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Mental Workload as Predictor of Work-Related Quality of Life in Healthcare Workers ^a

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Abstract

Aim: The aim of this study was to examine the association between mental workload and work-related quality of life among healthcare workers.

Methods: This cross-sectional study included healthcare professionals across Türkiye, and data were collected using an online survey between April and June 2025. The questionnaire included a demographic information section and scales assessing mental workload and work-related quality of life. The study sample consisted of 417 healthcare workers. The relationships between variables were examined using correlation and hierarchical multiple regression analyses.

^a This study is derived from the master's thesis titled "The Relationship Between Mental Workload and Quality of Work Life: A Study on Healthcare Workers" completed at Bandırma Onyedi Eylül University, Graduate School of Education, with the thesis number 980067, in 2025.

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Results: The regression analysis was conducted using three models. In the first model, only demographic variables were included ($R^2=0.030$); in the second model, demographic variables were combined with occupational variables ($R^2=0.040$, $\Delta R^2=0.010$); and in the final model, the mental workload scale was included alongside all other variables to assess the determinants of work-related quality of life. In the third model, the total explained variance increased compared to the previous models ($R^2=0.084$, $\Delta R^2=0.044$).

Conclusion: The results indicate that the demographic and occupational variables of healthcare workers generally do not determine their work-related quality of life. In contrast, mental workload was negatively associated with work-related quality of life and contributed to the explanation of work-related quality of life. Therefore, interventions aimed at reducing healthcare workers' mental workload may contribute to improving their work-related quality of life.

Keywords: Healthcare Workers, Mental Workload, Work-Related Quality of Life

INTRODUCTION

Work life refers to a domain in which individuals spend a substantial portion of their time performing their professional duties and interacting with colleagues. The higher the quality of this domain, the more satisfactory and harmonious both work life and work-family life become (Singh and Chaudhary, 2019). Work-life quality not only reflects the satisfaction that employees derive from their engagement within a given organizational context but also encompasses the quality of the relationships they establish with colleagues and their broader environment (Swamy et al., 2015; Singh and Chaudhary, 2019). In addition, it includes employees' interactions with the organization as well as their positive and negative perceptions of it (Md-Sidin et al., 2010; Nair, 2013). Employees with high work-life quality tend to place greater value on their work, contribute positively to their surroundings, demonstrate higher levels of performance, and help foster a safer working environment (Saraji and Dargahi, 2006; Dehghan Nayeri et al., 2011; Abe et al., 2016; Parveen et al., 2017). Ensuring a high work-related quality of life among employees can enhance organizational effectiveness and efficiency, which in turn can significantly influence job satisfaction, organizational commitment, and overall organizational growth and profitability (Yadav and Khanna, 2014).

There are many things that can affect the quality of life at work. These encompass managerial strategies regarding employees, opportunities for career and skill advancement, safe and appropriate working environments, equitable remuneration, and safeguarding of employee rights, as well as internal organizational communication and social cohesion, and a family-oriented organizational culture (Sirgy et al., 2001). Healthcare services are one of the industries where work

life balance is very important. In this field, the quality of service, patient satisfaction, and care performance are closely linked to the working lives of healthcare workers. These lives are affected by factors specific to the sector, such as limited resources, rising service demand, and bureaucratic procedures (Kılıç and Keklik, 2012; Horrigan et al., 2013).

Psychosocial factors play a significant role in shaping the work-related quality of life among healthcare workers. Increasing workloads have emerged as a critical determinant, affecting employees both physically and mentally. Workload is widely recognized as a multidimensional and complex phenomenon (Hertzum and Holmegaard, 2013; Emeç and Akkaya, 2018). While physical workload is more observable and tangible, mental workload represents a more abstract yet equally substantial dimension. In recent years, the importance of mental workload has garnered increasing attention, leading to an expanding body of research in this area (Young et al., 2015). Mental workload is conceptualized as a subjective evaluation arising from the interaction between an individual's limited cognitive capacity and the mental demands imposed by tasks, and may also be influenced by employees' levels of motivation and competence (Borghini et al., 2014; Van Acker et al., 2018).

The inherently intensive and stressful nature of healthcare services, combined with the provision of care under conditions of risk and uncertainty, may contribute to increased levels of perceived mental workload among healthcare workers. As the complexity of tasks assigned to employees increases, so too does their perceived mental workload (Galy et al., 2012). A substantial proportion of healthcare workers are exposed to psychological risk factors, which may compromise their mental well-being, leading to the provision of suboptimal care and, consequently, a reduction in the quality of services delivered to patients (Kaur and Malhotra, 2018).

The increasing diversity of patient populations and medical specialties in healthcare contributes to more complex care processes, potential disruptions in care delivery, and heightened requirements for knowledge and responsibility among employees (Congdon et al., 2020). Previous studies have also indicated that increased workload and job demands are associated with reduced psychological well-being and quality of work life among healthcare workers (Huhtala et al., 2021; Koca et al., 2024; Yousef et al., 2024). When combined with intensive and demanding working conditions, these factors may not only increase the mental workload of healthcare workers but also adversely affect them both physically and psychologically, thereby diminishing their work-related

quality of life (Yıldırım and Hacıhasanoğlu, 2011). Based on the existing literature, the present study addresses the following research question: Is mental workload associated with work-related quality of life among healthcare workers?

1. RESEARCH METHODOLOGY

1.1. Type of Research

This research was conducted using a quantitative methodology to examine the relationship between mental workload and work-related quality of life among healthcare workers. It is a cross-sectional and descriptive study.

1.2. Research Population and Sample

The population of the study consisted of healthcare workers in Türkiye. The minimum sample size was calculated based on the analytical methods employed in the study and the number of independent variables. Accordingly, using the G*Power 3.1.9.7 software, an F-test, Linear Multiple Regression: Fixed Model, R^2 Deviation from Zero test, and an a priori power analysis were conducted. The effect size was set at $f^2 = 0.15$ based on Cohen's (2013) classification, the significance level at $\alpha = 0.05$, and the statistical power at $1 - \beta = 0.95$. Considering the total of eight independent variables included in the hierarchical regression, the minimum required sample size was calculated as 160. Within this framework, data were collected from 417 healthcare workers using a convenience sampling approach through a survey prepared on Google Forms.

