

What do Iranian general practitioners expect from family physician contracts?

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ABSTRACT

Background Family medicine has become a main prerequisite of providing primary healthcare and a main reforming strategy to ensure the delivery of efficient and high-quality health services.

Aim This study aimed to investigate general practitioners' (GP) preferences regarding family physician contract.

Design and setting Cross-sectional study was conducted among GPs who registered in Ministry of Health and Medical Education (MoHME) family physician plan and were working in the health network of moderately developed regions in Iran. The sample size was calculated to be 150 GPs who were randomly selected from MoHME database.

Method Developed questionnaire was distributed to GPs. Results were analysed by ordinal regression model.

Results Study results confirmed that 'type of employer' had the most significant effect on GPs' preferences ($\beta=0.86$). Then attributes including 'allocating quota for being accepted in medical specialty' ($\beta=0.78$), 'increased length of contract' ($\beta=0.00.42$) and 'capitation payment+15% bonus' had respectively the great effects on participants' decision. Findings also revealed that a scenario of contracting with medical council was 2.4 times more likely to be chosen by GPs compared with a scenario of contracting with a medical university. Furthermore, a scenario that allocated a quota for admission to medical specialty courses was 2.18 times more probable to be preferred by them ($p<0.001$).

Conclusion Successful implementation of family medicine requires development of suitable solutions for attracting and attaining GPs in the programme. It seems that using a variety of incentives and applying them in physicians' work contract would be helpful in this regard.

INTRODUCTION

The declaration of Alma Ata in 1978, issued by the WHO, emphasised on the significant role of primary healthcare (PHC) in reinforcing the health systems of all countries.¹ Consequently, the Iran Ministry of Health and Medical Education (MoHME) promoted the PHC approach due to its venerable values including equity, universal access to health services and community involvement. As a result, national implementation of PHC network began in the early 1980s with a great emphasis on delivering basic health services including immunisation, family planning, prenatal care and environmental health

Key points

- ▶ Existing research on variety of scenarios which persuade general practitioners (GP) to participate in family medicine (FM) programme is currently limited in Iran. In fact, motivating policies which propose to increase the attraction of GPs towards FM programme have been introduced or implemented in the health system without conducting appropriate empirical studies.
- ▶ This study found substantial evidence on how to motivate GPs to effectively engage in this useful programme. Research findings revealed that for GPs, type of employer had the most significant effect on their decision to work as a family practitioner. Then attributes including 'allocating quota for admission to medical specialty courses', 'increased length of contract', and 'capitation payment+15% bonus' had respectively the great effects on participants' preferences. Depending on their level of political acceptability and financial issues, these factors can be addressed in a family physician contract which might result in a significant increase in GPs' motivation to participate in FM programme more effectively.

through community health providers in rural areas.²

The comprehensive expansion of PHC network in rural areas improved the health indices dramatically and led to considerable reduction in infants, mothers and newborn mortalities.^{3 4} This positive result has led Iranian health policymakers to apply a suitable model for continuation of PHC. For this reason, family medicine (FM) has become a main prerequisite of providing PHC and was introduced as a main reforming strategy to ensure the delivery of high-quality and efficient health services.⁵ Accordingly, FM project was initiated in 2005 for rural population of the health network, and then expanded in to cities with below 20 000 populations.⁶ The establishment of FM in rural areas improved public access to healthcare services while lack of similar organised model in urban areas caused significant obstacles in accessibility to required health services at a reasonable and fair cost.^{7 8} This led MoHME to pilot

family physician (FP) project in some of the urban areas including Fars in the south and Mazandaran in north of the country in 2012 with the goal of expanding the project for the entire urban population. Despite the anticipated generalisation of the programme, there are still important problems in this way which necessitate appropriate administrative planning and active contribution of various stakeholders.⁹

To overcome the issue, the number of physicians in areas below 20 000 inhabitants increased to more than 6000 after implementation of FP programme. Furthermore, their salary has increased from US\$150 to US\$1500 per month.¹⁰ Despite considerable efforts in this direction, current status of the programme is still far from ideal. Among some of the challenges considered for FM programme, lack of permanent health workforce especially general practitioners (GP) acts as an important limitation in accomplishing the plan's objectives. Some of the main concerns of these providers are financial issues, being dependent on insurance institutions as a main source of their payment and lack of facilities in rural areas which motivate them to participate in medical residency exam and leave FM programme.¹¹ Thus, it is necessary to apply an appropriate strategy in order to ensure physicians' participation and their retention in the programme. Developing an attractive and encouraging FM employment contract is one of the strategies that can thoroughly consider a range of career incentives among GPs.¹²

Actually, there is a lack of evidence in Iran about types of incentives which improve GPs' participation in the FM programme. Given this data limitation, we employed a discrete choice experiment as a stated preference approach to address these issues. This study aimed to determine key incentives which were most likely to be effective in improving GPs' attraction in the FM programme.

