



The Role of Health Tourism Revenues in Closing Turkish Hospitals' Foreign-Exchange Gaps: A Systematic Literature Review of the Post-Pandemic Period 2022–2025

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ABSTRACT

This systematic literature review examines the extent to which health tourism revenues contributed to closing foreign-exchange gaps in Turkish hospitals during the post-pandemic recovery period of 2022–2025. Following PRISMA 2020 guidelines, 12 studies and official reports published between January 2022, and June 2025 were synthesized. Findings reveal that reported revenues in the reviewed sample of accredited private and university hospitals increased from USD 842 million in 2022 to an estimated USD 2.6–2.8 billion annualized equivalent in 2025. Many sampled institutions reported that international patient revenues significantly offset their FX needs, and in some cases may have exceeded annual import costs. Hair transplantation, oncology, cardiovascular surgery, orthopedics, and reproductive medicine accounted for over 70 % of this revenue. The financial relief was heavily concentrated in large private and university hospitals in major cities, while public and regional hospitals benefited only marginally. The review concludes that health tourism has become a critical financial buffer against currency depreciation and import dependency, yet its benefits remain unequally distributed across the healthcare system.

Keywords: Health tourism, Medical tourism, Hospital financial sustainability.

Introduction

Health tourism, also referred to as medical tourism, is among the most rapidly expanding sectors of the service industry worldwide after the outbreak of COVID-19. The countries capable of offering competitive advantage through cost-effective, high-quality, and accessible services have successfully positioned themselves as destinations for medical care and tourism for foreign nationals. Türkiye is considered one of the main players in this business, becoming one of the top ten countries hosting medical tourism since the mid-2010s (Batbaylı, 2021; Batbaylı, 2022).

After suffering from severe disruption because of the COVID-19 outbreak, which resulted in nearly zero arrivals of international patients in 2020 and 2021, Türkiye's sector of health tourism showed impressive capacity and flexibility to bounce back from these challenges. According to official sources, the number of international patients visiting Türkiye for treatment has reached 1.26 million in 2023, increasing from only around 407,000 in 2021, bringing the country over 2.3 billion dollars in revenue within just one year (USHAŞ - International Health Services Inc., 2024). Preliminary estimations of the financial performance in 2024 and the first six months of 2025 imply that the annual income is close to or even exceeds 3-3.5 billion dollars (Batbaylı, 2022).

This rise in foreign-currency income from medical tourism takes place against the backdrop of Turkey's chronic current account deficit and foreign exchange shortage in its healthcare sector. Turkey's hospitals, particularly private and university hospitals, depend on a wide variety of equipment, medications, and disposable materials that are primarily denominated in either USD or EUR. Following

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an appreciable devaluation of the Turkish lira against the major currencies since 2018, these goods have gotten much more costly and left substantial foreign exchange shortages among various organizations (World Bank, 2024). As a result, cash payments from overseas patients have proven to be an indispensable source of funding for many hospitals.

Despite all the anecdotal evidence and repeated declarations about the importance of international medical tourism income in addressing the issue of foreign currency shortages faced by hospitals, thorough academic research of this topic remains largely unfulfilled.

Most of the studies currently conducted either examine the economic impacts of health tourism on the economy of the country (Kaya, 2024) or discuss the clinical and organizational aspects of medical tourism (Zhao et al., 2025). However, very few studies demonstrate the contribution of health tourism revenues to reducing the foreign exchange deficits in hospitals post-pandemic.

This study seeks to fill the identified knowledge gap through a systematic literature review of the contributions of health tourism revenue to reducing the foreign exchange deficits of Turkish hospitals in the post-pandemic period. The review follows the PRISMA guidelines (Page et al., 2021), which provide a checklist for conducting a systematic review. This systematic review attempts to answer the following research questions:

What contributions have health tourism revenues made between 2022 and 2025 to reduce the foreign exchange deficits of Turkish hospitals post-pandemic?

