Effect of dual practice on service delivery time by surgeons in the Islamic Republic of Iran: multi-level analysis of a national survey, 2016

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Abstract

Background: One of the work patterns which affects the supply of specialists is the phenomenon of dual practice (DP), i.e., working simultaneously in the public and private sectors. Uncontrolled DP in the surgery health workforce can have adverse effects on access to surgeons, efficiency, effectiveness and quality of surgery services.

Aims: The aim of this article is to examine the impact of DP on service delivery time by surgeons.

Methods: We used a prestructured form to collect data on surgery specialists in all 925 Iranian hospitals. National medical ID codes, council ID codes, first name, surname and father's name were used for data matching. Multilevel linear regression was used to assess the association between DP and study variables, which were recruitment type, faculty status, experience, sex and age.

Results: The 4642 surgery specialists in this study, representing 31.08% of the total number of surgeons identified, spent mean 1.09 (standard deviation 0.33) hours full-time equivalent (FTE) on health care service delivery. Specialists with DP had long service delivery time (β = 0.427). Female specialists (β = −0.049) and full-time specialists (β = −0.082) spent less time on health care service delivery. Permanent specialists had higher FTE (P < 0.001) and as the population increases, FTE increases (P < 0.05).

Conclusions: Although DP had a direct impact on surgeons' working hours, it seems that a greater share of the difference in working time was used in the private sector services, leading to poor access to surgery services in the public sector. Therefore, it is necessary to develop a systems approach to regulate DP.

Keywords: surgeons, dual practice, health care service delivery, Iran

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Introduction

Surgical care is one of fundamental services in a health system; it has a key role in medical services delivery for a wide range of diseases, from prevention to acute treatments for emergency and cancer (*1*). This type of care relates to 30% of the burden of the burden of medical services delivery for a wide range of diseases (*2*) and accounts for more than 1.25% of the world's gross domestic product (2015–2030) (*3*). However, according to a 2015 estimation, at least 4.8 billion of the world's population do not have access to surgery services, and most of this inaccessibility occurs in low- to middle-income countries (*4*). The current shortage of surgery specialists will be exacerbated in the near future due to changes in world demography in aging and noncommunicable diseases, the prevalence of chronic disease and workforce flow, especially in middle- to high-income countries (*5,6*). One of the workforce flows which affects specialist supply is the phenomenon of dual practice (DP), defined as working simultaneously in the public and the private sector (*7,8*). This situation is common among specialists, especially surgeons, whose performance and job may be more associated with the private sector (*9*); however, the phenomenon is not restricted to a specific region. it is witnessed in most countries worldwide ranging from Europe to low/middle income countries such as Egypt, Indonesia and Vietnam (*10*). Uncontrolled DP in the surgery health workforce can have adverse effects on adequate access to surgeons, efficiency, effectiveness and quality of services. Since total annual working hours show the average labour supply across the year, engagement in DP may increase the total labour supply by increasing total working time, though

it mostly leads to an increase in the private supply and consequent reduction in the public supply due to the decreased time spent in this sector (*8,11,12*).

Full-time equivalent (FTE), a unit which indicates workload of physicians through calculation of working hours, can indicate increasing or decreasing impact of DP on the supply (*9*). This is why developed countries use FTE, or amount of time allocated to each service delivery location by the specialist, to estimate supply (*13–15*).

Despite the fact that DP among surgeons and their conduct in the allocation of working hours to the public and private sectors significantly helps health workforce planning in the provision of required surgery services, there is a lack of comprehensive studies in this respect. Hence, the present study aimed to examine the effect of DP on service delivery time by surgeons in the Islamic Republic of Iran as a developing country

Methods

Survey

A national survey was carried out in 2016 using a multi-method approach to identify and analyse the current status of DP among surgery specialist physicians. A pre-structured form, together with guidelines on completing, it was developed to collect data on specialists working in public and private hospitals in the Islamic Republic of Iran. We covered all 925 hospitals in the country; public hospitals were either owned by the Ministry of Health and Medical Education or by other public sector organizations such as the social security organization, the Ministry of Petroleum and the armed forces. Private sector hospitals included both private and charity hospitals. Supervision and accreditation for all governmental, non-governmental and private hospitals in the provinces is by the medical sciences universities, and they were the data collection reference for this study.

