Received: 16 October 2020 | Revised: 17 December 2020 | Accepted: 3 January 2021

DOI: 10.1002/1348-9585.12196

ORIGINAL ARTICLE

Journal of Occupational Health Open Access WILEY

Association between maternity harassment and depression during pregnancy amid the COVID-19 state of emergency

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Funding information
Japan Society for the Promotion of Science, Grant/Award Number: JP18K17398

Abstract

Objectives: Maternity harassment, known in English as pregnancy discrimination, remains prevalent in developed countries. However, research examining the mental health effects of maternity harassment is lacking. We aimed to examine the association between maternity harassment and depression during pregnancy in Japan.

Methods: A cross-sectional Internet survey was conducted on 359 pregnant employees (including women who were working at the time their pregnancy was confirmed) from May 22 to May 31, 2020, during which time a COVID-19 state of emergency was declared. Maternity harassment was defined as being subjected to any of the 16 adverse treatments prohibited by national guidelines. Depression was defined as a score of ≥9 on the Edinburgh Postnatal Depression Scale (Japanese version). Logistic regression analysis was performed.

Results: Overall, 24.8% of the pregnant employees had experienced maternity harassment by supervisors and/or colleagues. After adjusting for demographics, pregnancy status, work status, and fear of COVID-19, pregnant employees who experienced maternity harassment were more likely to have depression than those who did not (odds ratio 2.48, 95% confidential interval 1.34-4.60). This association was not influenced by whether they were teleworking or not as a COVID-19 measure.

Conclusions: One quarter of pregnant employees experienced maternity harassment and had a higher prevalence of depression than those who did not. Being physically away from the office through teleworking may not reduce the effect of maternal harassment on depression. To protect the mental health and employment of pregnant women, employers should comply with the laws and take measures to prevent maternity harassment.

KEYWORDS
maternity harassment, mental health, pregnancy discrimination, pregnant employees

1 | INTRODUCTION

Maternity harassment (MH) is a major challenge for occupational health and gender equality in the workplace worldwide, despite its widespread illegality.[1] MH, known in English as pregnancy discrimination, is a Japanese term used in official documents and is defined by law as adverse treatment or harassment in the workplace against women based on pregnancy, childbirth, and requesting or taking childcare leave/family care leave, etc.[2] MH can negatively affect the health, income, and career of pregnant employees.[3,4] In addition, the loss of employees due to MH is costly to employers in terms of recruiting and training new employees, and, in some cases, lawsuits.[5] Thus, the prevention of MH is important not only from a maternal protection perspective but also from the company management perspective.

Although there has been research on MH in the legal field,[6-8] little research has so far been conducted on the mental health effects of MH. As far as we know, one US study prospectively examined the effects of MH on mothers' postpartum depressive symptoms by distributing online surveys to 252 pregnant full-time women.[3] This study found that perceived MH is indirectly associated with mothers' postpartum depressive symptoms via perceived stress during pregnancy.[3] However, the findings produced by only one study are limited in their generalizability, and thus further research is needed to replicate these findings in other contexts and settings.

In Japan, MH is prohibited by the Equal Employment Opportunity Act (amended in 2007) and the Child Care and Family Care Leave Act (amended in 2001). Under these Acts, since 2017, employers have been required to take preventive measures to ensure that MH does not harm the work environment of pregnant employees.[2] However, many women suffer from MH. Three Internet surveys have so far been conducted on MH.[9-11] All three surveys asked women who had been pregnant while working in the past about their experiences of MH and found that about one in five women had experienced MH.[9-11]

Therefore, our study aimed to examine the cross-sectional association of MH with depression during pregnancy among pregnant employees using an Internet survey. Our study also examined how many pregnant women were aware of whether the company takes measures to prevent MH in accordance with the Acts. We hypothesized that pregnant women who experienced MH were more likely to have depression than those who had not. Depression during pregnancy is associated with postnatal depressive symptoms and adverse birth outcomes,[12,13] so its prevention is important.

The timeframe for our data collection overlapped with the coronavirus disease 2019 (COVID-19) state of emergency.[14] The Japanese government declared a state of emergency on April 7, 2020, and lifted this declaration on May 25, 2020. Under this declaration, governors requested residents to stay at home, except for essential activities, and companies to close their businesses or telecommute whenever possible. Although their requests did not have any legal force, there were participants who were physically away from their supervisors or colleagues. Thus, we examined whether teleworking affected the association between MH and depression in our analyses.

