

Investigating the reasons for not visiting specialists in electronic referral system: patients' perspectives in the west of Golestan province in 2019

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Abstract

Background: Although Iran's healthcare network has had many successes in providing healthcare services to the community, it has not had much success in the field of referrals. This study was conducted to determine the reasons why outpatients do not visit specialists and the relationship between these reasons and their demographic characteristics.

Methods: A cross-sectional study of 429 rural patients who were referred by a Family Physician (FP) to a specialist physician but who did not visit the designated specialist was carried out in the cities of Bandar-e-Turkman, Aq-Qala and Aliabad-e-Katoul. The sampling method was stratified random sampling. The data were collected using a two-part self-made questionnaire. For data analysis, descriptive statistics and a linear regression model in SPSS 16 software were used.

Results: Overall, 229 patients (54.7%) were female and 186 patients (43.4%) were in the 30-60 years age group. Of the patients referred to a specialist, 65% visited another physician rather than the one designated, and 35% did not visit a specialist at all. Among the reasons for not visiting specialists, clinic conditions (3.26 ± 0.74), side expenditures (2.51 ± 0.74) and the admission and queuing system (2.45 ± 0.70) had the highest average scores.

Conclusion: Providing patients with suitable guidance at the time of making an appointment, providing patients with more options in choosing an appropriate appointment in non-emergency cases, training specialist physicians to establish appropriate communication, and reducing costs for low-income patients could effectively persuade patients to receive specialized outpatient services within the framework of the electronic Referral system.

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Highlights

What is current knowledge?

Iran's healthcare network has had many successes in providing healthcare services to the community, but it has not had much success in the field of referrals. Despite the advantages, such as enhancing efficiency, quality of health services delivery, improving accessibility to services, and reduced waiting times for patients, many patients refuse to comply with the eReferral system.

What is new here?

The most influential factors in patients' decisions were clinic conditions, side expenditures, and the admission and queuing system. Additional reasons for not visiting the specialist included recovery before the appointment, forgetting the appointment date, and the specialist's absence at the scheduled time.

service costs (7), while paper-based referrals often cause delays due to missing information (8). The electronic referral (eReferral) system was designed to improve efficiency and reduce wait times (9), enabling the transmission of patients' summary records electronically (10).

Although Iran's healthcare network has achieved considerable success in service provision (11), it has faced challenges in the referral process (12). Despite benefits such as enhanced efficiency, improved access, and reduced wait times (10,11,13), many patients still non-compliant with the eReferral system (14).

Studies show that factors like family income (15,16), service costs, distance to providers (17-19), and service quality (19) strongly influence healthcare provider selection. Moghadasi et al. found that elderly non-referral was affected by individual, structural, environmental, and social challenges related to both medical and non-medical factors (20).

Because few studies exist on eReferral quality and patient non-compliance, it is necessary to identify why patients fail to visit specialists, to inform administrators and planners so they can design interventions for improvement. Therefore, the present study aimed to identify reasons outpatients do not visit specialists within the eReferral system and assess their relationship with demographic characteristics.

Methods

Study design and sample description

This cross-sectional study was conducted in Bandar-e-Turkman, Aq-Qala and Aliabad-e-Katoul, cities located in the west of Golestan province in northern Iran in the second half of 2019. These cities were part of the national eReferral pilot program in Iran and were therefore selected.

According to the guidelines of the eReferral, the referred patients could visit a specialist after receiving an appointment from the FP. Figure 1 shows referral flowchart from first level to second level of health service delivery.

Introduction

The right to health is a fundamental right, and governments must ensure equitable access to healthcare (1). The Alma-Ata Declaration identified primary health care (PHC) as the key to achieving health for all (2), and establishing a referral system is a vital component of PHC (3).

In Iran's Fourth Development Program (2004-2009), the expansion of rural health insurance focused on Family Physicians (FPs) and the referral system (4). After approval by Iran's parliament, the Family Physician Plan was linked to the national healthcare network, launching in late 2005 with FPs deployed in rural health centers (5,6).