1.3. Data Collection Tools and Methods

Data for the study were collected through a questionnaire consisting of three sections. The first section consisted of seven questions about participants' personal characteristics. The second section included the Mental Workload Scale, and the third section included the Work-Related Quality of Life Scale.

Personal Information Form: The form includes items designed to identify the demographic and professional characteristics of the participants. In this context, information is collected on employees' gender, age, marital status, educational level, profession, work experience, and shift work status.

Mental Workload Scale (MWS): In this study, the scale developed by Rubio-Valdehita et al. (2017) and adapted into Turkish by Akca et al. (2020) was used to assess mental workload. The scale consists of four subdimensions and includes a total of 25 items, rated on a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). The Cronbach's alpha reliability

coefficient of the scale was reported as 0.90 in previous studies, whereas it was found to be 0.91 in the present study. In the present study, the Cronbach's alpha coefficients for the subdimensions were 0.799 for temporary workload, 0.898 for cognitive workload, 0.922 for performance-related workload, and 0.879 for emotional workload.

Work-Related Quality of Life Scale (WRQoLS): The scale developed by Van Laar et al. (2007) and adapted into Turkish by Akar and Üstüner (2017) was utilized to assess work-life quality. The scale consists of six dimensions and 23 items, rated on a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). The overall Cronbach's alpha coefficient for the scale was reported as 0.91, with subdimension reliability coefficients ranging from 0.75 to 0.88. In the present study, the Cronbach's alpha value was found to be 0.92. The Cronbach's alpha coefficients for the subdimensions were 0.769 for job and career satisfaction, 0.840 for general well-being, 0.774 for control at work, 0.828 for working conditions, 0.740 for stress at work, and 0.817 for home-work interface.

1.4. Data Collection

The study was conducted among healthcare workers working in the public sector in Türkiye, and the data were collected online between April and June 2025. In the introductory section of the questionnaire, respondents were informed about the purpose and scope of the study. A mandatory consent option indicating voluntary participation was included, and respondents could proceed with the survey questions only after giving consent.

1.5. Data Analysis

Data organization and statistical analyses were carried out using the SPSS 26.0 software package. During the analysis, reverse-coded items in the scales were first recoded, and total scores for the relevant scales were calculated. Normality was assessed using skewness and kurtosis values. Cronbach's alpha coefficients were computed to assess the internal consistency of the scales. Pearson correlation analysis was used to examine the relationships between variables. Hierarchical multiple regression analysis then examined the predictive effects on the dependent variable.

1.6. Ethical Approval

This study was conducted after obtaining approval from the Bandırma Onyedi Eylül University, Non-Interventional Research Ethics Committee of Health Sciences (Approval No: 2024-57, dated 22.04.2024). Permission to use the scales included in the study was obtained from

the respective authors via email. During the data collection process, participants were informed about the purpose of the study, and their informed consent indicating voluntary participation was obtained prior to completing the online questionnaire. The study was carried out in accordance with the Declaration of Helsinki.

2. ANALYSIS

The demographic and occupational characteristics of the participants are presented in Table 1. Among the 417 healthcare workers included in the study, the majority were aged 25-34 years (45.6%), followed by those aged 45 and above (22.3%), 35-44 years (19.7%), and under 24 years (12.5%). Among the participants, 67.6% were female and 32.4% were married. In terms of educational level, most participants held a bachelor's degree (59%), while associate degree (27.3%), high school (7.2%), and postgraduate degree holders (6.5%) constituted smaller proportions. Regarding professional distribution, nurses/midwives were the largest group (47.7%), followed by health technicians/technologists (28.1%), administrative staff (12.5%), physicians (7.9%), and other occupational groups (3.8%). It was also determined that 71.5% of the participants worked in shifts, and their work experience was predominantly concentrated at five years or less (31.7%).

Table 1: Socio-Demographic and Occupational Characteristics of the Participants

Age	≤24	52	12,5	Gender	Female	282	67,6
	25-34	190	45,6		Male	135	32,4
	35- 44	82	19,7	Profession	Physician	33	7,9
	45≤	93	22,3		Nurse/Midwife	199	47,7
Marital Status	Married	270	64,7		Health Technicians/Technologists	117	28,1
	Single	147	35,3		Administrative Staff	52	12,5
Education	High School	30	7,2		Other	16	3,8
	Associate Degree	114	27,3	Work Experience	≤5	132	31,7
	Bachelor's Degree	246	59,0		6-10	99	23,7
	Postgraduate Degree	27	6,5		11-15	50	12,0
Shift Work Status	Yes	298	71,5		16-20	36	8,6
	No	119	28,5		21≤	100	24,0

The normality of the scales was assessed using skewness and kurtosis values. Values within the range of ± 1.5 to ± 2 are considered acceptable for meeting the assumption of normality (Tabachnick and Fidell, 2013; George and Mallery, 2024). Assessment of normality indicated that the Mental Workload Scale had skewness and kurtosis values of -0.704 and 0.061, respectively, whereas the Work-Related Quality of Life Scale yielded values of 0.066 and -0.380 (Table 2). These results indicate that the data were normally distributed.

Table 2: Descriptive Statistics of the Scales

Scale	Mean $\pm$ SD	Minimum	Maximum	Skewness	Kurtosis
Mental Workload	93.44 $\pm$ 16.37	44	119	-0.704	0.061
Work-Related Quality of Life	67.86 $\pm$ 14.65	33	106	0.066	-0.380

N=Sample size, SD=Standard Deviation

The score distributions of the scales used in the study showed that the Mental Workload Scale scores ranged from 44 to 119 among participants, with a mean of 93.44 $\pm$ 16.37. The Work-Life Quality Scale scores ranged from 33 to 106, with a mean of 67.86 $\pm$ 14.65. In the absence of established cut-off points, the minimum and maximum possible scores of the scales were considered, and total scores were categorized into three equal intervals (low, moderate, and high) based on this range. According to this classification, mental workload was found to be at a moderate-to-high level, whereas work-related quality of life was at a moderate level.

