“Japanese Physicians’ Career Choices : To restore supply-demand balance of physicians in Japan”

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Study Design

（1） Problem awareness
(2) Previous research
(3) Interviews
(4) Hypothesis
(5) Research methodology
A Data collection
B Data analysis
(Statistical analysis using ordered logistic regression)
(6) Conclusions and recommendation

1） Problem awareness

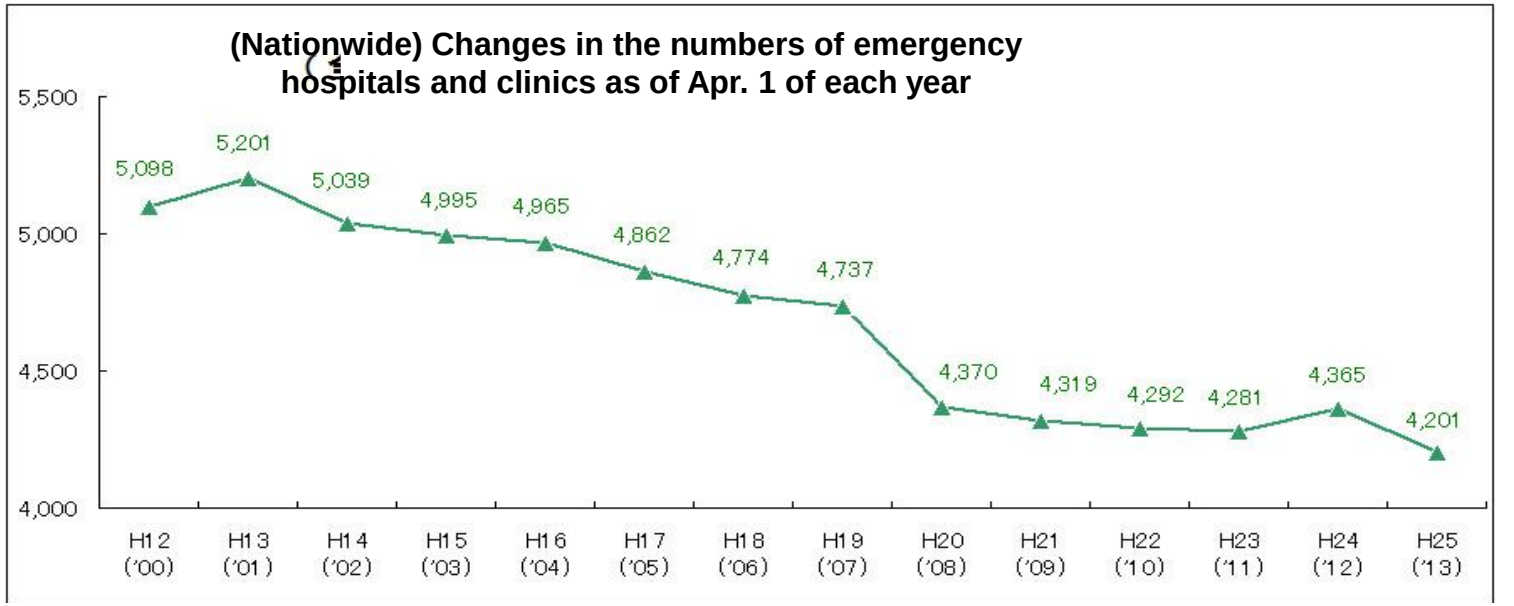
- Why is there a shortage?

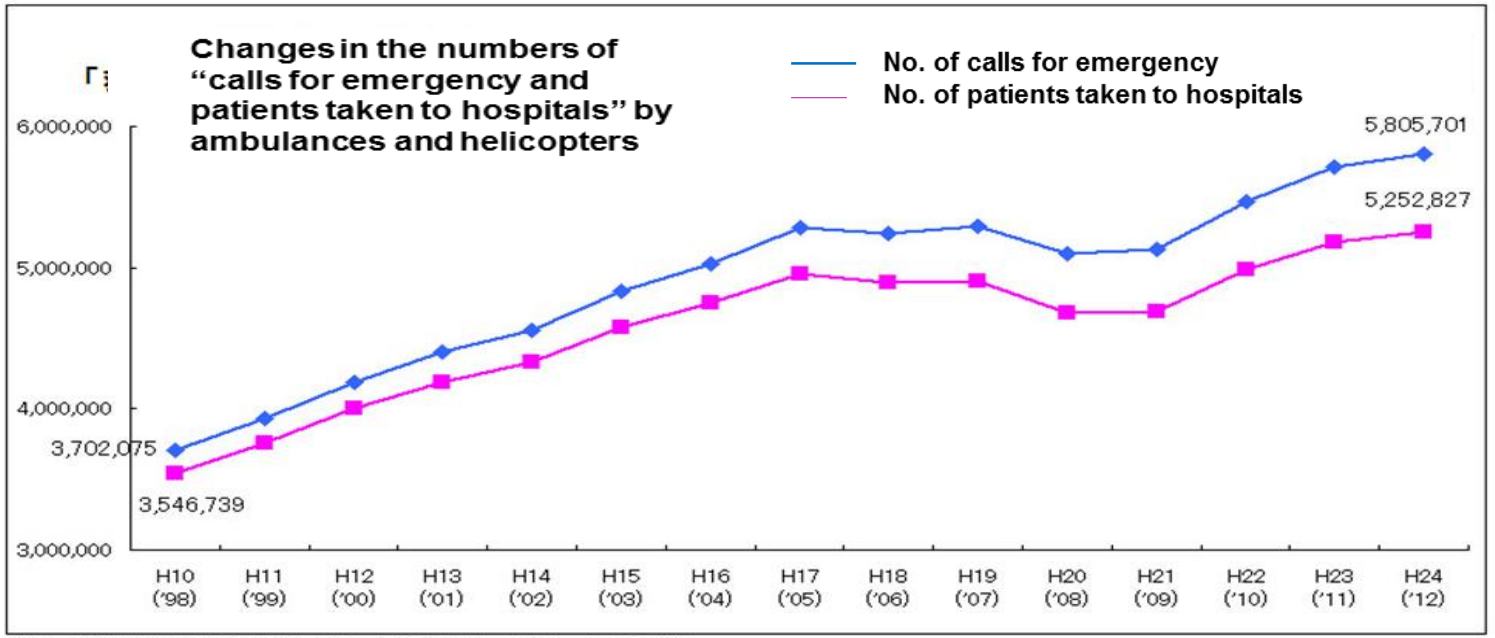
i)Number of physicians continues to increase

