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Original Article

A Study of the Performance of Referral System in Urban Family Physician Program in Fars Province, Iran

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Abstract

Introduction: The family physician referral system has been determined as a major goal to economic, social, and cultural development in the field of health in Iran. The necessity of implementing this system has been explicitly stated in high-level documents. Hence, the aim of this study was to evaluate the overall performance of the referral system in Fars Province in 2015.

Methods: In this cross-sectional study, 20% of family physicians (75 doctors) were randomly selected; then, all patients of these physicians (1289 patients) in one work shift were studied. The data were collected in three parts containing the questions related to the physician and patients using data collection forms. Finally, data analysis was performed through SPSS, version16, using descriptive statistics and Chi-square test.

Results: The results showed that 70.3% of the patients (906 patients) had used the referral system to visit specialists. Most of the referral forms had been completed correctly (63.6%). Most of the referrals (820 cases) were recognized as necessary (59.4%) and from the first level of referral, i.e. by the family physician (96.3%: 1241 cases). The patients aged 70 and over had the minimum self-referrals, whereas young people aged lower than 20 had the maximum self-referrals (P=0.03). Also, more self-referrals were observed among highly educated patients (P=0.001).

Conclusion: Based on the findings, the most important problems of the referral system included self-referrals, incomplete referral forms, and unnecessary referrals. Self-referral could be solved through education, establishment of an electronic referral system, and legal measures. Also, educating doctors, making an electronic referral system, and using auxiliary staff and incentive measures can reduce the incompleteness of the referral forms. To reduce the patients' unnecessary referrals, development of referral guidelines might be very effective.

Keywords: Family physician, Referral, Practice management

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Introduction

After the implementation of the primary health care system in Islamic Republic of Iran, the second major health reform was the family physician program (1). The family physician program was first implemented in rural areas and cities with fewer than 20 thousand residents in 2002 (2). Then, the program was implemented experimentally, as a pilot plan, in some cities with 20 to 50 thousand residents within three provinces of Khuzestan, Chaharmahal Bakhtiari, and Sistan Baluchestan before it was expanded to the whole country. Finally, in early 2012, the program was mandated to all universities of medical sciences in Iran, but it was partially put into practice in only two provinces of Fars and Mazandaran due to some implementation problems (3). The necessity of implementing the family physician program was explicitly stated in documents. In Iran's fourth and fifth development programs, the family physician and referral system programs have been considered as the most important goals of economic, social and cultural development in the health system (4, 5). A family physician and his/her team are responsible for providing health services to the people under their coverage without discrimination of age, gender, socio-economic situation, and illness risks. If necessary, and for health promotion, s/he should refer the patients to higher levels while being still responsible for proper services (6, 7).

The referral system is one of the main bases of the family physician program and its quality is undoubtedly a main factor in determining the trend of health care (8). All family physicians, in the family physician program, along with health centres (public or private) that provide health care as well as diagnosis, treatment, and rehabilitation services in the second and third levels make the referral system. The second level in this system is the specialized level which is supposed to respond to health care and treatment needs of the patients referred by the first level (9).

Creating a proper referral system with different levels of the health system results in increasing the efficiency of health care centres (10), providing easier access to public health services, and reducing the costs for patients are the goals of this plan (11, 12). Despite the merits of the referral system, there are some shortcomings which should be overcome (13, 14). They include unnecessary referrals (9), lack of communication between different levels of the referral system, self-referral and bypassing the referral system, insufficient knowledge of the referral system (8, 11), inadequate skills of the personnel, transportation and accommodation problems (9), improper referral to second level specialists, lack of higher-level feedbacks to lower levels, lack of referral and results follow up by family physicians or health staff, patients' repeated referrals to the first level, and incomplete health records (15).

Defects in the proper functioning of the referral system lead to patient referral to other sectors and increase health care costs. Eventually, these problems can cause despair (9) and dissatisfaction of patients and doctors, and may even have an impact on mortality (16). The problems related to the referral system (17-24) are not only found in Iran, but other countries are also faced with such problems. These factors reveal the importance and necessity of monitoring and improving the referral system even more than before. Also, according to the decision made by the authorities to extend this policy in urban areas with large populations and the need to address the obstacles and constraints, it is essential to periodically evaluate the functioning of the system in Fars and Mazandaran provinces by national and local authorities. This assessment provides an opportunity for policymakers and practitioners of the health care system to improve the family physician program and referral system in line with predetermined objectives. Hence, the aim of this study was to evaluate the overall performance of the referral system in family physician program in Fars province in 2015.

