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Original Article

Assessment of implementation of urban family medicine & referral system in Shiraz in 2016

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ABSTRACT

Introduction: one of the most important responsibilities of family doctor is to present health care and services. All health services should be offered actively to the population under coverage of family medicine. The present research aims to assess implementation of urban family medicine & referral system in Shiraz in 2016.
Method: to this end, family doctors of Shiraz were considered as the population under study and 198 doctors were selected as the samples using researcher-conducted questionnaire in which implementation of urban family medicine & referral system were addressed. Data were collected and analyzed by SPSS.
Results: concerning results based on correlation, one-way variance analysis tests and Schaffe test, there was a significant and positive relationship between variables of family doctor community and percent of educations presented to them. In addition, there was a positive and significant relationship between variables of family doctor community and percent of screening tests. Nevertheless, there was a significant and positive relationship between referral return from specialists and treatment follow-up via family doctor. It means that increase of referral return from specialists enhances treatment follow-up. Concerning results of data analysis, implementation of family medicine (02) is different between governmental and private centers.
Conclusion: concerning obtained results, it seems that instructions, treatment follow-up and screening are more appropriate in private centers than governmental ones. To increase motivation and service quality, it is necessary to buy strategically services via insurance companies.

Keywords: family doctor plan, referral system, performance assessment

INTRODUCTION

In developing countries, health system has been designed and implemented in a way that it cannot create convenient justice. Family medicine is one of the most important methods to increase public fair access to health services (Karimi et al, 2010). Nowadays, all private and governmental organizations throughout the world focus on increasing medical educations and performances. Policy makers in health-treatment sectors are concentrating on education of primary cares and preventive services. Doctors are promoting education by presenting primary health care and services with high and accessible quality regarding cost effectiveness. It has been proposed that family doctor plays more roles in healthcare systems. Therefore, many countries are going to introduce registration plans of family doctors and per capita (Shariati et al, 2010). One of the most important responsibilities of family doctor is to offer health care and services. Without such services, the term ' family doctor' cannot be used to present merely treatment services because all health services should be offered actively to population under coverage of family medicine in order to use family doctor (agenda of family doctor). Concerning booklet 02, service package defined in family medicine is as follows:

Education, primary prevention, screening, ambulatory treatment, referral and receiving

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feedback from higher level and taking measures required based on feedback (version 02 of family medicine). They can be divided into three separate sections based on priority

- education and primary prevention
- screening and early diagnosis of illnesses
- ambulatory treatment, referral and receiving feedback from higher level and taking measures required based on feedback.

Family doctor, as the first one who contacts with public and patient, should have necessary skills in screening, diagnosis and treatment of patients, communication skills, analysis of mental, social and economic dimensions on health (Mohme, 2014). One of the most important responsibilities of family doctor is to present health care and services. Without such services, the term "family doctor" cannot be used for presentation of treatment services. All health services should be presented to the population under coverage in family medicine (Mohme, 2006). According to reports throughout the country, medical science universities that are responsible for family medicine and referral system have obtained considerable successes regarding quantitative coverage especially in supplying family doctors in villages (Khadivi et al, 2012).

However, after ten years from this plan, parliaments, multimedia, governmental-non-governmental institutions have still protested about inefficiency of family medicine (ISNA, 2014; Motlagh et al, 2011). They usually question standards and predetermined requirements about physical condition, quantity and quality of equipment, reinforcement of public access to family doctor, observing referral system, quality of feedback to family doctor (Chaman et al, 2011).

Since urban family doctors in Fars province started to serve public in 2012 and the services presented by urban family doctors in Fars are different from other cities in the country, no research has been conducted about urban family doctor in Shiraz and how to serve public. Most researches have been based on the model offered for rural insurance and such researches did not address issues outlined in present research such as prevention, screening. Then, researches done in this regard have been addressed.

The study conducted by Carter et al in 1984 (assessment of prescriptions of family doctors affected by clinical pharmacists) is one of the oldest researches. They showed that performance of clinical pharmacists was acceptable in improvement and modification of medicinal administration via family doctors. Tomasic et al (2011) studied educational requirements of family doctors regarding primary health care and prevention from diseases in Poland and Lithuania. Results are as follows. Family doctors in Poland and Lithuania believe that primary health care and prevention from diseases are among the most important responsibilities and daily activities of the doctors. They also stated that necessary educations have been presented to them either during academic years or in-service training.

