

A Study on Factors on Postpartum Obesity and Postpartum Depression in Korea

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국내 산후 비만과 산후 우울증 관련 요인 연구

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요약 본 연구는 국내 산후 복과 산후 우울증 및 스트레스 등의 실태조사를 통해 원인을 분석하고, 산모의 사회적 고립을 예방하고자 시도한 서술적 조사연구이다. 연구방법-전국에 거주하는 1살 이하의 자녀를 둔 주 대상인 20~40대 여성을 표본으로 선정하였고, 총 111부를 최종 분석 자료로 사용하였다. 연구결과-산모들의 일반적 특성 -일반적 특성으로 사회 경험을 묻는 말에서는 91.1%(102명)가 사회 경험이 있다고 응답하였고, 8%(9명)만이 사회 경험이 없다고 응답하였다.(사회경험유 91.1%(102명), 사회경험 무 8%(9명) 사회 복귀를 여부를 묻는 질문에서는 17.9%의 산모가 복귀하였다고 응답하였고, 54.5%의 산모는 복귀하지 않았으며, 18.8%의 산모는 출산 휴가 중인 것으로 나타났다. 출산 전과 후의 BMI 변화와 일반적 특성의 교차분석(카이제곱 검정) 산모들의 BMI 증가 수준을 살펴본 결과 Table 3과 같이 BMI가 평균 이하로 증가한 산모가 55%, 평균 이상으로 증가한 여성이 45%로 조사되었다. 연구결과- 임신과 출산으로 인해 여성들은 신체적 변화로 인해 과체중이 될 확률이 높다. 연구결과-임신과 출산으로 산후비만은 산후 정신적, 신체적 문제에 영향을 미치는 개인의 중요한 원인으로 확인되었다. 연구 결과를 바탕으로 산모비만관리와 우울증관리에 적극적인 정부 정책이 필요하다고 사료된다.

주제어 : 출산, 산후비만, 산후우울증, 산후 스트레스, 사회적 고립감

Abstract This study aims to prevent maternal social isolation by analyzing the causes of postpartum obesity and postpartum depression and stress in Korea. Gneral characteristics of mothers as a result of the study: 91.1% (102 people) answered that they had social experience, and only 8% (9 people) answered that they had no social experience. In the question of whether to return to society, 17.9% responded that they have already returned, 54.5% did not, and 18.8% were on maternity leave. As a result of examining the level of BMI increase among mothers through chi-square test of BMI changes before and after childbirth and general characteristics, 55% experienced below-average BMI increase; 45% experienced above-average BMI increase. Those in their 30s accounted for 40.2%, and those in their 40s accounted for 57.1%. Postpartum obesity and maternal psychological status (t-test): Mothers with postpartum obesity were more hypersensitive ($t = -1.997, p = 0.048$) and more prone to suffer from hard breathing ($t = -1.930, p = 0.056$), emptiness ($t = -2.673, p = 0.010$), and body numbness ($t = -2.315, p = 0.024$) than mothers who are not suffering from not postpartum obesity. Per the results of postpartum BMI increase and maternal psychological state (t-test) analysis, mothers with an average increase in postpartum BMI were more depressed than mothers who did not. Research Results - Postpartum obesity due to pregnancy and childbirth has been identified as an important individual cause affecting mental and physical problems after childbirth. In conclusion, I also think that the government should support the management of maternal obesity and the elimination of depression through the results of this study.

Key Words : Childbirth, Postpartum obesity, Postpartum depression, Postpartum stress, Social solitary

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1. Introduction

1.1 The Necessity of Research

The artificial intelligence that our society is using has changed people's culture and psychology, giving humanity access to unprecedented technological power. Society is reporting that in the future, in line with the 4th industrial age, nanorobots will traverse human blood vessels, find diseases, and kill pathogens and cancer cells. However, despite advances in these technologies, more people (about 3 million) die from obesity and its diseases than those who die from starvation. In addition, obesity is not only a problem in appearance, but also causes various health problems and is pointed out as a cause of lifelong disorders. Especially in the case of women, it is easy to be exposed to postpartum obesity because the weight gained by pregnancy and childbirth is not easily reduced. Being overweight or obese affects not only pregnancy but also health in old age. However, there are many studies showing that postpartum obesity can be prevented through proper management in the early postpartum period, even if weight gain during pregnancy [1–3]. However, there are many side effects. First, obesity-related hospitals prescribe more quasi-drugs, chemicals, and even narcotic appetite suppressants than essential treatments. As a result, there are serious side effects due to overprescription and misuse of appetite suppressants, such as a constant number of patients dying, so countermeasures are needed. As a result of analyzing data submitted by the Ministry of Food and Drug Safety [4], it was estimated that from July 2018 to June 2019, more than 235 million prescriptions for appetite suppressants and more than 1.24 million prescription patients. If you look at the 'prescription status of narcotics who died in June 2018–2019,' 1,786 prescriptions of 6 appetite suppressants including phentermine, phendimetrazine,

