ORIGINAL ARTICLE

Postpartum Mental Status in Women with Social Problems at a Japanese perinatal center

Ryuhei Kurashina, Shunji Suzuki

*Department of Obstetrics and Gynecology, Japanese Red Cross Katsushika Maternity Hospital, Tokyo, Japan***Reprint request to:**

Shunji Suzuki, M.D., Department of Obstetrics and Gynecology, Japanese Red Cross Katsushika Maternity Hospital, 5-11-12, Tateishi, Katsushika-ku, Tokyo 124-0012, Japan.
E-mail: czg83542@mopera.ne.jp

Key words:

Japanese perinatal center, mental status, postpartum, specified expectant mother

Received: July 3, 2021**Revised:** August 1, 2021**Accepted:** August 20, 2021**J-STAGE Advance published date:** October 18, 2021

DOI:10.14390/jssh.p.HRP2021-011

We examined the association between ‘specified expectant mothers (SEMs; pregnant women with social problems)’ at our institute and their mental status at one month after delivery. We examined 890 pregnant women who delivered at ≥ 37 weeks of gestation at our institute between January 2019 and October 2019. We excluded mothers with mental disorders requiring medication and whose children were hospitalized in the neonatal intensive care unit. During the study period, there were 148 SEMs with healthy babies (16.6%). The frequency of screening positive on the Japanese version of the Mother-to-Infant Bonding Scale and the Edinburgh Postnatal Depression Scale was higher in SEMs than in non-SEMs ($P=0.04$ and 0.02). In addition, there was a strong positive correlation between scores on the two scales in SEMs ($r^2=0.41$, $P<0.01$). The present results indicate the quantitatively clarify of the mental vulnerabilities in SEMs.

Introduction

In Japan, the term ‘specified expectant mothers (SEMs; pregnant women with social problems)’ is defined as women in need of extra support during the postpartum period due to the risk of abuse, unstable income, mental disorders, etc., by the Ministry of Health, Labour and Welfare.¹⁾ The number of socially isolated mothers has increased in Japan due to the increasing economic wealth gap, increased number of nuclear families, and the collapse of local communities.^{2–4)} Many factors, including psychiatric disorders and unemployment, are known to influence maternal bonding.^{5–7)} For example, low maternal age, poverty, single parenthood, and long-term health problems have been reported to increase the vulnerability of families and children.⁶⁾ In our institute, we have been practicing personalized support for pregnant women with social problems.⁸⁾ To provide efficient support, it will be important to understand the characteristics of these problems because commonly occurring postnatal issues must be managed by midwives and/or obstetricians according to standard protocols in Japan. Despite this, little is known about how the

feelings of ‘SEMs’ toward their babies are affected during the postpartum period. To re-confirm the necessity of effective support, particularly in view of the mental status of SEMs, we examined the association between ‘SEMs’ and their mental status one month after delivery.

Materials and methods

The study protocol was approved by the Ethics Committee of Japanese Red Cross Katsushika Maternity Hospital. Informed consent concerning retrospective analyses was obtained from all subjects at their first visit.

The following pregnant women are recognized as SEMs in western Tokyo, where our institute is located:⁴⁾ (1) those who had not been examined until mid-pregnancy and those who have not prepared for childbirth, (2) teenage women, (3) unmarried women, (4) those who had problems with their previous children, (5) those with mental disorders, (6) those with unwanted pregnancy and/or conflict with pregnancy, (7) those living in poverty and/or with unemployed partners, (8) those of foreign nationality, (9) those receiving intimate partner violence (IPV), (10) those who cannot expect

childcare support, (11) those who are thought to be anxious due to aggressive and/or impulsive attitudes, (12) those with alcohol or drug dependence, (13) those who move frequently from one place to another, and (14) those with children with medical problems, such as premature infants and disabled children. In this study, women with at least one of these social risk factors were recognized as 'SEMs'.

During pregnancy and the postpartum period, social problems of SEMs were supported through multi-disciplinary teams consisting of midwives, clinical psychologists, medical social workers, regional administrative staff, and doctors.^{4,8-10)} One month after delivery, we examined the status of maternal bonding toward babies using the Japanese version of the Mother-to-Infant Bonding Scale (MIBS-J), which was translated by Yoshida et al.¹¹⁾ with minor modifications. The MIBS-J is a simple self-administered questionnaire designed to detect problems with a mother's feelings towards her baby.¹¹⁻¹⁵⁾ The MIBS-J has been shown to have acceptable reliability and reasonable construct validity with respect to affection and anger/rejection in Japanese postpartum women. If the score of at least one of the third and fifth questions (third question: feel resentful toward my baby; fifth question: feel angry toward my baby) is ≥ 1 , it was possible that feeling-related problems also existed.¹¹⁾ Maternal mental status was examined based on scores on the Edinburgh Postnatal Depression Scale (EPDS) at one month after delivery. In the present study, women with an EPDS score ≥ 9 points were considered to have screened positive (i.e., 50% possibility of depression), according to the results of previous observations in Japan by Okano et al.^{16,17)}

