

The Impact of Prenatal Massage Experience Upon the Mother's Delivery Confidence and Stress/ Anxiety

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KEYWORDS

Prenatal Massage Experience, Expecting Mother, Delivery Confidence, Stress/ Anxiety.

ABSTRACT

This study examined the differences in delivery confidence and levels of stress/anxiety among pregnant women based on their experiences with prenatal massage. For this research, the researcher randomly sampled and selected 629 expecting mothers, who were members of an online community for expecting mothers, between August 15 and August 30, 2022, and collected survey data, which was analyzed using the SPSS 25.0 statistical package program. The results of this study are as follows: First, examining the differences in delivery confidence according to prenatal massage experience, it was found that prenatal massage experience has a significant impact on delivery confidence. Mothers with more experience had higher confidence in delivery. Second, prenatal massage experience was found to have a significant effect on the levels of stress and anxiety, with mothers lacking prenatal massage experience showing higher levels of stress and anxiety. The results of this study suggest that professional and systematic education on prenatal massage is necessary to contribute to the development of programs for pregnant women that can increase consumer satisfaction as part of the general prenatal program.

1. Introduction

In recent years, South Korea has been facing unprecedented low birth rates and aging population issues, prompting the implementation of the 1st to 3rd Basic Plans for Low Fertility and Aging Society since 2006 [1]. Despite national efforts to establish and propose various childbirth policies, the perception of marriage and childbirth among the younger generation remains low. In particular, mental stress caused by rapid physical changes before and after childbirth spreads to depression, leading to decreased delivery confidence. Changes in irregular hormones contribute to alterations in personal lifestyle patterns and emotional instability, persisting as psychological phenomena that implant negative perceptions towards childbirth [2].

Additionally, expecting mothers experience damage to their self-respect due to the physical changes and changes in their surrounding environment caused by pregnancy and childbirth, leading to negative emotions due to depression associated with psychological and physical changes. According to research by Kang (2017), a major factor causing negative emotions like depression in pregnant women is high stress when they critically perceive their body shape, which ultimately connects to delivery confidence and manifests as negative psychological factors such as anxiety and worry about childbirth [3]. In other words, the resistance to childbirth among women of childbearing age is significantly influenced by physical changes, highlighting the growing interest and need for professional prenatal care to healthily recover from the mental and physical changes in pregnant women.

Pregnant women in Korea, in particular, express significant fears and worries about prenatal care services, concerning childbirth and the physical changes to their bodies postpartum. Before giving birth, expecting mothers experience discomfort from increased abdominal size and joint relaxation, along with heightened sensitivity in nerves and senses [4]. They also face mental, psychological, and financial stress [5]. Such pregnancy-related stress can deteriorate the physical condition of pregnant women and negatively impact their mental well-being [6], potentially leading to low birth weight and increased rates of preterm birth [7]. Excessive stress or emotions such as anxiety, anger, and worry in pregnant women can stimulate the autonomic nervous system of the fetus [8], posing serious physical and emotional issues for the mother and potentially causing fatal damage to the fetus. Therefore, measures to relax the pregnant woman's body and reduce childbirth-related stress are necessary.

Globally, including in Korea, prenatal education programs for healthy childbirth are widespread [9]. Prenatal massage, in particular, allows expecting mothers to begin self-care with subjective standards of physical beauty [10]. Such massages can improve self-evaluation of the body, boost self-esteem and self-concept, reduce stress related to psychological discomfort, enhance delivery confidence, and

provide overall satisfaction with pain relief and stress reduction effects, making it an effective tool for reducing pregnancy stress [11].

Psychological anxiety in pregnant women significantly affects delivery confidence, where high levels of anxiety can lead to severe pain during delivery and exacerbate anxiety, potentially triggering postpartum depression. The emotional state of a pregnant woman during pregnancy can affect the fetus through the placenta, influencing the baby's development and temperament after birth, where stress and anxiety can negatively impact the fetus and increase childbirth risks. Therefore, maintaining a psychologically stable state and promoting physical health for both the pregnant woman and the fetus is essential. However, existing research on prenatal massage primarily focuses on pain and edema relief, with insufficient studies on the effects of prenatal massage on delivery confidence, stress, and anxiety. This study aims to investigate the differences in delivery confidence, stress, and anxiety among pregnant women with and without prenatal massage experiences during their pregnancy.

