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Original article

Study on the Effectiveness of Herbal Medicine for Endometriosis

Somia Al-Tahouni*[1], Farah Emagrahi[1], Abd Alrahim Shatawh[2]

[1]*Department of Zoology, Faculty of Science, University of Zawiya, Libya*
[2]*Markaz Shamal Afriqya lilamisal walliqahat, Zawiya, Libya*
Corresponding email. *Su.mohammed@zu.edu.ly*

Abstract
Endometriosis is a condition characterized by the growth of endometrial-like tissue outside the uterine cavity, most commonly in the lower abdomen or pelvis. This condition affects approximately 8-10% of women of reproductive age, with its prevalence rising to about 40-50% among women experiencing infertility. It is a chronic disease that causes severe pelvic pain, inflammation, and increases the risk of miscarriage, preterm birth, and severe hemorrhage during delivery. Numerous studies have highlighted the potential of alternative herbal treatments, emphasizing their role due to properties such as antioxidant, anti-inflammatory, and anti-angiogenic effects. This current study was based on field visits to the Al-Yaqeen Center in the city of Tripoli. A questionnaire was designed to collect data from patients. The study included a sample of 30 married women with endometriosis, spanning different age groups: Group 1 (20-25 years), Group 2 (25-30 years), Group 3 (30-35 years), and Group 4 (35 years and above). The study's temporal scope was the period from May 29, 2024, to January 30, 2025. The highest proportion of participants was in the age group of 35 years and above (47%), while the lowest proportion was in the 20-25 years age group (10%). A statistically significant difference was observed between the age groups, with a p-value of 0.047, which is below the significance level of 0.05. Regarding treatment duration, the highest proportion received treatment for 3-4 months (43%), whereas the lowest proportion was for a treatment duration of (1-2) months at a rate of (20%), with no statistically significant differences found for the treatment duration (p-value = 0.073). The highest rate concerning years of infertility was (6-11) years at (47%), while the lowest rate was (12 years or more) at (23%), with a statistically significant difference (p-value = 0.018). The objectives of this study are to define the disease, raise awareness among women about its risks, and encourage early diagnosis due to its negative consequences. Furthermore, it aims to highlight the effectiveness of medicinal herbs. Herbal treatments typically involved formulations ranging from 10 to 20 components, with the use of some demonstrating effectiveness in alleviating pain, inhibiting tissue migration, and reducing estrogen production.
Keywords. Endometriosis, Uterus, Blood Vessels, Miscarriage, Childbirth.

Introduction

Endometriosis is a benign uterine condition and a chronic, estrogen-dependent disorder characterized by the presence of tissue resembling the endometrial lining outside the uterine cavity. This tissue grows on both sides of the uterine cavity, extending to the fallopian tubes and then to the ovaries and cervix, causing inflammation and subsequently, adhesions. It leads to cyclical pelvic pain, notably dysmenorrhea (painful menstruation) and dyspareunia (painful intercourse), as well as partial infertility, all of which can contribute to a decline in fertility [1-3]. Although these cells rarely transform into malignant tumors, there is nevertheless an increased risk of developing ovarian cancer, breast cancer, other types of cancer, and autoimmune disorders. The precise causative mechanisms and disturbances remain under investigation [4]. Furthermore, these ectopic tissues behave like the uterine mucosal lining, responding to the hormones secreted by the ovaries. At the end of each menstrual cycle, the levels of these hormones in the blood decrease, leading to the shedding of the uterine lining, which exits as menstrual blood. However, the tissues located outside the uterus have no exit path. Consequently, they swell and may cause secretions that, in turn, lead to the formation of pelvic adhesions. They can also form blood-filled cysts, particularly on the ovaries, which are called "chocolate cysts" [5-7].

Researchers have recently proposed several theories, including the implantation theory, the endometrial transplantation theory, and the induction theory. Research continues to investigate other risk factors that may contribute to the formation of endometriosis, among them immune, possibly genetic or natural factors, or environmental toxins [8]. Complementary or alternative medicine is often suggested as a complementary therapy to improve egg quality and reduce disorders associated with endometriosis. Countries around the world use complementary medicine, represented by herbs, to relieve pelvic pain and dysmenorrhea. These may be effective treatments for cases suffering from dysmenorrhea, as well as cases of partial infertility where the primary cause is endometriosis [9].

Inflammation plays a major role in the development of endometriosis. The sequence of various inflammatory signals leads to the upregulation of oxidizing substances. Some studies have highlighted the key role of inflammation in endometriosis through its effects on proliferation, apoptosis, and angiogenesis. Consequently, oxidative stress resulting from an imbalance between reactive oxygen species and antioxidants plays a major role in the initiation and progression of endometriosis [10-12].

