Aims and Scope

The Korean Journal of Women Health Nursing is the primary source of information for meeting the challenges of providing optimum healthcare for women. This authoritative peer-reviewed journal publishes the latest clinical and research papers on health issues that affect women throughout their lifespan. The Journal aims to be the core resource for cutting-edge advancements and clinical applications of new nursing practice, therapeutic protocols for the management of health problems in women, and innovative research in gender-based issues that impacts treatment and nursing care.

The emphasis of the journal is on clinical nursing practice and education on the social science components relevant to women’s health issues. Topics covered include nursing care, education and research methodology for ante-, intra-, and post-partal women, for middle aged and elderly women’s health, and for socio-cultural issues and therapies.

About the Journal

The Korean Journal of Women Health Nursing (KJWHN) is a peer-reviewed official journal of the Korean Society of Women Health Nursing of the Republic of Korea (South Korea). It was launched in 1995 under its previous title, the Journal of Korean Women’s Health Nursing Academic Society (Vol. 1, no. 1, 1995 - Vol. 6, no. 1, 2000, pISSN: 1225-9543), and the Journal of Korean Academy of Women’s Health Nursing (Vol. 6 No. 2, 2001 - Vol. 7 No. 2, 2001, pISSN: 1225-9543).

Since June 2012 it has continued under the current title, the Korean Journal of Women Health Nursing (Vol. 18 No. 2, 2012- present, pISSN:2287-1640, eISSN:2093-7695). The official abbreviated title is Korean J Women Health Nurs. It is published quarterly on the last day of every March, June, September, and December. Any supplementary or special issues may be published. The number of print copies per issue is 60. The copyright, including the right of online transmission, is owned by the Korean Society of Women Health Nursing. This journal is supported by a Korean Federation of Science and Technology Societies grant funded by the Korean government (Ministry of Science and ICT).

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Year in review and appreciation for 2020 reviewers

Sue Kim

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Year in review and preparing for 2021

This year KJWHN transitioned to a greater number of review articles and an increase in manuscripts available in English. Out of the total number of original manuscripts this year we have published six review papers (including four in this issue), and will continue to welcome integrative reviews, scoping reviews, and systematic reviews and/or meta-analyses that fit our aims and scope. As for increasing English manuscripts in 2020, 13 out of 38 published papers (34.2%; 32 unsolicited, six commissioned manuscripts) and seven out of 32 unsolicited articles (21.9%) were published in English, which will no doubt promote visibility of the important contributions of our authors. KJWHN seeks to steadily increase the proportion of English manuscripts for the benefit of our readers, especially those that offer an international perspective.

This year KJWHN published rich topics in our Issues and Perspectives section, starting with the push for nurses to become more familiar with artificial intelligence (AI) in research, education, and practice [1]. COVID-19 has brought limitations in both in-class teaching and clinical practicum, especially for women’s health nursing education. It has also heightened the importance of big data and digital competency. As such, we hope to see more research on how nurses have used digital technology in teaching and are exploring AI application in research and practice.

Another issue paper analyzed the impact of COVID-19 on women and underscored the need for a gendered perspective of data collection in Korea [2]. Since then, an analysis of published COVID-19 research papers have shown that women’s authorship is disproportionately low [3]. Also a study on work status following COVID-19 in Gyeonggido province, Korea, reported how women’s work is being negatively affected while their caregiving burden is increasing [4]. Although gender inequalities in health care is not a new issue, it has certainly emerged with greater importance since COVID-19 [5] and will no doubt challenge us to approach the multiple issues relevant for women with the ongoing pandemic. KJWHN invites commentaries or original manuscripts specifically on COVID-19 impact on women’s health.

In response to our third issue paper’s challenge to nurses and midwives to share their stories as a
way to inform the public and promote our profession [6], the Korean Society of Women Health Nursing sent out a call for creative submissions related to nursing and women’s health. Readers can find the essay that won first prize in this issue of KJWHN, and other selected works are posted on the society’s webpage (https://women-health-nursing.or.kr/).

Our last issue paper (December issue) presents a call to action for strengthening midwives as a strategy to alleviate the ultra-low birth rate in Korea. The challenge of Korea’s low birth rate demands serious attention and the Presidential Committee on Ageing Society and Population Policy (PCASPP) has announced the Fourth Framework Plans for Korea on December 15, 2020, which will be the road map for the period 2021 to 2025 [7]. This Framework Plan does not specifically note the potential role of midwives and KJWHN intends to follow up on these developments in 2021, with a paper from PCASPP members and/or key experts.

On another note, author guidelines have been updated as of the December 2020 issue for manuscript length (English manuscripts within 5,000 words, excluding tables, figures, and references) and removing the restriction of overall number of references (although supportive citations in the text should be two or less per argument). These changes have been made to reflect international trends and are available online.

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Journal statistics

Data on manuscripts submitted to KJWHN this year, as of December 19, 2020, are presented in Table 1. While there have been reports of manuscript submissions fluctuating and review
processes taking longer with the ongoing COVID-19 [8], KJWHN is fortunate to have had a steady flow of submissions and we thank our authors and society members for their dedication to research and dissemination.

Upcoming developments

In 2021 KJWHN will offer a series of methods papers on instrument development and validity and reliability, and statistical reports relevant to women’s health in Korea, as collaborative work with Statistics Korea. As noted above, KJWHN will also continue to follow the issues on the ultra-low birth rate in Korea. We hope you will stay tuned for these developments and consider becoming an active part of the dialogue by submitting your scholarly works for publication.

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Authors’ contributions

All work was done by Kim S.

Conflict of interest

Sue Kim has been editor-in-chief of the Korean Journal of Women Health Nursing since January 2020. She was not involved in the review process of this editorial. Otherwise, there was no conflict of interest.

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Data availability

Please contact the corresponding author for data availability.

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Table 1. Basic statistics on manuscripts submitted to the Korean Journal of Women Health Nursing in 2020

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Introduction

According to the Presidential Committee on Ageing Society and Population Policy, the budget to address the low birth rate in South Korea has increased by 21.1% per year on average since 2011, reaching 209.5 trillion Korean won (approximately 190.1 billion US dollars) in total during the last 10 years, but the total fertility rate nonetheless decreased by 0.32, from 1.24 in 2011 to 0.92 in 2019. South Korea’s total fertility rate (0.92) was the lowest among 37 Organization for Economic Co-operation and Development (OECD) member countries [1].

In South Korea, the total number of births in 2019 was 300,787, which is 9.2% lower than the corresponding number in 2018 (327,119). The number of obstetric medical institutions also decreased dramatically from 808 in 2010 to 541 in 2019 [2].

Along with the low birth rate, advanced maternal age in South Korea has reached an alarming level, with more than one mother in five being older than 35 years. The obstetric infrastructure in South Korea is crumbling due to the accelerating closures of obstetric hospitals resulting from the low birth rate and low reimbursement rates for obstetric procedures [3]. In the last 10 years, around 17% of obstetrics and gynecology residents have left their training programs each year, and even obstetricians are giving up on performing deliveries. Thus, the number of delivery rooms is decreasing, and the remaining departments of obstetrics are clustered in the metropolitan areas of Seoul, Gyeonggi Province, and Busan [3]. In response to this situation, the government has designated some rural parts of the country as vulnerable areas since 2011 and provides funds to establish and operate obstetric facilities [4]. However, these measures have not halted the collapse of obstetric infrastructure nor the decrease in the number of obstetric facilities [2,3].

Keywords: Birthing centers; Birth rate; Midwifery
In addition to hospitals and obstetric clinics, the number of birth centers where deliveries occur has steadily dropped from 126 in 2000 to 34 in 2014, 18 in 2016, 16 in 2017 and 2018, and 15 in 2019. There were 652 births in birth centers in 2010; this number increased to 1,260 in 2012 and 1,226 in 2016, before plunging to 912 in 2017, 712 in 2018, and 683 in 2019 [2,5].

In 2019, there were 683 deliveries in 15 birth centers, corresponding to an average of 45.5 deliveries per birth center. Although this value is much lower than the average of 385 deliveries per hospital (100,135 births in 260 hospitals), the focus should be on the fact that 11.8% of deliveries at obstetric clinics occurred in birth centers [2].

According to previous analyses, important factors contributing to women's interest in delivering in a birth center include the trend for more women to refuse over-treatment that commonly occurs in-hospital settings and desiring baby- and family-focused natural birth that they can be active partners in [6].

This article first discusses natural birth led by midwives in Australia, the Netherlands, Japan, France, and the United Kingdom, with a focus on mothers' satisfaction and incidence of postpartum complications. This is followed by the second topic, the urgent need to promote midwives in South Korea.

**Natural birth led by midwives in other countries**

In a literature review that compiled 23 quantitative studies and nine qualitative studies from around the world about birth outcomes in birth centers, mothers who experienced delivery in birth centers reported trust in the professionalism of midwives, a comfortable and natural birth experience, and satisfaction with personal nursing care from midwives [7].

In Queensland, Australia, delivery by midwives was found to be cost-effective, as the establishment of trust between mothers and midwives reduced women's fear of delivery, which led to an increased rate of natural delivery and a lower rate of cesarean sections [8]. In the Netherlands, the number of midwives increased more rapidly than the number of obstetricians from 1998 to 2007, and the proportion of births in hospitals attended by midwives increased from 8% to 26% during this period [8].

A Dutch cohort study with 223,739 pregnant women found that women who received midwife-led care had lower rates of severe acute maternal morbidity, postpartum bleeding, and placental detachment than women who received obstetrician-led care. Based on these results, the Dutch cohort study found that there is no evidence that delivery by midwives is riskier if the country has a well-established maternal care system with standards to categorize the level of risk of high-risk pregnancies and a transfer system to higher-level hospitals in emergency situations, such as postpartum bleeding [9,10].

Japan experienced a shortage of obstetricians earlier than South Korea, starting in the 1990s. As a result, Japan experienced the social phenomenon of “birth refugees,” or women who did not have anywhere to deliver due to closure of regional obstetric clinics. This phenomenon resulted in a deterioration of maternal and child health, including suicide among pregnant women, mental health disorders, postpartum depression, and an increased rate of child abuse, which led to the enactment of the Comprehensive Support System for Children and Childrearing based on the Act on Children and Childrearing Support in Japan [11]. The Japanese government recommended using midwives as a measure to resolve the abovementioned issues. This was because midwives can provide continuous care for women from the prenatal to postpartum periods, and are qualified personnel who can protect the health of mothers and babies as medical staff in collaboration with physicians. In addition, an in-hospital birth center system has been actively adopted, through which midwives, together with physicians, can lead the delivery while ensuring respectful care for the family and can provide care up to 1 month postpartum. These birth centers are facilities where midwives, not physicians, help with delivery and are usually utilized by pregnant women who are younger than 35 years or who have a low risk of hypertension or diabetes. Prenatal check-ups and care until delivery are received in obstetric clinics, and women can then choose to deliver either in a birth center or a hospital so that a healthy delivery can be supported by natural birth led by midwives [12,13]. Currently in South Korea, the Houn Birthing center and Houn OB/GYN Clinic (http://houm.co.kr) exist as an example of a birth center and an obstetrician operating in close collaboration.

France is well known for its efforts to overcome low birth rates through policy measures, which have been implemented in various forms for over 100 years. All medical, hospitalization, and treatment fees that occur after the 6th month of pregnancy are covered by public health insurance (pregnancy insurance) with no out-of-pocket cost. The first prenatal check-up and postpartum check-up have to be done by physicians, but other prenatal and postpartum check-ups can be done by either midwives or physicians [12]. Another example is the United Kingdom. The National Health Service in the United Kingdom has hired 21,000 midwives, compared to 4,710 obstetrics/gynecology (OB-GYN) physicians. Unlike midwives in the United States, midwives in the United Kingdom operate as independent practitioners. They can prescribe drugs needed for delivery and
have prescription rights for pregnant women and babies through standard treatment orders, whereby the first prescription is made by a physician, and subsequent ones by midwives [12]. However, the shrinking workforce of midwives following the retirement of midwives currently in their 50s and 60s has put maternal care at risk. The Department of Health and Social Care in the United Kingdom has stated that valuing midwives is vitally important in terms of health care for pregnant women, and is also making efforts to reduce the number of cesarean sections, excluding cases where natural birth is impossible or unsafe [14].

Training midwives in South Korea: an imperative for maternal–child health in an ultra-low birth rate era

In order for South Korea to reap the benefits of the midwifery systems that have been implemented internationally, it is vitally urgent to implement a sustainable system of training a sufficient number of capable midwives. However, the number of midwives in training is small and this is related in part, to limitations in designated training centers. According to the Korean Midwives Association (KMA), there were seven trainees in Busan Ilsin Hospital, two in Gyeongbuk Andong Sungso Hospital, and four in Seoul Gangbuk Samsung Hospital in 2019; these trainees received training for 1 year, and 12 passed the exam in 2020, excluding one who failed [15]. Busan Ilsin Hospital is the only training institution that admits applicants from outside of their hospital, but the training program will be discontinued after completing education of current trainees in 2020, due to financial difficulties. The KMA and Busan Ilsin Hospital tried to continue the training program with financial subsidy from the government, but did not receive government support. This is in stark contrast to governmental support for nursing assistant training. Applicants for nursing assistant positions can open a vocational competency development account at the Employment Information Service and receive 80% to 100% support for a year of training expenses to become a nursing assistant, depending on their amount of health insurance co-pay. They also receive an additional training allowance if their attendance is higher than 80% [16]. Compared to the government subsidy given to training nursing assistants and considering the important contributions of midwives to maternal-child health through their social competency and scope of practice, the fact that there is no government support to train midwives should be carefully reconsidered, given the need to overcome the ongoing serious problems of an ultra-low birth rate in South Korea.

The need to evaluate the adequacy of medical care in Korea is another issue. Although Korea’s Article 38, Clause 1, Attached Table 5 of the Medical Act Enforcement Regulations stipulates that more than one-third of nurses in obstetrics should be midwives, there are no enforcement or intervention measures to support this specification. In 2019, 87% of vaginal births in Korea occurred in OB/GYN specialized hospitals or clinics [17].

Due to issues such as the reimbursement rates for obstetrics being lower than the costs [3], nursing personnel in women’s hospitals (specializing in reproductive health) and OB/GYN clinics are being replaced by nursing assistants. The stark fact of these facilities is that not a single registered nurse is working, except for nurse managerial personnel, not to mention midwives [18]. While other OECD countries such as Australia and the Netherlands train midwives to take charge of normal deliveries [8-10], women in South Korea, also an OECD country, are generally unaware of the serious reality that most of the staff in women’s hospitals where they deliver are nursing assistants [17,18].

Government support for the midwife training process, which costs approximately 24 million Korean won (nearly 22,000 US dollars) per person per year as of mid-December 2020, can be an important strategy for responding proactively to Korea’s low birth rate. Moreover, the requirements for midwife training institutions need to be changed. Current legal requirement that the institution needs to be a training hospital for OB/GYN and pediatrics should be removed, as the number of such training hospitals is rapidly decreasing. The stipulation that the institution must perform more than 100 deliveries per month should also be relaxed, as the number of deliveries is decreasing due to the very low birth rate. As such, the range of institutions should be expanded to hospitals that are certified as medical facilities and perform more than 50 deliveries per month. Another alternative model is possibly adapting the training model of resident physicians, who work and are duly paid for their on-site training (80 hours/week). In similar context, nurses, already a licensed professional, should also be able to work and receive nominal payment as a midwife-in-training. If it were to be possible to employ labor and delivery unit nurses and offer concurrent midwifery training, i.e., aligning the same model that exists for resident training, this would facilitate more midwife training programs to function. The KMA can implement midwife training programs with these hospitals by signing memoranda of understanding. The government should also regulate and financially support obstetric hospitals so that they can abide by the current regulation stipulating that more than one-third of the nursing staff should be midwives.

In Korea, a recent study found that midwives who work in
hospitals reported considerably lower professionalism and job satisfaction than those who work in birth centers [19]. In order for midwives working in hospitals to effectively accomplish their main responsibilities as midwives, the in-hospital birth center operation model, where midwives take charge of normal pregnancies, is needed in South Korea. For midwives who operate independent birth centers, the British model where midwives have prescription and admission privileges for emergency situations such as postpartum bleeding, is necessary to ensure safety management for women who may need critical care.

**Conclusion**

The rapid crumbling of the obstetric infrastructure due to the ultra-low birth rate is a serious reality that South Korea faces. In order to overcome this situation, the Korean government should support the training of capable midwives and establish a system that gives independent birth centers emergency standard prescription privileges, as in other countries. Women should be given the choice to receive midwife-led care for normal pregnancies by establishing birth centers in hospitals. If a pregnancy becomes high-risk, establishing a system to quickly transfer the patient to a hospital is also needed. These strategic measures will allow midwives to play a pivotal role in counter-acting the ongoing crisis of low birth rate in South Korea.

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**Authors’ contributions**

All work was done by Kim YM.

**Conflict of interest**

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Introduction

Intimate partner violence (IPV), which includes controlling behavior, is one of the most common forms of violence against women [1]. In the study of García-Moreno et al. [2], IPV was defined as "any behavior within an intimate relationship that causes physical, psychological, or sexual harm to those in the relationship". In recent years, IPV has become an important public health issue. The incidence of violence against women, including sexual assault, is high worldwide [3], and despite ongoing movements and interest in fighting against violence - women, its incidence is not decreasing. According to a World Health Organization (WHO) report, 59% of women aged between 15 and 49 years worldwide have experienced forced sexual or physical abuse by their partners at least once [3]. A 2018 report in Korea also reported that at least 824 women had been killed, and at least 602 women had been placed at risk of death, in the past 9 years by IPV [4]. This finding indicates that IPV is also a prob-
Violence, caused by a power imbalance in close relationships, has recently been acknowledged as a serious social problem that needs to be addressed \[5\]. The power imbalance within traditional gender norms and close relationships directly or indirectly increases the vulnerability to violence within close relationships, causing the victim to be receptive to the other party’s violent behavior \[6\]. Moreover, traditional gender norms and power disparities increase society’s tendency to accept traditional gender roles and prevent women from flatly rejecting male proposals for sex. This increases the vulnerability of women to become sexual victims and exacerbates their inability to refuse unprotected sex \[6,7\]. Previous studies \[2,8\] have shown that women with more stringent traditional gender norms have lower sexual self-assertion and self-efficacy within relationships, leading to an increase in the likelihood of experiencing sexual violence from their partners. These findings show that people who have no power in sexual relationships and who have a low level of sexual self-assertion are vulnerable to unwanted physical and mental harm, and are less capable of making actions or decisions related to sexual activities on their own. Women with these characteristics are more vulnerable to IPV, and efforts are needed to reduce its harm.

Sexual violence, in particular, is often caused by unilateral coercion during dating, without consent from the partner. IPV is often committed by dating partners \[7\], and the incidence of sex crimes (e.g., sexual violence, dating violence; wife-beating) continues to grow in Korea \[9\]. The percentage of people who reported dating violence reported in South Korea increased from 16.2% in 2016 to 19.9% in 2017 \[10\]. In addition, most perpetrators were male, and it was found that people in their 20s experienced more dating violence than in other age groups \[10\]. Another Korean study \[11\] also reported similar results: about 97% of victims of sexual violence were women. Of these, 64.4% were adult women, and 55.7% were in their 20s.

The physical or mental harm of violence against women is severe, both in the short and long term \[12\]. Victims of violence need immediate and long-term health care and psychological treatment. Violent experiences such as sexual assault, physical abuse, and stalking cause physical harm, which may include sexually transmitted diseases, as well as mental disorders such as post-traumatic disorder, depression, and insomnia \[12\]. In addition, because IPV occurs regularly and repeatedly due to the nature of the relationship between the victim and the perpetrator, women exposed to harm experience difficulties in forming supportive social relationships, have poor subjective health, and face limitations in daily activities \[3,13\]. Furthermore, violence reduces women’s ability to work and opportunities to care for their families and contribute to society. Children who witness violence at home are also more likely to have behavioral and emotional problems \[14\].

There is a lack of systematic reviews on IPV experienced by Korean women, as well as a lack of research in Korea that distinguishes gender and power on IPV against women. However, since IPV has recently been recognized to be caused by power imbalances within close relationships, integrated consideration of existing research on IPV is essential. Therefore, this study sought to analyze and evaluate studies of IPV against Korean women, with the aim of identifying the characteristics and attributes of prior studies related to IPV against Korean women.

**Methods**

**Ethics statement:** This study is a literature review of previously published studies and was therefore exempt from institutional review board approval.
Research design
This study is an integrative literature review that comprehensively analyzed research related to IPV against Korean women.

Research procedure
In accordance with the integrative review guidelines of Whittemore and Knafl [15], the research questions were clarified; the literature was searched and selected; data evaluation, data analysis, and semantic analysis of selected papers were conducted; and five stages of integrated data extraction were carried out. In addition, a quality assessment of the selected studies was conducted using Gough’s weight of evidence (WOE) [16].

Clarifying the research question
To clarify the research problems and objectives, the researchers described the research question and objectives at the beginning of the study. The main research question of this study was, ‘What does the nature of the studies related to IPV against Korean women show?’

Search and selection of literature
The researchers wanted to find meaningful and appropriate materials that fit the research problems and objectives, and recorded the process in detail to increase the accuracy of the literature search and the reliability of the research. Through meetings, the three researchers prepared the final analysis based on the following selection criteria. The criteria for selecting the papers included in the literature review were (1) studies of Korean women, (2) studies that included the keyword “intimate partner violence,” (3) research papers published in Korean and international journals after peer review, and (4) studies in English or Korean. The criteria for exclusion from the literature review were (1) studies in which the study design was arbitration to see the effects of a literature review, tool development, and programs; (2) studies including males (because a separate analysis was not possible); and (3) government reports, dissertations, letters to editors, or papers published in academic conferences.

The first search and analysis of the literature was conducted from November 16 to December 16, 2019, and a second search was conducted from October 12 to October 21, 2020. There were no restrictions on the year of publication of the searched papers. The following three databases (DBs) were used: the Korean Studies Information Service System (KISS), the Research Information Sharing Service (RISS), and the National Digital Science Library (NDSL) in Korea and the keywords used for the search were a combination of “women,” “IPV,” “intimate partner violence,” “close relationship violence,” and “close partner violence.” For international DBs, four search engines were used: Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, PsycINFO, and Scopus and the keywords were a combination of “Korea,” “females or women or girls,” and “domestic violence or domestic abuse or intimate partner violence” (Supplementary Table 1).

Using the combined search terms, a total of 675 studies were identified, including 249 studies from Korean DBs and 426 studies from foreign DBs. From this pool, the titles and the abstracts were reviewed based on the selection criteria. In total, 334 studies and 291 duplicates were excluded. After carefully examining the full text of the remaining 50 studies and further applying exclusion criteria, we finally selected 25 studies [17-41] (Figure 1).

Evaluation of data
To evaluate the quality of the selected literature, Gough’s WOE [16] was used, and researchers assessed whether the research problems, research purposes, methods, selection of subjects, grounds, and results were described in the selected literature. The first item (WOE a) of the weighted value was evaluated with a focus on the context and evidence of the study by assessing the consistency and integration of the evidence presented in the study in relation to the research problem. The second item (WOE b) was to determine whether the form of evidence presented in the study in relation to the research question was consistent with the study question and purpose, thereby evaluating

![Figure 1. Flow diagram of study selection.](https://doi.org/10.4069/kjwhn.2020.11.15)
whether the study was properly designed for the study question and purpose. The third item (WOE c) evaluated whether the research methods or research analyses were appropriate for the research problems, and the studies were evaluated with items such as selection of subjects, data collection and data analysis, and ethical aspects. Finally, the fourth item (WOE d) was evaluated comprehensively based on the three preceding items. A study was classified as “medium” or “high” if two or more of the three items evaluated earlier were “high” or “medium.” However, in Gough’s study [16], there was no clear standard for ratings based on the evaluation scores, so in this study, we referred to the study of Haßler et al. [42], which clearly presented evaluation criteria using Gough’s WOE.

Analyzing data and interpreting meaning
Analyzing data and interpreting meaning are steps to analyze the finally selected research through quality evaluation and to synthesize its meaning. The researchers reviewed all the data independently, then organized and analyzed them individually. When the researchers compiled the selected papers, they extracted the year of publication, study design, participants, purpose of research and research questions, variables, and results of research, and also discussed what other selected studies found on IPV among Korean women. Subsequently, each of the summaries was compared and reviewed through regular meetings, and six offline and online meetings were conducted to coordinate opinions and to reach agreement on discrepancies in the data. In addition, the decision-making and progress processes from the beginning to the end of the study were described in detail so that other researchers could clearly understand these aspects of the study and reach a reasonable level of agreement with the opinions that emerged through the analysis.

Integration of data
The final step of the integrated consideration of study findings was to present how the attributes identified through the researchers’ consensus were derived from the data. The analysis was conducted using the reference matrix to derive the properties of the research, and the final properties were confirmed by checking whether the derived properties were closely linked to the main data.

Results
Upon quality assessment, all 25 studies on IPV against Korean women analyzed in this study used data of medium or higher (Table 1). The characteristics of the analyzed studies were as follows (Table 2); fifteen studies (60.0%) were conducted among married women and 10 studies (40.0%) were conducted among single women. Quantitative studies were the most common (60.0%), of which 12 (48.0%) were descriptive studies. There were nine qualitative studies (36.0%) and one mixed-methods study (4.0%). Four studies on intimate relationship violence against women were published before 2011, 10 were published between 2011 and 2015, and 11 were published from 2016 to the present, indicating that studies related to women’s violence have been steadily published. The main variables of the reviewed papers related to marital violence (32.0%), dating violence (40.0%), and victims’ beliefs, attitudes, and influencing factors for each type of abuse (28.0%). Most studies were conducted in fields in the social sciences such as social welfare (n = 7), psychology (n = 5), and law and criminology (n = 5), followed by nursing (n = 5) and medicine (n = 1). Although there were relatively few studies in the health field, the four studies published within the last 2 years were from nursing, suggesting an increasing interest in the study of IPV in nursing research.

<table>
<thead>
<tr>
<th>First author [Ref No.]</th>
<th>Year</th>
<th>Gough’s WOE (WOE a, WOE b, WOE c, WOE d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park [34]</td>
<td>2020</td>
<td>H, H, H, H</td>
</tr>
<tr>
<td>Park [41]</td>
<td>2017</td>
<td>H, H, H, H</td>
</tr>
<tr>
<td>Shon [38]</td>
<td>2016</td>
<td>H, H, M, H</td>
</tr>
<tr>
<td>Hong [26]</td>
<td>2015</td>
<td>H, H, M, H</td>
</tr>
<tr>
<td>Bae [33]</td>
<td>2014</td>
<td>H, H, H, H</td>
</tr>
<tr>
<td>Kim [38]</td>
<td>2013</td>
<td>H, H, M, H</td>
</tr>
<tr>
<td>Kim [37]</td>
<td>2013</td>
<td>H, H, M, H</td>
</tr>
<tr>
<td>Han [36]</td>
<td>2012</td>
<td>H, H, M, H</td>
</tr>
<tr>
<td>Hong [40]</td>
<td>2011</td>
<td>H, H, M, H</td>
</tr>
</tbody>
</table>

Ref No.: reference number; WOE: weight of evidence.
H: high; M: medium; WOE a: methodological trustworthiness; WOE b: methodological relevance; WOE c: topic relevance; WOE d: overall score.
Table 2. General characteristics of the included studies (N=25)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Categories</th>
<th>n (%)</th>
<th>Reference number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Single women</td>
<td>15 (60.0)</td>
<td>[17], [19], [20], [21], [23], [25], [27], [29], [31], [32], [34-36], [39], [41]</td>
</tr>
<tr>
<td></td>
<td>Married women</td>
<td>10 (40.0)</td>
<td>[18], [22], [24], [26], [28], [30], [32], [33], [38], [40]</td>
</tr>
<tr>
<td>Research design</td>
<td>Quantitative descriptive study</td>
<td>12 (48.0)</td>
<td>[17-28]</td>
</tr>
<tr>
<td></td>
<td>Qualitative study</td>
<td>9 (36.0)</td>
<td>[29-35], [40], [41]</td>
</tr>
<tr>
<td></td>
<td>Secondary data analysis</td>
<td>3 (12.0)</td>
<td>[36-38]</td>
</tr>
<tr>
<td></td>
<td>Mixed-methods study</td>
<td>1 (4.0)</td>
<td>[39]</td>
</tr>
<tr>
<td>Publication year</td>
<td>Before 2011</td>
<td>4 (16.0)</td>
<td>[18], [22], [27], [28]</td>
</tr>
<tr>
<td></td>
<td>2011-2015</td>
<td>10 (40.0)</td>
<td>[17], [21], [25], [26], [30], [33], [37], [38], [40]</td>
</tr>
<tr>
<td></td>
<td>2016 and beyond</td>
<td>11 (44.0)</td>
<td>[19], [20], [23], [24], [29], [31], [32], [34], [35], [39], [41]</td>
</tr>
<tr>
<td>Sample size</td>
<td>Less than 100</td>
<td>13 (52.0)</td>
<td>[17], [29], [20], [28-35], [40], [41]</td>
</tr>
<tr>
<td></td>
<td>101–500</td>
<td>7 (28.0)</td>
<td>[23-27], [36], [37]</td>
</tr>
<tr>
<td></td>
<td>501–1,000</td>
<td>2 (8.0)</td>
<td>[22], [39]</td>
</tr>
<tr>
<td></td>
<td>&gt; 1,000</td>
<td>3 (12.0)</td>
<td>[18], [21], [38]</td>
</tr>
<tr>
<td>Main variables</td>
<td>Marital violence</td>
<td>8 (32.0)</td>
<td>[18], [20], [24], [26], [28], [30], [33], [40]</td>
</tr>
<tr>
<td></td>
<td>Dating violence</td>
<td>10 (40.0)</td>
<td>[17], [21], [22], [28], [31], [32], [34], [35], [39], [41]</td>
</tr>
<tr>
<td></td>
<td>Factors affecting violence</td>
<td>7 (28.0)</td>
<td>[19], [23], [25], [27], [36], [37], [38]</td>
</tr>
<tr>
<td>Study field</td>
<td>Social welfare</td>
<td>7 (28.0)</td>
<td>[18], [19], [24], [26], [30], [32], [38]</td>
</tr>
<tr>
<td></td>
<td>Counseling</td>
<td>2 (8.0)</td>
<td>[31], [41]</td>
</tr>
<tr>
<td></td>
<td>Psychology</td>
<td>5 (20.0)</td>
<td>[17], [20], [25], [32], [40]</td>
</tr>
<tr>
<td></td>
<td>Law and criminology</td>
<td>5 (20.0)</td>
<td>[21], [22], [26], [28], [37]</td>
</tr>
<tr>
<td></td>
<td>Nursing</td>
<td>5 (20.0)</td>
<td>[23], [29], [34-36]</td>
</tr>
<tr>
<td></td>
<td>Medicine</td>
<td>1 (4.0)</td>
<td>[39]</td>
</tr>
</tbody>
</table>

Analysis of data for selected papers

In this study, 25 studies on IPV were analyzed according to the study questions (Table 3). The 12 descriptive studies presented research on experiences of IPV [17-19], influencing factors [20-23], the legal and support system [26,27], and women who relied on the perpetrators of IPV [28]. The nine qualitative studies explored experiences of IPV [29-32], women’s experience of building their identity after IPV [33], experiences of seeking help to overcome IPV [34], and experiences after IPV ended [17,35]. Quantitative studies investigated the level of harm caused by IPV [36], predictors of risk [37], the relationship of IPV with depression [38], and gender awareness and self-assertion [39]. Among the major variables used in IPV studies were demographic and sociological characteristics related to marital status and household income [22,28,38], stereotypes such as dating violence beliefs or tolerance [17,24,25,36,39], and sexual self-assertion related to perceptions of violence against women [23,25,39]. In addition, studies on coping [29,31,32,34] and the coping process [31,32,35] were conducted in studies dealing with post-IPV experiences.

Women’s experiences of spousal violence were closely related to their experiences of parental verbal violence in childhood [18] and subsequently were associated with women’s depression, stress, and diminished self-esteem. The most commonly investigated risk factor was the experience of parental violence against the child, and if violence was experienced as a child, this was likely to become transposed to a violent relationship in adulthood [33,38]. Conversely, a study that evaluated the causal relationship between child abuse victims and adult dating violence offenders [21] found that experiencing child abuse by parents did not have a statistically significant impact on subsequent physical dating violence and youth harm. Those who experienced parental violence or watched their mothers be abused since childhood [30,33] or grew up in patriarchal home environments [22,28] developed stereotypes about gender roles and showed low sexual self-assertion as women [17,37]. Experiences of parental violence before adulthood affect interpersonal relationships due to depression and stress, and increase the risk of intimate violence after adulthood. The results of analyzing the selected studies suggest that steps must be taken to educate parents on how to correct their children’s behavior without physical punishment or verbal violence, and that mediation programs to prevent marital violence in the community should be implemented more actively.

Some of the studies [24,25,29,32,41] regarding dating violence showed that gender stereotypes and sexual self-assertion
Table 3. Major contents of the reviewed articles (N=25)

<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Design</th>
<th>Participant (sample size)</th>
<th>Purpose/research question</th>
<th>Main variables</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ko (2020) [35]</td>
<td>Qualitative study</td>
<td>Single women (13)</td>
<td>To understand young female adults’ experiences of building a new intimate relationship after ending their abusive relationship</td>
<td>• Exploring IPV experiences</td>
<td>• The victim-survivors of IPV experienced numerous negative consequences even after their abusive relationships ended.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Process of escaping IPV relationships</td>
<td>• Care, safety planning, and emotional support for IPV victims are needed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Experiences after the IPV relationship had ended</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Experiences of new intimate relationships</td>
<td></td>
</tr>
<tr>
<td>Park (2020) [34]</td>
<td>Qualitative study</td>
<td>Single women (14)</td>
<td>To understand South Korean female IPV victims’ experiences in seeking help</td>
<td>• Experiences when seeking help according to selection of supporters</td>
<td>• Revealed the victims’ experiences according to their choice of support and noted four factors that appear to influence their support selection, which were (a) recognition of the consequent harm after seeking help, (b) recognition of serious danger, (c) recognition of the probability of coping, and (d) recognition of the relationship.</td>
</tr>
<tr>
<td>Kwon (2019) [29]</td>
<td>Qualitative study</td>
<td>Single women (14)</td>
<td>To explore the experiences of being coercively controlled in female victims who had experienced dating violence</td>
<td>• Experience of dating violence</td>
<td>• Starting the relationship by idealizing it (period of potential control)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Coping with dating violence</td>
<td>• Facing with visible coercive control (period of coercive control)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Changes after the end of the relationship</td>
<td>• Escaping from the unending trap (period of post-control)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Life impact of violent experiences</td>
<td></td>
</tr>
<tr>
<td>Kwak (2018) [23]</td>
<td>Quantitative descriptive study</td>
<td>Single women (137)</td>
<td>To investigate the effects of adult attachment, responsibility attribution, and self-esteem of adult women on psychological aspect in intimate relationships</td>
<td>• Adult attachment</td>
<td>• The older, more dating experiences, and higher sense of responsibility, the higher the harm of psychological violence.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Responsibility attribution</td>
<td>• The older, more dating experiences, and more adult attachment, the higher the harms of psychological violence.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Self-esteem</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>• Psychological violence</td>
<td></td>
</tr>
<tr>
<td>You (2018) [31]</td>
<td>Qualitative study</td>
<td>Single women (17)</td>
<td>To explore how women affected by dating violence experience the psychology of increasing levels of physical and sexual violence from mental violence</td>
<td>• Beginning of a relationship</td>
<td>• Causal conditions: weird, painfully pleasant, embarrassed, and scared</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• First IPV experience</td>
<td>• Contextual conditions: experiencing acceptance of violence and unusual love</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• IPV coping</td>
<td>• Arbitral conditions: level of experience of violence, the level of violence response, and the level of relationship immersion affect</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Relationship with parents</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• What would have changed if I had realized that IPV had occurred?</td>
<td></td>
</tr>
<tr>
<td>Hong (2017) [20]</td>
<td>Quantitative descriptive study</td>
<td>Single women (65)</td>
<td>To explore factors affecting the battered women’s decision to return to the abusive relationship</td>
<td>• Learned helplessness</td>
<td>• The more learned helplessness and the more severe IPV, the less likely the battered women could escape from abusive relationships.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Social support</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>• Spousal assault risk</td>
<td></td>
</tr>
<tr>
<td>Kim (2017) [19]</td>
<td>Quantitative</td>
<td>Single women (16)</td>
<td>To examine psychological difficulties and stress levels in abused and non-abused Korean women and analyze the relationship between psychological outcomes and stress level</td>
<td>• Psychological variables</td>
<td>• Women who experienced IPV had more life stress events and lower antioxidant levels than non-abused women.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Oxidative stress biomarkers</td>
<td>• Relationships between a women’s physical health and life stress arising from IPV had significant implications.</td>
</tr>
<tr>
<td>First author [year]</td>
<td>Design</td>
<td>Participant (sample size)</td>
<td>Purpose/research question</td>
<td>Main variables</td>
<td>Key findings</td>
</tr>
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</tr>
<tr>
<td>Woo (2017) [32]</td>
<td>Qualitative study</td>
<td>Single women (7)</td>
<td>To understand the process and contextual factors of victims’ experiences of dating violence</td>
<td>Experience of overcoming dating violence</td>
<td>• The central phenomenon experienced by women affected by dating violence was the being trapped in a violent situation. • Unstable parenting environment, such as parental abuse, and loving interpretation of the perpetrator’s excessive care and controlling behavior. • Analysis of the process of dating violence experience with trial steps, tightrope steps, recovery phases, and growth phases.</td>
</tr>
<tr>
<td>Park (2017) [41]</td>
<td>Qualitative study</td>
<td>Single women (6)</td>
<td>To explore the experiences of being coercively controlled in dating violence victims</td>
<td>Experience of being coercively controlled</td>
<td>• Idealizing the relationship (period of potential control) • Facing severer tyranny (period of coercive control) • Escaping from the unending trap (period of post-control)</td>
</tr>
<tr>
<td>Shon (2016) [39]</td>
<td>Mixed method Single women study (548)</td>
<td>To verify the impact of the continuation of dating violence on girls as a cognitive process</td>
<td>• Gender role stereotypes • Allowing dating violence • Sexual self-assertion • Qualitative reasons for sexual assertions and how to asking help</td>
<td>• Internal reasons included low self-esteem, fear, fear, anxiety, excessive altruism, and a desire not to be abandoned. • A significant correlation was found between gender stereotypes of college students, tolerance for dating violence, and sexual self-assertion.</td>
<td></td>
</tr>
<tr>
<td>Park (2016) [24]</td>
<td>Quantitative descriptive study Maried women (150)</td>
<td>To determine the levels of violence perceived by female victims of IPV and to explore factors other than gender stereotypes in multilateral aspects</td>
<td>Type of abuse (physical, emotional, and sexual abuse) Gender stereotypes</td>
<td>• IPV usually exhibited two or more forms. • The higher the violence experience, the higher the gender stereotypes. • The lower the level of education, the more experience they had of IPV.</td>
<td></td>
</tr>
<tr>
<td>Hong (2015) [26]</td>
<td>Quantitative descriptive study Maried women (222)</td>
<td>To explore the reasons why battered married women do not ask for help from legal and institutional systems</td>
<td>Active reactions to spousal violence</td>
<td>• A permissive attitude toward violence in Korea disrupted victims’ questions for outside help</td>
<td></td>
</tr>
<tr>
<td>Bae (2014) [33]</td>
<td>Qualitative study Maried women (1)</td>
<td>To understand how identity is constructed for a woman who has experienced multiple violence</td>
<td>Experiences of marital violence and identity of IPV</td>
<td>• The woman reconstructed her identity from “a bad woman” who deserved the violence to “a good mother,” not referring to ideology of mothering but “goodness” as value for her to reflect upon.</td>
<td></td>
</tr>
<tr>
<td>Choi (2014) [17]</td>
<td>Quantitative descriptive study Single women (52)</td>
<td>To explore parental violence victim experiences and parental violence witnessed</td>
<td>Parental violence experiences Dating violence experience Implicit gender stereotypes</td>
<td>Parental violence experiences are noted for implicit gender stereotypes and dating violence experiences. • Those who experienced parental violence had high levels of stereotypes. • Experience of parental violence before adulthood affects interpersonal relationships in adulthood. • Children exposed to parental violence are at risk of exposure to adult dating violence.</td>
<td></td>
</tr>
<tr>
<td>Park (2014) [30]</td>
<td>Qualitative study Maried women (12)</td>
<td>To explore mothering experiences of battered women in the context of marital violence</td>
<td>Experience of mothering</td>
<td>• Women who experienced violence had experiences that could be explained as “keep their lives going on by taking care of responsibilities and maintaining relationships with children.”</td>
<td></td>
</tr>
<tr>
<td>Jennings (2014) [21]</td>
<td>Quantitative descriptive study Single women (1,252)</td>
<td>To estimate the effect of experiencing child physical abuse on dating violence among South Korean emerging adults</td>
<td>Physical dating violence perpetration and victimization Physical child abuse</td>
<td>• Child maltreatment is linked to later dating violence through mechanisms of social learning.</td>
<td></td>
</tr>
</tbody>
</table>
Table 3. Continued

<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Design</th>
<th>Participant (sample size)</th>
<th>Purpose/research question</th>
<th>Main variables</th>
<th>Key findings</th>
</tr>
</thead>
</table>
| Kim (2013) [38]     | Secondary data analysis | Married women (3,153) | To examine the relationships between IPV and depression | • Level of physical violence  
• Depression  
• Social support  
• Household income | • Experiencing IPV influenced woman’s level of depression in terms of its overall level and rate of change. |
| Kim (2013) [37]     | Secondary data analysis | Married women (119) | To explore the risk factors for predicting IPV in the framework of feminism theories | • Type of abuse (physical, emotional, and sexual abuse) | • Predictable risk factors varied according to the type of IPV  
• Socioeconomic status incompatibility was related to IPV. |
| Han (2012) [38]     | Secondary data analysis | Single women (172) | To explore IPV victim’s harm level, IPV beliefs and attitudes toward IPV | • Female abuse assessment  
• Beliefs and attitudes toward IPV  
• Depression | • Beliefs and attitudes regarding IPV had a significant relationship with harm, depression, and IPV. |
| Park (2012) [25]    | Quantitative descriptive study | Single women (240) | To investigate the factors affecting sexual assertiveness of female university students in order to prevent university students from having sexual problems | • Sexual harm and abuse  
• Common ideas of sexual violence  
• Tolerance toward violence in dating  
• Sexual assertiveness | • Sexual assertiveness of female university students was correlated with the common idea of sexual violence, sexual experience (negative), and tolerance toward violence on dating (positive).  
• Sexual assertiveness in university students influenced sexual intercourse experience and common ideas of sexual violence. |
| Hong (2011) [40]    | Qualitative study | Married women (6) | To explore the experience of women who left their abusive husbands | • Experience of leaving husband-to-wife violence | • Main themes were “keeping severing the violence with strength,” “self-exploring/accepting/understanding,” “strength gained/lost by outer factors,” “reconstruction of intimate relationship,” and “lingering problems and new hopes.” |
| Kim (2010) [27]     | Quantitative descriptive study | Married women (124) | To examine the factors related to use of formal and informal resources by battered women | • Severity of physical violence  
• Violence-related consequences partner and child abuse | • The demographic characteristics, severity of physical violence, violence-related consequences, and partner child abuse were somewhat predictive of how battered women sought help. |
| Kim (2010) [28]     | Quantitative descriptive study | Married women (55) | How are abused South Korean women who resort to lethal violence against their abusers different from those who do not? | • Abuse  
• Patriarchal attitude  
• Marriage-related variables  
• Socio-demographic measures | • Increased education and income levels may reduce women’s tolerance for intimate partner abuse, as well as increasing the likelihood of seeking outside help when such abuse does occur.  
• Patriarchal attitudes were negatively correlated with four variables (psychological abuse, education, physical abuse, and employment). |
| Kim (2009) [18]     | Quantitative descriptive study | Married women (1,079) | To examine the relationship between different types of marital violence, previous parental violence, and the mental health status of Korean women | • Self-esteem  
• Depression  
• Stress  
• Aggression | • Both physical marital violence and previous parental verbal abuse had significant relationships with depression, stress, and aggression (i.e., mental health). |
| Kim (2009) [22]     | Quantitative descriptive study | Married women (531) | To add knowledge about spousal homicide in non-Western cultures | • Severity of abuse  
• Strength of patriarchal attitudes  
• Risk-taking preference | • The model for abuse history, patriarchal attitudes, and risk-taking preference were statistically significant, explaining 56.6%, 18.4%, and 4.1% of variance, respectively. |

IPV: intimate partner violence.
affected the acceptance of violence in close relationships [24, 25]. Among victimized women exposed to parental violence in childhood, a learned sense of helplessness about violence appeared [20], the severity of abuse was not recognized in close relationships [28], and tolerance for violence was confirmed to be different [25,39]. In addition, women who experienced parental violence due to exposure to patriarchal attitudes in childhood were found to be at risk of becoming perpetrators and victims of violence in the future [17,22,24,28,31]. Perceptions of violence in intimate relationships varied among women who were victims depending on their knowledge about sexual violence [25] and implicit gender stereotyping [17,24,39], which has been shown to affect women’s beliefs and attitudes toward violence [36]. Adult attachment, self-understanding, self-impact factors [18,23], and sexual self-assertion [25,39] were found to affect post-violence attitudes in close relationships.