In our institute, the MIBS-J and EPDS have been used as screening tools at the one-month postpartum outpatient visit. SEMs who screened positive on the MIBS-J (≥ 3) or/and EPDS (≥ 9), and those considered to be anxious, attend interviews with appropriately selected staff in order to tackle their problems.^{4,8-10)}

We examined all pregnant Japanese women who delivered at ≥ 37 weeks of gestation at our institute between January 2019 and October 2019. Mothers with moderate or serious mental disorders requiring medication and whose children were hospitalized in the neonatal intensive care unit (NICU) were excluded, because most already required specialized professional care. We do not carry out screenings for foreigners who cannot speak Japanese.

We also examined the relationship between EPDS and MIBS-J scores,^{8,18,19)} as well as factors scoring highly in both questionnaires by SEMs. Unfortunately, details regarding MIBS-J items could not be examined due to the disposal of some recording paper. Again, staff at our institute have asked the situation with taking enough time

Table 1. Clinical characteristics of specified expectant mothers

	Specified expectant mothers		P value
Total number	742	148	
Nulliparous women	365 (49)	72 (49)	0.93
Maternal age < 20 years	6 (1)	8 (5)	<0.01
Maternal age ≥ 35 years	306 (41)	49 (33)	0.07
Cesarean delivery	250 (34)	43 (29)	0.29
History of mental disorders	6 (1)	15 (10)	<0.01

Data are presented as number (percentage).

Table 2. Mental screening of specified expectant mothers

	Specified expectant mothers		P value
Total number	742	148	
MIBS-J ≥ 3	148 (20)	43 (29)	<0.01
MIBS-J ≥ 5	58 (8)	20 (14)	0.04
EPDS ≥ 9	67 (9)	23 (16)	0.02

Data are presented as number (percentage).

MIBS-J, Japanese version of the Mother-to-Infant Bonding Scale; EPDS, Edinburgh Postnatal Depression Scale.

from the women with positive screening of the MIBS-J (≥ 3) regardless of the content such as lack of affection or anger/rejection.

Data are presented as mean $\pm$ SD or number (%). SPSS Statistics software version 20 (IBM Corp., Armonk, NY, USA) was used for statistical analyses. The χ^2 test was used for categorical variables. Linear regression was performed by the least-squares methods. $P < 0.05$ was considered statistically significant.

Results

During the study period, there were 148 SEMs (16.6%) with healthy babies among 890 pregnant women who delivered at ≥ 37 weeks of gestation at our institute. Table 1 shows the clinical characteristics of these SEMs. The proportion of SEMs increased significantly year by year ($P < 0.01$). Forty-eight SEMs were supported by regional administrative staff during pregnancy and the postpartum period. Proportions of teens and women with a history of mental disorders were higher among SEMs than non-SEMs ($P < 0.01$).

Table 2 shows the percentage of SEMs and non-SEMs who screened positive on the MIBS-J and EPDS. The percentage of SEMs who screened positive on these scales was higher than that of non-SEMs (MIBS-J ≥ 3 :

Figure 1. Relationship between scores on the Japanese version of the Mother-to-Infant Bonding Scale (MIBS-J) and the Edinburgh Postnatal Depression Scale (EPDS) in specified expectant mothers at one month after delivery (MIBS-J score = $0.26 + 0.51 \times$ EPDS score, $r^2 = 0.41$, $P < 0.01$).

29% vs. 20%, odds ratio 1.92, 95% confidence interval 1.3–2.9, $P < 0.01$; MIBS-J ≥ 5 : 14% vs. 8%, odds ratio 1.76, 95% confidence interval 1.0–3.0, $P = 0.04$; EPDS ≥ 9 : 16% vs. 9%, odds ratio 1.85, 95% confidence interval 1.1–3.1, $P = 0.02$).

Figure 1 shows the relationship between MIBS-J and EPDS scores. In non-SEMs, there was a weak positive correlation between scores of the two scales (MIBS-J score = $0.34 + 0.34 \times$ EPDS score, $r^2 = 0.18$, $P = 0.04$). In contrast, there was a strong positive correlation between scores of the two scales in SEMs (MIBS-J score = $0.26 + 0.51 \times$ EPDS score, $r^2 = 0.41$, $P < 0.01$).

There were 19 women with high scores for both scales (MIBS-J ≥ 5 and the EPDS ≥ 9). The main multiple recognized factors evaluated as SEMs in them were IPV ($n = 8$), previous history of mental disorders ($n = 6$), and economic problems ($n = 6$) (duplicate).