Methods

This cross-sectional study was conducted in Fars province. The province has an area of about 122,608 square kilometres and the population of about 4,528,513, and it is the fourth largest province in Iran. Its capital city is Shiraz.

The study population consisted of the patients who were referred from the first level (family physicians) to the second and third levels. The patients were selected through a three-step process. In the first step, a list of all specialists and clinics of Fars province was prepared. Then, using the table of random numbers, 20% of the offices and clinics were selected according to the experts' opinions (clinics that had contract with the family physician plan). In the second step, which was only about the clinics, 20% of the doctors of each clinic were selected. And in the third step, all patients in one shift of each selected physician were studied and data collection forms were completed for them. Accordingly, and assuming the non-response rate of 5%, 75 doctors (50 out of 205 doctors from private offices and 25 out of 102 doctors from clinics) were selected. The doctors who were on leave during the time of completing the questionnaire were excluded from the study. To reduce possible clustering effects, all the physicians in this survey were active in similar working shifts (25). The questionnaire was completed for every doctor in the morning working shift every day. The total data collection time was two weeks. The data collection tool was a checklist which had been prepared by relevant experts. The questions in the checklist consisted of three parts. The first part was filled out according to the doctors' answers, and the second and third parts were completed according to the patients' answers and observation of the patient referral forms, respectively.

To collect the data, each participant visited sample taking stations during the physician's morning shift hours before the patients entered the physician's office and also after they left the office. The interviewer completed the inquiry lists. Before completing the lists, consent forms were signed by the physicians and patients. To analyze the data, descriptive statistics and Chi-square test were used. The analysis was performed using SPSS 16.

The research variables included information about demographic specifications as well as the type of patient referral, completeness of the referral form, necessity of the referral level, and patient status after visiting the physician. This study was approved by Shiraz University of Medical Sciences ethics committee.

Results

The total number of physicians was 72 with a response rate of 96%, and the total number of patients was 1289 with a response rate of 100%. Most patients were female (66.2%) with a mean age of 37.9±20.1 years, and education level of about 35.6% of them was underdiploma. Most patients had social security insurance (48.4%) and were often without supplemental insurance (67.6%) (Table 1).

Table 1: Demographic characteristics of patients referred to the clinics of Fars province in 2015

Characteristics	Number(%)
Sex	
Male	436 (33.8)
Female	853 (66.2)
Sum	1289 (100)
Age	
0-19	211 (16.5)
20-39	500 (38.8)
40-49	180 (14.0)
50-59	177 (13.9)
60-69	110 (8.7)
70 and more	111 (8.1)
Sum	1289 (100)
Education	
Uneducated	191 (14.8)
Under diploma Degree	459 (35.6)
Diploma	422 (32.8)
Bachelor of science	198 (15.4)
Master of science and higher degree	19 (1.5)
Sum	1289 (100)
Type of basic insurance	
Iranian health insurance	557 (43.3)
Social- security insurance	623 (48.4)
Military forces insurance	40 (3.2)
Other kind of insurances	39 (3.1)
With no insurance	30 (1.9)
Sum	1289 (100)
Complementary insurance	
With insurance	418 (32.4)
Without insurance	871 (67.6)
Sum	1265 (100)
Living place	
Shiraz	869 (67.4)
Town	420 (32.6)
Sum	1289 (100)
Visit places	
Doctor's office	685 (53.1)
Health clinic	604 (46.9)
Sum	1289 (100)

In this study, the referred patients were those who were members of the family physician program and had the referral forms with themselves when they were visiting specialists; also, they were referred to them by the family physicians. The second group were the patients who were insured by armed forces, banks, etc., but were not members of the family physician program. These patients can use their insurance benefits without passing the referral system. Self-referential cases meant any kind of referral of the patients, with or without insurance, in or out of the family physician program, who did not have referral forms; these patients paid the treatment costs out of their pocket completely. Studying referrals showed that 70.3% of the patients had referred to specialists through the referral system. On the other hand, only 27.1% of the patients were self-refereed. Most of the referral forms were filled completely (63.6%), but 36.4% were not.

In most cases, the ones who had referred the patients were physicians (89.1%) and most of the referral cases were considered necessary (59.4%). The majority of the patients had been referred by level one, i.e. family physicians (96.3%), and most of them had been cured after a visit by a specialist (4.4%) or admission to a hospital (0.4%) (Table 2).