however

ii)The Physician Shortage dealing with critical and serious conditions in patients continues

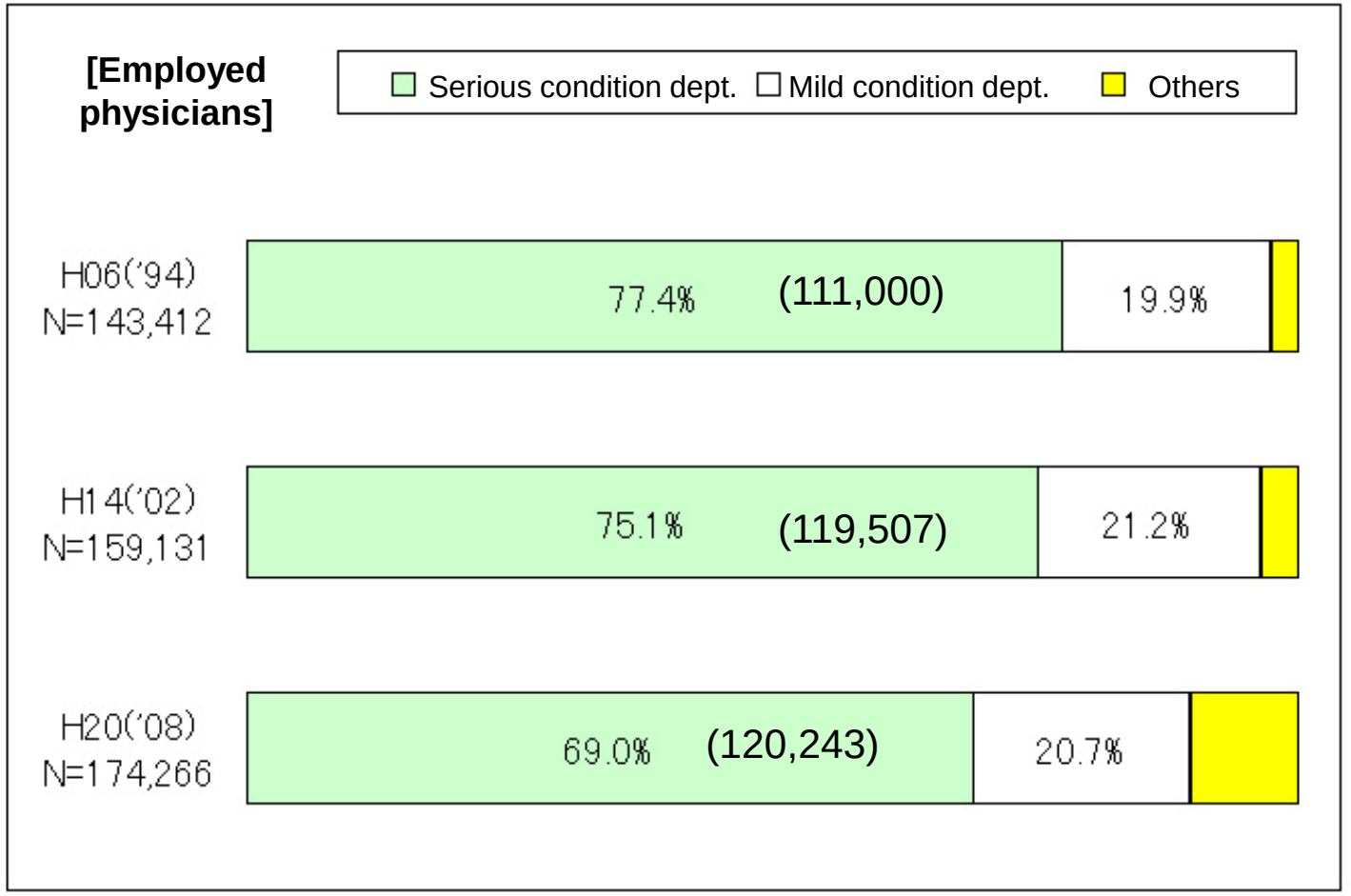
Changes in the numbers of emergency cases and emergency hospitals





出典：消防庁「H21 H21 救急・救助の現況」より各年1～12月合計

Ratio of Employed Physicians of Each Department



Created by author based on 2008 Survey of Physicians, Dentists and Pharmacists.