Discussion

In the present study, the postpartum mental status of SEMs was worse than that of non-SEMs, as reflected by scores for both the EPDS and MIBS-J. Although women with social problems are known to be at increased risk of postpartum mental disorders, our results suggest that the extraction as ‘SEM’ managed at our institute seems to be clear as an adequate assessment. In addition, we identified a stronger correlation between EPDS and MIBS-J scores in SEMs compared to non-SEMs. To date, some Japanese studies reported moderate correlations between the two scales, indicating postpartum depression and mother-infant bonding.^{11,20} While the MIBS-J is a screening test of affection for babies and its scores do not directly reflect the risk of abuse,²¹ without adequate

support, bonding disorders can lead to child abuse as well as developmental dysfunction in children. Based on the related perspectives of mental status associated with bonding and child rearing, our results emphasize the importance of social support for SEMs.

To date, background factors underlying SEMs have been presumed to overlap with risk factors for perinatal depression. Therefore, in the perinatal field, it is considered effective to implement mental health care in the treatment of SEMs.^{2,3,22–24} While the present results confirm the importance of supporting SEMs, they also suggest that our multidisciplinary support efforts are not sufficient to improve their postpartum situation.

IPV, previous history of mental disorders, and economic problems were identified in the present study to be factors associated with postpartum depression and bonding disorders. In other words, these factors are associated with the risk of postpartum mental problems within oneself and with others. IPV against women is the most pervasive violation of women’s rights worldwide, causing devastating lifelong damage.^{25,26} Maternal psychiatric history is reportedly associated with infant complications for which mother-infant bonding is a mediating factor.²⁷ Furthermore, it has long been pointed out that economic problems are related to postpartum problems.^{27,28} It has been also a characteristic that these problems are often duplicated. Our findings are consistent with these previous findings.

In Japan, the relationship of pregnancy with social problems and child-rearing difficulties and/or child abuse is examined every year by the Ministry of Health, Labor and Welfare.²⁷ All pregnant women have the potential to develop mental health problems, although these problems are more likely to develop in pregnant women with social problems. For instance, we previously reported that self-interruption of medication occasionally occurs in women with mental disorders during pregnancy,^{28,29} especially among women with social problems because they and their families have the mistaken notion that medications lead to adverse outcomes in pregnancy. In addition, the stress of pregnancy may be easy to hunt down their psychological status because there is no room in their life. They may become negative chains in their lives and these in turn can lead to the adverse psychological status of their children. Therefore, proper education and sufficient support for SEMs are needed to prevent mental disorders during the postpartum period.

The present study has the following limitations: (1) small sample size, (2) case-control study design, (3) examination of screening test results without definitive diagnosis of mental disorders, (4) exclusion of foreigners and women with serious mental disorders, and (5) lack of analysis of MIBS-J details. A larger-scale study to examine the effects of other influential factors is

warranted.

Conclusion

The present study quantitatively assessed the mental vulnerabilities of SEMs and revealed the possibility that inadequate care for SEMs might lead to child abuse. Our results suggest that SEMs require comprehensive child-rearing support.

Article information

Consent

The study was approved by the Ethics Committee of the Japanese Red Cross Katsushika Maternity Hospital. Informed consent for publication of this report was obtained from patients.

Grant information

No grants were involved in supporting this work.

Funding

None to report.

Conflict of interest statement

The authors declare no conflict of interest relevant to this article.

Author contributions

Shunji Suzuki: project development, data management, data analysis, and manuscript writing/editing.

Ryuhei Kurashina: project development, data collection, data analysis, and manuscript writing/editing.

Data availability statement:

All data analyzed during this study are included in the article. Further inquiries can be directed to the corresponding author.

