

Why Don't Patients Referred by a Family Physician Visit a Specialist? A Study in Golestan Province in Northern Iran

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Abstract

Background

Utilizing electronic referral (eReferral) system while enhancing the efficiency and quality of medical services may improve the access level to specialized services and reduce patients' wait times; however, some patients do not follow the the eReferral system guidelines. The present study aims at figuring out why outpatients referred by family physicians to specialists do not visit specialists.

Methods

The present cross-sectional study was conducted in the hospitals wherein eReferral system was implemented as a pilot plan in the calendar year started on 21 March 2019. The sampling was done in two phases: 1) proportionate stratified sampling method, and 2) systematic random sampling. The first, 429 patients were selected. These patients were referred by a rural family physician (FP) to a specialist in the district hospital, but despite appointment made for them by the relevant FP, they had not visited specialists. Then, data was collected using a self-made questionnaire whose validity and reliability were confirmed ($\alpha = 0.90$). Descriptive statistical methods were used to describe the data and analytical methods, i.e. Spearman, Mann-Whitney and Crosstal Wallis correlation tests were also conducted. Data analysis was performed using SPSS 16 at a significant level of 0.05.

Findings

: Most of the participants (54.7%) were female, 43.4% were in the age group of 30–60, 81.6% were married, 26.4% had high school diploma, 47.2% were housewives, 81.6% were rural residents. Among the dimensions of the reasons why patients did not visit specialists, the clinic conditions (3.26 ± 0.74), side expenditures (2.51 ± 0.74), admission and queuing system (2.45 ± 0.70) accounted for the highest average score, respectively. There was significant relationship between age groups, marital status, level of education, occupation, place of residence and type of insurance ($p < 0.05$), but no significant relationship was observed between them and gender ($p > 0.05$).

Conclusion

Reducing patient wait times in the clinic, providing patients with appropriate guidance, enhancing patients' freedom to determine the time to visit specialists, training physicians to communicate with patients properly, reassuring and reducing costs were of great importance to encourage receiving outpatient services within the framework of eReferral system.

Background

Iran's healthcare system is founded based on a model of public service delivery, and Ministry of Health and Medical Education (MOHME) are implementing the governance, policy-making, planning, financing and program management. Universities of medical sciences and health services (UMSHS), at the provincial level, are tasked with providing medical and environmental health services. At the county/township and village/rural levels, a health care network consisting of a healthcare and treatment center, urban and rural health care centers, health posts, and health houses (*Khaneh Behdashht*) take care of this [1]. The state sector of the Iranian health care system has been organized to achieve greater efficiency and effectiveness; and to provide every single individual with equal chance to access the first three levels: first (urban and rural health care centers), second (district hospitals and district health care centers) and third (highly specialized hospital and provincial health care centers) [2] (Fig. 1).

According to Iran's Fourth Economic, Social and Cultural Development Plan (2004–2009), by the end of the program in 2009, the required arrangements should have been made for the establishment of health insurance with a focus on FPs and referral system [3]. Following the approval of establishing rural insurance by the parliament, the ground was paved for linking the rural family physician plan (FPP) with the huge body of the country's health care networks, and implementation of the plan began in the second half of 2005 in Iran [4] and while being deployed in Iran's rural health centers, family physicians were at the first level of providing health services [5].

Leveling of services in developing the guidelines of rural family physician has been considered in such a way that the whole nation is provided with medical services at the general physician level, but in case they cannot be treated by family physicians, patients will be referred to level 2 to receive higher level of services (Figs. 2 & 3). In fact, specialized services will be provided just in case family physicians could not handle the case and if patient is severely in need of receiving specialized services [6]. Leveling of services and the utilization of referral systems leads to reduction of the costs of specialized and hospital services [7]. Since paper referrals, due to incompleteness or missing patient information might lead to delays in patients' visits trend [8], electronic referral (eReferral) systems were designed to reduce waiting times but enhance efficiency through electronic standardization of information and communication in the referral process [9]. An eReferral is an e-mail message to which documents or PDF files containing the patients' summary records are attached, and they can be received and viewed by controllers. Several countries, including the United Kingdom, Finland, Norway, the Netherlands, Denmark, New Zealand, Australia, and the United States, have adopted eReferral systems with varying levels of success [10].

Despite the fact that the Iranian health network system has been so successful in providing health services to the community [11], it has not been very successful in terms of referral system [12]. However, although the relationship between primary care providers and specialists leads to boosting efficiency and quality of health care services delivery [13–16] and the establishment and utilization of eReferral system leads to improved access to specialized services and reduced wait time for patients [8–9], many patients refuse to comply with the guidelines of the referral system [17]. In a study conducted by Wilkinson et al. in England, factors such as confusion prior to and after referral, not providing the patients with information by service providers and language problems on the part of patients, were the referral problems that patients faced with (18). In

visiting a physician, patients take into account a variety of structural, process, and outcome factors of health care providers.

Various studies conducted by many researchers show that variables such as family income and service costs, distance between patients' residence place and that of service providers and quality of services are important determinants in the selection of health care providers [19]. The present study aims at figuring out why outpatients referred by family physicians to level 2 do not visit specialists within the framework of eReferral system. It is also aimed at making it transparent for administrators and health care planners and also explaining executive interventions in line with improving the existing situation.

