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The Short-Term Impacts of Japan's 2024 Physician Working-Hour Limits on Labor Conditions, Self-Directed Professional Development, and Happiness Among Obstetrician-Gynecologists

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ABSTRACT

Objective: To examine the short-term impacts of Japan's newly implemented physician working-hour limits (April 2024) on working conditions, self-directed professional development (SDPD), defined as activities undertaken outside working hours to enhance one's professional skills, and work-related happiness among obstetrician-gynecologists (OB-GYNs).

Methods: An online survey was conducted between July 8 and July 31, 2024, targeting 867 Japan Society of Obstetrics and Gynecology members. Five hundred and fourteen full-time practitioners who had not changed workplaces around April 2024 and had no missing data were analyzed. Participants were stratified by regulation levels (A, B, C, discretionary labor system, those who don't know their own level), and their working hours, anticipated income, SDPD satisfaction, and happiness (0–10 scale) were assessed. We used multivariate linear regression to evaluate the influence of labor condition changes on happiness and explored interactions involving unpaid overtime, income changes, and SDPD satisfaction.

Results: Compared with level A (up to 960 h of overtime per year), participants at levels B and C (up to 1860 h of overtime per year) reported significantly lower happiness ($p < 0.001$). Most respondents observed no major shifts in working conditions since March 2024, yet about 40% did not record SDPD hours that meet the working hour requirement as official work time. Adjusted analyses revealed that decreased income and unsatisfactory SDPD significantly lowered happiness, whereas higher SDPD satisfaction increased it (β: −0.64 [−1.07, −0.21], −0.98 [−1.46, −0.50], and 0.90 [0.44, 1.35], respectively). Subgroup analysis indicated that rising unpaid overtime further reduced happiness among those dissatisfied with SDPD (−1.43 [−2.41, −0.45]).
Conclusions: The new working-hour limits had minimal impact on labor conditions in the short run. However, satisfaction with SDPD was positively associated with happiness, whereas anticipated decreases in income were correlated with lower happiness.

1 | Introduction

Overwork among healthcare workers has become a global concern, with accumulated evidence linking excessive working hours to significantly increased risks of depression, burnout, and even suicide [1–3]. These mental and physical burdens adversely impact clinical performance and degrade the quality of patient care [4]. In Japan, the introduction of working hour limitations for physicians, to be enforced beginning in April 2024, marks a significant shift in regulatory policy [5]. Previously, there were no explicit upper limits on work hours, leaving each doctor free to determine their own schedules—an arrangement that has, in some cases, led to tragic incidents such as resident suicides attributed to extreme overwork [1, 6]. Although the 2018 revision of the Labor Standards Act was intended to address these challenges by capping overtime for physicians, implementation of this measure was postponed until 2024 due to concerns over the unique demands of clinical practice [5, 7].

The physician working-hour regulations set to take effect in Japan in 2024 are generally comparable to those in other countries in terms of upper limits and overall structure [5, 7]. In most regions, the main objectives of such regulations include safeguarding physician health, ensuring patient safety, and enhancing the quality of care. However, debate persists regarding whether these rules achieve those aims. For example, in the United States, the restriction of continuous duty hours to 16 h for first-year residents was initially introduced to improve the quality of healthcare. However, randomized controlled trials have shown that such a restriction has minimal impact on the quality of healthcare or resident burnout [8, 9]. Similar concerns have been raised in Japan, including fears that these limits could destabilize local healthcare systems and compromise training opportunities for residents and specialists [10, 11]. A cross-sectional study of 815 pediatricians reported a reduction in the proportion working more than 60 or 80 h per week compared with a 2020 nationwide survey, although 36.9% still worked over 60 h. Consequently, verifying whether working-hour limitations truly improve physician well-being and patient safety is pivotal for evaluating the validity of these policies.

Of all medical specialties, obstetricians and gynecologists (OB-GYNs) are likely to face the most substantial impacts from working-hour limitations, given the frequent overnight duties intrinsic to obstetrical care. A study of 11,466 full-time hospital physicians in Japan comparing weekly working hours across specialties identified obstetrics and gynecology, compared with internal medicine, as a significant predictor of working more than 960 and more than 1860 h annually [12]. Accordingly, it is essential to conduct studies specifically targeting OB-GYNs to evaluate the implications of working-hour regulations in this field.