Table 3 shows that there was a statistically significant relationship between the patients' age and type of referral (P=0.03), referral form completion (P=0.02), necessity of referral (P=0.002), and referring level (P=0.004). Also, the level of education had a statistically significant relationship with the referral type (P=0.001) and its necessity (P=0.001). There was also a statistically significant relationship between basic and complementary insurances and te type of referral (P=0.001).

There was also a significant relationship between the living place and type of referral (P=0.001), referral form completion (P=0.001), referral necessity (P=0.001), and referring level of the patient (P=0.001). Also, a statistically significant relationship was observed between the place of referral and the type of referral (P=0.001), referral from completion (P=0.001), necessity of referral (P=0.001), and referring level of the patient (P=0.004) (Table 3).

Discussion

This study was conducted with the aim of evaluating the overall performance of referral in the family physician program in Fars province. Most of the patients were females aged 20-39 years. The social security insurance was the dominant insurance among the patients although most of them did not have supplementary insurances. The study by Honarvar et al. on satisfaction of the patients with the family physician program and referral system in Shiraz city showed that the participants' mean age was about 38 years, which was similar to our study. About 60% of the patients had social security insurance and more than half of the participants did not have any

Table 2: Characteristics of referral of the surveyed patients in 2015

Characteristics pf referral of patients to doctors' offices and health clinics	Number (%)
Kind of patient referral	
Referred*	906 (70.3)
Using insurance without enrolling in family physician program **	34 (2.6)
Self-referential ***	349 (27.1)
Sum	1289 (100)
Completeness or incompleteness of referral form	
Complete	820 (63.6)
Incomplete	469 (36.4)
Sum	1289 (100)
Patient referrer	
Physician	1148 (89.1)
Secretary	141 (10.9)
Sum	1289 (100)
Necessity of patient referral	
Necessary	766 (59.4)
Unnecessary	523 (40.6)
Sum	1289 (100)
Patient referrer levels	
First (family physician)	1241 (96.3)
Second (specialist)	48 (3.7)
Sum	1289 (100)
Determining patients' condition after being visited by the specialist	
Patient curing	1227 (95.2)
Necessity to refer to another specialist	57 (4.4)
Bring in hospital	5 (0.4)
Sum	1289 (100)

*Referred patients are those who are members of the family physician plan and have referral forms with themselves when referring to specialists.
**This kind of refer includes the referral of patients who have insurances of armed forces, banks, etc. though they are not members of the family physician plan. In addition, these patients use their insurance benefits and pay only a part of the costs.
***Self-referential encompasses all kinds of referrals of patients with or without insurance who do not have referral forms and are members of the family physician plan or not. These patients pay all of the costs.

supplementary insurance, which was consistent with our study (14).

As Fars province is one of the pilot settings, as far as the family physician program is concerned, it is obvious that various studies conducted in this province would yield similar results due to the similarities between the settings. The survey of the referral cases showed that most of the patients (70.3%) had referred to specialists through the referral process, while only 27.1% had referred themselves. As other patients had insurances that were not covered by the family physician program, they paid only some part of the costs. These patients included less than 3% of the visitors. The fact that most patients referred through the referral process indicates relative acceptance of the referral system by people. One of the most important motivations for adopting this system is such factors as the high reduction in treatment costs.

It usually seems that some people in similar referral programs do not behave according to the referral process, but they do it by themselves. Of course, this depends partly on the community culture. The fact that some patients believe that family physicians do not have adequate knowledge can prevent them from taking part in such referral programs. Generally speaking, as the family physician program is a rather new project, it is not still widely known among people and the above mentioned figure of 27% (related to non-referred patients) can be acceptable, but it should be lowered by taking appropriate measures.

About 44.8% of the referral forms were filled completely, but 25% were not. Chang et al.'s study on evaluation of the quality of referral letters for glaucoma patients also showed that 26% of the letters were unacceptable. Most of the referral letters contained unimportant information and 34% of them were non-standard (21). Also, another study on evaluation of the quality of referral letters of the patients revealed that the average visits had focused on a few aspects of prescription features (18).