2 | METHODS

2.1 | Participants

This was a cross-sectional study using the baseline data from the ongoing Internet follow-up study that examined the association between the experiences of maternal harassment during pregnancy and postpartum maternal and child health. We outsourced our Internet survey to JMA Research Inc, which has been entrusted with surveys and research by government agencies and private companies for over 20 years and manages online monitors from all over Japan. From these monitors, the baseline survey recruited 400 pregnant working women who were at 8 weeks' gestation or later or women who were working at the time the pregnancy had been confirmed and was conducted from May 22 to May 31, 2020. The baseline survey collected data on sociodemographics, working status, the experience of MH, responses to MH, and physical and mental health. We restricted our analyses to employed women and excluded 10 corporate officers, 6 self-employed women, and 5 women whose employment status was unknown. We also excluded 20 women with a history of mental disorders. A total of 359 pregnant women were included in this study.

This study was conducted according to the principles expressed in the Declaration of Helsinki and was approved by the Kitasato University Medical Ethics Organization (No. B18-281). Before participating in the online survey, the respondents read the explanation of the survey and understood that participation was voluntary. We considered their response to the survey as signifying their consent to participate. JMA Research Inc provided the data to us in an anonymized form that did not identify the individual. Those who responded to both the baseline and follow-up surveys will receive a small monetary award.

2.2 | Depression during pregnancy

Depression during pregnancy was measured using the Japanese version of the Edinburgh Postnatal Depression Scale, a self-rated 10-item scale that screens for both antenatal and postpartum depression.[15,16] The scale rates the intensity of depressive symptoms present within the previous 7 days.

Each item is scored on a 4-point Likert scale (ranging from 0 to 3), and the total score ranges from 0 to 30. The Cronbach's α coefficient for the total score was 0.87. We used a cutoff point of ≥9 for probable depression, which is recommended for use in clinical settings by the Japan Association of Obstetricians and Gynecologists, because the cutoff point during pregnancy has not been established in Japan.[17]

2.3 | Maternity harassment

According to a previous study,[10] MH was assessed by asking respondents if they had ever been subjected to any of a range of 16 adverse treatments or harassments (see Table 1), which listed specific examples of adverse treatment that should be prohibited by national guidelines.[18] Those who had already left the company were asked to describe their experiences at work when pregnancy had been confirmed. Respondents who experienced any of the 16 items were asked the following four additional questions (see Tables S2-S5): (a) possible reasons for MH, (b) people who have committed MH, (c) how to deal with MH, and (d) the outcome of dealing with MH.

2.4 | Covariates

A broad set of baseline covariates, which could be associated with either MH or depression during pregnancy, included: (a) demographics (age and education), (b) pregnancy status (number of fetuses, weeks of gestation), (c) work status (type of employment, organizational tenure, company size, occupation, the mode of work, weekly working hours, one-way commuting time, work schedule), and (d) fear of COVID-19 (see Table S1).

2.5 | Awareness of Employer's compliance with the acts

Respondents were asked whether their employers took the following three measures to prevent MH required by the Acts: (a) Are there any provisions in the work rules that prohibit MH?, (b) Are there any disciplinary provisions in the work rules for workers who engage in MH?, and (c) Establishment of an MH consultation service. Response options were "Yes," "No," or "I don't know."

2.6 | Statistical analysis

We first calculated the percentage of respondents who were subjected to 16 adverse treatments or harassment. Respondents who experienced any one or more of the 16 items were classified as having experienced MH. Second, the respondents' characteristics were described as either percentages or means (SD) by whether they experienced MH. Third, logistic regression analysis was performed to examine the association between MH and depression. We estimated three models: crude model; model 1, including age; and model 2, including all covariates. Fourth, we examined the respondents' awareness of whether the company takes measures to prevent MH. Finally, we stratified respondents into two groups, namely, teleworking or working in the

TABLE 1 The experience of maternity harassment among pregnant employees (N = 359)