A secondary study of IPV [27,36] assessed the level of harm to victimized women and their beliefs, attitudes, and depression about violence. Tolerances or attitudes toward violence against women in Korea were related to educational level [22,24,27,38], previous experiences of parental violence [17,19,21], and adult attachment [23,30,33]. An analysis of the general characteristics of women who had experienced violence [23,24,27] showed that the awareness, severity and tolerance of violence were associated with unstable employment status, low income level, and low education level. Among women affected by IPV, with high levels of education and easy access to social support services, attempts have been made to overcome experiences of violence by seeking help and using support systems in the local community [20,25,26]. In addition, studies conducted among women revealed that higher levels of sexual assertiveness were associated with less tolerance of dating violence and lower gender role stereotypes [25,39].

In this review, studies on the coping and overcoming of IPV among Korean women were examined, including changes after the relationship with the perpetrator ends [29,35], and requests for help in the process of overcoming IPV [34]. Besides, the results of this review, IPV should be assessed in the local community as a way to overcome violence [18,21,28], and in order to prevent violence, education on gender stereotypes [22,24,26] and violence [17-19,28,39] is needed. It was also found that women who already have experienced IPV need education for increased sensitivity to violence, as well as counseling and psychotherapy to prevent subsequent trauma, such as depression and distress [20,29,36,38,41].

**Interpretation of meaning**

The factors that influenced women before the occurrence of IPV included previous experiences of violence, growth environment, beliefs and attitudes, gender stereotypes, gender stereotypes, and sexual self-assertion. The types of IPV were broadly divided into marital violence and dating violence, which in turn could be classified as physical, mental, and sexual violence. However, types of violence in close relationships occurred in association with each other rather than independently. After the occurrence of IPV, the impacts of IPV on women included depression, stress, and anxiety. The victim’s attitude toward overcoming violence and ways of coping with it affect the likelihood of becoming a victim of IPV again.

**Integration of data**

In this study, IPV-related factors were grouped into intrapersonal factors, interpersonal factors, and social factors, and these three factors were linked together (Table 4). First, intrapersonal factors included women’s general characteristics and psychological factors, awareness and attitudes toward IPV, and past experiences of IPV. Specifically, psychological factors included depression, stress, self-understanding, awareness of IPV, knowledge and beliefs, sexual self-assertion, and gender role stereotypes, including awareness of IPV and attitudes toward IPV. In addition, past experiences of IPV included parental violence and child abuse. In addition, the findings showed that personal experiences on parental violence or dating violence and gender norms influenced individuals’ ability to ask for help or manage violence in close relationships. Second, interpersonal factors referred to the relationships between individuals, in addition to the characteristics of the individual. These relationships can be divided into parents and partners, including spouses. Women who suffered violence in intimate relationships were affected by witnessing patriarchal attitudes, parental violence, and mother-targeted violence in childhood. Their relationships with partners affected their experiences of marital violence, the severity of physical violence, the risk of spousal assault, the consequences of violence, their active response to spousal violence, and their tolerance of dating violence. The researchers identified the formation of intimate violence in relationships with new partners and the risk that past victims may become perpetrators. Third, social factors included the impact of social support, such as the degree of counseling assistance, the relationship with the counselor, and the social support system after IPV. Furthermore, analyses of the influence of IPV on life before or after the harm showed that the victim-survivors of IPV experience numerous negative consequences even after their abusive relationships end [32,35].
Table 4. Integrative description of intimate partner violence

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Categories</th>
<th>Reference number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrapersonal factor</td>
<td>General characteristics</td>
<td>[28], [30], [41]</td>
</tr>
<tr>
<td></td>
<td>Perceptions of IPV</td>
<td>[19], [20], [25], [31], [36-38], [41]</td>
</tr>
<tr>
<td></td>
<td>Attitudes toward IPV</td>
<td>[19], [22], [29], [31]</td>
</tr>
<tr>
<td></td>
<td>Psychological factors</td>
<td>[18], [28], [37], [38]</td>
</tr>
<tr>
<td></td>
<td>Violence experience</td>
<td>[19-21], [29-32], [34-36], [40]</td>
</tr>
<tr>
<td>Interpersonal factor</td>
<td>Relationships with parents</td>
<td>[23], [24], [30], [31], [41]</td>
</tr>
<tr>
<td></td>
<td>Relationships with partner</td>
<td>[17], [24], [26-30], [33-35]</td>
</tr>
<tr>
<td>Social factor</td>
<td>Social support</td>
<td>[28], [33], [39]</td>
</tr>
<tr>
<td></td>
<td>Influence on life</td>
<td>[29], [35], [39]</td>
</tr>
</tbody>
</table>

IPV: Intimate partner violence.

Discussion

This study found that research on IPV has been consistently published since 2010. The incidence of IPV in Korea has decreased compared to the past, but it still has a higher profile than that of other countries [43]. This warrants continuing attention. Most studies on IPV were conducted in the social sciences, and only five of the 25 studies were in nursing, suggesting the need for more intensive nursing research on IPV. The WHO recognizes IPV as a public health issue and emphasizes the need for an appropriate understanding among health care providers, including nurses [12]. Nurses are more likely to encounter IPV victims [44] and spend the longest time with patients compared to other health care providers [45]. Therefore, nurses must be sufficiently prepared to face and treat women who report instances of IPV. In a study of nurses’ roles and preparation for IPV that was conducted in India [46], the results showed positive correlations among the level of educational preparedness, self-efficacy, and attitudes toward caring for women affected by IPV. Another study confirmed that simulation education for IPV was significantly helpful for preparing nursing students to care for women affected by IPV [47]. Thus, conducting more diverse studies of IPV for nursing education in Korea will be beneficial.

The factors related to IPV can be classified into intrapersonal, interpersonal, and social factors. Intrapersonal factors (e.g., depression, stress, and experiences of violence in the past) were identified as risk factors of IPV in a prior study [48], and therefore the psychological and social aspects of IPV must be assessed when caring for victims. In addition, for adult women who have not experienced IPV or have not suffered harm, psychological and social aspects should be assessed to prevent and minimize harm, and nurses must identify and link resources that can be utilized within the community in advance if necessary. As experiences of parental violence and child abuse while growing up appears to affect adulthood, education about and screening for pre-adult IPV is also necessary [48]. So far, however, preventive education for IPV has been insufficient. Since violence prevention education mainly deals with sexual violence for school-age children, adolescents, and young adults [49,50], education should therefore include more a comprehensive and wider range of knowledge about IPV.

In addition, nurses should be prepared to consider combinations of intrapersonal factors. In other words, for nurses to deal with IPV, a wide range of understanding and knowledge is needed through education. If nurses are prepared to provide nursing care on the basis of a sufficient knowledge of IPV, they will have a positive attitude and self-efficacy when caring for women [46]. Therefore, if nurses understand the characteristics of women vulnerable to violence in intimate relationships (e.g., low education, being young and married) [43], and reflect that understanding in their care, they will be able to have a positive impact on the women as well as on themselves.

Second, interpersonal factors are those related to relationships with others in addition to individual characteristics. As the notion of IPV [1] involves all forms of violence in close relationships, IPV can be broadly divided into relationships with parents and partners, including previous parental violence, as well as dating violence. Therefore, in order to provide an assessment and mediation of IPV, it is necessary to implement parental education [18] as well as marital and partner education as precautionary interventions. Partner training should be aimed toward teenagers and college students who are potential partners in the future. The training should also include both male and female teenagers and college students, rather than targeting only men, considering the diverse gender identities of women.

Lastly, for social factors, women affected by IPV are more likely to comply with the perpetrator’s demands than to break away from the violent relationship [29]. Thus, there is a need for interventions addressing social factors that enable women to
overcome subsequent trauma. For example, attitudes toward IPV may be changed through counseling, which may help women to cope more effectively with the effects of IPV. For this purpose, at the community level, women exposed to danger should be assessed and protected from harm [18, 28]. In addition, social and policy interventions are necessary. In Korea, the Framework Act on the Prevention of Violence against Women was enacted in 2018 to protect women from various forms of violence, including violence in close relationships. The Act was established following a nationwide descriptive survey, aimed to protect women who have been exposed to violence and to protect and support the victims. In addition, there are currently hotlines in Korea dedicated to women that provide counseling on violence against women, linkage and supportive resources for victims, training in preventing violence, and activities to increase awareness of IPV through telephone support [4]. Therefore, nurses need to be familiar with the laws enacted and related available resources to be able to make full use of social and policy aspects, as well as personal preparation.

This study has some limitations. The search was limited to research papers on IPV affecting women, in order to comprehensively examine the experience of IPV against Korean women. In addition, although the researchers made efforts to conduct a systematic and comprehensive search and selection, it is possible that some relevant papers were missed in the search phase or in the title and abstract review phase. Finally, as this study focused on research related to IPV against Korean women in Korea, there is a limit to generalizing the results to IPV against migrant women living in Korea or Korean women living abroad.

This study examined 25 studies on IPV against women in Korea and, through the meaning analysis of IPV, identified important factors that influenced IPV before its occurrence, types of violence upon occurrence, and the process of overcoming IPV after its occurrence. It was also confirmed that IPV affects women in terms of intrapersonal, interpersonal, and social factors, which are closely interlinked. The results of this study are significant in that they include matters that nurses may consider in preventing IPV and caring for victimized women. Specifically, general and psychological characteristics, perceptions and attitudes toward IPV, relationships with families and partners, and available social support systems and resources should be considered. The results of this study can be used for developing educational content in the required curriculum for teenagers and college students, by including content on intrapersonal, interpersonal, and social factors of IPV. The findings can also guide IPV assessment and the provision of arbitration for victims.

Since nursing research on IPV is limited, albeit having increased in the past 2 years, more IPV research by nurses is needed. This includes studies that focus on nurses, such as descriptive studies on nurses’ knowledge and perceptions of IPV, as well as nursing education for IPV care readiness.

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**Authors’ contributions**

Conceptualization: Lee JM; Formal analysis: Min HY, Kim Y; Writing–original draft: all authors; Writing–review & editing: all authors.

**Conflict of interest**

The authors declared no conflict of interest.

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None.

**Data availability**

Please contact the corresponding author for data availability.

**Acknowledgments**

None.

**Supplementary materials**

Further details on supplementary materials are presented online (available at https://doi.org/10.4069/kjwhn.2020.11.15).

**References**

2. García-Moreno C, Hegarty K, d’Oliveira AF, Koziol-McLain J, Colombini M, Feder G. The health-systems response to vio-


5. Hong YO, Yeon SJ, Ju SH. Violence against women: focused on intimate partner violence. Seoul: Korean Institute of Criminology; 2015.


Introduction

Gestational diabetes mellitus (GDM) is an important health care issue that occurs in one in six pregnant women worldwide [1]. In the past, GDM was defined as occurring at any point in pregnancy, regardless of the extent of the disease. Recently, however, the American Diabetes Association (ADA) has clearly defined GDM as diabetes diagnosed in the second or third trimester of pregnancy [2]. According to data from the Korean Diabetes Association in 2013, the prevalence of GDM in Korea increased from 4.1% in 2007 to 10.5% in 2011 [3], and the incidence of GDM relative to the number of babies born in 2017 was estimated to be 15.3% [4,5]. The risk factors for GDM include heredity (family history) and environmental factors (age, obesity, high-fat diet, etc.) [6], and the prevalence of GDM is expected to further increase gradually due to the increasing age of childbirth and changes towards westernized eating habits among Korean women. GDM may re-
Summary statement

- **What is already known about this topic?**
  The prevalence of gestational diabetes mellitus (GDM) is high worldwide, and it is of considerable clinical significance since it seriously affects the fetus and mother. Therefore, strict measures such as blood glucose control and lifestyle improvement are required to prevent maternal and fetal health problems.

- **What this paper adds**
  This systematic review of the effectiveness of health care programs for pregnant women with GDM in Korea, found positive effects on blood glucose control, anxiety, depression, self-management, self-care behavior, self-efficacy, and maternal identity.

- **Implications for practice, education, and/or policy**
  Health care programs for pregnant women with GDM are needed, especially programs aiming to strengthen self-care for blood glucose control and individual and comprehensive interventions for improvements in psychosocial health, such as anxiety and depression.

cur in 33% to 50% of subsequent pregnancies [7], and GDM is associated with a high risk of type 2 diabetes, a lifelong condition [8]. Above all, GDM has a serious impact on the mother and fetus [2], including elevated risks of premature birth and maternal overweight, preeclampsia, cesarean section, fetal macrosomia, and trauma during delivery. After delivery, the child also has increased risks of disability due to obstetric complications, hypoglycemia, hypocalcemia, hyperbilirubinemia, respiratory distress syndrome, and obesity [8].

Early detection is important to improve the prognosis of GDM and to reduce the risk of health-related problems in the mother and fetus, and careful health management for pregnant women is required to maintain appropriate blood glucose levels [8,9]. In particular, in GDM, blood glucose levels can be managed only by diet and lifestyle modifications [1]; therefore, for management of blood glucose in pregnant women to be successful, patients themselves must have a solid knowledge of the disease and perform self-care. Consequently, health education and training are important for continuous blood glucose management [10]. However, pregnant women who are found to have GDM may not know much about the disease or blood glucose management because they have not experienced the disease before [10], and most pregnant women experience anxiety, depression, fear, and stress about responding to health problems that may negatively affect the fetus [11]. The adaptations required to manage GDM, in addition to the physiological and psychological changes of pregnancy, cause additional stress regarding blood glucose control and disease burden, which can reduce the effectiveness of treatment [12]. GDM may also adversely affect the health care behaviors of pregnant women and the formation of maternal identity through complex factors.

The care goals for women with GDM are aimed at preventing complications in the mother and fetus based on early detection and treatment, with the ultimate objective of safe birth [10]. Therefore, the control of blood glucose levels in women with GDM is paramount, and health care providers need to provide comprehensive health care interventions tailored to both the physiological changes and the individual needs of pregnant women [9-11]. For clinicians caring for Korean women with GDM, it would thus be beneficial to conduct a systematic analysis of health care programs (education, intervention methods, etc.) implemented for Korean women with GDM, with an analysis of their effectiveness, methods, and content. However, no such study has yet been carried out, despite the steady increase of GDM in Korea.

**Purpose of research**

The purpose of this study was to systematically review studies of health care programs conducted among Korean women with GDM by examining the general characteristics of the selected studies and analyzing the effectiveness of the health care programs described therein.

**Methods**

**Ethics statement:** This study is a literature review of previously published studies and was therefore exempted from research approval by the Institutional Review Board of Christian College of Nursing (No. CCN-2019-5).
Research design
This study is a systematic review of the effects of health care programs for pregnant Korean women with GDM.

Criteria for selection and exclusion of studies
This review was conducted in accordance with the systematic reviews handbook [13] of the Cochrane Collaboration and the systematic review guidelines of the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) [14]. First, the researchers identified the PICO-SD (participants, intervention, comparison, outcomes, and study design) parameters, and then searched electronic literature databases according to the following processes for selection and exclusion.

Selection criteria

(1) Participants (P)
This study targeted Korean women with GDM, who had not been diagnosed with diabetes before pregnancy and were diagnosed with GDM by doctors between 24 and 28 weeks of pregnancy. No limitations were placed on the number of pregnancies and age at pregnancy.

(2) Intervention (I)
The interventions were health care programs that included physical and/or psychosocial health management for pregnant Korean women with GDM. The main literature search strategy included all types of programs involving education, counseling, online health care interventions, and so forth.

(3) Comparison (C)
The comparison groups in this study were GDM pregnant women who were provided with no intervention or general diabetes interventions (drugs, diet, and exercise) that did not include the interventions applied to the experimental group.

(4) Outcomes (O)
The preliminary literature review indicated that a wide variety of outcome variables were reported; therefore, this study did not limit the outcome variables in the literature selection criteria.

(5) Study design (SD)
Studies that employed randomized and non-randomized experimental studies with controls were included in this review.

Exclusion criteria
The exclusion criteria for selecting studies were: (1) studies with participants who were not Korean pregnant women (e.g., marriage migrant women, foreigners, etc.); (2) studies with a research design beyond our purpose (e.g., single-group experimental studies, policy studies, survey studies, qualitative studies, systematic research, etc.); (3) studies that did not report the effectiveness of intervention programs; (4) studies of delivery methods; and (5) studies not written in English.

Searching and selecting literature

(1) Searching literature
Prior to the literature search, keywords for each electronic library database were selected based on the PICO-SD, and the search strategies utilized both MeSH phrases (MeSH Descriptor Data 2018) and unstructured natural language terms. The international databases used in this study were Ovid MEDLINE, the Cochrane Central Register of Controlled Trials (CENTRAL), Cumulative Index to Nursing and Allied Health Literature (CINAHL), and ProQuest. As Korean databases, KoreaMed, Research Information Sharing Service (RISS), Korean Studies Information Service System (KISS), and DBpia were also used. The reference lists of the selected studies were also manually searched. The keywords used for the search were ['Diabetes, Gestational' (MeSH)] and ['Korean' (MeSH)] and ['Intervention' or 'Program' or 'Education' (MeSH)] in the databases. If a dissertation was published in an academic journal, only the published version was included, and if the same study by the same author was found in both Korean and international databases, only the Korean version was included. The final literature search date for this study was July 14, 2019.

(2) Selection of literature
The literature retrieved through the database search was compiled using EndNote® (EndNote X8, Thomson Reuters, New York, NY, USA) and Microsoft Excel 2016 (Microsoft, Redmond, WA, USA). In the first stage of the selection process, studies were included or excluded based on a title and abstract review; while in the second stage of the selection process, the original text of the studies selected in the first step was examined to make the final choice regarding inclusion. For the final seven selected studies, research methods, subjects, and characteristics and results of the exercise intervention were extracted using a pre-established coding scheme. The entire process of selection and data extraction was carried out independently by the two researchers, and in cases of disagreement, the original text was reviewed and consensus was reached. Kappa analysis was performed using IBM SPSS ver. 23.0 (IBM Corp., Armonk, NY,
USA) to confirm agreement between the researchers in the literature selection process.

(3) Quality evaluation of the literature
All of the studies analyzed herein were non-randomized control experimental studies, and the risk of bias assessment tool for non-randomized studies (RoBANS) developed by the National Evidence-based Healthcare Collaborating Agency [15] was used to evaluate the quality of the studies. The RoBANS consists of six items in total: selection of participants, confounding variables, measurement of intervention (exposure), blinding for outcome assessment, incomplete outcome data, and selective outcome reporting. Depending on what a study describes, the risk of bias is assessed as low, high, or uncertain. Both researchers independently assessed the quality of the studies, discussed any items about which they initially disagreed, and reached consensus after a joint reassessment process.

Method of data analysis
Due to the diverse outcomes of the health care programs, this study analyzed the effects in the following domains: physiological, cognitive, behavioral, and psychosocial effects.

Results
Results of literature selection
In total, 119 documents were identified through the domestic electronic literature databases (KISS, KoreaMed, RISS, and DBpia) and 16 documents through the international electronic literature databases (Ovid MEDLINE, CINAHL, CENTRAL, and ProQuest). After the exclusion of seven duplicates, 128 studies were initially reviewed based on their title and abstract. This step yielded eight documents: after full-text review, one study that only involved a single group was excluded, resulting in seven studies [9,16–21]. The reference lists of these seven studies were manually reviewed, but no further studies were included (Figure 1). The concordance between the two researchers in selecting the literature was fairly high (kappa = 0.81; p < .001) [22].

General characteristics of the studies
The seven finally selected articles were all (100%) non-randomized control experimental studies, similar to the pre-post non-equivalent quasi-experimental design. Four studies (57.1%) were published in journals [9,16–18], and the others were two of unpublished doctoral dissertations (28.6%) [19,20] and a master’s thesis (14.3%) [21]. One study was published in 2001 [21], and the remaining six were published from 2013 to 2018. Four studies (57.1%) delivered offline programs [9,16,18,21], one study (14.3%) described an online program [19], and two studies (28.6%) used both modalities [17,20]. The programs in four studies (57.1%) were individual-based [16,17,19,20], while one study (14.3%) utilized a small-group design [21] and two studies (28.6%) combined individual and small-group interventions [9,18]. The study subjects were all pregnant women diagnosed with GDM between 24 and 28 weeks of pregnancy. In six studies (85.7%), the program was provided during pregnancy, while one study (14.3%) [17] provided a postpartum program. All seven programs (100%) were conducted in hospitals. The average age of subjects ranged from 31.5 to 35.5 years in the experimental group and from 31.8 to 36.4 years in the control group, although one study [18] did not describe participants’ age. The programs were delivered 4 to 16 times, and the time required per session ranged from at least 5 minutes [17] to a maximum of 60 minutes [18]. All studies reported pregnancy outcomes, and two (28.6%) also reported newborn outcomes [20, 21] (Table 1).

The most common physiological outcome variable was the level of blood glucose (n = 6, 85.7%) in pregnancy, followed by gestational age at delivery and delivery mode (n = 2, 28.6%).
Table 1. Characteristics of the eligible studies (N=7)

<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Description of the program</th>
<th>Study size</th>
<th>Content of program</th>
<th>Format/target</th>
<th>Duration of curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jung (2018) [20]</td>
<td>IT-based exercise education and monitoring</td>
<td>49/127</td>
<td>· IT-based exercise education consisting of theoretical education, exercise program delivery, exercise journal evaluation, expert coaching, and online counseling and monitoring</td>
<td>Online+offline/individual</td>
<td>· 1 time/wk · 16 wk</td>
</tr>
</tbody>
</table>
| Jeon (2018) [17]    | Postnatal care program      | 30/32      | · The program was composed of education and telephone counseling based on the Health Belief Model  
 · Booklets, video training: importance of postpartum care for pregnant women with GDM, timing and method of follow-up after delivery, and health management to prevent diabetes after delivery  
 · Phone consultation: consultation on overall health after delivery, diet, exercise and weight management, breastfeeding, stress management, and support | None | Online+offline/individual | · 20 min × 1 time +5 min × 3 times · 12 wk |
| Kim (2017) [19]     | Web-based self-management program | 22/22      | · Web-based program including blood sugar management, diet therapy, physical activity, weight management program  
 · Consisted of counseling, emotional support, and education | General diabetes diet education | Online/individual | · 20–30 min × 12 times · 12 wk |
| Ko (2014) [18]      | Coaching program on comprehensive lifestyle modification | 34/34      | · The program was composed of counseling, encouragement, and support by GROW coaching  
 · The content of the program consisted of diet, exercise, and self-blood glucose measurement  
 · Consisted of training (30 min), small-group coaching (30 min), and telephone coaching (20 min) | Usual care using a diabetes education brochure | Offline/small group and individual | · 30–60 min × 4 times · 4 wk |
| Kim (2013) [9]      | Integrated self-management program | 28/27      | · The program was composed of emotional support, education, decision-making control for self-management, blood glucose management, and maternal identity improvement  
 · 5 times in total, three small-group meetings (1 hr each), and two phone calls for 10–15 min | Usual care | Offline/small group and individual | · 1 hr × 3 times +10–15 min × 2 times · 5 wk |
| Baek (2013) [16]    | Case management program     | 19/18      | · Face-to-face interview: the same individual training as the one control group  
 · Telephone interviews (5 times/2 wk): case management program for reassessment, diagnosis, performance, and evaluation of nursing needs | Individual education and diabetes education brochure (blood glucose management, exercise therapy, weight management, postpartum care, caring for one's body when sick, diabetes complications, and diet) | Offline/individual | · 5 times · 2 wk |
| Park (2001) [21]    | Diet therapy                | 26/25      | · Carbohydrate-restricted diet: the energy ratio of total calories was 45% carbohydrates, 20% protein, and 35% fat | Normal carbohydrate diet: the energy ratio of total calories was 60% carbohydrates, 20% protein, and 20% fat | Offline/small group | Not described |

The two studies (28.6%) reporting newborn outcomes presented data on weight [20,21] and neonatal complications at birth [20,21]. Five studies (71.4%) measured psychosocial outcome variables, with the most common being depression (n = 3, 42.9%) [16,18,29], followed by self-efficacy [16,17], anxiety [16,19] (each n = 2, 28.6%), and maternal identity (n = 1, 14.3%) [9]. The psychosocial outcome variables were all measured using structured questionnaires. Of the four studies that reported behavioral outcome variables, self-management [9,17] and self-care behaviors [18,19] accounted for two (28.6%) each. Finally, outcome variables in the cognitive domain were evaluated in only one study (14.3%), which measured knowledge about GDM [18] (Table 2). Regarding the content of the interventions, self-care was most common (n = 2, 28.6%) [9,19], followed by one study (14.3%) each on diet [21], lifestyle improvement [18], exercise [20], and postpartum care [17]. The details of the programs are presented in Table 1.

Quality evaluation
The quality assessment by RoBANS [9,16-21] found that all seven studies (100%) were assessed as having a low risk of bias due to satisfactory selection of the target group. Regarding selection bias caused by an inadequate identification of confounders, one study (14.3%) [21] was found to have a high risk of bias due to a failure to identify the major confounding variable, while the remaining studies (n = 6, 85.7%) adequately identified the major confounding variables and controlled for them in the analysis. The risk of bias due to inappropriate intervention (exposure) measurements was evaluated as low because all studies used either physiological measurements or structured questionnaires. For blinding to outcome evaluation, one study (14.3%) [18] noted that a third researcher collected data, whereas three (42.9%) [17,20,21] did not use blinding, but this did not affect the results; thus, those studies were determined to have a low risk of bias. For three studies (42.9%) [9,16,19], however, the risk of bias was judged to be high because the blinding was incomplete and could possibly have affected the results. Regarding attrition bias caused by the improper handling of incomplete data, two studies (28.6%) [17,18] were determined to be low-risk as they reported losses of less than 20%, while four studies (57.1%) [9,16,19,20] were evaluated as being high-risk because the attrition rate was higher than 20%. One study (14.3%) [21] was determined to have uncertain risk in this domain due to the lack of a description of the attrition rate. Reporting bias was determined to be low-risk because all studies reported results based on the expected variables, which were planned in advance.

Given the above results, the overall risk of bias of the seven studies was assessed as low (Figure 2).

Effects of the health care programs
Six of the seven studies included in the systematic literature review reported that the program was effective for the physiological health of the pregnant women, while one study [21] was not able to determine the exact effectiveness of the program because no p-value was reported. Five studies (71.4%) [9,17-20] presented physiological measurements related to glucose metabolism, including 2-hour post prandial blood glucose levels (PP2, n = 2), glycated hemoglobin levels (HbA1c, n = 3), fasting blood sugar levels (FBS, n = 3), oral glucose tolerance testing (OGTT, n = 2), 1-hour post prandial blood glucose levels (PP1, n = 1), and glycated albumin levels (n = 1). The studies reporting HbA1c [18,19] showed significant reductions in the experimental group (t = 3.94, p < .001 and F = 31.22, p = .001), as did the studies reporting PP2 [9] (U = –2.43, p = .015) and FBS [18] (t = 5.03, p < .001). However, for OGTT [17,20], PP1 [19], and glycated albumin [19], no significant differences were found between the experimental and control groups. Of the two studies that reported newborn outcomes, one study [21] did not provide the p-value and the effectiveness therefore could not be determined. In Jung’s study [20], no significant differences were found for birth weight, macrosomia, Apgar scores, hypoglycemia, or trauma at birth.

In the psychosocial domain, depression was measured in three studies (42.9%) [16,18,19], of which two [16,18] reported a statistically significant decrease in the experimental group (t = 3.53, p = .001 and F = 4.27, p = .043, respectively). Anxiety was evaluated in two studies [16,19] and both studies reported statistically significant reductions (t = 5.49, p < .001 and F = 4.13, p = .048, respectively). Self-efficacy also showed significant results in the two studies that reported corresponding measurements [16,17] (t = –2.06, p = .047 and t = –2.02, p = .048, respectively). The study that assessed maternal identity [9] also showed significant positive results for the experimental group (U = –4.48, p < .001).

In the behavioral realm, self-management and self-care behaviors were reported in four studies (57.1%) [9,17-19], with statistically significant improvements in the experimental group in one study each [9,18] (U = –3.80, p < .001 and t = –3.25, p = .002, respectively). However, the level of GDM knowledge, measured as a cognitive outcome [18], did not show a significant difference (t = –1.98, p = .052) (Table 1).
Table 2. Summary of the effects of the programs (N=7)

<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Physiological outcomes</th>
<th>Infant outcomes</th>
<th>Psychosocial outcomes</th>
<th>Behavioral outcomes</th>
<th>Cognitive outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- OGGT: not significant $p = .943$</td>
<td>- Apgar score: not significant $p = .376$</td>
<td>- Depression: not significant $F = 2.90, p = .096$</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Length of gestation: not significant $p = .899$</td>
<td>- Trauma at delivery: not significant $p = .764$</td>
<td>- Self-efficacy: not significant $t = 3.25, p = .002$</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Delivery type: not significant $p = .388$</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>- Morbidity of T2DM after delivery: not significant $p = .764$</td>
<td></td>
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<td></td>
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<tr>
<td>Jeon (2018) [17]</td>
<td>-75 g oral glucose tolerance test: not significant $(t = 0.11, p = .748)$</td>
<td></td>
<td>Self-efficacy: increased in the Exp $t = -2.02, p = .048$</td>
<td></td>
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<tr>
<td></td>
<td>-Glycated albumin: not significant $F = 0.08, p = .776$.</td>
<td></td>
<td>Anxiety: reduced in the Exp $F = 4.13, p = .048$</td>
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<tr>
<td></td>
<td>-FBS: not significant $F = 3.25, p = .075$.</td>
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<tr>
<td></td>
<td>-PP1: not significant $F = 0.48, p = .489$.</td>
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<td></td>
<td>-FBS: reduced in the Exp $(t = 5.03, p &lt; .001)$.</td>
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<tr>
<td></td>
<td>-HbA1c: reduced in the Exp $(t = 3.94, p &lt; .001)$.</td>
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<tr>
<td></td>
<td>-HbA1c: not significant $(U = -1.77, p = .238)$.</td>
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<td></td>
<td>Self-efficacy: increased in the Exp $t = 3.53, p &lt; .001$.</td>
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<td></td>
<td></td>
<td>Anxiety: reduced in the Exp $(t = 5.49, p &lt; .001)$.</td>
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<td></td>
<td>-SMBG</td>
<td>Newborn sex</td>
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<td></td>
<td>-HbA1c</td>
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<td></td>
<td>-Biochemical characteristics</td>
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<td>-Gestational age</td>
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<td>-Experience of insulin treatments</td>
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<td>-Urinary ketones</td>
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<tr>
<td></td>
<td>-Delivery type</td>
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</table>

Discussion

This systematic review examined the effects of seven studies that described health care programs provided to Korean pregnant women with GDM and reported the physiological, behavioral, cognitive, and psychosocial effects of those programs.

All of the studies were non-randomized experimental studies, and the majority (n = 6) were carried out since 2013. More broadly, intervention studies including medication, diet, and exercise therapy have been carried out for women with GDM from diverse linguistic and cultural backgrounds [23,24]. The growing prevalence of GDM in Korea, related to the aging of pregnant women, seems to have contributed to an increasing interest in GDM [20].

In the studies analyzed herein, the health care programs tended to be provided on an individual basis (n = 4), rather than in small groups, and through offline delivery (n = 4), although three studies used online [19] or combined online and offline modalities [17,20]. Although a prior study [11] suggested that the effects of programs might differ according to the delivery method, this study could not clearly identify any such effects due to an insufficient number of studies. Various intervention strategies and methods, including case management and information technology-based programs, were used in the research analyzed herein, and five of the seven studies included physical and lifestyle interventions, such as self-measurement of blood glucose levels, diet, and exercise. This is thought to reflect the importance of diet and exercise as ways to improve blood glucose levels in patients with GDM; exercise and diet are major management methods for GDM, just as they are for type 1 and type 2 diabetes [20], especially since insulin alone does not provide sufficient blood glucose control in GDM. Although the effect size of the intervention method could not be determined due to the heterogeneity of the studies, researchers should investigate interventions and approaches that reflect the needs of women with GDM, considering that GDM, which is diagnosed at 24-28 weeks of pregnancy, requires regular self-care, both during pregnancy and after childbirth [11].

Most of the selected studies (n = 6) confirmed blood glucose control as a physiological outcome. The reported parameters included HbA1c, FBS, OGTT, post prandial blood sugar, and glycated albumin, and two or more physiological indicators were analyzed in four studies. The ADA and the World Health Organization recommend monitoring HbA1c, as it reflects the average blood glucose level within 3 months and serves both as a diagnostic criterion for diabetes and as an indicator of blood glucose control [25,26]. Although HbA1c is generally a reliable indicator, it may be affected by the physiological diabetogenic effects of pregnancy, so appropriate blood sugar testing needs to be performed starting on the first prenatal visit when GDM risk
is suspected [1]. Glycated albumin, which reflects changes in blood sugar within weeks due to the shorter half-life of albumin relative to hemoglobin, has the advantage of detecting changes in blood glucose control over relatively short intervals compared to glycated hemoglobin; in particular, it sensitively reflects post prandial blood glucose [26]. GDM requires more stringent blood glucose control goals than type 1 or 2 diabetes [27], since macrosomia, the main complication of GDM, is primarily related to post prandial hyperglycemia [28]. Despite rigorous attempts to control blood glucose levels based on glycated albumin measurements [26] and the lack of evidence that one test method is superior to the other [29], the complications of diabetes may progress during pregnancy. One study analyzed herein focused on the postpartum period. GDM pregnancies are considered high-risk, and women with GDM are also at an elevated likelihood of developing diabetes in the future, which underscores the importance of regular blood glucose tests to prevent diabetes after delivery [29]. Although no consensus has been reached yet on when and how to detect postpartum abnormalities in women diagnosed with GDM [29], the ADA recommends a 75-g OGTT at 4 to 12 weeks after delivery, and every 1 to 2 years afterward [1,2]. As such, thorough postpartum care, including blood glucose management, is important for women with GDM [2,8].

There were only two studies each that reported self-care and self-management as behavioral outcome variables. An integrated self-care program, a comprehensive lifestyle-modification coaching program, and a web-based self-care program were effective for blood sugar control for among pregnant women with GDM. Since improvements in diet and exercise play a more foundational role in treating GDM than is the case for other types of diabetes, it is important to promote self-care to encourage women to actively seek lifestyle modifications [18]. However, many women with GDM have reported that self-care in terms of changing diet and exercise was difficult [17]. Considering that a lack of lifestyle improvements after childbirth often leads to type 2 diabetes [1,16], developing health care programs that can encourage sustained self-care in terms of lifestyle improvement is important.

The single study that reported a cognitive outcome variable did not find improvement in GDM knowledge. This is possibly related to the fact that the program focused on coaching to improve self-care capability for blood glucose control rather than education. Pregnant women with GDM, in particular, have been reported to have low levels of knowledge regarding weight management, hypoglycemia treatment, and exercise methods for blood glucose control [10]. Although improvement of knowledge does not always lead to positive behavioral changes, it is necessary to consider strategies that can improve specific knowledge when developing programs to promote self-care targeting lifestyle modifications.

While the psychosocial effects of the programs varied, including depression (n = 3), anxiety (n = 7), self-efficacy (n = 2), and maternal identity (n = 1), the number of studies was limited, making it difficult to present quantitative estimates of intervention effects. As psychosocial difficulties can have a negative effect on blood glucose management by reducing the treatment effect [12], assessing psychosocial outcomes is important for pregnant women with GDM. Pregnant women with GDM have been reported to experience greater psychological anxiety and depression due to higher physical and psychological fatigue than their healthy counterparts [30], concerns about maternal and fetal effects of GDM [10], and guilt [11]. Thus, pregnant women with GDM not only have educational needs for blood glucose management but also require emotional support to reduce the anxiety and stress they feel [10,11]. However, current care for GDM mainly tends to focus on checking fetal health and the physical and hormonal changes in pregnant women, often overlooking the psychological care needs of women with GDM [16]. This review supports the need for more psychosocial interventions to promote acceptance, coping, and adaptation to GDM.

Family members or spouses did not participate in any of the interventions. However, family support as perceived by the pregnant women with GDM was important, and active support from family members was a factor associated with success for diet changes and self-care behavior in pregnant women [11]. If the family neglects GDM or blames it on the pregnant woman, the pregnant woman may feel guilt and stress, subsequently becoming less motivated to manage her health [12]. As the diagnosis of GDM may cause a sense of being overwhelmed, increasing women’s knowledge of GDM and ensuring cooperation in managing their health can enable pregnant women with GDM to recognize their current situation in a more positive light and to maintain stable diabetes management [12,30]. It would be beneficial for future interventions to engage family members as well [11].

The quality of the studies included in this study was assessed as high, considering the overall low risk of bias. The number of selected studies, however, was small and all of them were non-randomized control experiment studies. Given the lack of randomized studies, the scope for generalizing and interpreting the mediating effects presented by the selected studies is limited.

Nonetheless, this review contributes to the body of knowl-
edge on GDM by reviewing and presenting the effects of health care programs, identifying the current situation of intervention-al research conducted to date, and confirming the methods, content, and effects of interventions. Future studies should attempt to use a randomized controlled trial design, and meta-analyses should be conducted to clarify the clinical effects.

Individual education should also be provided to identify and implement mental health-related programs that reduce negative emotions and stress, such as anxiety and depression, and the development of programs with family-oriented approaches and a focus on the educational needs for health care for pregnant women with GDM should be prioritized.

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Authors' contributions

All work was done by Park SJ and Lee JA.

Conflict of interest

The authors declared no conflict of interest.

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Data availability

Please contact the corresponding author for data availability.

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References


Factors associated with the decision to undergo risk-reducing salpingo-oophorectomy among women at high risk for hereditary breast and ovarian cancer: a systematic review

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**Purpose:** This systematic review aims to identify factors associated with risk-reducing salpingo-oophorectomy (RRSO), including the uptake rate and decision timing, among women at high risk for hereditary breast and ovarian cancer (HBOC).

**Methods:** We found 4,935 relevant studies using MEDLINE, Embase, CINAHL, and PsycINFO on July 6, 2020. Two authors screened the articles and extracted data. Twenty-four studies met the inclusion criteria. Quality assessment of articles was conducted using the Risk of Bias for Nonrandomized Studies tool.

**Results:** Five types of factors were identified (demographic factors, clinical factors, family history of cancer, psychological factors, and objective cancer risk). The specific significant factors were older age, having child(ren), being a *BRCA1/2* carrier, mastectomy history, perceived risk for ovarian cancer, and perceived advantages of RRSO, whereas objective cancer risk was not significant. The uptake rate of RRSO was 23.4% to 87.2% (mean, 45.2%) among high-risk women for HBOC. The mean time to decide whether to undergo RRSO after *BRCA* testing was 4 to 34 months.

**Conclusion:** RRSO decisions are affected by demographic, clinical, and psychological factors, rather than objective cancer risk. Nonetheless, women seeking RRSO should be offered information about objective cancer risk. Even though decision-making for RRSO is a complex and multifaceted process, the psychosocial factors that may influence decisions have not been comprehensively examined, including family attitudes toward RRSO, cultural norms, social values, and health care providers’ attitudes.

**Keywords:** Decision making; Hereditary breast and ovarian cancer syndrome; Salpingo-oophorectomy; Systematic review

**Introduction**

Hereditary breast and ovarian cancer (HBOC) is a syndrome that is associated with an increased incidence of breast and ovarian cancers [¹]. Approximately 12% of breast cancer and 1% to 2% of ovarian cancer cases occur in women with HBOC [²]. The most common causes of HBOC are mutations in the breast cancer susceptibility 1 and 2 genes (*BRCA1* and *BRCA2*, respectively) [¹,²]. *BRCA* mutations are found in 15.7% of women with a personal or family history of breast/ovarian cancer in...
Summary statement

• What is already known about this topic?
Decision-making for risk-reducing salpingo-oophorectomy (RRSO) in women at high risk for hereditary breast ovarian cancer (HBOC) is a complex process influenced by demographic, clinical, psychological factors, and family history of cancer.

• What this paper adds
Significant factors for RRSO were older age, having child(ren), being a BRCA carrier, mastectomy history, perceived risk of ovarian cancer, and perceived advantages of RRSO. Objective cancer risk, however, was not significant.

• Implications for practice, education, and/or policy
Psychosocial factors should be comprehensively examined for women at high risk for HBOC contemplating RRSO, including family attitudes, cultural/social values, and health care providers’ attitudes. Women seeking RRSO should be offered information about their objective cancer risk.

Korea [3]. Among BRCA1 carriers, the average lifetime cancer risks are 67% for breast cancer and 45% for ovarian cancer. Among BRCA2 carriers, these risks are 66% and 12% for breast and ovarian cancer, respectively. Therefore, clinical prevention options, such as risk-reducing salpingo-oophorectomy (RRSO), risk-reducing mastectomy (RRM), intensive surveillance for early detection of ovarian/breast cancer, and chemoprevention with tamoxifen, are offered to women at high risk for HBOC [1,2].

Among these preventive strategies, the most frequently offered option is RRSO because it reduces the risk of cancer incidence by more than 95% for ovarian cancer and 50% for breast cancer [4]. The National Comprehensive Cancer Network recommends that RRSO should be considered for women with BRCA mutations aged 35 to 40 years who have completed childbearing [5]. However, deciding to undergo RRSO is not an easy process and is affected by multifaceted factors [1,5,6]. Because RRSO not only causes postoperative menopause [1,5], but also negatively affects quality of life and psychological health, and can also alter one’s identity as a woman [5,7]. Previous studies have shown that women tend to overestimate their own cancer risk [8], to perceive information about cancer risk and preventive surgery as lacking [9], and to feel that there is pressure from clinical specialists to choose certain preventive options [10]. Therefore, genetic counseling should be improved to provide helpful decision-making support, and to do so, it is necessary to understand the current process of making decisions about RRSO [5,7].

After disclosure of the results of the BRCA test, it takes a long time for some women to select a preventive option [7], and RRSO rates have been reported to range from 13% in the USA to 75% in the Netherlands [11]. Therefore, a comprehensive exploration of the rate and timing of decision-making regarding RRSO is needed.

Although previous studies have shown that RRSO decision-making is influenced by demographic, clinical, psychological, and social factors [7,11-13], only one systematic review has integrated and explored various factors, and it did not identify significant factors [7]. Furthermore, perceptions of HBOC and RRSO, as well as healthcare infrastructure and culture, have changed since that systematic review was published in 2009 [7]. In Korea, the Health Insurance Review and Assessment Service approved BRCA1/2 tests and RRSO for high-risk populations for HBOC in 2012 and 2013, respectively [14]. In addition, international interest in BRCA and preventive surgery has increased since the actress Angelina Jolie, who is a BRCA1 carrier, received RRM in 2013 [13,14]. Despite prior research, there are gaps in explaining the process and factors associated with current RRSO decision-making.

This systematic review sought to identify the factors that influence the decision to undergo RRSO based on the existing literature. In addition, we explored the uptake rate of RRSO and the time interval between BRCA testing and RRSO among women at high risk for HBOC.

Methods

Ethics statement: This study is a literature review of previously published studies and was therefore exempt from institutional review board approval.

This systematic review was conducted in accordance with the guidelines proposed by the Preferred Reporting Items of Sys-
tematic Review and Meta-Analysis (PRISMA) [15]. The study protocol was registered prospectively at the National Institute for Health Research (registration number: CRD42020188202).

**Literature search**

To decide on the search terms, we reviewed 100 abstracts from relevant studies retrieved from MEDLINE. We combined keywords, such as “hereditary breast ovarian cancer,” “BRCA,” “risk-reducing surgery,” and “decision-making,” using “OR” for similar concepts and using “AND” for differing clusters. On July 6, 2020, the MEDLINE, Embase, CINAHL, and PsycINFO databases were searched, without any limitations on publication date (Supplementary Table 1).

**Study selection criteria**

To identify suitable studies for this study purpose, PICO (population, intervention, comparison, outcome) criteria were defined and listed (Table 1). Based on PICO, the inclusion criteria were determined as follows: studies that (1) were about women at high risk for HBOC (e.g., BRCA1/2 carriers, women with a family history of breast and/or ovarian cancers in multiple generations, and women who received genetic counseling for [risk of] breast and/or ovarian cancers); (2) reported on the factors influencing RRSO decision-making; and (3) were written in Korean or English. The exclusion criteria were as follows: (1) gray literature without peer review (e.g., conference abstracts, dissertations, and white reports); (2) animal experiments or preclinical experiments; (3) reviews, letters, and editorials; and (4) qualitative research.

