



A qualitative study on the experience of acupuncture treatment in infertile women

Eun Sil Min ^{a,1}, Myeong Soo Lee ^{b,1}, Mi-Kyoung Lee ^c, Miyoung Lee ^c, Eunseop Kim ^d, Eunhye Song ^e, Myung-Haeng Hur ^{c,*}

^a Department of Nursing, Daejeon Institute of Science and Technology, Daejeon, South Korea

^b Clinical Medicine Division, Korea Institute of Oriental Medicine, Daejeon, South Korea

^c College of Nursing, Eulji University, Daejeon, South Korea

^d You & Green Women's Korean Medical Clinic, Daejeon, South Korea

^e Global Collaboration Division, Korea Institute of Oriental Medicine, Daejeon, South Korea

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ABSTRACT

Background: This study aimed to record and analyze the experiences of infertile women who underwent acupuncture treatment.

Methods: This is a qualitative study in which in-depth interviews were conducted with women who underwent acupuncture as a treatment for infertility from the viewpoint of phenomenology, a method of understanding human behavior in the general human and social context, and grasping the nature of the experience in depth. The study participants were 12 women who had been receiving acupuncture treatment for infertility for more than 3 months.

Results: After analyzing the statements of the participants' experiences, the main concerns regarding infertility were "embarrassed by unexpected infertility," "overwhelmed with negative feelings," "blocking and defense," "sex as a duty," and "repetition of expectations and failures." Significant statements regarding acupuncture treatments were "body warmth," "becoming a body," "care of the mind," "last trust and hope," and "difficulties of waiting." The experience with supporter was love-hate relationships, and the experience of the children's meaning was expressed as "precious beings in life."

Conclusion: The results of this study suggest that acupuncture treatment for infertility in women results in positive thinking through changes in the body as well as through increased hope. Participants experienced a feeling of warmth in their bodies, regular menstrual cycle, and reduced fatigue through acupuncture treatment, indicating a state of psychological stability.

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1. Introduction

Among a total of 70,543 patients who were diagnosed with infertility for the first time, 69.1% needed infertility treatment, but only 15.7% actually received it.¹ Assisted reproductive technology can lead to mental and physical health problems; 51.5% of women undergoing assisted reproductive technology experience mild depression, and more than 50% of the patients complain about abdominal distension, breast engorgement, dizziness, nausea, and diarrhea.²

It has been reported that a number of patients have been visiting conventional hospitals and Korean medicine (KM) clinics with almost the similar frequency.³ Furthermore, the attitudes of infertile women toward KM infertility treatments including herbal medicine, acupuncture and moxibustion have changed to be viewed in a more positive light.³ Women who received acupuncture had reduced infertility-related stress, improved self-sufficiency, and an increased sensation of physical and psychologic relaxation and calmness.⁴

Infertile women chose acupuncture treatment as an In Vitro Fertilization (IVF) supplement to increase the success of pregnancy.⁵ In most cases, a combination of KM and conventional treatments were recommended.⁶ Several studies reported that complementary treatments increase the success rate of the In Vitro Fertilization (IVF) treatment,^{7,8} and Korean medicine by itself provided before IVF increases the likelihood of a successful natural preg-

* Corresponding author at: College of Nursing, Eulji University, 77 Gyeryong-ro 771 beon-gil, Jung-gu, Daejeon 34824, South Korea.

E-mail address: mhhur@eulji.ac.kr (M.-H. Hur).

¹ Equally contributed.

nancy, while it also relieves menstrual cramping and increases hematological parameter stability of patients.^{9,10}

Many studies reported that acupuncture might be beneficial in increasing the success of natural pregnancy and in vitro fertilization.^{11–13} To date, many studies have focused only on the success of pregnancy, while comparing the effects of treatment and intervention. However, infertile women reported experiencing stress and loss of control over their bodies during pregnancy.¹⁴ Physical and mental problems that may occur during the infertility procedure were not considered to be important. Infertility is a socially difficult subject to discuss for women compared with men who are infertile.

Therefore, this study aims to phenomenologically analyze the participants' experiences during the acupuncture treatment process.

2. Method

2.1. Research design

This study is a qualitative study that conducted in-depth interviews with women who received acupuncture treatment as a treatment method for infertility, and applied the phenomenological method suggested by Colaizzi.