Table 3: Correlation Analysis Results Among Variables

Variable	Statistic	Work-Related Quality of Life
Mental Workload	r	-0.221**
	p	0.000

r=Pearson correlation coefficient, p=Significance level (p<0,001)

When the relationship between mental workload and work-related quality of life was analyzed, a weak and negative correlation was found between the two variables (r=-0.221, p<0.001).

Table 4: Hierarchical Regression Model Results Among Variables

Model	R	R ²	Adjusted R ²	SE	Δ R ²
1	0.172	0.030	0.020	14.50	—
2	0.200	0.040	0.023	14.47	0.010
3	0.291	0.084	0.067	14.15	0.044

Model 1: Demographic variables (age, gender, marital status, education level); **Model 2:** Demographic + Occupational variables (shift work, profession, years in profession); **Model 3:** Model 2 + Main variable (mental workload); R²=Explained Variance, SE=Standard Error, Δ R²=Increase in explained variance from the previous model

The results of the three-step hierarchical regression analysis are presented in Table 4. In the first step, only demographic variables (age, gender, marital status, and education level) were included in the model, explaining 3% of the total variance in work-related quality of life (R²=0.030; Adjusted R²=0.020). In the second step, occupational variables (shift work status, professional group, and years of experience) were added, increasing the explained variance to 4%. The additional contribution of these variables to the explained variance was 1% (Δ R²=0.010). In the third step, the inclusion of the mental workload variable increased the explained variance to 8.4%,

representing an additional 4.4% increase in the model's explanatory power ($\Delta R^2=0.044$). These findings indicate that mental workload contributes to explaining work-related quality of life.

Table 5: Hierarchical Regression Analysis Results Among Variables

Independent Variables	B	SE	β	t	p	95% CI [LL, UL]	Tolerance	VIF
Sabit	75.497	8.584	-	8.795	<0.001	[58.623, 92.371]	-	-
Gender	-1.199	1.573	-0.038	-0.762	0.446	[-4.291, 1.893]	0.886	1.128
Age	0.146	1.577	0.010	0.093	0.926	[-2.953, 3.246]	0.204	4.894
Marital status	5.262	1.688	0.172	3.118	0.002	[1.945, 8.580]	0.739	1.354
Education level	1.761	1.146	0.085	1.537	0.125	[-0.491, 4.014]	0.729	1.371
Profession	-0.961	0.907	-0.062	-1.060	0.290	[-2.744, 0.822]	0.661	1.514
Shift work status	1.274	1.683	0.039	0.757	0.449	[-2.033, 4.582]	0.832	1.202
Years in profession	0.956	0.985	0.102	0.970	0.332	[-0.981, 2.893]	0.201	4.966
Mental workload	-0.209	0.047	-0.234	-4.458	<0.001	[-0.301, -0.117]	0.817	1.224

Dependent variable: Work-Related Quality of Life; B=Unstandardized regression coefficient, β =Standardized regression coefficient, SE=Standard error, CI=Confidence interval, LL=Lower limit, UL=Upper limit

Age was coded as 1= ≤ 24 (ref.), 2=25–34, 3=35–44, and 4= ≥ 50 . Gender was coded as 0=female (ref.) and 1=male. Marital status was coded as 0=single (ref.) and 1=married. Education level was coded as 1=high school (ref.), 2=associate degree, 3=bachelor's degree, and 4=postgraduate degree. Profession was coded as 1=physician (ref.), 2=nurse/midwife, 3=health technicians/technologists, 4=administrative staff and 5=other. Shift work status was coded as 0=yes and 1=no. Years of professional experience was coded as 1= ≤ 5 (ref.), 2=6–10, 3=11–15, 4=16–20, and 5= ≥ 21 .

The regression coefficients of the final model are presented in Table 5. to assess multicollinearity, tolerance and VIF values were examined, and no multicollinearity issue was detected ($VIF < 10$, $Tolerance > 0.20$). As shown in the table, marital status ($\beta = 0.172$, $p = 0.002$) and mental workload ($\beta = -0.234$, $p < 0.001$) were found to be significantly associated with work-related quality of life. Accordingly, married individuals had higher work-related quality of life scores (reference group: married), whereas higher mental workload was associated with a decrease in work-related quality of life scores. In contrast, gender, age, education level, profession, shift work status, and years of experience were not significantly associated with work-related quality of life ($p > 0.05$).

3. CONCLUSIONS/DISCUSSION AND RECOMMENDATIONS

3.1. Discussion

The aim of this study was to investigate the relationship between mental workload and work-related quality of life among healthcare workers. Hierarchical regression analysis was conducted to identify the predictors of work-related quality of life, and the model's explanatory power increased progressively. In the first model, demographic variables accounted for 3% of the variance. In the second model, the inclusion of occupational variables raised the explained variance to 4%. In the third model, the inclusion of mental workload increased the explanatory power of

the model. These results indicate that work-life quality is influenced not only by individual or structural job characteristics but also by cognitive demands and mental processes.

In the final model, marital status was a significant predictor among demographic factors. Married individuals reported higher work-life quality, possibly due to stronger emotional and social support. Previous studies highlight the role of social support in enhancing employees' job satisfaction and overall quality of life (Bradley and Cartwright, 2002; Fradelos, 2014; Shojaei et al., 2019; Öksüz et al., 2019; Ruiz-Fernández et al., 2020; Altay et al., 2022). Other demographic factors, including gender, age, and education, as well as occupational factors such as shift work and professional experience, were not found to have a significant effect. These findings suggest that, in the healthcare sector, work-life quality is shaped more by the combined and interactive effects of multiple stressors than by individual factors alone.

