated approach. Glenview, IL: Pearson Education; 2013; p. 850.
6. Office of Women's Health. Menstruation and the menstrual cycle fact sheet. USA: Office of Women's Health; 2014.
7. Osayande S, Mehulic S. Diagnosis and initial management of dysmenorrhea. Am Fam Physician. 2014; 89(5):341-6.
8. Cho S, Hwang E. Acupuncture for primary dysmenorrhea: a systematic review. International Journal of Obstetrics and Gynaecology. 2010; 117(5):509-21. https://doi.org/10.1111/j.1471-0528.2010.02489.x PMid:20184568
9. Bhattacharya S, Middletone L, Tsourapas A, Lee A, Champaneria R, Daniels J, *et al*. Hysterectomy, endometrial ablation and Mirena for heavy menstrual bleeding; a systematic review of clinical effectiveness and cost-effectiveness analysis. Health Technol Assess. 2011; 15(19):1-252. https://doi.org/10.3310/hta15190 PMid:21535970 PMCid:PMC4781434
10. Mitchell C, Prabhu M. Pelvic inflammatory disease: current concepts in pathogenesis, diagnosis and treatment. Infect Dis Clin North Am. 2010; 27(4):793-809. https://doi.org/10.1016/j.idc.2013.08.004 PMid:24275271 PMCid:PMC3843151
11. Munawara B, Sumit D, Hemanta S. Menstrual disorders: causes and natural remedies. Res J Pharm Biol Chem Sci. 2016; 4(2):307-20.
12. Louisa R. *Polymenorrhea*: definition, causes and treatment. Med News Today. 2020.
13. Nelson L, Anasti J, Flack M. Premature ovarian failure. In: Adashi EY, Rock JA, Rosenwaks Z, editors. Reproductive endocrinology, surgery and technology. Philadelphia: Lippincott-Raven; 1996; 1393-410.
14. Nolting M, Perez L, Belen M, Martinez Amuchastegui J, Straminsky V, Onetto Claudia C. Importance of detecting the transition to the premature ovarian failure. Gynecol Endocrinol. 2008; 24:257-8.
15. Anasti J. Premature ovarian failure: an update. Fertil Steril. 1998; 70:1-15. https://doi.org/10.1016/S0015-0282(98)00099-5 PMid:9660412
16. Kalantaridou S, Davis S, Nelson L. Premature ovarian failure. Endocrinol Metab Clin North Am. 1998; 27:989-1006. https://doi.org/10.1016/S0889-8529(05)70051-7 PMid:9922918
17. Futterweit W, Task Force on the Phenotype of the Polycystic Ovary Syndrome of the Androgen Excess and PCOS Society. The androgen excess and PCOS society criteria for the polycystic ovary syndrome: the complete task force report. Fertil Steril. 2009; 91(2):456-88. https://doi.org/10.1016/j.fertnstert.2008.06.035 PMid:18950759
18. Rovenský J, Imrich R, Lazúrová I, Payer J. Rheumatic diseases and Klinefelter's syndrome. Ann N Y Acad Sci. 2010; 1193:1-9. https://doi.org/10.1111/j.1749-6632.2009.05292.x PMid:20398000
19. Niccoli G, Apa R, Lanzone A, Liuzzo G, Spaziani C, Sagnella F, *et al*. CD4+CD28 null T lymphocytes are expanded in young women with polycystic ovary syndrome. Fertil Steril. 2011; 95(8):2651-4. https://doi.org/10.1016/j.fertnstert.2011.01.129 PMid:21324454
20. Marzieh N, Marzieh D, Fahimeh T. The menstrual disturbances in endocrine disorders: a narrative review. Int J Endocrinol Metab. 2020; 18(4):106-694. https://doi.org/10.5812/ijem.106694 PMid:33613678 PMCid:PMC7887462
21. Maslyanskaya S, Talib J, Northridge L, Jacobs M, Coble C, Coupey M. Polycystic ovary syndrome: an under-recognized cause of abnormal uterine bleeding in adolescents admitted to a children's hospital. J Pediatr Adolesc Gynecol. 2017; 30(3):349-55. https://doi.org/10.1016/j.jpag.2016.11.009 PMid:27903446
22. Balen A, Conway G, Kaltsas G, Techatrasak K, Manning PJ, West C, *et al*. Polycystic ovary syndrome: the spectrum of the disorder in 1741 patients. Hum Reprod. 1995; 10(8):2107-11. https://doi.org/10.1093/oxfordjournals.humrep.a136243 PMid:8567849
23. Zarzycki W, Zieniewicz M. Reproductive disturbances in type 1 diabetic women. Neuro Endocrinol Lett. 2005; 26(6):733-8.
24. Tritos N, Klibanski A. Prolactin and its role in human reproduction. In: Strauss J, Barbieri R, Gargiulo A, editors. Yen and Jaffe's reproductive endocrinology. Elsevier; 2019. https://doi.org/10.1016/B978-0-323-47912-7.00003-2
25. Taylor P, Albrecht D, Scholz A, Gutierrez G, Lazarus J, Dayan C, *et al*. Global epidemiology of hyperthyroidism and hypothyroidism. Nat Rev Endocrinol. 2018; 14(5):301-16. https://doi.org/10.1038/nrendo.2018.18 PMid:29569622
26. Khan A, Hanley D, Rizzoli R, Bollerslev J, Young J, Rejnmark L, *et al*. Primary hyperparathyroidism: review and recommendations on evaluation, diagnosis and management. A Canadian and international consensus. Osteoporos Int. 2017; 28(1):1-19. https://doi.org/10.1007/s00198-016-3716-2 PMid:27613721 PMCid:PMC5206263
27. Sang-Dol K. Yoga for menstrual pain in primary dysmenorrhea: a meta-analysis of randomized controlled trials. Complement Ther Clin Pract. 2019; 36:94-9. https://doi.org/10.1016/j.ctcp.2019.06.006 PMid:31383452
28. Andrea V, Nelson F, Bahamondes L. The practice of hatha yoga for the treatment of pain associated with endometriosis. J Altern Complement Med. 2016; 10(10):1-8.