		N	(%)
1	Dismissal	5	(1.4)
2	End of employment contract	6	(1.7)
3	Reduction in the number of contract renewals	4	(1.1)
4	Forced you to resign	12	(3.3)
5	Forced conversion from permanent to non-permanent employee	8	(2.2)
6	Demotion	5	(1.4)
7	Pay cut	14	(3.9)
8	Unfavorable bonus calculation, etc	13	(3.6)
9	Adverse reassignment	13	(3.6)
10	Unfavorable stay-at-home orders	9	(2.5)
11	Unfavorable evaluations in personnel evaluations for promotion and advancement	8	(2.2)
12	They wouldn't let me work or they made me do exclusively menial tasks	11	(3.1)
13	I've received statements that suggest one of 1-12	30	(8.4)
14	I was prevented from using the systems related to pregnancy, childbirth, and childcare, such as maternity leave and childcare leave	22	(6.1)
15	Mentally harassed (sarcastic, being ignored, etc)	37	(10.3)
16	Physically harassed (forcing you to stand, smoking nearby, etc)	14	(3.9)
	One or more of the above 16 items	89	(24.8)

office, to examine whether the association between MH and depression differed by mode of work. We excluded from this stratified analysis those who had already retired. All statistical tests were two sided, with a 5% significance level. All analyses were conducted using SAS version 9.3 for Windows (SAS Inc, Cary, NC, USA).

3 | RESULTS

Table 1 shows that 24.8% of pregnant employees received one or more adverse treatments. A relatively high percentage of pregnant women were subjected to mental harassment (10.3%), suggested dismissal, etc (8.4%), or were prevented from using systems related to pregnancy, childbirth, and childcare (6.1%). Although the percentage was small, some pregnant women were subjected to serious adverse treatment, including dismissal (1.4%), end of employment contract (1.7%), and forcing them to resign (3.3%).

Among pregnant women who experienced MH (N = 89), relatively frequent reasons for MH (Table S2) were pregnancy itself (70.8%) and reduced work efficiency or taking leave due to morning sickness, impending miscarriage, etc (36.0%), and requesting maternity and childcare leave (18.0%). The most frequently reported people who had committed MH (Table S3) were female immediate supervisor (27.0%), followed by male immediate supervisor (25.8%), female colleague or subordinate (18.0%), and male officer or higher-level supervisor (16.9%). To deal with MH (Table S4), 49.4% talked to their family, while 44.9% persevered or did nothing. As a result (Table S5), 31.5% reported "unresolved, patient," 19.1% reported "unresolved, retired, or plan to retire," and 19.1% reported "resolved."

Table 2 shows the characteristics of pregnant employees based on the experience of MH. Pregnant employees who experienced MH were more likely to have the following in comparison to those who did not experience MH: lower educational levels, part-time work, shorter organizational tenure, employed in smaller companies, employed in service, and frequently fear about contracting COVID-19.

Almost half of the pregnant employees who experienced MH had depressive symptoms (47.2%), while the comparable prevalence was 25.2% for those who had not experienced MH. Table 3 shows the odds ratios (ORs) and 95% confidence intervals (95% CIs) of depression with logistic regression analyses. Pregnant employees who experienced MH were more likely to have depression than those who had not (OR 2.66, 95% CI 1.61-4.37). The ORs remained significant after adjustment for age (OR 2.73, 95% CI 1.65-4.53) and after additional adjustments for all covariates (OR 2.48, 95% CI 1.34-4.60).

Regarding awareness of whether the company takes measures to prevent MH (Table 4), 28.4% of pregnant employees reported that their work rules had a provision prohibiting MH. Similarly, 16.4% of pregnant employees reported that their work rules had disciplinary provisions for workers who engage in MH, and 25.4% of them reported that a MH consultation service was established. However, around half of the women reported that they did not know if these three measures were taken.

In the analyses stratified by mode of work, MH was significantly associated with depression among pregnant women who telecommunicated (OR 4.80, 95% CI 1.01-22.83). An association in the same direction was observed for pregnant women who worked in the office (OR 3.14, 95% CI 0.97-10.18), although the association was not significant.

4 | DISCUSSION

This study demonstrated that one quarter of pregnant employees experienced MH by supervisors and/or colleagues, and they had a 2.5-fold higher prevalence of depression than those who had not experienced MH. However, around half of the pregnant employees did not know whether their employer takes measures to prevent MH in accordance with the Acts. Teleworking (physical distance from work) did not appear to influence the association between MH and depression.

We observed a significant association between MH and depression during pregnancy. This result is consistent with both our hypothesis and the findings of previous longitudinal studies conducted in the US, which suggest that perceived MH is indirectly associated with mothers' postpartum depressive symptoms mediated by perceived stress during pregnancy.[3] The United States is a country where more than 50,000 pregnancy discrimination claims have been filed over the last decade,[19,20] while Japan is a country where, as our results show, the majority of pregnant employees persevere or do not take action against MH. Despite this contextual difference, similar results were obtained.

