



Original Article

Work hours of employed obstetricians in Taiwan

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ARTICLE INFO

Article history:

Accepted 17 September 2018

Keywords:

Work hour restriction

Employee

Obstetrician

ABSTRACT

Objective: Obstetricians have longer work hours and work hour restriction of employed physicians will be implemented thereafter. This study was to survey the impact of work hour restriction and determine the weekly work hours of obstetricians.

Materials and methods: Since December 1, 2017, to January 31, 2018, a questionnaire about reasonable workload investigation, impact of work hour restriction and weekly work diary was mailed to 196 employed obstetricians who delivered more than 20 newborns per months. The work types and coefficient of correlation with work hours was evaluated using the Pearson correlation coefficient (*r*).

Results: 72 returned the questionnaires, 21 (31.4%) believed that 40–49 h were reasonable, while 22 (32.8%), 13 (19.4%), 7 (10.4%), and 4 (6%) thought that 50–59, 60–69, 70–79, and >80 h were reasonable. 66 completed their weekly work diary. The average weekly work hours were 80.14 ± 6.85 . If the time of awaiting delivery was calculated into total work hours, then the average work hours were 116.96 ± 12.41 . The coefficient of correlation between on-duty and weekly work hours was 0.7. The average work hours of physicians with on-duty work were 92.08 ± 8.7 , which were significantly higher than the work hours of those without on-duty works (63.95 ± 7.79).

Conclusion: The weekly work hours of employed obstetricians is higher than their expected reasonable work hours. Implementation of work hour restriction will have a significant impact on medical care. It is important to determine a reasonable work hour restriction and modify the patient care model to reduce workload.

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Introduction

In 1989, the Department of Health, New York state, enacted the New York State hospital code 405 regulation because of the death of a college student treated by an overworked and under-supervised resident in 1984 [1]. The weekly work hours were limited to 80 per week, and time off was enforced between shifts. In 2001, the United States House of Representatives passed the bill The Patient and Physician Safety and Protection Act, which was also intended to reduce the work hours of residents and increase supervision [2]. Two years later, the Accreditation Council for Graduate Medical

Education (ACGME) implemented resident duty hour restriction [3]. Both of them were applicable only to physicians in postgraduate and resident training.

In 2009, a surgical resident suddenly lost consciousness in the operating room with sequelae of hypoxia after a 30-h work in Tainan, Taiwan. This incident raised concerns regarding residents' overwork. Earlier, all physicians had no regulation of work hour limitation. Residents' labor rights and duty hour regulation were first introduced in 2013 by Taiwan's Ministry of Health and Welfare (MOHW) [4]. To prevent work overload and sleep deprivation, the weekly work hour had a limitation of a maximum of 88 h initially. Then, the weekly work hour restriction declined to 80 h in 2017.

Like the regulation of the ACGME and the Patient and Physician Safety and Protection Act, Taiwan's 80-h work restriction was

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applicable only to residents in training and not all employed physicians. The Taiwan's Labor Standards Act has 40-h weekly work restriction of labor, and nurses were included since 2016 [5]. Employed physicians were excluded due to being exempt employees because they must take the entire responsibility of inpatients without work time limitation and some major surgeries or invasive procedures that may be required over time. Including employed physicians in the regulation of the Labor Standards Act for work hour restriction has raised several concerns recently. The most concerning issue is how to maintain current medical services and quality.

Currently, there are a total of 2659 obstetrician/gynecologists (OB/GYNs) in Taiwan and 631 of them are aged >65 years. According to the report of Chao A. Hsiung published in 2014, the average weekly work hours of OB/GYNs were 63.55. The problem of aging was found to be more serious than that in other specialists, and half of the OB/GYNs would be older than 60 years by the year 2022 [6]. The population of Taiwan is 23.5 million, and number of childbirths is around 200,000 per year. Almost all newborns are delivered by OB/GYNs. The most common model is pregnant women who receive prenatal care and deliver their babies by the same OB/GYNs here. Due to being exempt employees, OB/GYNs have longer work hours than other specialists. Thus, work hour restriction will have a significant impact on obstetrics.

