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Effectiveness of an Educational Intervention for Postpartum Depression in a Pre-Parent Classroom

Taeko Unno[1*], Eriko Terasawa[2], Kiyoko Naito[3], Mayuko Niida[4], Yoshihiro Asano[5], Hisayo Okayama[6]

[1]Graduate Course of Midwifery, Kyoto Koka Women's University, Kyoto, Japan
[2]Doctorial Program in Nursing, Graduate School of Comprehensive Human Sciences, University of Tsukuba, Ibaraki, Japan
[3]Department of Child Studies, Faculty of Education and Welfare, Biwako-Gakuin University, Shiga, Japan
[4]Healthcare Division, LEBER Inc., Ibaraki, Japan
[5]School of Medicine Department of Health Sciences, Shinshu University, Nagano, Japan
[6]Nursing Science and Engineering/Women's Health Nursing, Institute of Medicine, University of Tsukuba, Ibaraki, Japan
Email: *taekomw@mail.koka.ac.jp

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Abstract

The global incidence of postpartum depression is estimated at approximately 10% - 20%. A lack of partner support is a key factor associated with perinatal depression. This study examined the effects of an educational intervention that provided information for the prevention and early detection of postpartum depression to first-time mothers and fathers who participated in a "First-Time Parent Class." The study was utilized quasi-experimental research, conducted first with the control group and followed by an assessment of the intervention group. Mothers were assessed using the Edinburgh Postpartum Depression Scale and the Japan Child and Family Research Institute Child-Rearing Support Questionnaire. Fathers' assessments were conducted using the Japan Child and Family Research Institute Child-Rearing Support Questionnaire for Fathers and were based on responses to questions regarding their coping strategies. Data were obtained from 158 data (72 interventions, 86 controls) couples analyzed. No significant difference was found between mothers' child-rearing difficulty and depression score rates in the first month after childbirth. There was a difference among fathers in the control group and those in the intervention group regarding their responses to maternal depression: the "consult family" ($p = 0.035$), "consult friends" ($p = 0.033$), and "consult the city health center" ($p = 0.047$) variables were higher in the intervention group; however, the effect size was small. Providing first-time parents with information during pregnancy to prevent and detect postpartum depression will deepen parents' understanding and help them cope with postpartum depression.

Keywords

Postpartum Depression, First-Time Parents, Educational Intervention

1. Introduction

Postpartum depression is a severe public health problem with a global incidence of approximately 10% - 20%. Contributing factors include history of depression, marital status, antenatal emotional status, and parenting stress [1] [2] [3]. As postpartum depression can lead to suicidal ideation in women and disrupted attachment formation due to the limited ability to perform maternal roles [4], efforts are necessary to prevent postpartum depression during gestation.

In Japan, the "Maternal Health Checkup Project" was launched in 2017 for suicide prevention and understanding pregnant women's mental health. Screening is recommended during the two-week and one-month postpartum check-ups. Once high-risk expectant mothers are identified through a diagnosis of mental illness, local government agencies and hospitals collaborate to support them as at-risk expectant mothers (*i.e.*, requiring extra support after birth due to factors such as unstable income or mental illness) [5]. However, a drawback of this approach, which targets all pregnant and nursing mothers, is that its efforts are less visible and less valued, which is why proactive support is necessary [6]. Proactive support should be targeted to all women, as many perinatal women are less likely to seek help themselves [7].

Cognitive-behavioral and interpersonal therapies have proven effective in preventing postpartum depression [8]. These therapies are effective for high-risk pregnant women with mental disorders [9] and often require specialized knowledge; however, limited research has investigated their effectiveness for low-risk pregnant women. Furthermore, general pregnancy health education typically focuses on pregnancy and childbirth processes [10]; it lacks content on perinatal mental health [11]. In Japan, it is recommended that pregnant women and their families be provided with opportunities during pregnancy to learn about postpartum mental health; however, this is currently performed in only 49% of Japanese municipalities [12].

Lack of partner support [1] is a key factor associated with perinatal depression, and women receiving substantial social support from their partners during pregnancy show lower postpartum psychological distress [13]. In addition, instrumental and emotional support should be encouraged to minimize conflict between fathers and mothers [14].

Insufficient research exists on postpartum depression among low-risk pregnant women (*i.e.*, those without diagnosed mental illnesses), and little is known about the effects of preventive interventions for promoting communication between couples and preparation for child-rearing among this group. One of the preventive interventions for postpartum depression is improving communica-

tion between couples [13] [14]. Therefore, we hypothesized that promoting effective communication between couples would facilitate the prevention of postpartum depression. Specifically, mothers hypothesized that the intervention during pregnancy would reduce 1) parenting difficulties and 2) depression compared to controls. The fathers hypothesized that the intervention group 1) would have fewer parenting difficulties and 2) would cope better if the mothers had postpartum depression than would the control group. It was predicted that as fathers' feelings of difficulty in child-rearing (including marital relationships) decreased, mothers' feelings of difficulty in child-rearing and depression would also decrease. This study has scientific value and contributes to the development of the next generation by providing guidelines for married couples. Thus, we examined the effects of a mental health program for expectant couples focused on providing information for the prevention and early detection of postpartum depression.

2. Methods

2.1. Research Target

This study was conducted with couples from pregnancy to one month postpartum. Participants were first-time mothers and their partners who, after 16 weeks of pregnancy, participated in a "First-Time Parenting Class" commissioned by City A and conducted by the Midwives Association. Inclusion criteria were couples who consented to the study, could understand Japanese, and had a single pregnancy. Pregnant women with mental illness were excluded.

2.2. Intervention Methods

The one-time class, designed for couples, lasts approximately 2.5 h. For fathers, the program includes pregnancy experience, baby-holding experience using a doll, bathing, and explanations of various notifications and health services; for mothers, it includes opportunities to interact and exchange information with other pregnant women. The lecture content, presented by midwives, includes physical changes during pregnancy and fetal development, the father's role during childbirth, and newborns' characteristics and care. In this study, the booklet "Mental Health for Parents-to-Be" was only distributed to the intervention group (IG) and was partially explained using seven presentation slides. Approximately 12 min were required for the explanation, delivered by the primary investigator or two sub-researchers. We wanted to provide postpartum depression information and encourage fathers to communicate with mothers. The presentation content has been previously reported [15] and is presented in **Table 1**.