Methods

Research Design

The present descriptive analytical cross-sectional study was conducted in Golestan province in northern Iran in the calendar year started on 21 March 2019. The population under study included all patients who were referred by a family physician at level 1 to a specialist at level 2 within the framework of electronic health referral system, but they did not visit the designated specialist to receive services. The study was conducted in the cities of Bandar-e-Turkman, AqQala and Aliabad-e-Katoul, located in the west of Golestan province in northern Iran, wherein the electronic health referral system for outpatient services in these three cities was launched as a national pilot plan.

Recruitment

Of the 15,053 individuals who had been referred to the second level of services in the first six months of 1397 AH (21 March 2018 -22 September 2018), but had not followed up the process after referral; 5,103, 5,895 and 4,355 persons were from Bandar-e-Turkman, AqQala and Ali Abadaktol, respectively. By using Morgan's table and taking into account the 10% drop in the samples, 431 people were calculated as sample size. The samples were selected by stratified random sampling method with allocation proportionate to the number of referred patients. Therefore, the number of samples considered for Bandar-e-Turkman city, AqQala and Aliabad was 146, 169, 116, respectively.

Data Collection

Records of the patients referred to hospitals in the cities of Bandar-e-Turkman city, AqQala and Aliabad were first reviewed. It came out that some patients who had been referred by a family physician in rural health centers to a specialist in the district hospital in the past month, had not visited the appointed specialist to receive outpatient services. Since the receipt of appointment from the family physician, i.e. in maximum 30 days, the referred patients could visit a specialist. The sampling was done in two phases: 1) proportionate stratified sampling method, and 2) systematic random sampling. By using a proportionate stratified sampling method in the first phase, 429 patients were selected. These patients were selected according to the referral code registered in the health information software system. In this way, from the list of patients' names, first the starting point for this regular process was selected and then a suitable interval was selected and the names were selected at equal intervals in the list.

A self-made questionnaire was used to collect the data. To design the questionnaire, first of all the questions were extracted from scientific sources and previously-conducted studies [20-24] and the views of the scientific experts and executives were taken into account. The questionnaire focused on five dimensions and consisted of 34 items, of which 11 items dealt with the designated specialist, 6 items dealt with the admission and queuing system, 10 items related to the clinic conditions, 2 items related to the recommendation and suggestions of others, and 5 items related to the conditions and side expenditures. The responses were scored as a five point Likert scale: "I Strongly disagree" with a score of 1, "I disagree" with a score of 2, "I have no idea" with a score of 3, "I agree" with a score of 4 and "I strongly agree" with a score of 5. At the end of the questionnaire, in an open-ended question, patients were asked to state other reasons for not visiting a specialist, if there were any.

Qualitative and quantitative methods were used to determine the content validity. To assess the qualitative validity, 15 experts and elites in the field of the subject were asked to review the questions and to apply their corrective opinion on grammar and sentence structure; and put phrases in appropriate order. To quantitatively validate content validity, Content Validity Ratio (CVR) was used, and a team of experts was asked to review each question based on a three-part spectrum of "essential, useful but not essential, not necessary." Since the acceptable range depends on the number of experts, based on the judgment of 11 experts in this study, the number was considered to be 0.59, which was finally confirmed based on the answers of the content validity for all questions. Cronbach's alpha coefficient was also used to determine the internal consistency and reliability of the questionnaire. Given the total sample size of the study required for calculating Cronbach's alpha (more than 10% of the total sample size), the minimum sample size was 50. In this study, the overall value of Cronbach's alpha coefficient was calculated to be 0.9 and for the dimensions of the questionnaire were as the following: the designated specialist ($\alpha = 0.81$), the admission and queuing system ($\alpha = 0.74$), the clinic conditions ($\alpha = 0.80$), the recommendation and suggestions of others ($\alpha = 0.70$), the conditions and side expenditures ($\alpha = 0.75$); which indicates the high internal consistency of the questionnaire items. The questionnaire was filled in through telephone conversations and by a trained interviewer, and the information on 429 people was collected completely (response rate of 99%).

Ethics

The research project was approved by the Research Committee on Ethics in Golestan University of Medical Sciences (IR.GOUMS.REC.1398.048). At the time of data collection, respondents were assured that their information would remain confidential; nevertheless, the questionnaire was filled in anonymously.

Data Analysis

Descriptive statistics methods (tables, frequency, percentage for qualitative data and mean, standard deviation (SD) for quantitative data) were used and given the abnormality of data distribution according to Clemogrov Smirnov's test ($p < 0.001$), Mann-Whitney and Kruskal–Wallis tests were used to analyze the data. Data were analyzed using SPSS 16. The significance level of all tests was considered to be 0.05.

Results

Descriptive findings

Most of the participants in the study were female (54.7%), in the age group of 30–60 years (43.4%), married (81.6%), holding a high school diploma (26.4%), housewives (47.2%), covered by AqQala city (35.2%), resident of the villages (81.6%) and held health insurance (91.6%). In general, 28 patients (6.5%) declared that they were sponsored by support organizations, of which 70.6% were supported by the Imam Khomeini Relief Foundation) *Komite Emdad*- a charity body) and 29.4% were sponsored by the welfare organization. Of these patients 65% visited other specialists (other than the one designated by the referral system) and 35% did not visit any specialists at all. Majority of the patients who did not visit the designated specialist, visited some other specialists in private clinics (49.2%) not under the e-referral system to complete the treatment process. Table 1 shows the frequency distribution of patients in terms of demographic and clinical variables and referral pattern.