Promecene's investigation showed that 62% of OB/GYNs in Huston worked longer than 80 h per week [7]. The work hours were longer among male physicians and those aged >50 years. Marital status and having children living at home did not affect the work hours. Taiwan National Health Insurance was started in 1995, which included obstetrics as well. Most of the hospitals take proportional physician fee (PPF) as a salary. In addition to basic salary, physicians get more payment with more medical business [8]. To prevent excessive competition causing decline in the quality of patient care, some hospitals have PPF ceiling restriction. Even with the ceiling regulation, some obstetricians delivered more than 100 newborns per month. The regulation of work hours would directly restrict the medical service and also decline the payment. Because the workload between obstetricians and gynecologists is different, this study was restricted to practicing obstetricians. Their work time was relatively longer. However, not all physicians agree with work hour restriction because it would change the medical service model, decline the physician fee, and increase medical disputes. Therefore, a reasonable work hour limitation must be determined to maintain the balance between work and life.

Work refers to not only clinical patient care but also academic and administrative work. Work hour surveys are generally carried out using questionnaires. Physicians reply to the questionnaires by recall, and errors do exist. Analysis through work diaries takes more effort but can actually determine the real work time. Except residents, employed OB/GYNs have no work hour restriction. They stay in the hospital for a long time, and the situation became worse after the implementation of residents' work hour restriction. A similar situation was found after the implementation of the European Working Time Directive (EWTD) [9]. Childbirths, except scheduled cesarean sections, are unpredictable, and emergency conditions are common. This significantly increases the chances of staying in the hospital after their regular work time for the OB/GYNs compared with other specialists. When work hour restriction is applied to employed physicians, what is the proper work time?

Obstetricians are unique and have a longer work time; especially, some have a large volume of medical services. The hospitalist care model was first implemented in 1996 and was developed rapidly. A physician who is almost an internal medicine or a family physician cares only inpatients. These physicians cooperated with primary care physicians to establish a new medical model [10]. There are no OB/GYN hospitalists due to the unique patient–obstetrician

relationship. What is the new care model in obstetrics to prevent work overload? We used work diaries to record the real workload and questionnaires to survey the suitable work time and the possible obstetric care model.

Materials and methods

In 2015, there were 1361 OB/GYNs responsible for 200,504 child deliveries in Taiwan. Among them, 284 OB/GYNs delivered more than 20 newborns per months; 196 worked in hospitals and 88 worked in local clinics. The 196 employed OB/GYNs were enrolled in this study to survey the impact of the implementation of work hour restriction on employed physicians. This study was approved by the Institution Review Board of Kuo General Hospital. The questionnaires were mailed to the physicians from December 1, 2017, to January 31, 2018. The questionnaires included details regarding the obstetrician's demographics, 1-week work diary, reasonable workload investigation with work hour restriction, and health and satisfaction survey. The weekly work diary according to the time table list included the following eight aspects: time for surgery, awaiting delivery, delivery work, on-duty, research work, meeting, medical recording, and others. Normal daily work time is defined as from 8:00 to 18:00 h on weekdays and from 8:00 to 13:00 h on Saturdays. The relationship between work hours and duty hours was evaluated using the Pearson correlation coefficient (r). The scatter plot of the two variables was analyzed. In addition, the association between work hours and weekly deliveries and the time spent in the outpatient department, surgeries, childbirths, academic research, meetings or conferences, medical recordings, and other work were assessed by r . Subjects with duty hours and without duty were categorized into two groups. Work hours in the two groups were analyzed by the Student's t -test and assessed by a scatter plot. The association between the number of deliveries and work hours was investigated. The subjects were categorized into two groups according to the number of deliveries. Student's t -test was used to determine whether there was a significant difference between the mean values of the two groups.

Results

There are 2659 OB/GYNs in Taiwan. According to the investigation of the Taiwan Association of Obstetrics and Gynecology (TAOG) conducted in 2015, 16% of them majored only in gynecology and 7% in obstetrics. Most of the OB/GYNs took care of both obstetric and gynecological patients. To investigate the impact of work hour restriction on the physicians, 196 employed OB/GYNs who delivered more than 20 newborns per month in 2016 were enrolled. Of these, 72 (36.7%) OB/GYNs returned the questionnaires, of whom 7 (9.7%), 25 (34.7%), 26 (36.1%), and 14 (19.5%) OB/GYNs were aged 30–39, 40–49, 50–59, and 60–69 years, respectively. Two-thirds of the OB/GYNs were aged 40–59 years, and those aged beyond 60 years comprised a less proportion. Most of the hospitals have set the mandatory retirement age as 65 years. Based on their service length, 7 (9.7%) OB/GYNs had a service length below 10 years, and 7 (9.7%), 15 (20.8%), 18 (25%), and 25 (34.7%) had service lengths of 10–14, 15–19, 20–24, and >25 years, respectively. The number of OB/GYNs who delivered more than 20 newborns per month increased with the service length in a parallel manner and equally distributed in medical centers, regional hospitals, and district hospitals, which were three-level according to accreditation. Regarding the marital status, 67 (93%) of them were married, 66 (91%) had children, and 52 (72%) had at least two children.