and lorcaserin were prescribed in the names of 8 people who had already died at 8 medical institutions, and even hospitals lost trust. There is [6, 7]. Second, side effects of liposuction include uneven skin, adhesion of the skin to the muscle, and fibrosis called "bio-band". Unlike losing weight through diet and exercise, this phenomenon is a side effect that can occur when excessive fat is artificially removed. As such, it is not easy for women to lose weight that has changed during pregnancy and childbirth to return to their original state. In the case of Korean women, 40% to 80% of women become obese after childbirth. There is a high risk of becoming [8, 9]. However, mothers' awareness of the problem of abdominal obesity is low, and mothers do not know exactly how to solve abdominal obesity.

This study compared and analyzed the management methods of maternal obesity. This study analyzed the causes of various diseases caused by postpartum obesity, postpartum depression, and postpartum stress. The purpose of this study is to provide basic data for the government to actively support the management of maternal obesity and depression so that the government can prevent postpartum obesity.

2. Research Methods

2.1 Research Subjects

For this study, women in their 20s and 40s with children younger than 1-year-old living across the country were selected as the population. The survey period of this study was from October 2020 to December 2020. 111 responses were used as final analysis data: 19 responses that were duplicated or inappropriate for analysis were excluded from the returned questionnaires after distributing 130 questionnaires in total. After fully explaining the

purpose and method of the study to the subjects participating in the study, consent to participate in the study was obtained in writing.

2.2 Tools Used to Measure and Their Contents

For the questionnaire in this study, Davis EM (2009), Ahn (2006), Diagnostic and statistical manual of mental disorders, fourth edition, text revision (DSM-IV-TR®) (2000) [10–12], a Korean version of the questionnaire was used. After reviewing the literature used in the study, the relevant questions were referenced, and the questions were reorganized so that they are in accordance with the purpose of this study. The questionnaire consisted of a total of 78 items examining general demographic characteristics, postpartum obesity, and life satisfaction. The answers to the questionnaire were anonymous in principle; information regarding participants' age, education, occupation, marital status, childbirth status, and monthly income were answered.

2.3 Processing and Analysis of Data

The collected data were analyzed using R (Ver 4.0.4). The analysis techniques used here are as follows. The frequency and percentage were calculated to identify the general characteristics of the study subjects. In addition, to investigate the characteristics of postpartum obesity and postpartum weight gain in women, χ^2 (Chi-square) analysis, frequency analysis, and t-test were performed. For the t-test, BMI was used to determine whether a woman was obese; the participants were divided into the normal-weight group and obese group. According to the standards of the Korean Society for Obesity, those whose BMI is 25 or higher were classified as obese. Then, BMI before childbirth and BMI after childbirth were compared to classify the group with severe weight gain after childbirth. Here, per the BMI difference, the participants

were divided into the above-average group and the below-average group. The following table presents the descriptive statistics of this study subject.

2.4 Derivation of Hypotheses

Hypothesis 1: Mothers with postpartum obesity will have lower emotional and physical stability compared to mothers without postpartum obesity.

Hypothesis 2: Mothers with postpartum obesity will have lower self-esteem than mothers without postpartum obesity.

Hypothesis 3: Mothers with postpartum obesity will have lower stress management ability than mothers without postpartum obesity.

Hypothesis 4: Mothers with above-average postpartum weight gain will have lower emotional and physical stability than those with below-average postpartum weight gain.

Hypothesis 5: Mothers with above-average postpartum weight gain will have lower self-esteem than those with below-average postpartum weight gain.

Hypothesis 6: Mothers with greater than or equal postpartum weight gain will have lower stress management skills than those with below-average postpartum weight gain.