When patients cannot be treated by FPs at the first level, they are referred to Level 2 for specialized care (3). A referral system helps lower

The target population had three classes with an approximate volume of 15,053 people in the first six months of 2019. Thus, approximately 5,103 people in Bandar Turkman County, 5,895 people in Aq Qala County, and 4,055 people in Ali Abad County did not present themselves to the second level of services after being referred. The required sample size was determined using the Morgan table (Cochran formula at a 5% error level and a 95% confidence interval, with a population size of approximately 20,000) and taking into account a 10% attrition rate, 429 patients were selected using stratified random sampling with allocation proportional to the volume of referrals in each city.

In total, 429 patients who were referred by an FP at a rural health center to a specialist physician but they did not visit the designated specialist to receive outpatient services in the district hospital in the past month, participated in the study. The sampling method was stratified random. Each of the three cities was considered as a stratum. The samples were selected according to the volume of each stratum. The number of samples considered for Aq-Qala, Bandar-e-Turkman and Aliabad cities was 151, 144, and 134, respectively.

Data Collection

Data were gathered through a two-part tool: demographic information and a self-designed questionnaire. Items were developed based on studies (16,21,22) and expert input. The questionnaire covered five dimensions and 34 items-designated specialist (11 items), admission/queuing system (6), clinic conditions (10), recommendations of others (2), and side expenditures (5)-rated on a 5-point Likert scale

(1 = strongly disagree to 5 = strongly agree). An additional open-ended question asked patients to mention other reasons for non-visiting specialists.

Content validity was assessed qualitatively (expert review of wording and item order) and quantitatively using the Content Validity Ratio (CVR) with 11 experts (23). A $CVR \geq 0.59$ was deemed acceptable. Items 1-2, 5, and 7-34 met this threshold; items 3-4 and 6 were retained based on expert mean scores.

Internal consistency was assessed using Cronbach's alpha, yielding an overall reliability of 0.90 and the following sub-dimension values: designated specialist ($\alpha = 0.81$), admission/queuing ($\alpha = 0.74$), clinic conditions ($\alpha = 0.80$), recommendations ($\alpha = 0.70$), and side expenditures ($\alpha = 0.75$).

Questionnaires were completed via telephone interviews conducted by trained and linguistically fluent interviewers. Information was fully collected from all 429 participants (A 99% response rate).

Data Analysis

Descriptive statistics methods (i.e., tables, numbers, frequency and percentages for qualitative data, and means and standard deviations for quantitative data) along with a linear regression model were used for data analysis. All data were analyzed using SPSS version 16. The significance level of all tests was set at 0.05.

Ethical Issues

Participants were assured that their information would remain confidential. Also, the questionnaires were completed anonymously.