2.2. Selection of study participants

Participants were 12 women who had received acupuncture treatment at a Korean Medicine clinic in Daejeon for more than 3 months for infertility regardless of their success in pregnancy. The inclusion criteria were women who succeeded in conceiving and giving birth through acupuncture treatment and women who agreed to participate in the study and were willing to talk about their experiences through interviews. The exclusion criterion was refusal to be interviewed before or during the interview. In order to maintain homogeneity of the study participants, the purposive sampling method was used, and those who agreed to participate in research with informed consent were selected. The purposive sampling is an appropriate sampling method for identifying information on specific experiences, such as infertility treatment with acupuncture.¹⁵ We sampled participants who used acupuncture treatment for infertility by applying the purposive sampling method and qualitatively assessed the experiences of the acupuncture treatment of subjects with various treatment periods.

2.3. Data collection

The data was collected from April 20, 2018 to October 19, 2018, and the researcher collected the data through one-on-one in-depth interviews. In this study, in-depth interviews were conducted with 12 participants, and data collection was stopped when it was judged that no new qualitative data were available.¹⁶

All 12 patients went through two interviews. The interview was conducted in a private place where participants could comfortably talk. The interview was mainly conducted in an independent counseling room located in a clinic or a coffee shop near the house. The first in-depth interview was approximately 1 h to 1 h 30 min long, while the second interview took approximately 40 min to 1 h. In order to prevent errors and omissions in the interview data, the interviewer recorded the interview using two recorders after obtaining consent.

During the first interview, open-ended questions were asked. The interviews were recorded with the consent of the participants, and the recordings were transcribed. A second interview was conducted based on the analysis of the recording of the first interview. The second interview was conducted until it was determined that

no new data could be recorded and until the saturation state was reached. In the second interview, the researcher confirmed the information provided during the first interview and asked the participants to share their experience. The interview began with an open question, "Please describe your experiences or feelings associated with infertility and acupuncture treatment." As the interview progressed, the participants were asked, "What was the nature of the support provided by the people around you?" and "What is the meaning of a child in your life?" The interviewees were given adequate time to answer the questions.

2.4. Data analysis

The general and obstetric characteristics of the patients were analyzed using the IBM SPSS 24.0 version (IBM Corp., Armonk, NY, USA) program. In addition, qualitative data on acupuncture treatment experiences were analyzed according to Colaizzi's analytical procedures.

- 1) Familiarization: The recorded material was repeatedly played to grasp the feelings of patients and their experiences. Through this step, researchers familiarized and confirmed the feeling and the experience of infertile women.
- 2) Identifying significant statements: Through the scripted data, a meaningful sentence related to the experiences of acupuncture treatment of infertile women was extracted.
- 3) Formulating meanings: The more general statements were identified to form meanings related to acupuncture treatment experience in infertile women.
- 4) Clustering themes: Themes were derived by classifying those with similar meanings from the extracted statements and restatements. The theme clusters were composed by integrating similar themes. After that, categories were organized by theme clusters.
- 5) Developing an exhaustive description: The phenomena presented by the experience of acupuncture treatment of infertile women was clearly described.
- 6) Producing the fundamental structure: The experiences of acupuncture treatment for patients with infertility were described by category, theme clusters, and themes.
- 7) Seeking verification of the fundamental structure: In order to confirm the validity of the derived experiences, the stated participants' experiences were presented to them and the degree of agreement among them regarding the experiences was confirmed.

2.5. Validity

In order to secure the validity of the research results, four items, Lincoln and Guba's standards of factual value, applicability, consistency and neutrality, were established. In order to secure factual value, patients who experienced acupuncture treatment among infertile women were selected, and open questions were used to allow the patients to fully express the experience. After the interview, the researcher wrote out the answers, and the analyzed data were reviewed by the participants in order to confirm if their intension was reflected well. To increase applicability, data were collected until saturation and until it was determined that no new data were available. In order to improve the consistency, the research was conducted continuously by consulting with one professor of nursing who has conducted many qualitative studies. In order to exclude patientive views or biases, efforts were made to ensure neutrality by avoiding questions or judgments involving the researcher's intentions.

Table 1
Demographic characteristics of study population.