3. Research Results

Table 1 shows the general characteristics of the subject of this study. In terms of age, 15.2% (17 people) were in their 20s, 77.7% (87 people) were in their 30s, and 6.3% were (7 people) in their 40s.

Families with one child accounted for 61.6%, followed by families with two children (33%), and families with three children (4.5%). More than half of the households had only children. 91.1% (102 people) answered that they had social experience, and only 8% (9 people) answered that they had no social experience. In the question of whether to return to society, 17.9% of mothers responded that they have already returned; 54.5% answered they

will not; 18.8% of mothers were on maternity leave. For the highest degree earned, 84.8% of college graduates were the most, and 7.1% of mothers were with a high school diploma and graduate school or higher, respectively. Regarding household income, 40.2% answered 4 million won or more, 26.8% answered less than 4 million won, 23.2% answered less than 3 million won, 8% answered less than 2 million won, and 1.8% answered less than 1 million won. In terms of height, 29.5% of mothers were under 160, 62.5% were under 170, and 7.1% were over 170. Per BMI, 73% had normal weight; 27% were obese. 61 people had an above-average increase in BMI and 50 had a below-average increase in BMI: 55% and 45%, respectively.

Table 1. General Characteristics of Subject

Category		Frequency (Person)	Percentage (%)
Age	20s	17	15.2
	30s	87	77.7
	40s	7	6.3
Number of Child	1	69	61.6
	2	37	33.0
	3	5	4.5
Social Experience	Experienced	102	91.1
	Unexperienced	9	8.0
Intention to Return to Society	Returned	20	17.9
	Will not return	61	54.5
	On maternity leave	21	18.8
Highest Degree Earned	High school diploma	8	7.1
	Bachelor's degree	95	84.8
	Master's degree or higher	8	7.1
Household Income	Less than 1 million won	2	1.8
	Less than 2 million won	8	7.1
	Less than 3 million won	26	23.2
	Less than 4 million won	30	26.8
	More than 5 million won	45	40.2
Height (cm)	Below 160	33	29.5
	Below 170	70	62.5
	Above 170	8	7.1
Obesity (Based on BMI)	Normal weight	81	73.0
	Obese	30	27.0
Increase of BMI	Below average (higher than 2.19)	61	55.0
	Above average (less than 2.19)	50	45.0
Total		111	100%

3.1 Chi-Square Test for Postpartum Obesity and General Characteristics Based on BMI

As a result of examining the BMI of mothers, as shown in Table 2, 73.0% of women with a BMI of 25 or less (normal weight) and 27% of women with a BMI of more than 25 (obese).

There was no statistically significant difference in age and BMI. Among mothers who responded to this survey, the younger the age, the higher the obesity rate, and the older women in their 40s had a lower obesity rate. This is an unexpected result.

In terms of the number of children, women with three children had a higher obesity rate than mothers with two or fewer children. Among women with two children, normal weight was higher, and BMI showed a significant difference according to the number of children ($\chi^2 = 14.248^*$, $p < 0.001$).

Based on social experience, the obesity rate of women with social experience was significantly lower than that of women without social experience. As a result of the chi-square test, there was a significant difference in the obesity rate according to social experience ($\chi^2 = 12.791^*$, $p < 0.001$).

Table 2. Result of Chi-Square Test
(Whether a respondent is obese or not, based on BMI)

Category		Normal Weight (BMI <25)	Obese (BMI >=25)	χ^2 (df)	p
Age	20s	11	6	3.436 (2)	0.329
		64.7%	35.3%		
	30s	64	23		
		73.6%	26.4%		
	40s	6	1		
		85.7%	14.3%		
Number of Child	1	52	17	14.248* (2)	0.001
		75.4%	24.6%		
	2	29	8		
		78.4%	21.6%		
	3	0	5		
		0.0%	100.0%		
Social Experience	Experienced	79	23	12.791* (1)	0.000
		77.5%	22.5%		
	Unexperienced	2	7		
		22.2%	77.8%		
Intention to Return to Society	Returned	17	3	2.462 (2)	0.292
		85.0%	15.0%		
	Will not return	44	17		
		72.1%	27.9%		
On maternity leave	18	3	2.968 (2)	0.227	
		85.7%			14.3%
	High school diploma	4			4
		50.0%			50.0%
Bachelor's degree	72	23			
	75.8%	24.2%			
Master's degree or higher	5	3			
	62.5%	37.5%			
Household Income	Less than 1 million won	1	1	4.346 (4)	0.361
		50.0%	50.0%		
	Less than 1 million won	5	3		
		62.5%	37.5%		
	Less than 1 million won	19	7		
		73.1%	26.9%		
Less than 1 million won	19	11			
	63.3%	36.7%			
More than 3 million won	37	8			
	82.2%	17.8%			
Total	Number of Sample	81	30		
	Proportion	73.0%	27.0%		

On the other hand, it was analyzed that there was no significant difference in the obesity rate by whether or not to return to society, the last educational level, and the household income.