Our survey was conducted under the unique circumstances of the COVID-19 state of emergency. However, the MH-depression association observed in our study was independent of the stress caused by the spread of COVID-19, as the association was significant after adjustment for the fear of COVID-19. In addition, our results suggest that teleworking may not reduce the effect of maternal harassment on depression, implying that being physically away from supervisors and/or colleagues may not be an effective measure of MH.

The rate of having experienced MH in this study (24.8%) was the same or slightly higher than in previous Japanese surveys,[9-11] despite the different target populations. That is, we targeted pregnant employees, but previous surveys targeted women who had been pregnant while working in the past. Unlike previous studies, we observed that part-time employees had a higher experience rate of MH than full-time

TABLE 2 Characteristics of pregnant employees by the experience of maternity harassment (N = 359)

	Experience	No experience
	N(%) or mean ± SD	
Demographics		
Age		
Mean ± SD years	31.3 ± 4.8	31.2 ± 4.6
Education		
Junior high/high school	16 (18.0)	33 (12.2)
Junior/4-year college degree or greater	71 (79.8)	237 (87.8)
Don't know	2 (2.3)	0 (0.0)
Pregnancy status		
Number of fetuses		
1	83 (93.3)	260 (96.3)
2 or more	6 (6.7)	10 (3.7)
Weeks of gestation		
8-13 weeks	9 (10.1)	30 (11.1)
14-27 weeks	33 (37.1)	107 (39.6)
28-41 weeks	47 (52.8)	133 (49.3)
Work status		
Type of employment		
Full-time permanent	51 (57.3)	174 (64.4)
Part-time	33 (37.1)	67 (24.8)
Contract or entrusted	4 (4.5)	22 (8.2)
Dispatched[c]	1 (1.1)	7 (2.6)
Organizational tenure		
Mean ± SD years	4.4 ± 3.8	5.3 ± 4.2
Company size		
1-29	22 (24.7)	32 (11.9)
30-299	30 (33.7)	71 (26.3)
300-999	13 (14.6)	49 (18.2)
1000 or more	19 (21.4)	111 (41.1)
Civil service office	5 (5.6)	7 (2.6)
Occupation		
Manager	0 (0.0)	2 (0.7)
Professional/technician (medical, health, welfare, and education)	23 (25.8)	68 (25.2)
Professional/technician (others)	1 (1.1)	17 (6.3)
Clerical	30 (33.7)	102 (37.8)
Sales	11 (12.4)	29 (10.7)
Service	17 (19.1)	26 (9.6)
Security/transportation/labor	4 (4.5)	5 (1.9)
Others	3 (3.4)	21 (7.8)
Mode of work		
Telecommuting	34 (38.2)	119 (44.1)
Working in the office	40 (44.9)	119 (44.1)
Already retired	15 (16.9)	32 (11.9)

(Continues)

TABLE 2 (Continued)

	Experience	No experience
	N(%) or mean ± SD	
Weekly working hours		
≤39 hours	50 (56.2)	138 (51.1)
40-49 hours	32 (36.0)	119 (44.1)
≥50 hours	7 (7.9)	13 (4.8)
One-way commuting time		
≤29 minutes	50 (56.2)	138 (51.1)
30-59 minutes	26 (29.2)	87 (32.2)
≥60 minutes	13 (14.6)	45 (16.7)
Work schedule		
Day-shift only	79 (88.8)	249 (92.2)
Night or shift work	10 (11.2)	21 (7.8)
COVID-19		
Fear of COVID-19		
Not at all	5 (5.6)	34 (12.6)
Sometimes	29 (32.6)	113 (41.9)
Quite often	28 (31.5)	68 (25.2)
Always	27 (30.3)	55 (20.4)
Depression during pregnancy		
Presence (EPDS of ≥ 9)	42 (47.2)	68 (25.2)
Absence (EPDS of < 9)	47 (52.8)	202 (74.8)

Note: EPDS, Edinburgh Postnatal Depression Scale.

TABLE 3 The association between maternity harassment and depression among pregnant employees (N = 359)

	Crude model		Model 1[a]		Model 2[b]	
Maternity harassment	OR	95% CI	OR	95% CI	OR	95% CI
Experience	2.66	1.61-4.37*	2.73	1.65-4.53*	2.48	1.34-4.60*
No experience	1.00		1.00		1.00	

Note: 95% CI, 95% confidence intervals; OR, Odds ratios.

Occupation, mode of work, work hours, commute time, work schedule, and fear of Covid-19.