Patient	Age (year)	Education level	Occupation	Menstrual cycle	Body mass index (BMI)	Years of marriage (year)	Infertility period (year)	Duration of acupuncture treatment (month)
1	29	College	Housewife	Regular	16.6	1.5	0.7	6
2	43	College	Housewife	Regular	19.0	3.0	2.0	14
3	41	College	Teacher	Irregular	19.7	4.0	2.0	8
4	33	College	Office worker	Regular	18.3	2.0	1.0	5
5	34	College	Housewife	Regular	19.1	3.0	2.0	24
6	34	College	Housewife	Irregular	22.0	3.0	2.0	15
7	48	High school	Housewife	Irregular	21.1	4.0	4.0	24
8	45	College	Personal business	Irregular	19.1	4.0	4.0	12
9	36	College	Child caregiver	Irregular	18.8	2.0	2.0	3
10	33	Graduate school	Researcher	Regular	20.3	4.0	3.0	15
11	33	College	Housewife	Irregular	31.2	4.0	2.0	5
12	30	College	Housewife	Irregular	24.6	4.0	2.0	14
Average	36.6	-	-	Irregular	20.8	3.2	2.2	12.1

2.6. Ethics review

This study collected data after receiving approval (EU18–23) from the Institutional Review Board of Eulji University. Before the interview, the study purpose and methodology, duration of participation, privacy and confidentiality were explained. In addition, even after participants opted in to participate in the study, they had the choice to opt out if they did not want to proceed. The study was conducted on only those who voluntarily signed the informed consent form after receiving a full explanation regarding the study and about withdrawing from research anytime and the need to record their interviews for the purpose of accurate analysis. In addition, participation fee was paid as an appreciation for participation in the study.

3. Results

3.1. Demographics of participants

Participants in this study were 12 women who received acupuncture treatment for infertility (Table 1). Ages ranged from 30 to 48 years with an average age of 36.6 years, and the period of infertility ranged from eight months to four years with an average of 2.2 years. The duration of acupuncture treatment ranged from 3 months to 24 months with an average of 12.1 months.

3.2. Experiences of infertility of study participants

While analyzing the answers of participants diagnosed and treated for infertility, the main topics of concern included “embarrassed by unexpected infertility,” “overwhelmed with negative feelings,” “blocking and defense,” “sex as a duty,” and “repetition of expectations and failures.”

3.2.1. Embarrassed by unexpected infertility

The participants believed themselves to be fertile and that marriage would result in pregnancy. Thus, they were embarrassed when they were diagnosed with infertility or got infertility-related treatments.

“I never thought I was infertile,” “I just thought I was healthy,” “Never even imagined about infertility.” “I lost my mind with the most shocking experience of my life,” “I thought all women could be pregnant,” “It was hard to accept the fact that it was infertility.”

3.2.2. Overwhelmed with negative feelings

Participants experienced loneliness, loss of self-confidence, and feelings of pressure through infertility diagnoses. Most of

them answered that they felt like it had happened only to them.

“Everyone is pregnant except for me,” “I feel depressed when I hear about news of pregnancy of friends or neighbors”, “I feel like a drop-out or a loser”, “I feel guilty that I did not manage my health well.” “I can feel I am losing self-confidence.”

3.2.3. Blocking and defense

As participants experienced infertility, they experienced losing conversations or relationships with those around them. They talked to their spouses, sisters, aunts, friends, mothers, friends or those who they met at clinics and those who had the same issues. Sometimes, they avoided serious conversations with their mothers.

“I can’t talk to people who have children,” “I get encouraged by comments and postings online,” “My friends would not feel sympathy even if I shared my experience with them,” “I cannot say anything at traditional holidays,” “I’m stressed to attend family gatherings”, “I make excuses not to attend a baby’s first birthday party”, “I tend to hang out with people who are not pregnant.”

3.2.4. Sex as a duty

Participants said that they felt sex was like homework and a tool to become pregnant that they had to endure. Even if they felt bad on the days of ovulation, they calculated sex time in advance to increase their chances for pregnancy.

“There are times when I have sex as homework”, “If I miss the date (ovulation), I have to wait for another month,” “I’m nervous when my husband is late or having dinner with colleagues,” “I have to endure and not fight even if I feel bad.”, “Sex has become mandatory.”