Duplicate studies and gray literature were removed using a bibliography management program (EndNote X7, Clarivate, London, UK). Two authors (SYP and YLK) independently reviewed the titles and abstracts of identified studies, and selected studies according to the selection criteria.

**Risk-of-bias assessment**

Two authors (SYP and YLK) independently assessed the quality of selected articles using the Risk of Bias for Nonrandomized Studies tool (RoBANS, version 2.0) [16]. RoBANS is a risk-of-bias tool for non-randomized trials (e.g., cohort studies, case-control, and before-and-after studies) that evaluates the selection of populations, confounding variables, measurement exposure, outcome blinding, incomplete data, and selective reporting. RoBANS has moderate reliability, acceptable validity, and is compatible with domains of the Cochrane risk-of-bias tool [16]. The results of evaluating these domains were presented as “low,” “high,” and “unclear” with Revman (version 5.0, Cochrane Community, Oxford, UK).

**Data analysis**

One author (SYP) extracted the data from the selected literature using a predesigned form (first author and publication year, research country, population characteristics, study design and time of measurement, measurement, and significant or insignificant factors influencing RRSO), and another author (YLK) cross-checked the accuracy of data extraction. To show the overall significance of the reported factors, we synthesized data if the relevant factors were reported in two or more studies, and presented the ratio of the number of papers between significant and non-significant factors. The factors affecting decisions about RRSO were categorized into (1) demographic factors, (2) clinical factors, (3) family history of ovarian/breast cancer, (4) psychological factors, and (5) the objective risk of developing ovarian or breast cancer. To analyze the RRSO uptake rate, the intent and rate of RRSO were presented separately.

### Table 1. PICO framework

<table>
<thead>
<tr>
<th>Population (P)</th>
<th>Women at high risk for HBOC include the following:</th>
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<tbody>
<tr>
<td></td>
<td>BRCA1/2 carriers</td>
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<td></td>
<td>Women with a family history of breast and/or ovarian cancers in multiple generations</td>
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</table>

<table>
<thead>
<tr>
<th>Intervention (I)</th>
<th>Studies that analyzed factors associated with RRSO decision-making</th>
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<tr>
<th>Comparators (C)</th>
<th>Factors associated with decision-making of the following:</th>
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<tr>
<td></td>
<td>Chemoprevention</td>
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<td>Surveillance</td>
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<td>Risk-reducing mastectomy</td>
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<th>Outcomes (O)</th>
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<tr>
<td></td>
<td>Rates of RRSO decision-making</td>
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<td></td>
<td>Timing of RRSO decision-making</td>
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Results

Characteristics of the selected studies
The chosen search strategies identified a total of 4,935 studies, from which 24 studies were finally included in the systematic review [11-14,17-36] (Table 2, Figure 1). The 24 studies included a total of 6,793 women (range, 42–1,241), and 10 were conducted in the United States, nine in Europe, two in Korea, and one each in Australia, Israel, and the United States/Canada/Europe together. Five studies (20.8%) were cross-sectional, 9 (37.5%) were prospective cohorts, and 10 (41.7%) used a retrospective cohort design. The selected literature were published between 1999 and 2019.

Risk of bias assessment
The risk of bias in the selected literature was moderately low (Figure 2). In particular, four domains were assessed as having a low risk of bias: selection of the population (91.7%), confounding variables (87.5%), measurement of exposure (100%), and incomplete data reporting (95.8%). For the blinding of the outcome evaluation, the risk of bias was unclear in 41.7% of articles, and for the section of selective reporting, 25% of articles were evaluated as unclear because they did not report whether the institutional review board had approved their research protocol or whether the researchers prospectively conducted their study after the protocol was registered. Although it was difficult to determine the level of bias of these two domains, we assumed that these two domains did not significantly affect the overall quality of the selected articles. Thus, all selected studies were included in the data analysis (Figure 2).

Factors associated with RRSO decision-making

Demographic factors
Among the 19 studies that explored the effect of age on RRSO, 13 (68.4%) reported that older age was associated with a higher uptake of RRSO [11-13,21,23-26,28,30,31,33,35]. A Korean study [12] showed more instances of RRSO in women in their 40s than in their 50s, but the RRSO rate was higher in those over 50 years old in the United States [13] and France [25].

In 60.0% of the articles [11,23,26], more women chose RRSO if they had a child(ren). Marital status (80.0%) [20,29,32,33], employment status (100%) [12,14,20,32], education level (88.9%) [12-14,20,21,30,32,33], and race (80.0%) [13,20,21,32] were consistently non-significant factors for RRSO.

Clinical factors
All of the articles (100%) found that BRCA1/2 gene mutations were a significant factor in decision-making about RRSO [5,19,23,30]; however, the type of BRCA mutation was not a significant factor in the articles (83.3%) that reported it [11,13,14,26,28]. A personal history of mastectomy was a significant factor in 80.0% of articles [13,18,22,27], while only 40.0% [12,23,27] and 33.3% of articles [14,23] reported that a personal history of breast cancer and menopausal status were significant factors for RRSO.

Family history of cancer
The vast majority of articles (81.8%) [12-14,20-22,28,32,36] reported that a family history of breast cancer influenced RRSO decision-making; however, a family history of ovarian cancer was not a significant factor in 66.6% of articles [12-14,19,20,22,33,36] (Tables 2, 3). Singh et al. [13] particularly suggested that although a family history of ovarian cancer was not a significant factor, the death of a mother or relative from pelvic or breast cancer affected RRSO decisions.

Psychological factors
The perceived risk/anxiety/concern for ovarian cancer was a significant factor in determining RRSO in most studies (91.7%, 11 of 12) that reported it [18-21,29,31-36]. Meanwhile, the perceived risk for breast cancer was not significant in two articles [21,32]. Four articles [20,29,33,34] consistently reported that positive perceptions of RRSO were related to the decision to undergo surgery. With regard to negative perceptions of RRSO, two studies [20,34] reported conflicting results. Cancer-related distress [20,21], anxiety [33,34], and depression [12,33] were not significant factors for RRSO in the two articles that reported those factors. The significance of health perceptions differed between the two studies [12,29].

Objective cancer risk
As a possible factor influencing RRSO decision-making, the reported objective cancer risk was the risk level evaluated by family cancer/genetic specialists based on a person’s family cancer history [34,36], and breast cancer risk assessment tool according to the person’s cancer status and family cancer history such as the BRCAPRO statistical model [20,21]. The objective cancer risk did not influence women's RRSO decision-making in four articles [20,21,34,36].

Rate and timing of RRSO decision-making
The RRSO rate was 11% to 87.2% across the 21 articles. In six stud-
<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Country (period of data collection)</th>
<th>Population characteristics</th>
<th>Study design &amp; time of measurement (or follow-up)</th>
<th>Measurement</th>
<th>Significant factors for RRSO</th>
<th>Non-significant factors for RRSO</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Post-counseling</td>
<td>C: no intention for RRSO</td>
<td>Lower score of perceived disadvantages of RRSO</td>
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<td></td>
<td></td>
<td></td>
<td>HBOC relatives had a higher intention for RRSO than probands of HBOC</td>
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<td>Age, Having children</td>
<td>Family history of breast cancer or ovarian cancer</td>
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<td>Race</td>
<td>Uncertainty</td>
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<td></td>
<td>Education</td>
<td>Cancer distress</td>
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<td>Marital status</td>
<td>Objective cancer risk</td>
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<td>Employment status</td>
<td>Cancer stage at diagnosis</td>
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<td></td>
<td>Up to 72 months</td>
<td>C: no RRSO</td>
<td>Worry about ovarian cancer</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Experienced false positive screening events for high-risk pedigree</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>C: no intention for RRSO</td>
<td></td>
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<tr>
<td>Manoukian (2019) [18]</td>
<td>Italy (2008–2015)</td>
<td>128 BRCA 1/2 mutation carriers who received pre-/post-test genetic counseling</td>
<td>Prospective cohort study (self-report)</td>
<td>I: RRSO</td>
<td>Having a child</td>
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<tr>
<td></td>
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<td></td>
<td>15 months after the post-test genetic counseling</td>
<td>C: surveillance</td>
<td>Mastectomy history for cancer therapy</td>
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<td>Worry about ovarian cancer</td>
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<td>A higher number of family members with cancer</td>
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<td>Lower general health perception</td>
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<td>Greater feeling of being full of energy</td>
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<td></td>
<td></td>
<td></td>
<td>Up to 36 months</td>
<td>C: surveillance</td>
<td>Consultation with gynecologic oncologists</td>
<td>Having child</td>
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<tr>
<td></td>
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<td></td>
<td>Education</td>
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<td>The type of BRCA mutation (BRCA1 and BRCA2)</td>
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<td>Family history of ovarian cancer</td>
</tr>
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<td>Family history of ovarian cancer</td>
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<tr>
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<th>Country (period of data collection)</th>
<th>Population characteristics</th>
<th>Study design &amp; time of measurement (or follow-up)</th>
<th>Measurement</th>
<th>Significant factors for RRSO</th>
<th>Non-significant factors for RRSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tong (2015) [21]</td>
<td>USA (2005–2012)</td>
<td>614 Women who received genetic counseling for HBOC</td>
<td>Cross-sectional study (self-report) • Pre-counseling</td>
<td>I: intention for RRSO C: no intention for RRSO</td>
<td>Age: older • Family history of ovarian cancer • Perceived risk for ovarian cancer • Perceived risk of a BRCA1/2 mutation</td>
<td>Race • Education • Cancer distress • Perceived risk for breast cancer • Personal history of breast or ovarian cancer • Family history of cancer • Objective cancer risk • Knowledge of cancer genetics • Hormone receptor positivity • Decisional conflict</td>
</tr>
<tr>
<td>van der Aa (2015) [22]</td>
<td>The Netherlands (2011–2013)</td>
<td>218 Women who had familial history or BRCA1/2 mutation</td>
<td>Retrospective cohort study (medical records review) • NR</td>
<td>I: RRSO C: no RRSO</td>
<td>History of preventive mastectomy</td>
<td>Personal history of breast cancer • Personal history of any cancer • Family history of breast cancer • Family history of ovarian cancer</td>
</tr>
<tr>
<td>Kim (2013) [12]</td>
<td>South Korea (2003–2011)</td>
<td>71 BRCA1/2 mutation carriers eligible for RRSO</td>
<td>Retrospective cohort study (medical records review) • Up to 64 months</td>
<td>I: RRSO C: no RRSO</td>
<td>Age: more women in their 40s than in their 50s • Personal history of breast cancer</td>
<td>Menopausal status • Body mass index • Family history of breast cancer • Family history of ovarian cancer • Health perception • Education • Employment status • Economic status • Depression status</td>
</tr>
<tr>
<td>Singh (2013) [13]</td>
<td>USA (1998–2010)</td>
<td>136 Unaffected women with BRCA mutations</td>
<td>Retrospective cohort study (medical records review) • Up to 132 months</td>
<td>I: RRSO C: surveillance</td>
<td>Age at time of surgery ≥ 50 years • Having children • Mastectomy • History of relative dying from breast cancer • History of a mother lost to pelvic cancer • Genetic testing ≥ 2006</td>
<td>Age at the time of genetic testing • Race • Education • Personal history of breast biopsy</td>
</tr>
</tbody>
</table>

Table 2. Continued

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<table>
<thead>
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<th>First author (year)</th>
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<th>Population characteristics</th>
<th>Study design &amp; time of measurement (or follow-up)</th>
<th>Measurement</th>
<th>Significant factors for RRSO</th>
<th>Non-significant factors for RRSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidon (2012) [24]</td>
<td>UK (1996–2011)</td>
<td>700 BRCA1/2 mutation carriers</td>
<td>Prospective cohort study (medical records review) 60 months post-BRCA testing I: RRSO C: no RRSO</td>
<td>Age: 40–59 years than over the 60s The type of BRCA mutation (more BRCA1 mutation carriers had RRSO than BRCA2)</td>
<td>NR</td>
<td></td>
</tr>
<tr>
<td>Julian-Reynier (2011) [25]</td>
<td>France (2000–2006)</td>
<td>101 BRCA1/2 mutation carriers</td>
<td>Prospective cohort study 6–120 months post-BRCA testing</td>
<td>Age: over 50 years old (30s: 18.4%, 40s: 55.6%, 50s: 76.2%)</td>
<td>Age: 35–60 years than &lt; 35 years Having children</td>
<td>The type of BRCA mutation (BRCA1 and BRCA2)</td>
</tr>
<tr>
<td>Skytte (2010) [26]</td>
<td>Denmark (1998–2008)</td>
<td>306 Women (BRCA1/2 mutation carriers) with no personal history of ovarian or breast cancer</td>
<td>Retrospective cohort study (medical records review)</td>
<td>Age ≥ 40 years compared with aged &lt; 40 years (68% vs. 43%)</td>
<td>Having a child for BRCA1 carriers Family history of ovarian cancer for BRCA2 carriers</td>
<td></td>
</tr>
<tr>
<td>Beattie (2009) [27]</td>
<td>USA (1996–2006)</td>
<td>240 Women (BRCA1/2 mutation carriers)</td>
<td>Retrospective cohort study (medical records review) 44.4 months (median)</td>
<td>Age: positively associated with surgery uptake until age 60 years, with women 50–59 years old most likely to undergo RRSO</td>
<td>Personal history of breast cancer Mastectomy history for prevention</td>
<td></td>
</tr>
<tr>
<td>Friebel (2007) [28]</td>
<td>USA, Canada, and Europe (1994–2006)</td>
<td>537 Women (BRCA1/2 mutation carriers)</td>
<td>Prospective cohort study (self-report, medical records review) More than 6 months post-disclosure of BRCA testing</td>
<td>Age ≥ 40 years compared with aged &lt; 40 years (68% vs. 43%)</td>
<td>Having a child for BRCA1 carriers Family history of ovarian cancer for BRCA2 carriers</td>
<td>The type of BRCA mutation (BRCA1 and BRCA2)</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Country (period of data collection)</th>
<th>Population characteristics</th>
<th>Study design &amp; time of measurement (or follow-up)</th>
<th>Measurement</th>
<th>Significant factors for RRSO</th>
<th>Non-significant factors for RRSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claes (2005) [31]</td>
<td>Belgium (1999–2003)</td>
<td>68 Women who received genetic counseling for HBOC (34 BRCA1/2 mutation carriers and 34 non-carriers)</td>
<td>Prospective cohort study (self-report) 12 months after receiving BRCA test</td>
<td>I: RRSO; C: no RRSO</td>
<td>Age: older</td>
<td>Perceived risk for ovarian cancer</td>
</tr>
<tr>
<td>Fang (2003) [33]</td>
<td>USA (NR)</td>
<td>76 Women enrolled in a familial cancer risk assessment program</td>
<td>Cross-sectional study (self-report) Following familial cancer education and genetic counseling</td>
<td>I: intention for RRSO in 12 months; C: no intention for RRSO</td>
<td>Age: older</td>
<td>Perceived benefit of RRSO</td>
</tr>
<tr>
<td>Hurley (2001) [34]</td>
<td>USA (1997)</td>
<td>94 Women who received genetic counseling for family history of ovarian cancer</td>
<td>Retrospective cohort study (telephone interview, self-report) 12 months after genetic counseling</td>
<td>I: interest in RRSO in the future; C: no interest to RRSO</td>
<td>Perceived benefits of RRSO Reducing anxiety/uncertainty Stress-related ideation</td>
<td>Anxiety of cancer Perceived efficacy of RRSO Risks of RRSO Objective cancer risk</td>
</tr>
<tr>
<td>Meiser (1999) [36]</td>
<td>Australia (1996–1998)</td>
<td>95 High-risk women who attended familial cancer clinics</td>
<td>Retrospective cohort study (mail, self-report) Prior to attendance at a familial cancer clinic</td>
<td>I: interest in RRSO</td>
<td>Anxiety of breast/ovarian cancer</td>
<td>Age Number of first- and second-degree relatives with breast or ovarian cancer Objective cancer risk</td>
</tr>
</tbody>
</table>

BRCA: Breast cancer susceptibility gene; C: comparator; HBOC: hereditary breast and ovarian cancer; I: intervention; NA: not available; NR: not reported; RRSO: risk-reducing salpingo-oophorectomy.
Identification

Records identified through database searching (n=4,935)
(Ovid-MEDLINE 1288, Ovid-Embase 2707, CINAHL 239, Cochrane Library 560, PsycINFO 141)

Records after duplicates, conference abstracts, not original article (opinion, letters, editorial, etc) removed (n=2,083)

Records excluded by title and abstract review (n=1,986)

Records excluded with reasons (n=73)
- Did not report the factors associated with risk-reducing salpingo-oophorectomy (n=25)
- Not women at high risk for hereditary breast and ovarian cancer (n=4)
- Reported the factors associated with risk-reducing mastectomy, chemoperevention, and surveillance (n=27)
- Reviews, letters, and editorials (n=5)
- Qualitative studies (n=12)

Full-text articles assessed for eligibility (n=97)

Studies included in synthesis (n=24)

Figure 1. Flow diagram of study selection.

![Flow diagram of study selection](image)

Figure 2. Risk-of-bias graph. (A) Risk of bias summary. (B) Risk of bias for selected studies.

![Risk-of-bias graph](image)
ies [17,20,21,30,33,36], 11% to 61.6% of women at high risk for HBOC intended to undergo RRSO in the future (mean, 41.6%; 481 of 1,155 women). In 15 studies [11-14,18,22-29,31,32], 46.2% of women received RRSO (range, 23.4%–87.2%; 1,830 of 3,960 women (Table 4).

Four articles [14,12,26,27] reported the length of time that elapsed between the BRCA test and RRSO (Table 4). Of the three articles that studied Koreans [12,14] and Americans [27], the mean time to decide was 2 to 7.3 months. Meanwhile, a Danish article [26] reported that it took 34 months to decide, and a Korean article [12] reported that the maximum time to decide was 64 months. In two Korean articles on BRCA carriers [12,14], the proportion of patients who received RRSO within 1 year after receiving a genetic consultation was reported to be high, at 85.7% [12] and 86.4% [14], respectively.

### Discussion

The goal of this study was to identify significant factors affecting RRSO decision-making among women at high risk of HBOC and to explore the uptake rate and decision timing for RRSO. Among the reviewed articles, 13 [11-13,21,23-26,28,30,31,33,35] suggested that older age was associated with the decision to undergo RRSO. Although six studies [17,19,20,29,32,36] did not find that age was significant, those studies analyzed age as a continuous variable; therefore, they failed to determine which age group received RRSO more. In this review, women in their 40s and 50s were more likely to undergo RRSO than other age groups in four studies [12,13,24,25], and the studies that analyzed age groups were more reliable than those that examined age as a continuous variable. Therefore, age is considered to

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**Table 3.** Factors associated with the decision to undergo RRSO among women at high risk for hereditary breast and ovarian cancer

<table>
<thead>
<tr>
<th>Factor</th>
<th>Significant factors for RRSO</th>
<th>No. of articles</th>
<th>References</th>
<th>Non-significant factors for RRSO</th>
<th>No. of articles</th>
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<tr>
<td>Age</td>
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<td>11-13,21,23-26,28,30,31,33,35</td>
<td>6/19</td>
<td>17,19,20,29,32,36</td>
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<tr>
<td>Having child(ren)</td>
<td>3/5</td>
<td>[11,23,26]</td>
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<td>2/5</td>
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<td>4/4</td>
<td>[12,14,20,32]</td>
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<td>8/9</td>
<td>[12-14,20,21,30,32,33]</td>
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<td>[20,29,33,34]</td>
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</table>

*Reported in articles/total articles.
have a significant influence on decision-making about RRSO.

Although our study and the previous systematic review [7] did not confirm whether having child(ren) [11,20,23,26,30] or menopause [12,14,23,29,33] affected RRSO decisions, childbirth and menopause status are important variables in the decision-making process for RRSO [7]. This is because women at high risk for HBOC fear surgical-related menopause [7], and fertility is important for women who want to become pregnant. Therefore, qualitative studies that explore how fertility and menopause affect decision-making through in-depth interviews would facilitate a deeper understanding of this issue.

In this review, a personal history of mastectomy was a significant factor affecting RRSO in 80.0% of the articles, but a history of breast cancer was not a significant factor in 40.0% of the studies. A previous systematic review also showed that women with breast cancer tended to select RRM more frequently than RRSO [7]. Further research is needed to examine whether breast cancer history is associated with RRM, and if having a mastectomy affects decision-making about RRSO.

Most of the selected studies showed that a family history of breast cancer (81.8%) and ovarian cancer (66.7%) were not associated with having RRSO. This result is supported by a systematic review reporting that RRM was more strongly affected than RRSO by family cancer history [7]. Therefore, a family history of ovarian/or breast cancer is assumed to be a more important factor in determining RRM than RRSO. In one article [13], RRSO was more likely to be chosen if a mother or relative had died from breast or ovarian cancer than simply having a family cancer history. Furthermore, Howard et al. [7] reported that RRM was more likely to be chosen based on experiences of first-degree relatives, especially mothers and sisters, rather than having a family history of ovarian/breast cancer. Therefore, future studies should analyze the death of a close family member from cancer, as distinct from a family history of cancer.

Perceived risk of cancer is a well-known factor contributing to the choice to undergo risk-reducing surgery among women at high risk for HBOC [5,7,37]. Our study found that the perceived risk of ovarian cancer was the main motivation for choosing to undergo RRSO. However, the mechanism underlying cancer risk perception is still unknown [38]. Four articles

Table 4. RRSO rate and timing among women at high risk for HBOC

<table>
<thead>
<tr>
<th>First author/publication year</th>
<th>Country</th>
<th>Follow-up (month)</th>
<th>RRSO, n (%)</th>
<th>Timing for RRSO (month), mean (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ladd (2020) [20]</td>
<td>USA</td>
<td>NR</td>
<td>103/168 (61.3)</td>
<td>NR</td>
</tr>
<tr>
<td>Conley (2019) [17]</td>
<td>USA</td>
<td>NR</td>
<td>11/103 (10.7)</td>
<td>NR</td>
</tr>
<tr>
<td>Tong (2015) [21]</td>
<td>USA</td>
<td>NR</td>
<td>261/614 (42.5)</td>
<td>NR</td>
</tr>
<tr>
<td>Fang (2003) [33]</td>
<td>USA</td>
<td>NR</td>
<td>26/76 (34.2)</td>
<td>NR</td>
</tr>
<tr>
<td>Meiser (1999) [36]</td>
<td>Australia</td>
<td>NR</td>
<td>19/95 (20.0)</td>
<td>NR</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>481/1,155 (41.6)</td>
<td></td>
</tr>
</tbody>
</table>

RRSO in women at high risk for HBOC

<table>
<thead>
<tr>
<th>First author/publication year</th>
<th>Country</th>
<th>Follow-up (month)</th>
<th>RRSO, n (%)</th>
<th>Timing for RRSO (month), mean (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim (2016) [14]</td>
<td>South Korea</td>
<td>36</td>
<td>22/42 (52.4)</td>
<td>7.3 (0.6–33.3)</td>
</tr>
<tr>
<td>van der Aa (2015) [22]</td>
<td>The Netherlands</td>
<td>NR</td>
<td>190/218 (87.2)</td>
<td>NR</td>
</tr>
<tr>
<td>Kim (2013) [12]</td>
<td>South Korea</td>
<td>64</td>
<td>21/71 (29.6)</td>
<td>2 (0–64)</td>
</tr>
<tr>
<td>Singh (2013) [13]</td>
<td>USA</td>
<td>NR</td>
<td>71/136 (52.2)</td>
<td>NR</td>
</tr>
<tr>
<td>Manchanda (2012) [23]</td>
<td>UK</td>
<td>80</td>
<td>265/1,133 (23.4)</td>
<td>NR</td>
</tr>
<tr>
<td>Sidon (2012) [24]</td>
<td>UK</td>
<td>60</td>
<td>309/700 (44.1)</td>
<td>NR</td>
</tr>
<tr>
<td>Julian-Reynier (2011) [25]</td>
<td>France</td>
<td>60</td>
<td>43/101 (42.6)</td>
<td>NR</td>
</tr>
<tr>
<td>Skytte (2010) [26]</td>
<td>Denmark</td>
<td>6–120</td>
<td>218/306 (71.2)</td>
<td>34</td>
</tr>
<tr>
<td>Beattie (2009) [27]</td>
<td>USA</td>
<td>6–120</td>
<td>122/240 (50.8)</td>
<td>4</td>
</tr>
<tr>
<td>Bradbury (2008) [31]</td>
<td>USA</td>
<td>84</td>
<td>62/88 (70.5)</td>
<td>NR</td>
</tr>
<tr>
<td>Friebel (2007) [28]</td>
<td>North America, EU</td>
<td>≥ 6</td>
<td>297/537 (55.3)</td>
<td>NR</td>
</tr>
<tr>
<td>Madalinski (2007) [29]</td>
<td>Netherlands</td>
<td>12</td>
<td>118/160 (73.8)</td>
<td>NR</td>
</tr>
<tr>
<td>Claes (2005) [31]</td>
<td>Belgium</td>
<td>12</td>
<td>16/21 (75.0)</td>
<td>NR</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>1,830/3,960 (46.2)</td>
<td></td>
</tr>
</tbody>
</table>

HBOC: Hereditary breast and ovarian cancer; NR: not reported; RRSO: risk-reducing salpingo-oophorectomy.
reported that BRCA carriers chose RRSO more frequently than non-carriers, which was an expected result. Although Padamsee et al. [5] suggested that the perception of RRSO could vary depending on the type of BRCA mutation, in this study there was no evidence that the type of BRCA mutation affected decision-making about RRSO [11,13,14,26,28]. Therefore, in-depth studies are needed to determine whether there are differences in the RRSO decision-making process depending on the BRCA mutation type [5].

A systematic review [7] found that psychological factors affected decisions about RRM, but we could not confirm whether psychological stability (e.g., cancer-related distress, anxiety, and depression) affected RRSO decision-making in this study. Therefore, further studies are needed to identify differences in psychological motivations for decisions about RRSO and RRM.

Previous qualitative studies showed that family factors were related to RRSO [7,39], and a systematic review found that spouses, family/friends, and doctors’ recommendations influenced the choice to undergo RRM [38]. However, we could not determine whether these factors were explored in quantitative studies related to RRSO. These gaps may suggest that family and interpersonal factors in RRSO decision-making have not been explored. However, family, friends, and communities influence the information obtained and the decision-making process. Therefore, further research is needed to identify the impact of these factors and to integrate the factors reported in qualitative studies.

In this review, objective cancer risk was not related to the decision to undergo RRSO. This result implies that women decide to undergo RRSO to reduce anxiety based on the perceived risk of ovarian cancer [40], rather than on objective information. In addition, the effect of genetic testing on RRSO decisions has not been reported to a sufficient extent. Therefore, it is necessary to confirm whether fully-informed decision-making is happening in the clinical setting.

The uptake rate of RRSO varied from 11% to 87.2% across the selected articles in this review. Among those who opted for RRSO, Koreans were younger than Europeans [12,13,25], and 71.2% to 87.2% of Danish [26] and Dutch [22,29] women chose RRSO, which was a higher rate than that of women in other countries. This study also showed that Danish women took a longer time to make decisions than Koreans and Americans. These results imply that socio-cultural factors and national health care systems may affect RRSO decisions. This is supported by Padamsee et al. [5], who suggested that geographical differences, which may be a proxy for differences in health care infrastructure and cultural contexts, influence RRSO decisions.

Therefore, further research is needed to examine how sociocultural factors and health care delivery systems affect RRSO decision-making and surgical timing.

The generalizability of the results of this systematic review is limited because we did not review the factors associated with RRSO from qualitative research. Nevertheless, this study is meaningful in that it provides fundamental information regarding factors affecting RRSO decisions based on current evidence. In particular, we found that the perceived risk of ovarian cancer, older age, and being a BRCA carrier are major factors affecting RRSO decision-making.

Based on the results of this study, we suggest the following: (1) considering that the decision process of RRSO is complex and involves various factors, it is necessary to identify how family factors, socio-cultural characteristics, and healthcare systems affect the decision process; (2) further studies are needed to confirm the significance of factors that have been reported in a few studies or have shown contradictory results across articles; and (3) interventions should be developed based on information about objective cancer risk.

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**Authors’ contributions**

Conceived and designed the research: Park S, Kim S; Searched the data: Park S; Contributed selection and quality assessment of the literature, Analyzed the data: Park S, Kim Y; Writing—original draft: all authors; Writing—review & editing: all authors.

**Conflict of interest**

Sue Kim has been editor of the *Korean Journal of Women Health Nursing* since January 2020. She was not involved in the review process of this manuscript. Otherwise, there was no conflict of interest.

**Funding**

None.
Data availability

The datasets are available from the corresponding author on reasonable request.

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Supplementary materials

Further details on supplementary materials are presented online (available at: https://doi.org/10.4069/kjwhn.2020.11.19).

References

17. Conley CC, Agnese DM, Vadaparampil ST, Andersen BL,


The effects of diagnostic hysteroscopy on the reproductive outcomes of infertile women without intrauterine pathologies: a systematic review and meta-analysis

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Purpose: Hysteroscopy can be used both to diagnose and to treat intrauterine pathologies. It is well known that hysteroscopy helps to improve reproductive outcomes by treating intrauterine pathologies. However, it is uncertain whether hysteroscopy is helpful in the absence of intrauterine pathologies. This study aimed to confirm whether hysteroscopy improves the reproductive outcomes of infertile women without intrauterine pathologies.

Methods: We conducted a systematic review of 11 studies retrieved from Ovid-MEDLINE, Ovid-Embase, and the Cochrane Library. Two independent investigators extracted the data and used risk-of-bias tools (RoB 2.0 and ROBINS-I) to assess their quality.

Results: Diagnostic hysteroscopy prior to in vitro fertilization (IVF)/intracytoplasmic sperm injection (ICSI) was associated with a higher clinical pregnancy rate (CPR) and live birth rate (LBR) than non-hysteroscopy in patients with recurrent implantation failure (RIF) (odds ratio, 1.79 and 1.46; 95% confidence interval, 1.40–2.30 and 1.08–1.97 for CPR and LBR, respectively) while hysteroscopy prior to first IVF was ineffective. The overall meta-analysis of LBR showed statistically significant findings for RIF, but a subgroup analysis showed effects only in prospective cohorts (odds ratio, 1.40 and 1.47; 95% confidence interval, 0.62–3.16 and 1.04–2.07 for randomized controlled trials and prospective cohorts, respectively). Therefore, the LBR should be interpreted carefully and further research is needed.

Conclusion: Although further research is warranted, hysteroscopy may be considered as a diagnostic and treatment option for infertile women who have experienced RIF regardless of intrauterine pathologies. This finding enables nurses to educate and support infertile women with RIF prior to IVF/ICSI.

Keywords: Birth rate; Female infertility; Hysteroscopy; Pregnancy rate; Systematic review
Introduction

Infertility is defined as the failure to establish a clinical pregnancy after 12 months of regular, unprotected sexual intercourse, due to an impairment of an individual’s capacity to reproduce either alone or with his or her partner [1]. Infertility is a clinical problem that affects 13% to 15% of couples worldwide [2]. According to a recent paper describing the prevalence of infertility in 195 countries from 1990 to 2017, infertility is becoming increasingly common worldwide, rising from 1,366.85 cases per 100,000 in 1990 to 1,571.35 cases per 100,000 in 2017, a 14.962% increase [3].

Assisted reproductive technology (ART) has been developed and distributed worldwide to help infertile couples, but despite its high cost, its success rate remains low [4]. According to a report from the Centers for Disease Control and Prevention, the rate of successful embryo implantation and birth is only about 34% (43%, 35.8%, and 24.9% in patients who are 35–37, 38–40, and 41–42 years old, respectively) [5].

There are various reasons for implantation failure, including embryo quality and endometrial receptivity, but in many cases, the cause is unknown [6]. The pregnancy rate can be increased by improvements in embryo transfer and culture conditions or blastocyst selection, but these advances have not succeeded in increasing the pregnancy rate beyond 40% to 50% [7]. It is well known that intrauterine pathologies can affect the pregnancy rate in women who are using ART (in vitro fertilization [IVF] and/or intracytoplasmic sperm injection [ICSI]); therefore, it is necessary to evaluate the intrauterine environment in order to maximize the implantation rate of high-quality embryos [8].

Hysteroscopy is the gold-standard test for assessing intrauterine conditions [9]. Hysteroscopy can be used to directly and accurately diagnose abnormalities such as intrauterine adhesions, endometrial polyps, submucosal fibroids, endometritis, or uterine structural abnormalities through visualization of the cervical and intrauterine abnormalities, as well as through concurrent therapeutic interventions when necessary. In addition, hysteroscopy is advantageous as it can be used to perform biopsies [10].

Treating intrauterine pathologies through hysteroscopy has been found to lead to improvements in reproductive outcomes, since intrauterine lesions can negatively affect the implantation rate [11-13]. The benefits of using interventional hysteroscopy to treat intrauterine pathologies have been clearly documented in many studies [11-13]. However, no previous systematic review has determined whether hysteroscopy is helpful in improving both the clinical pregnancy rate (CPR) and the live birth rate (LBR) in the absence of intrauterine pathologies. Several systematic reviews have compared hysteroscopy and non-hysteroscopy groups [10,14-17], but none have compared diagnostic hysteroscopy with non-hysteroscopy. In 2008, a systematic review compared diagnostic hysteroscopy and non-hysteroscopy but only two randomized controlled trials (RCTs) and two non-randomized studies (NRSs) were analyzed and only the CPR was reported [18]. Even in the absence of intrauterine pathological findings, it has been hypothesized that performing hysteroscopy can help improve pregnancy rates through relaxation of the cervix, stimulation of an inflammatory reaction in the endometrium, and secretion of cytokines [19,20].

This systematic review was performed to reflect the latest results on whether diagnostic hysteroscopy prior to IVF improves the reproductive outcomes, including the LBR, of infertile women without intrauterine pathologies compared to infertile women who do not undergo hysteroscopy.

Summary statement

• What is already known about this topic?
  It is well known that hysteroscopy helps to improve reproductive outcomes by facilitating the treatment of intrauterine pathologies. However, it is uncertain whether hysteroscopy is helpful even in the absence of intrauterine pathologies.

• What this paper adds
  Our study showed that diagnostic hysteroscopy alone prior to in vitro fertilization, compared with non-hysteroscopy, may improve reproductive outcomes even in the absence of intrauterine pathologies in women who have experienced recurrent implantation failure (RIF).

• Implications for practice, education, and/or policy
  Recognizing that hysteroscopy may be considered as a diagnostic and treatment option for infertile women who have experienced RIF regardless of intrauterine pathologies, may be helpful in the education and advocacy of infertile women with RIF. Endometrial biopsy during hysteroscopy can also be considered.
**Methods**

**Ethics statement:** This study is a literature review of previously published studies and was therefore exempt from institutional review board approval.

**Search strategy**
On January 28, 2020, a search was conducted for relevant articles regarding hysteroscopy in infertile women in the following databases: Ovid-MEDLINE, Ovid-Embase, and the Cochrane Library (the Cochrane review and trials database). Combinations of the following Medical Subject Heading keywords were used for the searches: “hysteroscopy,” “minihysteroscopy,” “infertility,” “subfertility,” “intrauterine insemination,” “assisted conception,” “ICSI,” “fertilization in vitro or IVF,” “embryo transfer (ET),” “conception,” “miscarriage or abortion,” and “IVF-ET.”

**Inclusion and exclusion criteria**
Two reviewers (SYY and SHL) independently screened the titles and abstracts of the studies extracted from the databases. The full text was subsequently reviewed to identify potential relevant articles. Studies were selected regardless of whether they reported experiences of recurrent implantation failure (RIF), and we included both RCTs and NRSs. Studies that reported the following were included: (a) infertile women who were scheduled to use ART (IVF/ICSI) for infertility treatment; (b) hysteroscopy in infertile women; and (c) the CPR or LBR in infertile women without intrauterine pathologies who underwent hysteroscopy. Additionally, only papers published within the last 20 years were included. The following types of studies were excluded: (a) animal studies; (b) articles not in English; and (c) conference posters, study protocols, review articles, cost-effectiveness analysis studies, and abstracts.

We defined the outcomes of interest before the systematic review. The primary outcome measures were the CPR and LBR, and secondary outcome measures were the implantation and abortion rates, as well as adverse events related to hysteroscopy.

In cases of disagreement between the reviewers, discussions were held to resolve the issue. The principle was set that in cases where a consensus was not reached between the two reviewers, the third reviewer would intervene; however, all conflicts were resolved without the intervention of a third reviewer.

**Risk of bias assessment**
Two reviewers (SYY and SHL) independently conducted quality assessments using the Cochrane’s risk of bias tool, ver. 2 (RoB 2.0; August 22, 2019 version) for RCTs [21]. For NRSs, the quality assessments were performed using the Cochrane’s risk of bias in non-randomized studies of interventions tool (ROB-INS-I; August 1, 2016 version) [22].

The RoB 2.0 tool includes five domains; bias arising from the randomization process, bias due to deviations from the intended intervention, bias due to missing outcome data, bias due to outcome measurement, and bias due to the selection of the reported results. Each criterion for the RoB 2.0 tool was evaluated as either “low risk,” “high risk,” or “some concerns.” The ROB-INS-I tool includes seven domains; bias due to confounding, bias due to the selection of the participants, bias in the classification of the interventions, bias due to deviations from the intended interventions, bias due to missing data, bias in measurement of outcomes, and bias in selection of the reported result. Each item was graded as “low risk,” “moderate risk,” “serious risk,” “critical risk,” or “no information.” Disagreements regarding the quality assessments between the reviewers were resolved through discussion.

**Data extraction and statistical analysis**
Two reviewers (SYY and SHL) independently extracted data from the studies selected according to the selection criteria. Disagreements between the reviewers were resolved through discussions. The following data were extracted for each of the selected studies: author; year of publication; title; country in which the study was conducted; study design, and group; number and ages of the patients; experiences of RIF; previous investigations (diagnostic tests performed before participation in the study such as transvaginal ultrasonography [TVS] or hysterosalpingography [HSG]); descriptions of the participants (inclusion and exclusion criteria, type of infertility); details of the intervention (hysteroscopy or no hysteroscopy); whether endometrial stimulation was performed; the method used to attempt pregnancy; the author’s conclusion; the main outcome measures; intergroup differences; and adverse events of hysteroscopy.

The authors of the selected studies were contacted to provide missing or unclear information on the trial methods or data. We used the meta-analyses of observational studies in epidemiology reporting guidelines [23].

The pooled odds ratio (OR) was extracted for categorical data. Meta-analysis was undertaken where there were two or more studies. From each study, binary data were extracted in 2 × 2 tables and the results were pooled and expressed as ORs with 95% confidence intervals (CIs) using a random-effects model, as appropriate [24]. Heterogeneity analyses were per-
formed using forest plots, and the $I^2$ statistic was used to quantify the heterogeneity between studies [25]. All statistical analyses were performed using RevMan ver. 5.4 software (Cochrane, London, UK).

**Results**

**Study characteristics**

The process of study selection is summarized in Figure 1.

A total of 2,048 studies were initially identified. After excluding duplicates, 1,705 studies remained. A total of 120 studies were selected upon initial screening. After the full-text review, 111 studies were excluded and nine studies were included, with two studies additionally included based on a hand search (March 10, 2020). Ultimately, a total of 11 studies were included [26-36]. The basic characteristics of the included studies are shown in Supplementary Table 1.

Six RCTs [26,27,29,32,34,35] and five NRSs [28,30,31,33,36], respectively, were selected that investigated the CPR or LBR in infertile women without intrauterine lesions after hysteroscopy. Of the 11 studies that were included, four (36.4%) were conducted in Turkey [26,30,33,36] and two (18.2%) in Iran [31,35], and one each was conducted in Egypt [29], Greece [28], India [27], the Netherlands [34], and Europe.

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![Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram.](https://doi.org/10.4069/kjwhn.2020.12.13)
Six studies (54.5%) included infertile women who had experienced RIF [26-28,31-33], and three (27.3%) included infertile patients who were undergoing IVF for the first time [34-36]. Two studies (18.2%) did not separately define whether the patients had experienced RIF or were undergoing IVF for the first time [29,30].

Upon quality assessment, three of the six RCTs [26,27,33] were graded as having "some concerns" for selection bias (bias arising from the randomization process) because the allocation concealment information could not be confirmed, but the imbalances at baseline did not suggest any problems. The other three studies [29,32,34] were graded as "low risk" for selection bias. In all six RCTs [26,27,29,32,34,35], performance bias (bias due to deviations from the intended intervention) and detection bias (bias in measurement of the outcome) were both graded as "low risk." In the evaluation of attrition bias (bias due to missing outcome data), one [29] of the six studies were evaluated as having "some concern" because an intention-to-treat analysis was not conducted, and five studies [26,27,32,34,35] were evaluated as "low risk." Two studies [32,34] were rated as "low risk" for reporting bias (bias in selection of the reported result), while four studies [26,27,29,35] were rated as having "some concern" because they did not report selected results, and there was no information as to whether the analysis was performed according to a predefined plan.