Types of patients by age and type - estimates per 100,000 people

	H14 **(2002)** version			
	Ages 0-14	Ages 15-44	Ages 45-64	Ages 65 and over
[Total]	377.0	665.7	1331.4	2278.6
No. of patients visiting severe condition dept.	279.4	440.0	879.9	1773.1
No. of patients visiting mild condition dept.	97.5	225.7	451.5	505.5

	H23 **(2011)** version			
	Ages 0-14	Ages 15-44	Ages 45-64	Ages 65 and over
[Total]	459.8	624.9	1249.7	2624.4
No. of patients visiting severe condition dept.	293.6	393.9	787.6	1957.4
No. of patients visiting mild condition dept.	166.3	231.0	462.1	666.9

2) Previous research

Various Factors

- Individual Factors / Paths
- Unexplored Influence
- Entire Spectrum
- Needs of Patients

1 「Determinants of physicians' decisions to specialize」(2007) Gagne R, Leger PT

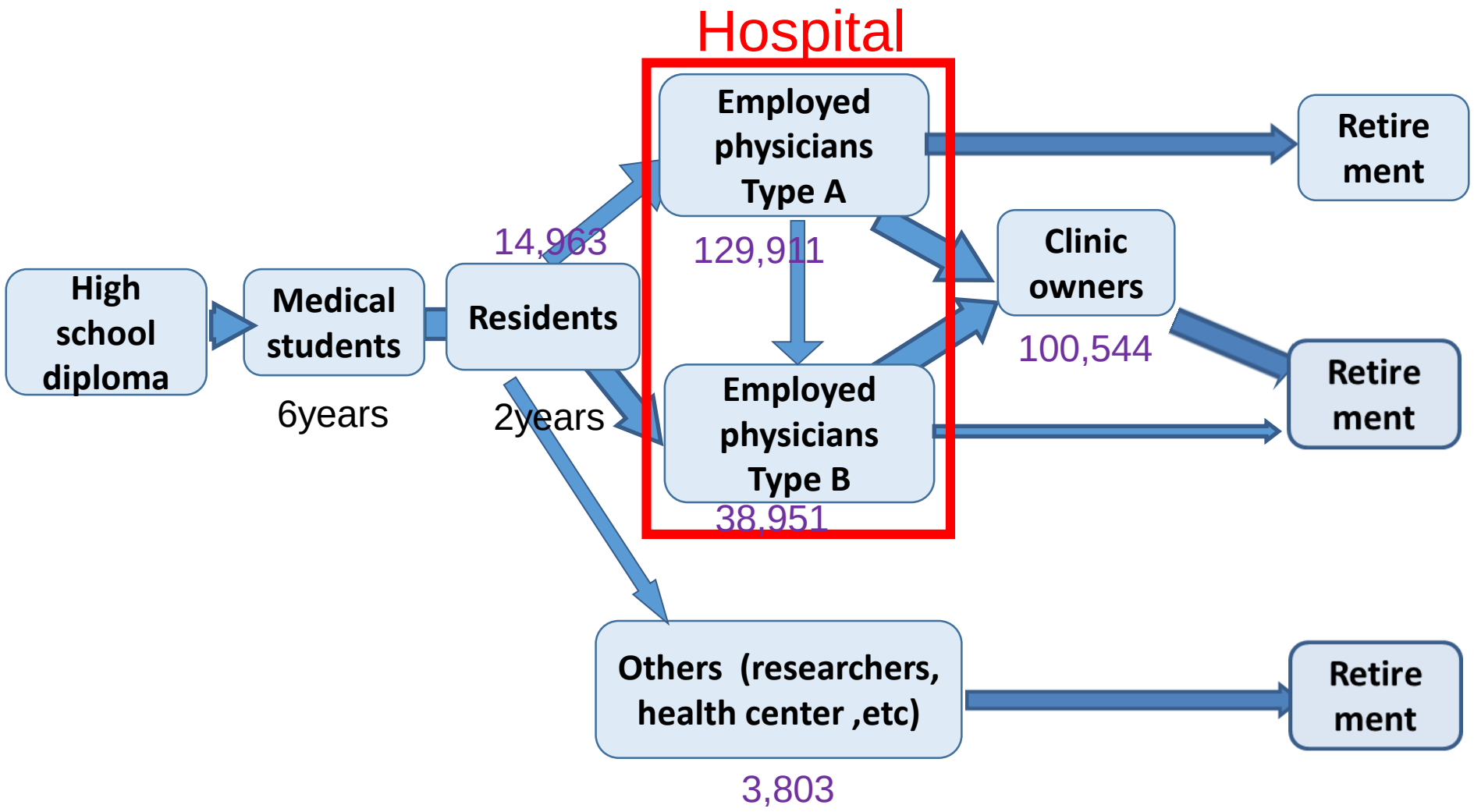
2 「Postgraduate training and career choice」 S Koike,H ide, Medical education 2010:44

3 「Medical students' and prospective medical student' uncertainties about career intentions」 G Maudsley, Lwilliams,D Taylor Medical Teacher 2010 Vol32 No3 143-151

4 「Gender differences in specialty preference and mismatch with real needs in Japanese medical students」Y Hukuda, T Harada, BMC Medical Education 2010 10:15

5 「Resident's reasons for specialty choice」 K van der Horst, M Siegrist, Medical education 2010:44:595-602

Career Choice of Japanese Physicians



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Employment type in career-path are classified into 3 groups

1. Employment type in career-path are classified into 3 groups.

1) Resident 2) Employed physician 3) Clinic owner

2. Based on the medical specialty are classified into 3 groups.

1) Type A 2) Type B 3) Others

Type A serious condition disease

Type B mild condition disease

（3）Interviews

with residents, hospital employed physicians and clinic owners

1)Purpose:　factors that affect the objective career choice

2) Period:　May 2010 - November 2010

3)Object:　Residents: 10　6 males,　4 females

(trained: 5 in Osaka, 5 in Tokyo)

Employed physicians:　8　7 males,　1 female

(7 in Osaka, 1 in Hyogo)

Clinic Owner:　7　6 males,　1 female

(7 in Osaka)

4) Survey items:

Age/ Sex

Aspiring moment: When did you want to become a physician?

Department: Department according to the investigation on no. of physicians by the Ministry of Health, Labor and Welfare

Annual income: Annual income of previous year

Working hours: Actual working hours for the week before the interview

Risk: Have you ever felt any risk and in what situation if any?

