Med Discoveries
An open access journal of science and medicine

Article Type: Research Article
Volume 3, Issue 1
Received: Dec 11, 2023
Accepted: Jan 18, 2024
Published Online: Jan 25, 2024

Effectiveness of Postnatal Home Visits in Reducing Fatigue Among Mothers with Unplanned Pregnancies

Norikazu Watanabe[1]*; Mika Fukase[1]; Seiji Tsutsumi[2]; Akiko Sugiyama[3]; Keiko Yamanouchi[1]; Satoru Nagase[4]

[1]Assistant Professor, Department of Obstetrics and Gynecology, Yamagata University Faculty of Medicine, Japan.

[2]Chief, Department of Obstetrics and Gynecology, Yamagata Prefectural Central Hospital, Japan.

[3]Clinical Fellow, Department of Obstetrics and Gynecology, Yamagata Saisei Hospital, Japan.

[4]Professor, Department of Obstetrics and Gynecology, Yamagata University Faculty of Medicine, Japan.

***Corresponding Author:** Norikazu Watanabe*

Tel: +81-23-628-5393, Fax: +81-23-628-5396; Email: n-watanabe@med.id.yamagata-u.ac.jp

Abstract

Objective: This study identified the risk factors for fatigue in child-rearing recognizable in early pregnancy and evaluated the effects of postnatal home visits on parenting fatigue.

Methods: Data from 348 mothers who delivered live infants during January–March 2013 in Japan were collected retrospectively. The mothers received the Maternal and Child Health handbook in their first trimester and answered an accompanying questionnaire. For each family, we extracted the timing of postnatal home visits conducted by the Public Health Center. We compared the factors in early pregnancy between exhausted and non-exhausted mothers at nine months postpartum. We also compared the postpartum fatigue between mothers with and without early postnatal home visits.

Results: There were significantly more unplanned pregnancies among exhausted mothers compared to mothers who did not experience exhaustion. Among those with unplanned pregnancies, we also found significantly more non-exhausted mothers among those who received postnatal home visits within two months postpartum compared with those who received home visits after two months.

Conclusion: An unplanned pregnancy can be a risk factor for fatigue at nine months postpartum. Conducting home visits for mothers who had unplanned pregnancies within two months of delivery may reduce fatigue and positively contribute to mothers' mental health.

Keywords: Child-rearing; Nursing; Postpartum fatigue; Maternal mental health; Unplanned pregnancy.

Introduction

In Japan, public health nurses or local welfare commissioners visit every household with babies aged up to four months. This home visit program, called the "Hello Baby Program," is overseen by the Ministry of Health, Labor, and Welfare. Studies have reported that early postpartum home visits may have positive effects such as encouraging breastfeeding [1,2]. Previous studies from countries other than Japan have considered visits as early as a few days after delivery. In Japan, mothers stay in hospitals during the postpartum period for a few days up to a week. Hence, evidence from other countries may not apply to Japanese mothers. Japanese programs for visiting mothers at home once or twice during the initial months of parenting showed no statistical reduction in maternal parenting stress at four months after delivery [3]. Thus, the effects of postnatal home visits on the parenting stress of mothers with risk factors remain unclear.

In Japan, pregnant women at around 10 weeks of gestation are provided with the Maternal and Child Health (MCH) handbook by municipal offices or municipal health centers. The MCH handbook is used to record information for population-based screening and early detection of children with disabilities [4]. As most women visit the municipal health office to receive the MCH handbook and register themselves during their first trimester of pregnancy, the visit offers an opportunity for public health nurses to identify women who may need help after delivery.

Citation: Watanabe N, Fukase M, Tsutsumi S, Sugiyama A, Yamanouchi K, et al. Effectiveness of Postnatal Home Visits in Reducing Fatigue Among Mothers with Unplanned Pregnancies. Med Discoveries. 2024; 3(1): 1104.

This study aimed to bridge the existing research gap by identifying the risk factors of experiencing fatigue in child-rearing, especially those that can be determined during early pregnancy. Further, this study evaluated the usefulness of postnatal home visits in easing parenting fatigue.

Methods

In this retrospective cohort study, we analyzed data pertaining to mothers who delivered live infants between January and March 2013. Since 2014, the role of public nurses has changed in Japan; maternal and child health coordinators have been appointed in local municipalities across Japan. Therefore, we examined data acquired before 2014. The mothers were provided with a copy of the MCH handbook and received a postnatal home visit under the Hello Baby Program in a city located in Yamagata Prefecture, Japan. Almost all mothers answered the questionnaire following the regular procedure, which was administered to them when they received the MCH handbook from municipal offices or municipal health centers during their first trimester of pregnancy. We extracted mothers' characteristics and factors, including pregnancy history, medical history, smoking and alcohol consumption, unmarried, financial anxiety, absence of supporters, feeling at being pregnant, anxiety during pregnancy, and a history of psychological problems. If they answered the question regarding their feelings with surprise at being pregnant, we considered it an unplanned pregnancy.