By causing inflammatory responses in the peritoneal cavity, endometriosis leads to symptoms in patients. Hormonal therapy, medications, and surgery are used to alleviate these symptoms. Common transitional

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treatments for endometriosis include pain relievers, non-steroidal anti-inflammatory drugs, aromatase inhibitors, progesterone, combined estrogen-progestin therapy, and selective progesterone receptor modulators [13]. However, these common treatments are not always fully effective currently. New effective factors can be introduced to improve patients' condition, for example, aromatic herbs through their effects on inflammation, oxidative stress, invasion, adhesion, apoptosis, and angiogenesis [14].
The use of dietary supplements and nutraceuticals has gained popularity over the past few decades due to increasing demand for natural products [15]. Among the most important are Curcumin (Turmeric)**,** A globally important spice extracted from the roots of the *Curcuma longa* plant, belonging to the Zingiberaceae family. It has been used since ancient times for preventing and treating many diseases. Recent studies have shown that it contains anti-inflammatory, anti-tumor, and anti-angiogenic properties [16]. Chamomile is a well-known traditional herbal medicine, readily available in Iran. It has been used more easily than other herbs to alleviate symptoms of premenstrual syndrome. Chamomile contains spiroether, a very potent antispasmodic agent [17], which relaxes tense and painful muscles. Peppermint possesses antioxidant properties. Clinical studies on the effects of peppermint capsules have shown that they reduce pelvic pain associated with endometriosis [18].
Costus (*Saussurea costus*) is A flowering plant related to thistles, used in ancient Chinese medicine, India, and many Asian countries to treat certain conditions. The benefits of Costus capsules for women in supporting uterine and ovarian health are noteworthy. It contains compounds that help reduce inflammation and promote hormonal balance. Marjoram**,** Sage, and Lavender A mixture of marjoram, sage, and lavender oil, used through massage, was found to be capable of controlling the symptoms of endometriosis and alleviating pelvic pain [19]. Ginger, considered a complementary therapy, is a climbing plant found in South Asian countries. It contains more than forty anti-inflammatory components and has proven effective in relieving pain in general and dysmenorrhea [20,21].

Methodology

The present study relied on field visits to the Al-Yaqeen Center for Herbal and Complementary Medicine in the city of Tripoli. A questionnaire was designed to collect data from women diagnosed with endometriosis of delayed conception or recurrent miscarriage resulting from long-term endometriosis. This was based on diagnoses via laparoscopy and hysteroscopy to determine the severity and stage of the endometriosis. Patients received a treatment regimen consisting of a mixture of herbs in capsule form (Peppermint, Ginger, Lavender, Curcumin, Marjoram, and Sage), with due consideration given to the treatment duration.
Following the completion of the data collection phase, the information obtained through the research instrument was analyzed. The researcher employed descriptive and analytical statistical methods using the Statistical Package for the Social Sciences (SPSS) version 27.

Results

The study was conducted on a cohort of 30 patients diagnosed with endometriosis, who exhibited varying stages of the disease, treatment durations, and impacts on fertility (delayed conception and miscarriage). The cases were monitored over the period from May 28, 2024, to January 30, 2025. The results, categorized by age group as presented in (Table 1), indicate that the prevalence of endometriosis among married women was highest in the age group of 35 years and above, constituting 45% of the sample. Conversely, the lowest prevalence was observed in the 20-25-year age group, accounting for 10% of the cases.

Table 1. Distribution of the Study Sample by Age Group

Age	**Frequency**	**Percentage**%
25 – 20	3	10%
30 – 25	6	20%
35 - 30	7	23%
35 and above	14	47%
Total	30	100%

As shown in (Table 2), a statistically significant difference was observed between the age groups, with a P-value of (0.047), which is less than the significance level of (0.05).The increase in variability within the age group above 35 years is a direct result of the loss of homogeneity caused by combining widely spaced ages, which leads to greater inter –individual differences in biological and behavioral characteristics that influence that influence the studied outcomes. This result in greater dispersion of the data around the mean, and consequently an increase in the standard deviation.

Table 2. Mean and Standard Deviation for the Age Variable

Variable	**Mean**	**Standard Deviation**	**p-value**
Age	39	8.87	0.047

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Table 3 shows that the highest percentage was for a treatment duration of (3-4) months, at 43%, while the lowest percentage was for a treatment duration of (1-2) months, at 20%.

Table 3. Distribution of the Study Sample by Treatment Duration

Treatment Duration	Frequency	Percentage%
1 – 2 months	6	20%
3 – 4 months	13	43%
5 – 7 months	11	37%
Total	30	100%

Table 4 indicates that there are no statistically significant differences in treatment duration, as the p-value is (0.073), which is greater than (0.05).