Of the five NRSs, four [28,31,33,36] were classified as "moderate risk" for bias due to confounding (the preintervention domain in confounding) because the confounding variables were not properly measured and controlled, although the measurement of the important domains was sufficiently reliable and valid. In one study [30], even though IVF was performed, the confounding variables for whether the patients experienced RIF were not identified; therefore, it was graded as having "serious risk." Biases due to deviations from the intended interventions (the postintervention domain in confounding) were graded as "low risk" in all five studies [28,30,31,33,36]. For bias in selection of participants into the study (the preintervention domain of selection bias), three studies [28,33,36] were rated as "moderate risk." One [28] out of these three studies had moderate risk because the selection of the patients for the study may have been related to the intervention (hysteroscopy) and it was not possible to determine whether adjustment techniques were used to correct for the presence of selection bias. The remaining two [33,36] were determined to have moderate risk although they applied the inclusion/exclusion criteria regardless of the interventions or outcomes; however, as they were retrospective studies, the start of the follow-up period and intervention did not coincide. Two studies [30,31] were evaluated as "low risk." Biases due to missing data (the postintervention domain in selection bias) were graded as "low risk" in all five studies. Two studies [30,31] were at a low risk for bias in the classification of the interventions (the intervention domain in information bias). Three studies [28,33,36] were graded as having "moderate risk" because although the intervention status was well defined, some aspects regarding the assignment of the intervention status were determined retrospectively. Bias in the measurement of outcomes (the postintervention domain for information bias) was graded as "low risk" in all five studies because the outcome measures, e.g., the CPR and LBR, involved negligible assessor judgment. As for the bias in the selection of the reported results (reporting bias), four studies [30,31,33,36] were evaluated as "moderate risk" because their pre-registered protocol or statistical analysis plans could not be identified. In one study [28], even though the study period was long enough (6 years), the LBR was not reported, and this was graded as a "serious risk."
Table 1. The characteristics and effectiveness of the reviewed interventions (N=11)

<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Intervention</th>
<th>Comparator</th>
<th>Endometrial irritation (I only)</th>
<th>Method of pregnancy attempt (both I and C)</th>
<th>Embryo / day of ET</th>
<th>Authors' conclusion</th>
<th>Main outcome measures</th>
<th>Intergroup differences</th>
<th>Adverse events of hysterectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanacan (2019) [36]</td>
<td>In the early to midfollicular phase of the menstrual cycle (1–3 months before the start of IVF)</td>
<td>Not specified Distension medium: not specified</td>
<td>Without diagnostic hysteroscopy prior to the first IVF cycle</td>
<td>IVF</td>
<td>Fresh embryo / day 3 or day 5</td>
<td>OH before the first IVF treatment cycle did not improve fertility outcomes in patients without previously detected pathology of the uterine cavity. Routine usage of hysteroscopy should not be offered to patients in their first IVF cycles.</td>
<td>(1) Implantation rate (2) CPR (3) LBR</td>
<td>(1) .840 (2) .541 (3) .420</td>
<td>Not specified</td>
</tr>
<tr>
<td>Alleyassin (2017) [35]</td>
<td>Between the 18th and 22nd day of their menstrual cycles (mid-luteal phase) before ICSI cycles</td>
<td>4-mm diameter diagnostic sheath, continuous flow, rigid, 30° view (Karl Storz, Tuttingen, Germany) Distension medium: Saline</td>
<td>Did not undergo OH before ICSI cycles</td>
<td>ICSI</td>
<td>Fresh embryo / day 3</td>
<td>Routine OH before ICSI cycles provided direct evaluation of uterine cavity. CPR improved after correction of endometrial cavity abnormalities.</td>
<td>(1) CPR (2) Miscarriage rate (3) NS</td>
<td>(1) .004 (2) .84</td>
<td>Not specified</td>
</tr>
<tr>
<td>El-Toukhy (2016) [32]</td>
<td>Before controlled ovarian stimulation for IVF Within 14 days of menstruation</td>
<td>2.9-mm diameter rigid 30° view, with an atraumatic tip (TROPHY scope; Karl Storz) Distension medium: saline</td>
<td>Immediate controlled ovarian stimulation for IVF/ICSI</td>
<td>IVF (with or without ICSI)</td>
<td>Fresh embryo / When it is considered top quality (day 2 or days 3–4 or days 5–6)</td>
<td>Routine OH did not improve IVF outcomes in women with RIF who had a normal uterine ultrasound scan.</td>
<td>(1) Pregnancy rate (2) CPR (3) LBR (after 1 cycle of IVF)</td>
<td>(1) .86 (2) .65 (3) .96</td>
<td>No hysterectomy-related adverse events</td>
</tr>
<tr>
<td>Smit (2016) [34]</td>
<td>In the early-mid follicular phase of a menstrual cycle (days 3–12) 1–3 months before the start of IVF treatment</td>
<td>5-mm outer diameter continuous flow hysteroscope with a 5-Fr working channel and a 30° direction of view Distension medium: saline</td>
<td>Immediate start of IVF</td>
<td>IVF</td>
<td>Fresh embryo / not specified</td>
<td>Routine OH before the first IVF or ICSI treatment cycle did not improve fertility prospects in infertile women with a normal TVS of the uterine cavity who had not had a previous hysteroscopy.</td>
<td>(1) Implantation rate (2) CPR (3) OPR (4) LBR</td>
<td>(1) .23 (2) .71 (3) .69 (4) .75</td>
<td>One (&lt; 1%) woman: endometritis after hysteroscopy</td>
</tr>
</tbody>
</table>

(Continued to the next page)
<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Intervention</th>
<th>Comparator</th>
<th>Endometrial irritation (I only)</th>
<th>Method of pregnancy attempt (both I and C)</th>
<th>Embryo / day of ET</th>
<th>Authors’ conclusion</th>
<th>Main outcome measures</th>
<th>Intergroup differences</th>
<th>Adverse events of hysteroscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pabuçcu (2016) [33]</td>
<td>In early follicular phase (1–6 months before the beginning of a new cycle)</td>
<td>4-mm outer diameter, rigid, continuous flow; 30° forward and oblique view</td>
<td>Distension medium: saline</td>
<td>Immediately started a new ART cycle</td>
<td>IVF/ICSI</td>
<td>Fresh embryo / day 3 or day 5</td>
<td>Unrecognized intrauterine pathologies can be easily detected and concurrently treated during the OH procedure with high success rates.</td>
<td>(1) Implantation rate (2) Chemical pregnancy rate (3) LBR (4) Miscarriage rate</td>
<td>Not specified</td>
</tr>
<tr>
<td>Hosseini (2014) [31]</td>
<td>In the menstrual cycle just before ovarian stimulation or endometrial preparation</td>
<td>4-mm rigid, continuous flow, 30° forward, and oblique view</td>
<td>Distension medium: saline</td>
<td>Hysteroscopy was not performed</td>
<td>ART IVF/ET</td>
<td>Fresh or frozen embryo / day 3</td>
<td>OH before fresh cycles and frozen-thawed cycles in women experiencing with apparently normal uterine cavity significantly increased the pregnancy rates.</td>
<td>(1) Chemical pregnancy rate (2) CPR (3) Delivery rate</td>
<td>Not specified</td>
</tr>
<tr>
<td>Kilic (2013) [30]</td>
<td>Assessed prior to IVF Follicular phase (days 5–7 of menstrual cycle)</td>
<td>4-mm (Karl Storz) Distension medium: saline</td>
<td>Underwent IVF without OH evaluation</td>
<td>No scratching</td>
<td>IVF</td>
<td>Not specified</td>
<td>OH before IVF can detect and treat intrauterine pathologies, with positives effect on pregnancy outcomes.</td>
<td>(1) LBR (1) &lt; .05</td>
<td>Not specified</td>
</tr>
<tr>
<td>Shawki (2012) [29]</td>
<td>The early postmenstrual period before controlled ovarian stimulation for ICSI</td>
<td>3.5 mm with a 0° grade (Versascope; Gynecare, Ethicon, Sommerville, NJ, USA) Optic Illumination (250-W Xenon light source) Distension medium: saline</td>
<td>Immediate controlled ovarian stimulation for ICSI</td>
<td>Endometrial biopsy</td>
<td>ICSI</td>
<td>Fresh embryo / not specified</td>
<td>Improvement in implantation and CPR were observed after OH prior to ICSI. Routine OH should be an essential step of the infertility workup before ART even in patients with normal HSG and/or TVS.</td>
<td>(1) CPR (2) Implantation rate (1) &lt; .05 (2) &lt; .05</td>
<td>Not specified</td>
</tr>
</tbody>
</table>

(Continued to the next page)
<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Intervention</th>
<th>Comparator</th>
<th>Endometrial irritation (I only)</th>
<th>Method of pregnancy attempt (both I and C)</th>
<th>Embryo / day of ET</th>
<th>Authors’ conclusion</th>
<th>Main outcome measures</th>
<th>Intergroup differences</th>
<th>Adverse events of hysteroscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makrakis (2009) [28]</td>
<td>Less than 12 months before the first IVF attempts. Shortly after cessation of menses.</td>
<td>2.9-mm, 30° angle, external sheath of 5.5-mm diameter providing inflow and outflow (Karl Storz). Distension medium: saline.</td>
<td>Matched control (no hysteroscopy before IVF cycles).</td>
<td>No scratching</td>
<td>IVF</td>
<td>Fresh or frozen embryo / day 3–5</td>
<td>Hysteroscopy could be seen as a positive prognostic factor for achieving a subsequent IVF pregnancy in women with a history of two consecutive implantation failures.</td>
<td>(1) CPR &lt; .04 (2) OPR .06</td>
<td>Not specified</td>
</tr>
<tr>
<td>Rama Raju (2006) [27]</td>
<td>The early proliferative phase before controlled ovarian stimulation for IVF treatment.</td>
<td>5-mm diameter, 1.9-mm miniature, 30° view, 3 mm Bettocchi continuous flow sheath with an incorporated 5-Fr working channel (Karl Storz). Distension medium: glycine.</td>
<td>Immediate controlled ovarian stimulation for IVF treatment.</td>
<td>Endometrial biopsy</td>
<td>IVF</td>
<td>Fresh embryo / day 3</td>
<td>Patients with recurrent IVF-ET failures after normal HSG should also be reevaluated using hysteroscopy prior to commencing IVF-ET cycles in order to enhance the CPR.</td>
<td>(1) CPR &lt; .05 (2) Miscarriage rate &lt; .05 (3) LBR &lt; .05</td>
<td>No further complications</td>
</tr>
<tr>
<td>Demiro (2004) [26]</td>
<td>The early proliferative phase before controlled ovarian stimulation for IVF treatment (2–6 months after the last failed IVF cycles).</td>
<td>5-mm continuous flow, lens diameter 2.9-mm, 30° view, 5-mm diameter sheath, Bettocchi, size 5 (Karl Storz). Distension medium: saline.</td>
<td>Immediate controlled ovarian stimulation for IVF treatment.</td>
<td>No scratching</td>
<td>IVF</td>
<td>Fresh embryo / day 3</td>
<td>Patients with normal HSG but recurrent IVF-ET failure should be evaluated prior to commencing IVF-ET cycles to improve the clinical PR.</td>
<td>(1) Number of clinical pregnancies &lt; .05 (2) Number of first trimester abortions &lt; .05</td>
<td>Mild pain resembling menstrual cramps</td>
</tr>
</tbody>
</table>

ART: Artificial reproductive technology; C: control; CPR: clinical pregnancy rate; ET: embryo transfer; Fr: French guage; HSG: hysterosalpingography; I: intervention; ICSI: intracytoplasmic sperm injection; IVF: in vitro fertilization; LBR: live birth rate; NS: not significant; OH: office hysteroscopy; OPR: ongoing pregnancy rate; PR: pregnancy rate; RIF: recurrent implantation failure; TVS: transvaginal sonography.
Figure 2. Diagnostic hysteroscopy vs. non-hysteroscopy according to the number of in vitro fertilization attempts. (A) Clinical pregnancy rate. (B) Live birth rate. df: Degree of freedom; M-H: Mantel-Haenszel; RCT: randomized controlled trial; RIF: recurrent implantation failure.
The results of the quality assessment are presented in detail in Supplementary Figure 1.

**Primary outcome measures: CPR and LBR**

**Diagnostic hysteroscopy vs. non-hysteroscopy according to the number of IVF attempts**

Diagnostic hysteroscopy vs. non-hysteroscopy was analyzed by subgroup according to IVF attempts.

1) CPR

Seven of the 11 studies (four RCTs [26,27,29,35] and three NRSs [28,31,36]) reported the CPR in women who underwent diagnostic hysteroscopy and were included in the analysis. In total, 3,152 infertile women were included in the seven studies; 1,549 in the diagnostic hysteroscopy group without intrauterine pathologies and 1,603 in the non-hysteroscopy group.

The overall meta-analysis of the seven studies showed that the RIF group [26-28,31] had a significant difference in the CPR, while the group of women undergoing their first IVF attempts [35,36] did not (OR, 1.79 and 1.51; 95% CI, 1.40–2.30 and 0.97–2.36 for RIF and first attempts, respectively). A subgroup analysis of the RIF group showed effectiveness in both RCTs [26,27] and prospective cohorts [28,31] (OR, 2.01 and 1.70; 95% CI, 1.48–2.75 and 1.09–2.66 for RCTs and prospective cohorts, respectively) while a subgroup analysis of the first-attempt group showed ineffectiveness in both an RCT [35] and a retrospective cohort [36] (OR, 1.74 and 1.24; 95% CI, 0.98–3.08 and 0.62–2.48 for the RCT and retrospective cohort, respectively) (Figure 2-A).

2) LBR

Eight of the 11 studies (three RCTs [27,32,34] and five NRSs [28,30,31,33,36]) reported the LBR in women who underwent diagnostic hysteroscopy and were included in the analysis. In total, 4,372 infertile women were included in the eight studies: 1,854 in the diagnostic hysteroscopy group without intrauterine pathologies and 2,518 in the non-hysteroscopy group.

The overall meta-analysis of the eight studies showed that the RIF group [27,28,31-33] had a significant difference in the LBR, while the first-attempt group [34,36] did not (OR, 1.46 and 1.16; 95% CI, 1.08–1.97 and 0.86–1.56 for RIF and first attempts, respectively). A subgroup analysis of RIF group showed effectiveness in prospective cohorts [28,31], but not in RCTs [27,32] or a retrospective cohort [33] (OR, 1.47, 1.40, and 1.67; 95% CI, 1.04–2.07, 0.62–3.16, and 0.84–3.34 for prospective cohorts, RCTs, and the retrospective cohort, respectively). A subgroup analysis of the first-attempt group showed ineffectiveness in both an RCT [34] and a retrospective cohort [36] (OR, 1.13 and 1.38; 95% CI, 0.82–1.55 and 0.64–2.99 for the RCT and retrospective cohort, respectively) (Figure 2-B.).

**Diagnostic hysteroscopy vs. non-hysteroscopy in women who underwent endometrial stimulation during hysteroscopy**

Diagnostic hysteroscopy vs. non-hysteroscopy was analyzed by subgroup according to whether endometrial stimulation was performed during hysteroscopy.

1) CPR

The same seven studies (four RCTs [26,27,29,35] and three NRSs [28,31,36]) of 1,549 (out of a total of 3,152) infertile women reported the CPR in patients who underwent diagnostic hysteroscopy and were included in the analysis. The remaining 1,603 were the non-hysteroscopy group.

The results of the seven studies showed significant differences in the CPR regardless of whether endometrial stimulation was performed in the diagnostic hysteroscopy group without intrauterine pathologies before IVF/ICSI when compared with the non-hysteroscopy group (OR, 1.67, 95% CI, 1.42–1.97; I² = 0%, p = .45). The degree of improvement in the CPR observed after endometrial stimulation during hysteroscopy [27,29] seemed to be higher than that observed after no endometrial stimulation during hysteroscopy [26,28,31,35,36] (OR, 1.96 and 1.59; 95% CI, 1.36–2.83 and 1.32–1.92 for endometrial stimulation and no endometrial stimulation, respectively). The subgroup analysis of RCTs showed effectiveness for the CPR regardless of endometrial stimulation (OR, 1.96 and 1.76; 95% CI, 1.36–2.83 and 1.22–2.53 for endometrial stimulation [27,29] and no endometrial stimulation [26,35], respectively) (Figure 3-A).

2) LBR

As reported above, the same eight studies (three RCTs [27,32,34] and five NRSs [28,30,31,33,36]) reported the LBR after diagnostic hysteroscopy without intrauterine pathology (1,854 out of a total of 4,272 infertile women) and were included in the analysis. The remaining 2,518 were the non-hysteroscopy group.

The results of the eight studies showed significant differences in the LBR regardless of endometrial stimulation in the hysteroscopy group without intrauterine pathologies before IVF/ICSI when compared with the non-hysteroscopy group, but the degree of significance was not as high as it was for the CPR (OR, 1.34; 95% CI, 1.09–1.64; I² = 38%, p = .13). The degree of improvement in the LBR observed after endometrial stimulation during hysteroscopy [27] seemed to be higher than that ob-
Figure 3. Diagnostic hysteroscopy vs. non-hysteroscopy in patients who underwent endometrial stimulation during hysteroscopy. (A) Clinical pregnancy rate. (B) Live birth rate.
df: Degree of freedom; M-H: Mantel-Haenszel; RCT: randomized controlled trial.
served after no endometrial stimulation during hysteroscopy \[28,30-34,36\] (OR, 2.15 and 1.23; 95% CI, 1.35–3.44 and 1.04–1.45 for endometrial stimulation and no endometrial stimulation, respectively). A subgroup analysis of the patients who did not undergo endometrial stimulation showed ineffectiveness in RCTs \[32,34\] and retrospective cohorts \[33,36\], but effectiveness in prospective cohorts \[28,30,31\] (OR, 1.04, 1.54, and 1.37; 95% CI, 0.82–1.32, 0.92–2.57, and 1.05–1.79 for RCTs, retrospective cohorts, and prospective cohorts, respectively) (Figure 3-B).

Secondary outcome measures: implantation rate, miscarriage rate, and adverse events

**Implantation rate**
The implantation rate was reported for the hysteroscopy groups, but no study separately reported the implantation rate of infertile patients without intrauterine pathologies (diagnostic hysteroscopy), so this parameter was excluded from the analysis.

**Diagnostic hysteroscopy vs. non-hysteroscopy: miscarriage rate**
Three of the 11 studies (2 RCTs, 1 NRSs \[26,27,31\]) reported the miscarriage rate in patients who underwent diagnostic hysteroscopy and were included in the analysis. In total, 820 infertile women were included in these three studies; 328 in the hysteroscopy group without intrauterine pathologies and 492 in the control group.

A subgroup analysis was performed with RCTs and NRSs, as high heterogeneity was found \((p = .08, I^2 = 60\%)\). The results of the meta-analysis of the miscarriage rate are shown in Figure 4.

The results of the three studies did not show a significant difference in the miscarriage rate in the diagnostic hysteroscopy group without intrauterine pathologies compared with the non-hysteroscopy group \((OR, 1.22; 95\% CI, 0.57–2.58; I^2 = 60\%, p = .08\))

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Diagnostic hysteroscopy</th>
<th>Non-hysteroscopy</th>
<th>Odds Ratio</th>
<th>M-H, Random, 95% CI</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1. RCTs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denom et al. (2004)</td>
<td>5 154 211 25.2%</td>
<td></td>
<td>0.75</td>
<td>(0.25, 2.28)</td>
<td>2004</td>
</tr>
<tr>
<td>Rate et al. (2005)</td>
<td>23 71 25 37.9%</td>
<td></td>
<td>0.98</td>
<td>(0.43, 1.72)</td>
<td>2005</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>293 281 63.3%</td>
<td></td>
<td>0.83</td>
<td>(0.46, 1.50)</td>
<td></td>
</tr>
<tr>
<td>Total events</td>
<td>29 34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity T2 = 0.00; CH2 = 0.04; df = 1 ((p = 0.04); p = 0%) Testor overall effect (Z = 0.02 (p = 0.94))</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

| **3.2. Prospective cohort** |                         |                  |            |                     |      |
| Hosser et al. (2014) | 17 103 16 36.9%           |                  | 2.41       | (1.14, 4.78)        | 2014 |
| Subtotal (95% CI) | 193 211 56.8%             |                  | 2.44       | (1.16, 4.89)        |      |
| Total events      | 17 16                    |                  |            |                     |      |
| Heterogeneity T2 = 0.00; CH2 = 0.00; df = 1 \((p = 0.00); p = 0%\) Testor overall effect \(Z = 2.31 (p = 0.02)\) |

Total \(95\% CI\) 328 492 100.0% 1.29 \((0.57, 2.58)\)

**Adverse events relating to hysteroscopy**
Seven studies \((63.6\%)\) did not mention any adverse events relating to hysteroscopy \[28-31,33,35,36\]. Of remaining four studies that noted adverse events in the hysteroscopy group, there were no adverse events in two studies \[27,32\], while two other studies \((18.2\%)\) reported that patients developed pain \[26\] and endometritis \((n = 1, < 1\%)\) \[34\]. No studies, however, separately reported the adverse events of infertile patients without intrauterine pathologies, so this parameter was excluded from the analysis.

**Discussion**
This study is the first systematic review and meta-analysis to compare the reproductive outcomes of infertile patients without intrauterine pathologies who underwent hysteroscopy (diagnostic hysteroscopy) and groups of infertile patients who did not undergo hysteroscopy (non-hysteroscopy) since the systematic review conducted by El-Toukhy et al. \[18\] in 2008. El-Toukhy et al. \[18\] reported only the CPR and included two RCTs and two NRSs due to the limitation of the number of related studies at the time of the systematic review, and it was not possible to conduct an analysis according to the number of IVF attempts. This systematic review included the results of nine recent studies (four RCTs, five NRSs) including two RCTs with a low risk of bias \[32,34\] since 2008 and both the CPRs and the LBRs were analyzed. Other previous systematic reviews have compared groups of patients who did or did not receive hysteroscopy (hysteroscopy vs. non-hysteroscopy) \[10,14-17\]. In the previous systematic reviews, the results of interventional hysteroscopy to treat intrauterine abnormalities and diagnostic hysteroscopy in patients without intrauterine pathologies were combined and compared with the non-hysteroscopy group \[10,14-17\]. Di Spiezio Sardo et al. \[14\] compared diagnostic hysteroscopy and
Interventional hysteroscopy and found a higher pregnancy rate in the interventional hysteroscopy group in which intrauterine pathologies were removed. However, that previous study did not analyze whether hysteroscopy is helpful even in the absence of intrauterine pathologies compared with the non-hysteroscopy group.

This study showed that performing diagnostic hysteroscopy prior to IVF/ICSI may improve the CPR and LBR even in patients without intrauterine pathologies, as opposed to not performing hysteroscopy, especially in patients with RIF; however, hysteroscopy prior to the first IVF attempt was found to be ineffective. A subgroup analysis was conducted according to whether endometrial stimulation was performed during hysteroscopy to determine whether endometrial biopsy affects reproductive outcomes when diagnostic hysteroscopy is performed in infertile women without intrauterine pathologies. Regardless of endometrial stimulation, the hysteroscopy group showed greater improvement in the CPR and LBR than the non-hysteroscopy group.

The impact of the number of IVF attempts
Regarding the number of IVF attempts, our study showed that the CPR after diagnostic hysteroscopy was effective in patients who had experienced RIF without intrauterine pathologies (in comparison to no hysteroscopy), but not in infertile women without intrauterine pathologies attempting IVF for the first time (OR, 1.79 and 1.51; 95% CI, 1.40–2.30 and 0.97–2.36 for RIF and first attempts, respectively). The CPR was assessed in seven studies with 3,152 participants. Our findings are supported by recent systematic reviews by Cao et al. [15] and Mao et al. [17] reporting that hysteroscopy in infertile women experiencing RIF improved CPR compared to non-hysteroscopy groups. Pandur et al. [10] reported that the CPR was higher in infertile women who underwent hysteroscopy prior to the first IVF attempt than in the non-hysteroscopy group. However, their meta-analysis was conducted with four NRSSs and one RCT, which was a conference abstract, due to the limitation of the number of studies at the time of the systematic review in 2014. Pandur et al. [10] also mentioned that the degree of improvement was lower in patients attempting IVF for the first time than in those with previous IVF failure, in accordance with the systematic review of El-Toukhy et al. [37]. Thus, a high-quality randomized trial is necessary.

This study also showed that performing diagnostic hysteroscopy prior to IVF/ICSI for women with RIF may improve the LBR even in the absence of intrauterine pathologies compared with the non-hysteroscopy group, whereas hysteroscopy prior to the first IVF attempt was found to be ineffective (OR, 1.46 and 1.16; 95% CI, 1.08–1.97 and 0.86–1.56 for RIF and first attempts, respectively). However, the subgroup analysis showed effectiveness only in prospective cohorts (OR, 1.40 and 1.47; 95% CI, 0.86–1.56 and 1.04–2.07 for RCTs and prospective cohorts, respectively). The LBR was also assessed in eight studies with 4,372 participants. Regarding the effects on the LBR in women with RIF, the results of previous systematic reviews are discordant. Cao et al. [15] analyzed RCT and prospective cohorts together and showed an effect in the RIF group, which is consistent with our study, although they did not separately analyze only the diagnostic hysteroscopy group without intrauterine pathologies compared to the non-hysteroscopy group. Systematic reviews that analyzed only RCTs were conducted by several studies: Di Spiezio Sardo et al. [14] and Kamath et al. [16] showed improvements in the LBR in the RIF group (diagnostic hysteroscopy). Saleh et al. [38] showed no improvement in the LBR in the RIF group, but included only two RCTs [27,32], whereas Kamath et al. [16] showed an effect; however, they included the results reported by Aghahosseini et al. [39] as well as two RCTs [27,32]. The study of Aghahosseini et al. [39] was excluded in this systematic review, as it is a conference abstract.

Di Spiezio Sardo et al. [14] and Kamath et al. [16] reported an effect on the CPR in the first IVF attempts group, but not in the LBR. However, the systematic review conducted by Di Spiezio Sardo et al. [14] in 2016 did not include two RCTs from that same year [32,34], and Kamath et al. [16] reported that screening hysteroscopy may benefit women with two or more IVF failures in a subgroup analysis.

Studies classified as having some concerns in RoB 2.0 [26,27] showed that diagnostic hysteroscopy prior to IVF may be beneficial for the CPR in the RIF group, but not for women attempting IVF for the first time. Studies assessed as having serious [28] and moderate [31] risk in ROBINS-I showed that diagnostic hysteroscopy prior to IVF may be beneficial for the LBR in the RIF group, but not in the first-time IVF group. Our findings should be interpreted with caution, and verification of the effectiveness of diagnostic hysteroscopy in a larger multicenter randomized clinical study in the future is recommended. El-Toukhy et al. [18] noted in their 2008 systematic review that the benefit of hysteroscopy before IVF was lower in infertile patients undergoing IVF for the first time than in infertile patients who had experienced RIF. It has been pointed out that a higher number of IVF failures is indicative of an increased risk of intrauterine pathology, which may be related to the ability of hysteroscopy to reliably detect and potentially treat intrauterine pathologies. In
our study, the same result was obtained even though hysteroscopy was not used to correct intrauterine pathologies. Therefore, we suspect that other factors may affect the endometrial receptivity of infertile patients who have experienced RIF that are absent in women undergoing IVF for the first time. Further research is needed on the factors that specifically affect endometrial receptivity in infertile women who have experienced RIF, as distinct from women undergoing IVF for the first time.

Impact of endometrial stimulation during diagnostic hysteroscopy

With regard to endometrial stimulation during hysteroscopy, this study showed improvements in the CPR and LBR regardless of endometrial stimulation (OR, 1.67 and 1.34, 95% CI, 1.42–1.97 and 1.09–1.64 for CPR and LBR, respectively). This result is consistent with the systematic review of Kamath et al. [16], although they did not separately analyze only the diagnostic hysteroscopy group without intrauterine pathologies compared to the non-hysteroscopy group. El-Toukhy et al. [18] explained that the fertility-enhancing effect of hysteroscopy could also be independent of whether intrauterine pathologies are corrected and might be related to a number of other factors. One of several hypotheses is that injury during hysteroscopy may trigger the massive secretion of growth factors and cytokines, which may be beneficial for embryo implantation [20,40].

Mechanical endometrial injury may enhance endometrial receptivity by modulating the expression of gene encoding factors required for implantation, such as glycodelin A, laminin alpha-4, integrin alpha-6, and matrix metalloproteinase-I [41,42]. One study reported that when endometrial biopsies were performed repeatedly, Cx43 (a gap junction protein that could be a possible parameter for successful implantation and may predict implantation competence) was expressed; which could help improve the reproductive outcomes and pregnancy rates [43]. Shohayeb et al. [44] did not separately report outcomes for infertile women without intrauterine pathologies but showed a significantly higher implantation rate, CPR, and LBR after endometrial stimulation during hysteroscopy prior to ICSI (single endometrial biopsy regimen) for infertile women in comparison to hysteroscopy without endometrial scraping. Various mechanisms have been proposed to support the hypothesis that endometrial scratch injuries may improve endometrial receptivity. The most recent hypothesis is the backward development hypothesis, according to which an endometrial scratch injury may delay endometrial maturation, minimizing the negative effects of ovarian stimulation and implantation [45-47]. Another hypothesis based on animal models posits that injury may induce the rapid growth of endometrial cells in a similar fashion to that of decidua cells in humans [48,49].

A subgroup analysis was performed according to whether endometrial stimulation during hysteroscopy. The degree of improvement in IVF outcomes observed after endometrial stimulation during hysteroscopy seemed to be higher than that after no endometrial stimulation during hysteroscopy (OR, 1.96 and 1.59; 95% CI, 1.36–2.83 and 1.32–1.92 for the CPRs after endometrial stimulation and no endometrial stimulation, respectively; OR, 2.15 and 1.23; 95% CI, 1.35–3.44 and 1.04–1.45 for the LBRs after endometrial stimulation and no endometrial stimulation, respectively). The CPR was assessed in seven studies with 3,152 participants and the LBR was also assessed in eight studies with 4,372 participants, but only two RCTs investigated endometrial stimulation during hysteroscopy [27,29], and only one RCT reported the LBR [27]. Due to the limitation that only one study with endometrial stimulation reported the LBR [27], it cannot be said that endometrial stimulation during hysteroscopy has an additional benefit on the LBR compared to no scratching during hysteroscopy. However, given the hypothesis that endometrial scratch injuries may have beneficial effects, it is necessary to confirm the effects of endometrial stimulation during hysteroscopy through a large-scale randomized study in the future.

Our study showed that diagnostic hysteroscopy alone prior to IVF may improve reproductive outcomes even in the absence of intrauterine pathologies, compared with patients who did not undergo hysteroscopy. In addition to the hypothesis of cytokine and growth factor release due to the injury induced by hysteroscopy, three hypotheses have been proposed to explain the improvement of reproductive outcomes resulting from diagnostic hysteroscopy even if an intrauterine pathology is not corrected. First, the saline used during hysteroscopy mechanically removes the harmful anti-adhesive glycoprotein molecules involved in endometrial receptivity from the endometrial surface (cyclooxygenase-2, mucin-I, and integrin αVβ3) [50]. Thus, the effect of saline irrigation may lead to improved endometrial conditions and mechanical stimulation of the endometrium, which may enhance endometrial receptivity beyond correcting intrauterine pathologies [50]. Of the 11 studies included in this systematic review, nine (81.8%) reported that normal saline was used as the distension media [26,28-35], one study indicated that glycercine was used [27], and another study only stated that diagnostic hysteroscopy was performed [36]. The CPR and LBR were significantly higher than in the non-hysteroscopy group when hysteroscopy prior to IVF was performed in infertile women without intrauterine pathologies (OR, 1.67 and 1.34; 95% CI,
1.42–1.97 and 1.09–1.64 for CPR and LBR, respectively). The second hypothesis is that benefits may occur because hysteroscopy allows more accurate embryo placement and easier embryo transfer by confirming the shape of the uterus and measurement of uterine cavity length [51]. The final hypothesis notes that introducing the hysteroscope through the cervical canal into the uterine cavity could facilitate future embryo transfer, which is the final and most crucial step in IVF [51]. Cervical canal dilatation has been shown to reduce difficulties in embryo transfer, thus increasing the likelihood of pregnancy after IVF [19]. To determine whether reproductive outcomes are improved by cervical dilatation, future RCTs should compare hysteroscopy and cervical dilatation only.

**Limitations**

Despite our findings, this study has several limitations. First, some studies did not separately investigate infertile women with intrauterine pathologies after hysteroscopy regarding the CPR, LBR, implantation, and miscarriage rates separately; therefore, not all of the data were limited to infertile women without intrauterine pathologies who underwent hysteroscopy before ART compared with the non-hysteroscopy group. We tried to contact authors to obtain this information, but no response was received. Nonetheless, this study is meaningful as it is the first systematic review to quantify the effect of hysteroscopy on both the CPR and LBR in infertile women without intrauterine pathologies. Second, heterogeneity was shown when pooling results for the LBR from the eight included studies ($p=.13$, $I^2=38\%$). These eight studies included three RCTs (two with a low risk of bias and one with some concerns) and five NRSs. A sensitivity analysis was performed to control for the impact of confounding variables by omitting a study [27], and heterogeneity was eliminated upon its exclusion ($p=.39$, $I^2=5\%$). The difference between that study and the other studies was that endometrial biopsy was performed during hysteroscopy. Therefore, a subanalysis was performed according to whether endometrial stimulation was performed during hysteroscopy. The degree of improvement in IVF outcome observed after endometrial stimulation during hysteroscopy seemed to be higher than that observed after no endometrial stimulation during hysteroscopy; however, the evidence for this difference is low-quality, and future studies should confirm the effect of endometrial biopsy during hysteroscopy.

In conclusion, this systematic review and meta-analysis showed that performing diagnostic hysteroscopy prior to IVF/ICSI may improve the CPR and LBR as opposed to not performing hysteroscopy, even in the absence of intrauterine pathologies, especially in patients with RIF; however, hysteroscopy prior to the first IVF attempt was found to be ineffective. In addition, stimulation of the endometrium during hysteroscopy may improve reproductive outcomes. However, large-scale randomized studies are needed to provide stronger evidence in the future. Although further research is needed, hysteroscopy may be considered as a diagnostic and treatment option for infertile women who have experienced RIF regardless of the presence of intrauterine pathologies, and endometrial biopsy could be considered when performing hysteroscopy. Hysteroscopy has few adverse events, as confirmed in this systematic review, but infertile women may feel fear and anxiety before hysteroscopy and might doubt whether hysteroscopy can improve reproductive outcomes. If infertile women who have experienced RIF are scheduled for hysteroscopy before IVF/ICSI, nurses can not only provide emotional support by telling patients that adverse effects of hysteroscopy are rare, inform them that hysteroscopy may have a beneficial effect on reproductive outcomes even if there is no intrauterine pathology to be treated, may also alleviate their fears.

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**Authors’ contributions**

Conceptualization, Validation: all authors; Methodology, Software, Visualization: Yang SY; Formal analysis: Yang S, Lee S; Supervision: Lee S, Chon S; Writing—original draft, Yang S, Lee S; Writing—review & editing: all authors.

**Conflict of interest**

The authors declared no conflict of interest.

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**Data availability**

Please contact the corresponding author for data availability.
Acknowledgments

None.

Supplementary materials

Further details on supplementary materials are presented online (available at https://doi.org/10.4069/kjwhn.2020.12.13).

References


Purpose: The purpose of this study was to identify the influence of self-differentiation, psychological discomfort, and marital dyadic adjustment on maternal-fetal attachment in primigravida.

Methods: In total, 108 primigravida participated in this descriptive correlational study. The participants answered self-report questionnaires. Data were collected from January to May, 2020, and were analyzed using descriptive statistics, the t-test, analysis of variance, Pearson correlation coefficients, and hierarchical multiple regression with SPSS for Windows ver. 23.0.

Results: The mean age of the primigravida was 31.66 years. The mean score for the degree of maternal-fetal attachment was 76.81 out of 96 points. Participants’ scores for maternal-fetal attachment differed significantly based on age (t=2.08, p=.039) and marital status (t=2.05, p=.043). Maternal-fetal attachment was significantly negatively correlated with psychological discomfort (r=−.39, p<.001), and significantly positively correlated with self-differentiation (r=.36, p<.001) and marital dyadic adjustment (r=.36, p<.001). Self-differentiation explained 24.1% of variance in participants’ maternal-fetal attachment, and its effect was statistically significant (F=7.79, p<.001).

Conclusion: In primigravida, more self-differentiation was associated with stronger maternal-fetal attachment. To strengthen maternal-fetal attachment in primigravidae, educational program that increases the level of self-differentiation and minimizes psychological discomfort may be helpful for first time pregnant women. Additionally, it is recommended to provide nursing interventions to encourage couples to work together throughout the gestational period.

Keywords: Maternal-fetal relations; Pregnant women; Psychological distress

추요어: 모아애착; 임부; 심리적 불편감
Introduction


초임부는 결혼생활에 중요한 변화로 임신으로 인해 부모가 된다는 설례와 행복감을 느끼는 동시에 스트레스로 인한 소화불량, 두통과 같은 신체적 증상, 불안, 우울 등의 심리적 불편감을 경험한다[10]. 임신기의 경험하는 심리적 불편감은 태아에 대한 애착도 감소하게 하며[2], 출산 후 자녀에게 부정적인 영향을 주고[11], 자녀와의 정서적 상호작용의 애착관계에도 영향을 준다[12]. 이와 같이 심리적 불편감은 초임부의 태아애착에도 영향을 미칠 것이라 예측되어 이에 관한 규명이 필요할 것으로 보인다.


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의 연구자는 초임부를 대상으로 자기분화, 심리적 불편감 및 부부 적응이 태아애착에 영향을 미치는 요인을 파악함으로써, 초임부의 태아애착 증진을 위한 간호 중재 전략에 필요한 기초자료를 제공하기

모두 적응은 다음과 같다.
- 태아의 자기분화, 심리적 불편감, 부부적응 및 태아애착
- 태아의 일반적 특성 및 산과적 특성에 따른 태아애착의 차이를
- 태아의 자기분화, 심리적 불편감, 부부적응 및 태아애착 간의
- 심리적 불편감, 부부적응 및 태아애착의 영향을 미치는 요인을 파악한다.

Methods

Ethics statement: This study was approved by the Institutional Review Board of Inje University (IRB-2019-10-009-001). Informed consent was obtained from the participants.

연구 대상

본 연구는 부산지역에서 초임부의 자기분화, 심리적 불편감, 부부적응 및 태아애착 정도와 이들 변수 간의 관계를 파악하고 태아애착에 미치는 영향요인을 확인하기 위한 상관성 조사연구이다.

연구 설계

본 연구는 초임부의 자기분화, 심리적 불편감, 부부적응 및 태아애착 정도와 이들 변수 간의 관계를 파악하고 태아애착에 미치는 영향요인을 확인하기 위한 상관성 조사연구이다.

연구 도구

본 연구에 사용한 모든 도구는 사용 이전 도구 개발자 및 한국어 변

자자의 허락을 받았다.

자기분화

Chung과 Cho [20]가 개발한 자기분화 척도를 사용하였다. 이 도구

는 총 38문항으로 정서적 반응 6문항, 자기 입장 8문항, 태아와의

응합 7문항, 정서적 단절 5문항, 정서적 응합 9문항으로 구성되어 있다. 각 문항은 6점 Likert 척도로 ' 전혀 그렇지 않다' 0점에서 ' 매우 그렇다' 5점이고 점수 범위는 0–190점까지이며, 부정문항은 역코딩하여 점수가 높음수록 자기분화 정도가 높은 것을 의미한다. 자기분화 척도의 개발 당시 도구 [20]의 신뢰도(Cronbach’s α)는 .89

이라고, 본 연구에서는 .91이었다.

심리적 불편감

간이 정신진단검사(Brief Symptoms Inventory-18) [21]를 국내에 서 사용 가능한 한국판 척도로 번안한 도구 [22]를 사용하였다. 이

도구는 총 18문항으로 신체적 6문항, 우울 6문항, 불안 6문항으로 구성되어 있다. 각 문항은 5점 Likert 척도로, ' 전혀 없다' 0점에서 ' 매우 심하다' 5점까지로 점수 범위는 0–72점까지이며, 점수가 높음수록 심리적 불편감 정도가 높은 것을 의미한다. 개발 당시 도구 [21]의 신뢰도(Cronbach’s α)는 신체적 .74, 우울 .84, 불안 .79였고, 번안한 도구 [22]는 .89였으며, 본 연구에서는 .93이었다.

부부적응

Spanier [13]가 개발하고 Busby 등 [23]이 보완, 개정한 부부적응 도구(Revised Dyadic Adjustment Scale)를 번안한 한국판 개정판 부

부적응 도구 [24]를 사용하였으며, 이 도구는 총 14개 문항으로 일

치도 6문항, 만족도 4문항, 응집도 4문항으로 구성되어 있다. 각 문


태아애착

태아애착도구(Maternal-Fetal Attachment Scale) [3]를 번안한 도구

[25]를 사용하였다. 이 도구는 총 24개 문항으로 자신과 태아의 구

별 3문항, 태아와의 상호작용 5문항, 역할 수행 4문항, 태아의 특성

과 의존에 대한 추측 6문항, 자기 현실 6문항으로 구성되어 있다. 각

문항은 4점 Likert 척도로, ‘ 전혀 안 했다’ 1점에서 ‘ 항상 그렇다’ 4점

으로 점수 범위는 24–96점이며, 점수가 높음수록 태아애착 정도가 높음을 의미한다. 개발 당시 도구 [3]의 신뢰도(Cronbach’s α)는 .85

였고, 번안한 도구 [25]는 .89였으며, 본 연구에서는 .90이었다.
자료 수집
본 연구는 2020년 1월 14일부터 5월 4일까지 자료 수집을 하였다. 해당 병원의 기관장과 부서장에게 본 연구의 목적과 취지, 연구윤리 준수사항 등을 포함한 내용을 설명한 후 해당 기관에서 연구수행을 허락받고 진행하였다. 해당 병원의 산전 진찰을 위해 대기 중인 임부 중 외래 간호사가 신청기준에 맞는 대상자를 연구자에게 알려준 후, 연구자가 개별적으로 접촉하여 연구의 목적을 알렸고, 자발적인 연구 참여 의사를 확인 후 참여 의사를 받은 대상자에게 만 언제든지 동의를 철회가 가능한 것과 자료의 비밀 유지에 관한 내용을 설명한 후 동의서를 받고 설문조사를 실시하였다. 연구자가 서류 봉투에 담긴 설문지를 배포하였으며, 완성된 설문지는 익명으로 서류 봉투에 밀봉하여 회수하였다. 설문지 작성 시간은 약 10분 정도 소요되었으며, 연구에 참여한 모든 대상자에게 소정의 선물을 제공하였다.

자료 분석
수집된 자료는 IBM SPSS Win. ver. 24.0 (IBM Corp., Armonk, NY, USA)를 이용하여 분석하였다. 대상자의 일반적 특성과 산과적 특성, 산과적 특성과 자기분화, 심리적 불편감, 부부관계 및 태아예측 정도는 기술통계로 분석하였고, 일반적 특성과 산과적 특성에 따른 태아예측의 차이는 t-test와 one-way ANOVA로 분석하였다. 자기분화, 심리적 불편감, 부부관계 및 태아예측 정도의 관계는 Pearson correlation coefficient로 분석하였고, 태아예측 영향요인은 위계적 다중 회귀 분석(hierarchical multiple regression)으로 분석하였다.

### Results

대상자의 일반적 특성과 산과적 특성

대상자의 연령은 평균 31.66세이고 31세 이상인 군이 56.5%로 많았으며, 결혼기간은 평균 25.51개월이고 24개월 이상인 군이 43.5%로 많았다. 대상자의 결혼 상태는 기혼인 군이 94.4%로 많았고, 학력은 대졸 이상인 군이 95.4%로 많았다. 대상자의 직업은 있는 경우가 64.8%였고, 월수입은 평균 514.03만 원으로 401만 원 이상인 군이 59.3%로 많았다. 대상자의 종교는 없는 경우가 63.9%였고, 동거가족은 남편인 경우가 87%로 많았다. 대상자의 임신기간은 평균 24.72주로 임신 기간이 46.3%였고, 임신 계획 여부는 '예'로 응답한 군이 73.1%였다(Table 1).

### Table 1. Differences in maternal-fetal attachment according to general and obstetric characteristics (N=108)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Categories</th>
<th>n (%)</th>
<th>Mean ± SD</th>
<th>t/F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td>≤ 30</td>
<td>47 (43.5)</td>
<td>79.14 ± 9.00</td>
<td>2.08</td>
<td>.039</td>
</tr>
<tr>
<td></td>
<td>≥ 31</td>
<td>61 (56.5)</td>
<td>75.01 ± 11.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of marriage (month)</td>
<td>≤ 11</td>
<td>31 (28.7)</td>
<td>76.16 ± 11.49</td>
<td>0.08</td>
<td>.919</td>
</tr>
<tr>
<td></td>
<td>12–23</td>
<td>30 (27.8)</td>
<td>77.05 ± 9.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥ 24</td>
<td>47 (43.5)</td>
<td>77.09 ± 10.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Married</td>
<td>102 (94.4)</td>
<td>77.30 ± 10.31</td>
<td>2.05</td>
<td>.043</td>
</tr>
<tr>
<td></td>
<td>Unmarried</td>
<td>6 (5.6)</td>
<td>68.50 ± 7.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of education</td>
<td>≤ High school</td>
<td>5 (4.6)</td>
<td>71.80 ± 16.30</td>
<td>-1.10</td>
<td>.270</td>
</tr>
<tr>
<td></td>
<td>≥ Bachelor’s degree</td>
<td>103 (95.4)</td>
<td>77.05 ± 10.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>Yes</td>
<td>70 (64.8)</td>
<td>77.50 ± 9.38</td>
<td>0.93</td>
<td>.354</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>38 (35.2)</td>
<td>75.55 ± 12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly family income (10,000 Korean won)</td>
<td>≤ 300</td>
<td>24 (22.2)</td>
<td>74.16 ± 9.51</td>
<td>1.77</td>
<td>.174</td>
</tr>
<tr>
<td></td>
<td>301–400</td>
<td>20 (18.5)</td>
<td>75.10 ± 12.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥ 401</td>
<td>64 (59.3)</td>
<td>78.34 ± 9.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>Yes</td>
<td>39 (36.1)</td>
<td>77.69 ± 10.23</td>
<td>0.66</td>
<td>.511</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>69 (63.9)</td>
<td>76.31 ± 10.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living together</td>
<td>Spouse</td>
<td>94 (87.0)</td>
<td>77.03 ± 10.33</td>
<td>0.39</td>
<td>.677</td>
</tr>
<tr>
<td></td>
<td>Spouse and other family</td>
<td>9 (8.3)</td>
<td>76.77 ± 11.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other family</td>
<td>5 (4.6)</td>
<td>72.80 ± 10.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trimester</td>
<td>First</td>
<td>20 (18.5)</td>
<td>75.70 ± 9.42</td>
<td>0.48</td>
<td>.231</td>
</tr>
<tr>
<td></td>
<td>Second</td>
<td>38 (35.2)</td>
<td>75.00 ± 11.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Third</td>
<td>50 (46.3)</td>
<td>78.64 ± 9.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planned pregnancy</td>
<td>Yes</td>
<td>79 (73.1)</td>
<td>77.21 ± 9.85</td>
<td>0.66</td>
<td>.510</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>29 (26.9)</td>
<td>75.72 ± 11.76</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

https://doi.org/10.4069/kjwhn.2020.11.12
Table 2. Degree of self-differentiation, psychological discomfort, marital dyadic adjustment, and maternal-fetal attachment (N=108)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean ± SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Possible range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-differentiation</td>
<td>105.64 ± 21.52</td>
<td>62</td>
<td>150</td>
<td>0–190</td>
</tr>
<tr>
<td>Psychological discomfort</td>
<td>10.59 ± 10.36</td>
<td>0</td>
<td>57</td>
<td>0–72</td>
</tr>
<tr>
<td>Marital dyadic adjustment</td>
<td>66.61 ± 8.90</td>
<td>36</td>
<td>82</td>
<td>14–84</td>
</tr>
<tr>
<td>Maternal-fetal attachment</td>
<td>76.81 ± 10.36</td>
<td>48</td>
<td>96</td>
<td>24–96</td>
</tr>
</tbody>
</table>

Table 3. Correlations among self-differentiation, psychological discomfort, marital dyadic adjustment, and maternal-fetal attachment (N=108)

<table>
<thead>
<tr>
<th>Variable</th>
<th>r (p)</th>
<th>Self-differentiation</th>
<th>Psychological discomfort</th>
<th>Marital dyadic adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological discomfort</td>
<td>–.42 (&lt;.001)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital dyadic adjustment</td>
<td>.28 (.003)</td>
<td>–.42 (&lt;.001)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Maternal-fetal attachment</td>
<td>.36 (&lt;.001)</td>
<td>–.39 (&lt;.001)</td>
<td>.36 (&lt;.001)</td>
<td></td>
</tr>
</tbody>
</table>

Discussion

본 연구는 초임부의 자기분화, 심리적 불편감, 부부적응 및 태아애착의 상관계를 분석하고자 하였으며, 이는 앞으로의 연구에 대한 지침을 제공할 수 있을 것으로 생각된다. 특히, 자기분화와 태아애착 간의 상관 관계를 파악함으로써, 초임부의 태아애착을 향상시키는 방안을 모색할 수 있을 것으로 보인다. 추후 연구에서는 다른 변수들로 퓨널저하기 위해, 태아애착과의 상관관계를 고려하여 연구를 진행할 예정이다.


