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Positive Effects of Perineum Moxibustion on Gynecological Problems of Infertile Women

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ABSTRACT : Moxibustion, which has a more than 4,000-year long history of use in East Asia, has been widely used for gynecological diseases. To investigate the effects of perineum (CV1) moxibustion on gynecological function, infertile women of childbearing age applied CV1 moxibustion for 30 days on a fixed schedule. The subjects had on average 2.4±1.1 cases of infertility-related disabilities. After CV1 moxibustion treatment, on average, the subjects showed improvements in 1.5±1.0 cases of their gynecological problems. In addition, 14.7% of the subjects got pregnant within 29±1.4 days after the treatment. This result shows that application of moxibustion on the CV1 and uterus is an effective treatment for gynecological diseases and that it can improve the function of gynecologic organs.

Key words : gynecological disease, infertility, pregnancy, moxibustion, perineum, CV1

INTRODUCTION

Mugwort is a medicinal herb that is closely connected to health in Korea. Mugwort has been widely used along with fire as a medicinal plant for moxibustion to treat many diseases caused by coldness and dampness of the human body.

The main constituents of mugwort are protein, fat, glucoside, calcium, phosphorous, iron, niacin, and vitamins A, B_1, B_2, and C. According to the 19th-century Korean medical text *Bangyakhappyeon*, mugwort is bitter and warm in nature, which increases human's energy, warms the blood, and, and prevents the body from being cold and damp. For women, it prevents uterine bleeding, "feeling of cold", and vaginal discharge. In addition, *Minyakyobbup* and many other documents point out that mugwort can be used for prevention of miscarriage, uterine bleeding, menorrhagia, menstrual irregularity, and vaginal discharge, as well as for postpartum care (Mok, 2006; Lee et al., 2008).

For the treatment of female diseases, moxibustion can be applied to yongchon (yongquan, KI1), a concave part on the sole of the foot. In acupuncture, this area is referred to as KI1, or the second heart, because energy and blood are issued in the manner of a water spring in this area (Mok, 2006). In addition, mugwort moxibustion can be applied to hacho, a lower abdomen region including kidneys, bladder, large intestine, and small intestine. This area is often underestimated as merely the location of the reproductive, digestive, and excretory organs. However, hacho is a very important area, since significant points such as the perineum point (Huiyin, CV1), anus point, busu point, and yujeonghee point

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are in this region (Chun & Wang, 2003; Mok, 2006). The CV1, one of the major points in the hacho region, is located between the anus and labia majora and plays an important role in gynecological diseases. Moreover, a number of major acupuncture points and channels (conception vessels, governing vessels, and penetrating vessels) start from or intersect at this point. Therefore, the application of moxibustion on CV1 should be equally effective as applying moxibustion on the entire body. The uterus, another organ in hacho, is also a very effective point for moxibustion to prevent various female genital diseases (Mok, 2006). However, the application of conventional moxibustion on these regions has severe drawbacks such as uncomfortable posture (resembling that of childbirth), risk of burn, and smoke. Therefore, the CV1 and uterus have been considered as inappropriate regions to apply moxibustion, although they are the most effective points for the treatment. To solve the problem, the Mok-kwanho moxibustion instrument (MMI) was introduced in 1996. MMI is a medical instrument that allows application of moxibustion on the CV1, uterus, anus and various acupuncture points. Although the MMI was designed to apply moxibustion while a patient is sitting on it, it can also be used in various postures. CV1 moxibustion has been used to treat or improve urogenital, gynecological, and other diseases, and successful cases of infertility treatment have been steadily reported.

Among the patients who have visited oriental medical institutions for infertility treatment, 97.5% used only oriental medicine, 80.4% chose both oriental medicine and acupuncture, and only 57.5% received moxibustion therapy (Lee et al., 2014). Thus, moxibustion has not been applied to infertility treatment as often as oriental medicine and acupuncture. In addition, the effect of moxibustion on infertility treatment has been rarely studied. This study was based on oriental medical texts and the successful pregnancy cases of a CV1 moxibustion treatment, which have been steadily reported since 1996. In this study, moxibustion was applied to CV1, uterus, and KI1 points for treatment, and the results were aggregated to obtain statistical data on the effect of the moxibustion on gynecological function.