2.3. Survey Period and Data Collection Method

A quasi-experimental research was conducted with a control group (CG) from July 2015 to April 2016 and the IG from June 2016 to July 2017. A randomized controlled trial was not conducted to avoid creating issues in the group if some

Table 1. Content of education interventions.

1) For mom's mental health
・Psychological characteristics of mothers based on the course of pregnancy till the postpartum period
2) Changes in feelings before and after childbirth
・The process of becoming a parent involves both positive and negative feelings
3) What to do during pregnancy
・The couples also received recommendations on confirming the partner's personality and were asked to communicate effectively about childbirth and childcare
4) Maternity blues and postpartum depression
・An explanation of the possible timing, frequency, symptoms, and characteristics of maternity blues and postpartum depression
5) A simple way to identify depressive symptoms
・An emphasis was placed on the importance of being aware of small changes, such as "something is different from usual, something is wrong," or "I might be depressed."
6) What do I want pre-papa to do?
・Fathers were informed of the necessity of improving their parenting skills, as their support would help prevent postpartum depression
7) Whom should I consult?

couples received materials that others did not have. Couples who agreed to participate completed a pregnancy questionnaire that was collected at the start of the class. The second questionnaire was distributed and collected via mail, one month postpartum from the expected date of delivery.

2.4. Survey Details

2.4.1. Recognition of Postpartum Depression and Information Sources (Mothers and Fathers, Pregnancy Period)

Both mothers and fathers chose from three options regarding their awareness of postpartum depression: "I know the term well," "I know the term," and "I do not know the term." Those who answered "I know the term well" indicated their information sources. Content validity was verified by two researchers who were midwifery faculty members.

2.4.2. Depression State (Mothers Only, During Pregnancy and One Month Postpartum)

The Edinburgh Postnatal Depression Scale (EPDS) is a quantitative measure developed by Cox *et al.* [16], and the Japanese version was developed by Okano *et al.* [17]. The EPDS is a 10-item, 4-point (0 to 3) self-report questionnaire, with scores ranging from 0 to 30. Cronbach's alpha was 0.67 one month postpartum [17]. A border value of 8 - 9 indicates high validity with a sensitivity of 0.75 and a specificity of 0.93. A score of 9 or higher indicates possible postpartum depression. In this study, Cronbach's alpha was 0.822 during pregnancy and 0.847 one month postpartum.

2.4.3. Child-Rearing Difficulty (Mothers and Fathers, One Month Postpartum)

For mothers, we assessed their sense of child-rearing difficulty using the Japan

Child and Family Research Institute (JCFRI) Child-Rearing Support Questionnaire (Millennium Version) [18].

Previous studies have confirmed that postpartum depression is related to challenges in child-rearing [19]. This scale is divided into five domains—Domain 1: child-rearing difficulties; Domain 2: problems with husband/father/family functioning; Domain 3: mother's anxiety/depressive tendencies; Domain 4: husband's physical and mental disorders; and Domain 5: difficult baby. Each domain is scored on a 4-point scale (1 - 4); the higher the score, the worse a family's performance in a particular domain. In a previous validation study, Cronbach's alpha ranged from 0.85 or more for each item [19]. In this study, Cronbach's alpha ranged from 0.877 to 0.915 and was 0.647 for the "difficult baby" subscale.

The JCFRI Child-Rearing Support Questionnaire for Fathers [20] was used for fathers. This scale comprises five domains; we used Domain 1: child-rearing difficulties; Domain 3: father's anxiety and depression; and Domain 4: the state of the marital relationship. Domain 2: related to child abuse, and Domain 5: requiring an interview, were excluded. Each domain is rated on a 4-point scale (1 - 4), with higher scores on Domains 1, 3, and 4 indicating poor performance. Cronbach's alpha ranged from 0.803 to 0.908 [20]. In this study, it ranged from 0.835 to 0.903.

2.4.4. Coping Strategies and Information Helpfulness When Mothers Show Depressive Symptoms (Fathers, One Month Postpartum)

Regarding measures taken when mothers are perceived to be depressed, fathers chose multiple responses from various options: "Consult," "Avoid thinking about it," and "Did not recommend the mother to consult a doctor." The IG rated the effectiveness of the booklet and mental health talk on a 5-point scale, ranging from "very helpful" to "not helpful at all." In this study, content validity was verified by two researchers who were midwifery faculty members.

2.5. Ethical Considerations

This study was conducted after obtaining approval from the research ethics review board of the Faculty of Medicine, University of Tsukuba (approval number: 1102), Shiga University of Medical Science (Approval number: 26-17).

The study purpose, measures taken for privacy protection, an explanation that study participation was voluntary, and that there was no penalty associated with withdrawing during the study were expressed verbally and in writing, and all participants provided written informed consent.

2.6. Sample Size

The sample size was calculated by effect size d = 0.5, $\alpha = 0.05$, power = 0.8 and an allocation ratio = 1 to compare perceptions of child-rearing difficulties in terms of the results of the independent *t*-test. The required sample size was 128 couples, one month postpartum; however, considering a 70% dropout rate based

on Iwahuji and Muto [21], we recruited 600 couples.

2.7. Statistical Analysis

First, basic statistics were calculated, and a histogram was generated to confirm a normal distribution of the data. Then, for intergroup comparisons, variables with normality were analyzed using Student's *t*-test. Finally, the χ^2 and Fisher's exact probability tests were used for percentage comparisons, and the McNemar test was used for before/after comparisons. SPSS Version 27.0 was used for all analyses, and a p-value < 0.05 was considered statistically significant.

3. Results

Questionnaires were distributed to 640 couples and returned by 574 couples before attending the parenting class. We lost 277 couples to follow-up in the first month postpartum. Only complete data from the gestational period and the first month of the puerperium of the paired couples were included in the analysis. Thus, in the end, we analyzed data from 158 couples (CG = 86, IG = 72, effective response rate: 27.5%) (**Figure 1**).

