Supplementary materials

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Table S1 The job satisfaction scores (Mean ± Standard deviation).

On my present job, this is how I feel about……

Items	**Score**	**Rank of score**
1. Being able to keep busy all the time	3.65±0.80	17
2. The chance to work alone on the job	3.95±0.65	6
3. The chance to do different things from time to time	3.75±0.75	16
4. The chance to be “somebody” in the community	3.97±0.64	4
5. The way my boss handles his/her workers	3.83±0.78	12
6. The competence of my supervisor in making decisions	3.84±0.79	10
7. Being able to do things that don't go against my conscience	4.11±0.70	1
8. The way my job provides for steady employment	4.03±0.68	2
9. The chance to do things for other people	3.96±0.67	5
10. The chance to tell people what to do	3.60±0.76	19
11. The chance to do something that makes use of my abilities	3.93±0.69	7
12. The way company policies are put into practice	3.81±0.76	13
13. My pay and the amount of work I do	3.41±1.01	20

Items	Score	Rank of score
14. The chances for promotion on this job	3.62±0.86	18
15. The freedom to use my own judgment	3.84±0.71	11
16. The chance to try my own methods of doing the job	3.77±0.75	15
17. The working conditions	3.78±0.79	14
18. The way my co-workers get along with each other	4.02±0.68	3
19. The praise I get for doing a good job	3.88±0.74	8
20. The feeling of accomplishment I get from the job	3.88±0.74	9

Table S2 Improvements in the working environment resulting from the Performance Appraisal for Tertiary Public Hospitals (Mean ± Standard deviation).

In your opinion, after the implementation of the Performance Appraisal of Tertiary Public Hospitals, how did it promote in these aspects of your hospital?

Items	**Score**
1. Medical quality of hospital	2.57±1.16
2. Operational efficiency of hospital	2.50±1.20
3. Sustainable development of hospital	2.55±1.18
4. Satisfaction of inpatients	2.59±1.20
5. Satisfaction of outpatients	2.63±1.20
Average score	2.57±0.05
Total score	12.84±5.61

Table S3 The increased attention of participants to the working environment after the implementation of the Performance Appraisal of Tertiary Public Hospitals (Mean ± Standard deviation).

In your opinion, after the implementation of the Performance Appraisal of Tertiary Public Hospitals, how do you pay attention to the following aspects of the hospital?

Items	**Score**
1. Medical quality of hospital	2.62±1.21
2. Operational efficiency of hospital	2.39±1.25
3. Sustainable development of hospital	2.47±1.22
4. Satisfaction of inpatients	2.62±1.22
5. Satisfaction of outpatients	2.72±1.20
Total score	12.81±5.36

Table S4 Distributions of the individual characteristics and hospital characteristics before and after IPTW.

Characteristics	Level	Overall (N=8417)	Before IPTW			After IPTW		
			Less effective (N=6193)	More effective (N=2224)	STD	Less effective (N= 6189)	More effective (N= 2163.1)	STD
Age --mean (SD)		34.02 (8.30)	34.50 (8.33)	32.71 (8.04)	-0.22	34.03 (8.23)	33.82 (8.33)	-0.02
Age group--n (%)	<30	3078 (36.57)	2094 (33.81)	984 (44.24)	0.22	2263.74 (36.58)	815.44 (37.70)	0.02
	30~39	3626 (43.08)	2744 (44.31)	882 (39.66)	-0.09	2665.66 (43.07)	920.20 (42.54)	-0.01
	40~49	1217 (14.46)	951 (15.36)	266 (11.96)	-0.10	895.53 (14.47)	312.60 (14.45)	0.00
	⩾50	496 (5.89)	404 (6.52)	92 (4.14)	-0.11	364.07 (5.88)	114.85 (5.31)	-0.03
Gender--n (%)	Male	1569 (18.64)	1297 (20.94)	272 (12.23)	-0.24	1151.24 (18.60)	379.77 (17.56)	-0.03
	Female	6848 (81.36)	4896 (79.06)	1952 (87.77)	0.24	5037.76 (81.40)	1783.33 (82.44)	0.03
Marital status--n (%)	Never married	2503 (29.74)	1728 (27.90)	775 (34.85)	0.15	1839.56 (29.72)	656.39 (30.35)	0.01
	Other conditions	5914 (70.26)	4465 (72.10)	1449 (65.15)	-0.15	4349.43 (70.28)	1506.70 (69.65)	-0.01
Position--n (%)	Doctor	2369 (28.15)	2054 (33.17)	315 (14.16)	-0.46	1745.06 (28.20)	570.42 (26.37)	-0.04
	Nurse	6048 (71.85)	4139 (66.83)	1909 (85.84)	0.46	4443.94 (71.80)	1592.67 (73.63)	0.04
Education--n (%)	Below undergraduate	920 (10.93)	671 (10.83)	249 (11.20)	0.01	675.07 (10.91)	236.69 (10.94)	0.00
	Undergraduate	6076 (72.19)	4298 (69.40)	1778 (79.95)	0.24	4467.73 (72.19)	1595.02 (73.74)	0.04
	Master’s degree	1034 (12.28)	876 (14.15)	158 (7.10)	-0.23	761.06 (12.30)	245.12 (11.33)	-0.03
	Doctoral degree	387 (4.60)	348 (5.62)	39 (1.75)	-0.21	285.13 (4.61)	86.27 (3.99)	-0.03
Technical title--n (%)	Not have	548 (6.51)	365 (5.89)	183 (8.23)	0.09	404.23 (6.53)	148.76 (6.88)	0.01