3.2 Chi-Square Test of BMI Changes and General Characteristics before and after Childbirth

Table 3. Result of Chi-Square Test

Category		Above-Average	Below-Average	χ^2	p
Age	20s	6	11	4.418 (2)	0.220
		35.3%	64.7%		
	30s	52	35		
		59.8%	40.2%		
	40s	3	4		
		42.9%	57.1%		
Number of Child	1	44	25	6.683* (2)	0.035
		63.8%	36.2%		
	2	16	21		
		43.2%	56.8%		
	3	1	4		
		20.0%	80.0%		
Social Experience	Experienced	58	44	1.859 (1)	0.174
		56.9%	43.1%		
	Unexperienced	3	6		
		33.3%	66.7%		
Intention to Return to Society	Returned	12	8	2.805 (2)	0.246
		60.0%	40.0%		
	Will not return	31	30		
		50.8%	49.2%		
On maternity leave	15	6	0.185 (2)	0.911	
		71.4%			28.6%
	High school diploma	4			4
		50.0%			50.0%
Bachelor's degree	53	42			
	55.8%	44.2%			
Master's degree or higher	4	4			
	50.0%	50.0%			
Household Income	Less than 1 million won	1	1	4.246	0.374
		50.0%	50.0%		
	Less than 2 million won	3	5		
		37.5%	62.5%		
	Less than 3 million won	17	9		
		65.4%	34.6%		
Less than 4 million won	13	17			
	43.3%	56.7%			
More than 4 million won	27	18			
	60.0%	40.0%			
Total	Number of Sample	61	50		
	Proportion	55.0%	45.0%		

As a result of examining the BMI increase level of mothers, it is shown in Table 3. 55% of mothers with a below-average increase in BMI and 45% of women with an above-average increase in BMI.

There was no statistically significant difference between age and BMI increase level. Among women in their 20s, 64.7% showed an above-average increase in BMI compared to other mothers, and 40.2% in their 30s and 57.1% in their 40s.

In terms of the number of children, women with three children had a higher increase in BMI than mothers with two or fewer children, and women with one child had a higher rate of maintaining BMI before and after giving birth. Accordingly, BMI showed a significant difference ($\chi^2 = 14.248^*$, $p < 0.001$).

On the other hand, social experience, social return status, final education, and household income did not show any significant difference in BMI.

3.3 Postpartum Obesity and Maternal Psychological Status (t-test)

Table 4 shows the results of examining whether postpartum obesity causes mental and psychological stress on mothers. Each questionnaire item is composed of a 4-point scale, and among the 78 response items, only the items that showed a statistically significant difference in the t-test result were extracted and summarized.

According to the analysis results, postpartum obese mothers had nervousness ($t = -1.997$, $p = 0.048$), dyspnea ($t = -1.930$, $p = 0.056$), and sense of emptiness ($t = -2.673$, $p = 0.010$) and body numbness ($t = -2.315$, $p = 0.024$). If the above four questions are considered as questions indicating the emotional and physical stability of mothers, it can be interpreted that mothers suffering from postpartum obesity have lower emotional and physical stability than mothers who do not. These results support hypothesis 1.