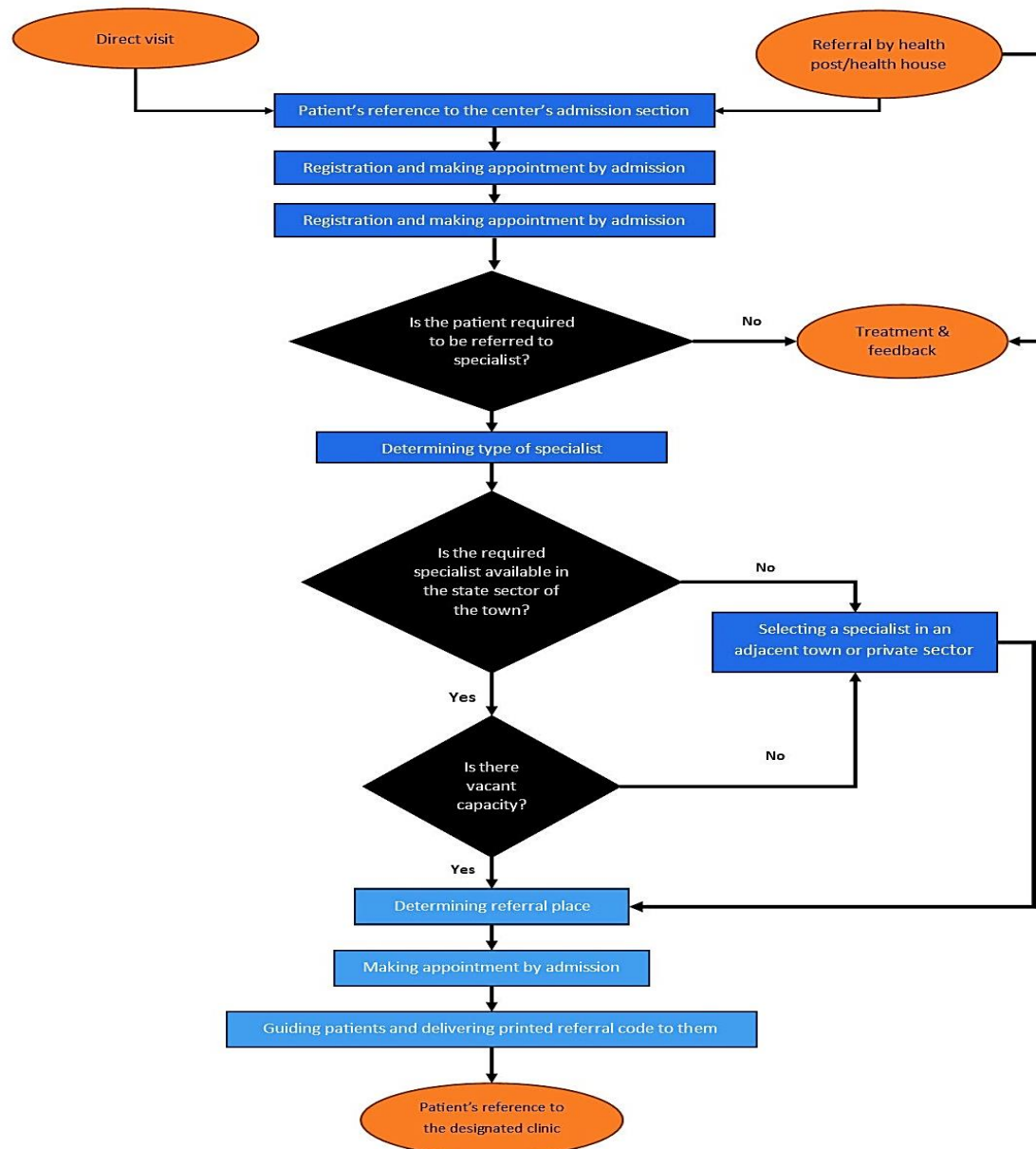


Figure 1. Referral flowchart from level 1 to level 2

Results

Descriptive Findings

Of the 429 patients, 229 (54.7%) were female. The age distribution showed 186 patients (43.4%) aged 30-60 years. A significant majority, 320 patients (81.6%), were married. In terms of education, 103 patients (26.4%) held a high school diploma. Regarding occupation, 184 patients (47.2%) were housewives, and 151 patients (35.2%) resided in Aq-Qala city. Furthermore, 350 patients (81.6%) lived in villages, while 393 patients (91.6%) had health insurance. Only 28 patients (6.5%) reported being sponsored by support organizations. Among these patients, 65% (279 patients) visited other specialists, while 35% (150 patients) did not see any specialist at all. Notably, 49.2% of those who did not attend the appointed specialist had sought care from various specialists in private clinics. (Tables 1 and 2).

Table 1. Demographic variables of experts and elites that determined the validity of the questionnaire

Variable	Category	Frequency
Age group (Year)	30-44	8
	45-48	3
	59-71	4
Sex	Male	6
	Female	9
Level of education	Master of Science	5
	PhD	4
	General physician	3
	Specialist physician	3
Organizational position	Top manager	2
	Middle manager	3
	Operational manager	4
	Faculty member	5

Reasons for not visiting specialists

The most influential factors in patients' decisions were clinic conditions (3.26 ± 0.74), side expenditures (2.51 ± 0.74), and the admission and queuing system (2.45 ± 0.70). Additional reasons for not visiting the specialist, identified through open-ended responses, included recovery before the appointment, forgetting the date, and the specialist's absence at the scheduled time (Table 3).