During 2001–2017, there were a total of 731 new OB/GYNs, with a mean of only 43 passing the specialist board examination each year. Only two-thirds met the requirement for annual capacity.

Table 1
Descriptive characteristics of related work types and coefficient of correlation with work hours.

Work types	Mean ($\pm 95\%$ CI)	Coefficient of correlation	
		Work hours without awaiting time	Work hours with awaiting time
Outpatient session	27.33 \pm 2.49	0.38	0.34
Surgery	10.02 \pm 1.93	0.36	0.24
Delivery work	8.14 \pm 1.44	0.38	0.47
On-duty	17.30 \pm 4.96	0.70	0.53
Academic research	3.61 \pm 2.03	0.31	0.26
Meetings	4.45 \pm 0.99	0.11	0.09
Medical recording	4.64 \pm 0.97	0.38	0.32
Other works ^a	3.89 \pm 1.38	0.15	0.23
Awaiting delivery time	36.79 \pm 7.50		
Weekly work hours without awaiting time	80.14 \pm 6.85		
Weekly work hours with awaiting time	116.93 \pm 12.41		

^a Other works included administrative, teaching, and bedside rounds.

A study conducted in 2013 reported the top five reasons for why postgraduate-year (PGY) physicians did not choose obstetrics and gynecology as their career. The first reason was that they were not interested in obstetrics and gynecology as they considered it to have medical disputes, poor life quality, longer work hours, and unsafe work environment. Shortage of new OB/GYNs accelerated the problem of aging.

The workload survey showed that 2 (2.8%) had only 1–2 outpatient sessions per week, and 22 (30.6%), 33 (45.8%), 9 (12.5%), and 6 (8.3%) had 3–4, 5–6, 7–8, and <9 sessions per week, respectively. The outpatient session usually took 3 h, and in fact almost all were overtime. A total of 20 (27.8%) OB/GYNs completed their outpatient sessions within 4 h, and 29, 16, 5, and 2 physicians spent 4–4.9, 5–5.9, 6–6.9, and >7 h, respectively, in each session. In each session, 40 (55.6%) of the OB/GYNs had to care for 30–49 patients and 20 (27.8%) took care of 50–69 patients.

In total, 27 (37.5%) of OB/GYNs delivered 6–9 newborns per week, and 21 (29.2%) delivered 10–14 newborns per week. A total of 8 (11.1%) of OB/GYNs delivered >20 babies per week equivalent to at least 80 per month. There was no restriction for licensed OB/GYNs practicing in obstetrics or gynecology in Taiwan. Most of the obstetricians also worked in gynecology, including reproductive medicine or surgery. A total of 19 (26.4%) of OB/GYNs spent <6 h per week in surgery, and 18 (25%), 10 (13.9%), 6 (8.3%), and 19 (26.4%) performed surgeries for 6–7.9, 8–9.9, 10–11.9, and >12 h per week, respectively. Besides clinical work, 54 (74.9%) of OB/GYNs spent <4 h in medical research, and 50 (69.5%) spent <4 h in meetings and <4 h in the work of medical recording.

A total of 66 OB/GYNs replied about their weekly work diary. The average weekly work hours according to their diary were 80.14 \pm 6.85. In total, 14 (21.2%) of OB/GYNs had <60 h, and 22 (33.3%), 17 (25.8%), and 13 (19.7%) had 60–79, 80–99, and >100 h, respectively. The outpatient session took 27.32 h. Work for on-duty, surgeries, and delivering babies took 17.3, 10.2, and 8.14 h per week, respectively [Table 1]. Other works, including academic research, meetings, medical recording, and others, took 16.59 h. The weekly work hours of most of the OB/GYNs far exceeded the 40-h restriction of Taiwan's Labor Standards Act, and 45.5% worked for above the ACGME 80-hour restriction for residents.