References

1. Fujiwara T, Yamaoka Y, Kawachi I. Neighborhood social capital and infant physical abuse: a population-based study in Japan. *Int J Ment Health Syst.* 2016; 10: 13.
2. Ministry of Health, Labor and Welfare. Parenting support visit business guideline (in Japanese). <https://www.mhlw.go.jp/bunya/kodomo/kosodate08/03.html> (May 2, 2021).
3. Ministry of Health, Labor and Welfare. Child abuse prevention measures (in Japanese). <https://www.mhlw.go.jp/english/> (May 2, 2021).
4. Suzuki S, Eto M. Current status of social problems during pregnancy at a Perinatal Center in Japan. *JMA J.* 2020; 3: 307–312.
5. Duggan AK, Berlin LJ, Cassidy J, Burrell L, Tandon SD. Examining maternal depression and attachment insecurity as moderators of the impacts of home visiting for at-risk mothers and infants. *J Consult Clin Psychol.* 2009; 77: 788–799.
6. MacElveen-Hoehn P, Eyres SJ. Social support and vulnerability: state of the art in relation to families and children. *Birth Defects Orig Artic Ser.* 1984; 20: 11–43.
7. Herbert M, Sluckin W, Sluckin A. Mother-to-infant bonding. *J Child Psychol Psychiatry.* 1982; 23: 205–221.
8. Suzuki S. Recent status of pregnant women with mental disorders at a Japanese perinatal center. *J Matern Fetal Neonatal Med.* 2018; 31: 2131–2135.
9. Suzuki S. Clinical significance of pregnancy in adolescence in Japan. *J Matern Fetal Neonatal Med.* 2019; 32: 1864–1868.
10. Suzuki S. Perinatal mental health care and multi-disciplinary collaboration (in Japanese). *Acta Obstetrica et Gynecologica Japonica.* 2019; 71: 593–597.
11. Yoshida K, Yamashita H, Conroy S, Marks M, Kumar C. A Japanese version of Mother-to-Infant Bonding Scale: factor structure, longitudinal changes and links with maternal mood during the early postnatal period in Japanese 160 mothers. *Arch Womens Ment Health.* 2012; 15: 343–352.
12. Kamibeppu K, Furuta M, Yamashita H, Sugishita K, Suzumiya H, Yoshida K. Training health professionals to detect and support mothers at risk of postpartum depression or infant abuse in the community: a cross-sectional and a before and after study. *Biosci Trends.* 2009; 3: 17–24.
13. Kumar R. “Anybody’s child”: severe disorders of mother-to-infant bonding. *Br J Psychiatry.* 1997; 171: 175–181.
14. Suzumiya H, Yamashita H, Yoshida K. Depressive and bonding disorders in mothers after childbirth (in Japanese). *Arch Psychiatr Diagn Clin Eval.* 2003; 14: 49–57.
15. Matsunaga A, Takaura F, Tada K, Kitamura T. Discrete category of mother-to-infant bonding disorder and its identification by the 168 Mother-to-Infant Bonding Scale: A study in Japanese mothers of a 1-month-old. *Early Hum Dev.* 2017; 111: 1–5.
16. Okano T, Nomura J, Kumar R, et al. An epidemiological and clinical investigation of postpartum psychiatric illness in Japanese mothers. *J Affect Disord.* 1998; 48: 233–240.
17. Okano T. Perinatal depression-recent topics (in Japanese). *Nihon Rinsho.* 2007; 65: 1689–1693.
18. Shibata Y, Suzuki S. Comparison of the Edinburgh Postnatal Depression Scale and the Whooley questions in screening for postpartum depression in Japan. *J Matern Fetal Neonat Med.* 2020; 33: 2785–2788.
19. Suzuki S. How to promote ‘discipline without tough love’ during pregnancy: a randomized controlled trial. *F1000Res.* 2019; 8: 1946.
20. Suetsugu Y, Honjo S, Ikeda M, Kamibeppu K. The Japanese version of the Postpartum Bonding Questionnaire: Examination of the reliability, validity, and scale structure. *J Psychosom Res.* 2015; 79: 55–61.
21. Brockington IF, Fraser C, Wilson D. The Postpartum Bonding Questionnaire: a validation. *Arch Womens Ment Health.* 2006; 9: 233–242.
22. Japanese Society of Perinatal Mental Health. Perinatal Mental Health Consensus Guide 2017 (in Japanese). <http://pmhguideline.com/> (May 2, 2021).
23. Suzuki S. Perinatal mental health care and multidisciplinary cooperation (in Japanese). *Acta Obstetrica et Gynecologica Japonica.* 2019; 71: 593–598.

24. Fukuda I. Child first: continuous support during pregnancy (in Japanese). *Iryo*. 2019; 73: 256–259.
25. Tullio V, Lanzarone A, Scalici E, Vella M, Argo A, Zerbo S. Violence against women in heterosexual couples: A review of psychological and medico-legal considerations. *Med Sci Law*. 2021; 61(suppl): 113–124.
26. Suzuki S, Yamada F, Eto M. Influence of intimate partner violence on mental status in Japanese women during the first trimester of pregnancy. *J Matern Fetal Neonat Med*. 2018; 31: 1524–1526.
27. Ministry of Health, Labor and Welfare. About verification results such as death cases due to child abuse (in Japanese). https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000190801_00001.html (May 2, 2021).
28. Suzuki S. Economic problems and mental disorders in Japanese pregnant women. *J Clin Med Res*. 2015; 7: 367.
29. Suzuki S. Recent reason for hindering medications for perinatal mental disorders in Japan. *J Clin Med Res*. 2017; 9: 950–952.