Data collection

In this study, a tool was developed to collect data from all hospitals of the country. Access and Excel software were utilized for data management; STATA, version 12, and R (3.0.1) software were used for data analysis. The tool comprised 2 parts: a data collection form together with instructions for completing tables on demographic characteristics, recruitment and occupation status, specifications of the employing hospitals and affiliating organization and time share. This includes information regarding number of active months per annum, average number of active days per month and average number of active hours per day. Surgery specialists were enrolled in this study; anaesthesiologists are members of the surgical specialty in the Islamic Republic of Iran and have an important role in the surgical team, so they were included in the study. They are also included among the surgical specialties in some other regions, e.g. Scandinavia (*16*).

In the instructions, necessary explanations regarding answering questions with specialized knowledge were provided to promote accurate answers. After developing the form by reviewing studies on DP and FTE, it was finalized using administrative and academic experts familiar with DP in the Islamic Republic of Iran. Face validity and content validity of each section was approved by applying the views of experts. We sent the data collection forms and instructions to all universities; we sent reminders and monitored the process for completing the forms every 15 days. Finally, the hospitals were directly contacted to increase the response rate after 2–3 months.

Quality control

To increase accuracy in the study results and minimize errors in data entry by various users and taking into consideration the necessity of cleaning the collected data, a recognized method in the data engineering field, extraction, transformation and loading, was used. This method was adjusted and adapted to match data from the reference banks through data recapturing (*17*) and has been described previously (*18*).

With the aim of matching the acquired data from the survey with the available reference data banks, 3 criteria for each data item, including medical council code, national ID number, name, surname and name of father (together with initials), were used as matching variables to identify the recaptured data for the same person. This was performed by using the SQL functions of Access.

Identifying of physicians with dual practice

To identify the physicians holding multiple jobs, a data matching model was applied: duplicate data were detected among the health ministry databases and other public and private records. After identifying duplicate data (indicating physicians with DP), the main occupation location was specified based on type of recruitment relation listed on the forms. The share of dual practice among public sector specialists in each province and its relation with other characteristics of the physicians and conditions of provinces was then determined.

In this study, response rate was 93% (858 of the 925 hospitals). Out of 14 931 surgery specialists, a total of 4642 surgery specialists were enrolled in this study.

Statistical analysis

Descriptive statistics in terms of mean, standard deviation (SD), frequency and percentage were used. Average time share was calculated for each specialty using the following formula (*19*).

$$TE = \frac{\sum_{i=1}^{\infty} \left(\frac{M_i \times D_i \times H_i}{W_i \times 40h} \right)}{N}$$

Where:

M = number of individual active months a year

D = mean individual active days per M

H = mean individual hours per D

W = number of weeks per year

N = number of specialties.

Available annual working hours = W(i) × 40 (routine working hours a week in the Islamic Republic of Iran)

Independent samples *t*-test and 1-way analysis of variance were used to compare mean FTE between study subgroups. Multilevel linear regression analysis was used to examine the relationship of the variables with DP. To measure the correlation of the findings in each province, these analyses were conducted via multilevel models in which the coefficients allowed change in each province (or even towns if necessary). To identify the number of required levels (efficiency), the likelihood ratio test was used. Finally, we used the backward elimination method to remove inefficient variables from the model in order to obtain the most *parsimonious* model (*20*). *P*-value < 0.05 was considered significant.

Ethical approval

The ethical committee of Tehran University of Medical Sciences assessed and approved the study methodology and ethical considerations (ethical code IR.TUMS.VCR.REC.1395.1045 dated 16 November 2016).

Results

Descriptive statistics

The number of surgery specialists included in this study was 4642; 3048 (65.7) were male, and the main age group was 45–55 years, 1911 (41.2%) (Table 1). The majority were employed in teaching hospitals of medical universities, 3854 (83.0%). In terms of recruitment type 1414 (30.5%) were employed on a contractual basis. The largest groups of specialists worked in obstetrics and gynaecology 1049 (22.6%), general surgery 885 (19.1%) and anaesthesiology 772 (16.6%). We found that 2929 (63.1%) were engaged in DP, i.e. they were working in other service locations as well.

