



Conference Paper

State of Annual Paid Leave—Doctors' Working Conditions

GO Igusa, Katushi Mizuno, Eiji Takeda, Shunici Yasuda, and Masahiko Ichikawa

1. Survey Objectives

While it has been a long time since a term "black company", in which they exploit their employees under execrable working environment, became generalized in Japan, another term "black hospital", in which they impose excessive working hours on hospital-based doctors, has been recently introduced.

This "black hospital" nowadays is a serious issue in Japan. In the field of Japanese medical services, there are hospital-based doctors who have been forced to work under execrable working environment where they can hardly take any days off and are at the risk of karoshi, death from overwork.

The problem associated with demands and supplies, such as uneven distribution of doctors, has also been actualized; it is an urgent issue to comprehensively resolve this situation from the aspects of labor policies such as by improving working conditions of doctors or by rebuilding demand-supply coordination system, in order to satisfy demand for doctors' works and to establish and maintain safe and secure medical service systems in the future. Needless to say, it is especially important for doctors to take annual paid leave of "holidays" where they can relieve cumulative fatigue and rest mentally and physically whenever they need. Medical services involve various social factors in a complex manner. A single and short-sighted measure will induce another problem. Therefore, from a long-term perspective, it is necessary to create a vision while looking into the future of medical services in Japan and to resolve the labor issues of doctors on the basis of the long-term vision of the future.

In this article, significance of actual situation of "annual paid holiday", which is a crucial element for working condition of doctors, is discussed through quantitative analysis of questionnaire survey conducted in "hospital-based doctors".

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2. Data to Be Used

Individual data obtained in the "survey on annual paid leave of hospital-based doctors" consigned to and conducted by Rakuten Research, Inc. in 2015 were included in this survey (This survey was conducted using internet in doctors working at hospitals all over Japan (excluding directors of hospitals and clinics). The samples were randomly extracted. The number of distributions had been determined so that 800-1000 samples would be collected.) Igusa (2015) presented the results of simple aggregation of the individual data. In order to generalize these individual data, t-test and analysis of variance (ANOVA) were performed on differences in the number of annual leave days for each item. Then, following results were obtained (Table 1).



TABLE 1: Simple totaling results of the number of annual leave days taken by doctors.

