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Effects of Occupational Health Nurses and Staff on the Performance of Occupational Health Physicians in the Workplace

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Introduction

In Japan, Industrial Safety and Health Law 1) requires that workplaces employing 50 or more workers appoint an occupational health physician (OHP) to protect and promote the workers' health. 2) When a workplace has 1,000 or more workers, an OHP is appointed to operate exclusively in a single workplace. For smaller workplaces, most OHPs are on part-time contracts and visit the workplace only once, or a few, times a month. In Japan, it is also mandatory for all employers to provide regular health check-ups for their employees at least once a year. 3) Consequently, the majority of the time that the OHP spends in the workplace is absorbed by dealing with check-up data, which makes it difficult for the OHP to provide the health and safety services expected, such as inspecting the workplace or planning ways to improve workers' health in the workplace. Unlike OHPs, there is no requirement under Japanese legislation for workplaces to appoint occupational health nurses (OHNs). 4) However, to provide sufficient occupational health services, many workplaces employ registered or public health nurses, in addition to an OHP. To implement a program to improve the occupational health services provided by OHPs in the workplace, we conducted a questionnaire survey of the workplaces of a large company group. In this study, we focused on the effect of OHNs and occupational health staff (OHNs/staff) on the degree of active engagement occupational health services (versus medical data handling) of OHPs in the workplace.

Methods

A questionnaire survey was administered to a large company group with more than 200 member companies, and employing nearly 300,000 workers, in 2013. The questionnaire comprised 38 items related to how health check-up data were handled by, and the performance of OHPs, in terms of whether they were assisted by health and safety staff. Most of the workplaces of the company that have at least 1,000 workers also have a full-time OHP, whereas those with fewer workers have part-time OHPs. The actual services by the OHP expected to perform (listed in the first column of Table 2), adjusting for the number of hours that they work per monthly. The degree of engagement of the OHP with occupational health services was assessed according to whether health check-up data were processed by OHNs/staff [1,2].

Table 1: Subject characteristics.

	n(%)
Number of employees (n=245)	
< 499	164 (66.9)
500 to 999	43 (17.6)
> 1,000	38 (15.5)
Type of OHP (n=245)	
Part-time OHPs	207 (84.5)
Full-time OHPs	38 (15.5)
Hours worked /month by part-time OHPs (n = 207)	
< 1h	22 (10.6)
1 to < 3h	79 (38.2)
≥ 3h	102 (49.3)
Missing data	4 (1.9)

OHP, occupational health physician

Results

Table 1 shows the characteristics of the workplaces studied. The questionnaire was completed by 245 member companies, of which 15.5% had a full-time OHP and 84.5% had a part-time OHP. Full-time OHPs attended workplace Occupational Health and Safety Committee meetings more frequently, conducted walk-through inspections more often, and performed all services related to the work environment, working practices, and healthcare more frequently than did part-time OHPs (Table 2A).

Table 2B shows that for certain services supported by OHNs/staff, part-time OHPs performed as well as full-time OHPs. When we examined only the results for part-time OHPs, more OHP engagement in the workplace was seen when the OHNs/staff helped to process the health check-up data (Table 2C).

Table 2: Performance of occupational health physicians (OHP).