Table 4. *Mean and Standard Deviation for the Treatment Duration Variable*

Variable	Mean	Standard Deviation	p-value
Treatment Duration	3.8	1.38	0.073

Table 5 shows that the highest percentage was for a duration of infertility of (6-11) years, at 47%, while the lowest percentage was for a duration of infertility of (12 years or more), at 23%.

Table 5. Distribution of the Study Sample by Duration of Infertility

Duration of Infertility (Years)	Frequency	Percentage%
5 – 1	9	30%
11 – 6	14	47%
12 or More	7	23%
Total	30	100%

Table 6. Mean and Standard Deviation for the Infertility Duration Variable

Variable	Mean	Standard Deviation	p-value
Duration of Infertility	10.13	5.17	0.026

(Table 6) indicates that there are statistically significant differences in the duration of infertility, as the p-value is (0.026), which is less than (0.05). This indicates that there is a statistically significant relationship between the treatment duration and the duration of infertility, as the p-value is (0.018), which is less than 0.05), according to Table (7).

Table 7. Correlation between Endometriosis Treatment Duration and Duration of Infertility

Sample Size	Correlation Coefficient	p-value
30	0.49	0.018

Discussion

Dysmenorrhea is the most common gynecological symptom among women of reproductive age. It is defined as painful uterine cramps accompanying menstruation. Primary dysmenorrhea occurs in the absence of an organic cause, whereas secondary dysmenorrhea is pelvic pain associated with underlying pelvic diseases, such as endometriosis [22]. The purpose of this review is to discuss the pathophysiology of dysmenorrhea. Many affected women suffer for extended periods without diagnosis or follow-up. As they age and potential causes accumulate, the condition can progress to endometriosis. With the ongoing search for an optimal treatment for this disease, there is growing interest in complementary and alternative medicine among women who do not respond to pharmacological treatments or surgical options [23]. This study investigated the impact of endometriosis on women's lives, its relationship with delayed conception, and the duration of treatment, which involved herbal remedies. The statistical results obtained indicated a statistically significant difference (p-value = 0.047) within the study sample according to age group, as shown in (Table 2). These findings align with the study conducted by [24]. Herbal products typically involve the use of multi-component formulations, ranging from 10 to 20 common herbs. These are prepared as decoctions, dried herbal extracts, or taken in the form of tablets or capsules [25].

Research has shown the widespread use of herbal medicines by women suffering from long-term dysmenorrhea and infertility. In the current study, which utilized the aforementioned herbal treatment regimen, these herbs demonstrated potential in alleviating dysmenorrhea, acting through anti-inflammatory properties, reduction of pelvic pain, induction of apoptosis, and suppression of uterine contractions. The statistical results showed no statistically significant difference (p-value > 0.073) based on the duration of treatment, as indicated in (Table 4). These results are consistent with the findings of [26,27].

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Endometriosis significantly affects women worldwide; however, there is often a considerable delay in diagnosis. Enhancing awareness of this disease in primary healthcare settings is expected to facilitate earlier diagnosis and address issues of infertility. The results indicated a statistically significant difference (p-value = 0.026) within the study sample regarding delayed conception, as referenced in (Table 6). This finding is supported by the study of [28]. When examining the relationship between the duration of endometriosis treatment and delayed conception, a statistically significant difference was found (p-value = 0.018). This likely depends on the stage of the disease and the duration the patient has been affected. It should be noted, however, that this study involved a small sample size and had a shorter follow-up period [29].

Conclusion

As the search for the optimal treatment for endometriosis continues, interest in complementary medicine and herbs is growing due to their anti-inflammatory, antioxidant, anti-proliferative, and immunomodulatory properties. This study concludes that herbal medicine treatment has a significant impact on pain and bleeding during menstruation. Given that no side effects were reported, herbal treatment can be considered a safe and effective therapy for dysmenorrhea. We reviewed previous studies indicating that consuming the aforementioned herbs offers multiple benefits for women suffering from infertility, with positive long-term effects. As with many diseases and conditions, the proven positive effects of herbs in treating endometriosis offer new hope for women who have undergone hormonal therapy or surgery. Current and previous results demonstrate the efficacy and viability of using herbal medicine and massage for problems arising from endometriosis. Given the global importance of endometriosis as a chronic disease affecting over 15% of women during their reproductive years, this study aimed to provide a comprehensive overview of research related to medicinal herbs.

Recommendations

Promote health awareness and issue informational brochures to educate about endometriosis. Conduct comparative studies on the efficacy of medicinal herbs to monitor their long-term effects. Due to the scarcity of local studies and the small sample size of this research, it is recommended to conduct studies involving a larger number of affected women. Implement early screening for women of reproductive age to prevent the development of severe symptoms, and encourage adherence to the treatment plan established by the physician. Increase the intake of anti-inflammatory and antioxidant-rich foods, and modify lifestyle to include a healthy dietary regimen.

Conflict of interest. Nil

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