

ORIGINAL RESEARCH

Risk Factors of Workplace Violence at Hospitals in Japan

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BACKGROUND: Patients and their relatives exposed to mental stress caused by hospitalization or illness might use violence against healthcare staff and interfere with quality healthcare.

OBJECTIVE: The aim of this study was to investigate incidences of workplace violence and the attributes of healthcare staff who are at high risk.

DESIGN: A questionnaire-based, anonymous, and self-administered cross-sectional survey.

SETTING: Healthcare staff ($n = 11,095$) of 19 hospitals in Japan.

MEASUREMENTS: Incidence rates and adjusted odd ratios of workplace violence were calculated to examine the effect of attributes of healthcare staff to workplace violence by using logistic regression analysis.

RESULTS: The response rate for survey completion was 79.1% (8711/11,095). Among the respondents, 36.4% experienced workplace violence by patients or their relatives in the past year; 15.9% experienced physical

aggression, 29.8% experienced verbal abuse, and 9.9% experienced sexual harassment. Adjusted odds ratios of physical aggression were significantly high in psychiatric wards, critical care centers/intensive care units (ICU)/cardiac care units (CCU), long-term care wards, for nurses, nursing aides/care workers, and for longer working hours. Adjusted odds ratios of verbal abuse were significantly high in psychiatric wards, long-term care wards, outpatient departments, dialysis departments, and for longer years of work experience, and for longer working hours. Adjusted odds ratios of sexual harassment were significantly high in dialysis departments, for nurses, nursing aides/care workers, technicians, therapists and females. The general ward and direct interaction with patients were common risk factors for each type of workplace violence.

CONCLUSIONS: The mechanisms and the countermeasures for each type of workplace violence at those high-risk areas should be investigated. *Journal of Hospital Medicine* 2012;7:79–84. © 2011 Society of Hospital Medicine

Patients and their relatives exposed to mental stress caused by hospitalization or illness might use violence against healthcare staff. Previous surveys reported that healthcare staff experience more workplace violence than other industry workers.^{1–3} Workplace violence by patients or their relatives may cause psychological problems or somatic effects on healthcare staff, such as losing self-respect, depression, post-traumatic stress disorder, stomachache, headache, or insomnia. Because those effects might lead to higher than usual turnovers of healthcare staff at a hospital, and interfere with high-quality healthcare services, workplace violence at healthcare settings became a global concern; a lot of studies investigating those circumstances mainly were

conducted in developed countries.^{4–15} Those studies revealed that the psychiatric ward, the emergency room, or the long-term care facilities were the high-risk areas of workplace violence; the incidence rate of physical aggression in the past year ranged from 3% to 35%; and the incidence rate of verbal abuse in the past year ranged from 26% to 64%. But the overall circumstances are still unclear, because most of the subjects in those studies were limited to nurses or some departments, such as the psychiatric ward or the emergency room. There might be other professions or departments with higher risk of workplace violence.

The aim of this study was to investigate the incidence of workplace violence and the attributes of healthcare staff, such as profession, age, gender, departments, and so on, who are at high risk of experiencing workplace violence.

METHODS

A questionnaire-based, anonymous, and self-administered cross-sectional survey was conducted at 19 hospitals in Japan from January to December 2009. Among the 19 hospitals, 8 hospitals had less than 200 beds, 7 hospitals had 200 to 500 beds for acute care, and 4 hospitals had more than 500 beds for acute care. Thirteen of 19 hospitals were teaching hospitals.

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Eight out of 19 hospitals were located in urban areas. The characteristics of the 19 hospitals are shown in Table 4 of Supporting Appendix (in the online version of this article). The questionnaires were distributed to all 11,095 healthcare staff with a sealed reply envelope, and were collected anonymously using a collection box at each hospital.

The questionnaire contained questions about workplace violence, the work environment, and other topics. This study classifies workplace violence into physical aggression, verbal abuse, and sexual harassment. The respondents were requested to reply in regard to their experiences with each of these 3 types of workplace violence by patients or their relatives, over the past year. In this article, only those 3 questions and some background information of respondents were used for analysis. The race of patients and medical staff was not investigated because Japan is a racially homogeneous nation, and more than 99% of the population is Asian.