Table 1
Frequency distribution of patients according to demographic variables, clinical characteristics and referral pattern

Variable	Subgroup	Frequency	Percentage
Gender	<i>Female</i>	229	54.7
	<i>Male</i>	190	45.3
Age group	<i>Under 5</i>	36	8.4
	<i>6–18</i>	49	11.4
	<i>19–29</i>	72	16.8
	<i>30–60</i>	186	43.4
	<i>60+</i>	86	20
Marital status	<i>Single</i>	71	18.1
	<i>Married</i>	320	81.6
	<i>Widow/widower</i>	1	0.3
Level of education	<i>Illiterate</i>	101	25.9
	<i>Primary school</i>	87	22.3
	<i>Secondary school</i>	57	14.6
	<i>High school diploma</i>	103	26.4
	<i>University degree</i>	42	10.8
Profession	<i>Employee</i>	19	4.9
	<i>worker</i>	7	1.8
	<i>Housewife</i>	184	47.2
	<i>Student</i>	36	9.2
	<i>Unemployed</i>	23	5.9
	<i>Self employed</i>	121	31.0
Hospital	<i>Aliabad katoul</i>	134	31.2
	<i>Aq-qala</i>	151	35.2
	<i>Bandar-e-Turkman</i>	144	33.6
Place of residence	<i>Urban</i>	79	18.4
	<i>Rural</i>	350	81.6
Type of medical insurance	<i>Health insurance</i>	393	91.6

Variable	Subgroup	Frequency	Percentage
	<i>Social security</i>	29	6.8
	<i>KomiteEmdad</i>	3	0.7
	<i>Without insurance</i>	1	0.2
	<i>Others</i>	3	0.7
Under coverage of certain organizations	<i>Yes</i>	28	6.5
	<i>No</i>	401	93.5
Name of sponsor organization	<i>KomiteEmdad</i>	12	70.6
	<i>Social security</i>	5	29.4
Visiting another specialist	<i>Yes</i>	279	65.0
	<i>No</i>	150	35.0
Medical centers referred to	<i>Private clinic</i>	93	49.2
	<i>Private hospital</i>	13	6.9
	<i>State Clinic</i>	78	41.3
	<i>Others</i>	5	2.6

Reasons for not visiting specialists

Clinic conditions (3.26 ± 0.74), conditions and side expenditures (2.51 ± 0.74) and admission and queuing system (2.45 ± 0.70) had the greatest impact on patients' decision whether or not referring to level two, while designated specialist (2.34 ± 0.54) and others' recommendation and suggestions (2.30 ± 0.74) had the least impact. Table 2 shows the dimensions of the reasons why patients did not visit a specialist.

Table 2
Dimensions of the reasons why patients do not visit a specialist

Reason for not visiting a specialist	Mean	Standard deviation (SD)
Designated specialist	2.34	0.54
Admission and queuing system	2.45	0.70
Clinic conditions	3.26	0.74
Others advice & suggestions	2.30	0.74
Conditions & side expenditures	2.51	0.74

Other reasons why patients did not refer to a specialist were within/derived from open-ended questions in the questionnaire: recovery prior to the appointment date, forgetting the date of the appointment, personal reasons and finally the absence of the specialist at the time patients referred to the clinic.

The mean and standard deviations for the items in each dimension are presented in Table 3. The following items related to each dimension accounted for the highest scores:

Table 3
Frequency of reasons why patients referred to by a family physician did not visit a specialist

Dimensions	Items	Mean ± SD
Designated & introduced specialist	I have a trusted physician whom I always visit	1.14 ± 2.79
	The gender of the specialist is important to me (I would like to be visited by a male or female physician)	0.78 ± 2.24
	The ethnicity and language of the specialist is important to me	0.92 ± 2.32
	The specialist does not have enough experience.	0.78 ± 2.18
	The skill of a specialist in diagnosing and prescribing is not enough	0.91 ± 2.32
	The specialist does not give me enough time, does not listen to me well and the visit time is short	0.83 ± 2.23
	I am not socially accepted (reputation, personality, etc.)	0.87 ± 2.25
	I am under the supervision of another doctor in the province or outside the province	0.91 ± 2.29
	The way the specialist behaves and communicates with me It is not good	1.10 ± 2.54
	I don't trust a specialist to express my problems	1.07 ± 2.44
The specialist does not receive well the referred patient but respects the patient who visits him in his private office	0.81 ± 2.18	
Admission and queuing system	The referral center has not provided the patient with required guidance for being referred to a specialist	1.09 ± 2.55
	I was in an emergency situation and the appointment time was too late for me and I had to visit a specialist sooner	0.95 ± 2.33
	The appointed date for me to visit a specialist was not appropriate	1.13 ± 2.54
	The time set for me to visit a specialist was not appropriate	1.07 ± 2.44
	Given my experience, specialist is not present in clinic in the appointed time, and frequently cancels the appointment	0.95 ± 2.32
	Steps for making appointment and queuing are difficult and inappropriate	1.13 ± 2.54
Clinic conditions	The designated clinic is crowded and in chaos	1.02 ± 2.44