Although numerous reports have addressed the relationship between working conditions and health, the majority have focused on pathological outcomes such as depressive disorders or burnout syndromes [1, 6, 13]. In contrast, recent recommendations emphasize the importance of strengthening health among professionals who are not yet diseased, highlighting the potential for broader preventive strategies that extend well beyond traditional interventions [14–17].

Happiness, or well-being, is defined as a state of complete physical, mental, and social fulfillment according to the World Health Organization [18]. Happiness has emerged as a pivotal outcome measure in this context, as higher levels of happiness are associated with a reduced risk of depressive and anxiety disorders, lower rates of burnout, improved patient care, and a decline in medical errors [14–17]. Reflecting on this context, it is essential to examine how these impending regulations may influence the overall well-being of OB-GYNs—particularly their happiness—under the new system.

In Japan, the number of OB-GYNs varies considerably by prefecture [19], with substantial regional disparities [20]. Accordingly, the level of preparedness for working-hour regulations was expected to differ across institutions. Moreover, in the absence of appropriate implementation, inadequate measures such as superficially reducing reported working hours could arise. Therefore, we conducted a nationwide anonymous online survey of OB-GYNs across Japan to examine actual working conditions and to collect examples of best practices from institutions that had advanced work style reforms. The aim of this study was to identify factors related to work style reforms that influence work-related happiness, such as actual working hours, anticipated income change, and self-directed professional development (SDPD) opportunities, by analyzing data from this online survey.

2 | Methods

2.1 | Participants

We conducted an online-based cross-sectional study of full-time obstetricians and gynecologists in Japan between July 3 and July 31, 2024. An invitation e-mail describing the study aims and providing a survey link was distributed through the Japan Society of Obstetrics and Gynecology mailing list. The 867 physicians responded. As of July 2024, the society had 17 931 members, resulting in a response rate of 4.8%. We excluded respondents who did not meet the scope of the new national work-hour regulations—which apply only to

hospital employees—namely part-time practitioners ($n = 71$), graduate students ($n = 25$), clinic owners ($n = 51$), physicians without a principal workplace ($n = 3$), other employment categories ($n = 3$), and those with missing information on work style or workplace ($n = 7$). Physicians working under the discretionary labor system were included as participants because they are subject to the same regulations as general workers. Additionally, in Japan, many of these physicians are also engaged in clinical practice [21], and because the working-hour limits imposed on surrounding employed physicians may alter their own workload. To ensure comparability of working conditions before and after the implementation of the regulations, we further excluded physicians who had changed institutions during the study period ($n = 137$) or had missing data on institutional change and any outcomes ($n = 56$). The final analytic sample comprised 514 participants. (Figure 1).

2.2 | Measurements

The primary outcomes were self-reported changes in the workplace environment and work happiness. Workplace environment variables included overall job satisfaction, total working hours, declared working hours, the magnitude of unpaid overtime, anticipated annual income, the proportion of SDPD hours declared as labor, and SDPD satisfaction. Details of the questionnaire are provided in File S1. Job satisfaction was measured using a validated item from a burnout questionnaire [22]. Briefly, participants rated changes relative to March 2024 on five-point scales that were collapsed into three categories for analysis: improved/unchanged/worsened for satisfaction and increased/unchanged/decreased for working-hour items. An increase in unpaid overtime was defined as a discordance between actual and declared working hours (e.g., unchanged total hours with fewer declared hours or increased total hours with unchanged declarations). Anticipated income change was captured as a categorical increase, no change, or decrease for fiscal year 2024. Declaration of SDPD hours was classified into four groups (all declared, partially declared, none declared, or not applicable), and SDPD satisfaction was collapsed to satisfied/neutral/dissatisfied. The question on SDPD satisfaction was adapted from the National Health Service Staff Survey in the United Kingdom [23]. Within the SDPD items, we clarified that off-duty SDPD is not regarded as working time when both of the following conditions are met: (i) the activity is unrelated to routine clinical duties such as patient care, and (ii) it is carried out voluntarily, without explicit or implicit instruction from a supervisor who has authority over task assignments. Work happiness was assessed using an 11-point Likert scale (0–10), following the approach adopted in the European Social Survey and several other studies [24, 25].