One of the most notable findings of the study is that mental workload is a negative predictor of work-related quality of life. This means that as the mental workload of healthcare workers increases, their work-related quality of life decreases. The nature of the healthcare sector, characterized by low tolerance for error and high demands for attention, along with various stress factors, may contribute to increased mental workload. Therefore, mental workload appears to contribute to work-related quality of life. This finding is supported by previous research. For example, Esfahani et al. (2025) reported that mental workload negatively predicted work-related quality of life among nurses. Similar results have been observed in studies conducted outside the healthcare sector. Koozekonan et al. (2021) showed that both mental and physical workload negatively and significantly predicted work-related quality of life among industrial workers. Likewise, a study on call center employees found that physical workload negatively predicted work-related quality of life (Kaçmaz and Çiçek, 2024).

A weak and negative correlation was found between mental workload and work-related quality of life. This result aligns with previous research. For example, Nikeghbal et al. (2021) reported a negative relationship between mental workload and work-related quality of life among nurses. Similarly, Karaca and Oğuzhan (2023) found a positive relationship between mental workload and emotional exhaustion among healthcare workers. Another study reported that emotional workload negatively affected career satisfaction (Sunman, 2025). Comparable patterns have also been observed in other sectors. Özkılıçcı and Aytaç (2022) identified a negative correlation between job satisfaction and mental workload among white-collar workers, while

Tanrıverdi and Özgüç (2026) found a negative association between psychological resilience and burnout among firefighters.

The majority of participants were female, aged between 25 and 44 years, and married, which is consistent with previous studies on healthcare workers (Karadağ and Cankur, 2015; Güçlü and Kurşun, 2018; Tosun and Yılmaz, 2023). Given the continuous nature of healthcare services, shift work is an inherent feature of the sector, contributing to a demanding and high-pressure work environment. In the present study, a substantial proportion of participants reported working shifts. Although shift work is a core component of healthcare delivery, it is widely recognized for its association with sleep disturbances, increased stress, challenges in maintaining work–family balance, and adverse physical and mental health outcomes (Saedpanah et al., 2022).

The perceived mental workload of healthcare workers in this study was at a moderate to high level, which may be attributed to the inherently demanding and stressful nature of healthcare services (Fikri et al., 2024). Although mental workload can vary across specialties, it is generally reported at moderate to high levels in literature. These findings are consistent with previous studies conducted among healthcare workers, including physicians and nurses (Emeç and Akkaya, 2018; Rostami et al., 2021; Sevinik and Lök, 2022; Tosun and Yılmaz, 2023; Yuan et al., 2023).

This finding indicates that participants perceived their work-related quality of life as moderate. The inherently demanding nature of the healthcare sector, characterized by high risk, low tolerance for error, and the need for constant attention, can be considered a key structural factor that may limit work-related quality of life. Although the findings are generally consistent with the literature, several studies have reported that healthcare workers' work-related quality of life levels may range from moderate to low (Kesti et al., 2023; Younis et al., 2025). Similarly, relatively lower levels of work-related quality of life among healthcare professionals have also been documented (Asante et al., 2019). In particular, during periods such as the COVID-19 pandemic, increased workload, high stress, and elevated risk have been shown to significantly reduce work-related quality of life (Maqsood et al., 2021). These findings suggest that both structural and contextual pressures in healthcare settings play a decisive role in shaping work-related quality of life.

3.2. Limitations

This study has several limitations. The sample includes only healthcare workers working in public hospitals in Türkiye who voluntarily participated in the survey, which may limit the

generalizability of the results. In addition, the use of convenience sampling may lead to selection bias; therefore, the findings should be interpreted with caution and may not be fully generalizable to all healthcare workers in Türkiye. The cross-sectional design, with data collected within a specific period, may also reflect time-specific conditions. Furthermore, the study is based on self-reported data, assuming that participants provided accurate and honest responses, and that the measurement tools sufficiently represent the variables examined.

3.3. Conclusion

This study examined the relationship between mental workload and work-related quality of life among healthcare workers in Türkiye. The findings showed that the work-related quality of life of healthcare workers was moderate, while their mental workload was relatively high. The negative relationship between mental workload and work-related quality of life highlights important effects on healthcare service delivery. Healthcare institutions often focus on physical workload and operational efficiency, which can lead to the psychosocial aspects of work being overlooked. Therefore, future research should examine mental workload using different models and in profession-specific groups through longitudinal and comparative designs. Moreover, strengthening social support mechanisms aimed at improving work-related quality of life can not only enhance healthcare workers' performance but also improve the quality of services provided and prevent the occurrence of negative behaviors.

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Rethinking Medical Tourism: A Theoretical Integration of Sharing Economy Mechanisms and Patient Needs

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Abstract

Aim: This study aims to develop a conceptual framework that explains the integration of medical tourism and the sharing economy by examining how medical tourist needs can be addressed through platform-based service solutions.

Methods: The study adopts a conceptual research design based on a synthesis of the existing literature on medical tourism and the sharing economy. Medical tourist needs are categorized into medical, psychological, cultural and tourism-related dimensions and their relationship with sharing economy applications is theoretically examined.

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Results: The proposed framework suggests that medical tourist needs drive the adoption of sharing economy platforms such as accommodation, transportation and social service applications. These platforms facilitate access to personalized and flexible services which in turn positively influence patient outcomes including satisfaction, perceived service quality, trust and overall experience. The model further identifies cultural distance, language barriers and type of medical procedure as key moderating factors shaping these relationships.

Conclusion: The study concludes that integrating sharing economy applications into medical tourism can enhance service accessibility, patient satisfaction and overall experience. The proposed conceptual model provides a foundation for future empirical research and offers practical implications for healthcare providers and policymakers.

Keywords: Healthcare services, medical tourism, sharing economy, patient satisfaction.