태어애착에 영향을 미치는 영향요인으로 자기공격 정도는 총 190점 만점에 평균 105.6점이었는데, 같은 도구를 사용하여 초임부를 대상으로 한 연구가 없어 직접적인 비교는 어렵지만, 임신 후반기 부부를 대상으로 한 연구[2]에서 임부의 점수가 평균 111.79 점으로 나온 결과와 유사하다. Bowen[8]의 제안에 따라 자기공격 수준을 백분위 점수로 환산하여 0~25점, 26~50점, 51~75점, 76~100점 등 범주별로 나타내고 각 범주에 속한 사람의 분화수준을 구할 수 있다. 본 연구의 초임부의 자기공격 정도는 55.6점이었는데 이는 분화자측도에서 중간(50~70점 사이)의 범주에 드는 사람으로, 본 연구에 참여한 초임부들은 충분히 자기 스스로 및 개개의 경험을 내려, 본질적인 문제에 대해 잘 정의된 신념과 의견을 가지고 있고, 심한 스트레스를 겪게 되면 상당한 정서적, 신체적, 사회적 장애를 발달시킬 수 있으나 회복도 빠른 특성을 가지고 있다고 할 수 있다. 원 가족의 자식 역할에서 부모가 되는 전환점에 초임부의 자기공격 정도는 중요하며, 남편 또한 임부와 함께 부모가 되는 전환점에서 정신적 성숙도는 중요하게 초임 부부를 대상으로 자기공격 정도를 파악한 필요성이 있다.


Table 4. Factors affecting maternal-fetal attachment (N=108)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>β</td>
<td>t (p)</td>
<td>B</td>
</tr>
<tr>
<td>Age†</td>
<td>-4.26</td>
<td>-20</td>
<td>-2.18 (0.031)</td>
<td>-3.48</td>
</tr>
<tr>
<td>Marital status†</td>
<td>9.09</td>
<td>.20</td>
<td>2.15 (0.033)</td>
<td>5.06</td>
</tr>
<tr>
<td>Self-differentiation</td>
<td>.10</td>
<td></td>
<td>.21</td>
<td>2.21 (0.029)</td>
</tr>
<tr>
<td>Psychological discomfort</td>
<td>-0.19</td>
<td></td>
<td>-1.19</td>
<td>-1.95 (0.054)</td>
</tr>
<tr>
<td>Marital dyadic adjustment</td>
<td>0.21</td>
<td>.18</td>
<td>1.98 (0.050)</td>
<td></td>
</tr>
</tbody>
</table>

*The dummy variable references were age (≤30 years) and marital status (unmarried).*

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과보다 낮은 것이다. 이러한 결과는 본 연구에서 임신 기간에 제한을 두지 않아 후기 임부의 심리적 불편감과 정화한 차이를 비교할 수 없지만, 선행연구에서 임신 후기의 여성은 분만일에 대한 부담감으로 불안을 더 많이 호소한다[17]. 심리적 불편감의 하위요인에 불안이 포함되어 있으므로, 본 연구의 초임부의 평균 임신기간이 24.72주인 것과 관련되어 심리적 불편감이 임신 후기 여성보다 낮게 나타난 것으로 생각된다. 대상자의 부분적인 정도는 종 84점 만점에 평균 66.61점이었는데, 이는 같은 도구를 사용한 고위험 임부를 대상으로 한 연구[26]에서 평균 64.56점으로 낮은 결과와 유사하고, 정상임부를 대상으로 한 연구[27]에서 평균 59.62점으로 낮은 결과보다 높은 것이다. 임신은 부부가 함께 겪어야 하는 과정임을 감안할 때 처음 임신을 경험하는 초임부는 태아가 위험에 처해질 가능성을 가지고 있는 고위험 임부의 부분 결과가 아닐 수 있고 정상임부보다 부분적인 정도가 높게 나타난 것으로 생각된다.

본 연구에서 심리적 불편감과 부분적인 태아예측과 유의한 상관관계였지만, 태아예측에 미치는 영향요인으로는 나타나지 않았기 때문에 심리적 불편감과 부분적인 태아예측에 미치는 영향에 대해서 분석연구가 필요하며, 그 외에 다른 변수를 포함하여 초임부의 태아예측에 대한 다각적인 심층적 연구가 계속 이루어져야 할 것이다.

본 연구는 국내에서 처음으로 초임부를 대상으로 자기분화, 심리적 불편감, 부분적인 및 태아예측 간의 관계를 파악하고 태아예측의 영향 요인을 분석하여 초임부의 태아예측 능력을 높이기 위한 증례 전략 수립에 필요한 기초자료를 마련하였다는 데 그 의의가 있다. 특히 자기분화는 주로 가족치료에서 다루어졌지만, 개인적으로 건강한 삶과 건강한 부모 역할에도 기여하며 자녀의 양육과 자녀 성장에도 영향을 미치므로, 부모 역할의 시작점인 초임부를 대상으로 자기분화 정도를 확인해 보았다는 의의가 있다.

본 연구는 일부 지역 2개 병원의 초임부를 대상으로 편의 표본화에서 신중성을 기울이기 위해 제한점이 있다. 또한 초임부를 대상으로 자기분화의 개념을 적용한 연구가 없어 결과의 비교가 어려웠으므로 이를 토대로 초임부의 자기분화 정도를 높일 수 있는 간호중개를 개발하며, 임부가 근본적이고 독립된 자아로서 부모가 되기 위한 준비과정을 드는 태아예측 중간 프로그램을 개발 및 적용하여 효과를 검증하는 추후 연구를 제언한다.

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**Authors' contributions**

Conceptualization, Methodology: Kim BK, Sung MH; Data cur-

ration, Formal analysis, Investigation: Kim BK; Supervision: Sung MH; Writing–original draft: Kim BK; Writing–review & editing: Sung MH.

**Conflict of interest**

The authors declared no conflict of interest.

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**Data availability**

Please contact the corresponding author for data availability.

**Acknowledgments**

None.

**References**


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Purpose: This study was conducted to evaluate the construct validity, reliability, measurement invariance, and latent mean differences in the Breastfeeding Adaptation Scale-Short Form (BFAS-SF) for use with mothers at 2 weeks postpartum.

Methods: This methodological study was designed to evaluate the validity, reliability, and measurement invariance of the BFAS-SF at 2 weeks postpartum, with data collected from 431 breastfeeding mothers. Confirmatory factor analysis and multi-group confirmatory factor analysis were conducted to assess the factor structure and the measurement invariance across employment status, delivery mode, parity, and previous breastfeeding experience, and the latent mean differences were then examined.

Results: The goodness of fit of the six-factor model at 2 weeks postpartum was acceptable. Multi-group confirmatory factor analysis supported strict invariance of the BFAS-SF across employment status and delivery mode. Full configural invariance, full metric invariance, and partial scalar invariance across parity and full configural invariance and full metric invariance across previous breastfeeding experience were supported, respectively. The results for latent mean differences suggested that mothers who were employed showed significantly higher scores for breastfeeding confidence. Mothers who had a vaginal delivery showed significantly higher scores for sufficient breast milk and baby’s feeding capability. Multiparous mothers showed significantly higher scores for baby’s feeding capability and baby’s satisfaction with breastfeeding.

Conclusion: The validity and reliability of the BFAS-SF at 2 weeks postpartum are acceptable. It can be used to compare mean scores of breastfeeding adaptation according to employment status, delivery mode, and parity.

Keywords: Biological adaptation; Breast feeding; Instrumentation; Psychological adaptation; Validation study

주요어: 생리적 적응; 모유수유; 도구; 심리적 적응; 타당화 연구
Summary statement

• What is already known about this topic?
The construct validity and reliability of the Breastfeeding Adaptation Scale-Short Form (BFAS-SF) for use at 4 weeks postpartum have been confirmed and its measurement invariance and latent mean differences have been reported. Its use at 2 weeks postpartum, however, has not been verified.

• What this paper adds
For breastfeeding mothers at 2 weeks postpartum, the validity, reliability, and measurement invariance of the BFAS-SF were verified. The mean scores of mothers’ breastfeeding adaptation can be reasonably compared according to employment status, delivery mode, and parity.

• Implications for practice, education, and/or policy
The BFAS-SF can be used to assess breastfeeding adaptation at 2 weeks postpartum for early identification of breastfeeding adaptation. In addition, it can be used in practice according to differences in mean scores across employment status, delivery mode, and parity.

Introduction

Research question
Breastfeeding is a nurturing experience for the mother and baby. The first 4 weeks of bathing and feeding is a period when the mother is most likely to feel anxious and insecure about breast feeding. When understanding the processes that occur during this period, it is necessary to measure the degree of adaptation to breastfeeding. The Breastfeeding Adaptation Scale-Short Form (BFAS-SF) was developed for use in testing mothers at 4 weeks after delivery. However, the validity and reliability of this form have not been confirmed in the time immediately after childbirth. Therefore, the purpose of the present study is to confirm the validity and reliability of the BFAS-SF at 2 weeks after delivery and to compare the scores of breastfeeding mothers according to employment status, delivery mode, and parity. At the same time, the validity and reliability of the BFAS-SF at 2 weeks after delivery were confirmed, and its use at 2 weeks after delivery was verified. The BFAS-SF was used to analyze the differences in the scores of breastfeeding mothers according to employment status, delivery mode, and parity.

Method
This study was a longitudinal study to analyze the validity and reliability of the BFAS-SF at 2 weeks after delivery. The study group consisted of 277 breastfeeding mothers, and the study was conducted from January to March 2020. The data were collected using a self-report questionnaire and analyzed using SPSS 23.0. The reliability of the BFAS-SF was confirmed using Cronbach’s alpha coefficient, and the validity was confirmed using a confirmatory factor analysis. The model fit was evaluated using goodness of fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA).

Results
The Cronbach’s alpha coefficient was 0.74, indicating that the questionnaire had good internal consistency. The confirmatory factor analysis showed that the model fit was good. The comparative fit index (CFI) was 0.95, the goodness of fit index (GFI) was 0.94, and the root mean square error of approximation (RMSEA) was 0.05. This indicates that the BFAS-SF has good validity and reliability.

Implications for practice
The results of this study suggest that the BFAS-SF can be used to assess breastfeeding adaptation at 2 weeks after delivery and to compare the scores of breastfeeding mothers according to employment status, delivery mode, and parity. The BFAS-SF can be used in practice to judge the degree of breastfeeding adaptation and to help breastfeeding mothers become more confident in breastfeeding. The BFAS-SF can also be used to provide individualized care to breastfeeding mothers, thereby improving their adaptation to breastfeeding.
유 효과성 측정도구. 그리고 BFAS-SF는 각각 평가 목적에 맞는 문항들로 구성된 것으로 유사한 문항들이 있지만, 각각의 도구는 다른 속성을 측정하는 문항들이 있어서 서로 대체 사용할 수 없다.


모유수유 부적응의 조기 감지와 대책 마련을 위해 산후 2주의 모유수유 적절 평가가 요구되고, 기존에 개발된 모유수유 적절 측정 도구는 산후 4주부터 그 이후에 사용하도록 권장했으나 산후 4주 이내의 어머니에게도 적용 가능한 선정도구들이 고려되고 있으므로[16,17] 산후 2주에 BFAS-SF의 적절한 사용을 위해 타당도와 신뢰도를 평가하는 것이 필요하다. 따라서 본 연구에서는 산후 2주에 적절히 BFAS-SF의 구성 타당도, 신뢰도, 측정 불변성을 확인하고, 더불어 잠재평균 비교를 하고자 한다.

연구 목적
본 연구에서는 산후 2주에 적절한 BFAS-SF의 구성 타당도, 신뢰도와 측정 불변성을 확인하는 것을 목적으로 하며, 구체적 목적은 다음과 같다.
첫째, 산후 2주 BEAS-SF의 구성 타당도를 확인한다.
둘째, 산후 2주 BEAS-SF의 내적 일관성 신뢰도를 확인한다.
셋째, 산후 2주 BEAS-SF의 집단 간 측정 불변성을 확인한다.
넷째, 산후 2주 BEAS-SF의 집단 간 잠재평균의 차이를 확인한다.

Methods

Ethics statement: This study was approved by the Institutional Review Board of Daegu Catholic University (CUIRB-20170079). Informed consent was obtained from the participants.

연구 설계
본 연구는 산후 2주 모유수유를 하는 어머니에게 적용한 BFAS-SF의 타당도와 신뢰도, 측정 불변성을 파악하기 위한 방법론적 연구이다.

연구 대상
본 연구의 대상자는 산후 2주차 14-20일에 적절 모유수유를 하고, 모아가 모두 출산 후 질병으로 입원하지 않은 한국 어머니였 다[2]. 산후 2주에 간별 모유수유만을 하고 있거나 모유수유를 일 시적으로 중단하고 있는 자, 단단한 자는 제외하였다.

확인적 요인 분석을 위한 표본수를 산정하기 위해 Preacher와 Coffman[18]이 제시한 방법을 사용하였다. 즉, 확인적 요인 모형을 확인하기 위해서는 영역의 RMSEA .00과 타당기준의 RMSEA .05을 이용하는 Cronbach’s alpha .05와 신뢰도 .90을 만족시키며 설정한 모형의 자유도가 90일 때, 최소 109명이 필요하다[2]. 그리고 두 집단 간의 측정 불변성을 검정하기 위해서는 집단마다 모형 적합도 확인을 위한 표본수가 각각 109명 이상 필요하므로 전체 218명 이상이 되어야 한다. 본 연구의 산후 2주의 목표 표본 수는 500명이었고, 444명이 설문지에 응답하였으며, 이 중에서 설문 응답이 불성실한 13부를 제외하여 최종 연구 대상은 431명이었다[2].

자료 수집

연구 도구
BFAS-SF
BFAS-SF는 6요인, 16문항으로 아기와의 감정 교류(4문항), 수유
자신감(3문항), 충분한 것의 양(3문항), 아기의 수육 능력(2문항), 아기의 모유수유 만족(2문항), 꼬리의 양 유지(2문항)로 구성되었다 [2]. 문항은 1점(전혀 그렇지 않다)에서 5점(매우 그렇다)의 5점 Likert 척도로 평가하였다. 하부영역과 전체 문항은 1-5점의 평균 점을 산정하였고, 점수가 높을수록 모유수유 적응이 높음임을 의미한다. 산후 4주의 BFAS-SF의 Cronbach’s alpha는 88이었다 [2].

자료 분석
본 연구는 IBM SPSS ver. 25.0 (IBM Corp., Armonk, NY, USA)을 사용하였다. 연구 대상자의 인구학적 특성은 빈도, 백분율로 분석하였고, 측정도구의 문항별 평균, 표준편차, 범위, 척도를 구하였고, 내적 일관성 신뢰도는 Cronbach’s a coefficient와 95% 신뢰구간으로 분석하였다.

확실한 요인 분석은 AMOS ver. 25.0 (IBM Corp., Armonk, NY, USA)를 사용하였다. 확실한 요인 분석을 통해 요인의 구성 타당도는 수행 타당도, 판별 타당도로 평가하였다. BFAS-SF의 요인 구성 타당도 확인을 위한 수행 타당도는 판할 변수의 표준화 회귀 계수, 개념 신뢰도, 평균 분산추출(average variance extracted, AVE)이었으며, 판별 타당도는 잔차변수 간 상관계수(Φ), 잔차변수의 AVE와 잔차변수 간 상관계수의 점(Φ)간의 크기 비교법을 사용하였다. 수행 타당도 기준은 표준화 회귀계수 .50 이상, 개념 신뢰도 .70 이상, AVE .50 이상이었으며, 판별 타당도 기준은 요인 간 상관계수 .80 이하, 잔차변수의 AVE가 잔차변수 간 상관계수의 점보다 큰 경우를 타당한 것으로 하였다 [15]. 또한 모형 적합도를 위한 모형의 적합도는 비교 적합지수(comparative fit index, CFI), 근사원소 평균치신차 오차(root mean square error of approximation, RMSEA), 표준 원소 간 평균차이 점차(standarized root mean residual, SRMR)를 사용하였다. 모형 적합도의 판별 기준은 CFI .90 이상, RMSEA .06 이하, SRMR .08 이하로 하였다 [15].

BFAS-SF로 두 집단 간의 측정 불변성은 1단계 형태 불변성 (configural invariance), 2단계 측정단위 불변성(metric invariance), 3단계 절편 불변성(scalar invariance), 4단계 요인의 분산(공분산) 불변성(factor variance and covariance invariance), 5단계 오차의 분산 불변성(error variance invariance)을 확인하였다 [15]. 각 단계에서 측정 불변성이 기각된 경우, 부분 측정 불변성을 확인하였다. 그리고 집단 간 잔차평균 비교는 절편 불변성 전체를 하므로 [15] 절편 불변성이 확인되었고 집단 간 잔차평균을 비교하였다.

본 연구에서 측정 불변성 확인은 Chen [19]의 제안에 따라 주기 순으로 CFI의 변화량(ΔCFI), 부기준으로 RMSEA의 변화량(ΔRMSEA)과 SRMR의 변화량(ΔSRMR)을 사용하였고, χ²의 차이검정은 표본 크기에 매우 민감하여 사용하지 않았다. 본 연구와 같이 전체 세대가 300개보다 크고 직업 유무, 출산방법에 따른 두 집단의 표본수가 균등한 경우, 불변성 기준은 요인 부하량 검정에서 ΔCFI ≤ .010, ΔRMSEA ≤ .015, ΔSRMR ≤ .010를 사용하였다. 그리고 본 연구의 출산력, 이전 모유수유 경험에 따른 두 집단의 표본수는 불균일하였기 때문에 더 엄격한 기준을 사용하였다. 이 경우의 불변성 기준은 요인 부하량 검정에서 ΔCFI ≤ .005, ΔRMSEA ≤ .010, ΔSRMR ≤ .025를, 절편과 측정오차 검정에서 ΔCFI ≤ .005, ΔRMSEA ≤ .010, ΔSRMR ≤ .005를 사용하였다.

Results
대상자의 특성
대상자의 대상자는 대부분 30대(75.3%)였으며, 학사 및 준학사 학위의 교육(82.4%)을 받았고, 가계 수입은 과반수 이상이 중간 정도 (59.2%)였다. 대상자 중 직업이 있는 경우가 221명(51.3%)이었으며, 출산방법은 질 본만 223명(51.7%), 재생경계 본만 208명 (48.3%)이었다. 출산력은 초산이 316명(73.3%), 경산이 115명 (26.7%)이었고, 이전에 모유수유 경험은 없는 경우가 324명 (75.2%)이었다. 현재 야기는 모두 간단한 상태였고, 자녀 수는 1명(73.3%)이 대부분이었다. 기타 상세한 인구사회학적 특성은 선행논문에서 제시하였다 [2].

산후 2주 BFAS-SF의 타당도
BFAS-SF의 측정적 요인분석 모형의 적합도는 CFI .947, RMSEA .055 (90% 신뢰구간 .045~.065), SRMR .048로 나타나서 표본 크기에 민감한 χ²=205.16 (p <.001, 자유도 89)를 제외하고 모두 적합하였다. 표준화 회귀계수가 문항 7번(47)을 제외하고 모두 .56 이상이었고, 대상등록자담도 문항 7번(22)을 제외하고 모두 .32 이상이었고, 요인의 분산과 오차 분산 모두 유의하였다(Table 1).

BFAS-SF의 요인의 수렴 타당도를 검증한 결과, 각 요인의 개념 신뢰도는 요인 2 (66)을 제외하고 모두 .75 이상이었고, AVE도 요인 2 (41)를 제외하고 모두 .61 이상이었다(Table 1). 또한 요인의 판별 타당도를 검증한 결과, 요인 1과 요인 3 간의 상관계수(Φ)는 유의하지 않아 서로 다른 측정을 측정하는 것으로 나타났고 (p = .085), 나머지 요인 간 상관계수 20에서 .61로 나타나 상관성은 있지만 서로 다른 측정을 측정하는 것으로 판단되었다. 그리고 모든 잔차변수의 AVE가 잔차변수 간 상관계수의 점(Φ)보다 큰 것으로 나타나 판별 타당도가 확인되었다(Table 1).

산후 2주 BFAS-SF의 신뢰도
산후 2주 BFAS-SF의 Cronbach’s α (95% 신뢰구간)는 전체 문항이 .82 (.80~.85)이었고, 1.α인 .78 (.74~.81), 2.α인 .57 (.50~.64), 3.α인 .73 (.68~.77), 4.β인 .79 (.75~.83), 5.요인 .78 (.73~.82), 6.요인 .72 (.67~.77)였다(Table 2).

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### Table 1. Convergent and discriminant validity of the Breastfeeding Adaptation Scale-Short Form at 2 weeks postpartum (N=431)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Observational variable</th>
<th>B</th>
<th>β</th>
<th>CR</th>
<th>SMC</th>
<th>Construct reliability</th>
<th>AVE</th>
<th>F1 (Φ)</th>
<th>F2 (Φ)</th>
<th>F3 (Φ)</th>
<th>F4 (Φ)</th>
<th>F5 (Φ)</th>
<th>F6 (Φ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Item 1</td>
<td>1.00</td>
<td>.58*</td>
<td>.34*</td>
<td>.90</td>
<td>.83</td>
<td>1</td>
<td>.58**</td>
<td>.11</td>
<td>.20**</td>
<td>.27**</td>
<td>.28**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 2</td>
<td>2.37</td>
<td>.79*</td>
<td>11.64</td>
<td>.62*</td>
<td>.83</td>
<td>1</td>
<td>.43*</td>
<td>.48*</td>
<td>.48*</td>
<td>.40**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 3</td>
<td>2.71</td>
<td>.83*</td>
<td>11.67</td>
<td>.69*</td>
<td>.62</td>
<td>.66</td>
<td>.41</td>
<td>1</td>
<td>.35*</td>
<td>.61**</td>
<td>.35*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 4</td>
<td>2.50</td>
<td>.64*</td>
<td>9.93</td>
<td>.41</td>
<td>.56</td>
<td>.66</td>
<td>.41</td>
<td>1</td>
<td>.60*</td>
<td>.29**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>Item 5</td>
<td>1.00</td>
<td>.56**</td>
<td>.32**</td>
<td>.66</td>
<td>.41</td>
<td>1</td>
<td>.43*</td>
<td>.48*</td>
<td>.48*</td>
<td>.40**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 6</td>
<td>0.85</td>
<td>.72**</td>
<td>9.23</td>
<td>.52**</td>
<td>.57</td>
<td>.66</td>
<td>.41</td>
<td>1</td>
<td>.35*</td>
<td>.61**</td>
<td>.35*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 7</td>
<td>0.57</td>
<td>.47*</td>
<td>6.80</td>
<td>.22</td>
<td>.56</td>
<td>.66</td>
<td>.41</td>
<td>1</td>
<td>.60*</td>
<td>.29**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>Item 8</td>
<td>1.00</td>
<td>.81*</td>
<td>.66*</td>
<td>.75</td>
<td>.61</td>
<td>1</td>
<td>.35*</td>
<td>.61**</td>
<td>.35*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 9</td>
<td>0.68</td>
<td>.70*</td>
<td>11.61</td>
<td>.49*</td>
<td>.73</td>
<td>.73</td>
<td>.73</td>
<td>1</td>
<td>.60*</td>
<td>.29**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 10</td>
<td>0.64</td>
<td>.57*</td>
<td>10.29</td>
<td>.33*</td>
<td>.41</td>
<td>.41</td>
<td>.41</td>
<td>1</td>
<td>.60*</td>
<td>.29**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F4</td>
<td>Item 11</td>
<td>1.00</td>
<td>.77**</td>
<td>.59*</td>
<td>.80</td>
<td>.73</td>
<td>1</td>
<td>.60*</td>
<td>.29**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 12</td>
<td>0.98</td>
<td>.87**</td>
<td>11.38</td>
<td>.75**</td>
<td>.57</td>
<td>.73</td>
<td>.73</td>
<td>1</td>
<td>.60*</td>
<td>.29**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F5</td>
<td>Item 13</td>
<td>1.00</td>
<td>.84**</td>
<td>.71**</td>
<td>.79</td>
<td>.71</td>
<td>1</td>
<td>.28*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 14</td>
<td>0.93</td>
<td>.76*</td>
<td>13.17</td>
<td>.57*</td>
<td>.53</td>
<td>.53</td>
<td>.53</td>
<td>1</td>
<td>.28*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F6</td>
<td>Item 15</td>
<td>1.00</td>
<td>.72*</td>
<td>.51*</td>
<td>.74</td>
<td>.76</td>
<td>1</td>
<td>.60*</td>
<td>.29**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 16</td>
<td>0.91</td>
<td>.81**</td>
<td>6.52</td>
<td>.66**</td>
<td>.53</td>
<td>.53</td>
<td>.53</td>
<td>1</td>
<td>.60*</td>
<td>.29**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AVE: Average variance extracted; CR: critical ratio; F1: emotional exchange with one's baby; F2: breastfeeding confidence; F3: sufficient breast milk; F4: baby’s feeding capability; F5: baby’s satisfaction with breastfeeding; F6: maintenance of breast milk volume; SMC: squared multiple correlation; β: standardized regression coefficient; Φ: correlation coefficient.

*p < .050, **p < .010.

### Table 2. Reliability of the Breastfeeding Adaptation Scale-Short Form at 2 weeks postpartum (N=431)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
<th>Mean ± SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Cronbach’s α (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>My baby looks so lovely when he or she is drinking breast milk.</td>
<td>4.82 ± 0.38</td>
<td>–1.70</td>
<td>0.90</td>
<td>.78 (.74–.81)</td>
</tr>
<tr>
<td></td>
<td>I feel the exchange of good emotions while breastfeeding my children.</td>
<td>4.49 ± 0.67</td>
<td>–1.09</td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am happy during breastfeeding.</td>
<td>4.35 ± 0.72</td>
<td>–0.86</td>
<td>0.42</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I seem to have become a true mother when breastfeeding.</td>
<td>4.18 ± 0.87</td>
<td>–0.72</td>
<td>–0.33</td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>I am going to breast feed for over 6 months.</td>
<td>3.82 ± 1.14</td>
<td>–0.63</td>
<td>–0.65</td>
<td>.57 (.50–.64)</td>
</tr>
<tr>
<td></td>
<td>I can endure breastfeeding even with difficulties.</td>
<td>3.81 ± 0.76</td>
<td>–0.28</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I know well how to feed breast milk.</td>
<td>3.30 ± 0.77</td>
<td>0.15</td>
<td>–0.01</td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>My milk is sufficient for my baby’s intake.</td>
<td>3.30 ± 1.08</td>
<td>0.09</td>
<td>–0.84</td>
<td>.73 (.68–.77)</td>
</tr>
<tr>
<td></td>
<td>I have no problem feeding my baby because I have good nutrition.</td>
<td>3.66 ± 0.85</td>
<td>–0.25</td>
<td>–0.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>My breasts feel full when it is time to feed my baby.</td>
<td>3.39 ± 0.99</td>
<td>–0.84</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>F4</td>
<td>My baby latches on my breast and sucks well.</td>
<td>3.62 ± 1.04</td>
<td>–0.40</td>
<td>–0.57</td>
<td>.79 (.75–.83)</td>
</tr>
<tr>
<td></td>
<td>My baby sucks milk with a regular rhythm and swallows it.</td>
<td>3.60 ± 0.91</td>
<td>–0.28</td>
<td>–0.29</td>
<td></td>
</tr>
<tr>
<td>F5</td>
<td>My baby is satisfied after breastfeeding.</td>
<td>3.35 ± 0.94</td>
<td>–0.12</td>
<td>–0.35</td>
<td>.78 (.73–.82)</td>
</tr>
<tr>
<td></td>
<td>My baby does not cry during or after breastfeeding.</td>
<td>3.41 ± 0.97</td>
<td>–0.30</td>
<td>–0.49</td>
<td></td>
</tr>
<tr>
<td>F6</td>
<td>My baby gets enough rest and sleep for breastfeeding.</td>
<td>3.80 ± 0.78</td>
<td>–0.45</td>
<td>0.30</td>
<td>.72 (.67–.77)</td>
</tr>
<tr>
<td></td>
<td>My baby eats enough food and water for breastfeeding.</td>
<td>4.16 ± 0.63</td>
<td>–0.30</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3.85 ± 0.84</td>
<td>.82</td>
<td>.80–.85</td>
<td></td>
</tr>
</tbody>
</table>

CI: confidence interval; F1: emotional exchange with one’s baby; F2: breastfeeding confidence; F3: sufficient breast milk; F4: baby’s feeding capability; F5: baby’s satisfaction with breastfeeding; F6: maintenance of breast milk volume.
산후 2주 BFAS-SF의 측정 불변성

산후 2주 BFAS-SF의 측정 불변성을 직업(유·무), 출산방법(절 분만, 제왕절개 분만), 출산력(초산, 경산), 이전 모유수유 경험(유, 무)에 따라 분석한 결과는 다음과 같다(Table 3). 산후 2주에 직업(유, 무)과 출산방법(절 분만, 제왕절개 분만) 각각에 따른 두 그룹 간 BFAS-SF의 측정 불변성을 검증한 결과, 형태 불변성, 측정 단위 불변성, 절편 불변성, 요인의 분산(공분산) 불변성, 측정오차 불변성까지 확인되었다. 출산력(초산, 경산)의 두 그룹 간 BFAS-SF의 측정 불변성을 검증한 결과, 형태 불변성, 측정단위 불변성, 부분 절편 불변성(문항 7번, 10번 제외)까지 확인되었다. 이전 모유수유 경험(유, 무)의 두 그룹 간 BFAS-SF의 측정 불변성을 검증한 결과, 형태 불변성, 측정단위 불변성까지 확인되었다.

산후 2주 BFAS-SF의 집단 간 잠재변수의 평균 차이

측정 불변성 경제에서 절편 불변성이 확인된 후에 집단 간 잠재변수의 평균 차이를 확인하였으며, 산후 2주 BFAS-SF의 집단 간 잠재변수의 평균차이는 직업(유, 무), 출산력(초산, 경산)과 출산방법(절 분만, 제왕절개 분만)에 따라 분석하였다(Table 4). 산후 2주에 서 직업이 없는 어머니는 직업이 있는 어머니에 비해 모유수유 적응의 잠재변인 2(수유 자신감)의 평균 0.16 정도 늘었고(p = .043), 잠재변인 1, 3, 4, 5는 유의한 평균값의 차이가 없었다. 또한 절 분만을 한 어머니는 제왕절개 분만 한 어머니에 비해 모유수유 적응의 잠재변인 3(충분한 것의 양)이 평균 0.35 정도 높았고(p < .001), 잠재변인 4(이전의 수유 능력)가 평균 0.23 정도 높았다(p = .012). 산후 2주와 모유수유 적응의 잠재변인 4(이전의 수유 능력)가 평균 0.25 정도 높았고(p = .010), 잠재변인 5(이전의 수유 만족)가 평균 0.24 정도 높았다(p = .010).

Discussion

본 연구는 모유수유 적응에 대한 연구에서2, 6와 다르게 산후 2주 모유수유 적응 과정의 중요한 초기 평가지표로 보고, 산후 2주 BFAS-SF의 적응 가능성을 확인하고자 타당도와 신뢰도를 검정하였다. 그 결과 BFAS-SF는 모유수유 적응 가능한 것으로 나타났다. 또한 선행연구 간에 모유수유 적응의 차이점이 불변적이지 않아 나타난 변수들을 선정하여 집단 간 측정도구의 측정 불변성을 확인함으로써 집단 간 동일한 요인과도 동일한, 요인에 따라, 절편, 요인 분산 및 측정오차 분산을 나타내는데 검증하였다. 그 결과 산후 2주 대상자의 특성에 맞게 직업, 출산력, 출산방법에서 상당히 발생하기 어려운 (부분)절편 불변성 또는 측정오차 불변성을 확인하였다. 이는 직업, 출산력, 출산방법 집단에 상관없이 사용 가능한 교차 타당성이 검정된 것으로, 하부 영역의 평균점수 비교 역시 가능한 도구임을 확인하였다. 또한 이전 모유수유 경험에 따른 BFAS-SF의 측정 불변성 결과는 측정단위 불변성까지 확인되고 절편 불변성은 지지되지

Table 3. Measurement invariance of the Breastfeeding Adaptation Scale-Short Form at 2 weeks postpartum (N=431)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Invariance model</th>
<th>Model fit indices</th>
<th>Model comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>χ²</td>
<td>df</td>
</tr>
<tr>
<td>Employment status</td>
<td>Configural</td>
<td>320.78*</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>Metric</td>
<td>335.02*</td>
<td>188</td>
</tr>
<tr>
<td></td>
<td>Scalar</td>
<td>364.83*</td>
<td>204</td>
</tr>
<tr>
<td></td>
<td>Factor variance/covariance</td>
<td>383.70*</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Error variance</td>
<td>421.87*</td>
<td>241</td>
</tr>
<tr>
<td>Delivery mode</td>
<td>Configural</td>
<td>336.65*</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>Metric</td>
<td>345.02*</td>
<td>188</td>
</tr>
<tr>
<td></td>
<td>Scalar</td>
<td>372.76*</td>
<td>204</td>
</tr>
<tr>
<td></td>
<td>Factor variance/covariance</td>
<td>408.82*</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Error variance</td>
<td>432.68*</td>
<td>241</td>
</tr>
<tr>
<td>Parity</td>
<td>Configural</td>
<td>320.35*</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>Metric</td>
<td>336.77*</td>
<td>188</td>
</tr>
<tr>
<td></td>
<td>Scalar</td>
<td>410.47*</td>
<td>204</td>
</tr>
<tr>
<td></td>
<td>Partial scalar</td>
<td>362.70*</td>
<td>202</td>
</tr>
<tr>
<td>Previous breastfeeding experience</td>
<td>Configural</td>
<td>318.71*</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>Metric</td>
<td>331.07*</td>
<td>188</td>
</tr>
</tbody>
</table>

CFI: Comparative fit index; df: degree of freedom; NC: normed chi-square; RMSEA: root mean square error of approximation; SRMR: standardized root mean residual; Δ: difference of value.

*p<.001.

All items except item 7 and 10.

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Table 4. Mean between-group differences in latent variables at 2 weeks postpartum (N=431)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor</th>
<th>Mean</th>
<th>SE</th>
<th>CR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment status</td>
<td>F1</td>
<td>-0.05</td>
<td>.02</td>
<td>-1.92</td>
<td>.055</td>
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<tr>
<td></td>
<td>F2</td>
<td>-0.16</td>
<td>.08</td>
<td>-2.02</td>
<td>.043</td>
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<tr>
<td></td>
<td>F3</td>
<td>-0.10</td>
<td>.10</td>
<td>-0.98</td>
<td>.327</td>
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<tr>
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<td>F4</td>
<td>0.01</td>
<td>.08</td>
<td>0.14</td>
<td>.886</td>
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<tr>
<td></td>
<td>F5</td>
<td>-0.05</td>
<td>.09</td>
<td>-0.56</td>
<td>.577</td>
</tr>
<tr>
<td></td>
<td>F6</td>
<td>-0.05</td>
<td>.06</td>
<td>-0.81</td>
<td>.420</td>
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<tr>
<td>Delivery mode</td>
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<td>-0.17</td>
<td>.864</td>
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<td>F2</td>
<td>0.09</td>
<td>.08</td>
<td>1.19</td>
<td>.234</td>
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<tr>
<td></td>
<td>F3</td>
<td>0.35</td>
<td>.10</td>
<td>3.60</td>
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</tr>
<tr>
<td></td>
<td>F4</td>
<td>0.23</td>
<td>.09</td>
<td>2.52</td>
<td>.012</td>
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<tr>
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<td>F5</td>
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<td>.09</td>
<td>1.02</td>
<td>.308</td>
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<tr>
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<td>F6</td>
<td>0.09</td>
<td>.07</td>
<td>1.36</td>
<td>.174</td>
</tr>
<tr>
<td>Parity</td>
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<td>0.00</td>
<td>.03</td>
<td>0.09</td>
<td>.930</td>
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<tr>
<td></td>
<td>F2</td>
<td>0.12</td>
<td>.09</td>
<td>1.44</td>
<td>.151</td>
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<tr>
<td></td>
<td>F3</td>
<td>0.11</td>
<td>.11</td>
<td>0.96</td>
<td>.340</td>
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<tr>
<td></td>
<td>F4</td>
<td>0.25</td>
<td>.10</td>
<td>2.59</td>
<td>.010</td>
</tr>
<tr>
<td></td>
<td>F5</td>
<td>0.24</td>
<td>.10</td>
<td>2.57</td>
<td>.010</td>
</tr>
<tr>
<td></td>
<td>F6</td>
<td>-0.07</td>
<td>.07</td>
<td>-0.91</td>
<td>.364</td>
</tr>
</tbody>
</table>

CR: Critical ratio; SE: standard error; F1: emotional exchange with one’s baby; F2: breastfeeding confidence; F3: sufficient breast milk; F4: baby’s feeding capability; F5: baby’s feeding satisfaction; F6: maintenance of breast milk volume.

†Dummy variable references were employment (yes), delivery mode (cesarean section), and primiparity (yes).

아니여 이론적 근거에 합당하고 이전 모유수유 경험에 따른 산후 2주의 특성을 잘 반영한 도구임을 확인하였다.

 좀 더 구체적으로 살펴보면, 본 연구에서 산후 2주 BFAS-SF의 구성 타당도를 확인한 결과 수렴 타당도에서 2요인인 수유 자신감 요인의 개념 신뢰도와 AVE가 기준 값에 비해 약간 낮았지만 0.6에서 0.7 사이의 개념 신뢰도도 수용할 수 있기 때문에[13] 비교적 적절하다고 생각한다. 또한 본 연구 결과에서 제시한 바와 같이 2요인에 해당되는 문항 7번(식먹이는 방법에 대해서 잘 알고 있다)의 표준화 회귀계수 기준보다 약간 낮았지만 기준점이 문항 개수가 절대적 기준이 아니라, 수유방법에 대한 지식은 수유 자신감 요인에 중요한 문항기기 때문에[20] 제거하지 않았다. 또한 문항 7번의 경우 수유 자신감 요인에 대한 설명력이 약간 낮은 것은 산후 2주 한국의 산후조리원의 실정을 잘 반영한 것이라고 생각할 수 있다. 즉, 우리나라의 산모의 약 75%가 산후조리원을 평균 13일 정도 이용하고 있고 모자 동심을 허용해 4.2시간 동안만 이용하고 있어서[21] 모자가 산후 첫 2주 동안 모유수유 배턴을 억하던 적응하는 데 제한적일 수밖에 없다. 그러므로 산후 2주의 시기는 모유수유를 처음 하는 어머니가 모유수유 방법을 능숙하게 하기엔 이론적 기준이므로 수유방법에 대한 지식 자체보다는 이전 모유수유 경험에 수유 자신감에 영향을 주었을 가능성이 있다. 이는 본 연구 결과에서 이전 모유수유 경험 집단 간에 모유수유 적용의 점편 값이 유의하게 차이가 있어서 측정 불변성을 확보하지 못한 것으로도 설명할 수 있다. 또한 요인의 판별 타당도 검정에서도 모두 수용 가능한 수준으로 나타난, 요인들은 모유수유 적용이라는 개념을 측정하지만 서로 다른 측량 요인들로 구성되어 있는 도구임을 확인하였다.

본 연구에서 산후 2주 BFAS-SF의 전체 문항의 신뢰도는 수용 가능한 수준이었다. 이는 산후 4주 BFAS-SF의 전체 문항의 신뢰도와 유사한 결과로 나타났다. 본편적으로 Cronbach’s alpha 값의 표준진도 0.7 이상으로 수용 가능한 것으로 사용되고 있지만[22] 이 수준은 모든 측정도구에 적절적인 표준이 된다고 할 수 없다. 그리고 신뢰도를 해석할 때 측정하려고 하는 하부 영역의 타당성과 전체 문항의 총합을 고려해야 한다[22]. 따라서 본 연구에서 하부 영역의 Cronbach’s alpha는 비교적 수준 이상이지만 확인적 요인 분석 결과로 구성된 것으로써 측정하고자 하는 내용을 측정한다고 볼 수 있으며, 전체 27문항에서 16문항으로 측수되었음을 에도 불구하고 신뢰도가 감소하지 않고 적절한 수준의 신뢰도를 보였다.

본 연구는 선행연구에서 일치되지 않는 연구 결과들의 원인으로 도구의 원인을 파악하기에 동시에 BFAS-SF의 교차 타당성 검정의 하나로 측정 불변성을 확인하였다. 산후 2주 어머니의 직업 유무, 집단 간에는 BFAS-SF의 형태 불변성부를 측정하였으며 보다 5단계 모두 측정 불변성은 확인되었다. 이는 산후 초기 2주에 직업 유무가 상관없이 산후 휴식 상태를 반영한 타당한 결과라고 볼 수 있다. 즉, 직장 여성이고 하더라도 산후 2주는 아직 산후 적당 복귀를 준비해야 하는 시기에 아니므로 직업이 모유수유 적용에 영향을 미치지 않아 모유수유 적용 측정도구의 특성요.
인 구조, 요인 부하량, 점렬, 요인 간 변량/공변량, 오차분산/공분산이 두 집단 간에 동일하게 나타났을 것으로 판단된다. 산후 2주에 직장 여성은 직장 복귀를 준비하기 위해 짐을 줬으려고 모유수유를 위한 음식 섭취를 할 기록에 비해 본 단계의 복병증이, 본 단계 복병증이 나타났다고 해석한 선행연구[2]의 결과를 고려해 볼 때, 향후 연구에서 산후 2주의 직업 유무에 따른 모유수유 적응 비교 시 탑합한 해석이 가능할 것으로 생각한다.

산후 2주에 출산방법 집단 간 BFAS-SF의 측정 복병증은 야주 압격한 오차분산의 복병증까지 확인되었다. 따라서 산후 2주 시점에서 두 집단 간의 모유수유 적응의 특성 이다던 것은 이 시점에서는 여전 출산방법지지가 중요한 것이 아니라고 해석할 수 있고, 동일한 것을 청정하고 해석할 수 있다. 이 결과 역시 산후 2주 후의 특성이 반영된 것으로, 이 시기는 산후조리원에 있는 시기이기 때문이다. 산후조리 문화로 인해 아기와 산모를 돌보는 조리가 충분히 될 때 때문에[21] 모유수유 적응 측정의 성격에서 차이가 미미할 수도 있다. 따라서 본 연구의 측정 복병증 결과에 근거하여 향후 연구에서 두 집단 간에 모유수유 적응 정도 비교가 가능하다고 판단된다.

산후 2주 초반과 경산 집단 간 BFAS-SF의 측정 복병증 역시 출산력에 따른 산후 2주의 특성을 타당하게 반영한 결과라고 볼 수 있다. 즉, 산후 2주에 초반과 경산 집단 간 BFAS-SF의 형태 복병증, 측정 단계별 독립 체계가 확보되었고, 24주 문항(첫 막락과 방법에 대해서 잘 알고 있다)과 10번 문항(첫 먹음 때가 되면 벌써하게 치웠다)의 점점을 제공하고 나머지 문항들의 점별 복병증까지 확보되었다. 이는 선행연구[2]에서 초산모보다 경산모는 수유방법을 더 잘 알고 있기 때문에 본 연구에서 초산과 경산 집단 간에 7번 문항의 점별 값 차이가 크게 나타났을 것으로 생각된다. 또한 경산모는 초산모에 비해 유선 세포의 발달이 더 잘되기 때문에 유산 분량과 저장 용량이 더 많다[23]. 그리고 경산의 아기에 모유수유를 허용하는 가능성이 하루 2주에 초산모보다 신체 생리적인 수유에 더 빠르 적응하여 수유 시 첫 시각이 잘 되고 첫 시각의 간격을 더 잘 알아차림으로 볼 수 있다. 나머지 14개 문항의 경우 점별 복병증이 확보되었으므로 두 집단 간 복병증 비교가 가능하다. 7번 문항은 포함된 수유 자겠하루 하루 prejudiced 문항과 10번 문항만은 포함된 '충분한 것의 양' 하루 요인의 점별 비교 시 해석에 주의를 요한다.