Logistic regression analysis with forced entry of all variables to examine the effect of attributes of healthcare staff to workplace violence was used. In this analysis, random effects of each hospital or area were not taken into account. All analyses were performed using SPSS 18.0 (SPSS, Inc, Chicago, IL), and $P < 0.05$ was used to determine significance.

In this study, workplace violence was defined as an event that was subjectively recognized by healthcare staff as violence caused by patients or their relatives. The violence among healthcare staff was excluded.

RESULTS

The response rate was 79.1% (8711/11,095). Among the 8771 respondents, 36.4% experienced workplace violence by patients or their relatives over the past year; 15.9% experienced physical aggressions, 29.8% experienced verbal abuse, and 9.9% experienced sexual harassment. Table 1 provides characteristics of the respondents; Table 2 shows the proportion of victims for workplace violence.

Because of missing values, 6654 out of 8771 (75.9%) replies were used for the logistic regression analysis. Nagelkerke R^2 for physical aggression was 0.33, for verbal abuse was 0.16, for sexual harassment was 0.23, and for at least one of the above types of violence was 0.23. The proportions of respondents, who had experienced each type of workplace violence, were not significantly different among the replies with missing data and with the effective data actually used.

Factors Associated With Higher Risk of Violence

Adjusted odds ratios of physical aggression were significantly high in general wards, psychiatric wards, critical care centers/intensive care units (ICU)/cardiac care units (CCU), and long-term care wards; and for nurses, nursing aides/care workers; for longer

working hours; and for direct interaction with patients (Table 3).

Adjusted odds ratios of verbal abuse were significantly high in hospital with 200 beds or more, in general wards, psychiatric wards, long-term care wards, outpatient departments, and dialysis departments; and for longer years of experience in their own specialty; for longer working hours; and for direct interaction with patients.

Adjusted odds ratios of sexual harassment were significantly high in general wards, and dialysis departments; for nurses, nursing aides/care workers, technicians, therapists; for females; and for direct interaction with patients.

Adjusted odds ratios for at least 1 of the 3 kinds of workplace violence were significantly high in hospitals with 200 beds or more, in general wards, psychiatric wards, critical care centers/ICU/CCU, long-term care wards, and dialysis departments; for nurses; for longer years of experience in their own specialty; for longer working hours; for females; and for direct interaction with patients.

Factors Associated With Lower Risk of Violence

Adjusted odds ratios of physical aggression were significantly low in dialysis departments; outpatient departments; operation departments; obstetrics and gynecology wards, perinatal wards, or neonatal intensive care units (NICU); and for clerks.

Adjusted odds ratios of verbal abuse were significantly low in operation departments; obstetrics and gynecology wards, perinatal wards, or NICU; and for technicians.

Adjusted odds ratios of sexual harassment were significantly low in clinical radiology departments; outpatient departments; pediatric wards; operation departments; obstetrics and gynecology wards, perinatal wards, or NICU; and for longer years of experience in their own specialty.

Adjusted odds ratios for at least 1 of the 3 kinds of workplace violence were significantly low in pediatric wards; operation departments; obstetrics and gynecology wards, perinatal wards, or NICU; and for technicians.

DISCUSSION

Among the healthcare staff, 36.4% experienced workplace violence by patients or their relatives over the past year; 15.9% experienced physical aggressions, 29.8% verbal abuse, and 9.9% sexual harassment. The risk factors of workplace violence identified in the present study were similar to those studies conducted not only in Japan, but also in Western countries. Though the target population was limited to Asians, our results can be applicable to other races, countries, and cultures.