				Mean value of the	T value, F
		n value	96	number of annual leave days taken	value
	total	800	100,0	5,8	
Gender	Male	709 91	88,6	5,8	0,151
	Female 20's	13	11,4	5,9	1,416
	30°s	138	17,3	5,1	1,410
Age	40's 50's	265 317	33,1 39,6	5,5	
	60's	66	8.3	6.4	
	70's	1	0.1	5.0	
Marrie de Autorio	Unmarried Marrie d	103 668	12,9 83,5	4,7 6.0	2.283
Marrie d status	Marned Divorced or widowed	29	3,6	6,6	
Children	Have	608	76,0	6,1	2.528 *
Gilden	Do not have	192 316	24,0 39,5	5,0	0.096
	High ranked public university Low ranked public university	277	34.6	5,8	0,096
Graduate duniversity	High ranked private university	119	14,9	5,7	
December 1 and 1	Low ranked private university Yes	88 446	11,0 55,8	6,1 5.6	0.180
Do you belong to a medical office?	No.	354	44.3	6.1	0,180
	between 1–3 million yen	6	0,8	7,0	0,970
	between 3-5 million yen between 5-7 million yen	14	1,8	5,1	
Last year's annual income (all)	between 5-7 million yen between 7-10 million ven	23 59	2,9 7,4	5,4 4,9	
case year a annual meeting (as)	between 10-15 million yen	212	26,5	5,4	
	between 15-20 million yen	282	35,3	5,9	
	20 million yen ormore less than 20 hrs	204	25,5	6,5 8.0	3.670 ***
	between 20-40 hrs	79	9,9	6.3	0,070
	between 40-50 hrs	292	36,5	6,4	
Working hours per week (all)	between 50-60 hrs between 60-70 hrs	197	24.6	5,4	
	between 70-70 hrs	128 43	16,0 5,4	5,9 5.3	
	80 hrs or more	57	7.1	3,6	
	non e	34	4,3	4,1	1,416
	1 day 2 days	199 524	24,9 65,5	5,3 6.1	
Number of prescribed holidays	3 days	27	3.4	6.2	
per week	4 days	2	0,3	2.0	
	5 days 6 days	13	1,6	5,0 0.0	
	1 place	449	56.1	5.8	1,690
	2 places	169	21.1	6,7	
	3 places	98	12,3	5,7	
Number of duty facilities in the	4 places 5 places	45 21	5,6 2,6	4,5 3.0	
last month	6 places	7	0,9	6,9	
	7 places	3	0,4	4,0	
	8 places 9 places	3	0,4	3,3	
	10 places or more	5	0,6	2.4	
	National university corporation of the alma mater university	30	3,8	3,3	1,349
	National corporation other than the alma mater university (including independent administrative corporations, national university corporations)	43	5,4	6,7	
	Public institution of the alma mater university	22	2.8	5,9	
	Public institution other than the alma mater university	98	12,3	6,4	
Management form (main workplace)	Public institution (Japan Red Cross, Saiseikai, etc.) Social insurance related group	119 15	14,9	5,6 6.5	
workplace)	Medical corporation	357	44.6	5.9	
	Individual	31	3,9	3,7	
	Educational institution of the alma mater university Educational institution other than the alma mater university	19	2.4		
	Other corporation or institution	25 41	3,1 5,1	6.8	
	Acute care hospital and emergency hospital	384	48,0	5,6	1,383
Type of hospital (main	Acute care hospital	111	13,9		
workplace)	Emergency hospital None of the above	34 271	4,3 33,9	4,6 6.4	
Location of the hospital (main workplace)	Located in an ordinance-designated city, or the 23 wards of Tokyo	334	41,8	5,8	0,009
	Locate d in a depopulate d rural area	330	41,3		
workplace)	None of the above	136	17,0		
	49 beds or less 50-99 beds	135 56	16,9 7,0	6,6 5.3	
Number of sickbeds (main	100-299 beds	242	30,3	5,4	
workplace)	300-499 beds	168	21,0		
	500-999 beds	158	19,8		
	1000 beds or more	41	5,1	5,4	