2. Methodology

Subjects

This study explored the experience of prenatal massage among pregnant women, their delivery confidence, stress, and anxiety, and sought to understand the differences in these aspects according to the experience of prenatal massage. The survey targeted pregnant women or those who had given birth within the past year, conducted from August 15 to August 30, 2022. Data were collected only from pregnant women who were explained the purpose of the study and agreed to participate. A survey was created using a form on Naver Office and conducted online through members of an online community for pregnant women across the country. A total of 637 responses were collected, of which 629 were used for the final analysis after excluding those with missing values or insincere responses.

The demographic breakdown of the participants was as follows: age groups were under 30 years old (187 respondents, 29.7%), 31-34 years old (365 respondents, 58.0%), and over 35 years old (77 respondents, 12.2%). In terms of occupation, the distribution was homemakers (284 respondents, 45.2%), office workers (199 respondents, 31.6%), professionals (72 respondents, 11.4%), self-employed (70 respondents, 11.1%), and students (4 respondents, 0.6%). Regarding the highest level of education, respondents included those with high school education or below (16 respondents, 2.5%), college students or graduates (577 respondents, 91.7%), and postgraduate students or higher (36 respondents, 5.7%). Monthly income levels were under 3 million KRW (162 respondents, 25.8%), 3 to under 5 million KRW (228 respondents, 36.2%), 5 to under 10 million KRW (210 respondents, 33.4%), and over 10 million KRW (29 respondents, 4.6%). The duration of marriage was categorized as within 1 year (26 respondents, 4.1%), 1 to under 3 years (342 respondents, 54.4%), 3 to under 6 years (221 respondents, 35.1%), and over 6 years (40 respondents, 6.4%).

2.2. Procedure

For the analysis of this study, data were analyzed using the SPSS 25.0 program, and the specific data processing and analysis methods are as follows:

First, frequency analysis was conducted to understand the demographic characteristics and obstetric characteristics of the respondents. Second, the reliability of the measurement tools was verified by calculating Cronbach's alpha coefficient. Third, to examine if there were any differences according to the pregnant women's prenatal massage experiences, independent samples t-tests and one-way analysis of variance (One-way ANOVA) were conducted, with Duncan's test used as the post-hoc test method.

Instrument

Delivery Confidence

The measurement tool for delivery confidence utilized a total of 7 items, modified and supplemented

from the questionnaire items used in the studies by Lee (2003) and Kwon & Jeong (2016) [12, 13]. Each item was measured on a 5-point Likert scale (1 point = Strongly agree, 5 points = Strongly disagree), with higher scores indicating a lower level of delivery confidence. The reliability (Cronbach's α) of delivery confidence in this study was shown to be 0.732, confirming its internal consistency.

Stress and Anxiety

The measurement tool for stress and anxiety used a total of 10 items, modified and supplemented from the questionnaire items used in the studies by An (1984) and An (2020) [14, 15]. Each item was measured on a 6-point Likert scale (0 point = Not anxious, 5 points = Anxious), with higher scores indicating higher levels of stress and anxiety. The reliability (Cronbach's α) of stress and anxiety in this study was shown to be 0.838, confirming its internal consistency.

3. Results and discussion

Delivery Experience According to Prenatal Massage Experience

Difference in Delivery Confidence Based on Prenatal Massage Experience

The analysis of whether there is a difference in delivery confidence based on the experience of prenatal massage is shown in Table 1. The results indicated a statistically significant difference ($p < .001$), with those having prenatal massage experience showing relatively higher delivery confidence compared to those without such experience.

Table 1. Difference in Delivery Confidence Based on Prenatal Massage Experience

Category		M	SD	t-value	P
Prenatal Massage Experience	Have	27.02	4.047	3.771***	.000
	Don't have	25.71	4.465		
Total		26.20	4.357		
*** $p < .001$					

Difference in Delivery Confidence According to Prenatal Massage Experience

The analysis of differences in delivery confidence among 235 participants with prenatal massage experience, based on the characteristics of their prenatal massage experiences, is presented in Table 1. The analysis revealed statistically significant differences in delivery confidence based on the location of prenatal massage, appropriate duration for prenatal massage, pain relief effects through prenatal massage, edema relief effects through prenatal massage, and need for promoting prenatal massage ($p < .05$). Specifically, it was found that those who received massages at skincare shops had relatively higher delivery confidence compared to those who received massages at postnatal care centers. Regarding the appropriate duration of prenatal massage, those who believed 30 minutes to be sufficient showed relatively higher confidence than those who believed more than 90 minutes to be appropriate.