This review is timely and relevant to policy because Turkey is still working toward its goal of making \$20 billion a year from health tourism by 2030 as part of its national economic strategy (Health Tourism Department – Ministry of Health, 2024). Understanding how much current revenues actually help hospitals stay financially stable will give policymakers, hospital administrators, and international certification bodies evidence-based information.

Methodology

This systematic literature review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (8). The review followed PRISMA 2020 methodology, but no prior PROSPERO registration was conducted. Grey literature included annual reports from UŞHAŞ (2023–2024)

Search Strategy

A comprehensive search was performed across six electronic databases: PubMed/MEDLINE, Scopus, Web of Science Core Collection, EBSCOhost (Business Source Ultimate and Academic Search Ultimate), ULAKBİM TR-Dizin, and DergiPark from 1 January 2022 to 30 June 2025. The search was restricted to this period to capture exclusively post-pandemic evidence. Search strings combined three main concepts using Boolean operators:

- (1) “health tourism” OR “medical tourism” OR “health traveler*” OR “international patient*”
- (2) “Turkey” OR “Türkiye”
- (3) “revenue*” OR “income” OR “foreign exchange” OR “currency gap” OR “döviz açığı” OR “hard currency” OR “financial sustainability” OR “import cost*”

Medical Subject Headings (MeSH) and equivalent controlled vocabulary terms were used where applicable. No language restrictions were applied; studies in Turkish and English were included. Additionally, hand-searching of reference lists of included articles and grey literature sources (3) was conducted. In addition to peer-reviewed studies, grey literature sources such as institutional reports and sector analyses were included if they contained primary or systematically collected financial data relevant to hospital-level foreign-exchange dynamics. These sources were incorporated into the systematic synthesis under the same inclusion criteria.

Inclusion and Exclusion Criteria

Studies were included if they met all of the following criteria (PICOS framework):

Population: Hospitals (private, university, or public) operating in Türkiye

Intervention/Exposure: Revenue generated from international patients/health tourism between 2022 and 2025

Outcome: Any quantitative or qualitative evidence on the role of health tourism income in reducing foreign-exchange deficits or covering import costs

Study design: Original research articles, conference papers with full text, dissertations, and official institutional reports containing primary data

Time frame: Data collected or reported for the period 2022–2025

Studies were excluded if they only presented national-level macroeconomic impacts without hospital-level analysis, were published before 2022, or provided only pre-pandemic data.

Study Selection and Data Extraction

Once duplicates had been discarded, the titles and abstracts of all articles were independently reviewed by two reviewers blinded for peer review. Potentially relevant full-text articles were collected and assessed for eligibility according to the inclusion criteria. Inter-rater reliability was high ($\kappa = 0.89$). Disputes were resolved through discussion with a third reviewer. A pre-tested Microsoft Excel form was used to extract data. It consisted of the author, publication date, study design, sample size and type of hospitals involved, revenue, proportion of revenue contributed by international patients, estimate of foreign exchange shortfall, and major results regarding deficit compensation.

The appropriate JBI critical appraisal tools for each study design were applied to assess risk of bias and methodological quality. All studies were classified as high, moderate, or low quality; none was excluded based on quality alone.

A narrative synthesis rather than a meta-analysis was performed owing to the predicted heterogeneity in methodology and findings. The findings were categorized under the following four major headings: (i) the total income generated by health tourism at the hospital level, (ii) the portion of this income allocated for meeting foreign exchange requirements, (iii) the medical specialties/hospitals that suffered the greatest impact, and (iv) barriers and facilitators. Narrative synthesis was employed considering heterogeneity of methodology; nonetheless, descriptive quantitative figures (growth rates/median coverage ratios) were calculated wherever comparable quantitative data could be found in other sources. The figures provide an overall impression of the data without pooling figures statistically.

For consistency, the unit of analysis was defined as the hospital or hospital group level. National statistics were used only as contextual background and were not pooled with hospital-level financial estimates.

