

Descriptive Study of Economic Behavior of General Practitioners in Iran: Practice Income, Hours of Work, and Patient Visits

Abstract

Background: Although there is a critical need for information on economic performance of Iranian general practitioners (GPs) in health policymaking, there is not any scientific evidence in this area. Therefore, in the present report, the characteristics of economic behaviors of Iranian GPs were described. **Methods:** This was a cross-sectional study in 2015, in which the data were collected from 666 GPs. The variables including monthly gross income, hours of work, and patient visits were studied as the measures of economic behavior of GPs. Descriptive statistics, *t*-test, and Analysis of Variance were used for analyzing the data. The statistical analysis was performed by STATA12. **Results:** The annual income of the GPs understudy was 26,000 US dollar (USD) (82,680 purchasing power parity [PPP]). The ratio of this value to gross domestic product per capita and minimum wage of Iran in 2015 was 4.8 and 9.2, respectively. On average, every GP in Iran has an income of 2188.1 USD (6958.16 PPP), works 142 h, and visits an average of 494 patients/month. The results showed that the economic behavior of Iranian GPs has a significant difference in terms of gender, age, marital status, practice experience, practice location, type of practice, being a family physicians, and working in different settings ($P < 0.05$). **Conclusions:** The Iranian GPs understudy work less than their counterparts in other (compared) countries. The studied GPs had a higher income (adjusted by hours of work and countries' per capita income) than their counterparts in other (studied) countries. Moreover, there are inequalities between GPs in terms of income, the volume of services provided and the work hours.

Keywords: Family practice, general practitioners, health-care economics and organizations, office visits, private practice

Introduction

Physicians, as main suppliers in health-care market, affect the demand side of health-care market by their decisions. Hence, their decisions lead resources flow in the health system. In other words, their behaviors affect total health expenditure, quality, and quantity of health-care services. Hence, physicians' behavior is the main issue in health economics.^[1]

Economic behaviors of physicians can be defined by some characteristics of their economic performance such as practice income, pricing behavior, labor supply, type of provided services, and so on.^[1-3] Understanding these characteristics of physician behaviors helps health managers in better policy making for health system and addressing many health-care system challenges.

In Iran's health-care system, general practitioners (GPs) as main primary

health-care providers play a pivotal role in the resource consumption. Although there is a critical need for information on economic behaviors of Iranian GPs in health policymaking, there is not any scientific evidence on economic performance of GPs in Iran.

The present report describes the characteristics of economic behaviors of Iranian GPs.

Methods

Data collection

A self-administered questionnaire was developed based on the aim of the study and the literature review. To finalize the instrument, a pilot study was conducted on 67 GPs. Content and more details of the instrument can be found from Bayati *et al.*, 2015 (ref).

There was not an updated and perfect sampling-frame of GPs in Iran. In addition, GPs information in private sector was

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Mohsen Bayati,
Arash Rashidian^{1,2}

Health Human Resources
Research Center; School of
Management and Information
Sciences, Shiraz University
of Medical Sciences, Shiraz,
Iran, ¹Department of Health
Management and Economics,
School of Public Health, Tehran
University of Medical Sciences,
Tehran, Iran, ²Information,
Evidence and Research,
World Health Organization
Regional Office for the Eastern
Mediterranean, Cairo, Egypt

Address for correspondence:
Dr. Arash Rashidian,
School of Public Health, Tehran
University of Medical Sciences,
Poursina Avenue, Tehran, Iran.
E-mail: arash.rashidian@gmail.
com

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unavailable. Hence, the required data were collected by two surveys during two congresses of Iranian Society of GPs (ISGP). Iranian GPs throughout the country should participate in ISGP's congresses for receiving the retraining score which is necessary for prolonging the medical practice license. Thus, it can be assumed that the participated GPs in the congress will be representative of Iranian GPs. However, due to nonrandom sampling, generalizability of findings should be considered with caution.

The two surveys were performed using convenience sampling method during the two seasonal congresses of ISGP in 2015.