Table 2 shows participants' socio-demographic and pregnancy- and delivery-related characteristics, pre- and one month postpartum. Further recognition of postpartum depression was checked before the intervention, but there was no difference between the two groups, "I know the term well," was CG 54.7%, IG 52.8% ($p = 0.81$) for mothers and CG 24.4%, IG 30.6% for fathers ($p = 0.39$) (**Table 3**). Although randomization was not possible, comparison was made because there was no significant difference between the IG and CG.

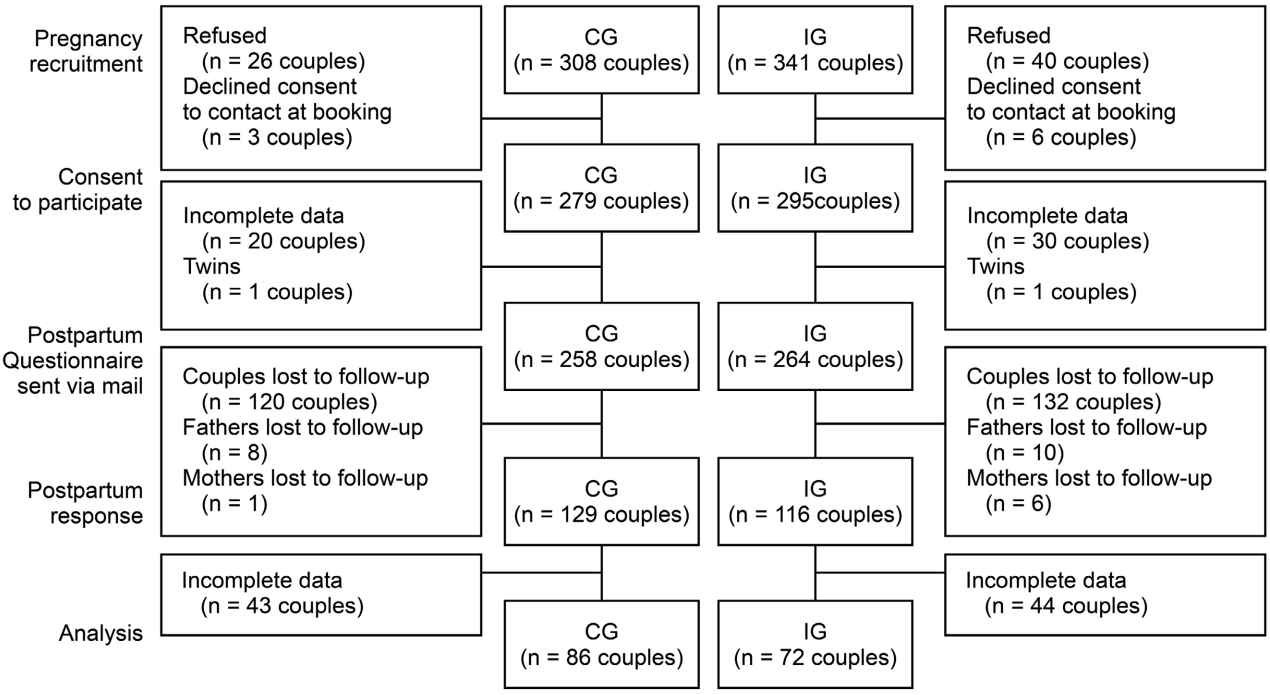

Figure 1. Number of individuals in the control group (CG), intervention group (IG), and dropouts.

Table 2. Basic attributes of the participants (intervention group, control group).

		CG (n = 86) (%)		IG (n = 72) (%)		*p*	
		Mother	Father	Mother	Father	Mother	Father
Age (years)		32.1 ± 4.47	34.6 ± 5.74	31.9 ± 4.08	33.5 ± 4.73	0.80[a]	0.21[a]
Married age (years)		30.1 ± 4.41		29.9 ± 4.20		0.78[a]	
Family structure	Spouses alone	83 (96.5)		69 (95.7)			
	Three-generation household	3 (3.5)		3 (4.3)		1.00[b]	
Occupation	Working	55 (63.9)	85 (98.8)	46 (63.9)	71 (98.6)	0.23[c]	0.19[c]
	Not working	31 (36.1)	1 (1.2)	26 (36.1)	1 (1.4)		
Infant birth weight (g)		3085.9 ± 317.1		3052.3 ± 331.8		0.52[a]	
Abnormal pregnancy		21 (24.4)		14 (19.4)		0.14[b]	
Treatment at delivery		37 (43.0)		25 (34.7)		0.29[b]	
Cesarean section		12 (14.0)		15 (20.8)		0.25[b]	
Abnormal postpartum		7 (8.1)		6 (8.3)		0.97[b]	
NICU hospitalization		4 (4.7)		1 (1.4)		0.13[c]	
Satogaeri childbirth		57 (66.3)		49 (68.1)			
Had help		23 (26.7)		17 (23.6)		0.35[b]	
Neither		6 (7.0)		6 (8.3)			
Breastfeeding only		33 (38.4)		30 (41.7)			
Breastfeeding and formula		53 (61.6)		40 (55.5)		0.21[c]	
Formula only		0 (00.0)		2 (2.8)			

[a]Student's t-test, mean ± standard deviation; [b]χ^2 test; [c]Fisher's exact probability test; One month of breastfeeding was analyzed with or without breastfeeding. CG = Control group; IG = Intervention Group; *Satogaeri* childbirth = returned to their parental home to give birth; NICU = Neonatal intensive care unit.

Table 3. Recognition of postpartum depression and information sources.