	Primary title	3989 (47.39)	2787 (45.00)	1202 (54.05)	0.18	2929.88 (47.34)	1039.15 (48.04)	0.01
	Intermediate title	2789 (33.14)	2132 (34.43)	657 (29.54)	-0.10	2052.33 (33.16)	712.48 (32.94)	0.00
	Vice senior	749 (8.90)	632 (10.21)	117 (5.26)	-0.19	551.58 (8.91)	177.85 (8.22)	-0.03
	Senior	342 (4.06)	277 (4.47)	65 (2.92)	-0.08	250.98 (4.06)	84.86 (3.92)	-0.01
Administrative position--n (%)	Not have	7676 (91.20)	5652 (91.26)	2024 (91.01)	-0.01	5670.48 (91.62)	1930.94 (89.27)	-0.08
	Have	741 (8.80)	541 (8.74)	200 (8.99)	0.01	518.52 (8.38)	232.16 (10.73)	0.08
Department--n (%)	Internal medicine	2275 (27.03)	1671 (26.98)	604 (27.16)	0.00	1676.60 (27.09)	584.16 (27.01)	0.00
	Surgical	2449 (29.10)	1795 (28.98)	654 (29.41)	0.01	1796.07 (29.02)	627.73 (29.02)	0.00
	Other departments	3693 (43.88)	2727 (44.03)	966 (43.44)	-0.01	2716.33 (43.89)	951.21 (43.97)	0.00
Region--n (%)	West	1504 (17.87)	1318 (21.28)	186 (8.36)	-0.37	1238.77 (20.02)	206.62 (9.55)	-0.30
	Center	2519 (29.93)	1712 (27.64)	807 (36.29)	0.19	1791.68 (28.95)	661.32 (30.57)	0.03
	East	4394 (52.20)	3163 (51.07)	1231 (55.35)	0.09	3158.55 (51.03)	1295.16 (59.88)	0.18
Performance rating--n (%)	Fair	1122 (13.33)	902 (14.56)	220 (9.89)	-0.14	825.00 (13.33)	278.62 (12.88)	-0.01
	Good	3826 (45.46)	2958 (47.76)	868 (39.03)	-0.18	2818.14 (45.53)	993.75 (45.94)	0.01
	Excellent	3469 (41.21)	2333 (37.67)	1136 (51.08)	0.27	2545.86 (41.14)	890.72 (41.18)	0.00
Depression status --n(%)	None	4376 (51.99)	2820 (45.54)	1556 (69.96)	0.51	3214.03 (51.93)	1154.29 (53.36)	0.03
	At risk	4041 (48.01)	3373 (54.46)	668 (30.04)	-0.51	2974.97 (48.07)	1008.81 (46.64)	-0.03
Anxiety status --n(%)	None	5846 (69.45)	4046 (65.33)	1800 (80.94)	0.36	4269.35 (68.98)	1567.78 (72.48)	0.08
	At risk	2571 (30.55)	2147 (34.67)	424 (19.06)	-0.36	1919.64 (31.02)	595.32 (27.52)	-0.08
Increased attention to working	More	6412 (76.18)	4210 (67.98)	2202 (99.01)	0.92	4268.40 (68.97)	2138.49 (98.86)	0.89