The nature of postnatal home visits varied depending on the family's status. If a family conveyed the impression of experiencing child-rearing difficulties to the public nurse, the municipal health center sent a professional public nurse to visit the family; otherwise, the center could choose to send a public health nurse or a local welfare commissioner to the family. The local welfare commissioners are trained volunteers. After the home visit, the children underwent regular health examinations at nine months of age. We also extracted the timing of the postnatal home visits and who conducted the visits from the questionnaire answered by mothers during the child's health examinations at age nine months. If the mother did not answer "no" to the question regarding whether she was fatigued from child-rearing, we considered the mother exhausted. Mothers who did not complete the questionnaire were excluded from the analysis.

To identify the risk factors of parenting fatigue in the first trimester of pregnancy, we compared the exhausted and non-exhausted mothers based on the factors extracted from the questionnaire. We also compared the number of exhausted and non-exhausted mothers during the period from birth to postnatal home visits within the high-risk group (the unplanned pregnancy group). Statistical analysis was conducted using the software EZR [5]. Student's *t*-test and Fisher's exact test were used to examine any differences between groups. $P<.05$ was considered statistically significant. In this study, we anonymized all data and obtained authorization from the ethical review committee of the concerned university (Authorization no. 2018-326). Informed consent was obtained from participants through the opt-out method on a website.

Table 1: Demographic characteristics of the participants.

	At nine months post-delivery		*P* value
	Exhausted *N*=107	Non-exhausted *N*=241	
Maternal age: mean ± SD (years)	30.6±4.7	30.7±4.9	.861
Teenager	0	3 (1.2%)	.556
Multiparous: number (%)	63 (59%)	141 (59%)	>.999
Women who were employed at the time of conception: number (%)	74 (69%)	176 (73%)	.519
Gestational week of receiving MCH† handbook: mean (weeks)	10.5±3.6	10.0±2.2	.137
Smoking in early pregnancy: number (%)	15 (14%)	24 (10%)	.274
Consuming alcohol in early pregnancy: number (%)	26 (24%)	67 (28%)	.515
Unplanned pregnancy	36 (33.6%)	44 (18.3%)	.002
Unmarried	1 (0.9%)	5 (2.1%)	.671
Financial anxiety	10 (9.3%)	22 (9.1%)	>.999
Anxiety during pregnancy	17 (15.9%)	24 (10.0%)	.148
Psychological problems	8 (7.5%)	8 (3.3%)	>.999
Gestational weeks at delivery: mean (weeks)	38.9±1.3	39.0±1.6	.497
Birth weight < 2,500: number (%)	6 (6%)	10 (4%)	.583
Congenital disease in neonate: number (%)	4 (4%)	7 (3%)	.743
Timing of postnatal home visit			
Within two months after birth: number (%)	35 (33%)	91 (38%)	.399
From two to four months: number (%)	72 (67%	150 (62%)	.399
Who conducted the postnatal home visit			
Nurse	76 (71%)	152 (63%)	.179
Local welfare commissioners	31 (29%)	89 (37%)	.179
Absence of supporters	2 (1.9%)	3 (1.2%)	.645

Table 2: Number of exhausted and non-exhausted mothers in the unplanned pregnancy group who received postpartum home visits within two months and four months after delivery, and visitor identity.

	At nine months		*P* value
	Exhausted *N*=36	Non-exhausted *N*=44	
Postnatal home visit			
Within two months	11 (30.6%)	26 (59.1%)	.014
From three to four months	25 (69.4%)	18 (40.9%)	
Who conducted the postnatal home visit			
Nurse	22 (61.1%)	29 (65.9%)	.815
Local welfare commissioner	14 (38.1%)	15 (34.1%)	

Results

Within the study's time frame, 516 babies were born in the city. This study included the mothers of 348 children; the remaining mothers were excluded because they did not complete the postnatal home visit questionnaire or child health examination questionnaire. The eligible mothers were all singleton. The mean maternal age was 30.7 (*SD*=4.84, range 16-44) years. The majority of women were multiparous (*n*=204; 58.6%). All mothers included in this study received postnatal home visits. Over one-third (36.2%) of families received a postnatal home visit within two months after delivery, and 63.8% of families received a home visit within two to four months after delivery. Nurses visited 65.5% of families, and local welfare commissioners visited the remaining 34.5% (Table 1). When the mothers received the MCH handbook in their first trimester of pregnancy, 23.0% answered that they were surprised by their pregnancy, indicating unplanned pregnancies. Further, 11.8% of mothers had pregnancy-related anxiety, and 9.2% experienced financial anxiety.

We analyzed data on mothers' fatigue at nine months after birth. The number of mothers experiencing fatigue at the time of the nine-month health examination of their children was 107 (30.7%); there were significantly more instances of unplanned pregnancies among the exhausted mothers than among the non-exhausted mothers (33.6% vs. 18.3%, *p*=.002).

