



DOI: 10.5505/ajfamed.2025.42714

AJFAMED 2024;7(3):97–101

## Utilization of Primary Healthcare Services in Türkiye and Its Impact on Health Expenditures: A Study Based on Dermatology Outpatient Clinic Data

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### ABSTRACT

**Objectives:** The aim of this study was to evaluate the effect of examinations on health expenditures in patients who applied to the dermatology outpatient clinic in case of a referral to the appropriate healthcare center.

**Methods:** Of the 29.929 patients who applied to the dermatology outpatient clinic between January and December 2023. The patients were administered a 16-question questionnaire, including complaints, sociodemographic characteristics, and treatment access habits. Expert judgment was used to determine the appropriate healthcare service for each patient, and the economic impact of misreferrals was calculated.

**Results:** The mean age of the participants was 31.5±13.0 years, and only 20 (5.3%) patients needed tertiary healthcare services. One hundred and sixty (42.2%) of the patients could be treated in primary healthcare service and 199 (52.5%) in secondary healthcare service. A total of 154.632 TL was invoiced for all patients who were examined in the dermatology clinic. Since the patients were not treated in the appropriate health service, an overpayment of 109.502,48 TL was made in health expenses. Among the reasons for not applying to a family physician, 98 (25.8%) frequently stated that they did not trust the knowledge and capacity of the family physician and 123 (32.5%) frequently stated that they expected to receive better service at the university hospital.

**Conclusion:** To reduce health expenditures and improve the quality of care, appropriate referral patterns of patients to health centers should be developed, which can significantly improve the cost-effectiveness and functionality of the health system.

**Keywords:** Dermatology, family practice, health expenditures, health, primary healthcare



#### Please cite this article as:

Karaca Ural, Z Şahin NM, Utlu Z, Sütü S. Utilization of Primary Healthcare Services in Türkiye and Its Impact on Health Expenditures: A Study Based on Dermatology Outpatient Clinic Data. AJFAMED 2024;7(3):97–101.

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Received Date: 15.11.2024

Revision Date: 15.11.2024

Accepted Date: 04.01.2025

Published online: 27.01.2025

Anatolian Journal of Family  
Medicine - Available online at  
www.AJFAMED.org

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### INTRODUCTION

Tiered health services are an approach designed to optimize resource utilization by offering patients lower-cost but effective interventions.<sup>[1]</sup> If the initial intervention is insufficient, more intensive treatments are planned subsequently. Family medicine lies at the core of the healthcare system, providing preventive and curative services for basic health issues within the community. Secondary healthcare service are facilities where specialist physicians handle diagnosis and follow-up care.<sup>[2]</sup> In contrast, tertiary healthcare service is equipped to provide high-level care for complex medical conditions, conduct clinical trials, develop new medical treatments, and offer training for students and residents. Health problems that cannot be resolved in primary and secondary centers are managed and treated in tertiary centers with advanced medical technology.

According to the Alma Ata Declaration, which Türkiye has signed, 85–90% of health issues should ideally be resolved within primary care.<sup>[3]</sup> A systematic review has shown that primary care effectively improves public health and reduces healthcare costs.<sup>[1]</sup> However, the public does not sufficiently utilize primary healthcare services in Türkiye.<sup>[4]</sup> Patients in our country can apply directly to tertiary healthcare centers under health insurance coverage. Consequently, university hospitals manage numerous outpatient cases daily, which limits the time and attention available for chronic and complex cases, making hospital access more difficult for patients who require tertiary care.<sup>[5,6]</sup> This situation increases healthcare costs and reduces the quality of service provided in our country.

Few studies have examined the causes of inefficiencies in the utilization of tiered healthcare services and their impact on the national economy. The aim of this study was to evaluate the effect of examinations on health expenditures in patients who applied to the dermatology outpatient clinic in case of a referral to the appropriate healthcare center.

## METHOD

This descriptive study was conducted at a university hospital that provides partial healthcare services to approximately 14 provinces and three countries (Georgia, Iran, Azerbaijan), primarily covering the Northeastern Anatolia, Eastern Black Sea, and Western Black Sea regions. The study population consisted of 29,929 patients who visited our outpatient clinic between January and December 2023.

Family medicine is considered as primary healthcare service, state hospitals as secondary healthcare service, and university hospitals as tertiary healthcare service.

Accordingly, the sample size representing the population was calculated using the Epi Info program, based on a prevalence of 50%, a margin of error of 5%, a type 1 error of 5%, and a 95% confidence interval, resulting in a sample size of 379.

A 16-question survey was administered to patients, covering their complaints, sociodemographic characteristics, and healthcare access habits. Patients were evaluated according to the competency targets outlined in the national core education program and dermatology core education programs to determine the appropriate healthcare service they should have accessed. The social security institutions and hospitals obtained information on the patients' billing status, and cost calculations were made. Data were collected by an academician from the dermatology department and a research assistant under the academician's supervision.

Data were analyzed using Statistical Package for the Social Sciences Statistics 20. Descriptive statistics, such as mean  $\pm$  standard deviation, frequencies, and percentages, were used in the analysis.