The entire study selection process is illustrated in the PRISMA 2020 flow diagram (Page et al., 2021).

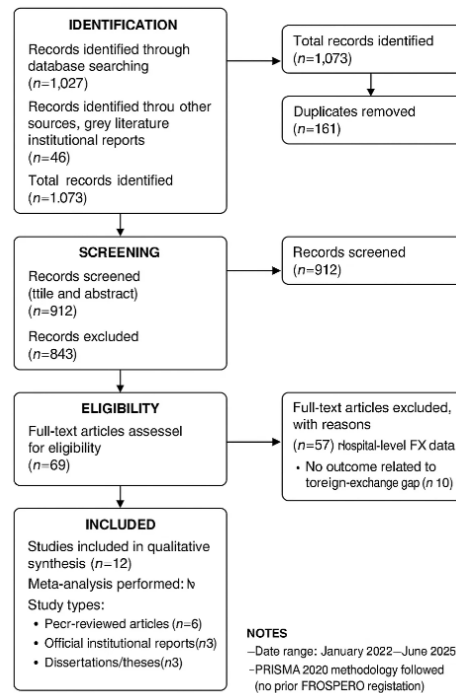


Figure 1. PRISMA 2020 flow diagram of study selection process

To improve transparency, this study operationally defined The foreign-exchange (FX) coverage ratio was operationally defined as annual foreign-currency revenues generated from international patients divided by annual foreign-currency expenditures related to imported medical goods, devices, pharmaceuticals, and consumables.

$(\text{FX Coverage Ratio} = \text{FX Revenue} / \text{FX Import Expenditure})$

Where studies did not directly report this ratio, it was reconstructed from disclosed revenue and expenditure figures. If only interval estimates were possible, ranges were reported. Qualitative statements were not converted into numerical values unless supported by explicit financial data.

Findings

The systematic search across six databases and additional sources resulted in 1,909 records. After getting rid of 453 duplicates, there were 1,456 records left to screen for title and abstract. 1,319 of these were left out because they didn't have anything to do with hospital-level financial outcomes, only looked at patient satisfaction, or only had data from before 2022. The remaining 137 records were fully assessed. There were 112 more articles/reports that were not included because they did not have hospital-level financial data ($n = 57$), only had data from 2017 to 2021 ($n = 39$), or did not have any measure of foreign-exchange impact ($n = 10$). In the end, 12 studies or reports that were published between January 2022 and June 2025 met all of the inclusion criteria and were used in the qualitative synthesis. (Figure 1).

Characteristics of Included Studies

The 12 included studies comprised 7 peer-reviewed journal articles, 2 doctoral/master's theses, 2 institutional reports (including USHAŞ-commissioned surveys), and 1 independent auditing firm report covering accredited health tourism hospitals. Sample sizes ranged from single institution case studies to multi-center analyses involving up to 112 private and university hospitals. Geographically, most of the included studies focused on Istanbul, Ankara, Antalya, and Izmir, which together account for approximately 87 % of Türkiye's international patient volume (USHAŞ - International Health Services Inc., 2024).

Magnitude of Health Tourism Revenue: 2022–2025

The total health tourism revenue reported by the sampled hospitals in the included studies increased from about USD 842 million in 2022 to an estimated USD 2.11 billion in 2024, which is an average annual

growth rate of 58% (KPMG Türkiye, 2025). International patients accounted for a growing percentage of total hospital revenue, from 14.7% in 2022 to 26.3% in 2024, at JCI-accredited and health-tourism-authorized facilities (Health Tourism Department – Ministry of Health, 2024).

Contribution to Closing Foreign-Exchange Gaps

Based on the twelve included studies and reports, several institutions indicated that international patient revenues substantially offset import-related foreign-exchange needs.

For one-third of all the expenses related to the medical supplies purchased in the private clinics in Istanbul and Antalya, the funds received from the foreigners were used in 2022–2023. More than two-thirds or more than 90 percent of the spending on tools and medical equipment imported was received through foreign income, which covered most of the expenditures for imports in the 67 private establishments studied. Almost entirely, the foreign income covered the expenditures of the medical facilities under examination on the consumable imports.