Although the effect of moxibustion has been obviously learned from experiences throughout the centuries and is recognized in many books of oriental medicine, it has not been subject to modern research. Therefore, the purpose of the present research is to investigate the effects of the CV1 moxibustion therapy for gynecologic health of infertile women of pregnancy age and establish concrete and practical foundation of infertility treatment.

MATERIALS AND METHODS

1. Subjects

Forty-five South Korean women were voluntarily recruited from the on-line "infertility café" for the study. Inclusion criteria were infertility and being of childbearing age. Five subjects who used the instrument for less than 10 days were excluded, and the remaining 40 were adopted for analysis (Table 1). Safety regulations by ISO14971 (risk management) controlled CV1 moxibustion treatment for the safety of subjects, including bioethics. They received various corresponding explanations and were understood the intent of this examination, including benefits and risks. They gave informed consent and were paid for participation.

Infertility is defined as a case in which a couple is unable to get pregnant within a year in spite of their ordinary sex life without the use of contraception (Lee et al., 2014). All subjects had failed to get pregnant for at least 1 year, and some of them had failed for more than 10 years, despite continuing their ordinary sex life without the use of contraception. In addition, they had been diagnosed as infertile by their respective hospitals/clinics.

1) Age distribution of subjects

Table 1. Age distribution of infertile subjects

Age (years old)	Case (%)
26–30	2 (5)
31–35	22 (55)
36–40	12 (30)
41–45	2 (5)
46 or More	2 (5)
Total	40 (100)
Average	35.6±4.1

The average age of the subjects was 35.6±4.1 years, and most were between 31 and 35 years old (Table 1). This was higher than the 33.07-year average age of ordinary infertile women who visited the oriental medical hospitals/clinics (Lee et al., 2014).

2) Disease and disability distribution of subjects

Most subjects had serious conditions such as tubal block, hydrosalpinx, ovarian dysfunction, or higher average age (Table 1 & 2). All subjects had an average of 2.4±1.1 diseases and disabilities (Table 2). The diseases were diagnosed by their respective hospitals/clinics (not by oriental hospitals/clinics), and classified by "Korean Standard Classification of Diseases (KCD6)". The "feeling of cold" was not classified under any diseases by KCD6, since it can have various causes. However, according to oriental medicine texts, the "feeling of cold" is closely related to women's health, and it can lead to various gynecologic disorders such as dysmenorrhea, late menstruation, hypomenorrhea, menostasia, leukorrhea, postpartum body aches, and infertility (Cho et al., 2011). Since most subjects were suffering from the "feeling of cold", and it is one of the important symptoms

Table 2. Disease and disability distribution (multiple responses)

Disease or disorder	Case (%)	Note
Endometrial	5(5.2)	Thin endometrium, polypoid hyperplasia of endometrium
Endometriosis	4(4.2)	Ovarian, uterine
Leiomyoma of uterus	6(6.3)	
Adenomyosis	3(3.1)	
Hydrosalpinx	2(2.0)	
Polycystic ovary syndrome	6(6.3)	
Ovarian dysfunction	5(5.2)	Ovulation is not smooth.
Tuba block	1(1.0)	
Dysmenorrhea	4(4.2)	
Irregular menstruation	7(7.3)	Excessive or frequent, or absent, scanty, or rare
Abnormal uterine and vaginal bleeding	1(1.0)	Unspecified
Miscarriage	7(7.3)	
Feeling of cold	29(30.2)	Hands, feet, abdomen, and body "feeling of cold"
Unknown origin of infertility	11(11.5)	
Others	5(5.2)	Low back pain after IVF, gastro-esophageal reflux disease, cystitis, hypothyroidism
Total	96(100.0)	
Average	2.4±1.1	

of gynecologic disorders, it was included as a type of disease and disability in this research (Table 2).

2. Research instrument

MMI Type: D3491 (Baekseung Ddum Medical) is a medical instrument used to apply moxibustion on the CV1, uterus, anus, and various acupuncture points allowing a patient comfortably sit down on it without the need to disrobe. It supplies heat and active constituents of mugwort, including its essential oil, to the moxibustion points. With this instrument, mugwort is not burnt but gently heated by a heating source. Since a candle is the heating source of the instrument, electric power is not required (average temperature of central part: 80°C, average temperature of seat sides: 40°C) (Fig. 1).