2.3 | Analysis

Background variables and workplace-environment changes were tabulated according to the overtime cap categories (Group A, B, C, discretionary labor system, or unknown). Continuous variables were tested for normality using the Shapiro–Wilk test before applying analysis of variance. Categorical variables were compared using the χ^2 test. We performed multivariate linear regression analysis to calculate the coefficient and 95% confidence intervals (CIs) of work happiness about independent variables. Independent variables included overtime cap categories [26], unpaid overtime change [27], anticipated income change [28], SDPD satisfaction [29], sex, age, geographic region of the workplace, facility type, and subspecialty. We calculated variance inflation factors in this analysis to check multicollinearity. Based on previous studies, several factors—such as unpaid overtime, anticipated changes in income, and satisfaction with SDPD—were considered particularly important determinants of work happiness and were therefore examined for potential interaction effects. Thus, interaction terms between SDPD satisfaction and (i) anticipated income and (ii) unpaid overtime were tested; where significant, stratified multivariable models were fitted using the same covariate set. Residual analysis for the multivariable models indicated that normality was preserved but homoscedasticity might not have been satisfied. Therefore, robust variance estimation was applied in all regression analyses. The data were analyzed using STATA version 16.0 (Stata Corp LLC,

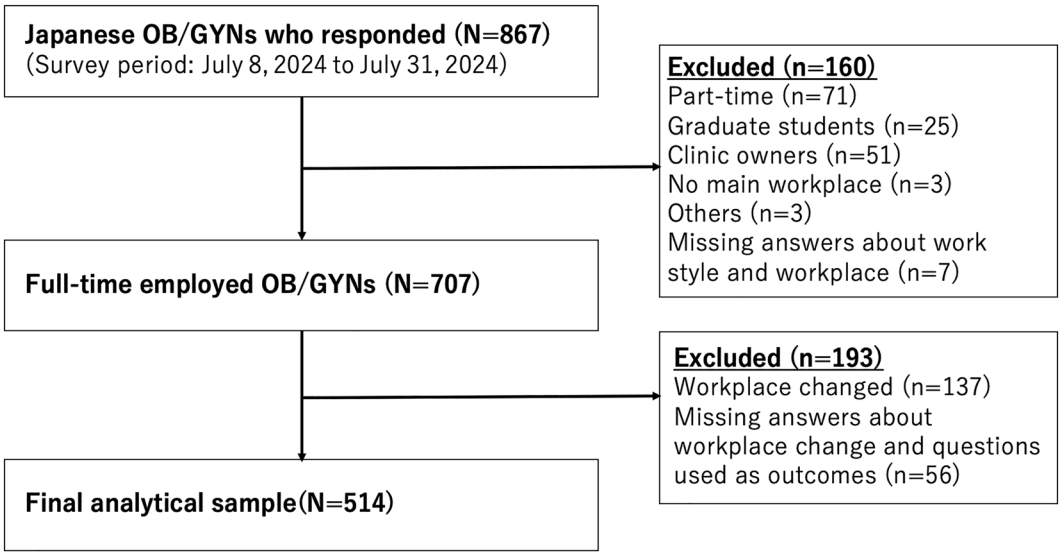

FIGURE 1 | Flow diagram of the participants.

USA). Statistical significance was defined as a two-sided p value <0.05. For the analysis of factors associated with happiness, where multiple factors were comprehensively examined and the risk of multiple comparisons was a concern, Bonferroni correction was applied. The significance threshold was set at 0.00556, calculated by dividing 0.05 by the nine exposures.