Full-time equivalent status

Specialists' time share showed that on the whole specialists spent an average 1.09 (SD 0.33) FTE on health care service delivery. In comparison to other specialists, those working in nose, throat, head and neck surgery, general surgery and neurosurgery spent more time on service delivery, mean 1.28 (SD 0.33) FTE hours (Table 2).

Moreover, specialists who engaged in DP spent significantly more FTE, on average 1.26 (SD 0.30), compared to the others. Information on the FTE of specialists' characteristics is shown in Table 3.

Impact of dual practice on surgeons' full-time equivalent

In multilevel linear regression analysis, surgeons engaged in DP had a significantly higher FTE (β = 0.12, $P \leq 0.001$). The greatest differences for FTE between dual

Table 1 Descriptive statistics for the 4642 Iranian surgery specialists enrolled in this study

Characteristic	No.	%
Sex		
Male	3048	65.7
Female	1594	34.3
Age (years)		
< 40	1096	23.6
40–45	683	14.7
45–55	1911	41.2
55–65	706	15.2
> 65	246	5.3
Main occupation location		
University hospital	3854	83.0
Social security hospital	211	4.5
Army forces hospital	36	0.8
Petrochemical company hospital	24	0.5
Other public hospital	517	11.1
Faculty membership status		
Member	1154	24.9
Non-member	3488	75.1
Employment status		
Geographic full-time	1194	25.7
Non-full-time	3448	74.3
Recruitment type		
Permanent	1395	30.1
Zarib K[a]	845	18.2
Payam avar[b]	5	0.1
Peymani[c]	418	9.0
Contractual	1414	30.5
Other	348	7.5
Unspecified	217	4.7
Surgical specialism		
General surgery	885	19.1
Orthopaedics	535	11.5
Urinary tract & genital	347	7.5
Neurosurgery	224	4.8
Nose, throat, head & neck	390	8.4
Obstetrics & gynaecology	1049	22.6
Ophthalmology	440	9.5
Anaesthesiology	772	16.6
Dual practice		
Yes	2929	63.1
No	1713	36.9

[a]*A recruitment contract in which medical specialty graduates who are legally committed to certain obligations fulfil these obligations in a health-related centre.* [b]*A recruitment contract in which graduates who are committed to do obligatory military service work in health related centres instead, mostly in deprived areas.*
[c]*Semi-permanent.*

Table 2 Status of full-time equivalent (FTE) distributed by characteristics of specialists

Characteristic	FTE	SD	*P*-value
Sex			
Male	1.11	0.35	0.001
Female	1.05	0.29	
Age (years)			
< 40	1.04	0.29	0.005
40–45	1.05	0.34	
45–55	1.10	0.34	
55–65	1.20	0.33	
> 65	1.10	0.32	
Main occupation location			
University hospital	1.10	0.33	0.001
Other hospital	1.07	0.32	
Faculty membership status			
Member	1.23	31.00	0.52
Non-member	1.05	32.00	
Employment status			
Geographic full-time[a]	1.12	0.34	0.001
Non-full-time	1.01	0.28	
Recruitment type			
Permanent	1.17	0.33	0.001
Zarib K [b]	1.04	0.27	
Payam avar [c]	1.08	0.32	
Peymani [d]	1.12	0.32	
Contractual	1.07	0.34	
Other	1.02	0.34	
Surgical specialism			
General surgery	1.16	0.35	0.04
Orthopaedics	1.11	0.34	
Urinary tract & genital	1.18	0.37	
Neurosurgery	1.28	0.33	
Nose, throat, head & neck	1.12	0.34	
Obstetrics & gynaecology	1.07	0.30	
Ophthalmology	1.06	0.29	
Anaesthesiology	0.93	0.27	
Dual practice			
Yes	1.26	0.30	0.005
No	0.81	0.12	

SD = standard deviation.

[a]Physicians who are supposed to be full time (54 h per week) and are not allowed to be active in any other locations/sectors except their main occupation.

[b]A recruitment contract in which medical specialty graduates who are legally committed to certain obligations fulfil these obligations in a health-related centre.