3.2.5. Repetition of expectation and failure

As participants received treatment for infertility, they experienced nervousness and anxiety with waiting to check pregnancy status. They also answered that they had to fill their emptiness. Some participants could not discard the used pregnancy testers and collected them. Most of them also felt frustrated after expecting pregnancy and then finding out that the tests failed.

“It’s too hard to wait until I become pregnant.”, “Before menstruation, I become very sensitive to my body.”, “When my periods began, I would get irritated and angry.”, “I tried my best but failed again.”, “I’m too nervous before checking if I am pregnant.”, “I am thankful that there is another chance”, “I think there is a chance once a month.”

3.3. Experience of acupuncture treatment of participants

Analyzing the data collected from the infertile women who experienced acupuncture treatment, the main topics were as follows: five meaningful factors that affected experiences: “body warmth,” “becoming a body,” “care of the mind,” “last trust and hope,” and “difficulties of waiting.”

3.3.1. Body warmth

The most common comment regarding acupuncture treatment was an increase in body temperature, including whole body, abdomen, hands, and feet. They felt that their bodies were warming up when receiving acupuncture treatment, and they realized that their bodies were changing.

“I usually got cold in winter, but I could feel that my body temperature went up.” “I used to always glue hot packs on my body, but I could feel that I do not need that anymore”, “My hands, feet, and abdominal area used to always be cold, but it has improved.”

3.3.2. Becoming a body

Participants stated that they experienced physically positive changes, which included changes in menstrual cycle regularity, decreased menstrual cramps, reduced fatigue, improved digestion, and a normalized menstrual cycle.

“The period of my menstrual cycle has become constant.”, “The menstrual cramps have decreased.” “I can feel that I have become healthy.” “I have a belief that I will be pregnant.”

3.3.3. Care of the mind

Participants experienced psychological stability and comfort with herbal treatments including acupuncture treatment. They stated that they felt psychologically stable and experienced emotional comfort. They described that they felt like their heart was taken care of, they became comfortable, relaxed, and positive. They also said that they could psychologically rely on the medical professionals, and their encouragement helped a lot. At the same time, they stated that their own psychological efforts were necessary. As they received acupuncture treatment, they became psychologically stable. During treatment, they could share their difficulties and worries, get encouraged, and felt sympathy with other infertile people. As a result, they felt comfort and psychologically stable.

“When I get treated in western medicine clinics, I am just one of their many patients. They talk so cold and. . .”, “Obstetric doctors inform us of the ovulation day, and that’s it.” “The herbal medicine doctors don’t just treat with acupuncture treatment but also take care of me psychologically.” “Receiving acupuncture treatment, I got psychological comfort and strength.”

3.3.4. Last trust and hope

Participants commonly experienced fears of not knowing the specific cause of infertility and frustration of not getting pregnant. However, they stated that, while they were receiving acupuncture treatment, they felt hope in being treated as they became aware of the specific causes of infertility and the kinds of treatments they needed. They also stated that they experienced trust and hope every time changes in their uterus were explained to them.

“I was told that it would be difficult to become pregnant in the western medical clinics.” “The western medical clinic said that there was no problem.” “I did not want to receive treatment at the western medical clinic.” “Acupuncture treatment is the last hope.” “Traditional herbal medicine found the causes; now what I have to do is get treated.” “I felt hope after witnessing a lot of other infertile people get pregnant after receiving acupuncture treatment.”

3.3.5. Difficulties of waiting for the treatment process and outcome

Participants in the study tried to treat various treatments such as acupuncture, but they had to wait, be thrilled, and expressed their expectation and exhaustion for acupuncture treatment. Participants in infertility had to wait constantly, experienced fear only when confronted with the outcome, and experienced loneliness in which they could not build consensus with others. While asking people around to wait, expectations and failures were repeated, and while there was anticipation for treatment, participants were tired from the long treatment. It was also helpful to not take pregnancy tests often.

“Waiting for pregnancy to be confirmed is too difficult”, “Before menstruation, I become sensitive to some reactions from my body”, “When I have menstruation, I get irritated and angry.” “, “Before the pregnancy test is performed, I am very nervous.”

3.4. Supports from their Surroundings and Children as precious beings in life

3.4.1. Support from their surroundings—love-hate relationships

Participants stated they had financial burdens with acupuncture treatment. Financial problems brought on feelings of hope and despair, and their husbands’ support was essential. They described that their relationship with the husbands was a love-hate relationship; their husbands provided the most essential support that they relied on but it was also the relationship that they hated the most at times.