Mission: Do you sense a mission and in what situation if any?

Work-life balance: How do you think about family and work?

Family structure: Marital status, children

Others: How do you think about the new clinical training system?

Interview 1. Residents

No.	Age	Stage	Aspiring moment	Department	Annual income (10,000 Yen)	Working hours/ week	Work-life balance	Risk	Mission	Family
1	25	Resident	1st year in high school	TBD	360	60		Infection	Sports	Single
2	26	Resident	Student having failed an entrance exam	TBD	400	70		Diagnosis	My parent is an independent physician	Single
3	25	Resident	2nd year in high school	Internal medicine	400	70		Procedure	No	Single
4	25	Resident	10 years old	TBD	300	70		Nighttime emergency examination	No	Single
5	28	Resident	Junior high school	TBD	300	80		None	No	Single
6	26	Resident	Junior high school	Pediatrics	300	60		Many	When I was a 1st year resident	Single
7	26	Resident	Elementary school	TBD	300	70	Wish to continue to work	My own health	No	Single
8	25	Resident	Elementary school	TBD	300	70	Family 7 : Work 3	Accidental injection	I'm looking for it	Single
9	40	Resident	30 years old	Internal medicine	300	70	Children	PC with exhaustion	When I was in charge of ICU	Engaged
10	26	Resident	Kindergarten	Psychiatry	300	70		Infection	No	Single

Interview 2. Employed physicians

No.	Age	Stage	Aspiring moment	Department	Annual income (10,000 Yen)	Working hours/ week	Work-life balance	Risk	Mission	Family
1	30	Employed physician	3rd year in high school	Surgery	600	80		Complication, living environment	Training at a large hospital	Single
2	35	Employed physician	1st year in high school	Cardiac surgery	1,000	50		Sudden deterioration, medical lawsuit	After starting clinical practice	Single
3	39	Employed physician	Student having failed an entrance exam	Pediatrics	1,200	80		Mental, physical	From my grandfather who is a researcher	Wife, 1 child
4	30	Employed physician	2nd year in junior high school	Orthopedics	700	70		Operation	My father told me to do a job helping people	Wife, 2 children
5	37	Employed physician	3rd year in high school	Surgery	800	70		Surgical procedure	Take my assignment seriously	Wife, 1 child
6	45	Employed physician	6th grade in elementary school	Internal medicine	2,000	60		Examination, procedure	Medical emergency center	Wife, 3 children
7	34	Employed physician	3rd year in high school	Cardiovascular internal medicine	1,500	80-90		Procedure	Doctor car	Wife, 1 child
8	36	Employed physician	Junior high school	Psychiatry	1,000	40	Well balanced	Patients' violence	Since I studied receiving a subsidy, I need to make a social contribution	Single

Interview 3. Independent physicians

No.	Age	Stage	Aspiring moment	Department	Annual income (10,000 Yen)	Working hours/ week	Work-life balance	Risk	Mission	Family
1	40	Independent physician	2nd grade in elementary school	Internal medicine	2,000	40		Examination	Wish to cure intractable diseases of elderly people	Wife, 2 children
2	45	Independent physician	8 years old	Internal medicine	1,800	40		Patients	My supervisory physician when I was a resident	Wife
3	42	Independent physician	1st year in junior high school	Ophthalmology	2,300	40		Labor management	Education at junior high school and high school	Wife, 1 child
4	36	Independent physician	2nd grade in elementary school	Ophthalmology	2,000	40	NPO president	Examination, patients	My mother's death	Wife
5	43	Independent physician	2nd year in high school	Otolaryngology	2,500	50	My family is important	Diagnosis	My father who is a lawyer	Wife, 3 children
6	60	Independent physician	High school	Internal medicine	3,000	50	No hobby	None	My supervisory physician when I was a resident	Wife, 2 children
7	47	Independent physician	High school	Pediatrics	1,200	50	My husband is important	None	My parents who make house calls	Husband, 2 children