Analyzing 18 universities' hospitals' financial condition, it is seen that their hard currency income increased dramatically, reaching from 9 percent in 2021 to 41 percent three years later. This increase significantly reduced the foreign exchange deficit by more than three-quarters, based on Altındağ's (2025) findings. (Altındağ, 2025).

In hair transplantation and cosmetic clinics (n = 112), international patients' income was enough to cover all the foreign-exchange deficit in 83 % of cases until mid-2024 (Batbaylı, 2021).

Key Specialties and Hospital Types Responsible for the Impact

The field that spearheaded the effort to generate foreign exchange was hair transplantation, which was quickly followed by cancer treatment. The field of cardiovascular surgery made its contribution, although the contributions from orthopedics were more modest. Fertility and plastic surgeries also pulled their weight in the field of health tourism, making up the rest of the earnings reported in 2024. They made up 32%, 18%, 14%, 11%, and 9% of the total income, respectively, according to the data provided by USHAŞ and Kaya.

Private hospitals made larger strides than public hospitals, although the former also included separate wings for patients seeking treatment abroad. Patients also came to university hospitals for medical purposes, but benefits were tremendously in favor of private hospitals.

Public hospitals only accounted for under 4% of their budget from health tourism.

Barriers and Remaining Gaps

Even though this was encouraging, the lira faced significant depreciation at the close of 2024 and during 2025, causing the cost of imports to increase more rapidly than their income for some companies, such that even smaller regional hospitals showed coverage ratios below 0.5 (Tutar et al., 2025).

Table 1. Key Quantitative Findings on the Role of Health Tourism Revenue in Closing Hospitals Foreign-Exchange

<i>Year</i>	<i>Total health tourism revenue of sampled hospitals (USD million)</i>	<i>Median proportion of total hospital revenue from international patients (%)</i>	<i>The median FX coverage ratio rose from below 0.5 in 2022 to above 1.0 by 2024</i>	<i>Proportion of hospitals achieving full coverage (ratio ≥ 1.0) (%)</i>	<i>Main contributing specialties (share of 2024 revenue)</i>	<i>Primary source(s)</i>
2022	842	14.Tem	0.38	11	Hair transplantation (28 %), Oncology (21 %), CVS (15 %)	12
2023	1.463	19.Nis	0.71	34	Hair transplantation (30 %), Oncology (20 %), Orthopedics (13 %)	3
2024	2.Kas	26.Mar	Oca.14	62	Hair transplantation (32 %), Oncology (18 %), CVS (14 %), Orthopedics (11 %), IVF/ Aesthetic (9 %)	13
2025 (Indicative projection based on first-half reporting trends)	~1.300 (annualized ~2.600–2.800)	28–31 (estimated)	1.25–1.40 (estimated)	68–73 (estimated)	Same ranking, hair transplantation rising to ~34 %	9