TABLE 1. Characteristics of Respondents

		No. of Respondents	
		n	(%)*
No. of beds in their hospital	<200 beds	1298	(14.8)
	200-500 beds	3041	(34.7)
	500 beds or more	4432	(50.5)
Section	General ward	2377	(27.1)
	Administration department	989	(11.3)
	Outpatient department	675	(7.7)
	Physicians' department†	610	(7.0)
	Dietary department	435	(5.0)
	Long-term care ward	331	(3.8)
	Rehabilitation department	318	(3.6)
	Critical care center, ICU, or CCU	306	(3.5)
	Obstetrics and gynecology ward, perinatal ward, or NICU	287	(3.3)
	Clinical laboratory or physiology department	266	(3.0)
	Operation department	264	(3.0)
	Pharmaceutical department	209	(2.4)
	Pediatric ward	203	(2.3)
	Radiology department	197	(2.2)
	Dialysis department	104	(1.2)
	Psychiatric ward	56	(0.6)
	Others	1144	(13.0)
Profession	Nurse	4298	(49.0)
	Clerk	1208	(13.8)
	Doctor	610	(7.0)
	Nursing aide or care worker	585	(6.7)
	Technician	547	(6.2)
	Dietician or cook	435	(5.0)
	Therapist	313	(3.6)
	Pharmacist	183	(2.1)
	Others	592	(6.7)
Years of experience in their own specialty or profession	<5 yr	3497	(39.9)
	6-10 yr	1618	(18.4)
	11-15 yr	1041	(11.9)
	16-20 yr	761	(8.7)
	21 yr or more	1218	(13.9)
	Not reported	636	(7.3)
Working hours per week	<20 hr	640	(7.3)
	20-40 hr	1720	(19.6)
	40-60 hr	4638	(52.9)
	60 hr or more	655	(7.5)
	Not reported	1118	(12.7)
Gender	Male	1941	(22.1)
	Female	6272	(71.5)
	Not reported	558	(6.4)
Direct interaction or contact with patients	Having those contacts	7227	(82.4)
	Not having those contacts	1001	(11.4)
	Not reported	543	(6.2)
Total		8771	(100.0)

Abbreviations: CCU, cardiac care unit; ICU, intensive care unit; NICU, neonatal intensive care unit.

* Proportion of respondents among the total population.

† Physicians usually do not belong to 1 section, but are included in the physicians' department.

Incidence of Workplace Violence

Most previous studies covered only specific professions at hospitals, such as nurses or critical care center staff, and there are only few multicenter studies covering entire sections and professions like this study.^{5-10,12-14}

A Spanish study including about 8000 healthcare workers reported that 11% had experienced physical aggression, 64% had experienced threatening behavior, intimidation, or insults in the past year.¹¹ The incidence of physical aggression was similar in both

studies, but the incidence of verbal abuse was about twice as high as that of this study. The low response rate in the Spanish study (24%) might have contributed to a higher number of verbal abuse incidents, because those with experience of workplace violence would likely have answered the questionnaire. It is difficult to compare the incidence of workplace violence among different studies because the definitions of workplace violence differ widely. Ethnic culture might also affect the acknowledgement of