2.4 | Ethical Considerations

Completion of the web-based questionnaires implied informed consent. All the data were collected anonymously in that survey, and no correspondence table exists. This study was a secondary analysis of an anonymous survey conducted by the Japan Society of Obstetrics and Gynecology to assess the progress of work style reforms across institutions and to collect examples of best practices. As it falls outside the scope of the Ethical Guidelines for Medical and Health Research Involving Human Subjects in Japan (Part 3, "Scope," 1.C(iii): research utilizing only pre-existing anonymized personal information), ethical review under these guidelines was deemed unnecessary [30]. Artificial Intelligence was used solely for proofreading English text.

3 | Results

Table 1 shows participant characteristics stratified by overtime caps. Work-happiness scores were normally distributed and lower in the standard B and standard C groups than in the standard A group (mean ± SD: 6.1 ± 2.3 vs. 5.1 ± 2.4 and 4.8 ± 2.5, respectively). The gender distribution was approximately equal overall, and most respondents were in their 30s or older.

TABLE 1 | Demographic background of participants.

Variable Mean (SD) or *N* (%)	Standard A (*N* = 232)	Standard B (*N* = 97)	Standard C (*N* = 24)	Discretionary labor system (*N* = 47)	Unknown (*N* = 114)	*p*
Happiness	6.1 (2.3)	5.1 (2.4)	4.8 (2.5)	6.5 (2.3)	6.1 (2.3)	<0.001
Sex						0.019
Male	123 (53.0)	53 (54.6)	9 (37.5)	28 (59.6)	48 (42.1)	
Female	108 (46.6)	40 (41.2)	14 (58.3)	19 (40.4)	66 (57.9)	
Others/ Unwilling to answer	1 (0.4)	4 (4.1)	1 (4.2)	0 (0.0)	0 (0.0)	
Age						0.008
20s	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	6 (5.3)	
30s	36 (15.5)	19 (19.6)	6 (25.0)	4 (8.5)	31 (27.2)	
40s	76 (32.8)	40 (41.2)	10 (41.7)	14 (29.8)	31 (27.2)	
50s	77 (33.2)	27 (27.8)	4 (16.7)	20 (42.6)	29 (25.4)	
60s or more	42 (18.1)	11 (11.3)	4 (16.7)	9 (19.1)	17 (14.9)	
Working area						0.79
Large city	104 (44.8)	39 (40.2)	14 (58.3)	20 (42.6)	45 (39.5)	
Middle city	36 (15.5)	20 (20.6)	4 (16.7)	6 (12.8)	17 (14.9)	
Others	92 (39.7)	38 (39.2)	6 (25.0)	21 (44.7)	52 (45.6)	
Facilities						<0.001
University hospital	49 (21.1)	49 (50.5)	12 (50.0)	29 (61.7)	22 (19.3)	
Municipal hospital	165 (71.1)	46 (47.4)	11 (45.8)	1 (2.1)	62 (54.4)	
Private clinic	18 (7.8)	2 (2.1)	1 (4.2)	17 (36.2)	30 (26.3)	
Subspecialty						<0.001
No	165 (71.1)	77 (79.4)	17 (70.8)	41 (87.2)	60 (52.6)	
Yes	67 (28.9)	20 (20.6)	7 (29.2)	6 (12.8)	54 (47.4)	

Municipal hospitals accounted for 71.1% of physicians subject to the standard A cap, whereas the standard B and C groups were each comprised of 50% university hospitals and municipal hospitals. Roughly 40% of respondents practiced in large city areas.

Table 2 presents changes in the workplace environment relative to March 2024. Across all groups, overall job satisfaction, total working hours, and anticipated income were largely unchanged from the previous fiscal year. The proportions reporting an increase in unpaid overtime were 15.1% at level A, 19.6% at level B, 8.3% at level C, and 19.1% under the discretionary labor system. Approximately 40% of respondents in all categories did not report time spent on SDPD as paid work (39.7% at level A, 44.3% at level B, 41.7% at level C, and 46.8% under the discretionary labor

TABLE 2 | Changes in workplace environment including worktime, income, and self-improvement.