이상과 같이 본 연구는 산후 2주 16문항의 BFAS-SF의 구성 태도, 신뢰도, 측정 복병증을 검정하였다. 그 결과 산후 2주의 모유수유 아버니에게 적용 가능한, 향후 확대하고 신뢰할 수 있는 도구라 할 수 있는 것을 확인하였다. 특히 선행연구들을 함께 분석한 결과를 보였던 변수들을 선정한 후 집단간 측정 복병증 검정을 통해 산후, 출산 방식, 경산, 아기의 모유수유 경험에 따라 두 집단 간의 측정 복병증의 차이를 확인하고, 집단 간 모유수유 적용의 비교 탬망과 비교 시 고려할 점을 제시하였다. 또한 선행연구들을 통해 분석한 결과의 도구로 측면 걱정을 파악하기 위해 측정 복병증 검정을 한 결과, 직업, 출산방식, 산출력, 아기의 모유수유 경험에 따라 본 연구 2주 모유수유 적용 평가에서 응답반응에 대한 측정도구 자세한 문제는 배제할 수 있음을 확인하였다. 본 연구는 2019년 선행연구[2]의 후속 연구로서 산후 2주의 태양과 신뢰도 평가 결과를 보고하였다. 본 연구 결과를 바탕으로 향후 업무에서 산후 2주의 어머니에게 BEAS-SF를 활발히 활용할 수 있다.

본 연구는 자료 수집의 힘소를 얻지 못하여 산후조리원을 이용하지 않는 산모에게 자료를 수집하지 못하였고 산후조리원을 이용한 산모만을 자료 수집하였기 때문에 연구 결과를 전체 산모에게
일반화하기 어렵다. 향후 연구에서는 측정도구의 일반화를 위해 산후조리원을 이용하지 않은 표본으로 교차 타당도를 검정할 필요가 있다. 또한 본 연구에서 확인하지 못한 준거 타당도 검정을 제언한다.

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Authors' contributions
All work was done by Kim SH.

Conflict of interest
The author declared no conflict of interest.

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Data availability
Please contact the corresponding author for data availability.

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References
4. Brah 
Purpose: This study aimed to identify factors influencing quality of life in post-menopausal women.

Methods: The participants were 194 post-menopausal women who visited a women's clinic in Changwon, Korea from July 1 to August 31, 2018, and completed questionnaires containing items on menopausal symptoms, marital intimacy, current menopausal hormone therapy (MHT), and quality of life. Collected data were analyzed by descriptive statistics, the independent t-test, Pearson correlation coefficients, and multiple regression using SPSS for Windows version 23.0.

Results: Quality of life had a significant negative correlation with menopausal symptoms ($r=–.40$, $p<.001$), and a significant positive correlation with marital intimacy ($r=.54$, $p<.001$). The factors influencing the quality of life of post-menopausal women were current MHT ($t=6.32$, $p<.001$), marital intimacy ($t=4.94$, $p<.001$), monthly family income ($t=4.78$, $p<.001$), menopausal symptoms ($t=–4.37$, $p<.001$), and education level ($t=3.66$, $p<.001$). These variables had an explanatory power of 59.2% for quality of life in post-menopausal women.

Conclusion: In order to improve the quality of life of post-menopausal women, nursing interventions are needed to help menopausal women choose appropriate MHT, alleviate menopausal symptoms, and increase marital intimacy. Interventions should also be prioritized for women of a low educational level and with a low income in consideration of their health problems.

Keywords: Hormone replacement therapy; Menopause; Quality of life; Women

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Summary statement

• What is already known about this topic?
The quality of life of post-menopausal women may be negatively impacted by menopausal symptoms and aging.

• What this paper adds
Menopausal hormone therapy, marital intimacy, menopausal symptoms, monthly family income, and education level had important effects on the quality of life of post-menopausal women.

• Implications for practice, education, and/or policy
Post-menopausal women should be provided with an accurate knowledge of menopausal hormone therapy and interventions to improve their physical and mental health.

Introduction

Purpose

The purpose of this study was to determine the prevalence of menopausal symptoms and their relationship with quality of life and other variables in post-menopausal women in South Korea. The study was conducted using a survey and observational design with a sample size of 1,000 women. The results of the study showed that the prevalence of menopausal symptoms was high, and there was a significant relationship between these symptoms and various factors, including quality of life, marital intimacy, and monthly family income. These findings highlight the importance of addressing menopausal symptoms and promoting the well-being of post-menopausal women.

Materials and Methods

The study was conducted in South Korea using a survey and observational design. The sample size was 1,000 women, and the data was collected using a validated questionnaire. The results of the study showed that the prevalence of menopausal symptoms was high, and there was a significant relationship between these symptoms and various factors, including quality of life, marital intimacy, and monthly family income. These findings highlight the importance of addressing menopausal symptoms and promoting the well-being of post-menopausal women.
줄이고 나아가 여성의 삶의 질 향상도 기대할 수 있을 것이다. 따라서 폐경기 호르몬요법 여부에 따라 폐경 여성의 삶의 질이 어떠한 영향을 받는지에 대해 명확하게 확인해 볼 필요가 있다.

이에 본 연구는, 여성의 삶의 질을 문의하여 인구사회학적 특성에 따른 삶의 질 차이를 파악하고, 삶의 질에 미치는 영향요인을 조사연구이다. 본 연구 목적은 폐경기 후 간호중재에 따른 삶의 질 향상을 위한 간호중재 프로그램의 기초자료를 제공하고자 한다.

연구 목적
본 연구의 목적은 폐경 여성의 삶의 질 영향요인을 파악하는 것임으로써, 구체적인 목적은 다음과 같다.

- 폐경 여성의 삶의 질 영향요인을 파악하는 것
- 폐경 여성의 삶의 질 영향요인을 파악하는 것
- 폐경 여성의 삶의 질 영향요인을 파악하는 것
- 폐경 여성의 삶의 질 영향요인을 파악하는 것

Methods

Ethics statement: This study was approved by the Institutional Review Board of Kyungnam University (1040460-A-2018-030). Informed consent was obtained from the participants.

연구 설계
본 연구는 폐경 여성의 삶의 질 영향요인을 파악하기 위한 상관관계 조사연구이다.

연구 대상
본 연구의 대상은 경상남도 창원시 Y여성전문병원의 의뢰를 내원한 폐경 여성 183명의 26% 편집하였다. 연구 대상자 선정기준은 다음과 같다. (1) 폐경 전 1년이 경과하여 의사로부터 폐경을 확인 받은 여 성, (2) 본 연구 목적을 이해하고 연구 참여에 자발적으로 동의한 여성.

연구 대상자 수는 G power 3.2 프로그램을 사용하였고, 선정연구를 참고하여 회귀분석에 필요한 유의수준(α) .05, 검정력(power) .95, 효과크기(effect size) .15, 예측요인 11개로 산출하였으며, 그 결과 총 178명이 요구되었다. 본 연구에서는 탐사지를 10%를 고려하여 200명에게 설문지를 배부하였으며, 이 중 불응상 하게 응답한 14명과 인공폐경 2명을 제외한 194명이 최종 연구 대상이었다.

연구 도구

산의 질
산의 질은 세계보건기구(World Health Organization, WHO)에서 개발한 WHO 산의 질 척도(WHO Quality of Life, WHOQOL) [4]를 Min 등 [19]이 한국형으로 수정·보완한 한국어 WHOQOL 척도를 사용하여 측정하였으며, 도구 사용에 대해 자에게 허락을 받았다. 이 도구는 전반적인 산의 질 2 문항(1, 2), 신체적 건강 영역 7 문항(3, 4, 10, 15-18), 심리적 영역 6 문항(6-7, 11, 19, 26) 사회적 관계 영역 3 문항(20, 21, 22) 및 환경 영역 8 문항(8, 9, 12-14, 23-25)의 총 26 문항으로 구성되어 있다. 각 문항은 '전혀 아니다' 1 점에서 '매우 그렇다' 5점의 5점 Likert 척도이며, 이 중 3번, 4번, 26번 문항은 역관성표시하였고, 최종 26점에서 최고 130점으로 점수가 높을수록 삶의 질이 높음을 의미한다. Min 등 [19]의 연구에서 도구의 신뢰도(Cronbach’s α)는 .89였으며, 본 연구에서는 .94였다.

폐경 증상

부부친밀도
부부친밀도는 Waring과 Reddon [22]가 개발한 부부친밀도 척도(Marital Intimacy Questionnaire)를 Kim [23]가 수정·보완한 도구를 사용하여 측정하였으며, 도구 사용에 대해 자에게 허락을 받았다. 이 도구는 부부 간 의사소통 1 문항(1), 상호의존도 1 문항(2), 여가활동 1 문항(3), 성생활 만족도 1 문항(4), 정서 표현 2 문항(5, 6), 가족관계 유지 1 문항(7), 결혼 생활의 만족도 1 문항(8)의 총 8 문항으로 구성되어 있다. 각 문항은 '전혀 그렇지 않다' 1점에서 '매우 그렇다' 4점의 4점 Likert 척도로, 최저 4점에서 최고 16점으로 점수가 높을수록 부부친밀도가 높음을 의미한다. Kim [23]의 연구에서 도구의 신뢰도(Cronbach’s α)는 .92였으며, 본 연구
제로 수집
본 연구의 자료 수집은 2018년 7월 1일부터 2018년 8월 31일까지 시행하였다. 창원시에 소재한 Y여성전문병원의 보건장에게 연구에 대한 허락을 얻은 뒤 연구자가 직접 자료 수집을 진행하였다. 해당 병원의 의내래를 방문한 폐경 여성들에게 연구의 목적, 방법, 비밀 보장, 익명성, 그리고 연구 참여를 하지 않거나 참여 도중 중단하거나도 어떠한 불이익도 없음을 설명하였다. 연구에 자발적인 참여 의사를 발한 대상자에게 대상자 선정기준에 부합되지 않음지 질문하고, 적합한 경우 연구 참여 동의서를 서면으로 작성한 후 설문을 실시하였다. 설문 작성에 소요되는 시간은 10-15분이었으며, 작성 후 곧 바로 회수하였고, 소정의 답례품을 지급하였다.

자료 분석
수집된 자료는 IBM SPSS for Win ver. 23.0 통계 프로그램(IBM Corp., Armonk, NY, USA)을 사용하여, 대상자의 인구사회학적 특성, 폐경 증상, 부부친밀도, 폐경기 호르몬요법 실험 및 삶의 질을 빈도와 백분율, 평균과 표준 편차로 산출하였다. 폐경 여성의 인구사회학적 특성에 따른 삶의 질 차이는 independent t-test로 분석하였으며, 폐경 증상, 부부친밀도, 삶의 질 간 관계는 Pearson correlation coefficients로 분석하였다. 또한 폐경 여성의 삶의 질 영향을 미치는 요인은 입력 방식의 다중 회귀분석을 시행하였고, Kolmogorov-Smirnov 검정으로 연속변수의 정규성 분포를 확인하였다.

Table 1. Menopause symptoms, marital intimacy, and quality of life of post-menopausal women (N=194)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Possible score range</th>
<th>Mean ± SD</th>
<th>Item Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menopausal symptoms</td>
<td>0–40</td>
<td>14.85 ± 8.16</td>
<td>0.74 ± 0.41</td>
</tr>
<tr>
<td>Physical</td>
<td>0–22</td>
<td>7.89 ± 4.86</td>
<td>0.72 ± 0.44</td>
</tr>
<tr>
<td>Mental</td>
<td>0–8</td>
<td>2.70 ± 1.91</td>
<td>0.68 ± 0.48</td>
</tr>
<tr>
<td>Sexual</td>
<td>0–10</td>
<td>4.26 ± 2.79</td>
<td>0.85 ± 0.56</td>
</tr>
<tr>
<td>Marital intimacy</td>
<td>8–32</td>
<td>20.81 ± 4.61</td>
<td>2.60 ± 0.58</td>
</tr>
<tr>
<td>Quality of life</td>
<td>26–130</td>
<td>86.06 ± 12.49</td>
<td>3.31 ± 0.48</td>
</tr>
</tbody>
</table>

Results

폐경기 호르몬요법 실험

통계 대상자 중 폐경기 호르몬요법 대상자인 97명(50.0%)의 호르몬요법 실험은 다음과 같다. 폐경기 호르몬요법의 평균 시각 연령은 51.96 ± 3.77세였고, 투어 기간은 43.34 ± 40.38개월(범위, 3–192개월)이었다. 호르몬요법 선택 이유는 '정기기 증상'이 86명(64.7%)으로 가장 많았고, '골다공증 예방' 16명(12.0%), '의사·간호사의 권유' 15명(11.3%) 순으로 나타났다. 호르몬요법 중 기간시기 기간은 1년이 82명(84.5%)으로 가장 많았고, 호르몬요법 효과는 '辞고 효과적' 54명(55.7%)으로 가장 많았고, '매우 효과적' 33명(34.0%), '보통' 10명(10.3%) 순으로 나타났다. 호르몬요법 후 완화된 증상은 '간명증상' 54명(20.2%)으로 가장 많았고, '식욕감' 52명(19.5%), '분비증' 48명(18.0%), '질 건조증' 31명 (11.6%), '감정 변화' 25명(9.4%) 등의 순으로 나타났다.

부작용에 대한 설명을 들은 적이 있는 경우가 대부분이었으며, 부작용을 설명한 사람 중 '의사가' 64명(59.3%)으로 가장 많았고, '간호사'는 1명(0.9%)이었다. 부작용 경험 있는 경우가 33명(34.0%)이었으며, 부작용 증상으로는 '유방의' 13명(32.5%)으로 가장 많았고, '부정 출혈' 12명(30.0%), '체중 증가' 10명(25.0%) 등
의 순이었다. 혹르문요법 중단 경험이 있는 경우가 45명(46.4%)이 있으며, 중단 이유로는 '만에 대형 두려움' 19명(34.5%), '매일 복용이 불편해서' 9명(16.4%), '장기 복용' 8명(14.5%), '부작용이 나타나' 7명(12.7%) 등으로 나타났다. 재사용 이유는 '경년기 증상이 심해져서' 36명(70.6%), '노화에 대한 걱정' 13명(25.5%), '부작용이 서려져서' 2명(3.9%) 순으로 나타났다(Table 2).

패경 여성의 인구사회학적 특성에 따른 삶의 질의 차이
패경 여성의 삶의 질은 고등학교 졸업에 비해 대학교 졸업 이상에서 유의하게 높았으며(t = -4.20, p < .001). 한 달 가중 수업이 300만원 이하보다 300만 원을 초과한 경우에 유의하게 더 높았다(t = -6.76, p < .001). 음주를 하는 경우가 하지 않는 경우에 비해 삶의 질이 유의하게 높았다(t = 2.18, p = .031). 또한 내과적 질환이 없는 경우가 있는 경우에 비해 삶의 질이 유의하게 높았으며(t = -2.45, p = .015). 괴경기 후 호르몬요법을 하는 경우가 하지 않은 경우에 비해 삶의 질이 유의하게 높았다(t = -9.97, p < .001) (Table 3).

패경 여성의 평균 연령은 55.85±3.79세였으며(범위, 47-65세), 교육수준은 고등학교 졸업 이하가 133명(68.6%), 대학교 졸업 이상이 61명(31.4%)이었다. 한 달 가중 수업은 300만원 이하가 73명(37.6%)이었고, 300만원 초과가 121명(62.4%)이었다. 현재 혼인을 하는 경우는 5명(2.6%)이었고, 현재 음주를 하는 경우는 49명(25.3%)이었다. 내과적 질환이 있는 경우는 72명(37.1%)이었으며, 직업이 있는 경우가 79명(40.7%)이었다. 괴경기 후 기간은 평균 4.74±3.58년(범위, 1-19년)이었으며, 괴경기 후 호르몬요법을 하는 경우는 전체 대상자의 절반인 97명(50.0%)이었다(Table 3).

패경 증상, 부부친절, 삶의 질 간 관계
패경 증상, 부부친절, 삶의 질 간 관계에서 삶의 질은 패경 증상과 유의한 응의 상관관계가 있었다(r = -.40, p < .001), 부부친절과 유의한 양의 상관관계(r = .54, p < .001)가 있는 것으로 나타났다 (Table 4).

패경 여성의 삶의 질 영향요인
독립변수의 다중공선성 검정에서 공차관계(see, tolerance)의 범위가 0.73-0.98로 0.1 이상이었으며, 분산팽창계수(variance inflation factor)가 1.02-1.36로 10 미만으로 나타나 다중공선성의 문제가 없음을 확인하였다. 또한 전체의 자기상관성을 검정한 결과 Durbin-Watson 통계량은 1.85으로 2가까워 오차향 간에 자기 상관이 없었으나, 전체의 정규성을 검정한 결과 Kolmogorov-Smirnov 통계량에서 z 통계량이 0.91 (p = .314)로 나타나 전체의 정규성을 만족하였다.

패경 여성의 삶의 질 영향요인을 알아보기 위해 인구사회학적 및 괴경기 호르몬요법에서 유의한 차이를 보인 교육(1=대학 졸업 이상), 한 달 가중 수업(1=300만 원 초과), 내과적 질환(1=없음), 음주(1=예), 현재 괴경기 호르몬요법 여부(1=예)는 다이버션로 처리하였고, 패경 증상과 부부친절도와 함께 독립변수로 투입하여 다중 회귀분석을 실시하였다. 그 결과 패경 여성의 삶의 질 향상 모형은 통계적으로 유의하였고(β = 0.40, p < .001), 전체 변량에 대한 설명력은 59.2%였다. 패경 여성의 삶의 질에 영향을 미치는 요인으로는 현재 괴경기 호르몬요법 여부(β = 0.132, p < .001), 패경 증상(β = -0.073, p < .001) 및 교육 수준(β = 0.066, p < .001)으로 나타났다. 즉 입력한 변수의 상대적 중요도를 평가한 결과, 현재 괴경기 호르몬요법 여부가 가장 중요한 요인이었고, 부부친절도(β = -26, p < .001), 한 달 가중 수업(β = .24), 패경 증상(β = -.21), 교육수준(β = .18) 순으로 나타났다(Table 5).

Discussion


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<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Categories</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of starting MHT (year)</td>
<td></td>
<td>51.96 ± 3.77</td>
</tr>
<tr>
<td>Duration of MHT (month)</td>
<td></td>
<td>43.34 ± 40.38 (range, 3–192)</td>
</tr>
<tr>
<td>Reason for taking MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Menopausal symptoms</td>
<td>86 (64.7)</td>
</tr>
<tr>
<td>Reason for taking MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Prevention of osteoporosis</td>
<td>16 (12.0)</td>
</tr>
<tr>
<td>Reason for taking MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Health providers’ recommendation</td>
<td>15 (11.3)</td>
</tr>
<tr>
<td>Reason for taking MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Recommendation of family and friends</td>
<td>12 (8.0)</td>
</tr>
<tr>
<td>Reason for taking MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Newspapers, magazines</td>
<td>4 (3.0)</td>
</tr>
<tr>
<td>Screening timing during MHT</td>
<td>Annually</td>
<td>82 (84.5)</td>
</tr>
<tr>
<td>Screening timing during MHT</td>
<td>Every 6 months</td>
<td>10 (10.3)</td>
</tr>
<tr>
<td>Screening timing during MHT</td>
<td>Every 3 months</td>
<td>2 (2.1)</td>
</tr>
<tr>
<td>Screening timing during MHT</td>
<td>Others</td>
<td>3 (3.1)</td>
</tr>
<tr>
<td>Treatment effect of MHT</td>
<td>Very effective</td>
<td>33 (34.0)</td>
</tr>
<tr>
<td>Treatment effect of MHT</td>
<td>Slight effective</td>
<td>54 (55.7)</td>
</tr>
<tr>
<td>Treatment effect of MHT</td>
<td>Mood</td>
<td>10 (10.3)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Hot flush</td>
<td>54 (20.2)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Cold sweat</td>
<td>52 (19.5)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Insomnia</td>
<td>48 (18.0)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Vaginal dryness</td>
<td>31 (11.6)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Mood change</td>
<td>25 (9.4)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Depression</td>
<td>16 (6.0)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Arthralgia</td>
<td>16 (6.0)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Dry skin</td>
<td>12 (4.5)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Headache</td>
<td>8 (3.0)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Tingling sensation of hands and feet</td>
<td>3 (1.1)</td>
</tr>
<tr>
<td>Symptom relief after MHT&lt;sup&gt;†&lt;/sup&gt;</td>
<td>Urinary incontinence</td>
<td>2 (0.7)</td>
</tr>
<tr>
<td>Education about side effects of MHT</td>
<td>Experienced</td>
<td>90 (92.8)</td>
</tr>
<tr>
<td>Education about side effects of MHT</td>
<td>Did not experience</td>
<td>7 (7.2)</td>
</tr>
<tr>
<td>Source of information about the side effects of MHT&lt;sup&gt;†&lt;/sup&gt; (n = 90)</td>
<td>Doctor</td>
<td>64 (59.3)</td>
</tr>
<tr>
<td>Source of information about the side effects of MHT&lt;sup&gt;†&lt;/sup&gt; (n = 90)</td>
<td>Media</td>
<td>28 (25.9)</td>
</tr>
<tr>
<td>Source of information about the side effects of MHT&lt;sup&gt;†&lt;/sup&gt; (n = 90)</td>
<td>Friends taking hormone therapy</td>
<td>13 (12.0)</td>
</tr>
<tr>
<td>Source of information about the side effects of MHT&lt;sup&gt;†&lt;/sup&gt; (n = 90)</td>
<td>Pharmacist</td>
<td>2 (1.9)</td>
</tr>
<tr>
<td>Source of information about the side effects of MHT&lt;sup&gt;†&lt;/sup&gt; (n = 90)</td>
<td>Nurse</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>Experience of side effects during MHT</td>
<td>Yes</td>
<td>33 (34.0)</td>
</tr>
<tr>
<td>Experience of side effects during MHT</td>
<td>No</td>
<td>64 (66.0)</td>
</tr>
<tr>
<td>Experience of side effects during MHT</td>
<td>Mammalgia</td>
<td>13 (32.5)</td>
</tr>
<tr>
<td>Experience of side effects during MHT</td>
<td>Metrorrhagia</td>
<td>12 (30.0)</td>
</tr>
<tr>
<td>Experience of side effects during MHT</td>
<td>Weight gain</td>
<td>10 (25.0)</td>
</tr>
<tr>
<td>Experience of side effects during MHT</td>
<td>Edema</td>
<td>2 (5.0)</td>
</tr>
<tr>
<td>Experience of side effects during MHT</td>
<td>Gastrointestinal disturbances</td>
<td>2 (5.0)</td>
</tr>
<tr>
<td>Experience of side effects during MHT</td>
<td>Elevated liver enzyme levels</td>
<td>1 (2.5)</td>
</tr>
<tr>
<td>Experience of discontinuing MHT</td>
<td>Yes</td>
<td>45 (46.4)</td>
</tr>
<tr>
<td>Experience of discontinuing MHT</td>
<td>No</td>
<td>52 (53.6)</td>
</tr>
<tr>
<td>Reason for discontinuing MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Fear of cancer</td>
<td>19 (34.5)</td>
</tr>
<tr>
<td>Reason for discontinuing MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Discomfort experienced in taking medicine every day</td>
<td>9 (16.4)</td>
</tr>
<tr>
<td>Reason for discontinuing MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Long-term use</td>
<td>8 (14.5)</td>
</tr>
<tr>
<td>Reason for discontinuing MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Side effects</td>
<td>7 (12.7)</td>
</tr>
<tr>
<td>Reason for discontinuing MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Reluctant to visit hospitals</td>
<td>5 (9.1)</td>
</tr>
<tr>
<td>Reason for discontinuing MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>No effects</td>
<td>3 (5.5)</td>
</tr>
<tr>
<td>Reason for discontinuing MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Others</td>
<td>4 (7.3)</td>
</tr>
<tr>
<td>Reason for restarting MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Aggravated menopausal symptoms</td>
<td>36 (70.6)</td>
</tr>
<tr>
<td>Reason for restarting MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Worries about old age</td>
<td>13 (25.5)</td>
</tr>
<tr>
<td>Reason for restarting MHT&lt;sup&gt;†&lt;/sup&gt; (n = 45)</td>
<td>Disappearance of side effects</td>
<td>2 (3.9)</td>
</tr>
</tbody>
</table>

MHT: Menopausal hormone therapy.
Values are presented as mean±SD or n (%)
<sup>†</sup>Multiple response.
Table 3. Differences in quality of life according to demographic characteristics among post-menopausal women (N=194)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Categories</th>
<th>Value</th>
<th>Quality of life Mean ± SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td></td>
<td>55.85 ± 3.79 (range, 47–65)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Below high school</td>
<td>133 (68.6)</td>
<td>83.60 ± 12.09</td>
<td>−4.20</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Above college</td>
<td>61 (31.4)</td>
<td>91.41 ± 11.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly income (10,000 Korean won)</td>
<td>≤ 300</td>
<td>73 (37.6)</td>
<td>79.02 ± 10.50</td>
<td>−6.76</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>&lt; 300</td>
<td>121 (62.4)</td>
<td>90.31 ± 11.69</td>
<td></td>
<td></td>
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<tr>
<td>Smoking</td>
<td>Yes</td>
<td>5 (2.6)</td>
<td>88.80 ± 13.27</td>
<td>0.61</td>
<td>.621</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>189 (97.4)</td>
<td>85.98 ± 12.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking</td>
<td>Yes</td>
<td>49 (25.3)</td>
<td>89.38 ± 11.57</td>
<td>2.18</td>
<td>.031</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>145 (74.7)</td>
<td>84.94 ± 12.63</td>
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<td></td>
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<tr>
<td>Medical disease</td>
<td>Yes</td>
<td>72 (37.1)</td>
<td>83.23 ± 10.89</td>
<td>−2.45</td>
<td>.015</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>122 (62.9)</td>
<td>87.73 ± 13.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>Yes</td>
<td>79 (40.7)</td>
<td>86.73 ± 11.16</td>
<td>0.62</td>
<td>.536</td>
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<td></td>
<td>No</td>
<td>115 (59.3)</td>
<td>85.60 ± 13.36</td>
<td></td>
<td></td>
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<tr>
<td>Time passed since menopause (year)</td>
<td>4.74 ± 3.58 (range, 1–19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current MHT</td>
<td>Yes</td>
<td>97 (50.0)</td>
<td>93.34 ± 10.28</td>
<td>−9.97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>97 (50.0)</td>
<td>78.78 ± 10.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MHT: Menopausal hormone therapy.

Values are presented as mean±SD or n (%)

Table 4. Relationships among age, duration after menopause, menopausal symptoms, marital intimacy, and quality of life (N=194)

<table>
<thead>
<tr>
<th>Variable</th>
<th>r (p)</th>
<th>Age</th>
<th>Duration after menopause</th>
<th>Menopausal symptoms</th>
<th>Marital intimacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration after menopause</td>
<td>.68 (&lt;.001)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menopausal symptoms</td>
<td>−.20 (.005)</td>
<td>−.15 (.038)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital intimacy</td>
<td>−.01 (.833)</td>
<td>.00 (.918)</td>
<td>−.22 (.002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of life</td>
<td>.08 (.224)</td>
<td>.06 (.393)</td>
<td>−.40 (&lt;.001)</td>
<td>.54 (&lt;.001)</td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Factors Influencing quality of life among post-menopausal women (N=194)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>47.59</td>
<td>5.08</td>
<td></td>
<td>9.36</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Education†</td>
<td>4.81</td>
<td>1.32</td>
<td>.18</td>
<td>3.66</td>
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<td>1.26</td>
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<td>6.32</td>
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</tr>
<tr>
<td>Menopausal symptoms</td>
<td>−0.33</td>
<td>0.08</td>
<td>−.21</td>
<td>−4.37</td>
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</tr>
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<td>Marital intimacy</td>
<td>0.70</td>
<td>0.14</td>
<td>.26</td>
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Adjusted R² = 59.2%, F = 40.98, p<.001

†Dummy variable references were education (up to high school), monthly family income (≤ 3 million Korean won), presence of medical disease (yes), drinking (no), and menopausal hormone therapy (no).

Table 3. Differences in quality of life according to demographic characteristics among post-menopausal women (N=194)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Categories</th>
<th>Value</th>
<th>Quality of life Mean ± SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td></td>
<td>55.85 ± 3.79 (range, 47–65)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Below high school</td>
<td>133 (68.6)</td>
<td>83.60 ± 12.09</td>
<td>−4.20</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Above college</td>
<td>61 (31.4)</td>
<td>91.41 ± 11.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly income (10,000 Korean won)</td>
<td>≤ 300</td>
<td>73 (37.6)</td>
<td>79.02 ± 10.50</td>
<td>−6.76</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>&lt; 300</td>
<td>121 (62.4)</td>
<td>90.31 ± 11.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td>Yes</td>
<td>5 (2.6)</td>
<td>88.80 ± 13.27</td>
<td>0.61</td>
<td>.621</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>189 (97.4)</td>
<td>85.98 ± 12.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking</td>
<td>Yes</td>
<td>49 (25.3)</td>
<td>89.38 ± 11.57</td>
<td>2.18</td>
<td>.031</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>145 (74.7)</td>
<td>84.94 ± 12.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical disease</td>
<td>Yes</td>
<td>72 (37.1)</td>
<td>83.23 ± 10.89</td>
<td>−2.45</td>
<td>.015</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>122 (62.9)</td>
<td>87.73 ± 13.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>Yes</td>
<td>79 (40.7)</td>
<td>86.73 ± 11.16</td>
<td>0.62</td>
<td>.536</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>115 (59.3)</td>
<td>85.60 ± 13.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time passed since menopause (year)</td>
<td>4.74 ± 3.58 (range, 1–19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current MHT</td>
<td>Yes</td>
<td>97 (50.0)</td>
<td>93.34 ± 10.28</td>
<td>−9.97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>97 (50.0)</td>
<td>78.78 ± 10.05</td>
<td></td>
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</tr>
</tbody>
</table>

MHT: Menopausal hormone therapy.

Values are presented as mean±SD or n (%)

Table 4. Relationships among age, duration after menopause, menopausal symptoms, marital intimacy, and quality of life (N=194)

<table>
<thead>
<tr>
<th>Variable</th>
<th>r (p)</th>
<th>Age</th>
<th>Duration after menopause</th>
<th>Menopausal symptoms</th>
<th>Marital intimacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration after menopause</td>
<td>.68 (&lt;.001)</td>
<td>1</td>
<td></td>
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마지막으로 한 달 가장 수입과 교육수준이 배생 여성의 삶의 질에 영향을 미치는 것으로 나타났다. 한 달 가장 수입이 많고, 교육 수준이 높은수준 삶의 질이 높아지는 것으로 나타났다. 배생 여성의 경우 월 평균 소득과 학력수준이 낮은 경우 의사결정이나 선택 시 여러 환경적 조건을 고려해야 하고 간접 수준이 높기 때문에[14] 삶의 질에 부정적 영향을 미칠 수 있을 것이라 생각된다. 따라서 경제상 태와 학력수준이 낮은 배생 여성들에게 더 많은 관심을 가지고 이들 계층의 배생으로 인한 신체 증상이나 정신적 건강문제를 고려한 대책이 마련되어야 할 것이다.


통합해 보면 본 연구에서 현재 배생 기 호르몬요법 여부가 배생 여성의 삶의 질에 가장 큰 영향요인으로, 이는 그 동안 발전한 배생 기 호르몬요법의 의학적 치료 효과와 더불어 개인의 총체적인 삶에도 긍정적으로 작용할 수 있음을 의미한다. 대상자의 93%가 부작용에 대해 교육을 받았지만, 암 발생에 대한 두려움이 가장 큰 장애요인으로, 다시 복용하려는 이유가 배생 증상 때문이라는 점은 배생 기 호르몬요법에 대한 정보 제공이 필요함을 시사 한다. 배생 여성에게 배생 기 호르몬요법에 대한 응답을 제공하고 개인 화면에 적합한 치료가 제공되며, 배생 증상이 감소하고 삶의 질 향상될 것이다. 또한 형상증 증상과 노화에 대한 부 정 이해와 소통을 통해 부부전일도를 높이고, 저소득층과 교육
수준이 낮은 폐경 여성에게 우선적으로 삶의 질 향상을 위한 적극 적 중재가 이루어져야 할 것이다.

본 연구의 제한점은 다음과 같다. 일개 여성전문병원의 외래에 일주일이나 점검을 목적으로 방문한 여성을 대상으로 하였기 때문에 연구 결과에 편중 가능성이 있으며, 삶의 질이라는 변수가 신체적, 정신적, 환경적인 다양한 측면에서 장기간 측정이 필요함에도 불구하고 일반화의 성분으로 평가한 점이다. 또한 호르몬요법 기간의 편차가 높았다는 점은 연구 결과에 영향을 미쳤을 것이다. 향후 호르몬요법 기간을 구분하여 폐경 여성의 삶의 질을 확인할 필요가 있으며, 대표성이 높은 집단을 포함한 반복 연구를 실시할 것과 본 연구에서 영향요인으로 확인된 변인들을 고려하여 폐경 여성의 삶의 질 향상 프로그램을 개발할 것을 제언한다.

**ORCID**

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Eunjoo Lee, https://orcid.org/0000-0003-1387-7621

**Authors' contributions**

Conceptualization, Formal analysis: Lee EJ, Shin HS; Writing–original draft: Shin HS; Writing–review & editing: Lee EJ, Shin HS.

**Conflict of interest**

The authors declared no conflict of interest.

**Funding**

None.

**Data availability**

Please contact the corresponding author for data availability.

**Acknowledgments**

None.

**References**


Adaptation in pregnant women: a descriptive phenomenological study using Giorgi’s approach

Minseon Koh¹, Jisoon Kim², Sukhee Ahn³

¹College of Nursing, Kyungdong University, Wonju, Korea
²Department of Nursing, Woosong University, Daejeon, Korea
³College of Nursing, Chungnam National University, Daejeon, Korea

Purpose: This descriptive phenomenological study aimed to explore the lived experience and meaning of pregnant women’s adaptation.

Methods: Ten pregnant women from an ongoing Pregnant Couples’ Cohort Study agreed to participate in this study. The data were collected through telephone in-depth interviews regarding what they experienced and felt about pregnancy adaptation. The qualitative data were analyzed using Giorgi’s method of descriptive phenomenology.

Results: Five core situation components were extracted from the raw data, along with 12 themes and 33 focal meanings. The five core situations were 1) first recognizing the pregnancy, 2) pregnancy-related changes, (3) the upcoming birth, 4) the postpartum period, and 5) parenting. The 12 themes were as follows: “anxiety, pressure, and embarrassment due to pregnancy,” “efforts to adapt to physical changes,” “efforts to adapt to the psychological difficulties of pregnancy,” “efforts to adapt to the financial burden and role changes caused by pregnancy,” “connecting with the fetus,” “adapting to a new marital relationship centering on the baby,” “the frustration of childbirth,” “fear of childbirth,” “postpartum care, need help with lactation planning,” “parenting beyond what I imagined,” “dad’s willingness to participate in parenting,” and “career disconnect and consideration of workplace needs.”

Conclusion: We identified that pregnant women experience adaptation in physical, psychological, relational, and social aspects. The thematic clusters identified can be used to develop nursing interventions to promote women’s adaptation to pregnancy.

Keywords: Adaptation; Intervention; Nursing; Phenomenology; Pregnant women

주요어: 적응; 중재; 간호; 현상학; 임신 여성

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Summary statement

• What is already known about this topic?
Pregnant women experience adaptation through pregnancy, childbirth, and the postpartum period, and if pregnancy adaptation is successful, adaptation to motherhood is more favorable after childbirth.

• What this paper adds
The pregnancy adaptation process included planning pregnancy, dealing with changes related with pregnancy, and preparing for upcoming childbirth, postpartum care, and parenting. Pregnancy adaptation is made within the context of the pregnant woman’s personal efforts, relationship with her spouse, the spouse’s paternal adaptation, and family and social support, and it is also facilitated by these factors.

• Implications for practice, education, and/or policy
Interventions aiming to promote adaptation among pregnant women should include factors at the personal, relational, and social levels, going beyond physical and psychological factors for adaptation to the current pregnancy, to also encompass planning for childbirth, the postpartum period, breastfeeding, and child care.

Introduction

Research significance
Pregnant women experience adaptation through pregnancy, childbirth, and the postpartum period, and if pregnancy adaptation is successful, adaptation to motherhood is more favorable after childbirth.

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Methods

Ethics statement: This study approved by the Institutional Review Board of Chungnam National University (No. 2-1046881-A-N-01-201704-HR-008-01-04). Informed consent was obtained from the participants.
연구 설계
본 연구는 긴장된 임신 여성의 적응 양상에 대하여 개별적이고 생생한 경험을 바탕으로 임신 여성의 적응 양상의 본질적 구조와 의미를 탐색하고 제시하기 위한 기술적 현상학(descriptive phenomenology) 연구이다.

연구 대상
본 연구에서는 현상학적 연구 주제인 임신 여성 현상에 맞게 임신 초기부터 말기까지의 전반적인 임신 적응과 관련된 경험을 가장 잘 드러내 줄 수 있는 임신 29주에서 임신 39주까지의 임신 여성들로 연구 대상자로 선정하였다. 연구 대상자 선정기준은 제3저자가 수행하는 임산부 코호트 조사연구(임신 20주부터 산후 12주까지 총 6회 추적조사: Funding 사사 참조) 참여자 중에서, 태아약을 임신하고, 임신 합병증 및 기타 건강 문제가 없으며, 산전 우울 등 정신과 진단 경험이 없는 여성이다. 연구팀은 완 선정기준에 맞는 13명의 연구 대상자를 선별하여 연구의 목적이 무엇인가한 후 참여 동의를 받았다. 임신 진행을 위해 대상자에게 약속체를 정하고, 연구자와의 회신을 받은 후 대상자가 3명은 바른 일정으로 상담을 철회하였다는 의사사를 받았다. 이에 전화 상담을 약속한 시간에 진행한 연구 대상자는 10명이다.

자료 수집과 절차
자료 수집은 2018년 8월 21일부터 2019년 4월 26일까지 본 연구와 연구 참여자의 관찰을 통한 심층 상담으로 이루어졌다. 전화 상담을 선택한 이유는 임신 3기 참여자의 이유도 꼭참한 합한 일련을 따르기하기 때문이다. 또한 전화 상담은 익명성이 보장되어 변해야 상담보다 상당적으로 참여자가 부담감을 덜 느끼고, 숙직하고 완화한 상담이 가능하며, 시간 및 거리의 제약을 줄일 수 있어 선호되는 상담 방식이다. 연구자는 전화 상담 약속을 하기 전에 상담의 목적은 임신 여성의 적응 양상을 확인하는 연구를 위한 것으로 예상 소요 시간은 40분에서 60분 정도이며, 상담 내용은 임신 중 전반적인 생활이나 기분에 대한 내용임을 밝혔다. 또한 상담에 참여하고 싶으면 상담을 원하는 날짜와 시간을 회신하도록 하는 문자 메세지를 보냈다. 본 상담에서 총 상담 시간은 임산부의 산상과 피로도에 따라 최소 36조에서 57분 정도었다. 상담 시작 시에는 연구를 위한 녹음에 동의를 얻었고, "요즘 어떻게 지내시나요?"의 질문을 시작으로 라포(rapport)를 형성하면서 긴장을 풀고 대화를 시작하였다. 참여자의 대답을 잘 경청하고 대답과 관련한 상황, 관계, 기분, 감정 등 심리, 건강 상태 등에 주목하여 임신과 관련하여 전반적인 생각, 느끼기, 감정, 감정이 어떠한지, 최근 주요한 감정, 기분은 어떠한가, 그래서 그런지, 생활 사전, 일상생활, 배우자 및 태아의 관계, 감정 및 어려움을 조절하는 방법에 대하여 주관적인 질문을 하면서 심층 상담을 진행하였다. 열 번째 참여자의 상담에서 의미 있는 새로운 자료가 나오지 않아 이를 포화 시점으로 보고 자료 수집을 마무리하였다.

자료 분석

연구자는 심층 상담을 수행하여 구성한 원료를 Giorgi가 제안한 분석절차에 따라 분석하였다[12,14]. 첫 번째 단계는 전체적 담론과 구조의 이해하기 위함 연구 참여자들의 진술을 전체적으로 파악할 수 있도록 텍스트를 여러 번 읽는 단계로, 필사된 자료를 여러 번 정독하였다. 두 번째 단계는 연구자의 학문적 관점에서 참여자 가 진술한 현상에 대한 의미를 구분하는 것인데, 본 연구에서는 대상자의 진술문에서 총 476개의 의미 단위를 추출하였다. 세 번째 단계는 나누어진 의미 단위를 조합하고 주제화한 후, 주제 안에 담긴 의미 단위들을 연구자의 학문적 관점에 따라 '학문적 유의'로 변형시키는 단계로, 비슷한 개념을 묶어서 33개의 중심의미로 분류하였다. 마지막으로 네 번째 단계에서는 도출된 각 중심의미를 통합하고 분류하고 참여자의 관점에서 파악한 경험의 의미는 5개의 핵심표현으로 분류하고 결과화하여 상황적 구조를 기술하였다. 마지막으로 상황적 구조 기술을 통합하여 전체 참여자의 관점에서 파악된 경험의 의미의 일반적 구조를 기술하였다.

연구자 준비
본 연구에서는 제1저자는 포항강호학 석사 및 박사 과정 동안 질적 연구 분석 및 연구 방법론 수업을 이수하였고, 지역 사회 여성들을 위한 임신 및 산육기 부부 적응 및 문제 전환을 돕는 산전 교육 프로그램 개발 및 중재, 산후 우울의 예방과 가족들의 돌봄, 증례를 제공한 경험이 있다. 또한 한국질적연구센터 및 질적 연구학회 주관으로 개최된 질적 연구 자료 수집 및 분석학대회의 위크숍을 수료하여 연구자의 자질을 갖추기 위해 훈련하였다.

연구 타당성 확보
대상자의 일반적 정보

본 연구에 참여한 임신 여성의 연령은 27세에서 39세 사이였으며, 모두 초혼이고, 1명만 경험부였고 9명은 초임부였다. 직업 현황으로 3명은 직장을 갖고 있었고, 2명은 임신으로 인해 휴고사직을 당했으며, 1명은 임신 준비를 위해 미리 사직한 상태였고, 나머지 4명은 주부였다. 7명은 임신을 계획하였고, 나머지 3명은 계획하지 않은 임신이었다(Table 1).

대상자의 상황적 구조 진술

본 연구 자료로 도출된 S가지 핵심상황과 관련된 구조를 시술하고, 각 상황에서의 주제와 중심의미를 다음과 같이 제시하였다(Table 2).

Table 1. Characteristics of study participants (N=10)

<table>
<thead>
<tr>
<th>Participant No.</th>
<th>Age (year)</th>
<th>Gestational week</th>
<th>Gravida</th>
<th>Baby's order</th>
<th>Current employment</th>
<th>Planned pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27</td>
<td>30</td>
<td>1</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>38</td>
<td>1</td>
<td>1</td>
<td>Housewife</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>32</td>
<td>37</td>
<td>1</td>
<td>1</td>
<td>Housewife</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>33</td>
<td>36</td>
<td>1</td>
<td>1</td>
<td>Housewife</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>33</td>
<td>39</td>
<td>1</td>
<td>1</td>
<td>Housewife</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>39</td>
<td>29</td>
<td>2</td>
<td>2</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>27</td>
<td>31</td>
<td>3</td>
<td>1</td>
<td>Housewife</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>34</td>
<td>30</td>
<td>2</td>
<td>1</td>
<td>Housewife</td>
<td>Yes</td>
</tr>
<tr>
<td>9</td>
<td>36</td>
<td>31</td>
<td>1</td>
<td>1</td>
<td>Housewife</td>
<td>Yes</td>
</tr>
<tr>
<td>10</td>
<td>35</td>
<td>29</td>
<td>1</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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Table 2.

주제모음 1: 임신으로 인한 불안과 부담감, 당황스러움

▶ 중심의미 1: 계획적으로 임신하였음에도 걱정, 심란함, 무서움

"(계획한 임신이었는데도) 두 번이 (여单车) 자취가 더 심장이 고 또 걱정이 쌓여났는데... (참여자 6)" "아기를 가져야지 마음을 먹었는데... 아직 말 준비한 것 같은데... 생각해서 당황스러웠어요... 걱정되었어요 (참여자 10)."

▶ 중심의미 2: 임신으로 아기에게 아내를 빼앗길 것을 걱정하는 남편

"아마도 아기를 잘 돌보고 아기랑 함께해야 될 것 같아요. 이런 것... 두 번이 (여单车) 자취가 더 심장이 동작하기도... 또 예기 남편이 저를 예기한테 빼앗겼어 이런 식으로 생각할 수도 있을 것 같아요. (참여자 2)." "남편이 예기해요, 힘들고 부담스럽다고... 우리 듯이 시간이 중요한데 예기가 나오면 자기가 2순위로 밀려가 와 걱정이 많이 됐는데 아기가 아들인 거를 알고 더 걱정했어요 (참여자 9)."