“I feel sorry for my husband.” “I think I might not be able to do what my husband wants.” “I’m annoyed by my husband’s attitude; he’s emotionless.” “It is not fair that what men have to do is to get tested and that’s it while women have to keep doing something.” “My husband’s too positive, and it makes me more frustrated because I might not be able to become pregnant.” “My husband is the one who cheers me on the most.”

3.4.2. Children as precious beings in life

They described their children as a link that keeps couples together, a precious gift that makes them smile and brings happiness.

“Children can give me happiness”, “I do not make a child; I receive a child as a precious gift”, “No pregnancy until a child finds me and comes to me”, “No matter how much I want pregnancy, it has to be done as predetermined.” “Children make home and life perfect”, “Children connect me with my husband”, and “I am too eager to give up pregnancy.”

4. Discussion

This study was conducted to understand the meaning and nature of experiences of women diagnosed with infertility and treated with acupuncture treatment in Korean society. We found that infertile women who received acupuncture treatment may think positively about their experiences in body changes and experiences with feeling hope. The five main meaningful experiences of participants with infertility were “embarrassed by unexpected infertility,” “overwhelmed with negative feelings,” “blocking and defense,” “Sex as a duty,” and “trepeated expectations and failures.” Five meaningful experiences after acupuncture treatment were “body warmth,” “becoming a body,” “care of the mind,” “last trust and hope,” and “difficulties of waiting.”

The main themes derived from participants for pregnancy were denning the fact of infertility, striving constantly for pregnancy, and having hopes for the future. They became frustrated and denied

the fact that they were infertile and often made comments such as they were “embarrassed by unexpected infertility” and “overwhelmed with negative emotions”. Participants also said, “I have never imagined infertility,” “I thought all women could be pregnant,” “I thought it was karma,” “Maybe because I had not taken care of my body well.” The patients visited clinics for difficulties related to pregnancy and were emotionally shocked when they were diagnosed with infertility, which was totally unexpected. Many of them blamed themselves and their past life. The results were consistent with the results from a previous study¹⁷; they experience stress and uncertainty regarding the success of pregnancy.¹⁴

Infertility made them feel a loss of identity, incompetence, incapable of playing the role as a woman, and incapable of connecting their family generations. The participants also felt that pregnancy and childbirth were women’s roles, and they felt emotional suffering as a fallout because they thought they could not accomplish this task and contribute to building a family. They were more likely to experience depression compared to men.^{18,19} Therefore, it is important to support infertile women emotionally and psychologically and to provide social support as well as medical interventions so that they can understand and overcome the situation they face.

Each patient’s struggle for pregnancy in this study revealed experiences such as “blocking and defense”, “sex as a duty” and “repetition of expectation and failure”. They tried to rely on or harmonize with their husband for pregnancy and defended themselves by blocking social life in order to overcome difficulties and pressure from the society they faced related to pregnancy and children. They felt loneliness and isolation when surrounded by people who had children because they blamed themselves. This result was also consistent with previous studies,^{17,20} which reported experiences of disconnection and loss of relationships with other women. Participants stated, “my husband is the one who cheers me on the most.” Which was consistent with another study.²¹ Husbands are the only companion to overcome these difficulties. In contrast, some participants did not have the support of their husbands or their families. In their meetings, they felt comfortable with people who faced the same issues. These results showed that various support programs are needed for these infertile women.

Participants in this study who expressed their obligatory goal of become pregnant through a routine sex schedule said that “when my husband gets home late or has dinner with colleagues after work, I get very nervous” and “I have to be patient even when I am mad because I should not fight.” Participants waited for the day designated as likely to conceive every month, and on that day, they tried to create an unnatural atmosphere and feelings for their sex, waiting for their husband to have a chance of getting pregnant. For them, their sexual life was perceived as homework that should be solved for pregnancy, not a loving relationship, as it appeared only as a dry sense of duty, and not as a way to increase intimacy and love between couples. These findings supported the findings of previous studies,^{22,23} that reported unsatisfactory sexual life resulting from infertility. One other study found that the husband’s active attitude toward the treatment of infertility increased the intimacy and marital satisfaction of the couple.²⁴ Therefore, when couples actively solve the problems related to infertility, the quality of marital relations can be improved, and the unsatisfaction associated with infertility can be reduced by reducing the resulting stress.