We also examined the effect of home visits on 80 mothers with unplanned pregnancies. We found that among those in the unplanned pregnancy group who had received postnatal home visits within two months after delivery, significantly more mothers were not exhausted at nine months compared with those who did not receive a visit within that period (59.1% vs. 30.6%, respectively, *p*=.014). Moreover, the person who performed the postnatal home visit—a nurse or welfare commissioner—did not affect mothers' fatigue (Table 2).

Discussion

Unplanned pregnancy was found to be a risk factor for exhaustion related to parenting among mothers, as measured at nine months post-delivery. However, our findings suggest that home visits within the initial two months after delivery may help reduce mothers' fatigue, especially for unplanned pregnancies.

Women with unplanned pregnancies have been reported to demonstrate more mood disturbances than those with planned pregnancies in the ninth month of pregnancy, and at one, six, and twelve months postpartum [6]. This is consistent with our finding that in there were more unplanned pregnancy in exhausted mothers than non-exhausted mothers at nine months. Interestingly, a factor recognizable in the first trimester of pregnancy may affect the mother nine months after birth. There is limited existing data about the course of mothers' fatigue. A Japanese prospective cohort study that examined mothers' postpartum fatigue during the first six months postpartum revealed that fatigue was highest in the first month postpartum and then decreased over the next four months [7]. Although that study did not consider fatigue nine months postpartum, 45% of mothers who had unplanned pregnancies felt fatigue at nine months postpartum in our study. One possible explanation for this finding is that such mothers may have more difficulty in dealing with unexpected concerns as their baby grows because they are not adequately prepared. Although the Hello Baby Program targets families with infants aged under four months, the present study's results recommend a postpartum home visit within two months to reduce subsequent fatigue among mothers who had unplanned pregnancies.

We emphasize the need during the early stages of pregnancy to focus on families requiring support in child-rearing. As mentioned previously, we considered the response of being surprised at the pregnancy as representing an unplanned pregnancy. Asking women whether their pregnancy is planned or unplanned may be a sensitive issue; it may therefore be easier for them to answer if they were surprised by their pregnancy.

Limitations

One of the limitations of our study is we used data from 2013. Newer data may result in other conclusions. Another limitation is that we excluded mothers/families who had moved to another city, had not received home visits, had not taken the scheduled health examination, and those who may have required support with parenting. Moreover, our sample size was relatively small. Research including a larger sample is required.

Conclusion

In conclusion, we recommend postnatal home visits to Japanese mothers with unplanned pregnancies within two months postpartum. Additionally, as our research is based on data obtained before 2014, further research on more recent efforts for supporting child-rearing in Japan is necessary.

Statements

Data availability statement: The data supporting this study will not be shared because we were provided these data only for this study.

Funding statement: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Ethics approval statement: The study was conducted with the approval of the Research Ethics Review Committee of Yamagata University School of Medicine (number: 2018-326) and adhered to the tenets of the Declaration of Helsinki.

Patient consent statement: Informed consent was obtained from participants through the opt-out method on a website.

Permission to reproduce material from other sources: Permitted.

Clinical trial registration: None

Conflict of interest disclosure: The authors declare that there is no conflict of interest.

Acknowledgements: We thank the staff at Yamagata City Public Health Center for their support in this investigation. We would also like to thank Editage (www.editage.com) for English language editing.

References

1. Mannan I, Rahman SM, Sania A, Seraji HR, Arifeen SE, Winch PJ. Bangladesh Projahnmo Study Group. Can early postpartum home visits by trained community health workers improve breastfeeding of newborns? Journal of Perinatology. 2008; 28: 632-640. doi:10.1038/jp.2008.64.

2. Yonemoto N, Dowswell T, Nagai S, Mori, R. Schedules for home visits in the early postpartum period. Cochrane Database of Systematic Reviews. 2017; 8: CD009326. doi:10.1002/14651858.CD009326.pub3.

3. Fujiwara T, Natsume K, Okuyama M, Sato T, Kawachi I. Do home-visit programs for mothers with infants reduce parenting stress and increase social capital in Japan? Journal of Epidemiology and Community Health. 2012; 66: 1167-1176. doi:10.1136/jech-2011-200793.

4. Nakamura Y. Maternal and child health handbook in Japan. JMAJ. 2010; 53: 259-265.

5. Kanda Y. Investigation of the freely available easy-to-use software 'EZR' for medical statistics. Bone Marrow Transplantation. 2013; 48: 452-458. doi:10.1038/bmt.2012.244.

6. Grussu P, Quatraro RM, Nasta MT. Profile of mood states and parental attitudes in motherhood: Comparing women with planned and unplanned pregnancies. Birth. 2005; 32: 107-114. doi:10.1111/j.0730-7659.2005.00353.x.

7. Iwata H, Mori E, Sakajo A, Aoki K, Maehara K, Tamakoshi K. Course of maternal fatigue and its associated factors during the first 6 months postpartum: A prospective cohort study. Nursing Open. 2018; 5: 186-196. doi:10.1002/nop2.130.