environment --n(%)								
	Less	2005 (23.82)	1983 (32.02)	22 (0.99)	-0.92	1920.60 (31.03)	24.61 (1.14)	-0.89
Job satisfaction -- mean (SD)		76.61 (11.69)	73.03 (9.90)	86.58 (10.43)	1.33	73.56 (9.87)	85.10 (10.65)	1.14
Intrinsic job satisfaction -- mean (SD)		46.43 (6.66)	44.49 (5.72)	51.84 (6.09)	1.25	44.76 (5.70)	51.06 (6.20)	1.07
Extrinsic job satisfaction-- mean (SD)		30.18 (5.36)	28.54 (4.62)	34.74 (4.59)	1.35	28.80 (4.60)	34.04 (4.71)	1.14

Note:

IPTW, inverse probability treatment weighting; SD, standard deviation; STD, Standardized differences in proportion or mean.

Table S5 The construction of inverse probability weights under a series of models.

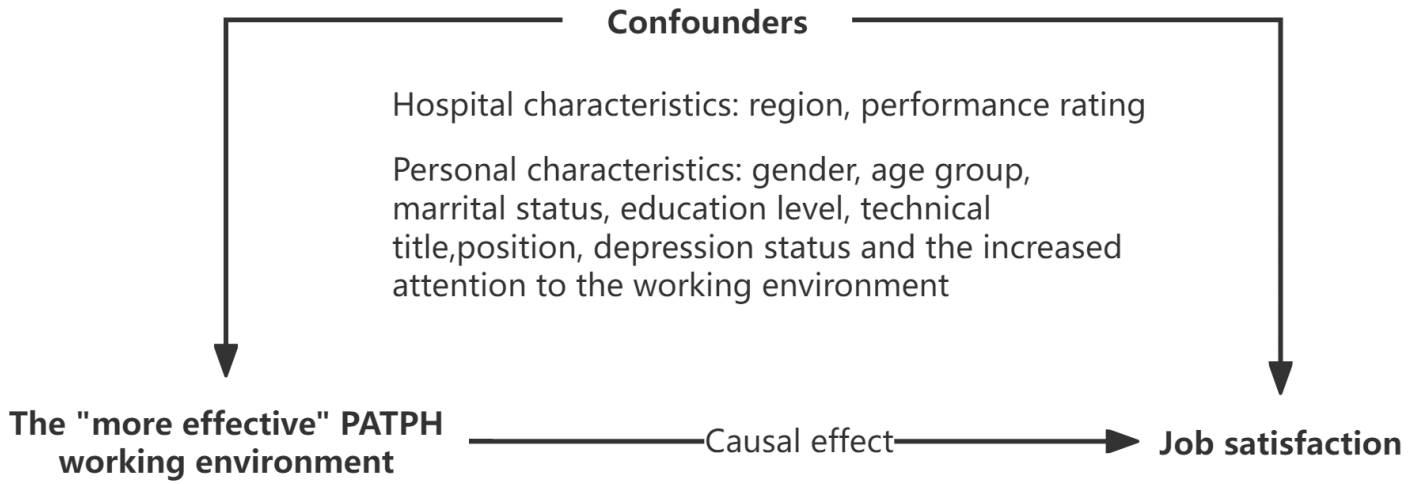
Specification [a]	Description of set *C*	Estimated weights		Variables that are unevenly distributed after weighted
		Mean (SD)	Minimum-maximum	
1	The primitive set *C* [b]	1.01(1.92)	0.42-137.95	
1_99trunc	Truncated weights from specification 1	0.94(0.32)	0.46-1.92	The increased attention to the working environment
2	Set *C* = The primitive set *C* minus the region	1.00(1.47)	0.44-74.63	
2_99trunc	Truncated weights from specification 2	0.94(0.31)	0.47-1.93	Region and the increased attention to the working environment
3	Set *C* = The primitive set *C* minus region and the increased attention to the working environment	1.00(0.38)	0.49-7.07	
3_99trunc (Optimal)	Truncated weights from specification 3	0.99(0.31)	0.53-2.70	Region and the increased attention to the working environment

Note: PATPH, the performance appraisal for tertiary public hospitals; SD, standard deviation.

a. Numerator in all the specifications above equals the probability of lower effectiveness in the baseline population. All truncations were performed at the 1st and 99th percentile.