Al-Ali et al (2013) studied promotion of awareness of family doctors regarding first aids in prevalent diseases. About 14% of patients received guides of first aids for hypertension.

Peterson et al (2014) studied improvement of performance of family doctors using ABFM in treatment of diabetes. Results are as follows: doctors participated in training presented high quality services and care for diabetes patients and they covered increasingly requirements of patients.
Bridivaux (2015) studied participation of family doctors in structured programs for chronic diseases with several side effects in Switzerland. Increasing prevalence of chronic diseases with several side effects has brought about a challenge for health systems worldwide. Therefore, it is necessary to present personal special care programs and to limit evidence-based orders and inexact examination of patients. This field research addressed patients in Sweden. Results suggest low participation of family doctors in caring programs. Therefore, some efforts should be done to reinforce strategic planning of family doctors for offering more services in this regard.

Bolivar et al (2016) studied communication skills of family doctors and guides in clinics. In this research, communication skills and components of family doctors and patients were addressed. A questionnaire was used to study doctors with 4-year work experience. Results suggest friendly relationship between family doctors and patients in clinics.

Damari et al (2016) evaluated urban family medicine and referral system in Fars and Mazandaran provinces: they addressed background, achievements, challenges and solutions. The most important reform in health service system in recent decade is implementation of family medicine and referral system in villages and cities below 20000 populations. Such programs were expanded with few changes to other urban regions of Fars and Mazandaran. To expand this program to other provinces of the country, achievements and challenges related to design and implementation were studied.

Pourshirvani (2015) studied implementation of family medicine in Iran: achievements and challenges were addressed. Healthcare system has undergone reforms to increase efficiency and effectiveness, to create justice and provide access to health services for public. Family medicine & rural insurance program was implemented in 2005 with following goals: reinforcement o referral system., increase of public access to health services, reduction of unnecessary costs in all rural regions and cities below 20000 populations in Iran. The present study aims to identify achievements and challenges of family doctor plan in Iran. Studies conducted in Iran indicate that implementation of family medicine has caused promotion of health indices, public access to more health services, reduction of unnecessary costs and increasing satisfaction with services. Following goals will be addressed based on conducted researches and research gaps.

1- Spreading justice in using public health services in family medicine and referral system in Shiraz city
2- Studying performance of family doctors in Shiraz in implementation of family medicine & referral system in Shiraz (02 version)

Minors goals are as follows:

1- Determining the relationship between population under family medicine coverage and percent of educations offered to doctors regarding referral system
2- Determining the relationship between population under family doctor coverage and percent of screening tests for referral of patients
3- Determining the relationship between referral return from specialists and treatment follow-up via family doctor
4- Determining implementation of instructions of family medicine in governmental hospitals compared to private hospitals.

METHODS AND MATERIALS

Statistical population is all urban family doctors of Shiraz. There are 408 doctors. The groups under study are 408 family doctors who are working in governmental and private hospitals of Shiraz. After sampling with Cochran formula and 95% confidence level, 198 questionnaires were distributed among doctors. To gather practical information and data, questionnaire is a good instrument because the present research is descriptive-surveying in nature. Library information, review of convenient conducted researches, magazines and papers of journals, study of Persian and English websites were other methods for collecting theoretic information. The questionnaire has been designed by the researcher. The questionnaire includes 5 factors such as proportionality of population under coverage, referral return, presented educations, screening tests and treatment follow-up. The first section of the questionnaire includes demographic specification (age, academic degree, work experience, population under coverage, work place, number of shifts of doctors). Such variables were extracted from urban family medicine booklet 02 and study of available agenda. Since questionnaires are standard, content validity has been used to determine validity and how such instrument can measure the variables under study. According to supervisors and advisors, the questions can measure exactly variables under study. Therefore, content validity of the questionnaire is relatively high. Cronbach's alpha method has been used to determine reliability of the questionnaire which is one of technical features and to what extent such questionnaire can obtain similar results in similar condition. Data obtained by the questionnaire were analyzed using SPSS 19 and Excel within two levels. In the first level, data were analyzed and research questions were studied using descriptive statistic (frequency, frequency percent, frequency histogram, mean, median, mode, standard deviation and skewness) and in the second level, they were analyzed by inferential statistic (Pearson correlation test, t test, ANOVA test).