Participants who had been focusing on the infertility treatment stated, “I get mad when my period starts,” “I tried to do my best but it failed again,” “I am thankful that there’s another chance next month,” “I think there is a chance every month.” Repetition of expectation and failure throughout the infertility treatment supported the research results^{25,26} that the patients experienced severe burnout due to physical, psychological and economic burden during the treatment process. Infertility treatment was a journey

of finding possibilities in repeated trial and errors, and participants were exhausted as time passed. Therefore, a multi-disciplinary approach is needed to relieve the burden of their journey through the assessment of physical, psychological and economic aspects experienced during the infertility treatment.

The hope for the future was described with experiences of “body warmth”, “becoming a body”, “becoming mentally stable” and “feeling that acupuncture treatment was their last hope”. Participants who failed to get pregnant after repeated treatments or had a diagnosis made at western medical clinics where it was found that there was no problem with infertility, chose acupuncture treatment as the final method. Therefore, infertile women use not only clinical procedures and treatments but also traditional methods.²⁷ In a previous study, women who received IVF treatment received acupuncture treatment to increase the success of pregnancy.⁵ Participants experienced psychological stability resulting from an increase in body temperature, regular menstrual cycle, and reduced fatigue through acupuncture treatment. These results are consistent with previous studies that acupuncture treatment raises body temperature.²⁸ Many previous studies have suggested a positive effect of acupuncture in the treatment of infertility. Acupuncture treatment has been shown to increase the frequency of ovulation in women with ovulatory dysfunction.²⁹ This ovulation improvement is reported to be due to the secretion of beta-endorphins through acupuncture treatment, which affects the secretion of GnRH in the hypothalamus and gonadotropin in the pituitary gland.³⁰ Acupuncture treatment improves the result of intrauterine implantation by reducing blood flow impedance of the uterine artery and improving blood flow.³¹ In addition, women with infertility experience increased anxiety and depression,³² and stress and anxiety can be factors that exacerbate the outcome of pregnancy.³³ However, the women who received acupuncture treatment showed reduced stress related to infertility and improved self-sufficiency⁴ and expressed that they feel physical and psychological relaxation and tranquility.³⁴ As described above, while receiving acupuncture treatment, they learned the specific cause of infertility and gained hope for specific treatment plans. Participants in this study who looked for hope became positive as they experienced changes in their bodies, indicating that acupuncture treatment can help and encourage infertile women not only clinically but also psychologically.

However, as a limitation of this study, the results are not generalizable since infertile women who experienced acupuncture treatment were selected from one oriental medicine clinic. Furthermore, the patients who received acupuncture treatment were slightly different in terms of their experiences, such as that with western medicine treatments and past experience with receiving acupuncture treatment, and those who had abortions.

In conclusion, acupuncture treatment may have a positive influence on body changes and improve the psychological aspects of patients including their feelings of hope. Participants were shown to feel psychologically stable while experiencing “body warmth”, regular menstrual cycle, and reduced fatigue through acupuncture treatment with hope for the treatment. In the future studies, the body temperature, days of the menstrual cycle, etc. could also be considered to confirm the implications of this study. Acupuncture treatment can help and encourage infertile women not only clinically but also psychologically. However, research with a more detailed classification of patients is recommended for future.

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Author contributions

Conceptualization: E.S.M., M.S.L., M.-H.H.; Data curation: E.S.M. M.-K.L.; Formal analysis: E.S.M., M.-K.L., M.L.; Funding acquisition: M.S.L., M.-H.H.; Investigation: E.S.M., E.S.K., M.L., E.S.; Methodology: E.S.M., E.S.K., M.-H.H.; Project administration: M.-H.H.; Resources: M.S.L.; Software: E.S.M., M.L.; Supervision: M.-H.H.; Validation: M.-K.L., M.-H.H.; Visualization: E.S.M., M.L.; Roles/Writing—original draft: E.S.M., M.S.L., M.-K.L.; Writing—review & editing: M.L., E.S.K., E.S., M.-H.H.

Conflicts of interest

The authors declare no conflict of interest.

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Ethical statement

This study collected data after receiving approval (EU18–23) from the Institutional Review Board of Eulji University.

Data availability

The data will be made available upon request.

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