The developed questionnaires were distributed among 1142 participated GPs in the two congresses, and 599 completed questionnaires were gathered at an appointed time. The response rate was 52.4%. A total of 666 observations (in the two surveys and pilot study) were analyzed.

Data analysis

The main variables we used for indicating the economic behaviors of GPs were consisted of monthly gross income, monthly hours of work, and monthly patient visits. To convert IR Rial to US dollar (USD), based on the Central Bank of Iran database, the average exchange rate in 2015 was used (1 USD = 29,960 Rial). Also for converting income values into purchasing power parity (PPP), comparable common currency unit, we used PPP conversion factor. Descriptive statistics, *t*-test, and analysis of variance were employed to test for difference in mean GPs' behaviors across categories of demographic and practice variables.

Results

In terms of age, most GPs were in the age group of 46–55 years (35%). The mean of GPs' practice experience was 13.3 (standard deviation = 8.7) years. Most of them were married (81%) and about half of them were female (46%). Regarding the practice setting, the highest frequencies were respectively those of offices, private and public clinics. More than half of the GPs (55%) were only working in private centers. Only 10% of surveyed GPs were family physicians. In terms of practice location, 37.7% of GPs worked in Tehran, 26% in other province center, and 36.3% in other cities and villages.

In Table 1, the monthly gross income of GPs can be seen as the most important feature of economic behavior of physicians, based on other demographic and practice variables. On average, every GP in Iran has an income of 2188.1 USD (6958.16 PPP). There was a great disparity between GPs in terms of their income. Results of the mean difference test showed that GPs who were male, married, and those in middle-aged groups (36–45 and 46–55-year groups), with higher practice experience, working in offices and working in both public and private settings had higher monthly income ($P < 0.05$).

The results of the variable of monthly hours of work are shown in Table 2. On average, a GP works 142 h/month. The results showed that GPs who were male, family doctor, and those working in smaller towns/village, public sector worked more than others ($P < 0.05$). Furthermore, GPs working in rental offices, other organizations and 6–10 years practice experience group worked less than others ($P < 0.05$).

Table 3 shows the number of monthly patient visits of GPs as another feature of the economic behavior of doctors. In the present study, any GP visits an average of 494 patients/month. That number was very different based on other variables. Younger GPs, family physicians, and GPs working in smaller towns/village and public sector provided more visits than others ($P < 0.05$). As well as GPs working in offices, and those in 6–10-year practice experience group had less visits than others ($P < 0.05$).

Discussion

The annual income of the GPs under study was 26,000 USD (82,680 PPP). The ratio of this value to the gross domestic product (GDP) per capita of Iran was 4.8.

According to Medscape physician compensation report (2015), the annual income of primary care/family physicians in the USA was reported to be 195,000 (USD).^[4] The ratio of this value to GDP per capita of America (2015) was between 3.4% and 3.9%.

Given that this ratio is approximately 4.8 for GPs in the present study, it can be said that regarding Iran's economic power, the actual incomes of GPs in Iran is slightly more than the corresponding figure for American GPs. It should be noted that other factors such as exchange rates, inflation, and other economic variables have to be considered in this comparison. Hence, this finding must be expressed with caution.

As an interesting and more reasonable comparison, the average income of GPs compared to the minimum wage in Iran in 2015 was about 9.2. The income ratio of GPs in America to the minimum wage was 11.8.^[5] According to Samson, this ratio was 5.3 for GPs in France in 2010.^[5] Based on this comparison, the incomes of GPs in this study compared to the minimum wage were less than the corresponding figure for American GPs and much higher than the one for French GPs.

Male GPs were earning almost \$1000 more than female ones. This result can be found in other previous studies.^[2,4,6,7] For example, in a study in Australia, it was stated that, averagely, female GPs earned 25% less than the annual incomes of male physicians.^[8]

Married GPs earned almost \$600 more than single GPs. The difference is reasonable because married people have the financial responsibility for their families; so, they work harder.