	A			B			C		
	Full-time OHPs n (%)	Part-time OHPs n (%)	Odds ratio (95%CI)	No OHN/staff n (%)	OHN/staff n (%)	Odds ratio (95% CI)	No OHN/staff n (%)	OHN/staff n (%)	Odds ratio (95% CI)
	Total (n=243)			Total (n=245)			Total (n=207)		
Participation to the occupational health and safety committee									
Always attend the committee	33(91.7)	123(72.4)	0.1 (0.0-1.1)	103(57.9)	53(82.8)	**3.5 (1.7-7.2)**	101(57.4)	22(78.6)	**2.7 (1.1-7.1)**
Checking the records of the committee	27(93.1)	110(75.9)	1.0 (0.4-2.4)	135(79.4)	58(92.1)	**3.0 (1.1-8.1)**	133(79.2)	24(88.9)	2.1 (0.6-7.4)
Walk-through inspection of the workplace									
Every month	35(92.1)	104(59.1)	0.3 (0.1-1.3)	87(49.2)	51(79.7)	**4.1 (2.1-8.0)**	85(48.6)	18(64.3)	1.9 (0.8-4.4)
Supervision of occupational health system									
Recommendation to the Chief Safety and Health Officer	17(44.7)	83(40.1)	0.5 (0.2-1.2)	69(38.8)	31(48.4)	1.5 (0.8-2.6)	69(39.2)	14(50.0)	1.6 (0.7-3.5)
Supervising and advising the Health Supervisor	29(76.3)	174(84.1)	1.6 (0.6-4.4)	147(82.6)	56(87.5)	1.5 (0.6-3.4)	147(83.5)	27(96.4)	5.3 (0.7-40.8)
Compliance with Industrial Safety and Health Law and related regulations	36(94.7)	132(63.8)	0.2 (0.0-1.0)	115(64.6)	53(82.8)	**2.6 (1.3-5.4)**	113(64.2)	19(67.9)	1.2 (0.5-2.8)
Management for working environment									
Work environment monitoring and personal exposure measurement	12(31.6)	36(17.4)	0.6 (0.2-1.6)	29(16.3)	19(29.7)	**2.2 (1.1-4.2)**	29(16.5)	7(25.0)	1.7 (0.7-4.3)
Evaluation of work-related health risk	26(68.4)	74(35.8)	**0.3 (0.1-0.8)**	54(30.3)	46(71.9)	**5.9 (3.1-11.0)**	53(30.1)	21(75.0)	**7.0 (2.8-17.4)**
Improvement of working environment	30(79.0)	94(45.4)	**0.2 (0.1-0.6)**	79(44.4)	45(70.3)	**3.0 (1.6-5.5)**	78(44.3)	16(57.1)	1.7 (0.8-3.8)
Maintenance of facilities for work environment control	17(44.7)	38(18.4)	**0.3 (0.1-0.7)**	107(17.4)	24(37.5)	**2.9 (1.5-5.4)**	31(17.6)	7(25.0)	1.6 (0.6-4.0)
Any one of the above	32(84.2)	129(62.3)	**0.3 (0.1-0.9)**	107(60.1)	54(84.4)	**3.6 (1.7-7.5)**	106(60.2)	23(82.1)	**3.0 (1.1-8.4)**
Management for work practice									
Improvement of hazardous work practice	24(63.2)	67(32.4)	**0.4 (0.2-1.0)**	50(28.1)	41(64.1)	**4.6 (2.5-8.4)**	49(27.8)	18(64.3)	**4.7 (2.0-10.8)**