According to the eight aspects of works in the diary recording, on-duty or not play an important part in total work. Among the 66 replies, 38 (57.6%) had work on-duty in hospitals. The coefficient of correlation between on-duty and weekly work hours was 0.7. The average work hours of physicians with on-duty work were 92.08 \pm 8.7, which were significantly higher than the work hours of those without on-duty works; the average work hours were 63.95 \pm 7.79. The number of childbirths had no significant influence on the total work hours [Table 2].

In general, the awaiting delivery time was not calculated into work hours because it was a work time of on call and not on duty. If the time of awaiting delivery was calculated into total work hours, then the average work hours were 116.96 \pm 12.41. The average time of awaiting delivery was 36.79 h per week, and half of the deliveries occurred during non-daily work time. Analysis according to the number of childbirths revealed that 33 OB/GYNs who delivered ≥ 10 babies had significant longer work hours, including awaiting delivery time than those who delivered <10 babies [Table 2].

As work hour restriction would be implemented in the future, the survey included suitable work hour restriction. Among the OB/GYNs, 5 had no idea and 67 responded to the question of reasonable work hour restriction. In total, 21 (31.4%) of them believed that 40–49 h were reasonable, while 22 (32.8%), 13 (19.4%), 7 (10.4%), and 4 (6%) thought that 50–59, 60–69, 70–79, and >80 h were reasonable. This weekly work hour restriction was far lower than actual work hours. This implies that the volume of medical services would decline after implementation of the restriction. A total of 10 (13.9%) employed OB/GYNs thought that delivering less than five newborns per week was reasonable. In addition, 38 (52.7%), 13 (18%), 8 (11.1%), and 2 (2.8%) of the OB/GYNs thought that delivering 5–9, 10–14, 15–19, and >20 newborns per week, respectively, was reasonable. Regarding other works, taking care of 20–40 deliveries per month was found to be appropriate among half of the OB/GYNs. Furthermore, 35 (48.6%) of them thought that three to four outpatient sessions per week were reasonable, and 32 (44.4%) of them needed five to six sessions.

In total, 68 (94.4%) of the OB/GYNs believed that their medical practice will or probably be affected after implementation of the work hour restriction. In addition, 58 (80.5%) of them thought that their payment will or probably be affected, and 13 (18%) may consider resigning from the hospital due to work hour restriction. This will induce a crisis of shortage of employed physicians in hospitals.

Table 2

The association between the number of weekly deliveries and work hours in 66 subjects.

	Work hours without awaiting time (hours)		Work hours with awaiting time (hours)	
	p value		p value	
Average	80.14 \pm 6.85		116.93 \pm 12.41	
Duty (n = 38)	92.08 \pm 8.70	<0.05		
No duty (n = 28)	63.95 \pm 7.79			
Delivery no. ≥ 10 (n = 33)	83.03 \pm 7.46	0.41	131.39 \pm 15.40	0.02
Delivery no. ≤ 9 (n = 33)	77.26 \pm 11.53		102.47 \pm 18.40	
Delivery no. ≥ 15 (n = 14)	86.43 \pm 10.86	0.35	130.93 \pm 27.26	0.25
Delivery no. ≤ 14 (n = 52)	78.45 \pm 8.17		113.16 \pm 13.90	

Therefore, there might be a change in the obstetric service model to decrease the impact of work hour restriction. On-duty OB/GYNs will accept the work of other physicians when they are off after the normal daily work time. This work could include taking care of labor and childbirth. This model is quite different. To avoid over time work, OB/GYNs have to transfer their cases to on-duty physicians. We found that 45 (62.5%) of them were willing to shift their work to other on-duty OB/GYNs, and 54 (75%) of them would accept the work shift when they are on duty. However, 59 (81.9%) thought that the on-duty model will or probably result in an increase in the number of medical disputes.

Because of the long work hours in obstetrics, 53 (73.6%) of the OB/GYNs did not have sufficient sleep and rest; 23 (31.9%) always or generally felt exhausting after work, and only 17 (23.6%) never or seldom felt tired. In addition, 33 (59.6%) of them usually sacrificed or canceled their social activity due to unpredictable childbirths and long work hours. Thus, only 15 (20.8%) felt satisfied of their life quality, and 29 (40.2%) were dissatisfied. Moreover, 15 (20.8%) of them felt unhealthy, whereas 21 (29.2%) felt well. Furthermore, 30 (41.6%) of them thought that the salary was not compatible to their work. However, fortunately, 35 (48.6%) of them were satisfied with the present work, and only 9 (12.5%) felt dissatisfied. Perhaps the sense of accomplishment made them stay on the job despite the heavy workload.