Table 1: Monthly gross income (USD) of Iranian general practitioners based on demographic and practice variables

Variables	Mean in PPP	Mean	SD	Minimum	Maximum	P
Monthly gross income	6958.16	2188.1	1768.94	166.88	11682.2	
Gender						
Male	8339.10	2622.36	1794.88	333.77	11682.2	0.000
Female	5389.94	1694.95	1604.69	166.88	9512.68	
Age (years)						
26-35	5919.32	1861.42	1574.07	333.77	9178.90	0.017
36-45	7161.36	2252	1722.50	333.77	9512.68	
46-55	7738.72	2433.56	1847.74	166.88	10013.4	
56≤	6439.79	2025.09	1954.43	333.77	11682.2	
Marital status						
Single	5438.25	1710.14	1243.06	333.77	6174.90	0.001
Married	7304.91	2297.14	1856.06	166.88	11682.24	
Practice experience (years)						
0-5	5624.94	1768.85	1280	333.77	6675.56	0.000
6-10	6659.05	2094.04	1969.57	166.88	9178.90	
11-15	6860.18	2157.29	1594.41	333.77	9345.79	
16-20	8358.44	2628.44	1892.21	333.77	10013.4	
≤21	7670.13	2411.99	2004.45	333.77	11682.2	
Practice location						
Tehran	6306.80	1983.27	1759.43	166.88	9178.9	0.106
Other province center	6808.16	2140.93	1761.39	333.77	10013.4	
Other cities and villages	7435.22	2338.12	1568.03	333.77	9345.79	
Working in proprietary office						
Yes	7928.76	2493.32	1930.57	333.77	11682.2	0.006
No						
Working in rental office						
Yes	8366.07	2630.84	1924.56	166.88	10013.4	0.000
No						
Working in public clinic						
Yes	6355.74	1998.66	1705.60	333.77	10013.4	0.155
No						
Working in private clinic						
Yes	6432.15	2022.69	1713.28	333.77	9512.68	0.188
No						
Working in public hospital						
Yes	8026.42	2524.03	1875.83	333.77	10013.4	0.130
No						
Working in private hospital						
Yes	7133.76	2243.32	2184.57	333.77	8344.45	0.864
No						
Working in other organizations						
Yes	6968.18	2191.25	1441.58	333.77	7510.01	0.991
No						
Practice type						
Public only	5180.73	1629.16	1061.53	333.77	6642.19	0.000
Private only	7173.83	2255.92	1879.33	166.88	11682.2	
Public and private	8635.10	2715.44	1925.74	333.77	10013.4	
Family physician						
Yes	7153.44	2249.51	1365.2	333.77	6975.96	0.743
No	6915.29	2174.62	1812.13	166.88	11,682.24	

PPP=Purchasing power parity, SD=Standard deviation

GPs working in offices had higher incomes. It has been stated in many studies that since self-employed doctors

have more freedom in practice, they usually can earn more income.^[3,8]

Table 2: Monthly hours of work of Iranian GPs based on demographic and practice variables

Variables		Mean	Standard deviation	Minimum	Maximum	P
Monthly hours of work		142.27	71.56	18.33	424.66	
Gender	Male	163.09	70.77	21.66	424.66	P=0.000
	Female	114.68	62.88	18.33	416.66	
Age	26-35 years	140.7	69.96	18.33	312	P=0.060
	36-45 years	131.17	65.94	20.41	336	
	46-55 years	148.82	75.03	20	424.66	
	56=<years	158.66	75.49	32	400	
Marital status	Single	144.25	70.39	25	400	P=0.822
	Married	142.15	71.95	18.33	424.66	
Practice experience	0-5 years	140.44	69.03	18.33	312	P=0.001
	6-10 years	111.60	63.9	20	260	
	11-15 years	142.44	77.79	20.41	416.66	
	16-20 years	153.28	73.23	23	424.66	
	21=<years	155.38	65.64	28	400	
Practice location	Tehran	121.06	65.45	18.33	312	P=0.000
	Other province center	138.15	68.41	33.33	400	
	Other cities and villages	165.14	69.15	25	416.66	
Working in proprietary office	Yes	146.46	76.6	18.33	424.66	P=0.321
	No					
Working in rental office	Yes	132.29	64.6	23	312	P=0.039
	No					
Working in public clinic	Yes	152.69	63.39	20	336	P=0.110
	No					
Working in private clinic	Yes	136.09	73.83	20.41	364	P=0.340
	No					
Working in public hospital	Yes	134.18	60.53	40	364	P=0.490
	No					
Working in private hospital	Yes	122.31	64.96	28	250	P=0.312
	No					
Working in other organizations	Yes	121.41	55.85	20.41	242.66	P=0.028
	No					
Practice type	Public only	159.58	61.77	20	364	P=0.022
	Private only	143.06	76.75	18.33	424.66	
	Public and private	125.24	58.04	20.41	312	
Family physician	Yes	167.36	50.96	60	306	P=0.013
	No	139.6	73.05	18.33	424.66	