INTRODUCTION

The rapid globalization of healthcare services and the increasing mobility of patients have transformed medical tourism into a rapidly expanding segment of the global tourism industry. Medical tourism, which involves individuals traveling across international borders to receive medical treatment, has gained significant attention due to cost advantages, shorter waiting times and access to advanced healthcare services (Li et al., 2024). In parallel, the emergence of the sharing economy has reshaped service delivery models across multiple industries, particularly in tourism and hospitality (Rathnayake et al., 2024).

The sharing economy, characterized by peer-to-peer platforms and digital intermediaries (Chandna, 2022), has enabled more flexible, personalized and cost-efficient service delivery. Platforms such as accommodation sharing, transportation services and experience-based systems have already transformed traditional tourism structures (Hall et al., 2022; Kuhzady et al., 2022). However, the integration of sharing economy mechanisms into medical tourism remains underdeveloped in the academic literature.

Medical tourists represent a unique category of consumers as they simultaneously embody the roles of patients and tourists. This dual identity creates complex needs that extend beyond traditional tourism services including medical care, psychological support, cultural adaptation, communication assistance and financial guidance.

Therefore, this study aims to conceptually explore how sharing economy applications can address the multidimensional needs of medical tourists. By proposing an integrated conceptual framework, the study contributes to the literature by linking medical tourism demand structures with platform-based service solutions and highlighting their potential impact on patient outcomes. This study is theoretically grounded in Service-Dominant Logic (Vargo & Lusch, 2004), which conceptualizes value as co-created through interactions among multiple actors within service ecosystems. In the traditional goods-centered dominant logic, physical goods constitute the basis of economic exchange, whereas in the service-centered dominant logic, the primary value elements are capabilities such as knowledge, skills, and expertise. In the first approach, goods are seen as final products and the customer is a passive recipient; firms are actors that offer products to and target customers. In contrast, the service-centered approach considers the customer an active co-producer who participates in the value creation process. In this view, goods are regarded merely as vehicles that carry knowledge and skills. Value is no longer an element embedded in the product by the producer, but a “value-in-use” that emerges and is perceived during the customer’s experience of use. Therefore, firms do not directly produce value; instead, they offer value propositions. The actual value is co-created through interaction and collaboration between the firm and the customer. Moreover, the source of economic growth is seen not as ownership of physical resources, but as the application and sharing of specialized knowledge and skills (Vargo & Akaka, 2009; Vargo & Lusch, 2008; Vargo & Lusch, 2017).

In this context, it is important to recognize that the transformation of healthcare mobility is not an isolated phenomenon but rather the result of broader socio-economic and technological shifts. The convergence of digital platforms with service industries has already demonstrated its transformative power in hospitality and transportation sectors. As such, examining medical tourism through the lens of the sharing economy provides an opportunity to understand how digital ecosystems may reshape patient experiences, healthcare accessibility and cross-border service delivery mechanisms. This conceptual foundation also allows for a more holistic interpretation of how value is created and distributed among stakeholders in global health mobility systems.

1. THE RISE OF MEDICAL TOURISM

The phenomenon of patients seeking healthcare services abroad has witnessed a significant increase over the past decade. Although still a relatively recent development compared to

traditional forms of tourism (Connell, 2006), medical tourism is regarded as one of the fastest-growing segments within the tourism industry (Han & Hyun, 2015). This trend has substantially contributed to the rapid expansion of the medical tourism sector. The primary driver behind this growth is the considerable cost savings patients can achieve by pursuing medical treatment internationally (Shalini et al., 2024).

Medical tourism is not synonymous with health tourism (Lunt & Carrera, 2010). Health tourism serves as an umbrella term under which medical tourism constitutes one of its subcategories. Among the various forms encompassed by health tourism, medical tourism stands out as the most significant driving force. Medical tourism includes a wide range of services such as medical treatments, cosmetic procedures, organ transplants, dental care and hair transplantation. What most clearly distinguishes medical tourism from other types of health tourism is that medical intervention serves as the primary and defining component of this particular form of tourism (Sarıipek & Zengin, 2024).

Historically, medical tourism was primarily associated with affluent individuals traveling to developed countries to receive medical treatment (Burkett, 2007; Herrick, 2007). In contemporary contexts it has transformed into a broader phenomenon characterized by increased participation from the middle class, alongside a notable shift in destination patterns from developed nations to developing countries such as India, Thailand and Malaysia (Crooks et al., 2011).

Prior to the 19th century, health tourism was predominantly characterized by practices such as SPA treatments, wellness activities and the use of thermal waters, which were widely regarded as the principal forms of health-related travel. However, from the 20th century onward, significant advancements in medical science and technological innovation, particularly within developed nations have catalyzed the rapid expansion of medical tourism (Yirik et al., 2015). While historical records indicate the existence of various early instances of health-related travel, the formal emergence of medical tourism is generally situated in the 19th century (Özdipçiner, 2018). One of the earliest and most illustrative antecedents of contemporary medical tourism can be traced to ancient Greek civilization, specifically within the Asklepieia. In these healing temples such as those located in present-day İzmir, Türkiye, priest-physicians known as Asklepiads provided therapeutic interventions to individuals who journeyed there in pursuit of healing (Tontuş, 2017). Thus, until

the advent of modern medical infrastructure, health tourism was largely rooted in natural therapies and spiritual-medical traditions centered around wellness and thermal practices.

According to research by Precedence Research, the medical tourism market, which is expected to exceed 35 billion USD in 2024, is projected to reach a volume of 250 billion USD by 2034. The market distribution by regions for 2024 is presented in Figure 1.