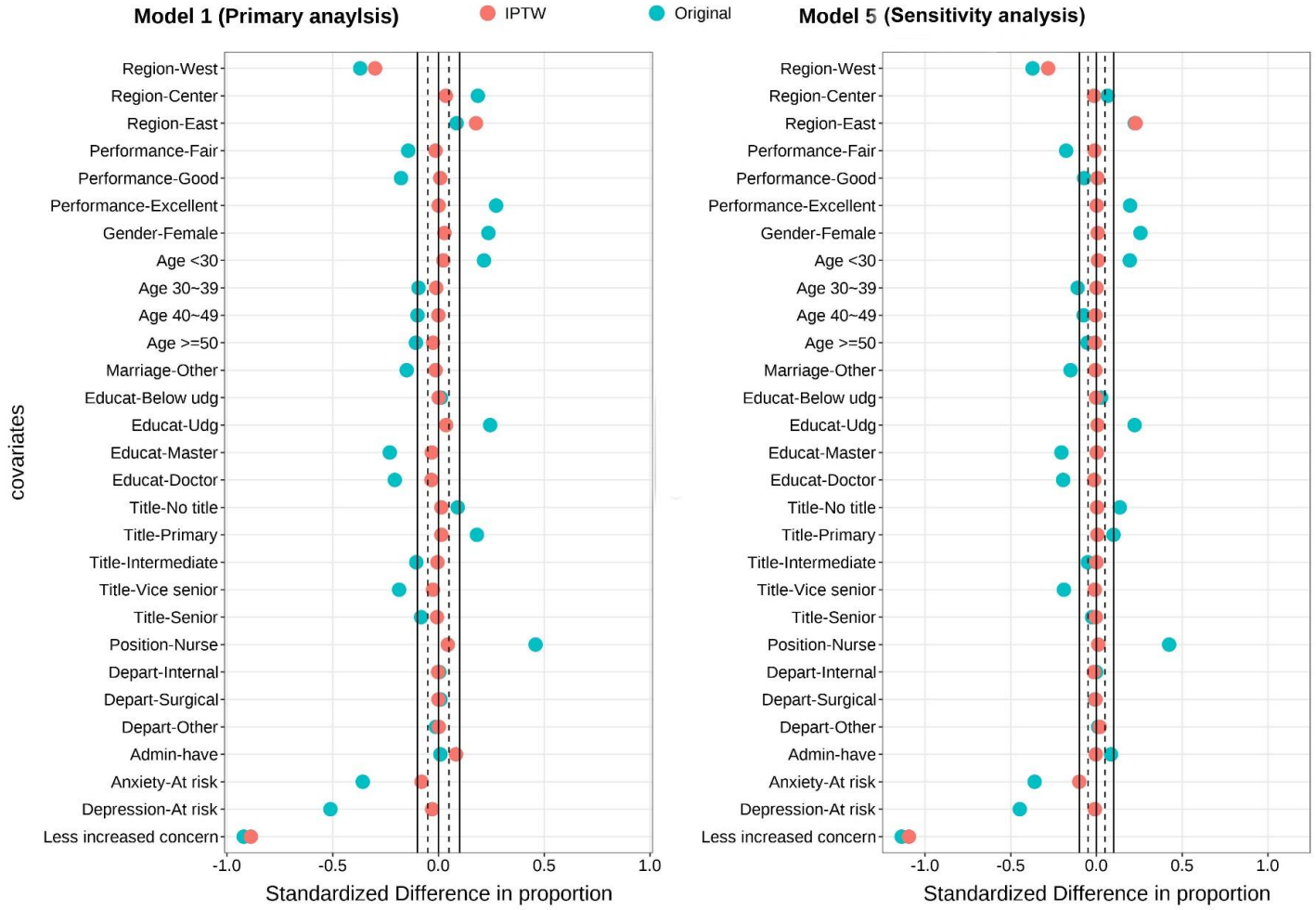
b. The primitive set *C* includes category terms for age group, gender, marital status, education level, technical title, position, the increased attention to working environment, the depression status, region and the performance rating of hospitals. The administrative position, the department and the anxiety status were excluded from the primitive set *C* because the standardized differences in proportion were less than 10% or statistically insignificant impact on the "more effective" PATPH in multivariate analysis.