Data Analysis

Description of statistical sample based on gender of respondents: Frequency distribution based on gender has been shown in table 2. As seen in the table, most respondents were male. Among 198 respondents, there were 30 females (30%) and 121 males (79%).

Description of statistical sample based on age of respondents: Frequency distribution based on age has been shown in table 3. As seen in the table, most respondents are between 41 and 45 years old. respondents below 34 years old are the lowest number of respondents. 35% of respondents were over 51 years old and 3% of respondents were between 46 and 50 years old.

Description of statistical sample based on work experience of respondents: Frequency distribution based on work experience has been shown in table 4. As seen in the table, 6 respondents (3%) had work experience above 30 years (the lowest frequency) and 110 respondents (56%) had work experience between 10 and 19 years (the highest frequency).

Description of statistical sample based on respondents' population under coverage: Frequency distribution based on respondents' population under study has been shown in table 5. As seen in the table, the lowest frequency associates with 3001 individuals (10 people, 5%) and the highest frequency associates with 15001-2000 individuals (60 people, 30%).

Description of statistical sample based on work place of respondents: Frequency distribution based on work place has been shown in table 6. As seen in the table, 129 respondents (65%) were working in private places and 69 respondents were working in governmental places (35%).

Descriptive and Inferential Results: Inferential statistics associate with features and parameters related to statistical population, qualitative relationship between concepts and variables. Therefore, it can be said that inferential statistics can be used for comparative and relational analysis (causal-correlative).

Minor hypothesis 1: there is a relationship between population under family doctor coverage and percent of educations presented to them: Table 7: Pearson correlation test between proportionality of population under family doctor coverage and percent of educations offered to them Results of Pearson correlation tests show that there is a positive and significant relationship between population under coverage and percent of educations presented to them in 95% probability level. It means that increasing population under family doctor coverage increases educations offered to them. This result can be generalized to total statistical population and research hypothesis is confirmed (correlation percent: 0.825).

Table 8 shows results of ANOVA test to compare mean difference in different groups of population under coverage and presented educations. As seen in the table, significance level is lower than 0.05. Therefore, there is a significant difference between means of different groups of population under coverage. Thus, population under coverage is effective on presented educations.

Minor hypothesis 2: there is a relationship between population under family doctor coverage and percent of screening tests: Results of Pearson correlation tests show that there is a positive and significant relationship between population under coverage and screening tests in 95% probability level. It means that increasing population under family doctor coverage increases percent of screening tests. This results can be generalized to total statistical population and research hypothesis is confirmed (correlation percent: 0.602).

Table 10 shows results of ANOVA test to compare mean difference in different groups of population under coverage and percent of screening tests. As seen in the table, significance level is lower than 0.05. therefore, there is a significant difference between means of different groups of population under coverage. Thus, population under coverage is effective on screening tests.

Minor hypothesis 3: there is a relationship between referral return from specialists and treatment follow-up via family doctors: Results of Pearson correlation tests show that there is a positive and significant relationship between referral return from specialists and treatment follow-up via family doctors in 95% probability level. It means that increasing referral return from specialists increases treatment follow-up. This results can be generalized to total statistical population and research hypothesis is confirmed (correlation percent: 0.576).

Minor hypothesis 4: implementation of family medicine (02) is not the same in governmental and private centers: According to above table, Pearson correlation coefficient of implementation of family medicine is different between governmental and private hospitals such that population under family doctor coverage has been more effective on percent of trainings in private group (0.69) than governmental group (0.60). Also, Pearson correlation coefficient of population under coverage and percent of screening tests is different between governmental and private hospitals such that population under family doctor coverage has been more effective on percent of screening tests in private group (0.68) than governmental group (0.53). Pearson correlation coefficient of referral return from specialists and follow-up treatment via doctors is different between governmental and private hospitals such that referral return from specialists has been more effective on follow-up treatment in private group (0.81) than governmental group (0.70).