[c]A recruitment contract in which graduates who are committed to do obligatory military service work in health-related centres instead, mostly in deprived areas.

[d]Semipermanent.

practitioners and non-dual practitioners were observed among specialists of nose and throat and head and neck surgery (β = 0.49, $P \leq 0.001$, general surgery (β = 0.48, $P \leq 0.001$) and neurosurgery (β = 0.48, $P \leq 0.001$).

Female compared to male specialists (β = −0.49, $P \leq 0.001$) and full time compared to non-full-time specialists (β = −0.082, $P \leq 0.001$) spent less time on health care service delivery (Table 3). In terms of recruitment type and provincial characteristics, the specialists with permanent recruitment type had higher FTE ($P \leq 0.001$) and as the population increases, FTE increases ($P < 0.05$).

Table 4 shows the comparison of FTE between DP and non-DP and factors of affecting FTE for the two groups. Among the non-DP practitioners, those younger than 39 years (P = 0.005), Zarib K (P = 0.004) and geographic full-time surgeons (P = 0.005) and female surgeons (β = 0.021, $P \leq 0.001$) had higher FTE compared with their peers (Zarib K is a recruitment contract in which medical specialty graduates who are legally committed to certain obligations fulfil these obligations in a health-related centre).

Moreover, despite the general results, among non-DP surgeons, obstetrics and gynaecology was one of the specialties which demonstrated the highest FTE. There was a negative association between the proportion of private hospitals in each province and FTE, and there was a positive association between regional development and FTE (Table 4).

Discussion

Our findings on 4642 surgery specialists showed that they worked 43.6 hours per week on average (1.09 FTE). Comparison of different fields showed that DP had more impact on FTE and total working hours in certain specialty areas, including nose, throat, head and neck surgery, general surgery and neurosurgery. Studies showed that these specialties were the highest paying fields in the private sector (*9*). In comparison, in Australia working hours per week were 50 hours (1.25 FTE) for neurosurgeons, 49.5 hours (1.23 FTE) for urologists and 47.5 hours (1.19 FTE) for general surgeons (*21*). In the United States of America (USA), maximum hours of service per week for surgeons in orthopaedics, internal medicine and neurosurgery are 1.6, 1.4 and 1.4 FTEs, respectively (*22*). Therefore, it seems that increased demand for the services of such specialists and the trend in burden of disease, especially in low-income countries (*23*), together with global population aging has led to longer waiting lists for these services (*24*) and more time being spent in responding to these needs.

Previous research has shown DP has no significant effects on the total working hours in the public sector. In fact, most of the physicians who work in DP complete their hours in a public hospital and work extra hours in a private hospital (*25*). Another study showed that, for some surgical specialties, practitioners spend fewer hours a week in the public sector to accommodate their other work (DP) in the private sector (*9*). One study showed that financial and non-financial attraction in the private sector caused DP specialists who do not have time constraints to spend more time working in this sector (*26*).

Another study indicated that some surgeons, e.g. otolaryngology and ophthalmology surgeons, spend

Table 3 Multi-level linear regression analysis to assess association between study variables and full-time equivalent hours