More than one-third of patients (34.9%) reported having a trusted specialist whom they always visit. Over a quarter (28.2%) stated that the referral center had provided insufficient guidance, and 26.4% mentioned that the appointment date was unsuitable. In total, 22.4% cited a long distance from home as a barrier. Additionally, 25.1% indicated that the designated clinic was crowded and disorganized, and 19.9% complained of long waiting times. Another 34.9% could not afford the specialist visits, while 28.9% found commuting expenses high (Table 4).

The multiple regression analysis results are presented in Table 5. Model assumptions-including linearity, normality of residuals, no error correlation, and lack of collinearity-were confirmed.

Significant differences in the introduced specialist dimension were found across age (P -value<0.001), education (P -value <0.001), residence (P -value=0.004), and insurance type (P -value=0.042).

For the admission and queuing system, differences were significant for education (P -value=0.014), residence (P -value=0.013), and insurance type (P -value=0.032).

For clinic conditions, age (P -value<0.001), education (P -value<0.001), residence (P -value<0.001), and insurance type (P -value=0.006) showed significant effects.

In others' advice and suggestions, differences emerged by age (P -value=0.038), education (P -value=0.062), residence (P -value=0.026), and insurance type (P -value=0.028).

For side expenditures, significant differences appeared for residence (P -value=0.004) and insurance type (P -value <0.001).

Table 2. Frequency distribution of patients according to demographic variables, clinical characteristics, and referral pattern

Variable	Subgroup	Frequency (Percentage)
Gender	Female	229 (54.7)
	Male	190 (45.3)
Age group (Year)	Under 5	36 (8.4)
	6-18	49 (11.4)
	19-29	72 (16.8)
	30-60	186 (43.4)
	60+	86 (20.0)
Marital status	Single	71 (18.1)
	Married	320 (81.6)
	Widow/Widower	1 (0.3)
Level of education	Illiterate	101 (25.9)
	Primary school	87 (22.3)
	Secondary school	57 (14.6)
	High school diploma	103 (26.4)
	University degree	42 (10.8)
Profession	Employee	19 (4.9)
	worker	7 (1.8)
	Housewife	184 (47.2)
	Student	36 (9.2)
	Unemployed	23 (5.9)
	Self employed	121 (31.0)
Hospital	Aliaba-e- katoul	134 (31.2)
	Aq-Qala	151 (35.2)
	Bandar-e-Turkman	144 (33.6)
Place of residence	City	79 (18.4)
	Country	350 (81.6)
Type of medical insurance	Health insurance	393 (91.6)
	Social security	29 (6.8)
	Komite Emdad	3 (0.7)
	Without insurance	1 (0.2)
	Others	3 (0.7)
Under coverage of certain organizations	Yes	28 (6.5)
	No	401 (93.5)
Name of sponsor organization	Komite Emdad	12 (70.6)
	Social security	5 (29.4)
Visiting another specialist	Yes	279 (65.0)
	No	150 (35.0)
Medical centers referred to	Private clinic	93 (49.2)
	Private hospital	13 (6.9)
	State Clinic	78 (41.3)
	Others	5 (2.6)

Table 3. Dimensions of the reasons why patients do not visit a specialist

Dimensions	Mean (Standard Deviation)
Designated and introduced specialist	2.34 (0.54)
Admission and queuing system	2.45 (0.70)
Clinic conditions	3.26 (0.74)
Recommendation and suggestion	2.30 (0.74)
Side expenditures	2.51 (0.74)