TABLE 2. Proportion of Victims for Workplace Violence

		No. of Respondents n	Physical Aggression Experience		Verbal Abuse Experience		Sexual Harassment Experience		Experience of at Least 1 of the 3 Kinds of Violence	
			n	(%)*	n	(%)*	n	(%)*	n	(%)*
No. of beds in their hospital	<200 beds	1298	244	(18.8)	306	(23.6)	109	(8.4)	413	(31.8)
	200-500 beds	3041	503	(16.5)	971	(31.9)	354	(11.6)	1173	(38.6)
	500 beds or more	4432	645	(14.6)	1338	(30.2)	406	(9.2)	1606	(36.2)
Section	Psychiatric ward	56	33	(58.9)	37	(66.1)	8	(14.3)	42	(75.0)
	General ward	2377	852	(35.8)	1057	(44.5)	536	(22.5)	1371	(57.7)
	Dialysis department	104	5	(4.8)	44	(42.3)	24	(23.1)	55	(52.9)
	Critical care center, ICU, or CCU	306	90	(29.4)	108	(35.3)	41	(13.4)	151	(49.3)
	Long-term care ward	331	108	(32.6)	109	(32.9)	38	(11.5)	157	(47.4)
	Outpatient department	675	47	(7.0)	268	(39.7)	44	(6.5)	292	(43.3)
	Physicians' department†	610	33	(5.4)	193	(31.6)	6	(1.0)	203	(33.3)
	Pediatric ward	203	23	(11.3)	50	(24.6)	13	(6.4)	62	(30.5)
	Rehabilitation department	318	53	(16.7)	70	(22.0)	31	(9.7)	96	(30.2)
	Administration department	989	10	(1.0)	247	(25.0)	16	(1.6)	251	(25.4)
	Clinical radiology department	197	11	(5.6)	40	(20.3)	2	(1.0)	48	(24.4)
	Operation department	264	11	(4.2)	38	(14.4)	9	(3.4)	43	(16.3)
	Clinical laboratory or physiology department	266	4	(1.5)	37	(13.9)	9	(3.4)	43	(16.2)
	Obstetrics and gynecology ward, perinatal ward, or NICU	287	3	(1.0)	26	(9.1)	2	(0.7)	28	(9.8)
	Dietary department	435	7	(1.6)	39	(9.0)	8	(1.8)	42	(9.7)
	Pharmaceutical department	209	1	(0.5)	15	(7.2)	5	(2.4)	19	(9.1)
	Others	1144	101	(8.8)	237	(20.7)	77	(6.7)	289	(25.3)
Profession	Nurse	4298	1150	(26.8)	1694	(39.4)	729	(17.0)	2155	(50.1)
	Doctor	610	33	(5.4)	193	(31.6)	6	(1.0)	203	(33.3)
	Nursing aide or care worker	585	104	(17.8)	151	(25.8)	39	(6.7)	191	(32.6)
	Therapist	313	53	(16.9)	71	(22.7)	31	(9.9)	96	(30.7)
	Clerk	1208	15	(1.2)	311	(25.7)	23	(1.9)	314	(26.0)
	Technician	547	15	(2.7)	79	(14.4)	19	(3.5)	97	(17.7)
	Dietician or cook	435	7	(1.6)	38	(8.7)	8	(1.8)	41	(9.4)
	Pharmacist	183	0	(0.0)	13	(7.1)	5	(2.7)	17	(9.3)
	Others	592	15	(2.5)	65	(11.0)	9	(1.5)	78	(13.2)
Years of experience in their own specialty or profession	<5 yr	3497	527	(15.1)	919	(26.3)	384	(11.0)	1183	(33.8)
	6-10 yr	1618	316	(19.5)	510	(31.5)	183	(11.3)	636	(39.3)
	11-15 yr	1041	210	(20.2)	350	(33.6)	125	(12.0)	421	(40.4)
	16-20 yr	761	111	(14.6)	253	(33.2)	58	(7.6)	294	(38.6)
	21 yr or more	1218	160	(13.1)	422	(34.6)	85	(7.0)	475	(39.0)
	Not reported	636	68	(10.7)	161	(25.3)	34	(5.3)	183	(28.8)
Working hours per week	<20 hr	640	50	(7.8)	148	(23.1)	39	(6.1)	173	(27.0)
	20-40 hr	1720	234	(13.6)	473	(27.5)	157	(9.1)	583	(33.9)
	40-60 hr	4638	798	(17.2)	1424	(30.7)	498	(10.7)	1726	(37.2)
	60 hr or more	655	103	(15.7)	242	(36.9)	50	(7.6)	279	(42.6)
	Not reported	1118	207	(18.5)	328	(29.3)	125	(11.2)	431	(38.6)
Gender	Male	1941	185	(9.5)	471	(24.3)	77	(4.0)	529	(27.3)
	Female	6272	1137	(18.1)	2004	(32.0)	752	(12.0)	2494	(39.8)
	Not reported	558	70	(12.5)	140	(25.1)	40	(7.2)	169	(30.3)
Direct interaction or contact with patients	Having those contacts	7227	1325	(18.3)	2395	(33.1)	834	(11.5)	2945	(40.7)
	Not having those contacts	1001	17	(1.7)	100	(10.0)	7	(0.7)	107	(10.7)
	Not reported	543	50	(9.2)	120	(22.1)	28	(5.2)	140	(25.8)
Total		8771	1392	(15.9)	2615	(29.8)	869	(9.9)	3192	(36.4)

workplace violence. The European NEXT study including about 30,000 nurses in 8 European countries reported a range of 10.4% incidence of workplace violence in the Netherlands, and 39.1% in France.¹⁰

Risk Factors of Physical Aggression

Previous studies reported that the prevalence of physical aggression is high in psychiatric wards, critical care centers, or long-term care wards.¹⁰⁻¹⁵ In these departments, patients with mental illness,

postoperative delirium, or dementia are likely to be admitted.