The next question is related to self-esteem. For the question 'I have nothing to brag about,'

Table 4. Result of T-Test

(Postpartum Obese)

Category		N (Normal Weight) (Obese)	Average	SD	t	p
Emotional and Physical Stability	I am sensitive and restless.	81	2.457	0.742	-1.997**	0.048
		30	2.767	0.679		
	It is hard to breathe.	81	1.802	0.600	-1.930*	0.056
		30	2.067	0.740		
	I feel empty.	81	2.556	0.866	-2.673*	0.010
		30	3.000	0.743		
Some parts of my body feel numb or tingling.	81	2.568	0.907	-2.315**	0.024	
	30	2.967	0.765			
Self-Est eem	I have not much to be proud of.	81	2.494	0.691	-1.698*	0.092
		30	2.767	0.898		
	I deem myself good (or positively).	81	2.778	0.592	1.929*	0.056
		30	2.500	0.861		
	I am satisfied with myself in general.	81	2.679	0.609	2.181**	0.035
		30	2.300	0.877		
Stress Manage ment	How often have you felt confident in your ability to handle personal problems?	81	2.753	0.734	1.861*	0.065
		30	2.467	0.681		
	How often have you felt that things were going the way you wanted them to?	81	2.753	0.662	2.617**	0.010
		30	2.367	0.765		
	How often have you felt that you were in control of everything?	81	2.642	0.658	2.633**	0.010
		30	2.267	0.691		
How often have you been upset about something that happened outside of your control?	81	2.765	0.729	-2.445**	0.016	
	30	3.133	0.629			
How often have you felt that the difficulties were too many to overcome?	81	2.494	0.793	-2.121**	0.036	
	30	2.867	0.900			

p<0.1 : * ; p<0.05: ** ; p<0.01: ***

the t-value was -1.698 and the p-value was 0.092, indicating that mothers with postpartum obesity tended to underestimate their pride. Next, in the evaluation of self-affirmation questions and self-satisfaction, it was investigated that compared to mothers with normal weight, they did not evaluate themselves positively. Therefore, hypothesis 2 is supported.

Next, as a result of the t-test related to stress management and work processing items, postpartum obese mothers tended to respond negatively to their work processing ability and work control ability compared to mothers who did not. Postpartum obese mothers asked positive questions out of 5 questions related to stress management (“How often did you feel confident in your ability to handle personal problems?”, “How often did you feel that things were going your way?”, “How many times have you felt that you are in control of everything?”), the percentage of positive responses was low. Given the negative responses, it was investigated that, on the contrary, mothers suffering from postpartum obesity were more severely under negative emotions and stress. Therefore, it was confirmed that the stress management of mothers suffering from postpartum obesity was not performed as smoothly as compared to mothers of normal weight. This result supports Hypothesis 3.

3.4 Postpartum BMI Increase and Maternal Psychological State (t-test)

Table 5 shows the results of whether the postpartum BMI increase is above average for mothers who are under mental and psychological stress. Each questionnaire item consists of a 4-point scale, and among the 78 response items, only the items with statistically significant t-test results were extracted and summarized.

According to the analysis results, mothers with an average postpartum BMI increase were more depressed than those who did not. There were 7

items with a statistically significant difference in response. Considering that each item is related to emotional and physical stability, mothers who experience rapid postpartum weight gain show lower emotional and physical stability than

Table 5 Results of T-Test (Postpartum BMI Increase)

Category		N (Below-Average) (Above-Average)	Average	SD	t	p
Emotional and Physical Stability	I am not interested in anything.	61	2.311	0.696	-2.130**	0.035
		50	2.620	0.830		
	I have chest or heartaches.	61	1.787	0.661	-2.185**	0.031
		50	2.080	0.752		
	I feel blue.	61	2.541	0.787	-1.730*	0.086
		50	2.800	0.782		
	I get surprised for no reason.	61	2.000	0.753	-1.807*	0.074
		50	2.280	0.858		
	It is hard to breathe.	61	1.770	0.616	-1.877*	0.063
		50	2.000	0.670		
I feel empty.	61	2.459	0.848	-3.081***	0.003	
	50	2.940	0.793			
I cannot sit still because of my restlessness.	61	1.803	0.679	-1.738*	0.085	
	50	2.040	0.755			
Self-Esteem	I have not much to be proud of.	61	2.410	0.739	-2.477**	0.015
		50	2.760	0.744		
	I deem myself good (or positively).	61	2.836	0.553	2.242**	0.028
		50	2.540	0.788		
	I am satisfied with myself in general.	61	2.721	0.609	2.373**	0.020
50		2.400	0.782			
I wish I respect myself more.	61	2.918	0.586	-2.327**	0.022	
	50	3.180	0.596			
Stress Management	How often have you successfully dealt with annoying and irritating jobs?	61	2.885	0.608	2.356**	0.020
		50	2.620	0.567		
	How often have you dealt effectively with life-altering changes in your life?	61	2.852	0.477	2.268**	0.025
		50	2.620	0.602		

p<0.01 : * ; p<0.05: ** ; p<0.01: ***

mothers who do not. In particular, in the case of questions related to a sense of emptiness, the p -value was less than 0.1%, confirming that postpartum weight gain can place a significant mental and physical burden on the mother. Therefore, we adopt Hypothesis 4 that mothers who experience above-average weight gain will have lower emotional and physical stability.