			CG (*n* = 86) (%)	IG (*n* = 72) (%)	*p*	Effect size (w)
Mother	Knowledge	I know the term well	47 (54.7)	38 (52.8)	0.81[a]	0.02
		I know the term	38 (44.2)	32 (44.4)		
		I do not know the term	1 (1.1)	0 (00.0)		
		No answer	0 (00.0)	2 (2.8)		
	Sources	Hospitals	6 (12.8)	6 (15.8)	0.75[a]	0.07
		Books	36 (76.6)	34 (89.4)	0.50[a]	0.05
		Father	0 (00.0)	0 (00.0)		
Father	Knowledge	I know the term well	21 (24.4)	22 (30.6)	0.39[a]	0.07
		I know the term	50 (58.1)	44 (61.1)		
		I do not know the term	14 (16.3)	5 (6.9)		
		No answer	1 (1.2)	1 (1.4)		

Continued

	Hospitals	1 (1.2)	1 (1.4)	0.71[b]	0.01
Sources	Books	14 (16.3)	16 (22.2)	0.34[a]	0.08
	Mother	3 (3.5)	7 (9.7)	0.10[b]	0.13

CG = Control group; IG = Intervention group; Knowledge was assessed based on participants' responses to the following three options: "I know the term well," "I know the term," and "I do not know the term" or no answer. For Sources, multiple responses allowed only for those who answered "I know the term well." regarding their knowledge. Knowledge was analyzed based on participants' response to the following response options: "I know the term well," vs. "I know the term," "I do not know the term," and no answer. [a]χ^2 test; [b]Fisher's exact probability test = effect size (w).

Table 4. Maternal depression state, maternal and paternal child-rearing difficulty.

					p			Post comparison effect size
			Pre	Post	Pre vs. post	Pre comparison	Post comparison	
Mother's variables	Depressive state (EPDS ≥ 9), n (%)	IG	17 (23.6)	14 (19.4)	0.63[a]	0.47[b]	0.18[b]	0.11
		CG	13 (18.1)	13 (18.1)	1.00[a]			
	Child-rearing difficulty	IG		18.53 ± 6.01			0.23[c]	0.09
		CG		17.45 ± 5.24				
	Husband/father/family functioning	IG		32.59 ± 8.09			0.85[c]	0.02
		CG		32.36 ± 7.31				
	Anxiety/depression tendency	IG		19.30 ± 7.60			0.18[c]	0.08
		CG		17.80 ± 6.42				
	Husband's physical and mental illness	IG		14.55 ± 6.18			0.27[c]	0.08
		CG		13.55 ± 5.26				
	Difficult baby	IG		17.31 ± 4.13			0.40[c]	0.07
		CG		16.76 ± 4.09				
Father's variables	Child-rearing difficulties	IG		10.51 ± 3.08			0.39[c]	0.06
		CG		10.94 ± 3.09				
	Father's own anxiety and depression	IG		6.88 ± 3.10			0.95[c]	0.02
		CG		6.91 ± 2.97				
	Marital relationship	IG		8.10 ± 2.60			0.79[c]	0.00
		CG		7.99 ± 2.42				

[a]McNemar test; [b]χ^2 test; [c]Student's t-test: mean ± standard deviation, effect size χ^2 test = effect size (w), Student's t-test = effect size (r), EPDS = Japanese version of Edinburgh Postpartum Depression Self-Assessment Questionnaire; CG = Control group (n = 86); IG = Intervention Group (n = 72); Pre = Pregnancy; Post = Postpartum.

No significant difference was found between mothers' child-rearing difficulty (p = 0.23) and depression score rates (p = 0.18) in the first month after childbirth. Similar results were obtained for paternal variables (Table 4).

Regarding measures taken when women showed depressive symptoms, percentage comparisons of coping methods revealed differences between fathers in

Table 5. Coping strategies and helpfulness of the information provided when the partner displays depressive symptoms.

		CG (n = 86) (%)	IG (n = 72) (%)	p-value	Effect size (w)
Coping strategies	Consult family	29 (33.7)	39 (54.2)	0.035[a]	0.17
	Consult friends	16 (18.6)	26 (36.1)	0.033[a]	0.15
	Consult the city health center	5 (6.9)	12 (16.7)	0.047[a]	0.16
	Consult the child-rearing woman's health support centers	11 (16.2)	9 (12.5)	0.775[a]	0.02
	Consult the OB/GYN	14 (16.3)	17 (23.6)	0.389[a]	0.07
	Consult with a psychosomatic medicine specialist or psychiatrist	4 (4.7)	3 (4.2)	0.545[b]	0.02
	Consult no one	22 (25.6)	13 (18.1)	0.142[a]	0.12
	Avoid thinking about it	3 (3.5)	5 (6.9)	0.315[b]	0.07
	Did not recommend the mother consult a doctor	2 (2.3)	1 (1.4)	0.531[b]	0.04
Mental health talk (very helpful/somewhat helpful)			53 (73.6)		
Booklet (very helpful/somewhat helpful)			37 (51.4)		

[a]χ^2 test; [b]Fisher's exact probability test; effect size χ^2 test, Fisher's exact probability test = effect size (w); Survey of couples, one month postpartum; coping strategies: multiple answers allowed; OB/GYN: obstetrics and gynecology; Mental health talk: Content of intervention.

the CG and IG. "Consult family" (p = 0.035), "consult friends" (p = 0.033), and "consult the city health center" (p = 0.047) were higher in fathers of the IG (Table 5). Comparatively, the most common response for coping methods in both groups was "consult with family" (CG = 33.7%, IG = 54.2%), while "consult with a psychosomatic medicine specialist or psychiatrist" was the least common (CG = 4.7%, IG = 4.2%); however, the effect size was small. Regarding how helpful the discussion on mental health was, 73.6% of IG fathers answered "very helpful" or "somewhat helpful." Regarding the booklet, 51.4% answered "very helpful" or "somewhat helpful."

4. Discussion

The average age of mothers during their first childbirth in Japan is 30.7 years [22], and the number of families living in three-generation households has declined to 10% [23]. The cesarean section rate at delivery is also approximately 10% - 20%, which is similar to the overall delivery situation in Japan [24]. This confirms that the participants' attributes in our study were representative of the national statistics for first month postpartum in Japan.