DISCUSSION AND RESULTS

Concerning results obtained by correlation, one way variance analysis tests, there is a positive and significant relationship between variables of population under family doctor coverage and percent of educations offered to them. Lack of education of health and low knowledge of general practitioners and treatment team in diagnosis and treatment are other problems of family medicine. It seems that this program is treatment-oriented rather

than health-oriented. The relationship between doctor and patient has two dimension: instrumental and explanatory. Instrumental dimension of medicine required doctor skill in using treatment techniques, diagnostic tests and physical examinations. Explanatory dimension in the relationship between doctor and patient reflects art of medicine and it includes making friendly and warm relationship with patient and sense of empathy with him/her. Training doctors causes increasing satisfaction of patients and population under coverage. Nowadays, patients refer to the doctor with more expectations and requirements and doctor should meet their expectations favorably. Paying attention to rights of patients and increasing information clarify such necessity including family doctors training booklet 02. By studying conducted researches, results of Janati et al (2009), Babakhani et al (2009), Chaman et al (2011), Yazdi Feizabadi et al (2012), Raeisi et al (2012), Khadivi et al (2012), Esmaeili et al (2015), Pourshirvani et al (2015), Torabi Ardekani (2015), Damari et al (2016), Dickerman et al (2012) and Bolivar et al are consistent with current results.

Concerning results obtained by correlation, one way variance analysis tests, there is a positive and significant relationship between variables of population under family doctor coverage and percent of screening tests. Screening tests are effective step towards controlling, eradicating and removing contagious and non-contagious diseases. Increasing population under coverage and health promotion increase number of screening tests. By studying special diseases, prevalent diseases has been reduced significantly since establishment of referral system and family medicine. Revision of school health identification, formulation of students and soldiers' health identification, formulation of youths' strategic health program, formulation of fertility health document for youths, checking health of youths are other activities for health youths and schools. Increase of screening examinations and general practitioner in 100% population of students are due to increasing population under family doctor coverage. By studying conducted researches, results of Janati et al (2009), Babakhani et al (2009), Chaman et al (2011), Yazdi Feizabadi et al (2012), Raeisi et al (2012), Khadivi et al (2012), Esmaeili et al (2015), Pourshirvani et al (2015), Torabi Ardekani (2015), Damari et al (2016), Dickerman et al (2012) and Bolivar et al are consistent with current results.

Concerning analytical results, there was a significant and positive relationship between referral return from specialists and treatment follow-up via doctors. It means that increasing referral return from specialists increases treatment follow-up. Referral return includes disease description, conducted measures, prescribed medications, paraclinical services, measures that should be taken by family doctor, follow-up, patient's next referral. Effective referral requires a transparent communication system to ensure that clients receive cares. Effective referrals should be done by written communications. A patient referred to higher levels should have a paper with following things: results and questions or services given to the patients, reasons of referral and a series of information about centers where the patient have been sent. Since written communication of return from referral is important for source organization, such communication includes answering questions, special results, specialized studies, proposed diagnosis and treatments and follow-ups from low levels. Therefore, the patient should give this paper to specialists or source clinic. Among problems of referral return are lack of cooperation between general practitioners and specialists in the second level, lack of specialists' feedback and standard completion of referral papers via specialists and unclear completion of referral papers via individuals other than family doctor and no return of patients.

In instruction 02 of urban family doctor, doctors are mainly in charge of population health and they are responsible for managerial and technical activities. Some efforts should be done in direction of improvement of health services by attracting satisfaction and participation of health team members. According to recommendation of health world organization, family doctor is responsible for coordination and direction of health service team (therapeutic and health services) in the region under coverage and they also are in charge of following up patient's fate (WHO, 2008). By studying conducted researches, results of Janati et al (2009), Babakhani et al (2009), Chaman et al (2011), Yazdi Feizabadi et al (2012), Raeisi et al (2012), Khadivi et al (2012), Esmaeili et al (2015), Pourshirvani et al (2015), Torabi Ardekani (2015), Damari et al (2016), Dickerman et al (2012) and Bolivar et al are consistent with current results.