Finding from Interviews

① Individual factors family background

sex, marriage, child-raising, consider to spouse

② Environment factors hospital beds, location

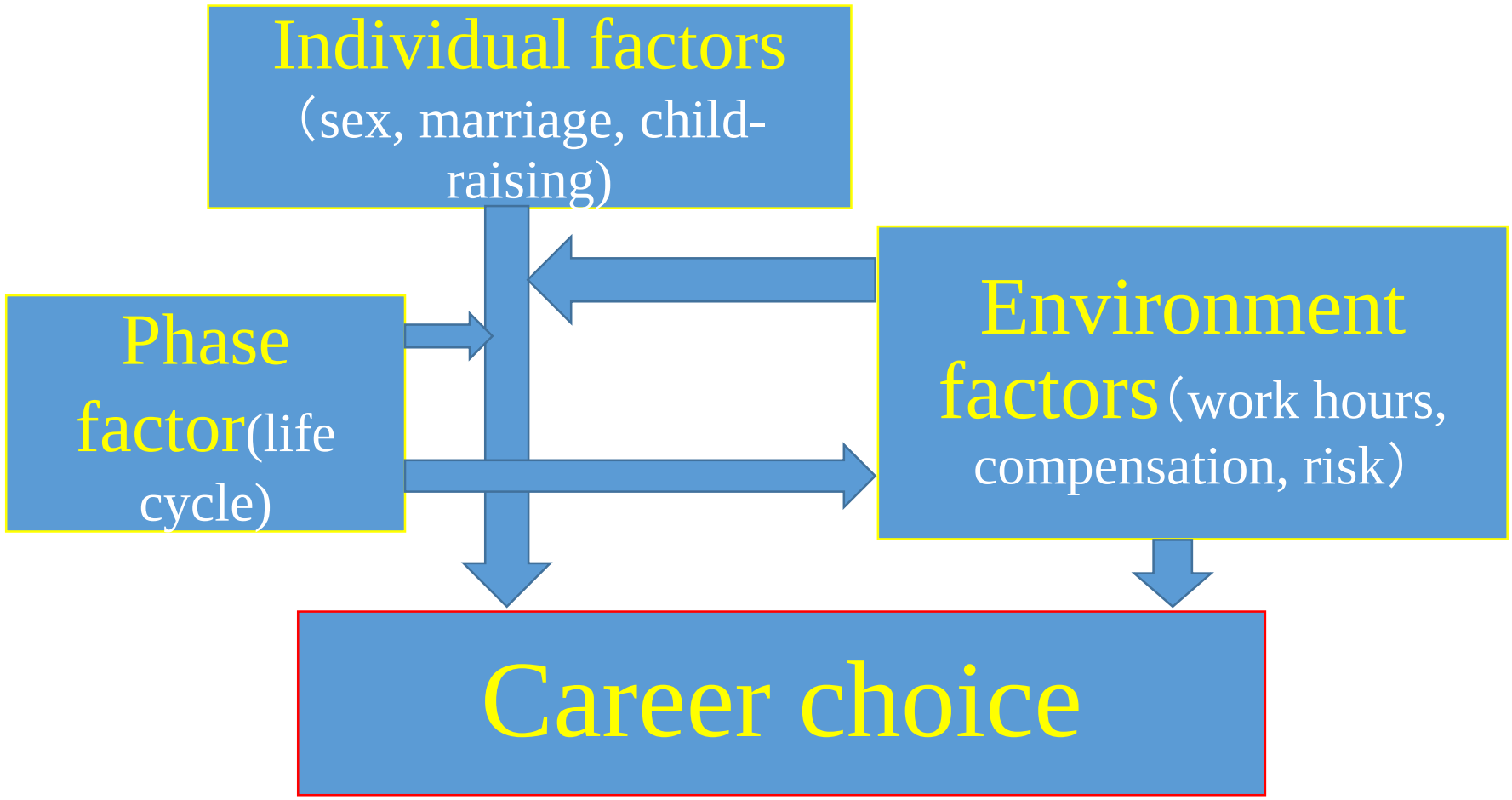
work hours, compensation, mission, risk

③ Phase factor life cycle

- environmental factors and individual factor gives a direct affect
- environmental factors affect the individual factors
- phase factors affect each individual, environmental factors

(4) Hypotheses

Analytical Frame-Work



Hypotheses

- The career choice of physicians:

How to effect their choices varies depending on the career phase as well as economic factors along with socio-cultural factors.

H-1 Residents: mainly individual factors affecting

H-2 Employed physicians : personal factors, environmental factors affecting

H-3 Clinic owners : carrier phase factors affecting individual and environmental factors

(5) Research methodology

1) Purposes of the survey

By investigating and analyzing the social factors which affect physicians' career choices, we create career-path models, improve working environment of physicians and estimate the number of physicians in the future.

2) Survey design

Title: Web survey on physicians' career-path

Subjects: Physician

Residents – male98, female86

Employed physicians (serious, mild) - male86, female124

Clinic owners- male55, female76 Others – male50, female53

Method: Internet survey

Requesting method: e-mail

Period of request: February 9, 2011 to March 31, 2011

No. of request: 1 No. of request deliveries – 1097 No. of valid responses - 761

5-B. Data Analysis

Factor Analysis of influential variables

		F1 (Working conditions)	F2 (Social responsibility)	F3 (Support environment)	F4 (WLB)
Working conditions	Burden of work	**0.824**	-0.024	-0.010	-0.185
	Long working hours	**0.734**	-0.165	0.038	-0.079
	Irregular working hours	**0.621**	-0.068	0.039	0.066
	Paperwork	**0.554**	-0.093	-0.027	-0.032
	Health-care professional	-0.206	0.270	0.087	0.146
Risk	Loss of their own health	**0.522**	0.065	-0.057	0.189
	Lack of sleep	0.361	0.176	0.041	0.143
	Litigation risk	0.382	0.037	0.113	0.176
	Inform	0.383	-0.138	-0.019	0.239
Mission	Emergency medical care	-0.017	**0.558**	0.089	-0.113
	Social responsibility	0.073	**0.555**	0.166	0.123
	Remote	0.027	0.470	0.105	-0.066
	Unpopular medical department	0.090	0.355	0.112	-0.091
Role model	Development of young physicians	0.073	0.216	**0.518**	0.064
	Other physicians	-0.040	0.088	**0.875**	-0.023
	Respected supervisors	-0.066	0.085	**0.956**	-0.012
WLB	Time spent with family	-0.594	-0.042	0.079	**0.563**
	Keeping fit	-0.574	-0.081	-0.001	**0.603**
	Amenity	0.249	-0.018	-0.116	0.141
	Spouse's career	0.005	-0.017	0.050	-0.059
Personality	Tolerant	0.133	0.340	0.166	0.083
	How to deal with patients	0.219	-0.523	0.034	0.131
	Not good at medical management	0.151	-0.304	0.228	0.113
	Patient's death	0.052	-0.273	0.087	0.082