In the current study, a higher participant percentage had EPDS scores above 9 during pregnancy compared to previous reports (8.9% - 15.8%) [1] [25]. Depressive tendencies were also high one month postpartum relative to previous research [26]. There was no change in the percentage of EPDS scores above 9 for CG participants (18.1%), while there was a reduction in the one-month post-

partum scores for IG participants (23.6% vs. 19.4%). Some previous studies have shown that fewer mothers show depressive tendencies after childbirth than during pregnancy [25], while others have reported higher depression after childbirth [26]. High scorers might have dropped out and were thus excluded from the analysis, as it would have been challenging for them to continue the program if they had developed postpartum depression one month later. Since an accurate determination of the onset of postpartum depression requires diagnosis by a physician and information provision from and collaboration with medical institutions, this is a limitation of evaluating interventions through self-report questionnaires, as was undertaken in this study. No significant difference was found in the results of mothers' child-rearing difficulties between the two groups. The findings regarding mothers' sense of difficulty in child-rearing (Domain 1) were comparable to the mean values at one month postpartum [27].

Further, our intervention was based on promoting communication between couples. The father's "state of marital relationship" variable was not significant between the CG and IG. Marital status as viewed by the fathers was similar across both groups to that of low-risk one-month postpartum fathers in a previous study [28]. Since the couples discussed and participated in the event at will, it can be assumed that they originally had a good relationship. Although there was no significant difference in the husband's mental and physical health problems, both groups scored slightly higher [27].

A previous study reported that 5.2% of fathers had postpartum depression [29]. However, few intervention studies have focused on postpartum depression in fathers. In our study, the information provided to the IG did not convey the importance of maintaining paternal physical and mental health or its effects on maternal mental health. Medical professionals need to pay attention to mental health among fathers as it affects maternal child-rearing stress [30]. Therefore, future interventions related to paternal mental health should be considered.

In this study, 39 fathers (54.2%) in the IG answered that they consult their families ($p = 0.035$). Fathers in the IG were more likely to understand the necessity of taking action if their partners experienced depressive symptoms. Intervention studies to reduce maternal depression have reported no psychological intervention effects from using information booklets before childbirth [31]. Conversely, a study investigating marital relationships reported that problem-focused information and support provided prenatally are invaluable to families [32]. From the results of our study, we could not verify whether fathers could detect maternal depression at an early stage. However, we believe fathers can better understand postpartum depression when provided relevant information. Healthcare personnel provide specific, addressable information to expectant parents, which may prevent perinatal psychological problems and contribute to couple empowerment [33]. Rosenquist [34] suggested that fathers monitor and recognize symptoms of maternal depression. Additionally, this study found that few fathers knew much about postpartum depression. Since mothers with depressive symptoms report lower perceptions of husbands [32], healthcare

providers should encourage fathers to receive support when needed and help them cope with their difficulties. Providing postpartum depression information and helping facilitate marital communication make them more likely to notice changes in their partners early on and seek help from those close to them.

In this study, scores on "consult the city health center" were higher for fathers in the IG than those in the CG ($P = 0.047$). Mothers and fathers may have been familiar because the midwives organized the parent classes. Individuals with depression often do not seek medical attention due to stigma and personality traits such as self-esteem [35]. Postpartum women may also avoid actively seeking help. Furthermore, families are often reluctant to attend to mothers' emotional and practical needs [36].

We predicted that individuals and families might experience stigma related to seeing a psychiatrist.

Hence, when providing this information, we advised participants to first consult someone close to them. Tamaki [37] found that only a few people consulted psychiatrists when physical and mental disorders occurred after childbirth. Therefore, the method of providing information and difficulties in visiting a psychiatrist or psychosomatic medicine practitioner impact the likelihood of mothers developing postpartum depression. Health institutions should continue to provide information on seeking help from medical professionals and identify contact points that are easy to consult, in addition to recommending that parents rely on support from close individuals. However, given the small effect size in this study, further research is needed.

To our knowledge, this study is one of the few to target postpartum depression coping strategies. Another strength is its focus on low-risk participants. Although still an uncommon approach in the field of prenatal interventions, participating men are encouraged to consult with their family, friends, and health centers to help them deal with their partners' depression.

Strengths and Limitations

This study's response rate (27.5%) was higher than in Hawkins *et al.*'s study (25%) [38]. The target population may have been motivated to participate in preparatory education since the parenting classes were held only once a month and on a first-come, first-served basis. On the other hand, each partner had to provide their informed consent; a couple was excluded unless both partners consented. Further, our intervention was conducted during a parenting class; therefore, time constraints were experienced. These circumstances could be mitigated by a more effective approach to implementing parenting classes specializing in mental health programs.

5. Conclusion

In this study, the mothers' interventions during pregnancy failed to reduce 1) parenting difficulties and 2) depression compared with controls. We found that

the fathers' IG failed to reduce parenting difficulties, but coped better with the mothers' potential postpartum depression than did the CG. Therefore, one hypothesis was proved. Healthcare facilities must implement parenting classes to increase opportunities to provide information on mental health. In addition to planning parenting classes, antenatal checkups at hospitals, pregnancy notifications at municipalities, and online services could also be used to provide support. The postpartum period and individual-based interventions should also be considered [39]. In this way, fathers will become more knowledgeable about postpartum depression, and relationships between expectant mothers and fathers can be enhanced.

Implications for Practice

IG fathers were more likely to understand the necessity of taking action if their partner showed depressive symptoms. Thus, providing information regarding the prevention and early detection of postpartum depression during pregnancy will deepen parents' understanding and help them cope with postpartum depression.

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Conflicts of Interest

The authors of this work have no conflicts of interest to disclose.