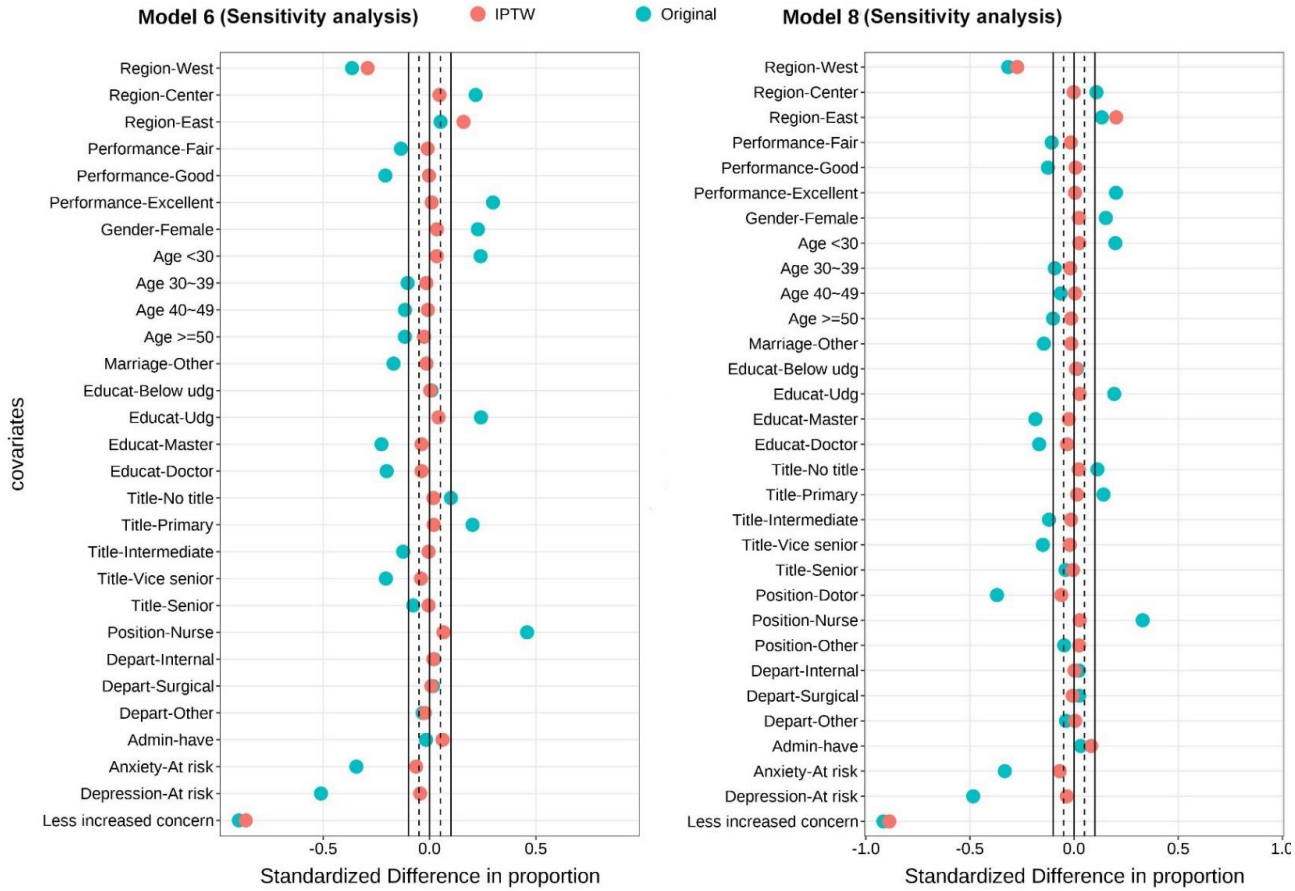
Figure S1 The causal relationship and potential confounders: the impact of a "more effective" PATPH work environment on job satisfaction .



Note: PATPH, the performance appraisal for tertiary public hospitals

Figure S2 The balance diagnoses for baseline variables before and after IPTW in the primary analysis and sensitivity analysis.