Factor Analysis of influential variables

Employed Physician Type A

		F1 (Working conditions)	F2 (Social responsibility)	F3 (Evaluation)	F4 (WLB)
Work environment	Long working hours	**0.749**	0.083	-0.089	-0.067
	Irregular working hours	**0.702**	0.221	-0.137	-0.024
	Paperwork	**0.688**	0.070	0.093	0.058
	Burden of work	**0.740**	0.005	-0.033	-0.052
	Free time	0.402	-0.263	0.031	0.159
	Health-care professional	-0.196	0.314	0.293	0.082
Risk	Loss of their own health	**0.592**	-0.194	-0.030	0.195
	Lack of sleep	0.475	0.183	-0.077	0.222
	Inform	0.426	-0.127	-0.048	0.291
	Litigation risk	0.344	-0.083	-0.073	0.309
Mission	Emergency medical care	0.139	**0.669**	0.070	0.095
	Remote	-0.028	**0.648**	0.110	-0.088
	Unpopular medical department	0.075	**0.535**	0.030	0.139
	Social responsibility	0.005	0.185	0.146	-0.066
Work and compensation	Evaluation by patients	0.002	0.021	**0.924**	-0.017
	Evaluation by supervisors	-0.114	0.086	**0.778**	0.013
	Reasonable compensation	-0.375	-0.035	0.214	0.258
WLB	Keeping fit	-0.492	0.193	0.105	**0.515**
	Time spent with family	-0.521	0.116	-0.011	0.473
	Amenity	0.336	0.005	-0.102	0.324
	Spouse's career	-0.029	-0.067	-0.050	0.183
Personality	Tolerant	0.052	0.134	0.150	-0.035
	How to deal with patients	0.142	-0.072	-0.334	0.363
	Not good at medical management	0.167	-0.097	-0.198	0.182
	Patient's death	0.004	-0.169	-0.070	0.399

5-B Data analysis using ordered logistic regression

1. Career-path from residents (CA1)=

f (gender, physicians in their family/relatives, aspiring moment, married, training place, annual income, poor working conditions, professional awareness, role model, work-life balance, interest in medicine, social mission, following in parent's footsteps）

Explained variables : (CA1) Career choices from residents
CA1 = 0 : Other than employed physicians treating serious conditions 1: Employed physicians treating serious conditions
Analysis method: Binary Logit (Quadratic hill climbing)
No. of samples: 184

Variables	Coefficient	Probability
C	1.719	0.066
Female	**-0.765**	**0.038**
Married	0.098	0.833
Physicians in their family/relatives	-0.369	0.326
Aspiring moment	**-0.305**	**0.068**
Interest in medicine	0.515	0.169
Social mission	**1.552**	**0.005**
Following in parent's footsteps	0.003	0.997
Economic motivation	-0.550	0.153
Training place	0.258	0.563
Annual income	**-0.002**	**0.083**
Poor working conditions	-0.105	0.588
Role model	-0.097	0.610
Awareness of social responsibility	0.257	0.255
Good work-life balance	0.074	0.738

Result of CA1 (career choices from residents to employed physicians treating severe conditions)

- More male physicians choose departments for serious conditions than female ones.
- People who wanted to become physicians at earlier ages choose departments for serious conditions.
- People who have stronger mission choose departments for serious conditions.

2. Career-path from employed physicians treating serious conditions (CA2)=
f(gender, physicians in their family/relatives, aspiring moment, married, training place, annual income, poor working conditions, professional awareness, evaluation, work-life balance, interest in medicine, social mission, following in parent’s footsteps）

Explained variables : (CA2) Career choices from employed physicians treating serious conditions CA2 = 0 : Physicians treating serious conditions
1: Physicians treating mild conditions 2: Independent physicians 3: Others
Analysis method: Ordered Logit (Quadratic hill climbing)
No. of samples: 210

Variables	Coefficient	Probability
Female	-0.108	0.744
Married	0.293	0.358
Physicians in their family/relatives	0.368	0.262
Aspiring moment	0.048	0.732
Interest in medicine	0.051	0.873
Social mission	**1.510**	**0.000**
Following in parent's footsteps	-0.419	0.474
Economic motivation	**-0.747**	**0.040**
No. of beds	**-0.817**	**0.037**
Annual income	0.000	0.227
Self-evaluation	-0.068	0.687
Poor working conditions	0.053	0.745
Awareness of social responsibility	-0.019	0.919
Good work-life balance	-0.144	0.405

Result of CA2 (Career choices from employed physicians treating severe conditions to employed physicians treating severe conditions, employed physicians treating mild conditions, clinic owners or others)

- Physicians having strong mission do not continue to be physicians treating serious conditions.
- Physicians who want to maintain economically stable lifestyle continue to be physicians treating serious conditions.
- Physicians working at hospitals with 200 or more beds continue to be physicians treating serious conditions.

Effects of Factors in Each Phase

	Residents become employed physicians treating severe conditions	Continue to be employed physicians treating severe conditions
Currently low income	+	
Currently high income		
Motivation of mission	+	−
Motivation of economic		+
200 more beds		+
Male	+	
Early aspiring moment	+	

Conclusion and Recommendation

1. It was found that similar factors have effects according to sex (male, female), place of work (hospital, independent physician), diagnosis and treatment department (serious, mild).

2 . Factors with large disparities among groups

(average working hours per week, feelings about working hours, feelings about burden of paperwork, fulfillment of work-life balance)