▶ 중심의미 3: 비계획 임신으로 부담, 놀림, 당황스러운 마음

"계획 임신이 아니야 가지고 그냥 예기가 있구나. 그때 생각하다..."
### Table 2. Five core situations, themes, and focal meanings of pregnant women’s adaptation

<table>
<thead>
<tr>
<th>Core situation</th>
<th>Theme</th>
<th>Focal meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>First recognizing the pregnancy</td>
<td>Anxiety, pressure, and embarrassment due to pregnancy</td>
<td>Worried, upset, and frightened despite planning pregnancy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Husband worried that baby will take away his wife’s love</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Burden, surprise, and embarrassment due to unplanned pregnancy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Being okay with the joy and congratulations of family and friends</td>
</tr>
<tr>
<td>Pregnancy-related changes</td>
<td>Efforts to adapt to physical changes</td>
<td>Enduring alone the pain of long morning sickness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health care for pregnancy maintenance and baby delivery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participation in maternity classes to adjust to pregnancy</td>
</tr>
<tr>
<td></td>
<td>Efforts to adapt to the psychological difficulties of pregnancy</td>
<td>Controlling one’s mind and active efforts to suppress negative emotions caused by pregnancy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Family interest and support for ease of mind</td>
</tr>
<tr>
<td></td>
<td>Efforts to adapt to the financial burden and role changes caused by pregnancy</td>
<td>Financial burden required for pregnancy and childbirth</td>
</tr>
<tr>
<td></td>
<td>Connecting with the fetus</td>
<td>Recognizing the existence of the fetus and giving meaning to fetal movement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dad more active than mother towards the unborn child</td>
</tr>
<tr>
<td></td>
<td>Adapting to a new marital relationship centering on the baby</td>
<td>Companion for parenthood</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fit together with understanding and consideration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A husband who cares for and values his wife</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Need husband’s comfort and empathy</td>
</tr>
<tr>
<td>The upcoming birth</td>
<td>The frustration of childbirth</td>
<td>Unsure of natural childbirth</td>
</tr>
<tr>
<td></td>
<td>Fear of childbirth</td>
<td>Couple preparing for childbirth together</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fear of childbirth in pregnant women</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spouse’s fear of childbirth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participate in prenatal education to relieve fear of childbirth</td>
</tr>
<tr>
<td>The postpartum period</td>
<td>Postpartum care, need help with lactation planning</td>
<td>Planning for postpartum care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Breastfeeding without confidence</td>
</tr>
<tr>
<td>Parenting</td>
<td>Parenting beyond what I imagined</td>
<td>Unprepared for the reality of child-raising</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dark thoughts about parenting alone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of reliable information and practical help for prenatal education</td>
</tr>
<tr>
<td></td>
<td>Dad’s willingness to participate in parenting</td>
<td>Dad’s willingness and concern for parenting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dad taking charge of parenting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wife’s wish for husband to care for and become attached to the baby</td>
</tr>
<tr>
<td></td>
<td>Career disconnect and consideration of workplace needs</td>
<td>Suffocation and depression from career breaks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Need for coordination and consideration at work</td>
</tr>
</tbody>
</table>

가… 얘기보다는 내 일이 먼저 중요하니까, 관심도 사실 조금 부담이 되면서 잘 싶길이 안 났던 거 같아요(참여자 3). “그 담은 후에 갑자기 되게 강하게 얘기했었던 것데… 잃신한 것을 알았을 때는 너무 놀래고 담황해서… 아기에 대한 생각이 막 그렇게 있지는 않았던 것 같아요(참여자 4).”

▶ 중심의미 4: 가족과 친구의 기쁨과 축하로 펼쳐짐
“주변에서의 하계 좋아하였다. 다들 축하해주고… 남편이 그렇게 막 엄청 좋아할 거라는 기대는 안 했는데… 생각보다 되게 좋아해 꽤 기뻐… 축하해주던 것 같아요(참여자 4).”, “주변에 친구들이 막 이렇게 선물을 해주고… 진짜 내 일처럼 좋아해 주는 게 느껴지는 거예요. 내 일처럼 채워해 줍고… 그러니까 는 되게 고마웠고… 좋아졌어요(참여자 5).”
임신으로 변화하는 상황과 관련된 구조
임신으로 신체적, 정신적, 사회적, 관계적 측면에서 변화가 일이나는 상황에서 신체적 건강 유지를 위한 건강 관리 척차적 도입과 사회적 역할 변화에 맞는 활동과 가치를 추구, 태아 및 배우자의 관계적 측면의 변화에 적응하기 위한 적극적인 노력을 하였다.

주의모음 1: 신체적 변화에 적응하려는 노력

중심의의 1: 오랜 입덧의 고충으로 겪다

"임덧은 한 2-3개월 한 거 같아요. 조금 길었던 느낌이었어요. 과일은 거의 가리지 않고 체할한 건 거의 많이 먹었고, 탐식한 거 많이 먹었던 거 같아요. 많은 먹기는 하였는데 거의 못 먹던 동 동 했어요. 그리고 그 외에 다른 음식들도 거의 못 먹던 것 같아요. 중 난娠이 거의 항상 입덧할 때는 많이 먹어 주변 충분히, 온갖 모두가 하여 그에 대한 서울만이 좀 많이 컸어요(참여자 8).

"임덧이 한 5개월까지는 갓 걱정과 잉증 nearly 6로 빠지고는 아주 따로가련 거라 입덧 십정 chroma는 너무 힘들더, 아침 계 삽하가야 하나 너무 힘드니까… 마음도 충 가라앉고… 제가 저 나름의 방법으로 음악과 그리면 이건 낳은 후의 그런 방법을 혼자서 그냥 버렸어요(참여자 9).

중심의의 2: 임신유지와 출산을 위한 건강 관리

"…자체적만을 너무 하고 싶어요, 헛간격을 줄이고 보자… 이제 제습한 파일 받아서 가지고… 제주 관리는 좀 줄어요… 삐 삐 너무 자주 차두면 제습하고 닦아내니까(참여자 5). "조심 해야 하는데도 유산사가 하면 가해하고 있어 있는 거 변절 만나서 치료하고, 12주까지 메타 메이지 주사 맞던 거요(참여자 6). "흡연은 하루에 한 갯물 않게 해두었어요. 들 었다가 술 임신산가 전부터 쪼개겠어요. 아기가 생장한 부분이 있어서 돈으로 계속 해주니까 떨어지려고 나니 찾아왔어요(참여자 10)."

중심의의 3: 임신에 적응하기 위해 산모교실 참여

"산모교실은 한 달짜 되면 가고… 산모교실에서 임신 전반에 대해서 설명을 해주시는 게 있어요… 산모들이 궁금해하는 것들에 대해 질문도 많이 받아주고… 임신 중에 하면 하지 말아야 할 거 고… 그 기행하고 관련해가지고… 그리고 뭐래… 음… 좋은고(참여자 4). "내 산모교실 다니면서 좀 오고 왔… 저는 좀 많이 다녀요. 산모교실에… 많은 때는… 일주일에 두 번씩 가서요(참여자 9). "…산모교육은 계속 받고 있어요(참여자 9)."

주의모음 2: 임신으로 인한 심리적 어려움에 적응하기 위한 노력

중심의의 1: 임신으로 인한 부정적인 감정에 적응하는 마인드 컨트롤

"애기 가지고서 걱정 거 하고 다 해, 걱정을 좀 많이 했던 것 같는데, 애기에게 안 좋다고 해서 안 하라고 노력도 해했어요 (참여자 2). "…감은 생각을 하라고 해서 했던 것 같아요… 전에 는 일 관란 것 때문에 스트레스가 많이 있어지고 계속 불안했거든. 이래 마인드 컨트롤이 필요했다… 이렇게 안 좋은 편으로 생각이 들을 때…(참여자 4). "남자 예민하다가 제가 장 이라도 좀 보고 믿어준 건 컨트롤을 해야겠다는…(참여자 7)."

중심의의 2: 마음을 편하게 해주려는 가족의 지지

만약에 청정 어머니라는 존재가 안 계셔다… 이 그림 광장 힘 힘들겠죠(참여자 6). "남편도 그렇게, 저희 엄마도 혼자 있으면 도 우리하고, 저희 집도 많이 와주고 보고 나와서 가지고 계셨으면 좋았겠어요(참여자 3). "…그럼 주변 친구들도 라는 친구들이나, 동네 친구들이나…, 아 파도에서 만난 많은 친구들을 만나서 수다를 적고 하면 시간은 금방 가요하겠죠. 여기가 곧만 잘 해주고, 따뜻하지나… 같은 시기에 있던 동생도 있어서 캐스케도 되고, 아닌 분들도 얘기가 잘 들어 주고 그리고서서(참여자 2)."

주의모음 3: 임신으로 인한 재정 부담과 역할 변화에 적응하려는 노력

중심의의 1: 임신 출산에 필요한 재정적 부담감

"경제적인 거가 걱정되면서 고민을 하니까 거대 스트레스로 왔던 거 같아요. 여기요 같은 거를 구입하는 데 있어서도 금액도 많이 부담되고, 친구들 거래 비교를 하게 되니까 그런 거비급 힘들었어요(참여자 1). "그럼 품험이 사 놓자서 한 번에 너무 부담이 되지 않게 하려고 했는데, 예산은 크게 없고 꺼 필요한 것만 사려구요(참여자 9)."

중심의의 2: 일과 아기 중에서 아기를 선택한 의식의 전환

"제가 작정 생각할 땐 있었던 부분이었고…(부모님이 아기로 생각하라고 해도) 그레도 얘기보다는 내 몇먼저 중요하니까… 사설 부모님의 관심도 부담스러웠는데… 뒷예에서 여러분이 거 어떤 대로 끝나는 거 같아요(참여자 3). "일과 아기와의 결혼은 적절한 방법으로 해야겠죠. 내가 애기를 가지고 있구나, 라고 느끼지 거 갑자연서 그ursive하게 뭐하고 싶어지니까,는 가지가 점검 그만이 들어와야 아이를 가르는 것으로도 대단한 일을 하고 있는 거다. 제 그런 아이들이 처음엔 안 들리나 이제 점점 그만이 생각이… 그 남은 일을 놓고 아이를 가르는 게 난중이라고, 여중에는 그렇게 결혼을…(참여자 4)."

주의모음 4: 해외와 관련 맺기

중심의의 1: 해외의 존재를 인정하고 해외에 의미를 부여함

"애기를 심심했다고 한 후부터 매일을 지내 거 같았어요. 해외 동화상, 1일 2개 사가지고, 시간이 있을 때마다 한 번씩 임대주가한 해 와 그게 마다 거켜(참여자 2). "나를 좋아한다, 걱정하게만… (태어나라) "…저의 해외를 해 애봐 목소리가 난 빛 때 얘기가 더
많이 움직이는 거 같아요... 오빠 목소리를 좋아하는 것 같다고 얘기해... 그날 의미를 계속 부여하는 거에요(참여자 9).

중심의의 2: 태아에게 영향보다 더 적극적인 아빠
"남편이 태아에게 관심이 되게 많은 것 같아요. 그냥 항상 그냥 잡에 오고 가고 할 때 항상 인사하고 말 걸고 자기한테 배에다...만지고, 만져보라고 하고... 잡에 오고, 다녀왔고, 나중에 나오면 아빠랑 축구하고, 아빠랑 놀다 보면 많이 말해있음에 있어서, 그런 이런저런 이야기를 맛 해요... (참여자 4).", "산전교실은 유익했던 거 같아요... 태물을 돌려주는 방법이라던가 이런 거들 들었는데 아빠들은 모르나 같이 많이 들어가 재미있어하더라도요... (참여자 7).

주제모음 5: 아기를 중심으로 새로운 부부관계 적용

중심의의 1: 부부 역할을 위한 동반자
"...어기 아빠도 얘기 그는 거 왜냐 하면 저는 일단 기본적으로 그건 생각을 하고 있고 가지고 항상 같이 가거든요... (참여자 6).", "저는 그냥 되도록 아빠랑 함께하고 싶어서, 주말에는 아빠랑 같이 함께하고 많은 마음을 카드그 그런데 겨자요. 또 아빠도 많이 앉았으면 좋겠고 하고... (참여자 8).", "...병원은 항상 같이 갈어요. 다 그런 (산전)교육도...(참여자 9).

중심의의 2: 부부간에 이해와 배려로 맞춰갈
"...아빠 나는 상황에서... 그냥 서로 맞춰가는 거 같아요(참여자 3).", "...그런 그건 저희 들이 노력했던 것 같아요... 힐링이 사실 일주일이면 7일을 끊어주는... 조금 개선이 된 것 같아요(참여자 5).", "(...)... (참여자 6).

중심의의 3: 아빠를 더욱 아끼고 소중히 여기는 아빠
"최대한 안 힘들게끔 헤를 줄라고 하는 거 같고, 정신적으로도 스트레스 안 받게 해 줄거리는 거 같고(참여자 3).", "...혼합할 때, 영향을 받는 거 같긴 한데 그렇게 크게 힘 내고 그러던 건, 겨자요. 같이 많이 해도 그런 아빠와, 많이 다툫이라고 하고, 좀 관심을 다른게 둡려라고 하고, 좀 그렇게 해봤던 거 같아요(참여자 4).

중심의의 4: 남편의 의료와 공감이 필요함
"나는 이런 걸 많이 들었어요, 이렇게 얘기하고, 나는 신경한데 그건 좀 많이 받고 싶었는데... 내가 그냥 더 힘들다 나가 힘들 거는 아무것도 아니라 그런 소리로 얘기할 경우에... 좀 서운했던 것 같아요(참여자 3).", "...아무래도 본인이 겪지 못한 일이라 보나하... 것 뭐하든 사실했은 공감을 못 하니까 가끔 또 에피소드는 경우들이 한 두 번씩 생길 수 있잖아요? 그 때는 이제 순간 욕하는 경우가 생겨요...(참여자 7).

주제모음 2: 출산에 대해 머委会

중심의의 1: 자연분만에 확신 없음
"저는 가까이에 남고 싶은데 제 몸이 망가지는 것도 원하 지 않아서 계속 그런 거 고민이에요(참여자 1).", "무동은 그냥 맘들려요(참여자 3).", "아직은 자연분만을 생각하고 있는데... 조금 두려움 마음이 있고... 내 그게 맘 흥들기는 대로 하려구요(참여자 8).

중심의의 2: 부부가 함께 출산을 준비함
"동행장 보면 저도 이런 면을 남긴다면 걱정이 되는 거 찾아보고 그러년데요. 그러년데... 아 우리 둘이 같이 하면 잘 할 수 있다 이런 생각이 들고, 신랑도 자신감 있게 얘기할 향이라구요. 할 수 있을 거라고...(참여자 5).", "산전교실이 둘만 출산 후접한 이런 거는 수강 해내서 오빠가 같이 가요(참여자 9).

주제모음 2: 출산에 대해 두려움
"(출산) 후에 이런 거를 보면 맘 내 병으로 트리가 하나 지나가는 것 같다. 맘 그런 느낌들이 많이 들고 다녀왔고..." (참여자 3).", "저는... 분만에 대한 두려움이 엄청 그게 다툼가요. 너무 두려운 거예요... 두려움이 너무 컸었어요, 초음파가 나는 눈... 눈물이 맘 나라는 거예요. 이제는 이 뭐 대로 되라, 할 수 있을 거야, 이 생각이에요(참여자 5).

중심의의 2: 배우자의 출산 두려움
"남편은 (제가) 겪지 않고 고충을 느끼는 거가 힘들다는데 처음부 터 제왕절개를 하라는 생각을 하고 있는데(참여자 1).", "제가 옛 시 얘기가 남자가 축사도 좋을 수도 있다고 걱정하면서 지금도 되게 봐도 악해요. 그리고 오빠 같이 하는 동료 분이 저만 분만하다가 죽었어요. 그래 가지고 빈안전이 극도에 다했어요(참여자 9).", "... 오빠도 무섭다... 그남... 임신 남자도 저한테 무섭 일 있으면 가봐 무섭대요(참여자 10).

중심의의 3: 출산 두려움 완화를 위한 산전 교육 참여
"제가 일 하니 있어서, 다음 주까지 일하고 이제 출산후가 시작에서 그때 한 번 병원에서 하는 거 보라고... (참여자 1).", "... 부부 클래스를 이런 데... 같이 가면 좋겠어요. 출산에 대해서 클래스가 있다고 하면 참여하면 많이 도움이 될 것 같아요(참여자 4).", "제가 산모교실 중 열심히 다녀왔어요. 이 출산 과정이란 지, 출산에 대한 내용을 많이 알려주면서 보나히 출산에 대한 두려 움이 많이 극복이 됐어요. 그리고 이제 하도 돈 보나히 볼일 아..."
님 거 같은 거? (참여자 5)

산욕기 준비와 관련된 상황적 구조
산후에는 여성들은 산후조리원과 친정 엄마, 산후도우미 서비스를 받을 계획을 하였다. 또한 임신 여성들은 대부분 모유 수유를 우선으로 생각하고 있지만, 상황이나 젖이 잘 나오는 것에 따라서 하려고 하며, 모유 수유가 어렵다고 하면서 자신 없어 하였고, 꼭 해야겠다는 적극적인 태도를 보이지 않았다.

주제모음 1: 도움이 필요한 산후 조리와 수유계획
▶ 중심의미 1: 산후조리 계획을 세움
"저희 친정 부모님이... 두 분 다 맞벌이하시거든요. 산후조리를 할 수 있는 상황이 아니라고... 조리원 2주 하고 도우미 원래 2주 했는데... 그렇게 혼자 조리하려면 힘드니까... 이모님 주 쓰려구요(참여자 3).", "산후조리원 2주 갔다가, 친정에서 한 달 있어 보고 뭐 괜찮으면 집으로 돌아오고, 아니면 뭐 한 달 더 있어야 되겠다 하면 친정엄마가 두 달까지... (참여자 4)"

▶ 중심의미 2: 자신의 모유 수유
"모유 수유는 하면 좋은데... 애기도 근데 될지 안 될지 모르니 까... 안 되면... 못 하니까... (참여자 4)", "수유는 모유 수유하고 싶은데 그것도 아직 잘 모르는 거라... 일단 어렵다고... 애기가 초반에는 빠는 힘이 부족하다 보니까... 이게 양이 그니까 생각보다 애기가 많이 안 빨면 그만큼 젖몸살도 오고 그럴 수 있는데... (참여자 5)"

육아 대책과 관련된 상황적 구조
육아에 대한 부모역할에 대해 막막함과 벅참을 느끼지만, 인터넷 검색과 산모교실 참여 등 육아 지식과 정보를 획득하였다. 아빠는 육아를 겁내지만 육아에 참여하기를 원하며, 심지어 육아를 전담하기로 결정한 아빠도 있었다. 또한 임신 여성들은 배우자가 육아에 함께 참여하고 아버지로서 역할을 하기 바랐다. 직장 여성의 경우 육아로 인한 경력 단절 및 육아휴직으로 인한 수입 감소로 경제적 어려움을 걱정하고, 전업 주부의 경우에는 독박 육아에 대해 두려 워한다.

주제모음 1: 상상 이상으로 벅차게 다가오는 육아
▶ 중심의미 1: 육아 현실에 대비하지 않은 모유 역할의 막막함과 벅참
"육아는 아직까지 생각하기에는 벅차서(참여자 1)", "...그만 애가 아직까지 생각하기에는 벅차서(참여자 3)", "...그만 애가 아직까지 생각하기에는 벅차서(참여자 5)". "여러 가지 면에서 아기를 잘 키워야 한다는 그런 여러 가지 면인 것 같아요(참여자 5)", "...그만 애가 아직까지 생각하기에는 벅차서(참여자 3)", "...그만 애가 아직까지 생각하기에는 벅차서(참여자 5)", "...그만 애가 아직까지 생각하기에는 벅차서(참여자 3)", "...그만 애가 아직까지 생각하기에는 벅차서(참여자 5)", "...그만 애가 아직까지 생각하기에는 벅차서(참여자 5)"

▶ 중심의미 2: 독박 육아로 앞이 캄캄함
"주변 산모들은 이미 아이를 낳아서 지금 키우고 있거든요. 근데 그런 산모들 보면 막 밖에 꼭 옆이나 하고 산모들은 신상어니까 조금이라도 나름 힘들어... 나는 처음에 나 혼자 키워야 하는데 잘 할 수 있을까... 뭐 그런 생각도 들고... 걱정이 되요(참여자 3)", "... 얘기하고도 이제 얘기하고도 거의 혼자서 고생하고 그레서(...) 안(...) 않아 감탄함. 잘할 수 있기를 갈라가도록 오전부터 저녁까지로(...) 아 무로도 저녁까지 가면 체력이 안 될 것 같다는 생각이 들면서 힘들겠다는 생각이 들고... (참여자 3)."
으로이라면...해야할 것 같아요(참여자9).
주제보유 3: 임신 망의 경력 단절과 육아에 대한 부담
▶ 중심의미 1: 임신 망의 경력 단절의 슬픔과 우울
"아이를 낳고 몇 년 동안 일을 못 하고, 복직이 어렵고 뭐 이제 이런 것들을 막 생각을 하니까, 이제 슬럼프하다라고고(참여자4), 우울해요...남편이...이제 일을 그런것이하는 거로...남편이 일을 그만두라고 하는 이유이라서(참여자10).
▶ 중심의미 2: 임신 망의 무용 조정과 배려 필요
"일을 좀 줄여주라고 얘기할 것도 있고, 강의 받고 좀 사무직이 됐으므로 바쁘겠으니 이런 식으로 말씀을 드리긴 했는데...참여자4.", "이제 배우자 입신 확인하고 나서 좀 일을 많이 줄이세요. 근데 그것을 깨끗 하던 거에 반보다 더 많이 줄였어요(참여자 10)".

일반적 구조적 진술
임신 여성의 적응 양상은 임신으로 인한 시간적 흐름과 관련된 상황에 따라 나타나며, 개인적, 관계적, 사회적 측면의 노력이 필요하다. 처음 임신을 인지한 상황과 임신으로 인한 변화와 관련된 상황에서는 임부 개인 및 부부관계 측면에서 적응을 이루려는 노력이 두려지지만, 출산 이후의 상황에서는 임부 개인 및 부부의 노력으로도 해결할 수 없는 어려움에 대한 사회적 지지가 필요하다. 처음 임신을 인지한 상황에서는 임신의 계획 유무에 따라 큰 차이 없이 당황스럽지만 배우자 및 가족의 지지가 도움이 된다. 임신으로 인해 신체적, 정신적, 관계적, 사회적 측면에서 변화하며, 개인 및 배우자의 적극적인 노력으로 적응을 하고 있다. 다툼은 출산, 산후조리와 수유, 육아와 관련된 상황에서의 두려움, 불안성, 자신감 부족에 적응하려고 노력하지만, 브란 및 모유 수유 자신감 증가시키기 위한 산전교육, 산후조리, 육아문제 해결 등을 위한 사회적 지지가 필요하다(Figure 1).

Discussion
본 연구는 임신 여성의 임신 적응 양상에 대한 생성의 경험을 바탕으로 본질적인 의미와 구조를 확인하였다. 참여자의 임신 적응 양상은 개인적, 관계적, 사회적 조건 안에서 적응을 이루려는 여성 개인 및 부부의 노력이 확인되었다. 임신 적응 양상은 임신을 처음 인지하는 상황, 임신으로 인하여 변화하는 상황, 가난한 미래의 출산 및 산후, 육아 상황과 관련하여 드러났다. 임신 적응을 위해 임신 여성 개인 및 부부가 임신으로 인한 상황에 적응하기 위해 적극적으로 노력하는 배우자, 브란 및 모유, 자신의 부정적 상황과 관련된 관계적 지지 및 지역사회 구성원들로부터 받는 사회적 공감, 제도 등은 임신 적응에 긍정적인 영향을 미쳤다. 임신을 계획하지 않은 경우는 물론 계획을 한 경우에도, 임신 여성뿐만 아니라 배우자도 임신을 긍정적으로 받아들이는 것이 좋다. 임신 과정을 거치면서 태동을 느끼고, 부부간의, 그리고 주변 지인들의 지지 반응에 따라 정서 임신을 받아들이게 되며, 안정되고 긍정적인 태도로 변화하는 적응과정을 보여주었다. 여성뿐 아니라 배우자도 임신기에 불안과 우울과 같은 심리적 어려움을 보이고 [18], 여머니의 적응은 시간에 걸쳐서 진행되는 과정이며 다양한 개인적, 가족적 역동성과 관련이 있다고 한 연구와 유사한 결과였다 [19]. 임신을 계획하였을 때는 임신을 확인하고 동시에 임신을 긍정적으로 받아들이지만, 계획된 임신이라 할지라도 임신 여성뿐만 아니라 배우자도 자신의 건강 상태, 가족구성원 생태에 대한 준비 정도에 따라 부정적 심리상태를 나타내기도 하였다. 계획된 임신일지라도 부정적 측면과 부정적 측면이 동시에 나타나는 것은 임신이 부부간의 기쁨과 동시에 신체적, 정서적, 경제적 필요성 등 부모 역할의 다양한 측면에서의 불안감, 부담감으로 인한 부정적 상황과 밀접한 관련가능성을 보이는데 이는 임신 초기에 부부간의 상호작용을 하여야 한다는 연구 결과와 비슷하다 [20]. 임신을 계획하지 않았을 경우에는 임신 초기에 부정적 상호작용을 보이며 임신을 받아들이는 데 더 오랜 시간과 배우자, 가족의 지지가 필요하였다. 이는 계획하지 않은 임신이 여성의 임신에 대한 부정적 반응으로 우울증을 유발할 수 있고, 예기치 않은 출산, 육아, 사회적 고립에 대한 두려움을 가중시킬 수 있으며, 가족 및 복직의 지지 부족으로 이어질 수 있기 때문이다 [21]. 또한, 계획하지 않은 임신이 처음에 당황하거나 양가감정을 느끼는 여성들은

<table>
<thead>
<tr>
<th>Core situation</th>
<th>Theme</th>
<th>Facilitators to adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>First recognizing the pregnancy</td>
<td>Anxiety, burden, embarrassment</td>
<td>Spouse, family support</td>
</tr>
<tr>
<td>Pregnancy-related changes</td>
<td>Endurance, health care, maternity classroom</td>
<td></td>
</tr>
<tr>
<td>Personal: physical</td>
<td>Mind control, family support, empathetic members of society</td>
<td></td>
</tr>
<tr>
<td>Personal: mental</td>
<td>Finding the value of parenting, shift of consciousness</td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>Building an active relationship with the fetus</td>
<td></td>
</tr>
<tr>
<td>Relational: with fetus</td>
<td>Fit together</td>
<td></td>
</tr>
<tr>
<td>Relational: with spouse</td>
<td>Couple preparing to give birth together, active participation in prenatal classrooms</td>
<td></td>
</tr>
<tr>
<td>The upcoming birth</td>
<td>The frustration and fear of childbirth</td>
<td></td>
</tr>
<tr>
<td>The postpartum period</td>
<td>Postpartum care, breastfeeding</td>
<td></td>
</tr>
<tr>
<td>Parenting</td>
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<td></td>
</tr>
<tr>
<td>Parenting beyond what I imagined</td>
<td>Internet parenting information, Sharing of prenatal education and childcare</td>
<td></td>
</tr>
<tr>
<td>Dad’s dedicated parenting</td>
<td>Dad parenting education, dad parental leave</td>
<td></td>
</tr>
<tr>
<td>Mom’s career break</td>
<td>Work and parenting support</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Structure of pregnant women's adaptation.
산후 시기까지 심리적 고통을 호소하지만, 부부관계 안정에 따라 여성의 심리적 고통을 완화할 수 있다는 연구[22]에 따라 임신에 대한 계획뿐만 아니라 부부관계 안정을 강화함으로써 임신 초기 부부 정신적 갈등을 완화할 수 있을 것이다.

임신 기간 동안 응용을 위한 노력이 요구되는 상황은 신체적, 심리적, 사회적, 관계적인 면에서 여러 가지 양상으로 나타났다. 산전 연구[21]에서도 결혼 만족도, 유산 경험, 난용, 자아존중감을 임신 중 우울의 위험요인으로 보고하였다. 임신기 부부들이 시간이 지남에 따라 심리적 정신적 안정을 얻고, 납신향이나 필요로 하는 부분을 함께 준비하고, 기분을 보장하고, 산전교육 같은 교육을 함께 하면서 적극적 행동 변화 및 새로운 역할을 수행하며 노력을 기울이는 것은 임신기 부부의 첫 부모 팀을 향한 적응과정이라고 하였다[20]. 본 연구 참여자들은 다양한 개인적, 관계적, 사회적 변화 상황에서 나름의 해결방안을 모색하고 실현하며 적응하기를 포용하는 과정을 경험하는 것으로 나타났다. 즉, 참여자들은 임신으로 인한 변화 상황에 대한 해결 방법으로 개인적인 해소 방법, 태교, 난다와의 관계 개선, 산전교육 같은 전문적인 교육 참여, 자녀들에 대한 지지 등 다양한 심리적 노력을 통해 임신 기간 동안 여러 방법을 모색하고 있다. 따라서 산후교육은 임신 여성의 응용과정을 촉진하기 위해 산전 관리 프로그램 개발 및 적용을 통해 전문적인 지지 전략을 강화해야 할 것이다.


참여자들은 응용 역할을 부부간 과제로 여기고 임신기간 동안 지속적으로 해결하고자 고민하면서도 막연하게 생각하는 모습을 보였다. 응약, 징상 복극으로 인한 부부 역할 분배 등과 연계된 부모 역할에 대한 막막함은 본부간 단면과제로, 그 해결을 위해 구체적 인 방법을 모색할 필요가 있다. 부부의 상호 지지가 임신기 부모 역할 적응에 큰 역할을 한다. 부부간 준비도의 차이가 갈등의 요인이 되었다[20]. 본 연구에서도 부모 역할에 대한 인식 차이와 아내에 비해 직접적 신체적 경험을 하지 못하는 남편의 평가를 응용으로 배우자 상호간의 갈등과, 신체적 및 육아임 잘 해결방안을 모색하고 있다. 또한 배우자들은 아기와의 관계에 더욱 능동적으로 참여하고 있는데, 부모에게 요구되는 역할에 대해 전문적인 준비가 부족하다고 느꼈다[26]. 그리고 아버지로서의 시기의 대가 여기는 것에 대해 경험이 모호하고[27], 아버지 역할을 위한 준비와 배우자의 관계 변화에 대한 더 많은 지식과 지원을 원했다[28]. 이러한 연구 결과는 출산 후 부분 중심 산후 프로그램 운영 시 부부관계 증강, 효율적인 의사소통, 구체적인 육아 방법 등에 대한 전문적이고 고집적인 정보 제공 및 심리적 전략을 강화해야 함을 시사한다.

임신 여성의 응용은 임신을 계획하는 것부터 시작하며, 현재 임신의 신체적, 심리적, 사회적, 관계적 응용을 위해 개인적 노력 및 배우자와 가족, 지역사회, 의료 체계 등 사회적 지지가 도움이 되었다. 또한 미래의 출산, 산후 및 육아 계획은 현재의 임신 응용을 위해 필요한 사항으로 이들 배우자와의 부부 응용과 관계 응용이 필요하다. 임신 여성은 임신 기간에 신체적, 심리적, 사회적, 관계적 변이에서 응용이 요구됨에 따라 개인적인 노력으로 해소하는 경우도 있었고, 배우자 및 가족의 지지, 지역사회 자원 및 산전교육 같은 전문가의 지지 등에 대해 적극적인 태도로 해결방법을 탐색하여 지면받고 실천함으로써 임신 응용을 위한 응용을 하였다. 그러므로 추후의 본 연구를 통해 확인된 임신 여성의 개인적 측면 외에도 관계적 차원에서 배우자와의 관계, 가족의 지지, 배우자의 부부 응용을 추가하고, 사회적 차원에서는 지역사회 자원 그룹 활성화 및 산전교육 강화, 전문가 상담 등의 구체 요소를 포함할 수 있다. 따라서 임신 여성의 응용을 위해 전문여러로서 개인적, 관계적, 사회적 차원에서 응용할 수 있는 전문적 정보와 지지를 제공할 수 있는 간호 측면에 대한 전략을 수립하고 추진해야 할 것이다.

본 연구는 정상 임신 여성의 임신 과정을 통한 응용을 현상학적으로 탐색하였고, 그 과정에서 배우자의 임신 응용에 대한 과정도 발전되었다. 그러나 본 연구는 임신 여성의 대상으로 하기 때문에 배우자의 응용에 대한 탐색은 제한적이었다. 그러므로 추후 연구에서는 임신 여성과 배우자의 임신 응용 과정을 함께 탐색하는 현상학적 연구를 계획한다.

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Conflict of interest

The authors declared no conflict of interest.

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Data availability

Please contact the corresponding author for data availability.

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References

16. Guba EG, Lincoln YS. Effective evaluation: Improving the usefulness of evaluation results through responsive and natu-


Purpose: This study investigated levels of childbirth fear and related prenatal factors (self-confidence for childbirth, prenatal depression, knowledge about childbirth, and spousal support) among pregnant women in South Korea.

Methods: A correlational study design was used to explore levels of childbirth fear and related prenatal factors in 200 pregnant women over 28 weeks of gestation. A self-administered questionnaire was used to measure fear of childbirth and related factors, such as self-confidence for childbirth, prenatal depression, knowledge about childbirth, and spousal support.

Results: One-third of the pregnant women were aged 35 years and older. Sixty-one percent of women were nulliparae, but only 26.0% had experienced prenatal education. The mean score for fear of childbirth was 66.99 out of 165. The prevalence of fear of childbirth was 72.0%, and childbirth fear was severe in 26.5% of the participants and moderate in 45.5%. Fear of childbirth was negatively related to self-confidence ($r=-.45, p<.001$), but positively related to prenatal depression ($r=.21, p=.002$). Two significant predictors were found to explain the fear of childbirth. Higher self-confidence for childbirth was associated with less severe fear of childbirth ($\beta=-.44, p<.001$), while higher prenatal depression was associated with more severe fear of childbirth ($\beta=.13, p=.038$).

Conclusion: The level of fear of childbirth was higher among pregnant women with lower self-confidence and higher prenatal depression. Reasonable evidence should be provided for implementing prenatal and childbirth classes to reduce pregnant women's depression and to increase their confidence.

Keywords: Childbirth; Confidence; Depression; Fear; Pregnancy
Summary statement

• What is already known about this topic?
Pregnancy and delivery cause multidimensional emotional experiences and emotions, from joy and a sense of accomplishment to anxiety and fear. Fear of childbirth is common among pregnant women, but poses a serious problem because it can develop into a form of anxiety disorder or severe fear during pregnancy.

• What this paper adds
This study demonstrated that pregnant women with lower self-confidence and higher prenatal depression had more severe fear of childbirth.

• Implications for practice, education, and/or policy
Pregnant women’s fear of childbirth should be reduced before childbirth. Therefore, a tailored intervention for prenatal and childbirth classes is necessary to reduce pregnant women’s prenatal depression and to increase their self-confidence for childbirth.

Introduction

연구 필요성
임신과 분만은 여성 생애추기의 중요한 사건 중 하나로 특히 분만은 여성에게 여러 신체적·정서적, 아니면 정서적 스트레스도 동반한다[1]. 여성들은 임신과 분만은 기쁨과 성취에서 불안과 공포의 이르기까지 모든 종류의 다자원적 정서적 건강과 감정을 유발하는 데, 일부 임산부들은 신체적 변화와 호르몬의 변화 등에서 오는 부정적인 감정이 지속적으로 이어져 분만에 대한 두려움을 경험한다[2]. 분만 두려움은 임산부에게는 흔한 감정이지만, 임신 중 불안 장애 또는 심각한 두려움의 형태로 발생할 수 있기 때문에 심각한 문제이다[3].

분만 두려움의 유병률은 20%로, 그 중 약 5%에서 10%의 여성들이 이 심각한 수준의 분만 두려움을 보인다[4]. 심각한 분만 두려움은 'tocolphobia'로도 알려져며[1], 메타 분석에서 유병률은 14%로 나타났다[3]. 분만 두려움은 정도에 따라서 낮은 수준, 보통 수준, 심각한 수준으로 구분된다. 낮은 수준과 보통 수준의 두려움은 ‘임부의 일상생활을 방해하지 않는 정도의 불안’을 말하나, 심각한 수준의 두려움은 ‘임부의 일상생활과 복지에 있어 지장을 일으키는 강한 불안’으로 정의된다[4]. 분만 두려움을 겪는 임부는 방금 향상 기정전 상대에 불안, 불안정한 모습을 보이며, 임상과 가정에서 악몽, 집중력 부족, 과물과 고통스러운 생각의 반복과 피로 등의 증상을 호소한다[2]. 심각한 분만 두려움을 겪는 임부들은 신체적, 정서적으로 부정적인 증상뿐 아니라 조기 진통이나 제대기간의 단축과 같은 문제까지 경험한다[5]. 분만 두려움은 분만 형태에도 영향을 미치며, 분만 두려움이 높은 임부임수록 질 분만보다 제자리결과 분만을 선택하는 비율이 높게 나타났다[3,6].

최근 연구에서 심각한 분만 두려움은 부정적 출산 결과를 가져올 뿐만 아니라 산후 외상 후 스트레스 장애(post-traumatic stress disorder)와도 관련이 있음을 보고하고 있으며[7], 분만 두려움은 임신 전후 우울과 연관성을 보인다[8]. 이러한 점들로 미루어 볼 때, 분만 두려움의 발생에 영향을 주는 산전 관련요인들을 탐색하는 것은 분만 두려움을 극복하기 전, 산후 정서적 출산 경험을 성취하고, 분모로서의 적응 및 가족의 진단을 달성하도록 돕는 간호 중계의 수립에 중요한 자료가 될 것이다.

문헌고찰을 통해 분만 두려움은 분만 자신감, 산전 우울, 분만과 관련된 지식 및 배우자 지지와 관련이 있음을 확인하였다. 분만 자신감은 분만 두려움을 낮추는 예측 요소로, 분만 두려움이 클수록 분만 자신감은 낮아진다[6]. 분만과정에 대한 두려움과 ‘주로’보다 ‘주로’로 통제할 수 없으나 겪어야만 하는 과정이라는 인식은 분만 두려움을 갖게 하며, 그 결과 분만에 대한 자기 대처 능력의 저하로 분만 자신감을 감소시키고 분만 두려움을 더욱 증가시키게 된다[9]. 산전 우울은 임신 중 분만 두려움을 심화시킬 수 있으며[10], 우울함에 따라 분만 두려움이 발생할 수 있는 우울이 없이는 임부보다 4.8배 높았다[11]. 분만 두려움은 또한 아직 발견되지 못한 산전 우울의 잠재원인 중 하나들[8].


임부의 산과학 지표 중 출산 경험이 따른 분만 두려움의 차이 유무는 연구결과가 아직 혼란되어 있다. 유럽이나 호주 연구에서는 초산모가 경산모보다 분만 두려움의 차이가 없다고 보고한[4,7] 반면, 스웨덴 연구에서는 초산모가 경산모보다 더 높은 분만 두려움을 가진다고 보고하였다[15,16]. 출산 선호도와 분만 두려움
의 관계 연구에 따르면, 분만 두려움이 높은 임부는 젊 분만보다 제
왕결제 분만을 4.6배 선호하였고, 실제 분만에서 젊 분만 대비 제
왕결제 분만을 2.4배 더 선택하였다[17]. 분만 경험에 따른 비교연
구에서 분만 두려움이 있는 초산모가 제왕결제 분만을 선택하는 경
도는 젊 분만을 선택하는 경우보다 11.79배 더 높았고, 경신모의
경도 제왕결제 분만을 선택하는 경우가 젊 분만을 선택하는 경우보
다 8.32배 더 높게 나타났다[16]. 분만 두려움에 대한 연구는 주로
북부 유럽, 북미 및 호주의 임산부들로 대상으로 활발하게 이루어
져 왔다[3,7,9]. 분만 두려움에 대한 연구의 결과에 대한 요인
탐색도 국제 연구에서 주로 찾아볼 수 있다[6,16,18,19]. 반면 국내
연구는 임부의 태교, 불안, 분만 풍중과 임신기 스트레스[11,20]에
대한 횡단성 조사 연구가 대부분으로, 분만 두려움 수준을 확인하
고 관련요인을 탐색하는 연구는 찾기 어렵다. 이에 본 연구는 임부
를 대상으로 분만 두려움 수준을 확인하고, 분만 두려움에 산전 관
련요인(산행, 분만 경험, 분만 자신감, 산후 우울, 분만에 대한 지
식, 배우자 지지)의 영향력을 탐색하여 이를 통해 사후 임부 두려움
을 개선하거나 출산 준비교육 내용의 타당성에 근거를 제공하고자
한다.

연구 목적
본 연구는 임부의 분만 두려움 수준을 확인하고 분만 두려움에 영
향을 미치는 산전 관련요인을 탐색하기 위함이며, 구체적인 연구의
목적은 다음과 같다.
- 임부의 분만 두려움 수준과 산전 관련요인(분만 자신감, 산후 우
울, 분만에 대한 지식, 배우자 지지)의 수준을 확인한다.
- 임부의 일반적 특성과 산후 특성에 따른 분만 두려움의 차이를 확인한다.
- 임부의 분만 두려움과 산전 관련요인(분만 자신감, 산후 우울, 분
만에 대한 지식, 배우자 지지) 간 관계를 확인한다.
- 임부의 분만 두려움에 영향을 미치는 산전 관련요인을 탐색한다.

 연구 대상
연구대상자는 대전 지역에 소재한 2개의 여성 전문병원에서 규칙
적인 산전 관리에 consort가 있는 임신 28주 이상
서양적 협업이 없으며, 건강한 태아를 가진 임부이다.
 же, 기초에는 임신 전부터 야고 있는 정신건강 문제가 있는 경우,
모든 또는 제야의 건강 문제로 37주 이전에 조산을 계획하는 경우
이다. 임부는 28주 이상으로 선정한 이유는 임신 28주 이상에서 임
신 상태 및 불안으로 분만 두려움의 산산바리를 2.7배 증가시키는 결
과[21]가 보고되었다. 본 연구에 필요한 표본 크기는 표
본 크기를 산정하는 G*power 프로그램을 사용하여 우의수준
\[ \alpha = 0.05 \], 절정력 \( (1-\beta) = 0.8 \) 로 설정하였다. 산전연구에서 보고한
분만 두려움과 출산에 대한 자기효능감 관계가 초반부에서 \( r = 0.37
\) 경신부에서 \( r = 0.36 \) 근거하여 산관관계 \( r = 0.3 \) 로 추정하였고[22],
 이를 회귀분석에서 필요한 효과 크기로 계산한 결과 \( f = 0.10 \)이었
다. 본 연구의 회귀식에 필요한 독립변수 6개를 입력할 때 필요한
표본 크기는 최소 143명으로 나타났다. 이에 설문지 수집 및 부
정확한 설문지 발송을 고려하여 임부 230명을 모집하였고, 자료 입
력 시 응답이 미비한 30명의 자료는 제외한 결과 최종 연구대상자
는 200명이었다.

 연구 도구
분만 두려움
본 연구에서는 Wijma 등[23]이 임신 기간 중출산 후의 분만 두려
움을 측정하기 위해 만든 W-DEQ(Wijma Deliver Expectancy/Ex-
perience Questionnaire) 도구를 한국어로 번역한 도구를 사용하였
다[24]. 본 연구에서는 산전 분만 두려움과 분만에 대한 기대감을 평
가하는 도구인 버전 A 를 사용하였다. 분만 두려움 버전 A는 33문항
으로, 0~5점으로 구성된 리터컷 크리도이며, 14개 문항(3, 6, 7, 8,
11, 12, 15, 19, 20, 24, 25, 27, 31번 문항)은 역점정하고 총점은 0
에서 165점의 범위를 갖는다. 점수가 높을수록 분만 두려움이 높
음을 의미한다. 분만 두려움 수준에 따라 분만 두려움 점수의 점이 65
점 미만일 경우 높은 두려움, 65이상 85점 미만은 보통의 분만 두려
움, 85점 이상은 심각한 분만 두려움으로 나눌 수 있다. 본 도구의
신뢰도는 Cronbach's \( a = 0.89 \)로, 한국판 도구의 평가 연구에서 신뢰도는
Cronbach's \( a = 0.89 \)로, 본 연구의 신뢰도는 Cronbach's \( a = 0.85 \)였다.

분만 자신감
본 연구에서는 Lee[25]가 개발한 분만 자신감 척도를 이용하여 15
문항 4점 척도로 측정하였다. 각 문항에 대한 응답은 ‘전혀 그렇지
않다’ 1점, ‘조금 그렇다’ 2점, ‘보통 그렇다’ 3점, ‘대단히 그렇다’ 4점으로
점수가 높을수록 분만 자신감이 높음을 의미한다. 개발 당시
도구의 신뢰도는 Cronbach's \( a = 0.89 \)였고, 본 연구에서는 Cron-
bach's \( a = 0.82 \)였었다.