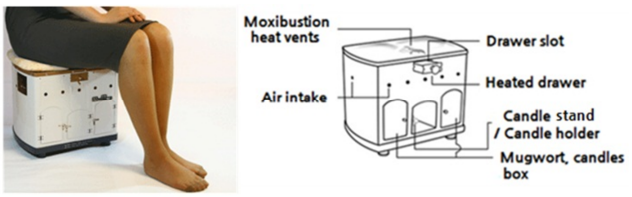

Fig. 1. Feature of MMI. MMI heats mugwort in a heated drawer with amplified candle flame. The active constituents of mugwort include its essential oil and heat delivered to the body through moxibustion the heat vent by thermal extraction.

1) Treatment

The subjects were asked apply CV1 moxibustion treatment at their home for 30 days. The instructions were provided through the 'CV1 Moxibustion Manual' (Table 3) and on the phone.

3. Research

The subjects were recruited for 6 months through a voluntary application for 'CV1 moxibustion' therapy, among those who were suffering from infertility in South Korea. Then, their personal medical histories and current infertility conditions were thoroughly checked. For CV1 moxibustion, all the materials (mugwort 200 g, candle 12ea) and necessary parts were provided with an MMI for 30 days to 45 subjects. The subjects were required to apply moxibustion on the CV1 and uterus for 30 minutes, three times a day (morning/afternoon/evening). If the subjects were not able to follow the instruction, they were allowed to use the instrument once a day for an hour instead. The primary region of moxibustion was the CV1 and uterus. However, it was required to apply moxibustion on the KI1 point, on the sole of the foot, during menstruation or when the subjects

Table 3. Part of 'CV1 Moxibustion Manual' provided to the subjects

No.	How to apply CV1 moxibustion
1	Fill half a drawer with mugwort (about 20 to 25 g) and close it.
2	Light the provided standard candle outside the instrument, and instal it correctly in its place within the instrument.
3	After 5 minutes, the instrument reaches a suitable temperature by heat from the candle. Then, try to sit on the instrument, with clothes worn, in order to apply moxibustion on the CV1 and uterus.
4	When extinguishing the candle, it is strongly recommended to first remove it from the instrument.
5	It is recommended to use mugwort filled in the drawer no longer than 3 hours. It is possible to use a candle for 5 to 8 hours.
6	At the beginning of use, you may feel hot. If it is too hot, it is also fine to cover the heated surface with a towel while using the instrument. And as you get used to the heat, you can remove the towel.
7	Apply moxibustion on the CV1 and uterus for either 30 minutes three times a day (morning/afternoon/evening) or once a day for one hour.

had heavy vaginal discharge. The subjects who experienced miscarriage were asked to apply moxibustion for an additional 30 minutes a day on the KI1 point. If the subjects got pregnant during the study, they were required to report this and stop using the instrument immediately. For those who wanted to take moxibustion on the KI1 point in order to prevent a miscarriage after they got pregnant, they were allowed an additional 15 days. The subjects were asked to record and report any changes of their health condition after taking the therapy for 30 days. The results were aggregated based on the diagnostic data from the hospitals/clinics of each subject. In addition, the data collected on subjectively recognizable improvements such as reduction of leukorrhea, relief of dysmenorrhea, of improvement of the "feeling of cold" were analyzed by in-depth interviews to compare condition before and after CV1 moxibustion.

This research aimed to verify the effects of CV1 moxibustion on gynecologic health, particularly in infertile women. Although all the subjects were suffering from infertility, all of them had different infertility factors (Table 2). Since each subject was a unique case, it was not possible to compare one to another and divide them into control and experimental groups. Therefore, in this research, the health conditions before and after the CV1 moxibustion were compared to investigate the effects of CV1 moxibustion.

4. Statistical anaylsis

Questionnaire items were composed of four entries: subject's age, duration of infertility, medically infertile history (before/after treatment) and other medical history (before/after treatment). Investigation of medical history was done through in-depth interviews (e-mail, phone, letter), based on the diagnosis of each participant's respective hospital/clinic doctor given their unique combinations of infertility factors.

Data of the subjects that can be compared before and after disease (Table 2 & 4) were statistically analyzed by predictive analytics using SPSS version 22. The frequency of infertile symptoms was collected from each subject, and the mean and standard deviation were calculated. The data included only 34 subjects who completed the CV1 moxibustion treatment program and excluded six subjects who failed to complete the program. Paired *t*-test was conducted to verify the mean difference between before and after the 4.1-week CV1 moxibustion treatment. The significance level for all the statistical analysis was set as $p<0.05$.