	internal medicine	243	30,4	6,3	2,673 **
	cardology	35	4,4	6,6	
	surgical department	94 49	11,8 6,1	4.7 4.9	
	psychiatry orthope dos	67	8.4	6.4	
	ophtalmology	25	3.1	7.0	
	neurosurgery	26	3,3	4.1	
	BIT	20	2.5	5,7	
Department (main workplace)	pe datrics	37	4,6	7,1	
	urology	22	2,8	5,5	
	obstetrics and gynecology	31	3,9	3,0	
	dermatology	18 10	2,3 1,3	7,3 7,7	
	respiratory organs department emergency department	15	1.9	7.7	
	gastrointestinal department	25	3.1	4.3	
	an esthesiology	50	6.3	5.8	
	radiology	33	4.1	6,1	
	less than 1 year	7	0,9	0,9	1,580
	between 1-3 years	11	1,4	6,5	
Number of years experience as		18	2,3	5,4	
a doctor	between 5-10 years between 10-15 years	56 106	7,0 13,3	4,8 5.5	
	15 years one more	602	75.3	6.0	
	less than 1 year	73	9.1	4.7	2.445 *
	between 1-3 years	140	17.5	4.7	
Number of years of service	between 3-5 years	100	12.5	5,9	
(main workplace)	between 5-10 years	214	26,8	6.2	
	between 10-15 years	114	14,3	6,4	
	15 years ore more	159	19,9	6,5	
	Medical intern (until 2 years after graduation) Medical defice and defice and details (after 2nd years after and defice)	8	1,0	1,9	4,261 *
	Medical staff, medical officer, resident (after 3rd year after graduation) Assistant proffessor	152 34	19,0 4,3	5,5 5.5	
	Head physician, lecturer, head of medical office	159	19,9	5.7	
Position (main workplace)	Head of section, head of department, deputy head of department, proffessor,				
	associate proffe ssor	257	32.1	6,3	
	Director, vice chief director, assistant director, assistant facility director	154	19,3	5,6	
	Other	36	4,5	6,4	
	0 days	196	24,5	_	
	1-3 days	130	16,3	_	
Number of days of annual leave	4-6 days 7-10 days	180 190	22.5 23.8	_	
taken (main workplace)	11-15 days	57	7.1		
	16-19 days	8	1.0	_	
	20 days or more	39	4,9	_	
	0 days	301	37,6	3,9	16,461 **
	1-5 days	65	8,1	4,9	
Number of annual leave days	6-10 days	110	13,8	5,4	
given (main workplace)	11-15 days	44	5,5	7.7 8.1	
	16-20 days 21 days or more	223 57	27,9 7,1	7.8	
	work sharing method	439	54.9	6.0	3.169 **
	circulating method	23	2.9	5,9	0,100
Method of taking annual paid	reverse circulating method	57	7.1	6,0	
leave (main workplace)	self-pay system (preceding)	178	22,3	6.2	
	self-pay system (at a later date)	64	0,8	5,5	
	self-pay system (home-work)	39	4.9	2.3	
I	Lack of doctors at workplace	433	54,1	5,4	1,980 *
	Lack of compliance with the labor-related laws and regulations of the hospitals. There is no labor union.	150 237	18,8 29,6	5,3 5,7	1,236 0,389
	There is no labor union The hospital is not aware of the number of working hours	237 94	11.8	5.7	0,389
I	Workload management is not conducted in matching with the number of the				0,2,34
I	personnel	138	17,3	5,7	0,204
1	There are no supervisors or colleagues to talk to when you have trouble in your	82	10,3	5.1	-
I	work				1,170
1	The lack of learning opportunities about advanced medical technology	105	13,1	5.2	1.247
I	Bectronic medical records aren't implemented	168	21,0		0,077
	Information is not shared	79	9,9	5,7	0,258
	Your own fatigue and he alth anxiety Litigation risk from the patient	196 149	24,5 18,6	5,3 5.8	1,459 0,426
I	Doctor-patient relationship has become patient-centered	69	8,6	5.1	1.341
Related to the medical service		290	36,3	5.6	0,858
(MA) (main workplace)	Alternative work schedule	37	4,6	8,6	2.072 *
, , ,	I have ambition for medical procedures	144	18,0	5,4	0,910
	A sense of vocation as a doctor for patients	202	25,3	5,6	0,747
	Excessive number of outpatients	112	14,0	5,4	0,808
	Excessive number of inpatiens in charge of People around you, such as co-workers, supervisors and subordinates are taking	62	7,8	6,9	1,310
	Preopte around you, such as co-workers, supervisors and subordinates are taking annual leave	59	7,4	6,3	0.632
	Annual leave is also dependent on the agreement with the medical office	42	5,3	5.1	0.858
	Hierarchical relationships and rivalry in the medical department is affecting the		'	1	-,
	annual leave taking of doctors	24	3,0	3,4	3,171 **
I	There is an unwritten rule unique to doctors that young doctors can not take	32	4.0	2.6	
	annual leave	- 52	4,0	2.0	5,324 **
	When you try to take your annual leave, if you are not there, your workplace will be in trouble.	158	19,8	5,0	1.968 *
I	be in trouble None of the above applies to me	82	10.3	6.5	1,968 *
	riche or die above applies to line	5Z	10,3	0,5	1,144



	1–5 million yen	41	8.1	4.7	0.989
		41	5,1	4,7	0,989
	5–7 million yen	38	4,8		
(main workplace)	7–10 million yen	71	8,9	5,4	
	10-15 million yen	236	29,5	5,5	
	15-20 million yen	273	34,1		
	20 million yen or more	141	17,6	6,5	
	less than 20 hrs	9	1.1	7.1	2.830 *
	between 20-40 hrs	129	16,1	6,5	
week (main workplace)	between 40-50 hrs	300	37,5		
	between 50-60 hrs	184	23,0	5,1	
	between 60-80 hrs	138	17,3	5,9	
	80 hrs or more	40	5,0	4.1	

Note (1): Estimated by the author

Note (2): * = significant @ 5%, * * = significant @ 1%

Note (3): F significant results were obtained by Levene's test for homogeneity of variance, correct the degree of freedom by Welch.