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Appendix

Pregnancy, Mather

調査にご協力頂く皆様へ

調査にご協力頂きましてありがとうございます。

この調査は、ご自身の気分の様子、赤ちゃんへのお気持ち、ご夫婦の様子についてお聞きするものです。

正しい答えや理想的な答えがあるわけではありません。皆様お一人お一人の、現在のお考えやお気持ちをお聞かせいただければ幸いです。

ご協力よろしくお願い致します。

問1. ご自身についてお伺いします。

1. ご自身の年齢をご記入ください。

ご自身：（　　）歳

2. 分娩予定日はいつですか？

（　　）月　（　　）日

3. 今回の妊娠中の異常や病気があればご記入ください。（例：切迫早産）

（　　）

4. ご自身の現在のご職業に〇をつけてください。

① フルタイム（常勤・非常勤）
→育児休暇の取得予定はございますか？
A) 予定あり　→期間（　　）程度
B) 予定なし
② 自営業
③ パート・アルバイト
④ 無職
⑤ 学生

5. 「産後うつ」についてご存じですか？あてはまる番号に〇を付けてください。

① よく知っている
→情報源はどこですか？あてはまるものに〇を付けてください（複数回答可）。
A) 本、インターネット、テレビから知った
B) 病院・専門家から聞いた
C) 夫から聞いた
D) 友人・知人から聞いた
E) その他（　　）
② 名前は知っているが、詳しくは知らない
③ 全く知らない

6. 調査終了後に、調査結果の送付を希望される方は✔をしてください。→　□希望する
（全ての調査終了後になりますので、およそ1～2年後になります）

問 2.　現在のお気持ちをお伺いします。今日だけではなく、過去 7 日間にあなたが感じられたことにもっとも近い答えを一つ、〇をつけて下さい。

1) 笑うことができたし、物事のおかしい面もわかった	a. いつもと同様にできた b. あまりできなかった c. 明らかにできなかった d. まったくできなかった
2) 物事を楽しみにして待った	a. いつもと同様にできた b. あまりできなかった c. 明らかにできなかった d. ほとんどできなかった
3) 物事が悪くいった時、自分を不必要に責めた	a. はい、たいていそうだった b. はい、時々そうだった c. いいえ、あまり度々ではない d. いいえ、そうではなかった
4) はっきりした理由もないのに不安になったり、心配した	a. いいえ、そうではなかった b. ほとんどそうではなかった c. はい、時々あった d. はい、しょっちゅうあった
5) はっきりした理由もないのに恐怖におそわれた	a. はい、しょちゅうあった b. はい、時々あった c. いいえ、めったになかった d. いいえ、まったくなかった
6) することがたくさんあって大変だった	a. はい、たいてい対処できなかった b. はい、いつものようにはうまく対処しなかった c. いいえ、たいていうまく対処した d. いいえ、ふだん通りに対処した
7) 不幸せなので、眠りにくかった	a. はい、ほとんどいつもそうだった b. はい、ときどきそうだった c. いいえ、あまり度々ではなかった d. いいえ、まったくなかった
8) 悲しくなったり、みじめになった	a. はい、たいていそうだった b. はい、かなりしばしばそうだった c. いいえ、あまり度々ではなかった d. いいえ、まったくそうではなかった
9) 不幸せなので、泣けてきた	a. はい、たいていそうだった b. はい、かなりしばしばそうだった c. ほんの時々あった d. いいえ、まったくそうではなかった
10) 自分自身を傷つけるという考えがうかんできた	a. はい、かなりしばしばそうだった b. 時々そうだった c. めったになかった d. まったくなかった

ご協力ありがとうございました。

皆様の安全で快適な妊娠・出産と、

お子様の健やかなご成長をお祈りいたします。

次回は産後１か月の調査となります。

ご協力のほど、どうぞよろしくお願い申し上げます。

Postpartum, Mather

調査にご協力頂く皆様へ

お子さまが生まれ、新しい生活はいかがでしょうか？

調査にご協力頂きましてありがとうございます。

この調査は、ご自身の気分の様子、赤ちゃんへのお気持ち、産後のご夫婦の様子についてお聞きするものです。

正しい答えや理想的な答えがあるわけではありません。皆様お一人お一人の、現在のお考えやお気持ちをお聞かせいただければ幸いです。

ご協力よろしくお願い致します。

問1. ご自身についてお伺いします。

1. 出産された日、妊娠週数、性別をご記入ください。
   平成（　　）年　（　　）月　（　　）日
   妊娠（　　）週（　　）日

2. お子さまの生まれた時の体重をご記入ください　　（　　）グラム

3. 妊娠・出産、赤ちゃんのことについて、あてはまるものに〇を付けてください。
   （ア）　妊娠中の異常があった
   （切迫早産　妊娠高血圧症　糖尿病　その他：　　）
   （イ）　分娩時の処置があった
   （分娩誘発・促進剤の使用　吸引分娩　その他：　　）
   （ウ）　帝王切開であった
   （エ）　産褥期の異常があった
   （弛緩出血　乳腺炎　その他：　　）
   （オ）　新生児期の異常があった
   （呼吸の異常　高ビリルビン血症（光線療法）　その他：　　）
   （カ）　NICU（新生児集中治療室）やGCU（新生児治療室）に入院した
   （理由　　）

4. 授乳状況について、当てはまるものに〇をおつけください。
   （ア）　母乳のみ
   （イ）　ほとんど母乳で少しだけミルクを足している
   （ウ）　母乳とミルクが半々程度
   （エ）　母乳が少しでほとんどミルク
   （オ）　ミルクのみ

5. 出産前後に里帰りされましたか？
   ① 里帰りした →期間は？　産前（　　）週から産後（　　）週まで
   　　産後（　　）週から産後（　　）週まで
   ② 里帰りせずに、自宅に手伝いに来てもらった
   　　→期間は？　産前（　　）週から産後（　　）週まで
   　　産後（　　）週から産後（　　）週まで
   　　→どなたに来ていただきましたか？（　　）
   ③ 里帰りも手伝いもなかった

6. 出産後、育児や家事を主に手伝ってくださっているのはどなたですか？
   当てはまるものすべてに〇をおつけください。
   ① ご主人様　② ご自身のお母様　③ ご自身のお父様
   ④ 義理のお母様　⑤ 義理のお父様　⑥ ご自身の兄弟・姉妹
   ⑦ その他（　　）