RESULTS

The improvement of subjects was investigated through both a survey on the phone and a personal report. Of the 40 subjects, 34 took moxibustion for 30.9±4.1 days on average and 1.5±1.0 of the disease/disability factors including infertility were improved on average (Table 4). The improvements of problems were verified by their respective hospitals/clinics and self-consciousness.

Since the subjects performed the program in their home, and they were not under a strict control, each subject could have had different usage of CV1 moxibustion. However, it could be estimated that the subjects utilized moxibustion on CV1, uterus, and KI1 point for an average of 30 hours a month because most of them had used all the provided mugwort (200 g+, 20 g of mugwort can be used for 3 hours).

The statistical investigation was carried out over the four factors (ovarian dysfunction, dysmenorrhea, "feeling of cold," and irregular menstruation) which could be clearly compared to seeing the change after the treatment. In case that the subjects reported an improvement in the symptoms after the treatment without having previously mentioned those symptoms, it was also included in the statistics (Table 5).

1. Improvement in subject

Table 5 shows the change of the infertility symptoms that the subjects experienced after the 4.1 weeks of CV1

Table 4. Disease and disability improvement or cure distribution (multiple responses)

Improvements		Case (%)			Notes
Temperature	Feeling of cold	24	(40.0)		1) Contains a significant relief of "feeling of cold" 2) Basal body temperature rises 36.3°C→36.9°C , 35.9→36.2°C
Menstruation related	Absent, scanty, or rare menstruation	5	(8.3)	(13.3)	Relief or elimination of extravasated blood in menstruation
	Dysmenorrhea	1	(1.7)		
	Irregular menstruation	2	(3.3)		Menstrual cycle returning to normal
Ovarian dysfunction	Ovulation	5	(8.3)		Follicle grows well without super-ovulation injection.
Vaginal discharge	Vaginal discharge	5	(8.3)		Vaginal discharge temporarily increased, but soon decreased after discharging some lumps.
Vaginitis	Vaginitis	1	(1.7)		
Pregnancy	Pregnancy	5	(8.3)		Natural pregnancy, artificial insemination
Others	Hemorrhoids	1	(1.7)	(10.1)	Relief of hemorrhoids
	Skin	3	(5.0)		Improving skin condition
	Large intestine	1	(1.7)		Large intestine function active
	Sleep	1	(1.7)		
Non-response	No answer	6	(10)		Non-response
Total		60	(100)		
Improvement/cure average			1.5±1.0		

moxibustion.

In case of ovarian dysfunction, there was a statistically significant difference with the result values of 0.29±0.46 for the pre-treatment and 0.15±0.36 for the post-treatment. In case of dysmenorrhea, it did not show statistically significant difference (p=0.33) between the pre-treatment value (0.15±0.36) and post-treatment value (0.12±0.33). However, in the case of “feeling of cold,” it showed a statistically significant improvement, with values of 0.71± 0.46 for the pre-treatment and 0.15±0.36 for the post-treatment. In case of irregular menstruation, there was no significant difference (p=0.16) between the pre-treatment

Table 5. CV1 moxibustion treatment compared pre and post (N=34)

Variables	Pre mean±SD	Post mean±SD	t	p
Ovarian dysfunction	0.29±0.46	0.15±0.36	2.39	<0.05
Dysmenorrhea	0.15±0.36	0.12±0.33	1.00	0.33
Feeling of cold	0.71±0.46	0.15±0.36	6.47	<0.05
Irregular menstruation	0.24±0.43	0.18±0.39	1.44	0.16

value 0.24±0.43 and post-treatment value 0.18±0.39. This result indicates that CV1 moxibustion has a positive influence on relieving or curing the ovarian dysfunction and "feeling of cold."

For some improvements (Table 4), it was not possible to apply statistical analysis.

Of the 34 subjects, 8.3% experienced relief or elimination of "absent, scanty, or rare menstruation" after the treatment. Another 8.3% of the subjects succeeded in getting pregnant. In addition to these results, three subjects reported an improvement in their skin health as well as improvements in function of large intestine and quality of sleep. Meanwhile, six subjects were non-response (Table 4). In all the responses, there was no side effect reported, such as burn, blister, and rash.