Table 4. The frequency (Percentage) of reason for not visiting a specialist

Dimensions	Items	I quite agree	I agree	No idea	I quite disagree	I disagree
Designated specialist	The patient has a trusted specialist whom they always visit	40 (9.3)	110 (25.6)	12 (2.8)	254 (59.2)	13 (3)
	The gender of the specialist (Patient prefers to visit a male or female specialist)	39 (9.1)	65 (15.2)	7 (1.6)	295 (68.8)	23 (5.4)
	The language and ethnicity of the specialist	33 (7.7)	59 (13.8)	5 (1.2)	300 (69.9)	32 (7.5)
	The specialist's lack of experience	8 (1.9)	72 (16.8)	7 (1.6)	304 (70.9)	38 (8.9)
	The specialist's insufficient diagnostic skills	41 (9.6)	76 (17.7)	10 (2.3)	297 (69.2)	5 (1.2)
	Insufficient time for the visit	44 (10.3)	74 (17.2)	4 (0.9)	302 (70.4)	5 (1.2)
	The specialist is not socially well-regarded (Reputation, Personality, etc.)	8 (1.9)	46 (10.7)	11 (2.6)	342 (79.7)	22 (5.1)
	The patient is under the supervision of another physician	9 (2.1)	52 (12.1)	19 (4.4)	307 (71.6)	42 (9.8)
	Poor communication between the specialist and the patient	5 (1.2)	58 (13.5)	4 (0.9)	327 (76.2)	35 (8.2)
	Lack of trust between patient and specialist	4 (0.9)	49 (11.4)	5 (1.2)	333 (77.6)	38 (8.9)
	The specialist respects the patient more in their private office than they do the referred patient	9 (2.1)	39 (9.1)	15 (3.5)	324 (75.5)	42 (9.8)
Queuing system	The Comprehensive Rural Health Center has not provided the necessary guidance for referring the patient to a specialist	23 (5.4)	98 (22.8)	6 (1.4)	266 (62)	36 (8.4)
	The patient was in an emergency situation, and the appointment date was too late for him/her.	21 (4.9)	52 (12.1)	5 (1.2)	319 (74.4)	32 (7.5)
	The appointment date is not suitable for the patient	35 (8.2)	78 (18.2)	11 (2.6)	266 (62)	39 (9.1)
	The set time is not convenient for the patient	29 (6.8)	66 (5.4)	10 (2.3)	284 (66.2)	40 (9.3)
	The specialist is not present in the appointed time and cancels the appointment	14 (3.3)	60 (14)	21 (4.9)	290 (67.6)	44 (10.3)
	The queuing process is inappropriate	21 (4.9)	52 (12.1)	5 (1.2)	319 (74.4)	32 (7.5)
Specialized Clinics	The clinic is crowded and chaotic	4 (0.9)	104 (24.2)	9 (2.1)	290 (67.6)	22 (5.1)
	The clinic is far from the patients' home	21 (4.9)	75 (17.5)	4 (0.9)	299 (69.7)	30 (7)
	The waiting time is too long in the clinic	14 (3.3)	71 (16.6)	5 (1.2)	310 (72.3)	29 (6.8)
	The staff of the clinic does not treat patients properly	8 (1.9)	58 (13.5)	7 (1.6)	301 (70.2)	36 (8.4)
	The clinic interior atmosphere and the welfare amenities (Waiting room, heating and cooling system) are not good	9 (2.1)	58 (13.5)	5 (1.2)	319 (74.4)	38 (8.9)
	Patients spend a lot of time getting to the clinic	21 (4.9)	43 (10)	3 (0.7)	332 (77.4)	30 (7)
	The clinic is not equipped with the required equipment	6 (1.4)	42 (9.8)	22 (5.1)	324 (75.5)	35 (8.2)
	The specialist sees more than one patient at once	5 (1.2)	40 (9.3)	18 (4.2)	332 (77.4)	34 (7.9)
	The clinic is not equipped to offer supplementary services	1 (0.2)	48 (11.2)	18 (4.2)	332 (77.4)	34 (7.9)
	The queue is not respected in the clinic	3 (0.7)	33 (7.7)	7 (1.6)	350 (81.6)	36 (8.4)
Recommendations	The patient has a friend or acquaintance who works in the private sector.	15 (3.5)	66 (15.4)	9 (2.1)	316 (73.7)	23 (5.4)
	Friends and acquaintances advised the patient to see another specialist instead of the one designated through the referral system	15 (3.5)	29 (6.8)	8 (1.9)	358 (83.4)	19 (4.4)
Patient side costs and other conditions	The patient cannot afford the specialist's visit	49 (11.4)	101 (23.5)	8 (1.9)	247 (57.6)	24 (5.6)
	The cost of commuting to the clinic is high	26 (6.1)	98 (22.8)	5 (1.2)	276 (64.3)	24 (5.6)
	The appointment interfered with the patients' other plans	35 (8.2)	72 (16.8)	8 (1.9)	289 (67.4)	25 (5.8)
	There is nobody to accompany the patient to visit the specialist	21 (4.9)	55 (12.8)	6 (1.4)	323 (75.3)	24 (5.6)
	According to the patient, the family physician's diagnosis and referral to the specialist were incorrect	20 (4.7)	30 (7)	22 (5.1)	328 (76.5)	29 (6.8)