Furthermore, concerning the pain relief effects through prenatal massage, those who experienced pain relief or found it to be moderate showed higher delivery confidence compared to those who felt no pain relief. Similarly, regarding the edema relief effects, those who experienced edema relief or found it to be moderate had higher delivery confidence compared to those who reported no edema relief. Lastly, in terms of the need for promoting prenatal massage, those who suggested the need for government welfare benefits, integrated diagnostics and services with hospitals, and the development of various programs for pregnant women showed higher delivery confidence compared to those who thought that promoting prenatal massages by shops was necessary. Other factors such as timing of receiving prenatal massage, sources of information about massage shops, reasons for receiving prenatal massage, most important considerations when receiving prenatal massage, frequency of receiving prenatal massage, and appropriate cost of prenatal massage did not show statistically significant differences ($p > .05$).

Table 2. Difference in Delivery Confidence According to Prenatal Massage Experience

Category		M	SD	t/F-	P
Location of Prenatal Massage	Postnatal care center	25.90 ^a	4.932	3.263*	.040
	Skincare shop	27.47 ^b	3.404		
	Home visit massage	26.43 ^{ab}	5.417		
Timing of Receiving Prenatal Massage	Early pregnancy	27.08	3.233	.365	.695
	Mid pregnancy	27.14	4.113		
	Late pregnancy	26.53	4.904		
Sources of Information about Prenatal Massage Shop	Internet café	26.79	4.055	.433	.730
	Internet blog	27.12	3.735		
	Instagram	27.70	4.056		
	Recommendation by acquaintance	26.67	5.067		
Reasons for Receiving Prenatal Massage	Pain due to pregnancy	26.32	5.482	.909	.437
	Edema	27.44	3.670		
	Prenatal education	27.24	2.406		
	Rest	26.95	4.356		
The Most Important Consideration When Receiving Prenatal Massage	Reasonable price	27.79	4.066	1.733	.161
	Therapist's skills	27.09	3.807		
	Accessibility	25.17	5.680		
	Shop interior and hygiene	26.69	4.131		
Frequency of Receiving Prenatal Massage	Once a week	27.61	4.282	1.051	.371
	Twice a week	26.42	4.903		
	Once every two weeks	26.87	3.174		
	Irregularly	26.59	4.101		
Appropriate Duration for Prenatal Massage	30 minutes	28.06 ^b	3.915	3.155*	.044
	60 minutes	27.15 ^{ab}	3.050		
	More than 90 minutes	25.79 ^a	6.516		
Appropriate Cost for Prenatal Massage	Less than 100,000 KRW	27.47	3.952	1.388	.167
	More than 100,000 KRW	26.73	4.095		
Pain Relief Effects through Prenatal Massage	Strongly agree	28.29 ^b	2.722	6.829***	.000
	Agree	27.07 ^b	4.010		
	Neutral	25.64 ^b	4.641		
	Disagree	22.20 ^a	6.760		
Edema Relief Effects through Prenatal Massage	Strongly agree	28.45 ^b	3.489	4.834**	.003
	Agree	26.99 ^b	3.630		
	Neutral	26.32 ^b	4.579		
	Disagree	23.63 ^a	5.927		
Need for Promoting Prenatal Massage	Government welfare benefits	27.56 ^b	3.996	6.602***	.000
	Integrated diagnostics and services with hospitals	26.87 ^b	3.554		
	Development of various programs for pregnant women	26.40 ^b	4.056		
	Promotion by massage shops	16.00 ^a	.000		
Total		27.02	4.047		
* $p < .05$, ** $p < .01$, *** $p < .001$		Duncan: a<b			

Difference in Stress and Anxiety Levels According to Prenatal Massage Experience

Difference in Stress and Anxiety Levels According to Prenatal Massage Experience

The analysis of the difference in stress and anxiety levels according to the experience of prenatal massage is shown in Table 3. The results indicated a statistically significant difference ($p < .01$), with those who have not experienced prenatal massage exhibiting relatively higher levels of stress and anxiety compared to those who have.