Discussion

In Taiwan, the balance between work and life of physicians has aroused concerns due to several occupational injuries of overwork. Whether employed physicians should be included in Taiwan's Labor Standards Act and in the work hour restriction has raised several debates, especially in the past 10 years. This is because of the shortage of residents in internal medicine, surgery, OB/GYN, and pediatrics, which included only four major specialists. The top three reasons why medical students choose specialists included workload, medical disputes, and salary. Concerns regarding workload and medical disputes are higher. To improve the situation, resident physicians have work hour restriction that was implemented in 2013, but the employed attending physicians who finished resident training were not included due to being exempt employees. According to the report of Chao A. Hsiung, there will be a shortage of physicians by the year 2022 [6]. Another concern raised from patients is that physicians' work hour restriction would decline the quality of care due to inadequate manpower.

The purpose of this survey was to determine the impact of work hour restriction on obstetricians. The number of childbirths was 414,000 in Taiwan in 1981 and declined rapidly to 208,000 in 2016 and 194,000 in 2017. In total, 71.3% of newborns were delivered in hospitals and 28.6% in local clinics. Only 0.1% were born by midwives in 2016. The fertility rates were 1.17% and 1.125% in 2015 and 2016. Despite the decline in the birthrate, the medical demand has increased. In Taiwan, almost all newborns were delivered by OB/GYNs. Pregnant women received prenatal care and childbirth care by the same OB/GYN. Physicians get a total salary with basic salary and PPF from their medical services. There were total of 284 OB/GYNs who delivered more than 20 babies per month in 2016 and 196 worked in hospitals. A total of 88 OB/GYNs who were working in obstetric clinics were excluded because of the partnership without work hour regulation by the Labor Standards Act. According to the TAOG's survey in 2015, 77% of OB/GYNs take care of both obstetric and gynecologic patients. Some of them were majored in gynecology but also took of deliveries occasionally. Those working in obstetric clinics or employed physicians in hospitals who delivered <20 newborns per month were excluded in this study.

The database of TAOG revealed a total of 2659 OB/GYN physicians, 651 (24.5%) of whom were aged >65 years in 2017. In this survey, 25 (34.7%) and 26 (36.1%) of them were aged 40–49 and 50–59 years, respectively. Most of the physicians obtained specialization in OB/GYN by the age of 30 years, including PGY of 1 year and resident training of 4 years. Only 7 (9.7%) were aged 30–39 years. This may be due to two reasons; the first one is that it is necessary to devote time to become well-practicing obstetricians. The second reason is that fewer physicians choose obstetrics as their carrier. The proportion of physicians in the age group of 60–69 years declined to 14 (19.5%). Obstetrics is both labor- and time-consuming. Physical strength decreases with age. In addition, most of the hospitals set 65 years as the retirement period. Aging among OB/GYNs is an important issue. If fewer younger physicians become OB/GYNs, there would be difficulty in maternal and child health care even without work hour restriction.

The total proportion of women OB/GYNs was 591 (22.21%). There was a trend of increasing number of young women OB/GYNs in the past 20 years. Women in the age groups of 36–40 and 41–45 years constituted 71.8% and 62.24%, respectively. Only 12 (16.7%) women OB/GYNs delivered >20 newborns per month. Female physicians have more stress and conflict between work and family life. Several studies have reported gender difference in the choice of specialties of medical students. Male physicians opt for technical- and instrumental-oriented specialties such as surgery, whereas female students tend to choose more relationship-oriented specialties such as general practitioner [11,12]. There are also some concerns about personal safety during night-time work and physical strength during long work hours. That is why there are fewer female obstetricians, especially when they have family. Because two-thirds of OB/GYNs aged <45 years were females, it is important to create a female-friendly work environment to recall them back to obstetrics after the implementation of the work hour restriction.

According to the weekly work diary survey, the average work hours per week were 80.14. Clinical work included outpatient service, surgery, delivery work, and on-duty in the hospital. The work time awaiting delivery was not included because it is not mandatory to stay in the hospital. However, most of the OB/GYNs stay at home or nearby during that waiting period. The total awaiting delivery time was 36.79 h per week, and 17.11 h waiting time was during off time. Based on the weekly work diary, eight types of works were analyzed using correlation with total work hours. The average work hours of 92.08 among physicians with on-duty work were significantly higher than those of physicians without on-duty works (63.95 h). Some employed OB/GYNs did not have on-duty work due to the presence of Residents in their hospitals. However, others had to stay in the hospital overnight to take care of inpatients, and their work hours were significant higher.