[a]Adjusted for age.

[b]Adjusted for age, education, number of fetuses, weeks of gestation, type of employment, organizational tenure.

*$P < 0.05$.

permanent employees. This difference may be due to the deterioration of the service industry's business due to the request for closure given the COVID-19 pandemic.

Before the COVID-19 pandemic, part-time employees were less likely to be a victim of MH than full-time permanent employees probably because non-regular employees were more likely to resign voluntarily when they were pregnant and were less likely to feel pressure to work longer and harder.[9] However, COVID-19 business closures changed the situation. According to the Labor Force Survey on May 2020,[21] compared to the same month last year, the number of part-time employees fell by 680,000 to 14.07 million, while the number of full-time employees fell by only 10,000 to 35.34 million. As for the type of occupation, the number of employees dropped significantly in the service sector, including hotels, restaurants, and apparel. Thus, pregnant part-time employees could be the first to be fired or dismissed due to their vulnerable position. Since the economic situation is predicted to continue to deteriorate, part-time employees will continue to be vulnerable to MH for a while.

Even though Japan has legislation to prevent MH, many pregnant employees may be unaware of it; around half of

TABLE 4 Awareness of employer's compliance with the Acts

		N	(%)
Are there any provisions in the work rules	Yes	102	(28.4)
That prohibit maternity harassment?	No	76	(21.2)
	I don't know	181	(50.4)
Are there any disciplinary provisions in the work rules for workers	Yes	59	(16.4)
Who engage in maternity harassment?	No	82	(22.8)
	I don't know	218	(60.7)
Is there any maternity harassment consultation service in place?	Yes	91	(25.4)
	No	99	(27.6)
	I don't know	169	(47.1)

them did not know whether their employer takes measures to prevent MH in accordance with the Acts. This may be partly why about half of them preserved MH or did nothing to deal with MH. In addition, more than 20% of pregnant employees reported that no measures are taken to prevent MH in their company. Thus, pregnant employees should be aware of the laws on MH to protect themselves, and employers should comply with the laws in order to prevent MH.

To our knowledge, this is the first study in Japan to demonstrate an association between MH and depression during pregnancy among pregnant employees. However, our study had some limitations. First, due to the study's cross-sectional nature, we were not able to establish the causality between maternity harassment and depression during pregnancy. Second, because we used respondents' self-reports of predictor and outcome variables, an underlying negative reporting style or negative affectivity could have led to a spurious association between MH and depression during pregnancy. However, the exclusion of those with a history of mental disorders and the adjustment for fear of COVID-19 may partly decrease possible confounding effects of negative reporting style or negative affectivity. Third, the validity of our measurement of MH may not have been sufficient. Finally, the generalizability of our findings is limited because our sample was recruited through the Internet and during the COVID-19 pandemic. Pregnant employees who were interested in or experienced MH may have participated in the survey more and, as a result, the frequency of MH in this study may be higher than that of the population.

In conclusion, the results of this cross-sectional study indicated that MH was associated with depression during pregnancy among pregnant employees. We will examine the longitudinal association between MH and postpartum depression using data from a follow-up survey. During the COVID-19 pandemic, part-time employees in the service sector may be vulnerable to MH. The government should instruct the company to comply with the law on MH.

ACKNOWLEDGMENTS

This work was supported by JSPS KAKENHI Grant Number JP18K17398. We are grateful to the NPO Corporation Matahara Net for allowing us to hear from victims of maternity harassment.

AUTHOR CONTRIBUTIONS

YK concepted the study, analyzed and interpreted data, and drafted and critically revised the article. TF, HE, IA, SB, HO, and AT revised the questionnaire, interpreted the data, and critically revised the article. All authors read and approved the final manuscript.

DISCLOSURE

Approval of the research protocol: This study was conducted according to the principles expressed in the Declaration of Helsinki and was approved by the Kitasato University Medical Ethics Organization (No. B18-281). *Informed consent:* Before participating in the online survey, the respondents read the explanation of the survey and understood that participation was voluntary. We considered their response to the survey as signifying their consent to participate. Registry and the registration no. of the study/trial: N/A. *Animal Studies:* N/A. *Conflict of Interest:* The authors declare no competing financial interests.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

How to cite this article: Kachi Y, Fujiwara T, Eguchi H, et al. Association between maternity harassment and depression during pregnancy amid the COVID-19 state of emergency. *J Occup Health*. 2021;63:e12196. https://doi.org/10.1002/1348-9585.12196