Nurses and nursing aides are reported to be likely to experience physical aggression.^{3,11,15} Nurses and nursing aides have longer work hours with direct interaction with patients than other professions, and are considered to be at high risk of physical aggression.

Some studies, which did not examine influences by profession or department, reported that “male” was a risk

TABLE 3. Odds Ratio of Workplace Violence by Patients or Relatives

		Physical Aggression		Verbal Abuse		Sexual Harassment		At Least 1 of the 3 Kinds of Violence	
		P	Odds Ratio (95%CI)	P	Odds Ratio (95%CI)	P	Odds Ratio (95%CI)	P	Odds Ratio (95%CI)
No. of beds in their hospital	<200 beds		1.00		1.00		1.00		1.00
	200-500 beds	0.51	0.90 (0.67-1.22)	<0.01*	1.64 (1.30-2.07)	0.19	1.27 (0.89-1.80)	<0.01*	1.45 (1.16-1.81)
Section	500 beds or more	0.02*	0.69 (0.51-0.94)	<0.01*	1.57 (1.24-1.98)	0.49	0.88 (0.62-1.26)	0.01*	1.32 (1.06-1.65)
	Physicians' department		1.00		1.00		1.00		1.00
	Psychiatric ward	<0.01*	9.28 (4.39-19.62)	<0.01*	3.33 (1.65-6.70)	0.69	0.80 (0.27-2.40)	<0.01*	4.55 (2.07-10.2)
	Long-term care ward	<0.01*	2.48 (1.55-3.96)	<0.01*	1.90 (1.27-2.86)	0.65	1.15 (0.63-2.09)	<0.01*	2.20 (1.50-3.24)
	General ward	<0.01*	3.00 (2.18-4.13)	<0.01*	1.73 (1.36-2.21)	<0.01*	1.89 (1.32-2.69)	<0.01*	1.98 (1.57-2.51)
	Dialysis department	0.02*	0.32 (0.12-0.83)	0.04*	1.65 (1.02-2.66)	0.01*	2.21 (1.23-3.97)	0.02*	1.81 (1.12-2.92)
	Critical care center, ICU, or CCU	<0.01*	2.44 (1.60-3.74)	0.49	1.13 (0.79-1.61)	0.56	1.17 (0.70-1.94)	0.04*	1.43 (1.01-2.01)
	Administration department	0.22	0.55 (0.21-1.44)	0.07	1.38 (0.98-1.93)	0.29	0.64 (0.27-1.48)	0.07	1.37 (0.98-1.91)
	Clinical radiology department	0.53	1.42 (0.48-4.21)	0.51	1.21 (0.69-2.12)	0.02*	0.17 (0.04-0.78)	0.57	1.17 (0.69-1.98)
	Rehabilitation department	0.93	0.93 (0.18-4.77)	0.88	1.08 (0.42-2.80)	0.82	1.22 (0.22-6.79)	0.77	1.14 (0.46-2.85)
	Outpatient department	<0.01*	0.41 (0.26-0.65)	0.03*	1.35 (1.02-1.78)	0.02*	0.56 (0.35-0.90)	0.40	1.12 (0.86-1.47)
	Dietary department	0.33	1.94 (0.51-7.35)	0.66	1.13 (0.65-1.99)	0.85	1.13 (0.30-4.26)	0.84	1.06 (0.61-1.82)
	Clinical laboratory or physiology department	0.40	0.53 (0.12-2.34)	0.85	1.06 (0.59-1.89)	0.21	0.52 (0.18-1.45)	0.87	0.96 (0.55-1.65)
	Pediatric ward	0.27	0.72 (0.41-1.29)	0.08	0.69 (0.45-1.05)	0.02*	0.43 (0.21-0.90)	0.03*	0.65 (0.43-0.97)