Variable *N* (%)	Standard A (*N* = 232)	Standard B (*N* = 97)	Standard C (*N* = 24)	Discretionary labor system (*N* = 47)	Unknown (*N* = 114)	*p*
Overall satisfactions in working conditions						0.055
Improved	29 (12.5)	13 (13.4)	4 (16.7)	3 (6.4)	10 (8.8)	
Unchanged	148 (63.8)	50 (51.5)	14 (58.3)	36 (76.6)	83 (72.8)	
Worsened	55 (23.7)	34 (35.1)	6 (25.0)	8 (17.0)	21 (18.4)	
Worktime						0.65
Longer than before	32 (13.8)	13 (13.4)	4 (16.7)	6 (12.8)	13 (11.4)	
Unchanged	170 (73.3)	75 (77.3)	18 (75.0)	38 (80.9)	94 (82.5)	
Shorter than before	30 (12.9)	9 (9.3)	2 (8.3)	3 (6.4)	7 (6.1)	
Applied worktime						0.62
Longer than before	24 (10.3)	12 (12.4)	5 (20.8)	4 (8.5)	13 (11.4)	
Unchanged	171 (73.7)	63 (64.9)	15 (62.5)	33 (70.2)	84 (73.7)	
Shorter than before	37 (15.9)	22 (22.7)	4 (16.7)	10 (21.3)	17 (14.9)	
Unpaid overtime						0.53
Not increased	197 (84.9)	78 (80.4)	22 (91.7)	38 (80.9)	99 (86.8)	
Increased	35 (15.1)	19 (19.6)	2 (8.3)	9 (19.1)	15 (13.2)	
Anticipated income						0.055
Increase	10 (4.3)	5 (5.2)	1 (4.2)	0 (0.0)	7 (6.1)	
Unchange	154 (66.4)	52 (53.6)	12 (50.0)	38 (80.9)	75 (65.8)	
Decrease	68 (29.3)	40 (41.2)	11 (45.8)	9 (19.1)	32 (28.1)	
Applying for self-improvement as working hours						< 0.001
All	26 (11.2)	13 (13.4)	2 (8.3)	2 (4.3)	5 (4.4)	
Partially	89 (38.4)	36 (37.1)	10 (41.7)	4 (8.5)	30 (26.3)	
Not at all	92 (39.7)	43 (44.3)	10 (41.7)	22 (46.8)	51 (44.7)	
Not applicable	25 (10.8)	5 (5.2)	2 (8.3)	19 (40.4)	28 (24.6)	
Satisfaction for self-directed professional development						0.51
Satisfied	69 (29.7)	22 (22.7)	4 (16.7)	16 (34.0)	36 (31.6)	
Neutral	89 (38.4)	41 (42.3)	9 (37.5)	19 (40.4)	48 (42.1)	
Not satisfied	74 (31.9)	34 (35.1)	11 (45.8)	12 (25.5)	30 (26.3)	

system). The proportions of respondents satisfied with SDPD were 29.7% at level A, 22.7% at level B, 16.7% at level C, and 20.5% under the discretionary labor system, with no significant differences observed between groups.

Multivariable linear regression results are shown in Table 3. After Bonferroni correction, a decrease in anticipated income remained significantly associated with lower work-happiness scores ($\beta = -0.64$, 95% CI −1.07 to −0.21; $p = 0.003$). Satisfaction with SDPD was positively associated with work happiness ($\beta = 0.90$, 95% CI 0.44 to 1.35; $p < 0.001$), whereas dissatisfaction exerted the opposite effect ($\beta = -0.98$, 95% CI −1.46 to −0.50; $p < 0.001$). Increases in unpaid overtime and assignment to the standard B cap were not significant after Bonferroni correction but showed negative trends ($\beta = -0.58$, 95% CI −1.11 to −0.04; $p = 0.035$ and $\beta = -0.59$, 95% CI −1.14 to −0.04; $p = 0.035$, respectively). No other covariates were associated with work happiness. We did not find multicollinearity among covariates (Table S1). Adjusted R^2 is 0.195 for the multivariable model.

Table 4 explores interactions between unpaid overtime, anticipated income change, and satisfaction with SDPD. No significant interaction was observed between anticipated income change and SDPD satisfaction. In contrast, the interaction of unpaid overtime with SDPD satisfaction on work happiness scores was significant (p for interaction = 0.016). Stratified analyses revealed no effect of increased unpaid overtime on work happiness among OB/GYNs who were satisfied or neutral regarding SDPD. However, among those who felt unable to pursue SDPD adequately, increased unpaid overtime had a markedly negative impact on work happiness ($\beta = -1.43$, 95% CI −2.41 to −0.45).