METHODS

Study design

This study used a cross-sectional methodology to determine key incentives which were most likely to be effective in improving GPs' attraction in the FM programme.

Study setting

Iran can be divided into three categories according to developmental indicators: developed regions (15), moderately developed regions (21) and non-developed regions (17)^{13 14} (table 1). In this study, researchers randomly selected five regions (including Zanjan, Arak, Qazvin, Qom and Alborz) from the second above category and conducted the research among their GPs between February and April 2017.

Participants

The research was conducted among GPs who participated in an FP plan and were working in the health network of moderately developed regions.

Data sources

In order to design the study questionnaire, a number of attributes were identified through an initial review of current FP contract, administrative/executive regulations, payment procedures and policy statements regarding FP project.^{15 16} Then a panel of seven experts (including head of the health deputy of selected medical universities particularly those involved in development and implementation of FP programme, two GPs who had the experience of working as a member of FP project and three academic members of identified medical universities) finalised the attributes. To reach a final list of attributes and define related policy levels, two rounds of panels were held. Consequently, seven main attributes and 20 policy levels including duration of work contract (1 year, 3 years and 5 years), payment system (capitation, capitation plus 15% bonus, capitation plus 25% fee for service (FFS)), type of employer (health insurance company, medical university, medical council), number of individuals covered to receive health services (1500 persons, 2500 persons, 4000 persons), the geographic area covered by GPs (restricted to 1.5 km around the office, between 1.5 and 5 km around the office, without any restriction), having permission to provide health services outside the defined package (yes, no) and allocating quota for being accepted in medical specialty (without quota, after 5 years working as an FP, after 10 years working as an FP) were determined. Then using SPSS software (V.22, SPSS) and orthogonal design, different combinations of attribute levels were formed and constituted 18 scenarios of alternative contract profiles.¹⁷

Table 1 Categorisation of medical universities in terms of developmental indicators

Type of regions	Medical university name
Developed regions	Tehran, Tebriz, Shahid Beheshti, Shiraz, Isfahan, Kerman, Iran, Shahid Beheshti, Baqiyatallah, Shahed, Artesh, Behzisti, Mashhad, Ahwaz
Moderately developed regions	Gilan, Mazandaran, Babol, Golestan, Semnan, Ardabil, Uromieh, Kermanshah, Hamadan, Zanjan, Arak, Qazvin, Qom, Alborz, Kashan, Rafsanjan, Birjand, Zahedan, Yazd, Lorestan, Hormozgan
Non-developed regions	Ilam, Kordestan, Dezfool, Jahrom, Fasa, Bam, Jiroft, Yasooj, Bushehr, Shahrood, Bojnoord, Abadan, Zabol, Torbat Heidarieh, Sabzavar, Gonabad

The designed questionnaire consisted of two main parts. The first section contained questions about physicians' demographic characteristics including age, gender, marital status, workplace and years of clinical experiment. The second part included 18 scenarios which respondents were asked to choose from each of the scenario pairs, demonstrating their preference towards FP contract.

Study size

Based on the literature, an adequate sample size for studies conducted to elicit participants' preferences through conjoint analysis is in a range of 50–200.^{18–20} In fact, at least 50 participants should be considered for each subgroup of interest.^{21 22} As our study has considered two subgroups including physicians' gender and their workplace, we required to collect data from a minimum of 100 respondents. Assuming a response rate of 50%, the final sample size calculated to be 150 respondents.

Statistical analysis

Data were analysed using STATA (V.13, StataCorp, College Station, USA). Dependent variable of the study was physicians' choice (whether to choose contract A or contract B) and independent variables included GPs' characteristics and the levels of determined attributes. We used logistic regression analysis to examine which predictors were independently associated with GPs' preferences regarding the FP contract. The results were considered significant at the 5% level.

RESULTS

Results from the questionnaire survey

A total of 151 questionnaires were completed and returned. The response rate in the study was 100%. Respondents were mainly female (58.9%) and single (76.7%) with an average age of 26 years old (26±2.7). All study participants chose the best contract scenario with superior attribute levels verifying the internal consistency of responses. GPs' characteristics are depicted in table 2.