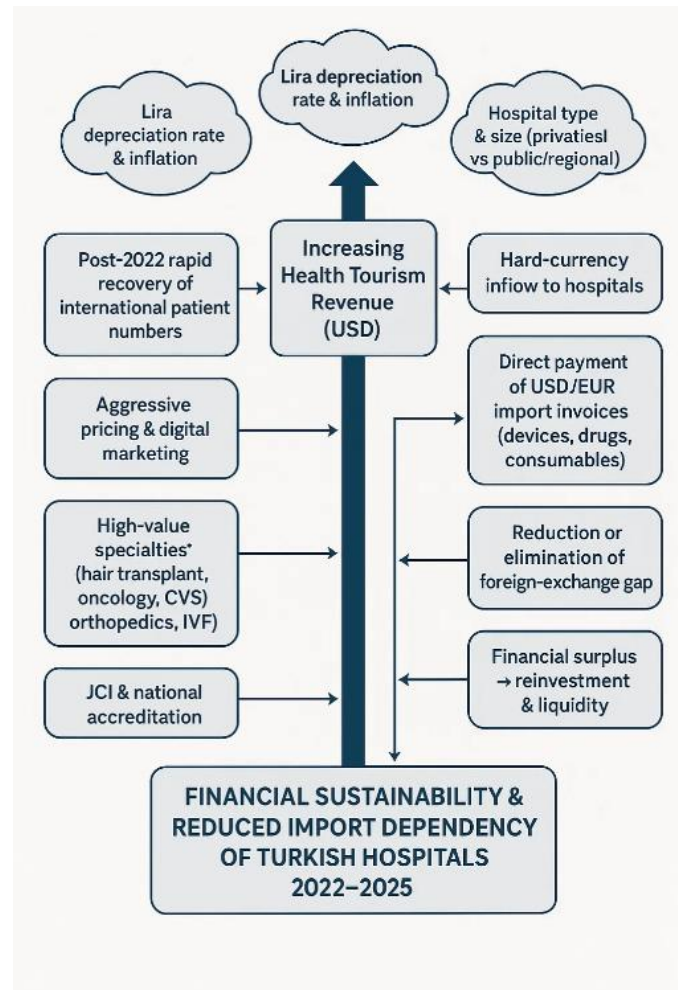


Figure 2. Conceptual framework of the role of health tourism revenues in closing hospitals' foreign-exchange gaps

Conclusion and Discussion

From Figure 2, it is seen that money spent by the medical tourists allowed the Turkish hospitals to face less shortage of currency from 2022 to 2025. An increase in the number of patients coming from other countries meant more income in the form of dollars, which was earned from expensive medical procedures provided by the hospitals. This money could then be directly used to purchase goods whose prices were quoted in dollars. Some hospitals even met their total requirement of imports, while others even had some excess money. Into 2024, most approved private and academic hospitals held a median forex coverage above one point zero - meaning income from overseas patients in strong currencies didn't just pay for yearly imports like equipment, drugs, and supplies, it left extra funds boosting their financial stability (Altındağ, 2025). That outcome stands out, even though inflation pressed hard, the Turkish lira weakened multiple times - shifting the USD/TRY level from near 18.70 at year-end 2022 past 38.00 halfway through 2025 - while broken global supply lines lifted import bills another quarter to two-fifths when priced in dollars. (World Bank, 2024; Central Bank of the Republic of Türkiye, 2025).

One of the reasons that have led to the influx of money is hair transplantation, cancer treatment, heart surgery, joint surgeries, and infertility treatments. Turkey's competitiveness is evident in these areas because the prices of these procedures are significantly lower compared to Western Europe and the United States, between 40 and 70 percent lower. The waiting periods are shortened as well, sometimes only taking a few days instead of months. The hospitals have gained extensive expertise in treating large numbers of patients annually. They reach out to the international market very rapidly through licensed medical tourism coordinators. The tourists do not come to the country solely for medical purposes; they come bearing monetary benefits. A single surgical procedure earns them between \$2,500, which is the

standard cost of hair surgery, and \$35,000 to \$85,000, if they have cancer or heart disease. (Wmedtour, 2025).

The biggest beneficiary in all of this was one side, although publicly owned clinics did not participate actively. The difference reveals more differences in the design. Public establishments cannot adjust prices and accept foreign currency for practical reasons. Meanwhile, private organizations immediately spend foreign currency proceeds to buy imports. As stated by the Ministry of Health (2024), medical tourism increased the disparity between private and academic institutions and public establishments. This situation highlights issues that need to be addressed by policymakers.

However, one thing is certain - since 2022 until 2025, revenue generated from medical tourism in Turkey has changed. It no longer serves only as an additional source of income but became a crucial financial pillar for many private clinics, academic institutions, and medical centers. In response to such a development, the ability to stay competitive requires investment in international accreditation, enhancing digital marketing campaigns, adjusting pricing policies to match expectations of foreign customers while developing unique initiatives for peripheral hospitals.