4 | Discussion

We investigated the early impact of the April 2024 introduction of national overtime caps on OB-GYNs' workplace environment and work happiness. By July 2024, we found no material change in total working hours or overall job satisfaction scores. However, approximately 15% of respondents reported an increase in unpaid overtime, and 40% did not claim hours spent on SDPD even when those activities met the statutory definition of work. Multivariable analysis showed that satisfaction with SDPD was positively associated with work happiness ($p < 0.001$), whereas dissatisfaction with SDPD ($p < 0.001$) and anticipated income decline ($p = 0.004$) were both negatively associated after Bonferroni correction (threshold of p-value = 0.00556). The stratified analysis revealed that increased unpaid overtime reduced work happiness only among OB-GYNs dissatisfied with their SDPD opportunities.

The persistence of unpaid overtime and unclaimed SDPD hours despite the new legislation suggests that "paper" compliance may have replaced substantive workload reduction. Previous reports indicated that when staffing and task volumes remained unchanged, physicians might underreport duty hours due to fear of violating worktime regulations [31, 32]. In Japan, strong peer-conformity pressures may additionally discourage reporting SDPD as compensated time [33, 34]. Our data showed no substantial change in actual working hours after the working-hour limit implementation, consistent with this notion. Beyond hospital-level initiatives to curb overtime, regional or national measures—such as consolidating obstetric hospitals or reallocating personnel—are needed to achieve workload reduction.

We found that SDPD satisfaction and anticipated income changes significantly affected the work happiness of OB-GYNs. A previous survey of obstetricians ($n = 129$) and general clinicians ($n = 271$) likewise linked access to education, research, and skill-development opportunities with job satisfaction [35]. Evidence that income affects obstetricians' happiness is scarce; a U.S. study of 290 physicians only reported a positive association [36]. In contrast, several previous studies reported that income reduction has affected job satisfaction among physicians other than OB-GYNs [28, 37]. Our findings suggested that some physicians might experience an anticipated income reduction even though their actual working hours did not change and that this mismatch could be perceived as income unfairness, thereby diminishing work happiness [28].

The interaction between SDPD satisfaction and unpaid overtime can be interpreted through the job-demand/job-control framework [38–40]. OB-GYNs dissatisfied with SDPD are likely in low-control positions, while increases in unpaid overtime mean high job demands. The combination of high-demand and low-control traits is strongly linked to burnout and reduced well-being [38, 40]. Conversely, physicians satisfied with SDPD may perceive additional hours as voluntary. A Dutch study of 1612 workers showed that voluntary overtime was associated with less fatigue than involuntary overtime and that compensation did not moderate the fatigue of involuntary overtime [27]. Those findings are consistent with our results, indicating that income reductions influenced happiness irrespective of SDPD satisfaction.

This study has several limitations. First, the response rate was low (4.8%). Thus, respondents represent only a subset of Japan Society of Obstetrics and Gynecology members; the busiest clinicians may have lacked time to participate, limiting external validity. In addition, only seven respondents were in their 20s, which may limit the extent to which the views of younger physicians are represented. Also, given the inherent characteristics of obstetrical and gynecological practice, it is difficult to avoid long working hours, thereby limiting the external validity of the results to other medical specialties. Second, outcomes such as job satisfaction, SDPD satisfaction, and work happiness were assessed with single-item questions to ensure ease of response, rather than with multi-item scales. As a result, the multidimensional aspects of these outcomes could not be fully evaluated. Third, because we asked only about changes since fiscal year 2024, we could not adjust for baseline working hours or income. Fourth, to protect privacy, we did not collect detailed facility information, which precluded adjustments for institutional factors such as delivery volume or staffing levels.