2. Pregnancy of subjects

Pregnancies of the subjects were verified by pregnancy test kit and a human chorionic gonadotropin test at their hospitals. The pregnancy rate of the subjects was 14.7% (5 out of 34). The subjects, who had an average of 2.2±1.1 cases of diseases and disorder, experienced an average of 2.2±1.8 improvement after they applied moxibustion for 29±1.4 days (Table 6). The pregnant subjects included two who had polycystic ovary syndrome (PCOS) and one who was 40+ years old and had not experienced pregnancy since more than 10 years ago. Maintenance of pregnancy and delivery was not taken into account in this research.

DISCUSSION

Today, moxibustion is also used as an alternative medicine in Europe, receiving recognition as an effective therapy. In *Guidelines for Clinical Research on Acupuncture* from the WHO in 1996, the pharmacological effects of moxibustion were officially announced, and it was recommended as a primary health care system due to its low cost and high accessibility (Chun & Wang, 2003).

According to a policy report issued by 'Korea Institute for Health and Social Affairs' in 2012, one in three couples were suffering from infertility in Korea (Kim et al., 2012). Moreover, the increase of infertile couples and low birth rate have become serious social issues. To overcome this problem, the Korean government has practiced various policies including financial aids for western medical methods such as *in vitro* fertilization (IVF) and test-tube baby programs. However, fewer than 30% are successful at getting pregnant with these methods (Cha & Ju, 2011; Choi et al., 2013). This is not remarkable compared to pregnancy rate of 25–30% resulted from oriental medical methods that the government does not support (Lee et al., 2014). As a result, the infertility issue is still challenging in spite of much

Table 6. Improvement and cure report of the pregnant subjects

No.	Age	Use days *D/A	Number of diseases and disorders before treatment	Number of improvements and cures after treatment
1	42	30	2	1
2	32	28	2	5
3	29	30/10	1	1
4	35	30/15	4	1
5	34	27	2	3
Average (D)	34.4±4.8	29±1.4	2.2±1.1 cases	2.2±1.8 cases

* In D/A, 'D' is the days given by default, 'A' is the additional days after pregnancy.

efforts by the government and medical institutions to overcome low pregnancy rates.

This study aimed to investigate the effect of the moxibustion therapy on CV1 for gynecologic function in infertile woman. In this research, all subjects showed positive results.

The 24 subjects (40%) who had "feeling of cold," the most common infertility symptom, reported that their symptom had been improved or cured with statistical significance ($p<0.05$) (Tables 4 & 5). Considering previous research that verified that the "feeling of cold" could lead to infertility (Cho et al., 2011), we can assert that the relief of the "feeling of cold" can be regarded as an improvement in fertility.

The results of the present research indicate that ovarian dysfunction was significantly ($p<0.05$) improved (Table 4 & 5). In addition, there were cases of normal ovulation without clomiphene and recovery of irregular menstruation (Table 4). These cases show that moxibustion is closely related to endocrine status in women.

Besides, the present findings accord with previous research results that verify that moxibustion and acupunctural treatment have influences on estrogen level and help generation of high quality embryos (Xue et al., 2014; Chen & Hau, 2015). Consequently, it is expected that moxibustion on the CV1 and uterus has a positive influence on female hormone balance. According to a research report, the combined therapy of acupuncture, moxibustion, oriental medicine, and clomiphene can increase fertilization percentage, while it can decrease early miscarriage possibility in PCOS (Jiang et al., 2015). In the present research, two of the six subjects who had the PCOS succeeded in getting pregnant (Table 2 & 6). Therefore, it is expected that the application of moxibustion on the CV1 and uterus could cure infertility, improving the related hormone disorder. However, the quantitative data on hormone levels were not investigated in this study. Therefore, further research is required to confirm the effect of CV1 moxibustion on regulating hormone level.

It has been reported that the success rate for getting pregnant with IVF in hospital is about 20–30%, and the average rate of pregnancy after infertility treatment is 30.2% (Hwang et al., 2010; Choi et al., 2013). This successful pregnancy rate was not significant compared to that of oriental medicinal treatment. In another study, 25.8% of women got pregnant in 10.3±8.9 weeks after they received infertility therapy combining medicine, acupuncture, moxibustion, and cupping (Lee et al., 2014). However, in this research, the pregnancy rate of infertile subjects with a single moxibustion on the CV1 and uterus was 14.7%, and they got pregnant in 4.1±0.1 weeks on average. The number of diseases or disabilities related to infertility was 1.5±0.9 on average, and statistically significant general improvements were found for "feeling of cold" and ovarian dysfunction. In addition, other diseases and disorders were improved (Table 6).