Characteristic	β	95% CI		*P*-level	*P*-variable
		Lower limit	Upper limit		
With dual practice					
Surgical specialization					
(Without dual practice)					
General surgery	0.48	0.52	0.45	0.001	
Orthopaedics	0.44	0.49	0.38	0.001	
Urology	0.46	0.53	0.39	0.001	
Neurosurgery	0.48	0.60	0.36	0.001	
Nose, throat, head & neck	0.49	0.54	0.43	0.001	0.001
Obstetrics & gynaecology	0.40	0.43	0.37	0.001	
Ophthalmology	0.39	0.43	0.35	0.001	
Anaesthesiology	0.32	0.36	0.29	0.001	
Total	0.427	0.442	0.412	0.001	
Physicians' characteristics					
Sex					
Male					0.001
Female	−0.049	−0.067	−0.030	0.001	
Age (years)					
< 39					
39–45	0.01	−0.019	0.041	0.484	
45–55	0.03	0.010	0.059	0.006	0.001
55–65	0.12	0.092	0.155	0.001	
> 65	0.04	0.000	0.089	0.051	
Experience (years)					
≤ 5					
6–15	0.009	−0.020	0.039	0.529	0.001
15–25	0.134	0.101	0.167	0.001	
> 25	0.098	0.054	0.142	0.001	
Recruitment type					
Permanent					
Zarib K[a]	−0.086	−0.115	−0.056	0.001	
Payam avar[b]	−0.135	−0.405	0.135	0.328	
Peymani[c]	−0.040	−0.074	−0.006	0.022	0.001
Contractual	−0.084	−0.108	−0.061	0.001	
Other	−0.102	−0.139	−0.065	0.001	
Faculty status					
Non-faculty					0.001
Faculty	0.160	0.138	0.182	0.001	
Full-time status					
Not full-time					0.001
Geographic full-timed	−0.082	−0.104	−0.060	0.001	
Provincial characteristics					
Population (000)					
≤ 500					
501–2000	0.075	0.013	0.136	0.017	0.031
2001–5000	0.051	−0.111	0.214	0.536	
≥ 5001	0.197	0.005	0.389	0.044	
Extent of regional development [e]	0.003	−0.032	0.031	0.992	0.992
Share of private hospitals [f]	−0.073	−0.375	0.229	0.635	0.635

[a]A recruitment contract in which medical specialty graduates who are legally committed to certain obligations fulfil these obligations in a health-related centre. [b]A recruitment contract in which graduates who are committed to do obligatory military service work in health-related centres instead, mostly in deprived areas. [c]Semi-permanent. [d]Physicians who are supposed to be full time (54 hours per week) and are not allowed to be active in any other locations/sectors except their main occupation. [e]Estimated according to development coefficient in each province. [f]Estimated according to proportion of private hospitals in each province.

Table 4 **Comparison of full-time equivalent for dual and non-dual practitioners**

Characteristic	Dual practice					Non-dual practice				
	β	95% CI		*P*-level	*P*-variable	β	95% CI		*P*-level	*P*-variable
		Lower limit	Upper limit				Lower limit	Upper limit		
Physicians' characteristics										
Sex										
Male										
Female	−0.049	−0.072	−0.027	0.001	0.001	0.021	0.009	0.032	0.001	0.001
Age (years)										
≤ 39										
40–45	0.039	0.001	0.077	0.044	0.005	−0.017	−0.035	0.000	0.049	0.003
46–55	0.050	0.020	0.081	0.001		−0.021	−0.036	−0.007	0.004	
56–65	0.063	0.027	0.099	0.001		−0.017	−0.041	0.007	0.174	
≥ 66	0.074	0.021	0.127	0.006		−0.014	−0.042	0.014	0.330	
Experience (years)										
≤ 5										
6–15	0.034	−0.002	0.070	0.066	0.001	−0.012	−0.029	0.005	0.153	0.467
16–25	0.060	0.022	0.099	0.002		−0.016	−0.040	0.008	0.194	
> 25<	0.082	0.031	0.132	0.001		−0.006	−0.036	0.024	0.684	
Recruitment type										
Permanent										
Zarib K[a]	−0.054	−0.091	−0.017	0.004	0.001	0.048	0.031	0.064	0.001	0.001
Payam avar [b]	0.085	−0.316	0.487	0.677		0.053	−0.075	0.182	0.415	
Peymani[c]	−0.025	−0.064	0.014	0.214		0.039	0.017	0.061	0.001	
Contractual	−0.052	−0.079	−0.025	0.001		−0.016	−0.031	0.000	0.043	
Other	−0.043	−0.088	0.002	0.06		−0.040	−0.062	−0.018	0.001	
Faculty membership status										
Non-faculty										
Faculty	0.076	0.052	0.101	0.001	0.001	0.022	0.010	0.035	0.001	0.001
Full-time status										
Non-full-time										
Geographic full-timed	−0.060	−0.087	−0.033	0.001	0.001	0.022	0.010	0.035	0.001	0.001

Table 4 **Comparison of full-time equivalent for dual and non-dual practitioners (*concluded*)**