Dimensions	Items	Mean ± SD
	Due to being far from my home and being disabled I cannot go there	0.92 ± 2.28
	The waiting time in the designated clinic to visit specialist is so long	0.95 ± 2.48
	The staff of the designated clinic does not treat patients properly	0.68 ± 2.11
	The clinic internal atmosphere and the relevant welfare services are not good, i.e. waiting room, number of seats, heating and cooling system	0.95 ± 2.37
	Due to being far from my home, a lot of time is wasted to go there	0.88 ± 2.26
	The designated clinic is not equipped with the required equipment	0.93 ± 2.35
	Specialist visits several patients simultaneously	0.78 ± 2.21
	The designated clinic is not equipped with equipment to offer supplementary services, e.g. heart echo device	0.77 ± 2.16
	Queuing is not respected in the designated clinic.	0.75 ± 2.18
Recommendation and suggestion	I have an acquaintance in the specialist office that I refer to	0.93 ± 2.38
	My friends and acquaintances have recommended me to visit another specialist rather the one designated by the referral system	0.78 ± 2.21
Conditions & side expenditures	I could not afford paying specialist's visit	1.20 ± 2.78
	Cost of commuting to the specialist office is high	1.09 ± 2.54
	The appointment made for me to visit specialist overlapped with my other plans, so I could not go there in the due time	1.09 ± 2.59
	There was nobody to accompany me to visit specialist	0.95 ± 2.36
	General physician's diagnosis was not correct, so there was no need to visit specialist	0.87 ± 2.26

- in the dimension of *introducing the specialist*, the item of existence of a trusted physician whom the patient always visits (2.79 ± 1.14),
- in the dimension of the *admission and queuing system*, the item of not providing necessary guidance to patients by the referral center (2.55 ± 1.09),
- in the dimension of *clinic conditions*, the long waiting time at the designated clinic (2.48 ± 0.95),

- in the dimension of *others' advice and suggestions*, presence of a friend or acquaintance in the medical office where the patients always refer to (2.38 ± 0.93), and
- in the dimension of *conditions and side expenditures*, the patient not being able to afford paying for the specialist visit (2.78 ± 1.20).

In the dimensions of the introduced specialist ($p = 0.369$), admission and queuing system ($p = 0.791$), clinic conditions ($p = 0.144$), others' advice and suggestions ($p = 0.618$) and conditions and side expenditures ($p = 0.387$), there was no significant difference between male and female why they did not visit specialists. In terms of conditions and side expenditures, there was no significant difference between the age groups ($p = 0.121$), while in the dimensions of the introduced specialist ($p < 0.001$), admission and queuing system ($p = 0.001$), clinic conditions ($p < 0.001$), others' advice and suggestions ($p = 0.015$), there was a significant difference between different age groups.

According to the findings, in terms of the dimensions of the introduced specialist ($p = 0.041$), and side conditions and expenditures ($p = 0.008$), depending on respondents' marital status there was a significant difference. However, in terms of admission and queuing system ($p = 0.141$), this difference was not significant. There was no significant difference between the average reasons for patients not referring to level two in terms of education in the dimensions of admission and queuing system ($p = 0.394$), clinic conditions ($p = 0.071$), others advice and suggestions ($p = 0.643$) and conditions and side expenditures ($p = 0.097$), but the dimension of specialist introduced, respondents had different opinions given their level of education ($p = 0.006$).

In the dimensions of the introduced specialist ($p < 0.001$), admission and queuing system ($p = 0.009$), clinic conditions ($p = 0.004$) and conditions and side expenditures ($p = 0.040$), there was a significant difference given the respondents' profession, but this difference was not significant in terms of the others' advice and suggestions ($p = 0.217$). Also, a significant difference was observed in all dimensions taking into account the place of residence ($p < 0.001$). In terms of admission and queuing system ($p = 0.010$), clinic conditions ($p < 0.001$), others' advice and suggestions ($p = 0.002$) and conditions and side expenditures ($p = 0.001$), there was a statistically significant difference depending on the type of health insurance. However, this difference was not significant in the case of a specialist ($p = 0.051$). Table 4 shows the relationship between demographic variables and the reasons why patients did not visit specialists in level 2.

Table 4

The relationship between reasons why referred patients did not visit specialist and patients demographic variables