Table 3. Difference in Stress and Anxiety Levels According to Prenatal

Category		M	SD	t/F-value	P
Prenatal Massage Experience	Have	18.45	9.066	-3.020**	.003
	Don't have	20.71	9.110		
Total		19.86	9.152		

** $p < .01$

Difference in Stress and Anxiety Levels According to the Characteristics of Prenatal Massage Experience

The analysis of the differences in stress and anxiety levels among 235 individuals with prenatal massage experience, based on the characteristics of their prenatal massage experience, is shown in Table 4. The results indicated statistically significant differences in stress and anxiety levels based on the location of prenatal massage, timing of receiving prenatal massage, sources of information about prenatal massage shops, reasons for receiving prenatal massage, appropriate duration for prenatal massage, and pain relief effects through prenatal massage ($p < .05$). Specifically, those who received massages at postnatal care centers showed relatively higher levels of stress and anxiety compared to those who received massages at skincare shops or through home-visit services. Regarding the timing of receiving prenatal massage, those in the late stages of pregnancy exhibited relatively higher levels of stress and anxiety compared to those in the early or middle stages.

Furthermore, sources of information about prenatal massage shops also influenced stress and anxiety levels, with those who learned about the services through acquaintances or online communities showing higher levels of stress and anxiety compared to those who found information through Instagram. As for the reasons for receiving prenatal massage, individuals using it due to pregnancy-related pain, edema, or for rest showed higher levels of stress and anxiety compared to those using it for prenatal education purposes. In terms of the appropriate duration for prenatal massage, those who considered more than 90 minutes to be appropriate experienced higher levels of stress and anxiety compared to those who considered 30 or 60 minutes to be sufficient. Additionally, those who did not perceive any pain relief effect from prenatal massage showed higher levels of stress and anxiety compared to those who did perceive such an effect. However, no statistically significant differences were found in stress and anxiety levels based on the most important consideration when receiving prenatal massage, frequency of receiving prenatal massage, the appropriate cost for prenatal massage, the effect of edema relief through prenatal massage, and the need for promoting prenatal massage ($p > .05$).

Table 4. Difference in Stress and Anxiety Levels According to the Characteristics of Prenatal Massage Experience

Category		M	SD	t/F-value	P
Location of Prenatal Massage	Postnatal care center	22.42 ^b	9.407	7.055**	.001
	Skincare shop	17.13 ^a	8.379		
	Home visit massage	18.65 ^a	10.564		
Timing of Receiving Prenatal Massage	Early pregnancy	15.87 ^a	6.922	7.760**	.001
	Mid pregnancy	18.27 ^a	8.967		
	Late pregnancy	22.93 ^b	10.654		
Sources of Information about Prenatal Massage Shop	Internet café	19.88 ^b	9.559	3.323*	.021
	Internet blog	17.62 ^{ab}	7.711		

	Instagram	14.74 ^a	8.560		
	Recommendation by acquaintance	21.03 ^b	11.306		
Reasons for Receiving Prenatal Massage	Pain due to pregnancy	19.59 ^b	9.192	4.145 ^{**}	.007
	Edema	19.67 ^b	9.936		
	Prenatal education	15.18 ^a	5.799		
	Rest	20.00 ^b	10.566		
The Most Important Consideration When Receiving Prenatal Massage	Reasonable price	17.44	9.228	2.374	.071
	Therapist's skills	17.98	9.042		
	Accessibility	23.56	8.542		
	Shop interior and hygiene	20.08	8.119		
Frequency of Receiving Prenatal Massage	Once a week	17.74	8.420	1.242	.295
	Twice a week	18.79	8.670		
	Once every two weeks	17.31	9.543		
	Irregularly	20.04	9.480		
Appropriate Duration for Prenatal Massage	30 minutes	18.32 ^a	9.414	8.754 ^{***}	.000
	60 minutes	17.14 ^a	8.022		
	More than 90 minutes	23.44 ^b	10.833		
Appropriate Cost for Prenatal Massage	Less than 100,000 KRW	18.85	9.371	.550	.583
	More than 100,000 KRW	18.18	8.884		
Pain Relief Effects through Prenatal Massage	Strongly agree	15.89 ^a	8.563	4.747 ^{**}	.003
	Agree	18.45 ^a	8.884		
	Neutral	21.13 ^{ab}	9.214		
	Strongly disagree	26.80 ^b	8.526		
Edema Relief Effects through Prenatal Massage	Strongly agree	16.75	8.449	2.334	.075
	Agree	19.28	8.888		
	Neutral	17.48	9.573		
	Strongly disagree	24.38	9.319		
Need for Promoting Prenatal Massage	Government welfare benefits	18.76	9.392	1.418	.238
	Integrated diagnostics and services with hospitals	17.00	8.027		
	Development of various programs for pregnant women	18.72	9.205		
	Promotion by massage shops	29.00	2.828		
Total		18.45	9.066		
* $p < .05$, ** $p < .01$, *** $p < .001$		Duncan: a<b			