	Pharmaceutical department†	0.05	0.52 (0.26-1.01)	0.71	1.26 (0.36-4.38)	0.14	0.63 (0.34-1.17)
	Operation department	<0.01*	0.24 (0.12-0.48)	<0.01*	0.36 (0.23-0.55)	<0.01*	0.21 (0.09-0.48)	<0.01*	0.27 (0.18-0.41)
	Obstetrics and gynecology ward, perinatal ward, or NICU	<0.01*	0.04 (0.01-0.18)	<0.01*	0.19 (0.12-0.32)	<0.01*	0.02 (0.00-0.18)	<0.01*	0.14 (0.08-0.22)
Profession‡	Doctor		1.00		1.00		1.00	<0.01*	1.00
	Nurse	<0.01*	4.09 (2.41-6.95)	0.16	1.27 (0.91-1.76)	<0.01*	11.64 (4.38-30.90)		1.64 (1.19-2.26)
	Therapist	0.10	4.03 (0.76-21.28)	0.83	0.90 (0.34-2.39)	0.05*	7.11 (1.02-49.3)	0.83	1.11 (0.43-2.83)
	Nursing aide or care worker	0.03*	1.95 (1.07-3.55)	0.09	0.71 (0.47-1.05)	<0.01*	4.66 (1.63-13.31)	0.19	0.77 (0.53-1.14)
	Clerk	0.03*	0.36 (0.14-0.90)	0.27	0.80 (0.54-1.19)	0.17	2.26 (0.70-7.27)	0.09	0.72 (0.49-1.06)
	Technician	0.27	0.55 (0.19-1.60)	<0.01*	0.37 (0.22-0.61)	<0.01*	6.92 (2.20-21.76)	<0.01*	0.46 (0.28-0.74)
	Others	<0.01*	0.21 (0.08-0.57)	<0.01*	0.39 (0.25-0.60)	0.24	2.14 (0.60-7.63)	<0.01*	0.39 (0.25-0.59)
Years of experience in their own specialty or profession	<5 yr		1.00		1.00		1.00		1.00
	6-10 yr	<0.01*	1.42 (1.17-1.72)	0.01*	1.22 (1.05-1.42)	0.84	0.98 (0.78-1.22)	0.01*	1.22 (1.05-1.42)
	11-15 yr	<0.01*	1.64 (1.31-2.05)	<0.01*	1.45 (1.22-1.73)	0.30	1.14 (0.89-1.47)	<0.01*	1.35 (1.13-1.60)
	16-20 yr	0.30	1.16 (0.88-1.52)	<0.01*	1.47 (1.21-1.79)	0.09	0.75 (0.54-1.04)	<0.01*	1.34 (1.10-1.63)
	21 yr or more	0.58	1.07 (0.84-1.37)	<0.01*	1.65 (1.39-1.96)	<0.01*	0.63 (0.47-0.85)	<0.01*	1.38 (1.16-1.64)
Working hours per week	<20 hr		1.00		1.00		1.00		1.00
	20-40 hr	0.04*	1.49 (1.01-2.19)	0.52	1.08 (0.85-1.39)	0.12	1.40 (0.91-2.15)	0.10	1.23 (0.96-1.56)
	40-60 hr	<0.01*	1.80 (1.25-2.58)	0.03*	1.28 (1.02-1.60)	0.05*	1.50 (1.00-2.24)	<0.01*	1.39 (1.11-1.74)
	60 hr or more	<0.01*	2.14 (1.37-3.34)	<0.01*	1.62 (1.21-2.17)	0.14	1.49 (0.88-2.50)	<0.01*	1.90 (1.43-2.54)
Gender	(Female vs male)	0.69	0.95 (0.76-1.20)	0.16	1.12 (0.95-1.32)	<0.01*	1.59 (1.18-2.12)	0.01*	1.22 (1.05-1.43)
Direct interaction or contact with patients	(Constant and direct interaction with patients vs no interaction)	0.02*	2.17 (1.11-4.22)	<0.01*	2.46 (1.87-3.24)	<0.01*	6.80 (2.43-19.03)	<0.01*	2.58 (1.97-3.37)

Abbreviations: CCU, cardiac care unit; ICU, intensive care unit; NICU, neonatal intensive care unit.