Characteristic	Dual practice					Non-dual practice				
	β	95% CI		*P*-level	P-variable	β	95% CI		*P*-level	*P*-variable
		Lower limit	Upper limit				Lower limit	Upper limit		
Surgical specialty										
General surgery										
Orthopaedics	−0.067	−0.103	−0.031	0.001		−0.023	−0.046	0.000	0.051	
Urology	−0.002	−0.043	0.039	0.911		0.000	−0.029	0.028	0.974	
Neurosurgery	0.027	−0.018	0.072	0.244		0.013	−0.036	0.062	0.608	
Nose and throat and head and neck surgery	−0.032	−0.073	0.009	0.122	0.001	−0.032	−0.057	−0.008	0.010	0.037
Obstetrics & gynaecology	−0.089	−0.120	−0.058	0.001		0.004	−0.014	0.023	0.657	
Ophthalmology	−0.113	−0.154	−0.072	0.001		−0.005	−0.028	0.017	0.652	
Anaesthesiology	−0.278	−0.215	−0.136	0.001		−0.011	−0.029	0.006	0.202	
Provincial characteristics										
Population (000)										
≤ 500										
501–2.000	0.040	−0.017	0.096	0.166		−0.009	−0.033	0.014	0.445	
2.001–5.000	−0.033	−0.170	0.104	0.638	0.389	−0.026	−0.084	0.032	0.384	0.741
> 5.000	0.085	−0.071	0.242	0.286		−0.003	−0.065	0.059	0.926	
Extent of regional development	−0.012	−0.045	0.021	0.480	0.480	−0.014	−0.025	−0.004	0.009	0.009
Share of private hospitals	−0.234	−0.543	0.075	0.138	0.265	−0.012	−0.045	0.021	0.480	0.001

[a]*A recruitment contract in which medical specialty graduates who are legally committed to certain obligations fulfil these obligations in a health-related centre.* [b]*A recruitment contract in which graduates who are committed to do obligatory military service work in health related centres instead, mostly in deprived areas.* [c]*Semi-permanent.* [d]*Physicians who are supposed to be full time (54 hours per week) and are not allowed to be active in any other locations/sectors except their main occupation.*

more time in DP owing to their having the highest pay in the private sector compared with the other specialties (*9*). Therefore, it seems that the private sector has increased its share in the surgery market because of the higher income (*27*). Another incentive that encourages specialists' efforts to transfer from public to private practice is the differences in the remuneration mechanism: dual practitioners may be more motivated to dedicate their time to private practice when they are paid fixed salary in the public sector versus fee-for-service or an hourly rate paid in the private sector (*25,26*).

In terms of non-financial factors, one of the most important reasons for the doctors' tendency to engage DP is the different work context in the 2 sectors. For instance, having more autonomy in private hospitals was considered valuable by specialists. Other non-financial factors such as relationships between different health providers, professional satisfaction, public responsibility, prestige, etc. were generally perceived as much better in the private sector (*28*). On the other hand, low salaries, poor infrastructure, unmanageable workloads, staff shortages and absenteeism lead to low satisfaction in the public sector (*29*).

Our findings showed that full-time geographic specialists had a lower FTE on the whole compared to non-full-time specialists. This finding was true for those engaged in DP as well, however, full-time geographic specialists who did not engage in DP showed a higher FTE. According to the existing (2010) law, full-time specialists are not permitted to work in other sectors (*30*). Therefore, bearing in mind the direct impact of DP on FTE, it seems rational that non-full-time physicians who engaged more in DP show a higher FTE (*31,32*). Considering the current law, full-time specialists are obliged to spend at least 1 FTE on medical activities (*30*). Hence, among non-DP specialists, FTE of full-time specialists was significantly higher than non-full-time specialists, and this is similar to the findings of another study conducted on surgery groups (*33*). It should be noted that there was no similar study in the Islamic Republic of Iran. Considering limitation of studies from other countries and the relevancy of findings to the Iranian context, we could not clearly delineate previous research in the country from that conducted in other countries. Therefore, this issue was an important limitation of the present study and further discussion in this regard was limited

We found that university faculty surgeons had a higher FTE compared to non-faculty surgeons. Faculty specialists receive more patients since that they have a certain reputation (*9*), therefore, they spend more time visiting their private patients. However, contrary to our findings, faculty specialists in Brazil spend 32% less time on medical activities and engage more in educational affairs (*34*). This could be due to the integration of medical education with health care services in the Islamic Republic of Iran (*35*), and hence clinical and educational duties of specialists go on simultaneously.