Interestingly, the number of childbirths had no significant influence on total work hours. According to the work diary, OB/GYNs generally took 30 min to 2 h to deliver a newborn. The average work hours for delivery were only 8.14. However, the average time of awaiting delivery was 36.79 h per week, and half of the awaiting time was during non-daily work time. If the awaiting time was calculated into work hours, then those who delivered ≥10 babies had significantly longer work hours than who delivered <10 babies. However, the awaiting delivery time was not real work hours by definition, even though the OB/GYNs stayed at home or nearby to wait for their patients' childbirth. If the awaiting time was added to total work hours, the average weekly work hours increased to 116.93, which were much longer than the residents' 80-hour restriction.

Due to long work hours, 53 (73.6%) felt not having sufficient rest and sleep and 29 (40.2%) were dissatisfied with their life quality. However, only 15 (20.8%) felt unhealthy. In addition, 43 (59.6%) of them often or always needed to sacrifice or cancel their social

activities due to work. Obstetrics requires physical strength due to long work hours, and aging also results in a crisis of manpower shortage. According to estimation, half of OB/GYNs will be older than 60 years and 30% will be females by the year 2022. In this survey, most of the practicing obstetricians were males and aged 40–59 years. In fact, work hour restriction will have a significant impact on obstetrics in the future.

In this survey, 43 (59.7%) of OB/GYNs believed that the reasonable weekly work hours should be <60, whereas 13 (18%) and 7 (9.7%) believed that 60–69 and 70–79 h, respectively, were reasonable. If the weekly work hours were limited to 60, 70, and 80, there would be 52 (78.9%), 42 (63.6%), and 33 (50%) of OB/GYNs working overtime, respectively, according to their work diary survey. To improve the difficult position after implementation of the work hour restriction, some changes have to be made in the patient care model, which was first implemented in 1996 and then developed rapidly. The hospitalists worked only in the hospital and cooperated with primary care physicians. Some studies have reported that the hospitalist model may reduce hospital costs and length of hospitalization and improve the care quality. However, the patient–physician relationship tended to weaken. Due to the work hour restriction, the pregnant women care model may shift to delivery by on-duty OB/GYNs to reduce the workload. In Taiwan, the majority of pregnant women receive prenatal care and childbirth by the same physician. Unlike hospitalists, obstetricians are specialists in caring for women during and after childbirth. They also have a unique relationship and trust with them. According to the on-duty model, 45 (62.5%) of OB/GYNs were willing to transfer their patients to on-duty physicians and 54 (75%) accepted the patients of other physicians who were not on duty. Pregnant women received 10 prenatal care and had built a strong relationship with their OB/GYNs. When both labor and childbirth care were undertaken by other on-duty OB/GYNs, another problem arises, that is, the management might have some differences according to different OB/GYNs and who should take the responsibility of complications during work shifts. Therefore, 59 (71.9%) of them thought that medical disputes will or possibly arise. It is important to establish an obstetric team to take care of all pregnant women and build new relationships with OB/GYNs.

The salary of employed physicians is based on the medical service volume, primarily according to the PPF. Work hour restriction will also restrict the service volume and the physician fee. A total of 52.7% (38) thought that the reasonable number of deliveries is 5–9 per week. Furthermore, 58 (80.5%) agreed that their salary will and possibly change after implementation of the work hour restriction and 13 (18%) may leave the hospital to local clinics. This will deteriorate the shortage of manpower in hospitals. Currently, half of practicing OB/GYNs work in hospitals, and the remaining work in local clinics. As the work hour restriction is applicable only to

employed physicians, hospital managers must find solutions to retain their employed physicians, including raising the physician fee, changing the medical service model, delaying the mandatory retirement age, and improving the work environment, to recall more female OB/GYNs.

Obstetricians have longer work hours. Implementation of work hour restriction will have a significant impact on medical care. It is important to determine a reasonable work hour restriction and modify the patient care model to reduce workload before the implementation of the restriction. In addition, it is important to improve the work environment to attract more medical students and recall female physicians to expand the number of employed obstetricians in hospitals.

Conflict of interest

All authors claim no conflicts of interest with this work.

Acknowledgments

This survey was supported by Taiwan Ministry of Health and Welfare.

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