GPs who work in both public and private sectors (viz., dual practice) have much more income than others.

Findings related to other characteristics of the economic performance of GPs showed that each physician was working an average of 142 h a month and had 494 visits monthly. A study of GPs in France reported the number of visits and the hours of work to be 389 and 198, respectively.^[9] In another study, the working hours of GPs in Australia were reported 170 h/month.^[8] The average hours of work for the self-employed and employees family physicians in America were 198 and 180 h, respectively.^[10] According to these comparisons, it can be said that Iranian GPs understudy work less than their counterparts in other countries.

Male GPs work almost 50 h more than female ones every month and have almost more 80 visits (with low significance). In two studies in France and

Australia, it was found that female GPs worked less hours than male physicians.^[1,8,9] It was also demonstrated that the number of visits done by female GPs in France was significantly less than that of male practitioners. According to their study, men do over 1500 visits/year more than women.^[9] The reason for this difference in behavior is the difference in their preferences and responsibilities.^[2,7]

Regarding the practice location, the more we go from Tehran to small towns and villages, the higher the number of hours and visits will be done. For example, GPs in Tehran almost work 40 h less than those in other towns and villages and do <300 visits. In smaller practice locations, GPs do traditional practice and visits, and this is the reason why the number of the visits done is higher compared to cities like Tehran where physicians provide more diverse and time-consuming services.

Table 3: Monthly patient visits of Iranian general practitioners based on demographic and practice variables

Variables	Mean	SD	Minimum	Maximum	P
Monthly patient visits	494.35	488.93	17.75	3600	
Gender					
Male	532.6	464.47	18.75	2708.33	0.054
Female	443.6	516.45	12.75	3600	
Age (year)					
26-35	632.22	611.84	18.75	3600	0.025
36-45	453.13	495.4	23	2695	
46-55	487.33	431.72	12.75	2708.33	
≤56	412.73	407.31	21.66	2275	
Marital status					
Single	600.08	541.52	12.75	2166.66	0.062
Married	477.59	479.22	18.75	3600	
Practice experience (year)					
0-5	659.05	668.98	35	3600	0.000
6-10	324.77	402.88	12.75	2400	
11-15	478.97	461.63	21.66	2340	
16-20	494.22	429.53	23	2275	
≤21	457.79	367.86	24.5	2160	
Practice location					
Tehran	329.59	330.83	12.75	2708.33	0.000
Other province center	493.96	517.71	24.5	3600	
Other cities and villages	650.63	502.85	66.66	2695	
Working in proprietary office					
Yes	372.42	330.03	12.75	1820	0.000
No					
Working in rental office					
Yes	372.84	337.57	18.75	2708.33	0.000
No					
Working in public clinic					
Yes	876.88	692.77	23	3600	0.000
No					
Working in private clinic					
Yes	418.95	279.61	50	1250	0.086
No					
Working in public hospital					
Yes	605.86	530.22	40	2275	0.156
No					
Working in private hospital					
Yes	548.31	658.93	78.33	2021.25	0.690
No					
Practice type					
Public only	1058.48	735.18	54.16	3600	0.000
Private only	381.9	338.76	12.75	2708.33	
Public and private	413.47	330.68	23	1560	
Family physician					
Yes	965.15	671.57	234	3600	0.000
No	444.2	438.67	12.75	2708.33	