- The number of annual leave days varied according to presence or absence of children, age group, hospital department in charge, years of service, position at work, the system of taking annual paid leave, number of doctors in the workplace, work system, features of medical society, and working hours.
- 2. The number of annual leave days is especially small in particular hospital departments (especially surgical specialties). Moreover, as indicated by Igusa (2013) through an interview survey, the number of annual leave days was significantly smaller in doctors who had been feeling an unwritten law of medical society (doctors who are at lower positions, young doctors, and those who had been feeling a hierarchical relationship among medical schools, etc.)
- Differences were observed in items associated with substitution when doctors were taking annual paid leave.

These facts were revealed from the results of basic data aggregation. However, in order to reveal complicated context of situations where they can actually take annual paid leave, effects of individual factors will need to be observed by setting certain other conditions, followed by quantitative assessments through empirical analyses on the effects of individual factors.

3. Variables, Methods and Results

Then what sort of items will affect the doctor's taking annual paid leave? This is verified below by performing censored model regression analysis using the number of annual leave days as dependent variable (The number of annual leave days was " 0 " in 196 cases (24.5% of 799 effective samples). Therefore, in selection of an analysis method, a censored model which is appropriate for distributions where dependent variables have been discontinued, was used.), (Not all variables in the second paragraph were included as there was a problem with multicollinearity.).



In order to observe the effects of working environment (in the broad sense) on taking annual paid leave, the following factors were included as dependent variables in addition to the variables associated with how they work: medical office they belong to, hospital department in charge, and hospital attributes. Control variables include variables associated with basic attributes. Two formulas were estimated; one included subjective responses in multiple answers, and another one not. The Table 2 shows descriptive statistics of variables used in analyses, and the Table 3 presents the results.

According to the results, for both of the estimated formulas, significant differences were observed in doctors working in private hospitals, working in emergency hospitals, being in charge of obstetrics and gynecology department and dermatology department, the number of annual leave days, self-pay system (at a later date), self-pay system (homework) (The person who took annual paid leave performs his task by himself without letting others do this. Refer to Igusa (2014) for methods of taking annual paid leave.), and alternative work schedule. In addition, from the estimated formula-2, it was revealed that remarkable difference was observed in the number of annual leave days according to the working environments with excessive number of inpatients in charge of, unwritten rules unique to doctors, and feelings that if they are not there, their workplace will be in trouble.

TABLE 2: Descriptive statistics.

Variable name	Average	Standard deviation	Maximum value	Minimum value
Age	48.14	8.94	76	24
Married*	0.83	0.37	1	0
Divorced or widowed*	0.04	0.19	1	0
Female*	0.11	0.32	1	0
Have Children*	0.76	0.43	1	0
Do you belong to a medical office? Yes*	0.56	0.50	1	0
Last year's annual income (main workplace)	1417.81	576.24	4000	10
Number of working hours per week (main workplace)	48.16	14.26	110	2
Number of prescribed holidays per week	1.76	0.75	6	0
Number of duty facilities in the last month	1.88	1.38	10	1
National university corporation of the alma mater university*	0.04	0.19	1	0
National corporation other than the alma mater university (including independent administrative corporations, national university corporations)*	0.05	0.23	1	0
Public institution of the alma mater university*	0.03	0.16	1	0
Public institution other than the alma mater university*	0.12	0.33	1	0
Public institution (Japan Red Cross, Saiseikai, etc.)*	0.15	0.36	1	0
Social insurance related group*	0.02	0.14	1	0
Individual*	0.04	0.19	1	0
Educational institution of the alma mater university*	0.02	0.15	1	0
Educational institution other than the alma mater university*	0.03	0.17	1	0
Other corporation or institution*	0.05	0.22	1	0
Acute care hospital and emergency hospital*	0.48	0.50	1	0
Acute care hospital*	0.14	0.34	1	0
Emergency hospital*	0.04	0.20	1	0
Located in an ordinance-designated city, or the 23 wards of Tokyo*	0.42	0.49	1	0
Located in a depopulated rural area*	0.41	0.49	1	0