Variable	Levels	Reasons for not visiting specialist				
		Designated specialist	Admission & queuing system	Clinic conditions	Others' advice and suggestions	Conditions & side expenditures
Gender	Male	2.36 (0.55)	2.41 (0.57)	3.29 (0.76)	2.32 (0.78)	2.44 (0.65)
	Female	2.31 (0.54)	2.48 (0.79)	3.20(0.71)	2.28 (0.72)	2.55 (0.81)
	p-value	<i>0.369</i>	<i>0.791</i>	<i>0.144</i>	<i>0.618</i>	<i>0.387</i>
Age group	Under 5	2.45 (0.63)	2.43 (0.71)	3.33 (0.95)	2.33 (0.63)	2.33 (0.55)
	6–18	2.21 (0.49)	2.45 (0.79)	3.03 (0.62)	2.10 (0.54)	2.38 (0.89)
	19–29	2.28 (0.55)	2.42 (0.75)	3.10 (0.80)	2.24 (0.77)	2.49 (0.76)
	30–60	2.27 (0.52)	2.38 (0.70)	3.19 (0.68)	2.30 (0.81)	2.52 (0.77)
	60+	2.59 (0.52)	2.65 (0.55)	3.35 (0.67)	2.45 (0.70)	2.60 (0.62)
	p-value	<i>< 0.001</i>	<i>< 0.001</i>	<i>< 0.001</i>	<i>0.015</i>	<i>0.121</i>
Marital status	Single	2.18 (0.47)	2.32 (0.70)	2.98 (0.67)	2.11 (0.62)	2.30 (0.73)
	Married	2.37 (2.55)	2.49 (0.70)	3.32 (0.72)	2.34 (0.78)	2.57 (0.75)
	Widow/widower	2.55 (0.21)	2.83 (0.32)	2.43 (0.15)	2.00 (0.09)	1.00 (0.01)
	p-value	<i>0.008</i>	<i>0.141</i>	<i>0.0001</i>	<i>0.041</i>	<i>0.008</i>
Level of Education	Illiterate	2.23 (0.48)	2.48 (0.64)	3.36 (0.66)	2.25 (0.61)	2.62 (0.76)
	Primary school	2.25 (0.49)	2.37 (0.69)	3.36 (0.66)	2.25 (0.61)	2.62 (0.76)
	Secondary school	2.19 (0.50)	2.41 (0.68)	3.16 (0.65)	2.18 (0.64)	2.31 (0.74)
	High school	2.42 (0.57)	2.46 (0.68)	3.21 (0.77)	2.29 (0.78)	2.47 (0.72)
	University degree	2.54 (0.63)	2.62 (0.89)	3.46 (0.87)	2.35 (0.94)	2.74 (.077)

	p-value	<i>0.006</i>	<i>0.394</i>	<i>0.071</i>	<i>0.643</i>	<i>0.097</i>
Profession	Employee	2.50 (0.56)	2.67 (0.73)	3.45 (0.85)	2.42 (0.96)	2.44 (0.75)
	Worker	1.91 (0.20)	1.81 (0.38)	2.65 (0.55)	2.14 (0.69)	2.06 (0.34)
	Housewife	2.31 (0.52)	2.52 (0.82)	3.24 (0.68)	2.31 (0.74)	2.63 (0.83)
	Student	2.23 (0.51)	2.27 (0.65)	3.00 (0.77)	2.04 (0.54)	2.23 (0.73)
	Unemployed	2.02 (0.35)	2.20 (0.59)	2.98 (0.52)	2.15 (0.73)	2.38 (0.78)
	Self-employed	2.46 (0.56)	2.47 (0.48)	3.42 (0.75)	2.38 (0.80)	2.50 (0.62)
	p-value	<i>< 0.001</i>	<i>0.009</i>	<i>0.004</i>	<i>0.217</i>	<i>0.040</i>
Place of residence	Urban	2.13 (0.47)	2.20 (0.81)	2.79 (0.49)	2.08 (0.66)	2.17 (0.66)
	Rural	2.39 (0.55)	2.51 (0.66)	3.37 (0.75)	2.35 (0.75)	2.58 (0.74)
	p-value	<i>< 0.001</i>				
Type of medical insurance	Health insurance	2.36 (0.55)	2.48 (0.71)	3.31 (0.73)	2.32 (0.74)	2.56 (0.73)
	Social security	2.23 (0.48)	2.20 (0.48)	2.80 (0.59)	2.10 (0.65)	1.96 (0.55)
	KomiteEmdad	1.85 (0.32)	2.17 (0.44)	2.95 (0.16)	1.50 (0.87)	1.67 (0.58)
	Without insurance	2.0 (0.64)	2.50 (0.85)	4.43 (2.05)	3.50 (1.75)	2.60 (1.01)
	Others	1.82 (0.24)	1.61 (0.42)	1.90 (0.82)	1.33 (0.58)	1.33 (0.58)
	p-value	<i>0.051</i>	<i>0.010</i>	<i>< 0.001</i>	<i>0.002</i>	<i>0.001</i>

Discussion

According to the findings of the present study, among the determined dimensions, the clinic conditions accounted for the highest score. This dimension includes items such as physical inability to go to the clinic, the distance between the clinic and the patient's place of residence, the crowdedness and disorder in the designated clinic, and long waiting time to visit specialist. Lux et al. are of the opinion that the level of hospital access is an important factor in choosing a treatment center [25]. The results of a study conducted by Taylor et al., also indicated that 32% of patients believed that the distance between the hospital and their home was one of the important factors in choosing a hospital [26]. Mossadeq Rad and Jooya's study

showed that 17.3% of patients said that the proximity to their place of residence was the reason for visiting a specialist [27]. The study conducted by Allahyari et al. showed that the location of the hospital was of particular importance to 66.7% of the patients [28]. In a study conducted in the United States, they looked at the waiting time for a doctor's appointment to assess the average waiting time for new patients to visit their own physician. The study was conducted in 15 megacities with the highest physician-population ratios in the United States, and concluded that despite the large number of physicians in each megacity, a large number of patients had to wait 14 days or more to see their physician [20–21]. Williamson et al. have also stated that one of the main reasons for not visiting a specialist was the large distance between medical centers and patients' place of residence [29].