In summary, the overtime cap policy did not substantially alter overall working conditions within 3 months of implementation. Nevertheless, 15% of physicians experienced increased unpaid overtime, and 40% failed to claim compensable SDPD hours, indicating that administrative compliance may conceal persistent workload burdens. To foster a happier workforce, hospitals, the professional society, and the government must collaborate to create environments that enhance autonomy and support truly voluntary, meaningful work.

TABLE 3 | Factors affecting happiness at working as OB-GYN.

Variables	Crude analysis (Coef (95% CI))	Adjusted analysis (Coef (95% CI))[a]	*p*[b]
Overtime Cap			
Standard A	ref		
Standard B	−1.01 (−1.57 to −0.44)	−0.59 (−1.14 to −0.04)	0.035
Standard C	−1.27 (−2.28 to −0.25)	−0.79 (−1.75 to 0.17)	0.106
Discretionary labor system	0.37 (−0.36 to 1.10)	0.33 (−0.46 to 1.11)	0.414
Unknown	0.02 (−0.50 to 0.55)	−0.06 (−0.56 to 0.45)	0.831
Unpaid overtime			
Not increased	ref		
Increased	−1.14 (−1.73 to −0.56)	−0.58 (−1.11 to −0.04)	0.035
Anticipated income			
Unchange	ref	ref	
Increase	0.34 (−0.45 to 1.13)	0.65 (−0.06 to 1.36)	0.072
Decrease	−1.12 (−1.57 to −0.68)	−0.64 (−1.07 to −0.21)	0.003[c]
Satisfaction for self-directed professional development			
Satisfied	1.09 (0.66–1.53)	0.90 (0.44 to 1.35)	< 0.001[c]
Neutral	ref	ref	
Not satisfied	−1.07 (−1.57 to −0.58)	−0.98 (−1.46 to −0.50)	< 0.001[c]
Sex			
Male	ref	ref	
Female	0.10 (−0.32 to 0.51)	0.24 (−0.16 to 0.66)	0.244
Others	−1.70 (−3.96 to 0.57)	−1.14 (−3.19 to 0.91)	0.275
Age			
20s	−0.95 (−2.80 to 0.91)	−1.25 (−2.80 to 0.30)	0.113
30s	ref	ref	
40s	0.47 (−0.17 to 1.11)	0.23 (−0.42 to 0.87)	0.49
50s	0.77 (0.12 to 1.41)	0.31 (−0.32 to 0.95)	0.335
60s or more	0.84 (0.10 to 1.58)	0.37 (−0.35 to 1.08)	0.316
Working area			
Large city	ref		
Middle city	−0.50 (−1.13 to 0.13)	−0.22 (−0.82 to 0.38)	0.475
Others	−0.26 (−0.71 to 0.18)	−0.22 (−0.62 to 0.19)	0.300
Facilities			
University hospital	−0.77 (−1.23 to −0.31)	−0.43 (−0.91 to 0.05)	0.078
Municipal hospital	ref		
Private clinic	0.85 (0.22 to 1.48)	0.30 (−0.34 to 0.95)	0.350
Specialty			
No	ref		
Yes	−0.11 (−0.56 to 0.34)	0.00 (−0.48 to 0.48)	0.997

Note: R^2 for multivariate model: 0.220. Adjusted R^2 for multivariate model: 0.195.

[a]Covariates include sex, age, working area, facilities, subspecialty, type of overtime cap, unpaid overtime, income change, and self-directed professional development satisfaction.

[b]Bonferroni correction was applied because multiple factors were comprehensively examined, and the risk of multiple comparisons was a concern. The significance threshold was set at 0.00556, calculated by dividing 0.05 by the nine exposures.

[c]$p < 0.00556$.

TABLE 4 | The association between happiness and income change or unpaid overwork stratified by self-directed professional development satisfaction.