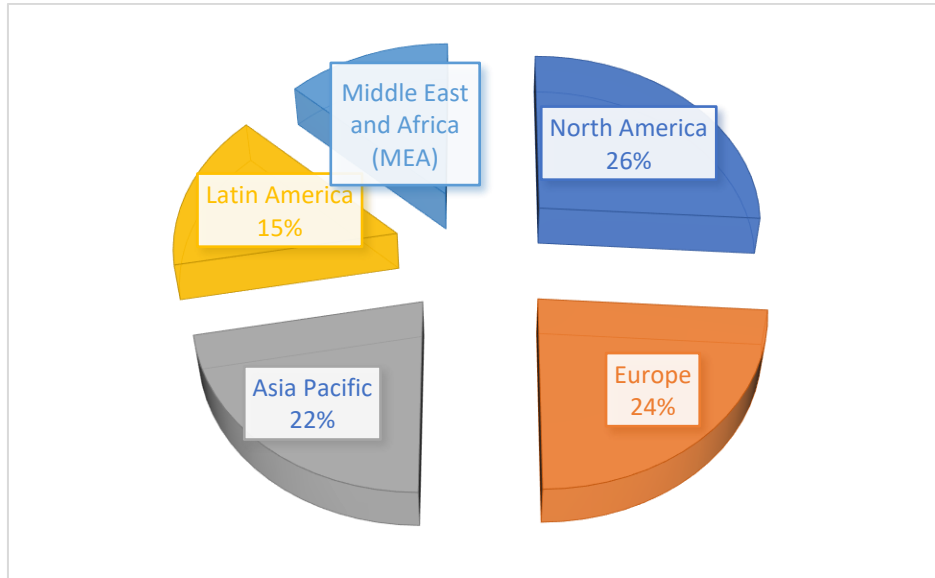


Figure 1. Medical Tourism Market Share by Regions (2024)

Source: (Precedence Research, 2025)

The rapid financial expansion of the medical tourism industry reflects not only increased patient mobility but also intensifying global competition among destination countries. Governments and private healthcare providers are increasingly investing in infrastructure, accreditation systems and international marketing strategies to attract foreign patients. This competitive environment has also contributed to the diversification of service offerings, where healthcare quality is now closely intertwined with hospitality standards. Consequently, medical tourism is evolving into a hybrid industry where healthcare delivery and tourism services are inseparable components of the same value chain. Figure 1 shows the regions generating the highest revenue from the medical tourism market. Accordingly, it can be stated that the most active regions in the market are North America, Europe and Asia Pacific. One of the most important economic outcomes of medical tourism, both for developing and developed countries, is its impact on the health sector alongside the foreign exchange earnings it brings. The rate of investment in the health

sector through medical tourism is also increasing (Gholipour & Esfandiar, 2025). Thus, the development rate of the health systems in countries prominent in medical tourism is also accelerating.

An important positioning competition has begun among countries in the medical tourism market. There is a strong focus on improving quality in medical tourism. For example, Khiewpan et al. (2024) emphasize the antecedents of service quality and the role of the HR department in hospitals providing medical tourism services in Thailand. The recent expansion of the medical tourism sector can be attributed to various factors such as internationalization, technological advancements, increasing treatment options, cost savings and the integration of medical services with leisure travel (Hall, 2011).

It is possible to examine medical tourism in terms of sustainability under three main headings (Tsekouropoulos et al., 2023):

Environmental Sustainability: This may include initiatives aimed at minimizing the ecological impact of medical tourism; for example, reducing carbon emissions, minimizing waste and promoting environmentally friendly practices.

Economic Sustainability: This may include measures aimed at ensuring the economic stability and prosperity of the medical tourism industry over time. It can involve the creation of financial models that support continuous growth and development.

Social Sustainability: This dimension may focus on ensuring the fair distribution of the benefits of medical tourism among local communities, promoting cultural sensitivity and safeguarding the well-being of both visitors and local residents.

From a demand perspective, individuals undertake medical tourism for a variety of reasons. These include prolonged waiting times in their home countries, high treatment costs and the relative strength of their national currencies compared to those of developing countries (Raoofi et al, 2024). Several pull factors influence medical tourism. In addition to regional tourist offerings, the absence of language barriers and travel duration, the primary pull factor remains the medical treatment itself (Shabaninejad et al., 2016). Adopting a holistic approach, both the quality of treatment and the touristic development of the destination serve as a key determinant of the destination image in the context of medical tourism (Alp & Yılmaz, 2024).

2. UNDERSTANDING THE SHARING ECONOMY IN TERMS OF MEDICAL TOURIST NEEDS

The impact of the sharing economy can be observed across nearly all sectors. However, the most significant expansion within the sharing economy has occurred in the tourism industry (Acuner & Acuner, 2017). Although medical tourism is often perceived as a type of tourism, it is important to note that the nature of its demand differs considerably from that of other tourism forms. In this context, it is first necessary to discuss the characteristics and expectations of the medical tourist.

First and foremost, every medical tourist is, by definition, a patient seeking medical treatment. Therefore, it is essential to evaluate the medical tourist from both a healthcare and a tourism perspective. The two primary reasons that drive individuals to seek treatment abroad are cost and long waiting times for healthcare services in their home countries. In addition to these, other motivations include the desire to combine treatment with tourism activities or seeking care in one's country of origin due to diasporic ties- for example, individuals of Indian descent living in the UK traveling to India for medical treatment. Mathijsen and Dziedzic (2024) have highlighted the significance of diasporic medical tourism. Citizens living abroad who consider returning to their home countries for treatment may be regarded as hidden or latent medical tourists.

The expectations of medical tourists may include the safety and reliability of the destination country's healthcare system, the absence of language barriers, the overall safety and trustworthiness of the country and the accreditation status of the healthcare facility where treatment will be received (Glinos et al., 2010). These diverse expectations indicate that medical tourism demand cannot be understood solely through economic or clinical perspectives. Instead, it requires a multidimensional analytical framework that incorporates psychological, cultural and service-related dimensions. The complexity of these needs further suggests that traditional tourism infrastructure may be insufficient in addressing the full spectrum of patient requirements. As a result, there is a growing need for integrated service systems capable of coordinating medical, logistical and emotional support within a unified structure.