50-99 beds*	0.07	0.26	1	0
100-299 beds*	0.30	0.46	1	0
300-499 beds*	0.21	0.41	1	0
500-999 beds*	0.20	0.40	1	0
1000 beds or more*	0.05	0.22	1	0
cardiology*	0.04	0.20	1	0
sungical department*	0.12	0.32	1	0
psychiatry*	0.06	0.24	1	0
orthopedics*	0.08	0.28	1	0
ophtalmology*	0.03	0.17	1	0
neurosurgery*	0.03	0.18	1	0
ENT*	0.03	0.16	1	0
pediatrics*	0.05	0.21	1	0
urology*	0.03	0.16	1	0
obstetrics and gynecology*	0.04	0.19	1	0
dermatology*	0.02	0.15	1	0
respiratory organs department*	0.01	0.11	1	0
emergency department*	0.02	0.14	1	0
gastrointestinal department*	0.03	0.17	1	0
anesthesiology*	0.06	0.24	1	0
radiology*	0.04	0.20	1	0
Paid holidays used	5.83	5.85	40	0
Number of annual leave days given (main workplace)	10.16	10.37	45	0
circulating method*	0.03	0.17	1	0
reverse circulating method*	0.07	0.26	1	0
self−pay system (preceding)≭	0.22	0.42	1	0
self-pay system (at a later date)*	0.08	0.27	1	0
self-pay system (home-work)*	0.05	0.22	1	0
Lack of doctors at workplace*	0.54	0.50	1	0
Lack of compliance with the labor-related laws and regulations of the hospitals*	0.19	0.39	1	0
There is no labor union*	0.30	0.46	1	0
The hospital is not aware of the number of working hours*	0.12	0.32	1	0
Workload management is not conducted in matching with the number of the personnel*	0.17	0.38	1	0
There are no supervisors or colleagues to talk to when you have trouble in your work*	0.10	0.30	1	0
The lack of learning opportunities about advanced medical technology*	0.13	0.34	1	0
Electronic medical records aren't implemented*	0.21	0.41	1	0
Information is not shared*	0.10	0.30	1	0
Your own fatigue and health anxiety*	0.25	0.43	1	0
Litigation risk from the patient*	0.19	0.39	1	0
Doctor-patient relationship has become patient-centered*	0.09	0.28	1	0
Attending physician system*	0.36	0.48	1	0
Alternative work schedule*	0.05	0.21	1	0
I have ambition for medical procedures*	0.18	0.38	1	0
A sense of vocation as a doctor for patients*	0.25	0.43	1	0
Excessive number of outpatients*	0.14	0.35	1	0
Excessive number of inpatiens in charge of*	0.08	0.27	1	0
People around you, such as co-workers, supervisors and subordinates are taking annual	0.07			
leave*	0.07	0.26	1	0
Annual leave is also dependent on the agreement with the medical office*	0.05	0.22	1	0
Hierarchical relationships and rivalry in the medical department is affecting the annual	0.03	0.17	1	0
leave taking of doctors*				_
There is an unwritten rule unique to doctors that young doctors can not take annual leave*	0.04	0.20	1	0
When you try to take your annual leave, if you are not there, your workplace will be in	0.00	0.40		
trouble*	0.20	0.40	1	0
Note (1): The comple size is 700				

Note (1): The sample size is 799.

Note (2): * represents dummy variable.

4. Conclusions

The results of analyses revealed followings and indicated measures to be taken.



TABLE 3: Influence of the variable on use of paid holidays (censored model).