Table 5. The results of the multiple regression model of enter style to predict the reasons for non-referral according to demographic variables

Reasons for not visiting specialist	Variable	Unstandardized B	Std. Error	Standardizes Coefficients Beta	t	P-Value
Designated specialist	Constant	1.47	0.25	-	5.91	< 0.001
	Age	0.01	0.00	0.33	4.72	< 0.001
	Gender	- 0.02	0.08	- 0.02	- 0.28	0.778
	Marital status	- 0.02	0.08	- 0.01	- 0.21	0.834
	Level of education	0.12	0.02	0.31	5.45	< 0.001
	Profession	- 0.01	0.02	- 0.03	- 0.42	0.674
	Place of residence	0.20	0.07	0.15	2.88	0.004
	Type of medical insurance	- 0.11	0.06	- 0.10	- 2.05	0.042
	R Square= 0.14	Sig=0.000 < 0.05			Durbin-Watson=13.1	
Admission and queuing system	Constant	1.77	0.34	-	5.26	< 0.001
	Age	0.00	0.00	0.11	1.55	0.121
	Gender	0.00	0.11	0.00	0.04	0.967
	Marital status	0.10	0.11	0.06	0.89	0.376
	Level of education	0.08	0.03	0.15	2.48	0.014
	Profession	- 0.04	0.03	- 0.10	- 1.36	0.176
	Place of residence	0.24	0.10	0.13	2.50	0.013
	Type of medical insurance	- 0.16	0.08	- 0.11	- 2.16	0.032
	R Square= 0.06	Sig=0.001 < 0.05			Durbin-Watson=1.95	
Clinic conditions	Constant	1.95	0.32	-	6.02	< 0.001
	Age	0.01	0.00	0.36	5.27	< 0.001
	Gender	- 0.04	0.10	- 0.03	- 0.38	0.701
	Marital status	- 0.05	0.11	- 0.03	- 0.44	0.664
	Level of education	0.12	0.03	0.22	3.94	< 0.001
	Profession	- 0.02	0.03	- 0.04	- 0.56	0.575
	Place of residence	0.47	0.09	0.25	5.10	< 0.001
	Type of medical insurance	- 0.20	0.07	- 0.13	- 2.79	0.006
	R Square=0.20	Sig=0.000 < 0.05			Durbin-Watson=1.24	
Others' advice and suggestions	Constant	1.66	0.36	-	4.56	< 0.001
	Age	0.01	0.00	0.15	2.09	0.038
	Gender	- 0.05	0.12	- 0.03	- 0.39	0.699
	Marital status	0.06	0.12	0.03	0.50	0.622
	Level of education	0.06	0.03	0.11	1.87	0.062
	Profession	- 0.01	0.03	- 0.03	- 0.43	0.668
	Place of residence	0.23	0.10	0.12	2.24	0.026
	Type of medical insurance	- 0.18	0.08	- 0.12	- 2.21	0.028
	R Square=0.06	Sig=0.001 < 0.05			Durbin-Watson=1.64	
Side expenditures	Constant	2.08	0.36	-	5.79	< 0.001
	Age	0.00	0.00	0.02	0.26	0.793
	Gender	0.07	0.11	0.05	0.62	0.536
	Marital status	0.12	0.12	0.06	1.01	0.314
	Level of education	- 0.02	0.03	- 0.03	- 0.53	0.599
	Profession	- 0.02	0.03	- 0.04	- 0.51	0.614
	Place of residence	0.30	0.10	0.15	2.92	0.004
	Type of medical insurance	- 0.32	0.08	- 0.20	- 3.94	< 0.001
	R Square=0.10	Sig=0.000 < 0.05			Durbin-Watson=2.04	

Discussion

The present study aimed to determine outpatients' reasons for not visiting specialists within the eReferral system and to examine their association with demographic characteristics.