Understanding the sharing economy in the context of medical tourism requires identifying the needs of medical tourists. Since medical tourists embody the dual roles of both patient and tourist, they have needs related to both healthcare and tourism. Tourists, in general, have needs

such as accommodation, food and beverages, entertainment, travel and other related services (Batman, 2015). Medical tourists, in addition to these general needs, also require medical care, cultural and psychological support, support services, insurance and financial information, as well as language and communication assistance (Crooks et al., 2010; Heung et al., 2010; Rahman, 2019; Runnels & Carrera, 2012). These two categories of needs are illustrated in Figure 2.

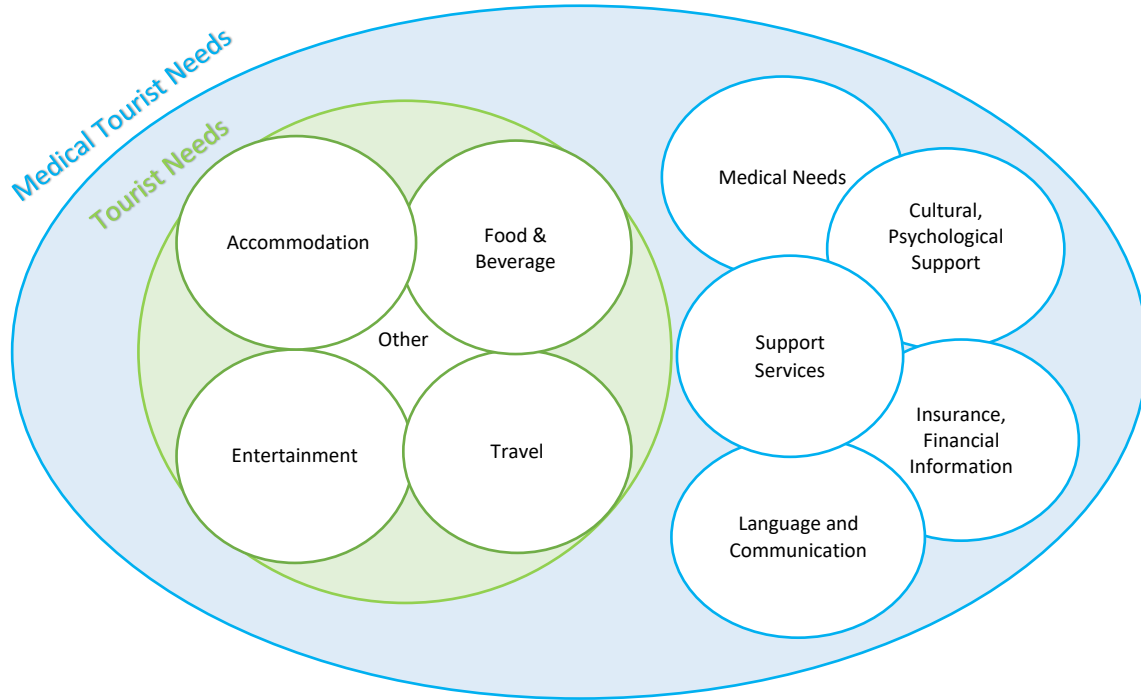


Figure 2. Needs of Medical Tourists

Source: Elaborated by author

In a study examining which of these two categories of needs is more important, it was found that medical tourists traveling to Hong Kong prioritized the medical treatment they would receive over the destination's touristic features (Ye et al., 2008). In other words, for medical tourists the primary concern is not the typical needs of conventional tourists but rather the healthcare-related needs arising from medical tourism.

3. METHODOLOGY AND CONCEPTUAL MODEL

This study proposes a conceptual framework that integrates medical tourism and the sharing economy by linking medical tourists' multidimensional needs with platform-based service

solutions and resulting patient outcomes. The study employs a focused conceptual literature synthesis rather than a full systematic review approach.

A literature review was conducted within the scope of the study in order to develop a conceptual model. As a result of this review, the research model was constructed through literature synthesis. Studies conducted between 2010 and 2025 indexed in the Web of Science, Scopus and Google Scholar platforms were included in the scope of the research. The keywords used in the search criteria were defined as “medical tourism”, “sharing economy” and “patient experience”. The inclusion and exclusion criteria are presented in Table 1.

Table 1. Inclusion and Exclusion Criteria

Inclusion	Exclusion
Peer-reviewed journal articles	Conference abstracts
Studies related to medical tourism and/or sharing economy	Books and book chapters
English-language studies	Non-English publications
Published between 2010 and 2025	Studies unrelated to tourism or healthcare

As a result of the searches conducted, 656 articles were identified. After applying the inclusion and exclusion criteria, 43 articles remained. Of these, 16 were included in the scope of this study and their positions within the research model are presented in Table 2.

Table 2. Positioning of the Present Study within Existing Literature in the Context of the Sharing Economy and Medical Tourism

Authors	Medical Tourist Needs	Sharing Economy Applications	Medical Tourist Outcomes	Moderators
Ghosh & Mandal, 2019			√	√
Sandberg, 2017	√			
Zolfagharian et al., 2018	√		√	
Zarei & Maleki, 2019	√			√
Almanza, 2025	√			√
Zain et al., 2022	√		√	√
Chaulagain et al., 2024	√			√
Adams et al., 2018	√		√	
Borg & Ljungbo, 2018	√		√	
Mikulić et al., 2021	√		√	
Ullah et al., 2021		√	√	
Li & Chen, 2022		√		
Kuhzady et al., 2021		√		√
Vila-Lopez & Küster Boluda, 2022		√	√	
Mondal & Samaddar, 2020		√		
Tussyadiah & Sigala, 2018		√		
This Paper	√	√	√	√

Before examining the specific components of the proposed model, it is essential to highlight the theoretical significance of integrating digital platform logic into healthcare mobility systems. Such integration enables the reconfiguration of service delivery mechanisms, where value creation is no longer centralized but distributed across multiple stakeholders. This distributed structure enhances flexibility, responsiveness and personalization in service provision. Figure 3 shows the model derived from the synthesis of the literature. The proposed relationships are further articulated through the research propositions presented below.