Results of ordered logistic regression model confirmed that all attributes had a statistically significant effect on GPs' preferences except for 'Number of people Covered

by GP's services', 'the geographic area covered by a GP' and 'being allowed to render health services beyond the defined package' (p>0.05). The estimated coefficients also verified that 'employed by medical council' had the most significant effect on GPs' decision (β=0.86). Then attributes including 'allocating quota for being accepted in medical specialty after 5 years' (β=0.78), 'duration of the contract for 5 years' (β=0.00.42) and 'capitation payment+15% bonus' had respectively the great effects on participants' preferences (table 3).

The ORs depicted in table 3 affirm that GPs were 2.4 times more likely to contract with medical council as an employer. Furthermore, a scenario that allocated a quota for admission to medical specialty courses was 2.18 times more probable to be preferred by them. Finally, GPs were 1.5 times more probable to choose capitation+15% bonus as a desired payment method.

The impact of improvement in the level of each attribute on the probability to choose a contract scenario was also analysed in the study. The marginal estimates in table 4 showed that an opportunity to contract with medical council instead of health insurance institution was associated with 20% increase in probability of choosing FP contract by GPs. Furthermore, study results affirmed that having a chance to enter medical specialty courses after 5 years would raise the related probability by 18%.

DISCUSSION

Establishment of healthcare network in Iran has facilitated the delivery of PHC services which accordingly resulted in a considerable promotion of health indicators. Based on the fact that provision of healthcare services with adequate access increases its utilisation, our country has also tried to expand efficient PHC to cover urban population. In this regard, FP programme was the main plan to facilitate an equitable access to health services in both urban and rural areas of the country. In a similar research in Iran, improvement in the access of healthcare services was dependent on the successful implementation of FP programme.^{18 19} To ensure the programme success, an important consideration is to gain necessary support for FP programme by key stakeholders including physicians.²³ In fact, the most important factor is the effective use of physicians to participate and maintain in the programme. To maximise this partnership, it would be helpful to recognise physicians' interests and job incentives. Due to the differences in Iran's economic, social and political conditions with other countries, investigating these motivations at the national and regional levels can bring beneficial results to the success of the programme.

Our study results confirmed that 'contracting with medical council', 'allocating quota for admission to medical specialty courses' and 'capitation=15% bonus' were important issues for GPs when they wanted to decide about participating in an FP plan. Physicians' tendency towards contracting with medical council can be attributed to their distrust of governmental institutions in

Table 2 Participant demographics	
Physician characteristics	n (%)
Gender	
Male	62 (41.1)
Female	89 (58.9)
Marital status	
Single	116 (76.7)
Married	35 (23.3)
Age, years (n=151) Mean (SD)	26±2.7
Clinical experience Mean (SD)	4±0.3

Table 3 Logistic regression modelling on contract scenarios

Attribute levels	β	OR	SE	Z	P value
Duration of the contract (baseline=1 year)					
3 years	0.003	0.99	0.09	0.03	0.05
5 years	0.42	0.65	0.06	4.36	<0.001
Payment system (baseline=capitation)					
Capitation+25% fee for service	0.145	1.15	0.113	1.48	0.01
Capitation+15% bonus	0.39	1.4	0.146	3.9	<0.001
Type of employer (baseline=medical council)					
Medical sciences university	0.52	1.68	0.16	5.3	<0.001
Health insurance	0.86	2.37	0.23	8.7	<0.001
Number of people covered by GP's services (baseline=1500 people)					
2500 individuals	0.033	1.03	0.1	0.34	0.73
4000 individuals	0.1	1.11	0.1	1.08	0.28
Geographic area covered by a GP (baseline=to 1.5 km)					
Between 1.5 and 5 km around the office	0.03	0.96	0.09	0.34	0.7
Without any restriction	0.1	0.88	0.08	1.22	0.2
Being allowed to render health services beyond the defined package (baseline=No)					
Yes	0.05	1.005	0.086	0.06	0.9
Allocating quota for being accepted in medical specialty (baseline=No)					
After 5 years	0.78	2.18	0.21	7.8	<0.001
After 10 years	0.01	1.01	0.09	0.18	0.05

GP, general practitioner.

terms of supervision and financing. In fact, GPs preferred a non-governmental organisation to undertake the responsibility and management of FP programme.