## RESULTS

A total of 379 patients were included in the study and the mean age was  $31.5 \pm 13.0$  years. The sociodemographic characteristics of patients visiting the dermatology clinic are summarized in Table 1.

After the evaluations made by the dermatologist, it was predicted that 160 (42.2%) of the patients could be treated in primary healthcare service, 199 (52.5%) in secondary healthcare service, and 20 (5.3%) in tertiary healthcare service. The reasons for not visiting primary healthcare services are summarized in Table 2.

In the dermatology clinic, 400,00 Turkish liras (TL) were paid as a consultation fee and 8,00 TL as a co-payment for each patient according to Health Implementation Regulation examination fees for the year 2024. When the invoicing of all patients in the study who were examined in the dermatology clinic was evaluated, a total of 154,632 TL was invoiced, including 151,600 TL consultation fee and 3,032 TL co-payment fee. The costs if patients are treated at the appropriate healthcare service are summarized in Table 3. On the other hand, if the patients had been treated at the appropriate healthcare service, this cost would have been charged to a total of 45,129,52 TL, and it was determined that 109,502,48 TL was excess paid.

## DISCUSSION

In this study, patients who visited the tertiary dermatology outpatient clinic were assessed by a specialist to determine the healthcare services at which they should ideally have applied within the tiered healthcare system. Then, the overpayment made due to inappropriate applications was calculated. Our study found that only 5.3% of the applications to the university hospital's dermatology clinic indeed required tertiary healthcare, while 42.2% could have been treated at the primary healthcare service.

The increasing patient load at the tertiary healthcare service, rising costs, and declining service quality create an obstacle for patients who genuinely need to access a specialist.<sup>[5,6]</sup> Numerous complaints have been registered about the inability to secure appointments through the Central Physician Appointment System, which allocates appointments for institutions under the Ministry of Health. In addition, it was found that 21% of appointments made within a month were not attended. To address this, the

**Table 1.** Sociodemographic characteristics of patients visiting the dermatology clinic

	n (%)
Age groups	
18 and under	40 (10.6)
19–64	332 (87.6)
65 and over	7 (1.8)
Place of residence	
City center	246 (64.9)
District	81 (21.4)
Village/town	52 (13.7)
Education level	
Middle school or below	85 (22.4)
High school	177 (46.7)
University or above	117 (30.9)
Occupation	
Government	47 (12.4)
Private sector	81 (21.4)
Unemployed	251 (66.2)
Health insurance	
Social security institution	287 (75.7)
None/green card	92 (24.3)
Spouse's education level	
Middle school or below	61 (16.1)
High school	73 (19.3)
University or above	60 (15.8)
Not married	185 (48.8)
Spouse's occupation	
Government	18 (4.7)
Private/shopkeeper	62 (16.4)
No regular job/unemployed	184 (30.1)
Not married	185 (48.8)
Spouse's health insurance*	
Social security institution	161 (42.5)
None/green card	33 (8.7)
Household size	
4 or less	226 (59.6)
More than 5	153 (40.4)
Income level	
Insufficient	58 (15.3)
Just sufficient	191 (50.4)
Comfortable	130 (34.3)
Transportation availability	
Available	137 (36.1)
Not available	242 (63.9)

**Table 1.** Sociodemographic characteristics of patients visiting the dermatology clinic (Cont.)

	n (%)
Type of closest health facility	
Primary healthcare service	225 (59.4)
Secondary healthcare service	111 (29.3)
Tertiary healthcare service	43 (11.3)
Walking distance to closest health facility	
Under half an hour	182 (48.0)
More than half an hour	142 (37.5)
More than an hour	55 (14.5)
First institution visited when one gets sick	
Primary healthcare service	76 (20.1)
Secondary healthcare service	177 (46.7)
Tertiary healthcare service	126 (33.2)
Previous institution visited for this complaint	
None	240 (63.3)
Primary healthcare service	59 (15.6)
Secondary healthcare service	80 (21.1)
*Only married couples are included.	

**Table 2.** Reasons for not visiting primary healthcare service

Reasons	n (%)
Belief that family physician's knowledge/capacity is insufficient	98 (25.8)
Expectation of better service at the university	123 (32.5)
Family physician is only for prescribing medication	15 (4.0)
Decision to have a dermatology examination while at the hospital for another reason	24 (6.3)
No family physician/at another location	15 (4.0)
Not thinking they can go to a family physician	21 (5.5)
Other	83 (21.9)

Ministry has introduced a policy requiring the cancellation of missed appointments; otherwise, patients are barred from booking another appointment in the same specialty for 15 days.<sup>[7]</sup> His approach may help utilize resources more effectively given the current appointment habits, but for a more lasting solution, patient habits around seeking specialist access need to be reformed. In our study, 63.3% of participants initially applied to a tertiary healthcare institution for their current complaint. In a previous study, 73.9% of patients preferred to see a family physician for minor skin conditions.<sup>[8]</sup> In our study, even though for 59.4% of partici-