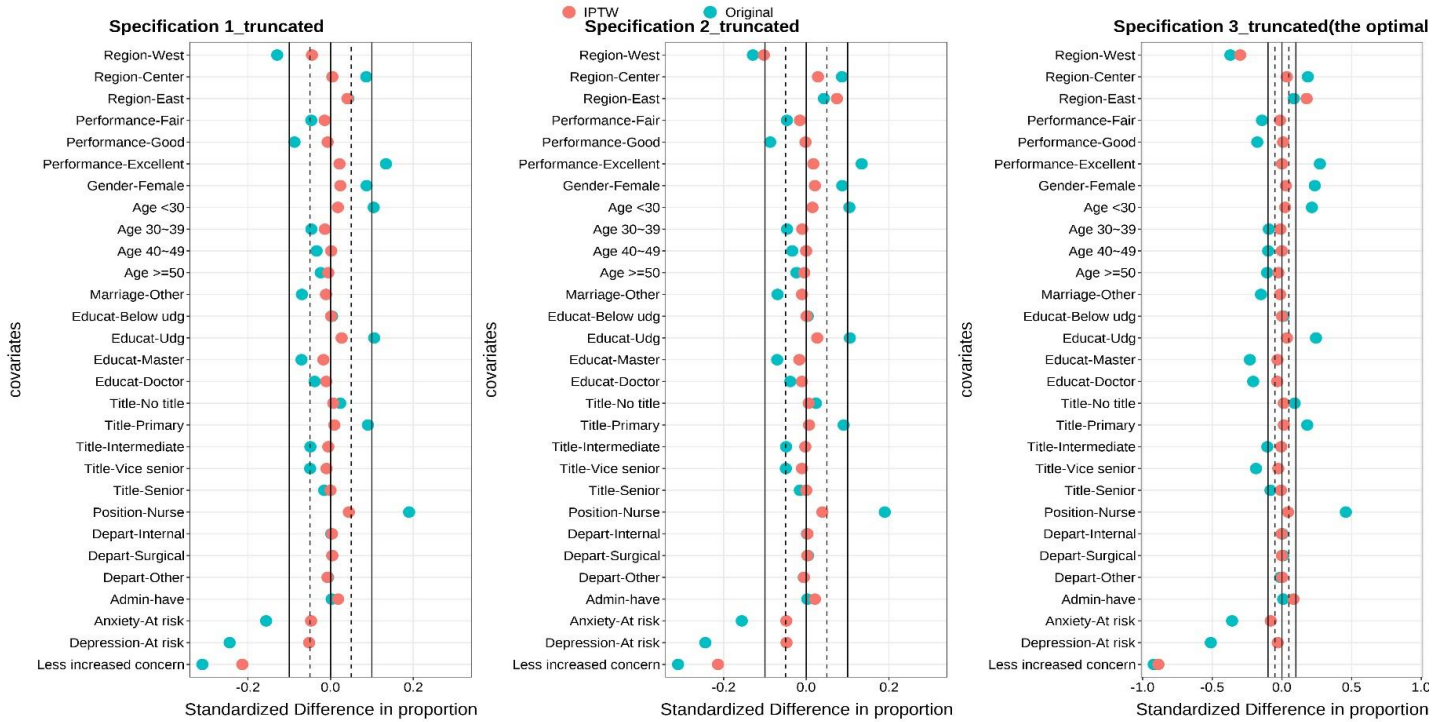
Note: IPTW, inverse probability-of-treatment weighting; Performance, the performance rating of hospitals; Marriage - Other, marital status other than never married; Educat - Below udg, education level - below undergraduate; Educat - Udg, education level - undergraduate; Title, technical title; Depart, department; Admin, administrative position

a. The solid lines indicate the 10% differences which reflect good balance of confounders;

b. Each layer of a dichotomous variable had a standardized difference in proportion with equal value but opposite directions, so only

one of them was shown in the figure.

Figure S3 The balance diagnoses for baseline variables before and after IPTW in the construction of weights.



Note: IPTW, inverse probability-of-treatment weighting; Performance, the performance rating of hospitals; Marriage - Other, marital status other than never married; Educat - Below udg, education level - below undergraduate; Educat - Udg, education level - undergraduate; Title, technical title; Depart, department; Admin, administrative position

a. The solid lines indicate the 10% differences which reflect good balance of confounders;
b. Each layer of a dichotomous variable had a standardized difference in proportion with equal value but opposite directions, so only one of them was shown in the figure.

The principle of distinguishing doctors and nurses from all positions.

We asked every participant about main positions, specific department and administrative position and distinguished doctors and nurses from all positions mainly according to their responses of main position. However, some participants might be classified into a different position category than their self-orientation. For example, participant who reported as both a doctor and other position (such as a nurse or public health personnel) was identified as a doctor (81 in 13211, 0.61%), participant who self-reported as both a nurse and other position (such as a public health personnel or administrative personnel but not a doctor) was identified as a nurse (46 in 13211, 0.35%).