The control Companies	og#kethood == -2149,251		•	•	€8	•
Married class						
Minimaria (State Minimaria (State Minimaria (State) Minimaria (Constant	1,219	0,736	1,632	0,676
Mareina Mare		Apr	0,011	0,732	0,007	0,636
Department actional 1000 1001		(Unsurried)				
Gelder Property 1,000	Named abdus	Married	0.345	0,746	0.276	0,796
Gelder Property 1,000		Divarced or vidoued	1,033	0.519	1,100	0,492
Part	Gender					0.020
Marie Mari	Oldfren		1,506		1,504	0,070
American continuor American (a) 1,000		W	-0.000		-0.000	n.mn
Resident of conteglinary and content and any analysis 1,000	fice?	141	-0,037	0,250	-0,461	0,400
Planet of conteglosure per visal basis volgloss -0,000 0,000 -0,000 0,000 -0,000 0,000 -0,000	at year's moustincome	Annualiscens (log)	0,588	0,277	0,604	0,249
Resident of prescripted beliefs represented 0,007	um scripace)					
New Company State 1997 1		Number of working hours per week (soin workplace)	-0,033	0,102	-0,029	0,146
New Company State 1997 1						
Missional composition of the Assembler water by 1,470 1,						-1-1-
Missaud comparation when the sounderwistering in beliefs professional and absorbed in comparations of the comparation of the					4,100	
Paties in the finance of the secondary according to the content of the secondary according to the content of the secondary according to the secondary acco						
Part						
Participation Image Control						-
Marie Mari						
Count Coun	University from finite		-0,589			
Medical corporation makes an inching makes mak			1,624	0,275	1,574	0,367
Biochambles of the Associate value with y -0.077 0.663 -0.019 0.000						
Stockbandshielden of the flow is also also are visionally 0.000						0,034
Description of selbstation -0.005 0.005 -0.005 0.005				-		0,980
Author carebounged and emergency broughed -1,075 0,275 -0,075 0,275 -0,075 0,275 -0,075 0,275 -0,075 0,275 -0,075 0,275 -0,075 0,275 -0,075 0,275 -0,075 -						0,948
Tipe at the property 1995						0,934
Seary procession Seary procession Seary procession Seary Sea		Acute care hospital and emergency hospital	-1,065	0,173	-0,851	0,279
Standard than According and dispute	Type of hospital (main	Acute care hospital	-0,767	0,382	-0,773	0,392
Accidence of the loop of the continuous of the part of the part of the part of the continuous of the	uorkglace)	Greengency hospital	-2,008	0,027 *	-2,927	0,030
		(Rose of the show)				
		Located in an ordinance-designated city, or the 23 words of Tokyo	0,559	0,643	0,421	0,565
Mone of the Stock All bells related 100-100 lands		Located in a depopulated rural area	0,349	0,627	0,538	0,455
The contribution 100-200 bands	(man orange and	(None of the above)				
Personne 1,000 0		(40 beds orders)				
Performance 1.000		50-00 bads	-1.801	0.129	-1,837	0,121
200-200 beds	Impared stablesh feets			0.227		0.222
Material institution						0.709
1000 before conserved 0,700 0,712 0,500 0,742 0,500 0,742 0,500 0,742 0,500 0,742 0,500 0,742 0,500 0,742 0,500 0,742 0,500 0,742 0,700 0,744 0,747 0,74		500-000 beds	0.636	0.582	0.895	0.550
Memoriesedisisal						
Indiana Indi			4,000	41.18	4,100	4,140
mg.col department -QMM 0,547 -QMM 0,547 -QMM 0,500 -QMM 0,500 -QMM 0,500 -QMM 0,500 0,175 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,176 0,177 0,176 0,177 0,176 0,177 0,176 0,177 0,176 0,177 0,176 0,177 0,176 0,177			1.000	0.707		0.717
Application 1,107 0,309 1,106 0,209 1,176 0,175						
Properties of finals 1,500 1,174 1,726 1,176			-	-		-,
Spirate and Spir						
Department limits 1,602 0,275 -1,516 0,027 1,141 0,425 1,151		-				
Displacement (limits such placement) 1,827 0,265 1,141 0,445				-		-
Department limits sellatrics sellatric						
Section Part	Department (mate					
Exercised processing					-,	-,
Semintology						
Number of season lacked days given (min vorkplace)						0,023
Implies of answering days frame -0,000 0,42 -0,024 0,055 0,000 -1,024 0,005 0,000 -1,024 0,005 0,000 -1,024 0,000 -1,024 0,000 -1,024 0,000 -1,025 0,000 -1,024 0,000 -1,025 0,000						
published that department						0,286
Interest of any state 1,110 0,323 -0,031 0,411 0,032 -0,332 0,001 0,411 0,002 -0,332 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,451 0,000 0,452 0,000 0,451 0,000 0,452 0,000 0,452 0,000 0,452 0,000 0,453 0,000 0,454 0,000 0,454 0,000 0,454 0,000 0						0,858
Milester of securities and securit					-1-8-	0,492
Number of annual leave days given (main varieties)		_				0,416
work sharing method 0,005						0,804
Action of this greatest 1,000 1,			0,214	0,000 ***	0,215	0,000
Method of triding mental at large years and confirm greated -0.122 0.000 -0.053 0.055 0.05						
## dispay system (proceding) ## pay system (chainer date) ## pay						0,757
1,000 1,00			-0,122	0,900	-0,053	0,957