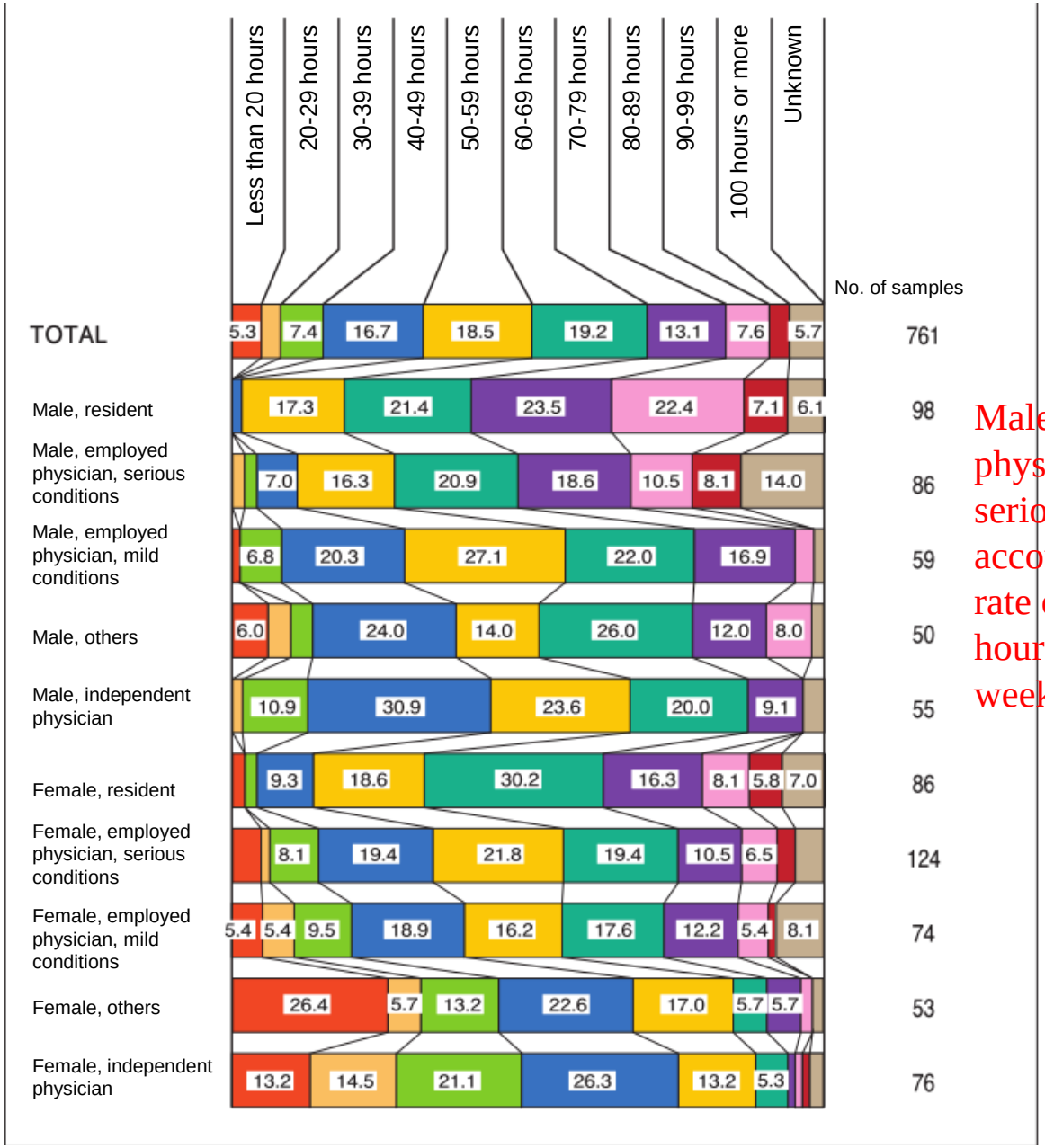
3. Factors with no disparity among groups

(Wish for free time rather than income, sometimes feel litigation risk) -> All physicians have these in mind all the time.

When we review the current health-care system, especially the human resources of physicians, we need to take a social-psychological approach (e.g. how to motivate employed physicians treating serious conditions) in addition to economic and technical approaches.