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Protection device management	23(60.5)	52(25.1)	**0.4 (0.2-0.9)**	37(20.8)	38(59.4)	**5.6 (3.0-10.3)**	36(20.5)	16(57.1)	**5.2 (2.3-11.9)**
Prevention of health impairment due to overwork	33(86.8)	132(63.8)	**0.2 (0.0-1.0)**	110(61.8)	55(85.9)	**3.8 (1.8-8.1)**	108(61.4)	24(85.7)	**3.8 (1.3-11.4)**
Prevention of work related diseases	26(68.4)	74(35.8)	**0.3 (0.1-0.7)**	57(32.0)	43(67.2)	**4.4 (2.4-8.0)**	56(31.8)	18(64.3)	**3.9 (1.7-8.9)**
Improvement of working conditions including working hours	27(71.1)	94(45.4)	**0.3 (0.1-0.8)**	82(46.1)	39(60.9)	**1.8 (1.0-3.3)**	81(46.0)	13(46.4)	1.0 (0.5-2.3)
Any one of the above	36(94.7)	164(79.2)	0.2 (0.0-1.4)	141(79.2)	59(92.2)	**3.1 (1.2-8.3)**	139(79.0)	25(89.3)	2.2 (0.6-7.8)
Management for healthcare									
Evaluation of the results of health check-up	32(86.5)	101(51.0)	>10.0 (<0.0->10.0)	84(48.6)	48(78.7)	**3.9 (2.0-7.7)**	82(48.0)	18(69.2)	**2.4 (1.0-5.9)**
Interview of workers with long overtime work hours	16(51.6)	67(45.0)	0.8 (0.3-2.0)	59(49.2)	28(62.2)	1.7 (0.8-3.4)	58(48.7)	10(52.6)	1.2 (0.4-3.1)
Prevention and control for work-related diseases	34(89.5)	114(55.1)	**0.3 (0.1-0.8)**	96(53.9)	52(81.3)	**3.7 (1.9-7.4)**	94(53.4)	20(71.4)	2.2 (0.9-5.2)
Health promotion and maintenance measures	34(89.5)	125(60.4)	**0.2 (0.0-0.6)**	104(58.4)	55(85.9)	**4.4 (2.0-9.4)**	103(58.5)	22(78.6)	**2.6 (1.0-6.7)**
Consideration for the individual characteristics of the workers	33(86.8)	96(46.4)	**0.2 (0.0-0.6)**	80(44.9)	49(76.6)	**4.0 (2.1-7.7)**	78(44.3)	18(64.3)	2.3 (1.0-5.2)
Occupational health education									
Occupational health education	31(81.6)	98(47.3)	**0.3 (0.1-1.0)**	82(46.1)	47(73.4)	**3.2 (1.7-6.1)**	80(45.5)	18(64.3)	2.2 (0.9-4.9)
Mandate consideration for workers' health and responsibility for self care	31(81.6)	94(45.4)	**0.1 (0.0-0.4)**	76(42.7)	49(76.6)	**4.4 (2.3-8.4)**	75(42.6)	19(67.9)	**2.8 (1.2-6.6)**
Implementation of health education	32(84.2)	149(72.0)	0.3 (0.1-1.0)	127(71.4)	54(84.4)	**2.2 (1.0-4.6)**	126(71.6)	23(82.1)	1.8 (0.7-5.1)

A: Comparison of the occupational health services provided by part-time and full-time OHPs.

B: Services performed by OHPs with and without assistance from occupational health nurses (OHNs)/staff.

C: Services performed by part-time OHPs with and without assistance from OHNs/staff.

(All adjusted for hours worked by OHPs per month. Statistically significant ($p<0.05$) odds ratios are in bold.)

Discussion

Our results suggest that the full-time OHPs provided a higher level of service than the part-time OHPs. This difference was not due to the difference in amount of time spent in the workplace, because the data in Table 1 were adjusted for engagement time. However, some services were provided equally effectively by part-time OHPs when they were assisted by OHNs/staff (Table 2B). The effect of assistance from OHNs/staff persisted when we limited the analysis to the part-time OHPs (Table 2C). Although this study was performed on a single large company with several hundred thousand workers, we need to be cautious when generalizing the results [3]. The definition and classification of occupational health services and support from an OHNs / staff need to be specified further to obtain more reliable findings. Nevertheless, keeping these limitations in mind, we suggest that occupational health services in the workplace can be improved as follows.

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For managing workplace health in Japan, the OHP is a key individual who makes plan for and delivers occupational health services, and evaluates the results to prevent work-related disease and promote workers' health. In Japan, more than 140,000 workplaces are legally required to appoint an OHP, but there are only 80,000 physicians who are certified to be an OHP, most of whom are predominantly engaged in clinical practice. The vast majority of OHPs have part-time contracts and their time in the workplace is generally limited. Therefore, to achieve better occupational health services in the workplace, OHPs must use their time in the workplace more efficiently. Our results suggest that OHNs/staff improve the performance of OHPs, which in turn improves occupational health in the workplace [4].

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