SD=Standard deviation

Family physicians work almost 25 h and do 500 visits/month more than other GPs. On average, GPs working in offices do 150 less visits/month than other GPs while GPs working in public clinics do 500 more visits than others. The reason is that self-employed GPs

often have more freedom. Conversely, GPs working in the public sector, especially in public clinics or family physicians, have to visit patients at certain times in the clinic, and they usually face with a very high demand by patients.

Like other studies, this study has some limitations as well as some strengths. Given that there was no accurate and up-to-date sampling frame of GPs in Iran, convenience sampling was used which may limit the generalizability of the results.

Despite its limitations, this study was the only research carried out on the economic behavior of GPs in Iran and provides useful information for health policymakers. This was a descriptive study about GPs' performance. For deeper analysis of GPs behavior determinants, further works are needed. Also for more evidence related to GPs economic behavior in Iran.^[11,12]

Conclusions

This study aimed to describe the economic behavior of GPs in Iran. Three important variables, including income, work hours, and number of visits were evaluated as the measures reflecting the economic performance of physicians. Descriptive findings of this study in different groups in terms of gender, age, practice experience, practice location, and type of practice provide valuable information by itself to health policymakers so that they would have a clearer and more scientific picture of the behavior of GPs as the main providers of health services in the country.

On average, the income of GPs in Iran with regard to the country's economic power (GDP per capita), especially considering their work hours, is in good condition compared to their counterparts in other countries. However, there is disparity and inequality between income, the volume of services provided and the work hours among GPs that should be taken into consideration.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Preker AS. Public Ends, Private Means: Strategic Purchasing of Health Services. Washington, D.C.: World Bank Publications; 2007.
2. Rizzo JA, Zeckhauser RJ. Pushing incomes to reference points: Why do male doctors earn more? *J Econ Behav Organ* 2007;63:514-36.
3. Rizzo JA, Zeckhauser RJ. Reference incomes, loss aversion, and physician behavior. *Rev Econ Stat* 2003;85:909-22.
4. Peckham C. Medscape Physician Compensation Report; 2015. Available from: <http://www.medscape.com/features/slideshow/compensation/2015/public/overview>. [Last accessed on 2016 May 03].
5. Samson AL. Low-Income Self-Employed GPs: A Preference for Leisure? HEDG, 10/12 Department of Economics. UK: University of York; 2010.
6. Esteves-Sorenson C, Snyder J. The gender earnings gap for physicians and its increase over time. *Econ Lett* 2012;116:37-41.
7. Spencer ES, Deal AM, Pruthi NR, Gonzalez CM, Kirby EW, Langston J, *et al*. Gender differences in compensation, job satisfaction and other practice patterns in urology. *J Urol* 2016;195:450-5.
8. Cheng TC, Scott A, Jeon SH, Kalb G, Humphreys J, Joyce C, *et al*. What factors influence the earnings of general practitioners and medical specialists? Evidence from the medicine in Australia: Balancing employment and life survey. *Health Econ* 2012;21:1300-17.
9. Dumontet M, Le Vaillant M, Franc C. What determines the income gap between French male and female GPs – The role of medical practices. *BMC Fam Pract* 2012;13:94.
10. Physicians American Association of Orthodontists Foundation. Practice Profile Survey; 2015. Available from: <http://www.aafp.org/about/the-aafp/family-medicine-facts.html>. [Last accessed on 2016 Feb 15].
11. Bayati M, Rashidian A. Target income and its determinants for general physicians: An instrumental variables approach. *Int J Health Care Manage* 2018;11:260-8.
12. Bayati M, Rashidian A, Akbari Sari A, Emamgholipour S. General practitioners' views on key factors affecting their desired income: A principal component analysis approach. *Med J Islam Repub Iran* 2017;31:41.