Another study on the completion of referral forms to specialists declared that 85% of the family physicians had sent the necessary information to the specialists (17). As the above mentioned studies showed, incomplete filling of the referral forms is a

Table 3: Relationship between specifications of referrals and patients

variable		Kind of referral			Completeness of referral form		Patient referrer		Referral necessity		Patient referrer level		Determining patient's condition after being visited		
		referred	Not using the family physician program	Self-referential	complete	incomplete	physician	secretary	necessary	unnecessary	first	second	cure	Necessity to refer to another specialist	Being in hospital
		Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability	Percent of availability
Sex	Male	69	2.1	28/0	63.3	36.7	88.1	11.9	63.2	36.8	94.8	5.2	94.8	4.9	0.3
	Female	70.9	2.9	26.2	64.1	35.9	89.4	10.6	57.1	42.9	97	3	95.6	4	0.4
	P value	0.47			0.81		0.56		0.08		0.11		0.76		
Age	0-19	64.2	1.5	34.3	75.9	24.1	86.6	13.4	64.2	35.8	90.2	9.8	92.1	6.6	1.3
	20-39	69.1	2.1	28.8	63.6	36.4	90.1	9.9	51.6	48.4	97.9	2.1	95.6	4.2	0.2
	40-49	71.8	4	24.3	56.6	43.4	89.9	10.1	57	43	98.4	1.6	97.3	2	0.7
	50-59	70.7	2.3	27	62.7	37.3	89.7	10.3	63	37	96	4	95.9	4.1	0
	60-69	76.1	2.8	21.1	57.8	42.2	87.7	12.3	61	39	96.2	3.8	93.9	6.1	0
	70 and more	76.8	6.1	17.2	63.2	36.8	88.3	11.7	75.3	24.7	96.1	3.9	95.3	4.7	0
	P value	0.03			0.02		0.9		0.002		0.004		0.47		
Educational degree	Uneducated	77.6	5	17.4	58.1	41.9	87.9	12.1	73.6	26.4	96.8	3.2	95.7	4.3	0
	Under diploma	78.2	2.1	19.7	63.2	36.8	88.1	11.9	58.8	41.2	96.6	3.4	94.6	4.2	1.2
	Diploma	66.8	2.6	30.7	63.2	36.8	90.8	9.2	56	44	97.4	2.6	96.9	3.1	0
	Bachelor of science	66.9	1.2	31.9	63.7	36.3	89.2	10.8	47.3	52.7	99.1	0.9	93.6	6.4	0
	Master of science	62.5	0	37.5	100	0	90.9	9.1	54.5	45.5	100	0	85.7	14.3	0
	P value	0.001			0.12		0.87		0.001		0.69		0.11		
Kind of basic insurance	Iranian health insurance	79.5	0	20.5	63.9	36.1	89.4	10.6	62.5	37.5	96.2	3.8	95.3	4.5	0.2
	Social-security insurance	77.8	0	22.2	63.7	36.3	88.7	11.3	56.4	43.6	96.3	3.7	95.5	3.9	0.6
	Military forces insurance	0	0	100	-	-	-	-	-	-	-	-	90	10	0
	Other	0	7.9	92.1	-	-	-	-	-	-	-	-	95.8	4.2	0
	Not having insurance	0	0	100	-	-	-	-	-	-	-	-	80	20	0
	P value	0.001			0.41		0.74		0.06		0.91		0.68		

Complementary insurance	Having	77.2	0.5	22.3	61.5	38.5	88.7	11.3	57.3	42.7	95.6	4.4	94.6	5.1	0.3
	Not having	68.1	3.2	28.7	65.3	34.7	88.6	11.4	59.5	40.5	96.7	3.3	95.5	4	0.5
	P value	0.001			0.27		0.96		0.53		0.41		0.67		
Place of living	Shiraz	68.5	0	31.5	53.9	46.1	88.9	11.1	51.7	48.3	94.7	5.3	94.9	5	0.1
	Town	79.7	1	19.3	81.1	18.9	89.5	10.5	73.1	26.9	99.1	0.9	95.8	3.3	0.9
	P value	0.001			0.001		0.78		0.001		0.001		0.08		
Place of referral	Doctor's office	65.6	2.7	31.7	74.2	25.8	89.2	10.8	65.7	34.3	98.2	1.8	95.6	3.7	0.7
	Health clinic	75.5	2.5	22	53.3	46.7	89	11	53.3	46.7	94.5	5.5	94.8	5.2	0
	P value	0.001			0.001		0.94		0.001		0.004		0.08		

major problem in the referral system. The incomplete filling of the forms may be due to the physician's lack of time, large number of clients, and carelessness and insufficient training of doctors. These problems can be solved through workshops and, to some extent, by electronic referrals.