The dimension of the conditions and side expenditures also accounted for a high score in the patients' views. This dimension included items such as not being able to afford paying for a visit to a specialist and the high cost of commuting. Findings of Behboudi study indicated that 89.3% of patients mentioned economic factors as the reason for choosing a medical center [23]. The results of a study by Kraaijvanger et al. also showed that financial considerations were among the reasons for patients' self-referral [22]. According to the findings, the third dimension that affected the issue was admission and queuing system. Due to the coincidence of their working hours in the morning with the time of providing level 2 services, people were not able to visit specialist and receive relevant services. Providing services in the afternoon can be a solution to this problem. This was one of the reasons why people turned to the private sector, which was in line with Martin's study [30].

Despite the fact that in this study the dimensions of introduced specialist and others' advice and suggestions were in the lower ranks why they did not visit a specialist, but in this regard, the results of the study conducted by Kraaijvanger et al. in 2016 showed that lack of trust in the physician was among patients' self-referral reasons [22].

In other studies, high knowledge and competence were introduced as the first and most important factor in choosing a physician [31–34]. The results of 60 meta-analysis on patients' satisfaction showed that positive verbal behavior and participatory structure during consultation, providing information by physicians, adequate time allocation, good medical skills and providing the required information play an effective role in enhancing satisfaction level [35–36]. The results of Mossadegh Rad and Jooya's study also showed that 11% of the patients visited physicians based on their friends and acquaintances recommendations, and 5.8% of them said they visited the physician because of having a friend or acquaintance working in the office of the specialist [27]. In other studies, it has been stressed that people visited a physician on the advice of others [22–23, 27]. In another study, forgetting the date of the appointment was also identified as a reason for not visiting the designated specialist [37]. A reminder system, could help remind patients on their appointments sending them messages via their mobile phones, homes' phone, email, etc.

Officials and physicians need to understand the differences in the expectations of different groups of patients and provide them with their services in a way that meets different patients' needs. According to the findings, there was a relationship between reasons why patients did not visit a specialist and age and education variables. Usually, older people and more educated people pay more attention to the referred

specialist. For instance, these people expect to be examined privately and receive the necessary information about their illness and manner of their own treatment. In other studies, the reasons for not visiting a specialist were different on the part of people of different age groups and different level of education [27, 30]. The job variable was also significantly related to the reasons for not visiting specialists. Employees and self-employed people were less likely to turn down compared to others. In other studies, having a business has been also considered as one of the important reasons in examining the reasons why patients do not refer to health centers [23, 38].

Patients' place of residence has something to do with not visiting a specialist. Given the fact that specialists and level 2 centers of the referral system are in cities, and the clinic conditions had the greatest impact on patients, so it is consistent with the results of this study. Not visiting a specialist had something to do with having a health insurance. The results of a study conducted by Saeed et al. in Ghana show the positive impacts of insurance on the likelihood of benefitting from health benefits [39]. A study conducted by Mocan et al. indicated that having health insurance, contrary to expectations, has a negative impact on health care demand [40]. Elgazzar's study indicated that having health insurance significantly increased the likelihood of visiting outpatient providers [41].

Although the present study presents very valuable results to healthcare system officials and health careservices' providers, it also faced some limitations. The present study was a cross-sectional study conducted in three pilot hospitals wherein the eReferral system is practiced. Therefore, in order to extend the results of the study, it should be implemented in a longer period of time and at a larger scale. In spite of designing yes or no questions, open-ended questions were also designed to identify the reasons why patients did not visit a specialist; however, a qualitative approach can also be used to complete the answers.

Conclusion

According to the results of the study, improving the clinic conditions, reducing patients' wait time in the clinic, providing patients with appropriate guidance during the time appointment is being made, providing patient's with more options to choose the time of the visit of a specialist in non-emergency cases and increasing people's trust in specialists active in eReferral system may improve the status quo. Also, providing poor patients with free of charge specialized services may help them enjoy these services. Providing information and introducing existing services to the community, paying attention to the patients' needs in setting up or reviewing services and also facilitating the process of providing services to patients are essential.

Supplementary information

Additional file 1. Figure 1. Organizational Structure of Iran's Public Health Care System

Additional file 2. Figure 2. Referral flowchart from level 1 to level 2

Additional file 3. Figure 3. Flowchart of feedback from level 2 to level 1

Additional file 4. Table 1. Frequency distribution of patients according to demographic variables, clinical characteristics and referral pattern

Additional file 5. Table 2. Dimensions of the reasons why patients do not visit a specialist

Additional file 6. Table 3. Frequency of reasons why patients referred to by a family physician did not visit a specialist

Abbreviations

eReferral

Electronic Referral

FP

Family Physician

MOHME

Ministry of Health and Medical Education

UMSHS

Universities of medical sciences and health services

FPP

Family Physician Plan

CVR

Content Validity Ratio

SD

Standard Deviation

GOUMS

Golestan University of Medical Sciences

Declarations

Ethics approval and consent to participate

The present study received ethical approval from the Ethics Committee of Golestan University of Medical Sciences (GOUMS), file number 110621. The respondents were assured that their information would remain confidential; nevertheless, the questionnaire was filled in anonymously.

Consent for publication

Not Applicable.

Availability of data and materials

The datasets of this study are available from the corresponding author on reasonable request.

Competing interests

There is none to declare.

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Authors' contributions

MJK and AH conceptualized the study. AH and HP and MG designed the questionnaire. SB and MRH and AB collected the data. ZK and ML performed data analysis. AH and MJK reviewed the analysis. AH wrote the manuscript and edit it. All authors read and approved the final manuscript.