The time period of investigation was shorter than that of conventional oriental medicinal infertility treatment. Furthermore, extreme cases were included such as tubal block, hydrosalpinx, ovarian dysfunction, and higher average age (Table 1 & 2). Therefore, the application of moxibustion on the CV1 and uterus is expected to bring about an equivalent or better pregnancy rate to those of complex treatments conducted at hospitals/clinics.

As mentioned in the introduction, the MMI overcomes the chronic problems of traditional moxibustion (burn, blister, rash, and infection). In this study, there was no report of such side effects, or pharmacological adverse reaction.

Especially, all the subjects who participated in the program showed improvements in their infertility symptoms or gynecological problems without any side effects. In this study, the results showed that the CV1 moxibustion has a significant effect in improving "feeling of cold" and ovarian

dysfunction. This suggests that CV1 moxibustion could be effective in overcoming infertility. A further study is required to verify the effectiveness of CV1 moxibustion on the infertility symptoms that have not been studied yet.

In conclusion, applying CV1 moxibustion as a combination therapy for assisted reproduction techniques such as IVF or oriental treatment could offer a successful comprehensive therapy, or intervention methods for oriental infertility treatment. The present study suggests that CV1 moxibustion contributes to an increase of the pregnancy rate, which is an important social issue at present.

Moreover, this study implies that improvements in moxibustion therapy are needed, as it has been relatively less preferred than medicine and acupuncture, which have been widely used to treat infertility in oriental hospitals/clinics (Choi et al., 2013; Won et al., 2014). Finally, this study can be used as a basis of further research on moxibustion on the CV1 and uterus.

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REFERENCES

Cha BH, Ju JH (2011) Consideration on domestic production of materials and consumables for human IVF-ET program. Dev Reprod 15:385-391.

Chen Q, Hau C (2015) Impacts on pregnancy outcome treated with acupuncture and moxibustion in IVF-ET patients. Zhongguo Zhen Jiu 35:313-317.

Cho JY, Kim JW, Park KS, Lee CH, Cho JH, Jang JB, Lee KS, Lee JM (2011) A case report of cold sensitivity of hands and feet patient. J Korean Obstet Gynecol 24: 195-202.

Choi MS, Lee DN, Kim DI (2013) A survey study on use condition of Korean medical institution and demand of Korean medical treatment project of infertility in infertile couple. J Korean Obstet Gynecol 26:151-165.

Chun SH, Wang MJ (2003) The review and study trend of moxibustion. J East-West Nurs Res. 8:135-146.

Hwang NM, Hwang JH, Kim JE (2010) Infertile couples supporting business performance and subject characteristics. In: Evaluation of the National Supporting Program for Infertility Couples and Future Policy Directions in Korea. KIHASA, Seoul, pp 63-69.

Jiang D, Zhang Y, Wu X, Wu S (2015) Infertility in polycystic ovary syndrome treated with acupuncture and clomiphene: a randomized controlled trial. Zhongguo Zhen Jiu 35:114-118.

Kim SK, Park JS, Kim YG, Kim YW, Choi YJ, Son CG, Yoon AR (2012) Sub-fertility status and treatments. In: The 2012 National Survey on Marriage and Childbirth. KIHASA, Seoul, pp 138-145.

Lee DN, Choi MS, Kim DI (2014) Investigation of the current clinical result of Korean medical treatment of infertility. J Korean Obstet Gynecol 27:69-87.

Lee KO, Jang SB, Yoo JS (2008) Content analysis of wormwood smoke (Ssukjahun) experiences in women. J East-West Nurs Res 14:68-77.

Mok KH (2006) Perineum & Anus Cautery as an Inside Meridian System. 5th ed., Saenoon, Seoul, pp 1-360.

Won AN, Choi MS, Kim DI (2014) A review on clinical studies of herbal treatment for infertility caused by polycystic ovary syndrome. J Korean Obstet Gynecol 27:43-56.

Xue Z, Liu CZ, Gao SZ, Ma YX (2014) The herbal-partitioned moxibustion on primary dysmenorrhea and it's impact on reproductive endocrinal function of patients. Zhongguo Zhen Jiu 34:209-212.