4. Conclusion and future scope

This study aimed to verify the differences in delivery confidence, stress, and anxiety among pregnant women based on their prenatal massage experience. The results and discussion of this study are as follows:

Firstly, the study explored whether prenatal massage experience impacts delivery confidence among pregnant women. The investigation into the variance of delivery confidence based on prenatal massage experience revealed a significant difference; pregnant women with prenatal massage experience showed higher levels of delivery confidence. Enhancing delivery confidence requires delivery preparation education, provision of information, and emotional support, with higher delivery confidence correlating to reduced anxiety. Prenatal programs are believed to mitigate potential delivery issues by boosting delivery confidence through the acquisition of accurate delivery knowledge. These findings indicate the importance of prenatal massage in fostering delivery confidence. It appears that first-time mothers increase their delivery confidence through prenatal massage, as it reduces edema and pain, thereby leading to psychological stability.

When examining the differences in delivery confidence according to the characteristics of prenatal massage experience, it was found that pregnant women who received prenatal massages at skincare shops had the highest levels of delivery confidence. Pregnant women who perceived the appropriate duration for a prenatal massage to be “30 minutes” also showed the highest levels of delivery confidence. Additionally, those who believed the prenatal massage had a pain relief effect, whether significant or moderate, exhibited higher delivery confidence compared to those who thought it had no effect on pain relief. Lastly, compared to those who believed in the necessity of promotion by massage shops, pregnant women who thought that government welfare benefits, integrated diagnostics and services with hospitals, and the development of various programs for pregnant women were necessary for the promotion of prenatal massages showed relatively higher delivery confidence.

Secondly, the study examined whether there was a difference in stress and anxiety levels among pregnant women according to their prenatal massage experience. Investigating the difference in stress and anxiety levels based on prenatal massage experience revealed a significant difference; pregnant women without prenatal massage experience showed higher levels of stress and anxiety. Considering the impact of anxiety during pregnancy on the fetus and infant, active nursing interventions are necessary to reduce stress and anxiety during pregnancy. The results, indicating lower stress and anxiety scores among pregnant women with prenatal massage experience, align with previous research findings and confirm the significant effect of prenatal massage.

Upon examining the differences in stress and anxiety levels according to the characteristics of prenatal massage experience, it was found that those who received care at postnatal care centers and those who received prenatal massage during “late pregnancy” exhibited the highest levels of stress and anxiety. Depending on the sources of information about the prenatal massage shop, individuals who learned about the service through recommendations by acquaintances or online communities, and those who used the service for reasons such as pain due to pregnancy, edema, or for rest, showed the highest levels of stress and anxiety. Lastly, those who believed that a prenatal massage duration of “more than 90 minutes” was appropriate and those who thought the massage did not result in pain relief experienced the highest levels of stress and anxiety.

The results of this study suggest that for the promotion of mental health among pregnant women, customized prenatal massage programs that take into account the physical characteristics and economic status of pregnant women should be developed and applied in various locations to make prenatal massage more accessible. Additionally, there is a need to strengthen educational programs that can enhance the professionalism of massage therapists.

Based on the findings of this study, the following recommendations are proposed. Firstly, while this study was conducted through surveys among members of online communities for pregnant women throughout the country, there are limitations in extending these findings to all expecting mothers nationally. Thus, future studies should aim to gather a proportional representation of pregnant women from different regions to expand the demographic of study participants. Secondly, the survey questions used in this investigation were adapted and enhanced based on prior studies, yet more attention needs to be paid to refining questions specifically related to prenatal massage for pregnant women and accurately selecting participants. Consequently, future research should focus on developing empirical survey questions directly related to prenatal massage for expecting mothers.

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