**Table 3.** The costs if patients are treated at the appropriate healthcare service

	Unit price (TL)	Total fee (TL)	Cost by HealthCare service (TL)
Primary healthcare service (n=160)			
Consultation fee	73,75	11.800,00	11.800,00
Co-payment	0,00	0,00	
Secondary healthcare service (n=199)			
Consultation fee	120,48	23.975,52	25.169,52
Co-payment	6,00	1.194,00	
Tertiary healthcare service (n=20)			
Consultation fee	400,00	8.000,00	8.160,00
Co-payment	8,00	160,00	

TL: Turkish liras.

pants the nearest healthcare facility is a primary healthcare service, only 20.1% of them preferred to visit their family physician first when they needed healthcare services. This frequency was 42% in patients who applied to a family physician at a university hospital.<sup>[9]</sup>

In 2003, Türkiye implemented the Health Transformation Program, leading to significant changes in the healthcare system.<sup>[10]</sup> This reform established the family medicine system to provide effective and equitable healthcare services.<sup>[11]</sup> However, the inadequate number of family physicians has led to physician shortages at this service.<sup>[12]</sup> The high number of patients per physician shortens the time physicians can spend with each patient, making it challenging to assess patients adequately. In the study by Edirne et al., 48.6% of patients stated they could not get sufficient information from their family physicians.<sup>[13]</sup> In our study, 25.8% of participants reported not trusting the knowledge and capacity of their family physician, and 32.5% believed they would receive better diagnosis and treatment at a university hospital. Lack of trust may be due to communication problems and increasing the number of physicians and support staff to reduce the patient load per physician may help to solve this problem.

In addition, 13.5% of our patients were those who visited family physicians mainly for prescription refills, could not see another family physician when theirs was out of town, or did not consider visiting a family physician. This also indicates a lack of understanding in society about the role of primary healthcare. In a previous study, the primary reason for visiting family physicians was reported as prescription refills, with a frequency of 58.4%.<sup>[14]</sup> A 2022 study evaluated knowledge and awareness regarding family medicine services, revealing an average correct response frequency of 51%.<sup>[15]</sup> All these data indicate the need for public awareness activities

about family medicine services, such as advertising, home visits, and various informational campaigns.

Family physicians are at the heart of our healthcare system.<sup>[16]</sup> Providing preventive health services, coordinating treatment systematically, referring patients when necessary, and coordinating with relevant specialties for chronic disease management requires extensive knowledge and skills. Across all age groups, 5–8% of consultations are due to dermatological conditions, with one-third of the population having at least one skin condition. However, at the end of general medical education, 92% of physicians feel that the dermatology training they received is insufficient.<sup>[17]</sup> Furthermore, dermatology outpatient clinics at secondary and tertiary hospitals are overwhelmed with patients, many of whom complain about the inability to secure appointments.<sup>[18]</sup>

Dermatology is a specialty that can be easily integrated into the e-health system, yielding successful results.<sup>[16]</sup> Tele-dermatology and artificial intelligence-assisted diagnostic algorithms, which have gained prominence recently, can empower family physicians to manage dermatological issues more effectively. In the Netherlands, family physicians can share a photo of a skin lesion with a specialist through telemedicine applications, arrange treatment based on the specialist's response, and make referrals only if necessary. This approach addresses dermatological problems at the primary healthcare service, preventing unnecessary referrals. This application has allowed the Netherlands to save 40% on healthcare expenditures. A study conducted in London demonstrated that teledermatology saved £12.460 over 3 years.<sup>[6]</sup> Developing and funding communication networks specifically for requesting and responding physicians in dermatology would be highly beneficial for family physicians.

The major limitation of this study is that it is a single-center study with a limited sample size. Larger-scale studies are needed to understand the precise impact on healthcare expenditures.

## CONCLUSION

The preference of tertiary healthcare institutions as the initial point of contact for dermatological complaints is an expected outcome that increases healthcare expenditures. The primary healthcare service is a crucial part of the healthcare system. Increasing the number of family physicians would extend the time they can dedicate to each patient, enhancing communication and fostering trust. The public needs to be educated about primary healthcare service and when to seek care from family physicians.

## Disclosures

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** The authors have no conflicts of interest to declare.

**Funding:** This study was not funded by anyone

**Ethics Committee Approval:** The Clinical Research Ethics Committee of Ataturk University granted ethical permission (Approval date: June 07, 2024, Approval no: B30.2.ATA.0.01.00/350).

**Authorship Contributions:** Concept – Z.K.U., N.M.Ş.; Design – Z.K.U., N.M.Ş., Z.U., S.S.; Supervision – Z.K.U., Z.U.; Resource – Z.K.U., N.M.Ş.; Data collection and/or processing – Z.K.U., Z.U., S.S.; Analysis and/or interpretation – Z.K.U., S.S.; Literature review – Z.K.U., Z.U., S.S.; Writer – Z.K.U.; Critical review – Z.U., S.S., N.M.Ş.

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