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Figures

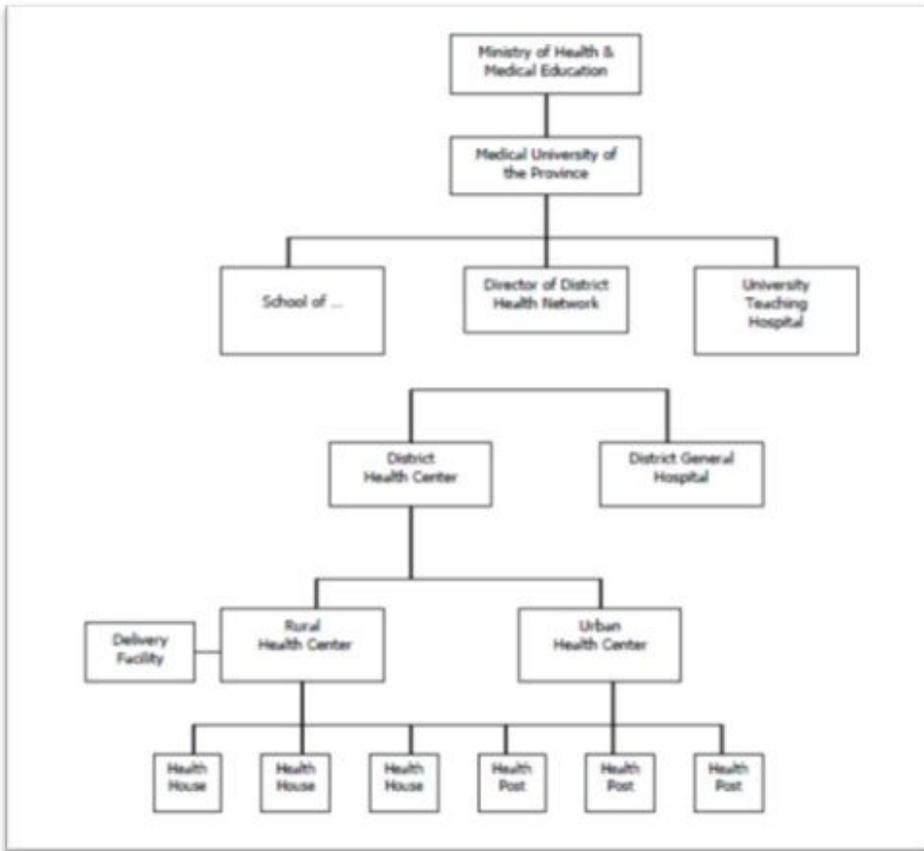


Figure 1

Organizational Structure of Iran's Public Health Care System [2]