Lack of declarate inconservation Lack of declarate at configurate Lack of configuration with the lither-related laws and regulations of the hospitals Lack of configuration with the lither-related laws and regulations of the hospitals Lack of configuration of the laws and regulations of the hospitals Lack of configuration of Lack of Lac	Silence (main workplace)		-0,364	-		0,646
Lack of thetern at workplace Lack of complanes with the litter-velocities and regulations of the hospitals Lack of complanes with the litter-velocities and regulations of the hospitals There is no before various The hospital is not conducted in matching with the number of the personnel Lack of complanes with the litter-velocities of the number of the hospitals The hospital is not conducted in matching with the number of the personnel Lack of its conducted in matching with the number of the personnel Lack of its conducted in matching with the number of the personnel Lack of its conducted in matching with the number of the personnel Lack of its conducted in matching with the number of the personnel Lack of its conducted in matching with the number of the personnel Lack of its conducted in matching with the number of with a conducted in your work Lack of its conducted in matching with the number of with a conducted in your work Lack of its conducted in matching with the number of with a conducted in your work Lack of its conducted in matching with the number of with the number of with a conducted in your work Lack of its conducted in work of the date of the personnel work of the number of with						0,049
Lack of compliance with the litero-verified floor and regulations of the hospitals -0,243 0,741 0,048 0,048 0,000		neP-pay nystem (home-work)	-6,885	0,000 ***	-6,539	0,000
The hospital is not assess of the number of conting hours. Fortification suggestates that conductable methods is such that percentable. Fortification suggestates conductable methods with the surface of the percentable. The lock of learning apportunities to the set you have broatle in your sort: The lock of learning apportunities and soft and another sort of the sort of th		Lack of doctors at workplace			-0,851	0,116
The hospital is not assess of the number of conting hours. Fortification suggestates that conductable methods is such that percentable. Fortification suggestates conductable methods with the surface of the percentable. The lock of learning apportunities to the set you have broatle in your sort: The lock of learning apportunities and soft and another sort of the sort of th		Lack of congliance with the libor-related laws and regulations of the hospitals			-0,243	0,747
Felated to the medial service (HA) (min work) and the service		There is no labor union	-0,342	0,546	0,008	0,992
Felated to the medial service (HA) (min work) and the service		The hopital is not aware of the number of working hours			0,164	0,880
Before are no supervisors or colleagues to this to when you have brothlein your work					0,970	0,242
Biochronic medical records men't implemented 0,155 0,014 + -0,125 0,053 Bidward to the medical records men't implemented 0,053 0,001 Palated to the medical records men't in this patient -0,003 0,007 Palated to the medical records men't in this promites patient -0,004 0,007 Bigdiss mid-from the patient -0,004 0,007 Bigdiss mid-from the patient -0,005 0,007 Attending physicials mystems -0,007 0,007 Biggiss mid-from the patients -0,007 0,007 Biggiss manifest of colopationals					-0,733	0,431
Bestronic medical records merit implemented 0,155 0,814 40,325 0,865 1,8						0,390
Palated to the medical service (NA) finite vote dependence of the palated to the medical service (NA) finite vote palated to the pal			0,155	0,514	-0,135	0,842
Carr con hitps: addesith society -0.000 0.575 0.505	Palabed to the medical service (NA) (min workplace				0,633	0,497
Febbed to the medical service (BA) (min service						0,879
					-0.064	0,905
Attending physician systems -0.002 0.202 -0.519 0.377 Alternative work observable -0.002 0.202 -0.519 0.377 Alternative work observable -0.003 0.202 -0.519 0.377 Annual of the multiple of the patients -0.203 0.000 + + + -0.705 0.207 Annual of the calcium and observable -0.203 0.207 Except a number of compatients -0.007 Except a number of compatients charge of -0.005 Except a number of compatients charge of -0.007 Paging a round you, much an overselver, superstront and subordination are follow ground leave -0.004 0.377 Assemble seven also dependent on the agreement with the medical office						0,337
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Managerial and all the production of the product of the product is the first the product of the base.						0,706
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Note (2) Φ a significant Φ Σ_{i} , Φ Φ a significant Φ Σ_{i} , Φ Φ and Φ Φ Φ Φ .