CONCLUSION

Concerning results of data analysis, there is different between governmental and private hospitals regarding implementation of family medicine (02). According to results, such plan is implemented more appropriately in private hospitals than governmental ones. Therefore, it is suggested that insurance company should create competitively healthy space between governmental and private centers by purchasing strategically health services. Thus, restrictive health sources should be used to supply health of Iranian community by purchasing strategically health insurance services thus to realize maximum

productivity in health system with minimum sources. Justice should be possible in distribution of health services, sources should be targeted ad quality of health services should be increased. Payment methods for health service should be corrected, waste of special health services in medicinal sector and paraclinical services should be corrected and out of pocket expenses should be reduced. Health services will be classified for promotion of health indices. Cost-benefit and cost-effectiveness are supplied in health system thus it will be effective on modification of health culture of society.

Table 1- Cronbach alpha rate obtained for criteria

Cronbach alpha	components
0.812	covered population
0.783	reference return
0.748	provided trainings
0.812	screening tests
0.798	treatment follow-up

Table 2- Respondents' distribution based on gender

percent	frequency	gender
30	60	woman
70	138	man
100	198	total

Table 3- Respondents' distribution based on age

percent	frequency	age
5	10	below 34 years ole
7	15	between 35 to 40 years old
33	65	between 41 to 45 years old
30	60	between 46 to 50 years old
25	48	51 years ole and more
100	198	total

Table 4- Respondents' distribution based work background

percent	frequency	work background
15	30	less than 10 years
56	110	between 10 to 20 years
26	52	between 20 to 29 years
3	6	30 years and more
100	198	total

Table 5- Respondents' distribution based on respondents' covered population

percent	frequency	covered population
0	0	less than 1000
18	35	between 1001 to 1500
30	60	between 1501 to 2000
25	50	between 2001 to 2500
18	35	between 2501 to 3000
5	10	3001 and more
100%	198	total

Table 6- Respondents' Distribution Based On Academic Degree

Respondents' Workplace	Frequency	Percentage
Private	129	65
Governmental	69	35
Total	198	100

Table 7: Pearson correlation test between proportionality of population under family doctor coverage and percent of educations offered to them

Name Of Variable	Provided Trainings	
Suitability Of Covered Population	0.824	Pearson Correlation Coefficient
	0.00	Significance Level

Table8- one-way variance analysis for comparing covered population and provided trainings

significance level	F	standard deviation	average	frequency	covered population groups
0.000	9.89	2.3	10.87	35	between 1001 to 1500
		4.01	21.19	60	between 1501 to 2000
		3.12	17.09	50	between 2001 to 2500
		3.57	13.42	35	between 2501 to 3000

Table 9- Pierson correlation test between covered population of family physicians and screening test percent

screening tests		name of variable
0.602	Pierson correlation coefficient	suitability of covered population
0.09	significance level	

Table 10- one-way variance analysis for comparing covered population score and screening tests percent

significance level	F	standard deviation	average	frequency	age group
0.000	11.63	2.04	15.14	35	between 1001 to 1500
		5.15	23.96	60	between 1501 to 2000
		3.86	18.47	50	between 2001 to 2500
		3.53	13.75	35	between 2501 to 3000

Table 11- Pierson correlation test between reference return of specialists and follow-up of treatment by family physicians

treatment continuation follow-up		name of variable
0.576	Pierson correlation coefficient	return from reference
0.00	significance level	

Table 12- comparing the rate of implementing instruction of family physician plan in governmental and private centers

rate of possibility	correlation coefficient	variables	type of workplace
0.00	0.60	the population covered by family physicians – percent of provided trainings	governmental
0.000	0.53	covered population – screening test percent	
0.000	0.70	reference return from specialists –follow-up of treatment continuation by family physicians	
0.000	0.69	population covered by family physicians - percent of provided trainings	private
0.000	0.68	covered population –screening test percent	
0.000	0.81	reference return from specialists – follow-up of treatment continuation by family physicians	

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