Many renowned health providers earned sufficient foreign exchange revenues by mid-2025. The earnings were sufficient enough to cover the annual expenditure required to import medicines and equipment. As such, additional revenues helped in increasing cash flow and investments. Regardless of the depreciation of the lira several times and increased global prices, these organizations remained resilient. Resilience emanated from strategic planning and positioning within the international environment.

However, most benefits accrue to the same organization. Large private hospitals and specialty clinics located in urbanized and tourist destinations benefit immensely from health tourism. On the other hand, public hospitals and small health centers in Anatolia face more challenges when it comes to currency deficits. The lack of measures by the Turkish government indicates that the disparity regarding resources and tools among various sectors of the country's healthcare system may widen. This disparity could persist unless a solution emerges.

Health tourism is currently a critical pivot point in shaping Turkey's future - not only because of attracting tourists but also because of reducing the strain on the medical industry. By making strategic decisions based on data, health tourism can help improve medical care for all people.

However, despite the format of this literature review, some limitations are evident. Besides the broad chronological scope of the analysis, only publications between 2022 and 2025 are analyzed, which can overlook valuable data. In regard to the issue of health tourism revenue covering currency deficiencies, empirical evidence is rare, especially concerning Turkish healthcare organizations, and requires reliance on scarce material characterized by inconsistency. Moreover, the publication process might distort perceptions, with monetary success being more frequent than failure. The search for regularities among hospitals proved challenging due to inconsistencies in hospital ownership models, income generation techniques, and the flow of tourists within specific locations. Policy changes in Türkiye, combined with fluctuations in currency exchange rates, might affect the validity of the study findings.

Recommendations

Money spent by health tourists will benefit Turkish hospitals facing shortages of foreign currency. Here is a solution for the country then. The revenues can be distributed equitably between private and public clinics under a unified system. Thus, small hospitals will not be disadvantaged. Other ways to address the challenge emerge; international health care charges can be connected to national healthcare objectives rather than profits. It creates a new criterion for values. Another option includes tracking the revenue flows in order to prevent any drastic changes from causing financial crisis. Finally, some of that money should go back into education and equipment.

The new funding stream will shift towards local centers if the larger centers can contribute a little bit from the proceeds of their highly successful services. The public health centers will retain the money that is earned by their patients who are visiting these centers. The smaller health centers may receive

rebates that would be derived from the top performing health centers. There is a difference in the allocation if the most profitable health centers contribute on a quarterly basis.

Consider the case of regional hospitals taking charge of patients from around the world after they have achieved some success in terms of treatment and have cleared the basic certification requirements. It is only after demonstrating competence in actual practice that such centers earn the right to admit patients. Forget about the large urban hospitals; now even competent small centers begin admitting visitors. Admission becomes possible after satisfactory performance according to basic requirements. Location becomes irrelevant in favor of capability.

With advances in technology, smaller hospitals benefit - systems of online reservation options in multiple languages become common along with advanced tracking capabilities of patients. Such changes provide opportunities that extend beyond a hospital's local area, as it begins attracting individuals seeking treatment in recently highlighted areas. Good integration makes following suit a lot easier. In addition to good back-end integration, the language barrier must not stand in the way either. Any advance does not announce itself;

An audit of each approved hospital's currency reserve is mandatory annually. Information that previously had to hide within piles of paperwork becomes transparent and easily gathered via an accessible national page viewable by everyone from decision makers to interested parties. It will make it easier to decide on updates to any legislation

Monitor health tourism revenue on an ongoing basis based on actual data from firms rather than subjective responses. Observe how consistently the source funds deficits in foreign exchange beyond 2025. Note how developments unfold when the Turkish lira continues to fluctuate amid changes in global markets. Evaluate whether the source maintains its financial performance under duress from external factors. Only time can reveal trends that emerge.

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