問 2.　ご自身と赤ちゃん、ご主人、ご家族のことについてお聞きします。当てはまるとことに〇をつけてください。

		はい	ややはい	ややいいえ	いいえ
1）	夫は精神的に私を支えてくれている	4	3	2	1
2）	夫は私や子どものためにとてもよくしてくれる	4	3	2	1
3）	夫と気持ちが通じ合っている	4	3	2	1
4）	夫は子育ての大変さなど私の苦労をわかっていない	4	3	2	1
5）	夫は育児のことで相談にのってくれる	4	3	2	1
6）	この人と結婚して幸せである	4	3	2	1
7）	家庭内に関する事柄について夫には期待できない	4	3	2	1
8）	夫は子どもとよく遊び、面倒見がよい	4	3	2	1
9）	父親としての自覚が足りない	4	3	2	1
10）	家族としてのまとまりを感じる	4	3	2	1
11）	妊娠中、夫や家族の理解が得られなくて大変だった	4	3	2	1
12）	家族は子育ての大変さを理解してくれない	4	3	2	1
13）	家族は私の趣味や仕事を理解し、協力してくれる	4	3	2	1
14）	家庭の中がしっくりいかない	4	3	2	1
15）	夫は家事や育児に消極的である	4	3	2	1
16）	夫は子どもに関心がない	4	3	2	1
17）	夫は仕事や趣味だけに打ち込んでいる	4	3	2	1
18）	子どもは父親になついていない	4	3	2	1
19）	夫と話し合う時間が少ない	4	3	2	1
20）	夫は幸せな気分で過ごしている	4	3	2	1
21）	夫は子どもをどのように扱ったらよいかわからない	4	3	2	1
22）	悲観的になりやすい	4	3	2	1
23）	何ともいえず淋しい気持ちにおそわれることがある	4	3	2	1
24）	精神的に不調である	4	3	2	1
25）	何事にも敏感に感じすぎてしまう	4	3	2	1
26）	とても心配性であれこれ気に病む	4	3	2	1
27）	気が滅入る	4	3	2	1
28）	不安や恐怖感におそわれる	4	3	2	1
29）	いてもたってもいられないほど落ち着かない	4	3	2	1
30）	楽天的でくよくよ考えない	4	3	2	1

	はい	ややはい	ややいいえ	いいえ
31） 出産後、気持ちが沈み、おっくうで何もする気がしなかった	4	3	2	1
32） 子どもを虐待しているのではないかと思う	4	3	2	1
33） 母親として不適格と感じる	4	3	2	1
34） 子どものことがわずらわしくてイライラする	4	3	2	1
35） どのようにしつけたらよいかわからない	4	3	2	1
36） 子どもに八つ当たりしては、反省して落ち込む	4	3	2	1
37） 子育てに困難を感じる	4	3	2	1
38） 育児に自信が持てない	4	3	2	1
39） 子どもがかわいいと思えないことがある	4	3	2	1
40） 子どものことでどうしたらよいかわからない	4	3	2	1
41） 子どもをうまく育てている	4	3	2	1
42） おこりっぽい	4	3	2	1
43） イライラしている	4	3	2	1
44） 育児についていろいろ心配なことがある	4	3	2	1
45） 子どものことは理解できている	4	3	2	1
46） 悲観的である	4	3	2	1
47） 沈みがち	4	3	2	1
48） 精神的に不調である	4	3	2	1
49） イライラしている	4	3	2	1
50） 精神的にゆとりがない	4	3	2	1
51） 仕事に行きたがらなかったり、やる気を失っている	4	3	2	1
52） 仕事がうまくいっていない	4	3	2	1
53） 眠れない	4	3	2	1
54） 淋しそう	4	3	2	1
55） 抱っこや外に連れ出すなど眠るまでに手がかかる	4	3	2	1
56） おとなしく手がかからない	4	3	2	1
57） あまり眠らない	4	3	2	1
58） よく泣いてなだめにくい	4	3	2	1
59） わけもわからず泣く	4	3	2	1
60） 一晩に何回も起こさ	4	3	2	1
61） 夜泣きがひどい	4	3	2	1
62） 一日の生活リズムが一定しない	4	3	2	1

問 3.　現在のお気持ちをお伺いします。今日だけではなく、過去 7 日間にあなたが感じられたことにもっとも近い答えを一つ、〇をつけて下さい。

1) 笑うことができたし、物事のおかしい面もわかった	a. いつもと同様にできた b. あまりできなかった c. 明らかにできなかった d. まったくできなかった
2) 物事を楽しみにして待った	a. いつもと同様にできた b. あまりできなかった c. 明らかにできなかった d. ほとんどできなかった
3) 物事が悪くいった時、自分を不必要に責めた	a. はい、たいていそうだった b. はい、時々そうだった c. いいえ、あまり度々ではない d. いいえ、そうではなかった
4) はっきりした理由もないのに不安になったり、心配した	a. いいえ、そうではなかった b. ほとんどそうではなかった c. はい、時々あった d. はい、しょっちゅうあった
5) はっきりした理由もないのに恐怖におそわれた	a. はい、しょちゅうあった b. はい、時々あった c. いいえ、めったになかった d. いいえ、まったくなかった
6) することがたくさんあって大変だった	a. はい、たいてい対処できなかった b. はい、いつものようにはうまく対処しなかった c. いいえ、たいていうまく対処した d. いいえ、ふだん通りに対処した
7) 不幸せなので、眠りにくかった	a. はい、ほとんどいつもそうだった b. はい、ときどきそうだった c. いいえ、あまり度々ではなかった d. いいえ、まったくなかった
8) 悲しくなったり、みじめになった	a. はい、たいていそうだった b. はい、かなりしばしばそうだった c. いいえ、あまり度々ではなかった d. いいえ、まったくそうではなかった
9) 不幸せなので、泣けてきた	a. はい、たいていそうだった b. はい、かなりしばしばそうだった c. ほんの時々あった d. いいえ、まったくそうではなかった
10) 自分自身を傷つけるという考えがうかんできた	a. はい、かなりしばしばそうだった b. 時々そうだった c. めったになかった d. まったくなかった