About 40.6% of the referrals are recognized to be unnecessary and just because of the patients' insistence. Richards and Jacquet conducted a study on the analysis of the referral necessity and found that 22% of the patients had unnecessary referrals to level 2 hospitals from community health care centers (22). This rate of unnecessary referrals is somehow consistent with the results of our study. Of course, in our study, the necessity or otherwise of the referrals were based on the specialists' viewpoint which was due to the lack of adequate guidelines. Obviously, the absence of these guidelines as well as the patients' insistence on referrals can greatly increase the number of unnecessary referrals. In fact, the distrust of people to knowledge and awareness of general physicians and their willingness to visit specialists is a major factor that causes the patients to insist on being referred to specialists even in unnecessary cases. This may even lead to changing the family physician by the patient if the physician rejects the patient's insistence on visiting a specialist. Also, a patient may refer directly to a specialist by himself on self-referral. Thus, taking educational as well as restrictive measures can largely reduce self- or unnecessary referrals.

Most of those who had referred the patients were physicians (62.2%) so far. The issue that whether the referrer is better to be a physician or another person must be examined using cost-effectiveness studies so that proper referrals as well as appropriate use of the health system resources can take place. Training the people who work with and assist physicians can be a good option to be used for referring patients, although all its aspects should be taken into consideration. Most patients were referred from the first level by the family physicians (66.5%) and most of them were cured after a visit by a specialist (78%). There was less need for referral to another specialist and admission by a hospital.

According to the analytical results, there was a statistically significant relationship between the patient's age and type of referral (P=0.03). People aged 70 years and over had the lowest rate of self-referrals while those aged 20 and younger had the highest. In the study by Honarvar et al., the highest rate of dissatisfaction was found among the patients younger than 51 years of age, and the complexity of the referral system was a major cause of grievance (14). Perhaps, the reason was that older patients were less busy and enjoyed family support and follow up with regard to referral to physicians. On the other hand, the lack of attention of younger people to adopt the referral system could be one of the reasons.

Findings of this study showed that self-referral occurred more often by more educated people (P=0.001). This could be because these people were busier and more involved in daily tasks and had less flexibility to visit their family physician and go through the referral system. Also, since more educated people usually have higher income, self-referral which requires much higher costs than the referral system happens more often among these people because of their higher affordability.

Also, a significant relationship was found between the people with insurance and the type of referral (P=0.001); it means that the majority of those with insurance had gone through the referral system program. This is not unexpected because only the individuals that have social security or health

insurances can enrol in the family physician referral program and benefit from it. Therefore, the referral program takes place only when one of these two groups of insurance is used.

According to the analytical results of this study, life in Shiraz city or nearby towns in Fars province had a significant relationship with the type of referral (P=0.001). This means that people in these areas mostly refer to specialists after visiting a general physician and going through the referral procedure. One reason can be due to the lack of specialists in nearby rural towns where the number of specialists is quite limited. The result is that the rate of self-referrals by patients gets very low. Moreover, a significant relationship was found between the place of the referral and the type of referral (P=0.001), correct filling of the referral form (P=0.001), and the necessity of referral (P=0.001). This meant that the number of patients referred by clinics was higher than those referred by doctors in offices, but referral forms were filled more accurately in offices than in clinics. In addition, the referrals made by offices were of higher necessity. In general, it could be concluded that due to the fact that doctors' offices were less crowded than clinics, doctors had enough time to do careful examinations, refer only necessary cases, and fill the referral forms properly. In general, there are problems regarding the referral system which have been confirmed by other studies. In their study on evaluation of the referral system performance in Iran, Laal et al. indicated that the potential capacity of the referral system had not been used by family physicians (26). Also, Nourafkan et al.'s study in the south of Iran showed that the performance of urban family physicians was weak (27).

Conclusion

According to the study results, the most important problems of the referral system are self-referral, incomplete referral form and unnecessary referrals. Self-referral can be due to inadequate information of people, the fluidity and convenience of the self-referral process, and the absence of legal barriers. Thus, they can be corrected through education and culture-building, establishment of an electronic referral system, and legal measures. Also, the incompleteness of referral forms can be due to the lack of time and training of family physicians. This can also be solved by educating doctors, developing an electronic referral system, preparing an Electronic Health Record, using auxiliary staff for referring patients, and taking incentive measures. Patients' unnecessary referrals may also be due to the lack of referral guidelines, which causes the patients to insist on referrals. Therefore, developing referral guidelines approved by the insurance industry and doing culture-building in this field can be very effective.

Our study limitation was inadequate cooperation of the physicians to complete the questionnaire. In addition, this study was conducted only in one province which may limit its generalizability to other settings.

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