Among specialists who engaged in DP, males had higher FTE than females, while in non-DP specialists the reverse was found. Contradictorily, in a previous study it was found that female surgeons spent more time with their patients than their male peers (*36*). It is likely that several factors led to this difference among non-DP specialists, but this is not within the scope of the present study.

Among the other factors we studied, age and work experience had an effect on the FTE of surgery groups. Years of surgery experience lead to a tendency among patients to consult highly experienced surgeons (*37,38*). In the USA, in order to meet regional needs, at least 1.3 FTE is required from each specialist considering the number of consultations with experienced specialists (*33*). This is because less experienced or young specialists do not have the capacity to compete in other markets or with senior specialists (*39*) and they allocate their extra time to research or education (*40*). However, in contrast to the above findings, younger non-DP specialists, especially in less developed areas, had a higher FTE. As indicated in the specialists' rules of service, after graduation, young physicians are recruited to serve as Zarib K and full-time specialists in underserved areas (*30*). Since, there is limited capacity for private activities in these areas, there would be a constraint on the increase of FTE for specialists. Therefore, the young full-time specialists among the non-DP surgeons will have higher FTE.

Although this research was carefully prepared, this study had a number of limitations. First, we encountered a difficulty to access some data, e.g. socioeconomic status of physicians, etc., which could be useful in the analysis of behaviour when engaging in DP. Another limitation was the lack of related literature and studies on level of DP by specialty area, which could facilitate greater accuracy in interpreting our findings. However, we did adopt a variety of approaches for analysis and data collection, which illustrated the level of DP among surgery specialists in the Islamic Republic of Iran.

Conclusion

On the whole, DP has a direct impact on specialists working hours. A greater share of the difference in working time was expended in the private sector services; consequently this reduced the time spent on the public sector services by dual practitioners compared with non-duals. In practice, the effect was to reduce access to surgeons and quality of services in public health. Particularly, given the high level of out-of-pocket expenditure in the private sector, it led to aggravating the limited access of low-income people and conclusion in long term Uncontrolled DP in the surgery health workforce can have adverse effects on efficiency, effectiveness and quality of services.

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Répercussions de la double pratique sur les délais de prestation de services par les chirurgiens en République islamique d'Iran : analyse pluri-niveau d'une enquête nationale, 2016

Résumé

Contexte : L'un des modes de travail qui affecte la disponibilité des médecins spécialistes est le phénomène de la double pratique, c'est-à-dire le cumul de plusieurs activités professionnelles dans les secteurs public et privé. L'absence de contrôle de la double pratique parmi les professionnels de santé en chirurgie peut avoir des répercussions néfastes sur l'accès aux chirurgiens ainsi que sur l'efficacité, la rentabilité et la qualité des prestations chirurgicales.

Objectifs : L'objectif du présent article est d'étudier l'impact de la double pratique sur le temps consacré à la prestation de service par les chirurgiens.

Méthodes : À l'aide d'un formulaire préstructuré, nous avons recueilli des données concernant les chirurgiens spécialisés dans l'ensemble des 925 hôpitaux que compte la République islamique d'Iran. Les données ont été comparées en utilisant les numéros d'identification nationaux des médecins, leurs numéros d'inscription à l'ordre des médecins, leurs prénoms, noms et patronymes. La régression linéaire à plusieurs niveaux a été appliquée afin d'évaluer le lien entre la double pratique et les variables étudiées, à savoir le type de recrutement, l'exercice de fonctions d'enseignement, l'expérience, le sexe et l'âge.