First of all, the fact that doctors are in charge of surgical department does not necessarily prevent them from taking annual paid leave in a direct manner (Significant results



were not observed in surgical doctors when conditions were controlled with variables associated with alternative work schedule, methods of annual paid leave, and the number of doctors.). Although it has been recently pointed out that doctors especially in surgical fields are suffering from overwork such as no holidays due to their high specialty, the problem is not their skills but rather an absolute lack of number of doctors. The results of analysis indicated that it is crucial to increase the number of doctors significantly and establish a shift system in order to improve the conditions for taking annual paid leave. Some hospitals are using a system where a team of 3 doctors including a resident, fellow and consultant is involved in treatment of 1 patient so that they can take days-off whenever they need without any concerns. However, this system cannot be introduced if the number of doctors is too small. Therefore, it needs to be considered at the same time to increase the number of doctors and to establish the shift system.

Secondly, negative effects were observed on taking annual paid leave in cases where they work at private hospitals or clinics. If they work in hospitals, etc. and perform their tasks following directions provided by these hospitals, the corresponding doctors are considered as labors under the labor law and protected by this law. However, they are actually hardly aware of this fact (Mizushima, 2010). It appears that the smaller the hospital, the more obvious this tendency becomes as in a case of a business corporation. It is required for the national government or the third party organizations to organize and assess the labor law issues associated with hospital-based doctors and to improve the level of knowledge regarding the law of annual paid leave mainly in private hospitals and clinics.

Thirdly, the model 2 indicated that negative effects were imposed on annual paid leave in cases where there was an unwritten rule unique to doctors that young doctors could not take annual leave. It may reflect the fact that expectations on young doctors are higher than ever under circumstances with a lack of doctors or uneven distribution of doctors. However, this should not be overlooked considering recent karoshi (death from overwork) of young doctors. In the field of medical services, there are some local rules unique to specialist groups under a strict hierarchy. However, not only the hospitals but also the medical offices may need to reconsider that these young doctors are also labors protected under the labor law.

Many researchers have pointed out that in general there is the tendency of "neglect or ignorance of the labor law at workplaces" are becoming more prominent in the field of medical services. Therefore, further discussion will be needed in the future on issues regarding taking annual paid leave in Japan.



References

- [1] Igusa, G. (2013) Factors affecting young doctors to not take annual paid leave. Journal of Labor Sociology, 14, 105-132.
- [2] Igusa, G. (2014) Economic analysis of six methods of taking paid vacation Labor and Social Science results and application. The Annual Report of Economic Science, 52, 1-7.
- [3] Igusa, G. (2015) Survey of annual paid leave acquisition of hospital physicians in Japan (2015). International Journal of Social Science Studies, 3(6), 202-210.
- [4] Mizushima, I. (2010) Labor law issues on hospital physicians. Japanese Journal of Labour Studies, 52(1), 42-52.