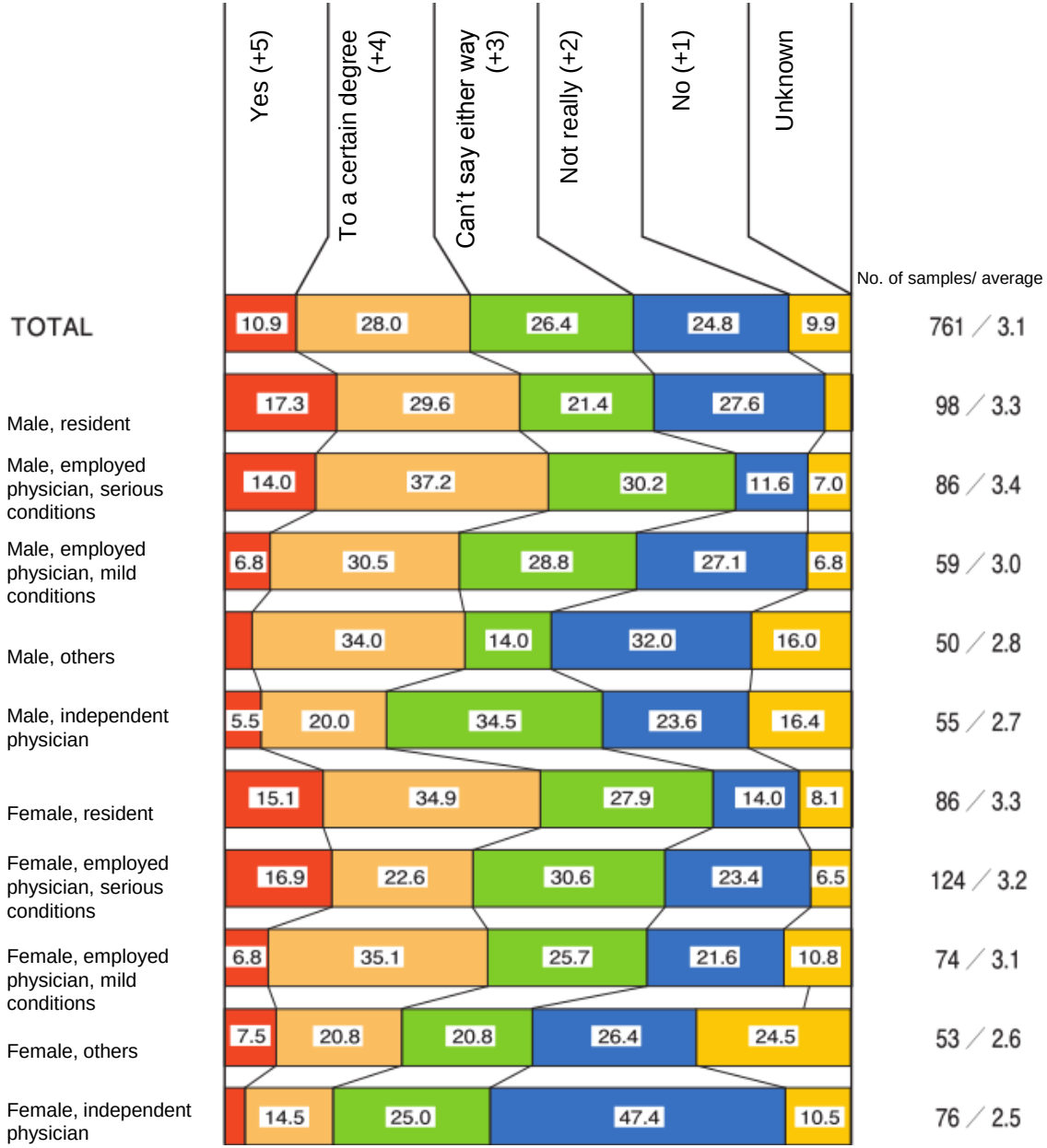
Average working hours per week

Appendices



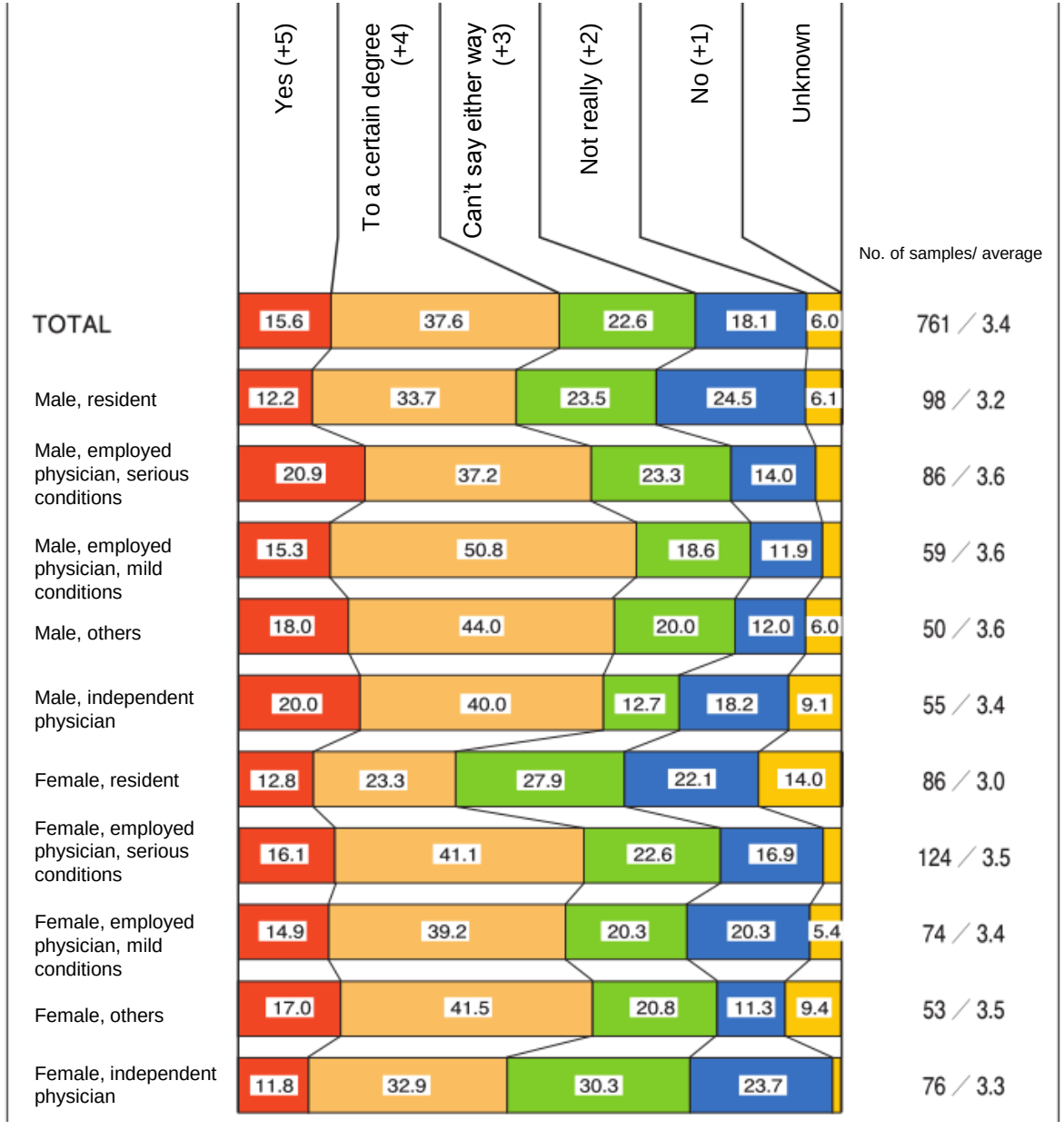
Male employed physicians treating serious conditions account for the highest rate of working for 80 hours or longer per week.

Fail to have good work-life balance



Employed physicians treating serious conditions feel that they fail to have good work-life balance.

feel litigation risk relating to medical examination



Except for female residents, about 50% sometimes feel litigation risk.