Furthermore, increased number of admissions in medical courses along with high density of GPs in different geographical areas due to inappropriate training and distribution policies has led to the problem of unemployment among many graduated medical students. Such an issue has encouraged them to enter

medical specialty courses as soon as possible to improve their social position, and receive greater amount of income.^{24 25} A similar study conducted by Ranjbar *et al*²⁶ affirmed the importance of 'allocating quota for being accepted in medical specialty'. They mentioned such an interest due to a significant difference between the specialists and GPs' income. Additionally, the necessity to provide a defined package of services, and lack of proper knowledge about their important role and position in

Table 4 Estimated take-up rates for family physician contract under different policy options

Attributes	Attribute levels	Marginal effects	Take-up rates	P value
Type of employer	Medical university	0.12	1	0.004
	Health insurance	0.2	12	
	Medical council		20	
Contract duration	1 year	0.0007	1	0.3
	3 years	0.09	0.07	
	5 years		9	
Payment mechanism	Capitation	0.03	1	0.01
	Capitation+25% FFS	0.09	3	
	Capitation to capitation+15% bonus		9	
Benefit such as entering to medical specialty courses	No benefit	0.18	1	0.00
	Having benefit after 5 years	0.04	18	
	Having benefit after 10 years		4	

Marginal effect for factor levels is the discrete change from the base level.
FFS, fee for service.

the health system have intensified the dispassionateness of graduated medical students to continue working as a GP.^{27 28}

GPs mentioned ‘contract duration’ as another important factor. They believed that longer duration of the contract would increase their preferences towards choosing the FP plan. The finding is consistent with many studies which explained the reason.^{26 29} They added that due to the recent government rules concerning disproportion in training and imbalances in physicians’ distribution, GPs do not feel job security.^{17 24 25} As a result, they would prefer to choose a contract scenario with longer duration.

Payment system was another issue mentioned by study participants. In the current study, GPs preferred to be paid through capitation+15% bonus. Several literatures have affirmed the finding and emphasised on the important role of bonuses in increasing the probability of health workforce retention in the health system and their performance improvement.^{17 24 30}

Physicians also tended to have greater number of covered population in their FP contract. As Ranjbar *et al*²⁶ mentioned in a similar study, according to capitation payment a GP’s income depends on number of population covered by him in a definite geographic area. Thus, an increased size of population would bring about higher levels of income for a physician.^{31 32}

The next contributing attribute considered by study participants was the possibility to provide healthcare services outside a definite package. Such a desire might be due to the relationship existing between this component and their income. In fact, provision of services with more variety increases GPs’ income and lets them experience more authority in clinical decision-making process.³³ According to the FP guidelines in urban areas (version 02), if an FP provides services beyond the specified package, payment made to them will be in the form of FFS which definitely brings them financial incentives to act on. Accordingly in order to motivate physicians through this strategy, some of the health systems around the world followed a similar rule and considered FFS as a payment mechanism for those providers who render healthcare services outside the specified package where necessary.³⁴

There are some limitations in this study. First, due to considerable amount of data that cannot be aggregated in a single article we restricted our research findings to GPs who worked in moderately developed regions. Second, we did not mention economic evaluations of different scenarios to propose the most cost-effective scenario affecting GPs’ contract choice. Third, instead of using experimental design software in developing different scenarios for choice experiments, we used a constant comparator.

Future research can include a larger number of GPs working in different geographical regions of the country to make useful comparisons among them. Furthermore, they can use experimental design software to conduct

efficient designs and test the validity of related findings compared with those obtained from constant comparator.

CONCLUSION

This study provides a strong evidence for designing a more desirable FP contract from the viewpoint of general physicians. The study results suggest that to ensure the success of FP plan, policymakers should provide necessary requisites for the programme implementation. With this aim, designing an appropriate FP contract with a potential to attract and attain GPs in the programme can be really helpful. Involving physicians in designing such a contract would suggest contributing attributes with desirable levels from the viewpoints of those who are most probable to take part in the programme.

Due to the existing limitations regarding structural, legal and financial issues in Iran, it is impossible to include all the desired scenarios given by GPs into the FP contract but it would be useful if health policymakers increase physicians’ participation in the programme through emphasising on their most important preferences. Based on the study results some of the key concerns of GPs were type of employer, quota for entering to specialty courses and payment mechanism which, depending on their level of political acceptability and financial issues, can be addressed in promoting the FP contract.

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