ご協力ありがとうございました。

お父様・お母様のご健康と、

お子様の健やかな　ご成長をお祈りいたします。

Pregnancy, Father

プレパパの皆様へ

妊娠中のメンタルヘルスに関する調査

調査にご協力頂く皆様へ

調査にご協力頂きましてありがとうございます。

この調査は、ご自身の気分の様子、赤ちゃんへのお気持ち、ご夫婦の様子についてお聞きするものです。

正しい答えや理想的な答えがあるわけではありません。皆様お一人お一人の、現在のお考えやお気持ちをお聞かせいただければ幸いです。

ご協力よろしくお願い致します。

問 1. ご自身についてお伺いします。

7. ご自身の年齢をご記入ください。

（　　）歳

8. ご自身の現在のご職業に〇をつけてください。

⑥ フルタイム（常勤・非常勤）
→育児休暇の取得予定はございますか？
C) 予定あり　→期間（　　）程度
D) 予定なし
⑦ 自営業
⑧ パート・アルバイト
⑨ 無職
⑩ 学生

9. ご結婚されていますか？
① はい　→ご結婚されてからの年数は？　（　　）年（　　）ケ月
② いいえ　→ご結婚の予定はありますか？　a. 結婚の予定あり　b. 予定なし

10. 同居されているご家族全員に〇をつけてください。
（現在里帰りされている方は、**里帰り前の状態**をお答えください。）

① 奥様（パートナー）　② 実のお父様　③ 実のお母様
④ 義理のお父様　⑤ 義理のお母様　⑥ その他（　　）

11. 「産後うつ」についてご存じですか？あてはまる番号に〇を付けてください。

① よく知っている
→情報源はどこですか？あてはまるものに〇を付けてください（複数回答可）。
F) 本、インターネット、テレビから知った
G) 病院・専門家から聞いた
H) 妻から聞いた
I) 友人・知人から聞いた
J) その他（　　）
② 名前は知っているが、詳しくは知らない
③ 全く知らない

12. 調査終了後に、調査結果の送付を希望される方は✔をしてください。→　口希望する
（全ての調査終了後になりますので、およそ 1～2 年後になります）

ご協力ありがとうございました。

皆様の安全で快適な妊娠・出産と、

お子様の健やかなご成長をお祈りいたします。

次回は産後１か月の調査となります。

ご協力のほど、どうぞよろしくお願い申し上げます。

Postpartum, Father

パパになられた皆様へ

産後のメンタルヘルスと育児に関する調査

調査にご協力頂く皆様へ

お子さまが生まれ、新しい生活はいかがでしょうか？

調査にご協力頂きましてありがとうございます。

この調査は、ご自身の気分の様子、赤ちゃんへのお気持ち、産後のご夫婦の様子についてお聞きするものです。

正しい答えや理想的な答えがあるわけではありません。皆様お一人お一人の、現在のお考えやお気持ちをお聞かせいただければ幸いです。

ご協力よろしくお願い致します。

質問 1.　ご自身や赤ちゃん、奥様のことについてお聞きします。あてはまるところに〇をつけてください。

		はい	ややはい	ややいいえ	いいえ
1）	子どものことでどうしたらよいかわからない	4	3	2	1
2）	育児に自信が持てない	4	3	2	1
3）	どのようにしつけたらよいかわからない	4	3	2	1
4）	子育てに困難を感じる	4	3	2	1
5）	父親として不適格と感じる	4	3	2	1
6）	とどめなく叱ってしまう	4	3	2	1
7）	子どもは何で叱られているかわからないのに叱ってしまう	4	3	2	1
8）	子どもに八つ当たりしては反省して落ち込む	4	3	2	1
9）	子どものことを許せない	4	3	2	1
10）	子どもを虐待しているのではないかと思う	4	3	2	1
11）	精神的に不調である	4	3	2	1
12）	沈みがち	4	3	2	1
13）	不安や恐怖感におそわれる	4	3	2	1
14）	悲観的になりやすい	4	3	2	1
15）	気が滅入る	4	3	2	1
16）	妻と気持ちが通じ合っている	4	3	2	1
17）	家族としてのまとまりを感じる	4	3	2	1
18）	妻が落ち込んだ時に話し相手になり、話をよく聴く	4	3	2	1
19）	妻が子育てに悩んでいるときは精神的に支えるようにしている	4	3	2	1
20）	男として家族を守り支えとなっている	4	3	2	1
21）	子育てに悩んだ時に相談できる人がいる	4	3	2	1
22）	妻は子どもとよく遊び、面倒見がよい	4	3	2	1

最後に・・・

1. パパママ教室での「妊娠中～産後のメンタルヘルス（産後うつなど）」の話や冊子はお役に立ちましたでしょうか？当てはまるものに〇をおつけください

	とてもそう思う	ややそう思う	どちらでもない	あまり思わない	全く思わない
1）パパママ教室でのメンタルヘルスの話は役だった	5	4	3	2	1
2）冊子「プレパパ・ママのためのメンタルヘルス」は役だった	5	4	3	2	1

（※介入群のみ）

2. 出産後、奥様に「気分の落ち込み、不安感、睡眠障害、食欲の減退、イラつき、胃腸の不快感、倦怠感」などの症状がありましたか？

① 症状があった・今ある
→どのように対処されましたか？当てはまるもの全てに〇をおつけください
A) 家族に相談した（どなたですか？ ）
B) 友人に相談した
C) 大津市の保健センターに相談した
D) 子育て女性健康支援センター（助産師会）に相談した
E) 誰にも相談しなかった
F) 産婦人科を受診するように勧めた
G) 心療内科や精神科を受診するように勧めた
H) 受診を勧めなかった
I) 考えないようにした
J) その他（ ）

② 症状はなかった
→もしこれから先、症状が現れたとしたら、どうされますか？
当てはまるもの全てに〇をおつけください
A) 家族に相談する（どなたですか？ ）
B) 友人に相談する
C) 大津市の保健センターに相談する
D) 子育て女性健康支援センター（助産師会）に相談する
E) 誰にも相談しない
F) 産婦人科を受診するように勧める
G) 心療内科や精神科を受診するように勧める
H) 受診を勧めない
I) 考えないようにする
J) その他（ ）

ご協力ありがとうございました。

皆様のご健康と、

お子様の健やかなご成長をお祈りいたします。