As a result of analyzing the increase in self-esteem and postpartum weight, it was found that mothers who experienced above-average weight gain had low self-esteem. The mothers did not evaluate themselves positively or express satisfaction but presented negative responses. Looking at the four items related to self-esteem, postpartum weight gain can hurt maternal self-esteem. These results support Hypothesis 5, confirming that postpartum weight gain may adversely affect maternal self-esteem.

Next, the results of the stress management and work processing questions are as follows. When

asked about their experiences of successfully handling irritating tasks and about coping effectively with change, mothers who experienced above-average weight gain responded more negatively than mothers who did not. This result shows that the mother's positive work processing ability and stress management ability is low. Therefore, hypothesis 6 is supported.

4. Results

The results for hypothesis testing in this study are as follows. In this paper, a chi-square test was performed as a preliminary analysis to ensure the reliability and validity of the research results. As a result of the chi-square test, it was found that there was a significant difference in the number of children and social experience between mothers who suffered from postpartum obesity and those who did not. As a result of performing a t -test based on this, all six hypotheses presented above were accepted.

Table 6. T-Test Results for the Hypotheses

Hypothesis	Contents of Hypothesis	Accepted/Rejected
Hypothesis 1	Mothers with postpartum obesity will have lower emotional and physical stability compared to mothers without postpartum obesity.	Accepted
Hypothesis 2	Mothers with postpartum obesity will have lower self-esteem than mothers without postpartum obesity.	Accepted
Hypothesis 3	Mothers with postpartum obesity will have lower stress management ability than mothers without postpartum obesity.	Accepted
Hypothesis 4	Mothers with above-average postpartum weight gain will have lower emotional and physical stability than those with below-average postpartum weight gain.	Accepted
Hypothesis 5	Mothers with above-average postpartum weight gain will have lower self-esteem than those with below-average postpartum weight gain.	Accepted
Hypothesis 6	Mothers with greater than or equal postpartum weight gain will have lower stress management skills than those with below-average postpartum weight gain.	Accepted

5. Discussion and Conclusion

It has been revealed until now that the factors influencing the postpartum depression are largely biological factor and sociopsychological factor. It is well known that biological factors are changes in hormone after childbirth, changes in medical condition before and after delivery like infection, and heredity[13, 14, 15]. Sociopsychological factors have been studied in various ways at home and abroad. The meta-analysis study using overseas researches suggests that marital status, socioeconomic status, self-esteem, prenatal depression, prenatal anxiety, pregnancy intention, history of depression, social support, marriage/spouse satisfaction, life stress, parenting stress, infant temperament, and maternal depression are postpartum depression-related

factors[16, 17, 18]. However few studies have been made specifically on obesity as a biological factor. Thus this study is significant in that it is the data on the perception level of obesity as a woman rather than as mother. This study has limitations in generalizing the findings into all mothers as it targeted a limited number of people in some areas.

In addition, as a result of this study, a normal control group was not included in the study. could not be limited to a specific group of mothers. of such a study The limitation is that it must be improved in future follow-up studies. I thinkIt is suggested that various researches need to be made to reduce obesity. Under social atmosphere, mothers want to keep their health and beauty after childbirth. On the other hand, they accept their weight gain after pregnancy and childbirth as a natural psychological change and take it for granted . But some mothers go on an inappropriate diet, which rather harms their health [19, 20]. From the findings of this study, it could be perceived that postpartum obesity and postpartum depression isolate a woman from the society and subsequently cause serious unemployment and various social problems[21, 22, 23]. At the same time, the solutions rather cause serious side effects. Despite this, the current pregnancy·childbirth·childcare support policy for pregnant women does not include management of biological diseases for mothers. So the government should include maternal obesity management and depression support through this survey of perception level. This study is significant in that it examined the importance and utilization of related policies among pregnant women, direct beneficiaries.

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