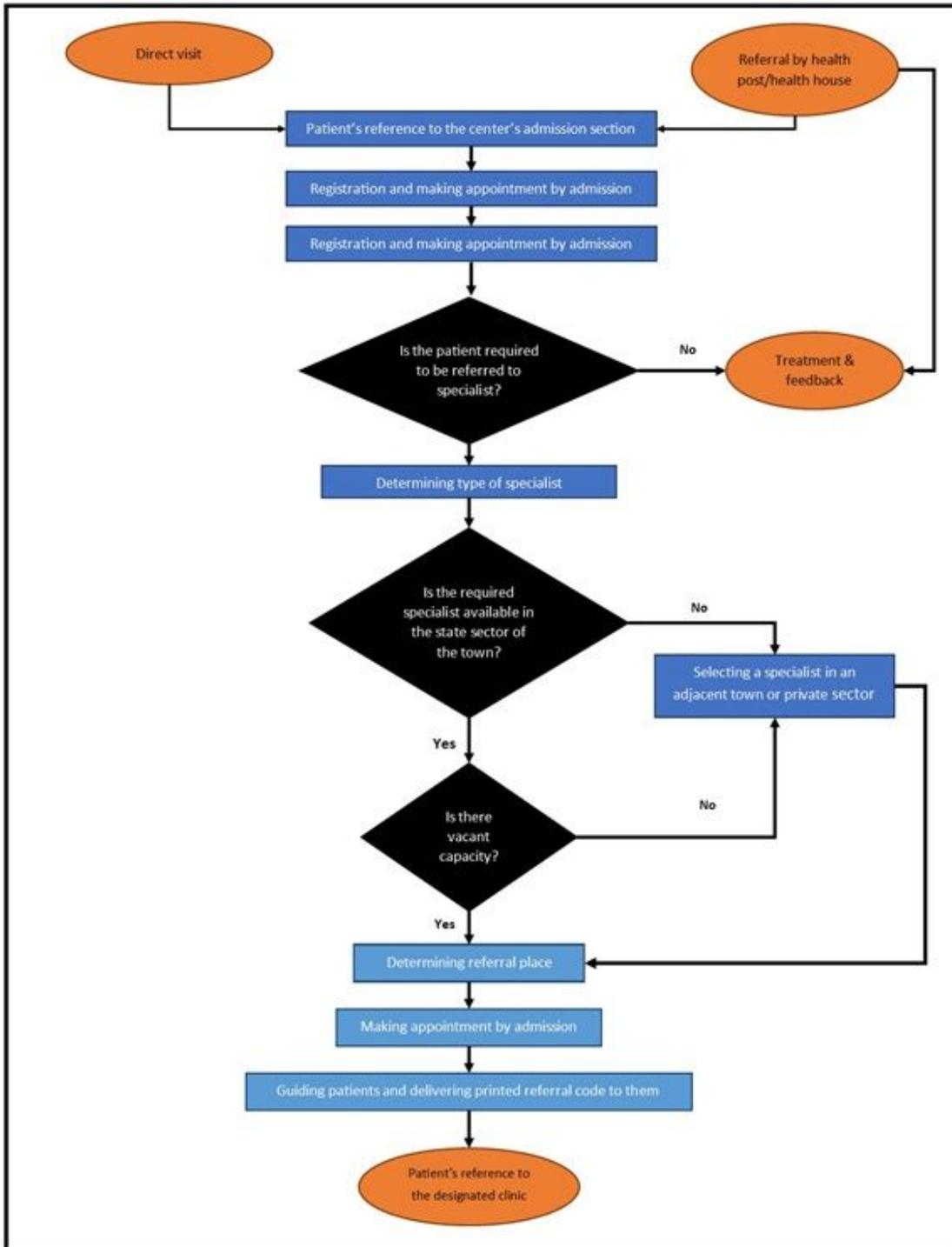


Figure 2

Referral flowchart from level 1 to level 2

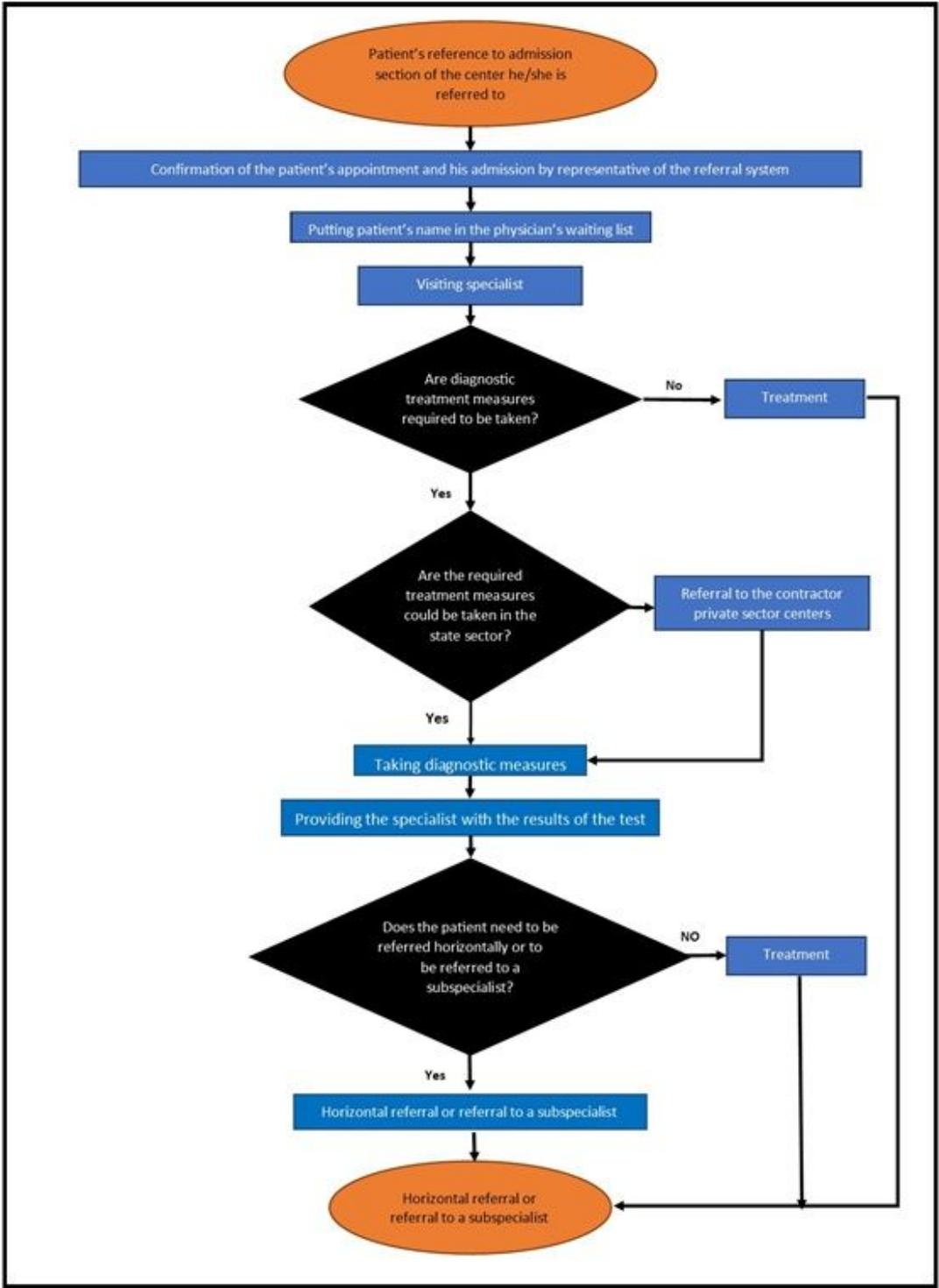


Figure 3

Flowchart of feedback from level 2 to level 1