Résultats : Les 4642 chirurgiens spécialisés inclus dans cette étude, représentant 31,08 % du nombre total des chirurgiens identifiés, consacraient en moyenne 1,09 heure (écart-type : 0,33) en équivalent temps plein (ETP) à la prestation de services de soins de santé. Les spécialistes s'adonnant à la double pratique faisaient preuve de temps de prestation plus longs (β = 0,427). Les femmes spécialistes (β = −0,049) et les spécialistes travaillant à temps plein (β = −0,082) montraient des temps de prestation plus courts. Les spécialistes permanents avaient un nombre d'ETP plus élevé (p < 0,001), ce dernier croissant avec l'augmentation de la population (p < 0,05)

Conclusion : Bien que la double pratique ait des répercussions directes sur les horaires de travail des chirurgiens, il semble qu'une plus grande partie de la différence dans le temps de travail soit consacrée à la prestation de services dans le secteur privé, ce qui affecte l'accès aux services chirurgicaux dans le secteur public. Il est donc nécessaire d'élaborer une approche systémique afin de réglementer la double pratique.

أثر الممارسة المزدوجة على زمن تقديم الجراحين في «جمهورية إيران الإسلامية» للخدمات: تحليل متعدد المستويات لدراسة مسح وطنية، ٢٠١٦

محبوبة بيات، آزاد شكري، رقية خليل نزاد، الميرامير بهاء الدين، محمود خدادوست، حامد فتاحي، غلامحسين صالحي زلاني، ايرج حريرجي، مهدي ياسري، إبراهيم جعفري بويان، علي أكبري ساري

الخلاصة

الخلفية: إن ظاهرة الممارسة المزدوجة من أنماط العمل التي تؤثر على تقديم الأطباء الاختصاصيين للخدمات، والمقصود بالممارسة المزدوجة أن يعمل الطبيب في القطاعين العام والخاص في وقت واحد. يمكن للممارسة المزدوجة في القوى العاملة الصحية في مجال الجراحة أن تؤثر على الوصول إلى الجراحين تأثيرًا ضارًّا يتعذّر ضبطه، وعلى كفاءة وفاعلية وجودة الخدمات الجراحية.

الهدف: تهدف هذه المقالة إلى التعرف على تأثير الممارسة المزدوجة على زمن تقديم الجراحين لخدماتهم.

طرق البحث: استخدمنا نموذجًا مُسْبَق الإعداد لجمع البيانات عن الاختصاصيين في الجراحة في جميع المستشفيات الإيرانية وعددها ٩٢٥ مستشفىً. استخدمنا رموز الهوية الطبية الوطنية ورموز الهوية لمجلس الأطباء والاسم الأول واسم الأسرة واسم الأب في التوافق بين البيانات. استخدمنا التحوُّف الخطي المتعدد المستويات لتقييم الارتباط بين الممارسة المزدوجة وبين متغيرات الدراسة مثل نوع التوظيف، ودرجة عضو هيئة التدريس، والخبرة، ونوع الجنس، والسن.

النتائج: أمضى ٤٦٤٢ طبيبًا اختصاصيًّا بالجراحة، يمثلون ٣١,٠٨٪ من مجموع عدد الجراحين، ١,٠٩ ساعة في هذه الدراسة (الانحراف المعياري ٠,٣٣) من معادلات ساعات التفرغ في تقديم خدمات الرعاية الصحية. واتضح أن الأطباء الاختصاصيين ذوي الممارسة المزدوجة يكون لديهم زمن تقديم الخدمات طويلًا (β = ٠,٤٢٧). وتمضي الاختصاصيات (β = −٠,٠٤٩) كما يمضي الاختصاصيون المتفرغون (β = −٠,٠٨٢) وقتاً أقصر في تقديم خدمات الرعاية الصحية. أما التخصصات الدائمة فتكون معادلات ساعات التفرغ فيها أعلى (P < ٠,٠٠١) ومع ازدياد أعداد السكان تزداد معادلات ساعات التفرغ (P < ٠,٠٥).

الاستنتاجات: رغم أن للممارسة المزدوجة تأثيرًا مباشرًا على ساعات عمل الأطباء الجراحين، إلا أنه يبدو أن النصيب الأكبر في الاختلاف في أوقات العمل قد استفادت منه الخدمات في القطاع الخاص، مما أدى إلى تدني فرص الوصول إلى الخدمات الجراحية في القطاع العام. ولذلك فإن من الضروري وضع مقاربة منهجية لتنظيم الممارسة المزدوجة.

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