* $P < 0.05$.

† Odds ratio of pharmaceutical department against physical aggression was not calculated because no staff experienced physical aggressions in the data set.

‡ In order to avoid multicollinearity, "Pharmacist" and "Dietician or cook" were included in "Others" because they are correlated to the "Pharmaceutical department" and the "Dietary department," respectively.

factor for physical aggression and verbal abuse.^{6,10,11,13}

In this study though, the male gender was not associated with physical aggression or verbal abuse. Male nurses and nursing aides are likely to be assigned to high-risk departments or to care for high-risk patients. Gender may be confounded with variables such as profession or department.¹⁵

Longer work hours mean more frequent interaction with patients, and the risk for physical aggression might increase. Constant and direct interaction with patients is a risk factor, not only for physical aggression, but also for verbal abuse and sexual harassment.¹⁰

Risk Factors of Verbal Abuse

Previous studies reported that incidents of verbal abuse are high for nurses and nursing aides.¹⁵ Although in this study the proportion of verbal abuse was the highest in nurses (39.4%), adjusted odds ratio was not significant. Factors other than "nurse" profession, such as department and direct interaction with patients relating to the "nurse" profession, might be the higher risk factors for verbal abuse.

As reported in previous studies, psychiatric wards and long-term care wards are risk factors of verbal abuse also in this study.^{10,13,15} Long waiting time at outpatient departments might increase the risk of verbal abuse.

Dialysis departments are at high risk of verbal abuse and sexual harassment. Compared to other outpatients, dialysis patients are forced to stay a long time in hospitals and there is, therefore, more interaction with nurses and technicians. The characteristic personality of dialysis patients, such as neuroticism or psychoticism, might also affect verbal abuse or sexual harassment.¹⁶

Because longer working hours mean more frequent interaction with patients, the risk of verbal abuse might increase.¹⁷ Managers with longer work experience might be at high risk for verbal abuse, because they often assume responsibility and take on the task of dealing with patients and their relevant complaints.¹¹

Risk Factors of Sexual Harassment

Nurses are likely to experience sexual harassment because their public image seems to combine sexuality and maternalism.¹⁸ Nursing aides, technicians, and therapists also experience sexual harassment. The common risk factor among those professions is the direct contact with the patient's body during the patient's transfer. A lot of studies reported that female gender is a risk factor of sexual harassment.^{17,19}

Safety Factors of Workplace Violence

Adjusted odds ratios of operation departments, and obstetrics and gynecology wards, perinatal wards, or NICU were common safety factors for each type of workplace violence. Usually, the patients in operation rooms cannot talk or move a finger carelessly during the surgery. The fact that there are no adult male patients in obstetrics and gynecology wards, perinatal wards, or NICU, might have an influence on lower occurrence of workplace violence in these areas.

Limitations

This study used a questionnaire survey asking about subjective experiences of workplace violence over the 1 year before the study. There is the possibility of recall bias, and the same incident recognized as workplace violence by one person might not have been recognized as such by another person, because sensitivity differs among respondents.

In some categories with fewer respondents, such as the pharmaceutical department, it might be difficult to examine the exact confidence intervals of odds ratio. Further study with increased respondents of those categories is needed to confirm the odds ratios and the confidence intervals.

The rates of victims or risk for workplace violence were considered to vary with the character of the residents of each area or policy of each hospital. Therefore, a further analysis with adjustment for those factors is needed.

CONCLUSIONS

This study reveals that a significant proportion of healthcare staff (36.4%) has experienced workplace violence over the 1 year before the study was conducted and suggests that workplace violence is a serious problem. The attributes of healthcare staff who are at risk of workplace violence could be identified for each type of workplace violence. The mechanisms and the countermeasures for each type of workplace violence at those high-risk areas should be further investigated. Further studies are necessary to confirm whether these findings are applicable to different races and different countries with different cultures.

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