Clinic conditions had the greatest effect on patients' decisions, including long distance from their residence, long waiting times, and crowded clinics. Lux et al. emphasized hospital access as a key criterion

in hospital choice (19). Similarly, Taylor et al. found that 32% of patients considered distance an influential factor (24), while another study showed that 17.3% selected specialists based on proximity (25). Williamson et al. and Give et al. also identified long travel distances as major deterrents (18,26), and Koce et al. noted proximity as a motivator for seeking care (27). A U.S. study reported that many patients waited 14 days or more for an appointment (22). In Tehran, Roudpeyma et al. found prolonged waiting times a main cause of dissatisfaction (28).

Side expenditures also scored highly from patients' perspectives, covering consultation, transportation, and related costs, which is consistent with the findings of Behboodi, Kraaijvanger, and Giv'e et al. (15,16,26). The third influential factor was the admission and queuing system; over a quarter of patients reported inadequate guidance by referral centers. Craker's UK study found that patients were unfamiliar with the health system (29), whereas Durand et al., in a French study, observed well-informed consumers (30). Improving queuing systems through increased staffing, better facilities, and information systems could reduce waiting times. Additionally, attitude and behavioral changes among patients and physicians may also help.

The introduced specialist dimension scored lower, though over one-third of patients stated they always visit a trusted specialist. Kraaijvanger et al. reported that lack of trust in family physicians prompted self-referral (15), and Giv'e et al. identified trust as a key barrier (26). Another study found competence and knowledge crucial in physician choice (25). Meta-analyses show that physician behavior, communication, and time allocation significantly affect satisfaction (31,32).

The others' advice and suggestions dimension also scored low, though several studies reported patients choose physicians based on others' recommendations (15,16,25). Koce et al. observed that patients commonly consult relatives about health needs (27), and Beache and Guell noted family encouragement as an influential factor (33).

Open-ended responses revealed that forgetting the appointment date was another reason for not visiting specialists, a finding consistent with previous research (34). A reminder system via mobile or email could mitigate this issue.

There was a relationship between reasons for not visiting and patients' age, education, and occupation. Older and more educated patients tended to value private consultations and adequate information. Behboodi also reported that work commitments hinder healthcare visits (15).

This cross-sectional study was conducted in only three hospitals. Broader and longer-term studies are needed. Cultural and linguistic diversity among participants (Turkmen in Aq Qala and Bandar Turkman vs. Fars (Persian) in Ali Abad Katul) may have influenced responses; thus, bilingual interviewers were employed. Future qualitative studies could further enrich these findings.

Conclusion

According to the results of the current study, improving the clinic conditions, reducing side expenditures, and reducing waiting times for outpatients may improve the current situation. Providing needy patients with free-of-charge specialized services may help them benefit from these services. Introducing existing services and providing information to the patients, and also facilitating the process of providing services to patients are essential.

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Ethical Statement

The study was approved by the Ethics Committee of Golestan University of Medical Sciences (Ethics approval code: IR.GOUMS.REC.1398.049).

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

Conceptualization, supervision, funding acquisition and resources: Mohammad Javad Kabir and Alireza Heidari; Methodology: Hamid

Pourasghari and Zahra Khatirnamani; Data collection: Sakine Beygom Kazemi, Mohammad Reza Honarvar and Reza Golpira; Data analysis: Zahra Khatirnamani; Investigation and writing: All authors.

Data Availability Statement

The dataset is available upon request from the corresponding author

Use of Artificial Intelligence

No artificial intelligence tools were used in this study.

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