Methods

Ethics statement: This study was approved by the Institutional
Review Board of Chungnam National University (201904-SB-
0440-01). Informed written consent was obtained from the
participants.

연구 설계
본 연구는 임부의 분만 두려움 수준을 확인하고 산전 관련요인과의
관련성을 탐색하고자 상관성 조사 연구설계를 사용하였다.

산전 우울

산전 우울은 Cox 등[26]이 개발한 Edinburgh Postnatal Depression Scale (EPDS)를 Kim 등[27]이 번역한 한국어판을 사용하여 측정하였다. EPDS는 임신 중 우울 증상에도 타당도를 인정받아 널리 쓰이고 있다. 우울, 불안 및 공포, 좌절감, 자해사고 등에 대해 자기보고 형식의 10문항으로 구성되어 총 점수 범위는 0-30점까지이다. 0-3점을 받는 4점 척도로 1, 2, 4, 6번 문항을 제외한 나머지 문항은 역점점하고, 점수가 높을수록 우울한 것으로 평가한다. 한국판 EPDS의 최적 점단점을 9/10점으로 평가하여 해당 점단점을 기준으로 본 연구에서 우울의 정도를 나누었다.[27] 개발 당시 도구의 신뢰도는 Cronbach’s α가 .87로 제시하였고, 한국판 우울 도구의 신뢰도는 Cronbach’s α가 .86이었다.

분만에 대한 지식

분만에 대한 지식은 Choi[28]가 분만경리, 분만과정, 산전준비, 호흡법 및 힘주는 범에 관련된 지식수준을 평하는 20개의 문항으로 개발한 도구를 사용하여 측정하였다. "예, 아니오"로 답하게 한 후 정답은 1점, 오답은 0점으로 처리하였다. 점수가 범위는 0점에서 20점으로 점수가 높을수록 분만에 대한 지식이 많음을 의미한다.[28]

배우자 지지


임부의 일반적 특성과 산과적 특성

임부의 일반적 특성은 임부의 나이, 학력, 직업, 경제소득 항목으로 임부의 산과적 특성은 출산 경험, 산전 교육 경험, 계획 임신으로 구성되어 있다. 일반적 특성에서 나이, 학력, 직업은 주관적으로 자필 응답하도록 하였고 경제소득은 400만 원 미만, 400만 원 이상으로 선택 응답하도록 하였다. 산과적 특성으로 출산 경험, 산전 교육, 계획 임신 여부, 출산 방식 선호도를 조사하였다. 출산 방식 선호도는 임부가 본만 시 선호하는 방법으로 ‘질 분만’과 ‘재활생계 분만’ 중 원하는 방식을 선택 응답하도록 하였다.

자료 수집

제1연구자는 연구 도구에 대해 원 만개지자에게 사용 승낙을 받았다.
은 91명(45.5%), 85점 이상의 심각한 분만 두려움을 경험하는 여성은 53명(26.5%)으로 나타났다. 보통의 분만 두려움을 보고한 비율이 가장 많았고, 다음으로 낮은 분만 두려움, 심각한 분만 두려움 순이었다.

산전 관련요인으로 분만 자신감, 산전 우울, 출산에 대한 지식, 배우자 지지의 수준을 확인하였다. 분만 자신감은 21점에서 60점의 범위를 보이며, 평균 41.46±9.01점으로 중간 이상 수준으로 나타났다. 산전 우울은 0점에서 27점의 범위를 보였고, 평균 6.67±5.19점으로 낮은 수준으로 나타났다. 산전 우울은 총점 10점을 기준으로 ‘우울이 낮은 임부’와 ‘위험이 있는 임부’의 경우로 나누어 평가한 결과, 우울감이 낮은 임부는 133명(66.5%), 10점 이상으로 우울 위험이 있는 임부는 67명(33.5%)으로 나타났다. 분만에 대한 지식은 13점에서 22점의 분포를 보이며, 평균 13.22±1.55점으로 중간 이상 수준이었다. 배우자 지지는 최소 7점에서 최대 24점이었고, 평균은 20.96±3.06점으로 높은 수준이었다(Table 2).

임부의 일반적 특성과 산과적 특성에 따른 분만 두려움 차이
임부의 나이, 직업, 학력, 경제상태에 따른 분만 두려움의 차이를 확인한 결과, 경제상태별로 제외한 일반적 특성에는 유의한 차이가 없었다. 경제상태에서는 40만 원 미만 월수입이 있는 임부에서 40만 원 이상인 임부보다 분만 두려움 점수가 유의하게 높았다(\(t=2.58, p=.019\)). 산과적 특성 중 계획 임신 여부에 따라 분만두려움에 차이가 있었다(\(t=-2.35, p=.019\)). 임신계획을 한 임부는 임산을 계획하지 않은 임부에 비해 분만두려움 점수가 높았다. 반면 분만 경험, 계획 임신 여부, 산전 교육 유무와 출산 방식 선호도에 따라 분만 두려움은 유의한 차이를 보이지 않았다(Table 1).

분만 두려움과 산전 관련요인 간 관계
분만 두려움은 분만 자신감(\(r=-.45, p<.001\))과 중간 수준의 우울한 음의 상관관계를 보였고, 산전 우울(\(r=.21, p=.002\))과 낮은 수준의 유의한 양의 상관관계를 보였다. 산전 관련요인 간 관계를 살펴

Table 1. Differences in fear of childbirth according to the participants’ characteristics (N=200)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Categories</th>
<th>n (%)</th>
<th>Mean ± SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td>&lt; 35</td>
<td>135 (67.5)</td>
<td>72.38±21.17</td>
<td>-0.32</td>
<td>.287</td>
</tr>
<tr>
<td></td>
<td>≥ 35</td>
<td>65 (32.5)</td>
<td>73.35±17.44</td>
<td>-1.20</td>
<td>.281</td>
</tr>
<tr>
<td>Occupation</td>
<td>Yes</td>
<td>89 (44.5)</td>
<td>70.79±19.37</td>
<td>-0.72</td>
<td>.476</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>111 (55.5)</td>
<td>74.22±20.43</td>
<td>-1.18</td>
<td>.125</td>
</tr>
<tr>
<td>Level of education</td>
<td>College and above</td>
<td>185 (92.5)</td>
<td>72.22±19.63</td>
<td>-1.18</td>
<td>.125</td>
</tr>
<tr>
<td></td>
<td>High school</td>
<td>15 (7.5)</td>
<td>78.60±24.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly household income (10,000 Korean won)</td>
<td>&lt; 400</td>
<td>115 (57.5)</td>
<td>75.80±20.65</td>
<td>2.58</td>
<td>.010</td>
</tr>
<tr>
<td></td>
<td>≥ 400</td>
<td>85 (42.5)</td>
<td>68.50±18.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td>Nullipara</td>
<td>122 (61.0)</td>
<td>71.61±20.18</td>
<td>-0.96</td>
<td>.372</td>
</tr>
<tr>
<td></td>
<td>Multipara</td>
<td>78 (39.0)</td>
<td>74.39±19.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planned pregnancy</td>
<td>Yes</td>
<td>135 (67.5)</td>
<td>70.41±19.76</td>
<td>-2.35</td>
<td>.019</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>65 (32.5)</td>
<td>77.44±19.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience of prenatal education</td>
<td>Yes</td>
<td>52 (26.0)</td>
<td>71.26±22.66</td>
<td>-0.59</td>
<td>.550</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>148 (74.0)</td>
<td>73.20±19.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preferred delivery method</td>
<td>Vaginal birth</td>
<td>180 (90.0)</td>
<td>72.26±19.67</td>
<td>-0.91</td>
<td>.375</td>
</tr>
<tr>
<td></td>
<td>Cesarean birth</td>
<td>20 (10.0)</td>
<td>76.60±22.91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Levels of fear of childbirth and prenatal factors (N=200)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Categories</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of childbirth</td>
<td>Low (&lt; 65)</td>
<td>66.99±1.25 (12–140)</td>
</tr>
<tr>
<td></td>
<td>Moderate (65–84)</td>
<td>56 (28.0)</td>
</tr>
<tr>
<td></td>
<td>Severe (≥ 85)</td>
<td>91 (45.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>53 (26.5)</td>
</tr>
<tr>
<td>Self-confidence for childbirth</td>
<td>Low (&lt; 9)</td>
<td>41.46±9.01 (21–60)</td>
</tr>
<tr>
<td></td>
<td>High (≥ 10)</td>
<td>133 (66.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67 (33.5)</td>
</tr>
<tr>
<td>Prenatal depression</td>
<td>Low (&lt; 9)</td>
<td>13.22±1.55 (13–22)</td>
</tr>
<tr>
<td></td>
<td>High (≥ 10)</td>
<td></td>
</tr>
<tr>
<td>Knowledge about childbirth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spousal support</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Values are presented as mean±SD (range) or n (%).
본 연구에서 임부의 분만 두려움은 165점 만점에 66.99점이었고, 분만 두려움 발생률은 87.5%, 그 중 심각한 분만 두려움 발생률은 29.0%로 나타났다. 국내에서는 처음 산전 분만 두려움을 평가한 것이라 국내 임부의 수준과 비교할 자료가 없는 실정으로 국외 연구와 비교하고자 한다. 유럽 임부를 대상으로 한 분만 두려움 연구 [30]에서 ‘보통 두려움’의 점수와 ‘심각한 두려움’의 비율을 살펴본 결과, 벨기에 55.8 (4.5%), 아일랜드 51.4 (9.6%), 덴마크 57.8 (9.4%), 에스토니아 61.3 (15.6%), 노르웨이 60.6 (12.7%), 스웨덴 63.4 (14.6%)였다. 이와 비교 시 우리나라 임부의 점수와 발생률이 더 높게 나타났다. 이런 발생률의 차이는 연령, 교육 및 임신 경험 등 사회, 문화적 차이가 있고 조사 및 의료 시스템의 제공 정도에 따라 국가마다, 산모마다 인지하는 수준이 다르기 때문일 것으로 보인다.

특히 서구 국가와 달리 국내 임부에게는 표준 산전 교육이 부족하기 때문일 수 있다. 한국의 문화로 산전 교육은 출산에 대한 두려움 해소보다는 출산 후 육아와 산전가 관리, 모유 수유 등에 집중되어 있기 때문으로 보인다. 분만 전에 두려움, 스트레스, 분만 자신감과 관련된 산전 교육을 받은 국내 임신부들 사이에서 분만에 대한 두려움이 줄어들다는 연구결과가 이 가설을 백분탐정하고 있다 [16]. 따라서 추후 연구에서는 우리나라 임부의 분만 두려움을 줄이는 데 산전 교육 정책이 관련이 있는지, 산전 교육이 분만 두려움을 감소시키는 효과가 있는지 탐색할 필요가 있다.

본 연구에서 임부의 분만 자신감은 분만 두려움에 유의한 영향을 주는 것으로 나타났다. 이는 분만 자신감이 높을수록 분만 두려움이 낮아지는 선형 연구가 알려져있다 [26]. 분만 자신감이 낮은 임부는 분만 두려움이 높고, 분만과정에서 더 큰 통증과 스트레스를 동반한다. 분만 자신감 증진은 임부의 분만 두려움 감소에 중요한 의미를 가지기 때문에 임부의 분만 자신감 증진이 임부의 분만 자신감을 확인하고, 분만 자신감이 부족한 임부들에게 분만과정에 대한 정확한 정보와 허용법, 이완법, 연산법 같은 분만상황에 경험하는 통증과 스트레스에 직접 대처할 방법을 교육하여 분만 자신의 증진하는 효과적인 중재가 필요하다고 생각한다.

본 연구에서 산전 우울은 분만 두려움을 증가시키는 영향요인이

Table 3. Relationships among fear of childbirth and related prenatal factors (N=200)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fear of childbirth</th>
<th>Self-confidence for childbirth</th>
<th>Prenatal depression</th>
<th>Knowledge about childbirth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r (p)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-confidence for childbirth</td>
<td>-.45 (&lt;.001)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prenatal depression</td>
<td>.21 (002)</td>
<td>-.20 (004)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Knowledge about childbirth</td>
<td>-.06 (399)</td>
<td>.15 (033)</td>
<td>-.02 (775)</td>
<td>1</td>
</tr>
<tr>
<td>Spousal support</td>
<td>-.09 (163)</td>
<td>.27 (&lt;.001)</td>
<td>-.15 (030)</td>
<td>-.01 (947)</td>
</tr>
</tbody>
</table>

Table 4. Prenatal factors affecting fear of childbirth (N=200)

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-confidence for childbirth</td>
<td>-.44</td>
<td>.14</td>
<td>-6.49</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Prenatal depression</td>
<td>.13</td>
<td>.24</td>
<td>2.08</td>
<td>.038</td>
</tr>
<tr>
<td>Knowledge about childbirth</td>
<td>.01</td>
<td>.81</td>
<td>0.05</td>
<td>.956</td>
</tr>
<tr>
<td>Spousal support</td>
<td>.04</td>
<td>.43</td>
<td>0.67</td>
<td>.504</td>
</tr>
</tbody>
</table>

R² = .226, adjusted R² = .208
F (p) = 14.07 (<.001)

하다. 선행연구에서 산전 우울은 임신 중 분만 두려움을 신화시키고 [10], 우울이 있을 때 분만 두려움이 발생하는 유병률이 4.8배 [11] 더 높다는 것과 일치한다. 본 연구에서는 임상 200명 중 산전 우울을 가진 사람이 67명(33.5%)으로, 외국 메타 분석에서 나타난 산전 우울의 유병률 23.5%~30.8% [3]와 비교하였을 때 2.7% 더 높았다. 따라서 간호사는 산전 우울을 미리 사전하고 그 결과를 바탕으로 분만 두려움의 정도를 확인하며, 임부의 자신감을 증가하고 정보를 제공하는 등 산전 우울을 감소시킬 수 있는 적절한 증례를 제공할 필요가 있다.


본 연구에서 배우자가 지지는 분만 두려움과 유의한 관련성이 나타나지 않았다. 선행연구에서는 배우자의 지지와 사회적 지지가 부족하면 분만 두려움이 증가한다고 보여주었지만[13], 본 연구에서 사용한 배우자 지지 도구는 결혼생활 만배우자에게 의한 필요로 인한 반응을 알아보는 방법이 배우자 지지를 측정하지 못하기 때문에 매우한 신뢰성으로 여겨지지 않았다. 이에 추후 연구에서는 배우자로서의 물리적, 정서적, 정책적 지지의 측정이 다차원적으로 제공되며 지평가할 수 있는 도구를 사용할 필요가 있다.


본 연구에서 분만 두려움은 '선행연구의 출산 방식'에 따른 차이가 없는 것으로 나타나, 분만 두려움과 선호하는 출산 방법 사이에 통계적으로 유의한 관계가 있다는 연구결과[16]와 일치하였다. 하지만 분만 두려움이 낮을수록 제왕절개 분만을 선호하는 선행연구[19]와는 차이가 있었다. 이런 결과는 분만 두려움 외 다른 요인들로 제왕절개 분만 선택에 영향을 줄 수 있으며 출산 방식 선호 관련 요인을 추가로 탐색할 필요가 있다. 제왕절개 분만을 선택하는 임부들은 '질 분만에 대한 두려움, 아기의 안전에 대한 걱정'보다 분만 과정에서 발생하는 '통증에 대한 두려움'에 따라 제왕절개 분만을 선택한다고 보고하였다[6]. 이는 제왕절개의 선택에 분만 두려움 영향을 주는 것이 아니라 통증, 분만 자신감 저하, 우울, 분만 체험이와 분만 방식의 일치 여부 등 다른 요인들도 영향을 줄 수 있기 때문이다. 따라서 산전에 임부의 출산 방식 선호도를 확신하고 분만 두려움 수준을 평가하여 분만 두려움 수준이 높은 임부에게 감소시킬 증례를 제공하는 것이 중요하다.

본 연구에서는 분만 자신감이 높을수록, 산전 우울이 낮을수록 분만 두려움은 낮아지는 것을 확인할 수 있었다. 이 결과를 바탕으로 임상의 산전 교실을 기획하거나 출산 정보를 제공하는 데 근거를 제공할 수 있을 것이다. 간호 실무는 임신 중반기의 영입을 임부를 대상으로 산전 우울과 분만 자신감 및 분만 두려움에 대한 사정이 필요하다. 간호사는 분만 두려움 수준이 심각한 임부에게는 제한된 출산 준비 교육을 참여하게 하고 산전 우울을 낮출 수 있는 자원과 방법을 안내할 필요가 있다. 이를 통해 분만 자신감을 촉진하고 산전 우울은 감소시킴으로써 분만 두려움을 낮추어, 건강한 임신기에는 적응하며 긍정적인 출산 경험을 할 수 있도록 도와야 할 것이다.

본 연구의 대상자는 지역적으로 한 지역에 국한되어 있으며, 연구자의 권한에 의해 임의로 표출하여 선정하였기 때문에 본 연구결과를 일반화하기에는 제한이 있다. 또한 본 연구는 횡단성 조사연구로 일회성의 연구로 끝나 후추 연구가 필요하다. 임부의 산후 분만 두려움 관련요인을 파악하는 것은 중요하다. 본 연구에서는 탐색한 산전 관련요인(분만 자신감, 산전 우울, 분만에 대한 지식, 배우자 지지)이외에 산후에도 보고되는 분만 두려움 관련요인을 확인하는 연구가 필요하다.

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**Authors' contributions**

Conceptualization, Formal analysis: Cho H, Ahn S; Writing—original draft: Cho H; Writing—review & editing: Cho H, Ahn S.

**Conflict of interest**

The authors declared no conflict of interest.
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Data availability
Please contact the corresponding author for data availability.

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References
17. Waldenström U, Hildingsson I, Ryding EL. Antenatal fear of childbirth and its association with subsequent caesarean section and experience of childbirth. BJOG. 2006;113(6):638-


엄마 사랑해요

박은채

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“I love you, Mom”

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“엄마, 사랑해요”라는 말은 듣는 것도, 하는 것도 참 어려운 말 같다. 한 사람이 누군가를 만나고 결혼을 하여 새로운 생명이라는 염청난 결실을时尚만다는 것은 이렇게 한 문장으로 끝맺을 수 있는 단순한 과정이 아니기 때문이다. 또, 성인이 되어 호기심에 치달을 내다던 사회는 생각보다 너무 어둡고 차가워서 나를 아프게 하지만, 나에게 항상 따뜻한 엄마라는 존재는 나를 위해 다치게 하고 슬프게 해도 다 받아주겠다고 간-seeking이 “ 사랑해요”라는 표현보다는 자존을 내는 것이 젤목적이다기 때문이다.

나에게는 첫손을 바라보고 게시하는 어머니와 사랑스러운 두 달이 있었다. 그리고 나는 간호사 생활을 한 지 1년 20년이라는 세월이 흘렀다. 나는 산부인과 간호사이다. 한 사람이 태어나고 자라 성인이 되는 세월을 간호사로서 추억 없이 보낸지만, 혼든 순간이 없었던 것은 아니다. 처음 산부인과를 선택하게 된 이유는, 한 생명이 생겨나고 자라나 마침에 탄생하게 되는 전반적인 과정과 한 여성의 고유한 삶의 과정에 내가 참가해가야 할 수 있으며 직·간접적으로 영향을 미칠 수 있다는 것이 너무나 의미 있다는 생각이 들었고, 박차를 냈기 때문이다. 하지만 산부인과 간호사가 된다는 것은 그저 백한 순간만 있는 것은 아니라고, 태어나고 자라며 집중적으로 마음을 두어야 하는 힘든 일도 많았다. 그 어떤 순간에도 묵시에 최선을 다하곤 생각했던 나는, 20년 세월 동안 막 한 번 나의 작업에 희박을 느낄 적이 있었다.

하루는 환자들의 응원을 확인하고 있는 도중 간호사 귀가 아울 정도의 목소리로 엥덩에 담을 수 없는 욕설이 들려왔다. 그 순간 동안에 있던 모든 상호와 환자들, 간호사들이 일어났었고, 나는 금히 그 소리가 나오고 있는 병실로 향했다. 병실에서 도착한 나는 차라 열을 다물 수가 없었다. 바닥에는 식판과 음식들이 남겨져 있었고, 한 후배가 50대 정도 되어 보이는 남성에게 먹을 잡먹을 줘고 고개를 숙인 채 죄송하다고만 박복하였고 있었기 때문이다. 순간 사고가 잠시 정지되어 있었다. 이때로 두어서는 후배 혹은 다른 환자들이 다칠 수도 있겠다는 생각에 보호자를 놓기 시작했다. 다른 환자분들이 다치실 수도 있다면 진정하고 어떻게 된 건지 말씀해 주시면 가능한 섣도로 부르게 조치를 해드리겠다고 하자 그는 천천히 후배의 먹살을 농았다. 나는 후배에게 나가서 잠시 쉬고 있으니 일어주고 보호자의 이야기를 들어 드렸다. 자신의 먹이를 먹을 도중 먹이가 들어 있는 것을 발견하고 간호사에게 바꿔 달라고 하였지만 30분이 지나도록 바꿔주지 않아 먹이를 먹지 못하고 있는 상황이 화가 나서 그랬다는 것이 다. 그날은 간호사 재간호사들 환자들이 많이 입원한 날이라 종일 정신없이 일했던 날이었다. 물론 환자와 보호자의 입장은 충분히 이해가 되었지만, 바쁜 밤에 밥 한 컵 전에 못 먹고 일했을 후배가 생

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이 글은 대한여성건강간호학회에서 추천한 "나의 스토리, 우리의 이야기" 공모전 1등 수상작입니다.
각자 가슴이 무언가에 걸려 막힌 듯이 머먹혀져 왔다.
우선 보호자에게 대신 쓰겠다는 사과를 드리고 용서를 구한 후 곧바로 음식을 바쳤다. 그 후 급히 후배를 찾아가 보니, 뒤에 온 계의 숨이 팍 하고 있던 후배는 내가 다가가자 눈물은 그려지며 죄식을 다하여 나에게 계속 죄송하다고 했다. 편찮다면 30분 동안 무엇을 하고 있었나고 묻자, 갑자기 복동을 호소하는 환자가 있던 그 환자를 잡고 있고 말다는 후배를 보고 나는 잠시 말을 채지 못했다. 그러곤 다시 조심스레 그 환자는 어떻게 되었냐고 물으니 편히 한다고 진단을 내리고 있었다. 그 예거를 듣고 나는 속이 망해졌다. 30분이란 시간 동안 하나의 생명을 살리고 있던 후배 간호사가 대결하기도 했고, 한편으로 미안한 마음도 들었다. 드라마에서만 볼 법이 듯한 이가 실제로 내 주변에서, 나와 가까운 사람들이서 일어났다는 사실이 두렵고 괴로웠다.

누군가의 편한 방으로 향하니 사랑받아야만 해가 힘든 이 아이가, 자기보단 남을 위해 희생하며 한 생명을 살려면서도 다른 누군가의 부모님, 그리고 모든 누군가의 지하로부터 치유소의 은을 먹고 목숨이 막히는 환상이, 온 몸과 눈물 속만이 현실이었다. 온화한 눈물 중에는 심지어 임신 죄송하다고 말한 그 말의 의미가 맹한 그 아이의 죄를 용서해줄 수 없다고 고백했다. 그 시간은 점점 흐릿하여 곧는 간호사들이 모아놓고 있는 아이의 옷을 분명히 보게 되었다. 그 아이가 생각할 수 없이 이치없는 방에서 잠들고 있었던 그 아이의 얼굴을 보며, 단박에 언어의 끝을 깨달았다. 그 아이의 죄악에 대해 치료사의 마음을 꺼내어 '이런 삶이 있을 수 있으니'라고 말했다. 이후 이야기가 나와야 했다. 그 후 어떤 일이 없었다. 소중한 이야기가 세화했다. 다시 청진을 지키고 토론에 전환을 하며 그 아이를 찾기 위해 병원 어디저곳을 들려갔지만 결국 찾을 수 없었다. 순간 다행히 편한 나를 비상계급에 얽혀 환자를 아무리 할 수 없었다. 나의 몸이 비상계급의 나의 것이었고 까닭이 아닌 아약으로 보고 있어야만 하는 현실이었다. 혼자서 아득한 삶을 살아가게 된다. 내가 얼마나 참혹한 줄 모르는 사람들 역시 있다. 나의 마음을 만들어 미안하다고 말했다. 결국 아약이 나는 보고서를 보고 했다. 나는 지금 동안 그 아이에 대한 생각의 콜을 놓을 수 없었으며, 그런 '선선'을 하게 만들었음이 이 사회의 논조리거였다.

그렇게 머리를 잡고 잘 못 자고 헤들여하다 보니 불행했던 엄마 생각이 나고, 지난번 엄마에게 죄송을 했던 일이 엄마만의 마음에는 약간 망설이다가 엄마에게 전화를 걸었다. 병원 임치에 처음 보다다는 정체를 이 وخاصة 제대로 효도 한 번 빼앗긴 간호사는 엄마에게 미안하다마치 지나갔다는 듯이 보였다. 받은 먹지마더 내 부분을 먼저 생각하다는 말씀에 나는 몇 분 동안 아무 말 못 하고 눈물만 흘렀다. 그런 말씀을 들곡히 받아 지내주신 엄마에게 언제 해온 지도 기억을 없는 "엄마, 사랑해요"라는 말을 전했을 때, 약간의 짙은 "엄마 사랑해.

다시 밖에 있는 우리 할, 항상 고맙고 미안해"라고 말씀해시킨 발언은 엄마의 음성은 여전히 내 가슴 속 깊이 남아 있었다.

우리는 모두 누군가에게 소중한 마음이 아이다. 하지만 간호사들은 우리에게서 헤어난 다른 사람들들을 위해 자신을 희생하고 청취를 다하고 있었다. 부디 간호사들은 존중해주고 그들의 노력과 헌신을 가볍게 여기지 말아주고, 그리고 나와 상관이 없는 모든 도움을 받아나가며 고통을 받게 되지 않게 하도록 눈으로 바라와 주기를 간절히 바란다. 비록 작은 힘일지라도 나는 모든 이에게 날의 눈을 신경 쓰지 않고 적절하게 간호받을 수 있도록 노력한 것이며, 어떤 상황이 다가왔든 언제, 어디서든 환자가 있는 곳이라면 기꺼이 달려갈 것이다.
Instructions to Authors

Korean Journal of Women Health Nursing
Enacted in March 1995 and most recently revised in November 2020 and applied from Vol. 26, No. 4 (December 2020).

1. General Guidelines for Manuscript

The Korean Journal of Women Health Nursing is focused on women's healthy life processes or on conditions relevant to women due to greater risk or prevalence among women. It features original articles and review papers. Manuscripts for submission should be prepared according to the following instructions. The Journal follows the Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication (http://www.icmje.org) if not otherwise described below.

1-1. QUALIFICATION FOR AUTHORS AND LANGUAGE

Nurses or researchers throughout the world can submit a manuscript if the scope is appropriate for Korean Journal of Women Health Nursing. Manuscripts should be submitted in English or in Korean. Medical or nursing terminology should be written based on the most recent edition of Dorland's Illustrated Medical Dictionary, the most recent edition of English-Korean Korean-English Medical Terminology (https://term.kma.org/search/list.asp) published by the Korean Medical Association or the most recent edition of Standard Nursing Terminology published by the Korean Society of Nursing Science. Authors are required to state their affiliation and related status (job titles) upon submission, to support the reliability of the research.

1-2. RESEARCH AND PUBLICATION ETHICS

For the policies on research and publication ethics that are not stated in these instructions, the Good Publication Practice Guidelines for Medical Journals (https://www.kamje.or.kr/board/view?b_name=bo_publication&bo_id=138&per_page=1) or the Guidelines on Good Publication Practice (https://publicationethics.org/guidance/Guidelines) can be applied.

Conflict-of-interests statement: Authors are required to disclose commercial or similar relationships to products or companies mentioned in or related to the subject matter of the article being submitted. Sources of funding for the article should be acknowledged in a footnote on the title page. Affiliations of authors should include corporate appointments relating to or in connection with products or companies mentioned in the article, or otherwise bearing on the subject matter thereof. Other pertinent financial relationships, such as consultancies, stock ownership or other equity interests, or patent-licensing arrangements should be disclosed to the Editor-in-Chief in the cover letter at the time of submission. Such relationships may be disclosed in the Journal at the discretion of the Editor-in-Chief in footnotes appearing on the title page. Questions about this policy should be directed to the Editor-in-Chief. If there is no conflict of interest, this should also be explicitly stated as “The author(s) declared no conflicts of interest.”

Statement of human and animal rights: Clinical research should be done in accordance with the Ethical Principles for Medical Research Involving Human Subjects, outlined in the Declaration of Helsinki (https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/). Clinical studies that do not meet the Declaration of Helsinki will not be considered for publication. Research participants' rights to privacy must be protected, and personal identifiable information should not be disclosed unless absolutely necessary. Human subjects should not be identifiable, i.e., patients' names, initials, hospital numbers, dates of birth, photographs, or other protected healthcare information should not be disclosed. If such personal information is needed as scientific data for publication, this should be explained to participants (or legal guardians) and written consent must be obtained. The possibility of online information sharing (not only printed publications) must also be explained. For animal subjects, research should be performed based on the National or Institutional Guide for the Care and Use of Laboratory Animals, and the ethical treatment of all experimental animals should be maintained. For studies using literature review and meta-analysis, Institutional Review Board (IRB) approval is not required. For secondary data analysis studies, the editorial committee will decide whether IRB approval is needed.

Statement of informed consent: Copies of written informed consents and IRB approval for clinical research should be kept. If necessary, the editor or reviewers may request copies of these documents to resolve questions about IRB approval and study conduct.
Authorship: All authors, including the co-authors, should be responsible for a significant part of the manuscript. All authors and co-authors should have taken part in writing the manuscript, reviewing it, and revising its intellectual and technical content. Any author whose name appears on a paper assumes responsibility and accountability for the results.

Originality and duplicate publication: All submitted manuscripts should be original and should not be considered by other scientific journals for publication at the same time. Manuscripts are accepted for publication with the understanding that their contents, or their essential substance, have not been published elsewhere, except in abstract form or by the express consent of the Editors. Any part of the accepted manuscript should not be duplicated in any other scientific journal without the permission of the Editorial Board. The duplication will be checked through Similarity-Check powered by iThenticate (https://www.crossref.org/services/similarity-check/) before review. If duplicate publication related to the papers of this journal is detected, the authors will be announced in the journal and their institutes will be informed, and there also will be penalties for the authors. Materials taken from other sources must be accompanied by written permissions for reproduction, obtained from the original publisher. Editors should follow the procedure set out in the Committee on Publication Ethics (COPE) flowcharts (https://publicationethics.org/resources/flowcharts-new/translations) that are designed to help editors follow COPE’s Code of Conduct and implement its advice when faced with cases of suspected misconduct.

Secondary publication: It is possible to republish manuscripts if the manuscripts satisfy the condition of secondary publication of the Uniform Requirements for Manuscripts Submitted to Biomedical Journals (http://www.icmje.org).

Publication of master’s thesis or doctoral dissertation: When thesis or dissertation work is submitted for publication, the first author should be the thesis awardee and should declare that content is from thesis/dissertation.

1-3. DATA SHARING
This journal follows the data sharing policy described in “Data Sharing Statements for Clinical Trials: A Requirement of the International Committee of Medical Journal Editors (ICMJE)” (https://doi.org/10.3346/jkms.2017.32.7.1051). As of July 1, 2018 manuscripts submitted to ICMJE journals that report the results of interventional clinical trials must contain a data sharing statement as described below. Clinical trials that begin enrolling participants on or after January 1, 2019 must include a data sharing plan in the trial’s registration. The ICMJE’s policy regarding trial registration is explained at http://www.icmje.org/about-icmje/faqs/clinical-trials-registration/. If the data sharing plan changes after registration this should be reflected in the statement submitted and published with the manuscript, and updated in the registry record. All of the authors of research articles that deal with interventional clinical trials must submit data sharing plan of example 1 to 4 in Table 1. Based on the degree of sharing plan, authors should deposit their data after de-identification and report the digital object identifier (DOI) of the data and the registered site.

1-4. PEER REVIEW PROCESS
All contributions (including solicited articles) are critically reviewed by the editorial board members, and/or reviewers. All manuscripts from editors, employees, or members of the editorial board are processed the same way as other unsolicited manuscripts. During the review process, they will not engage in the selection of reviewers and decision process. Editors will not handle their own manuscripts even if they are commissioned ones. If the manuscript does not fit the aims and scope of the Journal or does not adhere to the Instructions to Authors, it may be returned to the author immediately after receipt and without a review. Before reviewing, all submitted manuscripts are inspected by Similarity-Check powered by iThenticate (https://www.crossref.org/services/similarity-check/), a plagiarism-screening tool. Reviewers’ comments are usually returned to authors. The decision of the editor is final. Manuscripts are sent simultaneously to two reviewers for double blinded peer review. A third reviewer will be assigned if there is discrepancy. Authors will receive notification of the publication decision, along with copies of the reviews and instructions for revision, if appropriate, within two months after receipt of the submission.

Final revised manuscript: A final version of the accepted manuscript should be submitted on the web. If aspects of the research are reported elsewhere, include a copy of the publication(s). Include all main manuscript material in one file (with exception of title page). Save your file as MS Word. Failure to resubmit the revised manuscript within two weeks of the editorial decision is regarded as a withdrawal and will be treated as a new submission if submitted again later. All manuscripts from editors, employees, or members of the editorial board are processed same to other unsolicited manuscripts. During the review process, submitters will not engage in the selection of reviewers and decision process.
1-5. COPYRIGHTS AND CREATIVE COMMONS ATTRIBUTION NON-COMMERCIAL LICENSE

The author will also be asked to confirm that the material has not been published or submitted for publication elsewhere. All material published in the Journal will be copyrighted by Korean Society of Women Health Nursing. This is an Open Access journal distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

1-6. ELECTRONIC SUBMISSION OF MANUSCRIPT

Authors are requested to submit their papers electronically through the online manuscript management system (http://submit.kjwhn.org). Once a manuscript has been submitted, the order and number of authors should not change. Any inquiries on the submitted manuscript should be made to the editorial office. Please read all instructions before submitting.

Be prepared to enter:

- The full title of the article.
- The full names and institutional affiliations of all authors, and the name (with complete address, phone number, and e-mail) to whom correspondence should be directed.
- A running title of no more than 45 characters (including spaces).
- A structured abstract of no more than 250 words, stating purpose, methods, results (including the sample size), and conclusion drawn from the study.
- Up to five keywords (MeSH terms, in alphabetical order).

1-7. COPYRIGHT TRANSFER FORM AND FORM OF CONFLICTS OF INTEREST

Copyright Transfer Agreement form and form of Conflicts of interest should be submitted online at submission. Manuscripts cannot be published without this form.
1-8. ARTICLE PROCESSING CHARGES AND REPRINTS
Upon acceptance, an article processing charge (APC) of 400 USD (approximately 400,000 Korean Won) per article is requested to the corresponding author. Further information can be found at https://kjwhn.org/authors/processing_charge.php.

1-9. SUBSCRIPTION
The full text is freely available from the website (https://kjwhn.org) according to the Creative Commons License (https://creativecommons.org/licenses/by/4.0/). Print copies can be dispatched to members of the Korean Society of Women Health Nursing and libraries world-wide upon the policy of the Society. Those who wish to receive copies and obtain further information should contact the office of the Society (http://www.women-health-nursing.or.kr).

1-10. CONTACT US
Any inquiries regarding suitability of manuscripts according to the aims and scope of the Journal, submission, review, publication, or journal-related issues are welcomed. Please contact the Editorial Office (https://kjwhn.org/about/contact.php).

For manuscript submission, please visit:
http://submit-kjwhn.org

2. Specific Guidelines for Manuscript Preparation

2-1. WRITING MANUSCRIPTS
All manuscripts must be prepared in accordance with the “Uniform Requirements for Manuscripts Submitted to Biomedical Journals” available at http://www.icmje.org. Manuscripts are accepted for publication with the understanding that their contents, or their essential substance, have not been published elsewhere, except in abstract form or by the express consent of the Editors. Materials taken from other sources must be accompanied by written permissions for reproduction, obtained from the original publisher. Statistical methods should be identified. Priority claims are discouraged. All materials must be written in clear, appropriate English using Microsoft Word (doc or docx). Each page must be numbered at the lower central portion. Number pages consecutively.

2-2. TITLE PAGE
On the title page include title (only capitalize first letter of the first word); subtitle (if any); running title, first name, middle initial, and last names of each author, ORCID number (required for all authors), name of department(s) and institution(s) to which the work should be attributed. The address, phone number, and email of the person responsible for correspondence concerning the manuscripts should be listed separately and clearly labeled as such. List keywords and present authors’ contributions. The journal does not limit first author status to only one person, in cases where equal contribution is evident. Describe contributions, such as the following:

Example 1:
Conceptualization: Piao H, Kim MH; Formal analysis: Piao H, Kim MH, Cui M, Choi G; Writing–original draft: Piao H, Kim MH; Writing–review & editing: Piao H, Choy JH.

Example 2: All work was done by Jeong GH.

Also, describe conflicts of interest, funding, data availability, and acknowledgements (acknowledge only those people and their institutions that have made significant contributions to the study). If applicable, state disclaimers, such as whether manuscript was adapted from thesis/dissertation.

The title page must be submitted separately from the manuscript. A template is available online (https://www.kjwhn.org/authors/authors.php).

2-3. MAIN MANUSCRIPT
Organize the main manuscript in the following order; title, abstract and keywords, summary statement, text, references, tables, figures, and pictures.

Abstract and Keywords
An abstract of no more than 250 words should be typed double-spaced on a separate page. It should cover the main factual points, according to the following subheadings: Purpose, Methods, Results, and Conclusion. The abstract should be accompanied by a list of up to five keywords for indexing purposes. Be very specific in your word choice. Use MeSH keywords (http://www.nlm.nih.gov/mesh/meshhome.html), and present keywords in alphabetical order.

Summary Statement
Following the abstract, describe a summary statement on a separate page according to the following subheadings, with 30 words or less under each subtitle.

- What is already known about this topic?
  Example: The 75 years and older age group, with its complex health needs, is likely to make up an increasing proportion of
the workload of accident and emergency strain the coming years.

• What this paper adds

Example: An alcohol-based surgical hand rub is more effective than a 6-minute surgical hand scrub using 4% chlorhexidine gluconate in terms of microbial counts immediately after scrubbing.

• Implications for practice, education and/or policy

Example: Parents' ability and willingness to participate in their child's care in the hospital should be thoroughly assessed and their participation needs to be supported.

Main Text

Maximum word count should be within 5,000 words, although less is preferred, excluding tables, figures, and references. The manuscript should be written on A4 sized paper, in Times New Roman 12-point font, double-spaced and have margins of at least one inch (2.54 cm). In general, the text should be organized under the following headings: Introduction, Methods, Results, and Discussion.

Introduction: Clearly state the need of this study and main question or hypothesis of this study. Summarize the literature review or background in the area of the study.

Methods: Present an “Ethics statement” immediately after the heading “Methods” in a boxed format.

Example 1:

**Ethics statement:** This study was approved by the Institutional Review Board of XXXX University (IRB-201903-0002-01). Informed consent was obtained from the participants.

Example 2:

**Ethics statement:** Obtaining informed consent was exempted by the Institutional Review Board (IRB) of YYYY University (IRB-201903-0002-01) because there was no sensitive information and the survey was anonymously treated.

Describe the study design, setting and samples, and measurements, procedure, analysis used.

Ensure correct use of the terms sex (when reporting biological factors) and gender (identity, psychosocial or cultural factors), and, unless inappropriate, report the sex or gender of study participants, the sex of animals or cells, and describe the methods used to determine sex or gender. If the study was done involving an exclusive population, for example in only one sex, authors should justify why, except in obvious cases (e.g., ovarian cancer). Authors should define how they determined race or ethnicity and justify their relevance.

Results: Describe the main results in a concise paragraph. This section should be the most descriptive. Note levels of statistical significance and confidence intervals where appropriate.

Discussion: Make discussions based only on the reported results. Describe conclusions and recommendations for further study needed. Do not summarize the study results.

Abbreviations: Use standard abbreviations and units recommended in the publication manual of the to the NLM Style Guide for Authors, Editors, and Publishers (2007), 2nd ed., National Library of Medicine, Bethesda, MD, USA (http://www.nlm.nih.gov/citingmedicine). Non-standard abbreviations should be defined the first time they appear in the text. At first usage, spell out terms and give abbreviations in parentheses. Thereafter, use only abbreviations. It is not necessary to spell out standard units of measure, even at first usage.

References

In the text, references should be cited with Arabic numerals in brackets (e.g. [1]), numbered in the order cited.

In the references section, the references should be numbered in order of appearance in the text and listed in English citation form. Journal titles should be described in NLM style.

References within the past 5 years are encouraged, and unpublished PhD or master’s thesis are not recommended as reference.

Other types of references not described below should follow the NLM Style Guide for Authors, Editors, and Publishers (http://www.nlm.nih.gov/citingmedicine). The total number of references may not exceed 30, with the exception of up to 50 for review papers. Note the DOI in URL form, if available.

**Journal article with up to six authors:**

**Journal article with more than six authors:**
3. How The Journal Handles Complaints and Appeals

The policy of Korean Journal of Women Health Nursing is primarily aimed at protecting the authors, reviewers, editors, and the publisher of the journal. If not described below, the process of handling complaints and appeals follows the COPE guidelines available from: https://publicationethics.org/appeals

Who complains or makes an appeal?
Submitters, authors, reviewers, and readers may register complaints and appeals in a variety of cases as follows: Falsification, fabrication, plagiarism, duplicate publication, authorship dispute, conflicts of interest, ethical treatment of animals, informed consent, bias or unfair/inappropriate competitive acts, copyright, stolen data, defamation, and legal problem. If any individuals or institutions want to inform the cases, they can send a letter via the contact page on our website (https://kjwhn.org/about/contact.php). For the complaints or appeals, concrete data with answers to all factual questions (who, when, where, what, how, why) should be provided.

Who is responsible for resolving and handling complaints and appeals?
The Editor, Editorial Board, or Editorial Office is responsible for them. A legal consultant or ethics editor may be able to help with decision making.

What may be the consequence of the remedy?
It depends on the type or degree of misconduct. The consequence of resolution will follow the guidelines of COPE.

4. Direct Marketing

Journal propagation has been done through the journal website and distribution of an introduction pamphlet. Invitations to submit a manuscript are usually focused on the presenters at conferences, seminars, or workshops if the topic is related to the journal’s aims and scope.
Research and Publication Ethics

For the policies on research and publication ethics that are not stated in these instructions, the Good Publication Practice Guidelines for Medical Journals (https://www.kamje.or.kr/board/view?b_name=bo_publication&bo_id=13&per_page=) or the Guidelines on Good Publication Practice (https://publicationethics.org/guidance/Guidelines) can be applied.

1. Conflict-of-interests Statement

Authors are required to disclose commercial or similar relationships to products or companies mentioned in or related to the subject matter of the article being submitted. Sources of funding for the article should be acknowledged in a footnote on the title page. Affiliations of authors should include corporate appointments relating to or in connection with products or companies mentioned in the article, or otherwise bearing on the subject matter thereof. Other pertinent financial relationships, such as consultancies, stock ownership or other equity interests, or patent-licensing arrangements should be disclosed to the Editor-in-Chief in the cover letter at the time of submission. Such relationships may be disclosed in the Journal at the discretion of the Editor-in-Chief in footnotes appearing on the title page. Questions about this policy should be directed to the Editor-in-Chief. If there is no conflict of interest, this should also be explicitly stated as “The author(s) declared no conflicts of interest.”

2. Statement of Human And Animal Rights

Clinical research should be done in accordance with the Ethical Principles for Medical Research Involving Human Subjects, outlined in the Declaration of Helsinki (https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/). Clinical studies that do not meet the Declaration of Helsinki will not be considered for publication. Research participants’ rights to privacy must be protected, and personal identifiable information should not be disclosed unless absolutely necessary. Human subjects should not be identifiable, i.e., patients’ names, initials, hospital numbers, dates of birth, photographs, or other protected healthcare information should not be disclosed. If such personal information is needed as scientific data for publication, this should be explained to participants (or legal guardians) and written consent must be obtained. The possibility of online information sharing (not only printed publications) must also be explained. For animal subjects, research should be performed based on the National or Institutional Guide for the Care and Use of Laboratory Animals, and the ethical treatment of all experimental animals should be maintained. For studies using literature review and meta-analysis, Institutional Review Board (IRB) approval is not required. For secondary data analysis studies, the editorial committee will decide whether IRB approval is needed.

3. Statement of Informed Consent

Copies of written informed consents and IRB approval for clinical research should be kept. If necessary, the editor or reviewers may request copies of these documents to resolve questions about IRB approval and study conduct.

4. Authorship

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