	Adjusted analysis (Coef (95% CI))[a]			
	Self-directed professional development satisfaction			
Variable	**Satisfied (*N* = 147)**	**Neutral (*N* = 206)**	**Unsatisfied (*N* = 161)**	***p*-for interaction**
Anticipated income				Satisfied × Decrease: 0.116 Unsatisfied × Decrease: 0.717
Unchange or increase	ref	ref	ref	
Decrease	−0.12 (−0.95 to 0.71)	−0.93 (−1.58 to −0.29)	−0.63 (−1.47 to 0.22)	
Unpaid overtime				Satisfied × Increased: 0.809 Unsatisfied × Increased: 0.016
Not increased	ref	ref	ref	
Increased	0.03 (−1.02 to 1.08)	−0.08 (−0.86 to 0.69)	−1.43 (−2.41 to −0.45)	

[a]Covariates include sex, age, working area, facilities, subspecialty, and type of overtime cap.

Author Contributions

Yuto Maeda: conceptualization, investigation, writing – original draft, formal analysis, data curation, methodology. **Satoru Nakagawa:** conceptualization, writing – review and editing, data curation. **Kentaro Nakanishi:** data curation, conceptualization, writing – review and editing. **Eri Inoue:** writing – review and editing, data curation, conceptualization. **Daisuke Inoue:** data curation, writing – review and editing, conceptualization. **Saki Kido:** data curation, writing – review and editing, conceptualization. **Michiko Kido:** data curation, writing – review and editing, conceptualization. **Kaori Koga:** data curation, writing – review and editing, conceptualization. **Shunji Suzuki:** data curation, writing – review and editing. **Yukio Suzuki:** data curation, writing – review and editing, conceptualization. **Junko Haraga:** data curation, writing – review and editing, conceptualization. **Hisashi Masuyama:** conceptualization, data curation, writing – review and editing. **Eiko Yamamoto:** conceptualization, data curation, writing – review and editing. **Takeshi Umazume:** conceptualization, data curation, writing – review and editing. **Yoshihito Yokoyama:** conceptualization, data curation, writing – review and editing. **Akira Iwase:** conceptualization, data curation, writing – review and editing. **Tomoaki Ikeda:** conceptualization, data curation, writing – review and editing. **Yoshio Yoshida:** conceptualization, data curation, writing – review and editing. **Yoshiki Kudo:** conceptualization, data curation, writing – review and editing. **Takashi Sugiyama:** conceptualization, data curation, writing – review and editing. **Kiyonori Miura:** conceptualization, data curation, writing – review and editing. **Hideaki Yahata:** conceptualization, data curation, writing – review and editing. **Nobuya Unno:** conceptualization, data curation, writing – review and editing. **Kentaro Kurasawa:** conceptualization, data curation, writing – review and editing. **Takahide Maenaka:** conceptualization, data curation, writing – review and editing. **Etsuko Miyagi:** conceptualization, data curation, supervision, writing – review and editing. **Kiyoko Kato:** conceptualization, data curation, writing – review and editing. **Yasuhito Kato:** conceptualization, data curation, supervision, writing – review and editing, project administration.

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Disclosure

An earlier version of this article was presented at the 76th and 77th annual Congress of the Japan Society of Obstetrics and Gynecology, which was held in Yokohama and Okayama, on 19–21 April 2024 and 23–25 May 2025.

Ethics Statement

This study was a secondary analysis of an anonymous survey conducted by the Japan Society of Obstetrics and Gynecology to assess the progress of work style reforms across institutions and to collect examples of best practices. As it falls outside the scope of the Ethical Guidelines for Medical and Health Research Involving Human Subjects in Japan (Part 3, "Scope," 1.C(iii): research utilizing only pre-existing anonymized personal information), ethical review under these guidelines was deemed unnecessary.

Consent

Completion of the web-based questionnaires implied informed consent.

Conflicts of Interest

The authors declare no conflicts of interest. Kiyonori Miura, Hideaki Yahata, Nobuya Unno, Kentaro Kurasawa, and Yasuhito Kato are Editorial Board members of JOGR Journal and co-authors of this article. To minimize bias, they were excluded from all editorial decision-making related to the acceptance of this article for publication.

Data Availability Statement

The data that support the findings of this study are available from Japan Society of Obstetrics and Gynecology. Restrictions apply to the availability of these data, which were used under license for this study. Data are available from the author(s) with the permission of Japan Society of Obstetrics and Gynecology.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Supplementary File 1. E**nglish version of the questionnaire. **Table S1:** Check table for multicollinearity.