29. Shiouh-Lirng C, Lee-Wen H, Hung-Rong Y. Pregnancy in premature ovarian failure after therapy using Chinese herbal medicine. Chang Gung Med J. 2003; 26(6):449-53.
30. Jazani AM, Hamdi K, Mojgan T. Herbal medicine for oligomenorrhea and amenorrhea: a systematic review

of ancient and conventional medicine. BioMed Res Int. 2018; 1-22. https://doi.org/10.1155/2018/3052768 PMid:29744355 PMCid:PMC5878906
31. Verma A, Kumar S, Dei L, Dhiman K. Management of PCOS: a psychosomatic disorder by yoga practice. Int J Innov Res Dev. 2015; 4(1):215-20.
32. Hardy ML. Herbs of special interest to women. J Am Pharm Assoc. 2000; 40:234-42. https://doi.org/10.1016/S1086-5802(16)31064-6
33. Mayo JL. A healthy menstrual cycle. Clin Nutr Insights. 1997; 5(9):1-8.
34. Anna B, Phyllis J, Susan M. Menorrhagia: a synopsis of management focusing on herbal and nutritional supplements, and chiropractic. J Can Chiropr Assoc. 2007; 51(4):235-47.
35. Rupa Vani K, Veena KS, Subitha L, Hemanth Kumar VR, Bupathy A. Menstrual abnormalities in school going girls - are they related to dietary and exercise pattern. J Clin Diagn Res. 2013; 7(11):2537-40.
36. Lado-Abeal J, Rodriguez-Arnao J, Newell JD. Menstrual abnormalities in women with Cushing's disease are correlated with hypercortisolemia rather than raised circulating androgen levels. J Clin Endocrinol Metab. 1998; 83(9):3083-9. https://doi.org/10.1210/jc.83.9.3083
37. Khushbu Rani, Tiwari SC, Santosh Kumar, Singh U, Jai Prakash, Srivastava N. Psycho-biological changes with add on yoga nidra in patients with menstrual disorders: a randomized clinical trial. J Caring Sci. 2016; 5(1):1-9. https://doi.org/10.15171/jcs.2016.001 PMid:26989661 PMCid:PMC4794540
38. Kim SD. Psychological effects of yoga nidra in women with menstrual disorders: a systematic review of randomized controlled trials. Complement Ther Clin Pract. 2017. https://doi.org/10.1016/j.ctcp.2017.04.001 PMid:28779936
39. Kim K, Nam HJ, Kim M, Lee J, Kim K. Effects of herbal medicine for dysmenorrhea treatment on accompanied acne vulgaris: a study protocol for a randomized controlled trial. BMC Complement Altern Med. 2017; 17:318-26. https://doi.org/10.1186/s12906-017-1813-1 PMid:28623918 PMCid:PMC5474046
40. Monroe A. Menstruation, menopause and HIV. Woman HIV-Beta. 2007; p. 39-44.
41. Herbert B, Jeng G, Folger SG, Hillis SA. The risk of menstrual abnormalities after tubal sterilization. N Engl J Med. 2022; 343(23):1681-8. https://doi.org/10.1056/NEJM200012073432303 PMid:11106717
42. Oates J. The effect of yoga on menstrual disorders: a systematic review. J Altern Complement Med. 2017; 1-11.
43. Vanitha A, Pandiaraja M, Maheshkumar K, Venkateswaran ST. Effect of yoga nidra on resting cardiovascular parameters in polycystic ovarian syndrome women. Natl J Physiol Pharm Pharmacol. 2018; 8(11):1505-9. https://doi.org/10.5455/njppp.2018.8.0411112082018
44. Qaraaty M, Kamali SH, Dabaghian FH. Effect of myrtle fruit syrup on abnormal uterine bleeding: a randomized double-blind, placebo-controlled pilot study. DARU J Pharm Sci. 2014; p. 22-45. https://doi.org/10.1186/2008-2231-22-45 PMid:24888316 PMCid:PMC4079189
45. Monika Rani, Singh U, Agrawal GG. Impact of yoga nidra on menstrual abnormalities in females of reproductive age. J Altern Complement Med. 2013; 19(12):925-9. https://doi.org/10.1089/acm.2010.0676 PMid:23647406
46. Zhang Y, Mao X, Sui J. A network pharmacology-based strategy deciphers the underlying molecular mechanisms of Qixuehe capsule in the treatment of menstrual disorders. Chin Med. 2017; 12:23-44. https://doi.org/10.1186/s13020-017-0145-x PMid:28835770 PMCid:PMC5563918
47. Datta K, Tripathi M, Mallick HN. Yoga nidra: an innovative approach for management of chronic insomnia - a case report. Sleep Sci Pract. 2017; 1:7-16. https://doi.org/10.1186/s41606-017-0009-4