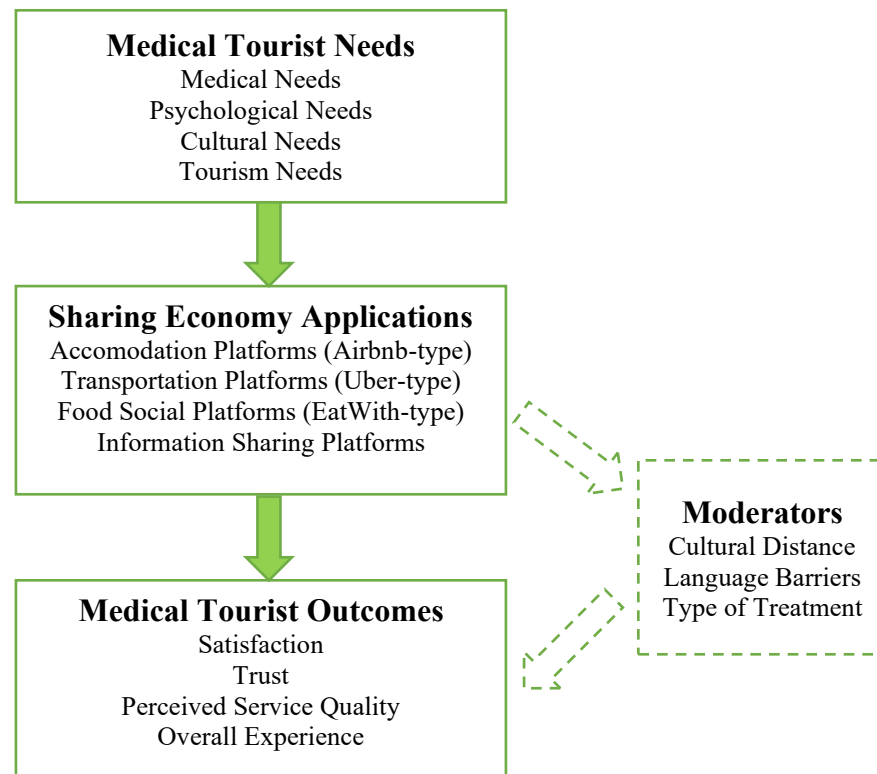


Figure 3. Integrating Sharing Economy Applications in Medical Tourism

Source: Elaborated by author

At the center of the model, medical tourist needs are conceptualized as a dual structure consisting of healthcare-related needs (medical treatment, post-treatment care, psychological support) and tourism-related needs (accommodation, transportation, food services and travel experiences). These needs emerge due to the dual identity of medical tourists as both patients and travelers.

The model proposes that these needs drive the utilization of sharing economy applications, which function as intermediary platforms facilitating access to personalized, flexible and user-

centered services. These applications include accommodation-sharing platforms, transportation services, food-sharing systems and information-sharing networks. Through these platforms, medical tourists can reduce uncertainty, improve accessibility and enhance service coordination. Consequently, the use of sharing economy applications is expected to positively influence patient outcomes, including patient satisfaction, perceived service quality, trust in healthcare providers and overall treatment experience.

Based on the literature synthesis and the proposed conceptual framework, the following research propositions are developed to explain the relationships between medical tourist needs, sharing economy applications and patient outcomes.

P1: Medical tourists' healthcare-related and tourism-related needs positively influence the utilization of sharing economy applications.

P2: The utilization of sharing economy applications positively influences patient satisfaction, perceived service quality and overall treatment experience in medical tourism.

P3: Cultural distance, language barriers and type of medical procedure moderate the relationship between sharing economy applications and patient outcomes.

3.1. Essential Needs Driven by Tourism

Tourism-related needs can generally be categorized as accommodation, transportation, food and beverages, entertainment and other ancillary services. Although these resemble the basic needs of typical tourists, the tourism-related needs of medical tourists tend to differ in certain ways. For example, in 3S (sun, sea, sand) tourism, an individual may prefer a sea-view room, whereas a medical tourist or their companion may prioritize accommodation near the healthcare facility or city center where the treatment will take place. Or if traveling after treatment is not recommended, the patient may choose a quieter area to rest or a patient-friendly accommodation facility.

In terms of transportation arrangements, a medical tourist may expect transfer services or may choose to rent a vehicle together with their companions. In such cases, more comfortable and spacious transportation options may be preferred. A comprehensive package product that meets all these needs could be a desirable option for medical tourists. It is also possible for medical tourists to benefit from sharing economy applications for transportation and accommodation. Rather than developing entirely new platforms existing globally popular applications can be adapted to be medical tourist-friendly. For instance, Airbnb for accommodation and Uber for transportation can

be tailored to suit the needs of medical tourists. These applications could include features such as a dedicated profile option or filtering for medical tourist-friendly services.

Alternatively, different sharing economy models may also be utilized. In terms of food and beverage applications such as EatWith could be explored. In a study conducted on EatWith users, Ketter (2019) reports that the primary motivations for using the platform include ideals, the need for achievement and self-expression. These factors may also be highly relevant for medical tourists. For example, an individual with gluten intolerance or diabetes might enjoy sharing a dinner experience with someone who has similar dietary needs. It can be assumed that such individuals generally dine out less frequently compared to others. Offering a personalized service of this kind where individuals with similar needs come together for a shared experience, may positively contribute to their overall life satisfaction.

3.2. Essential Needs Driven by Medical Tourism and Sharing Economy Applications

The fundamental needs arising from medical tourism can be categorized as medical needs, cultural and psychological support, support services, insurance and financial assistance and finally, language and communication. These needs will be discussed in detail below, along with scenarios illustrating how they can be addressed through sharing economy applications.

3.2.1. Medical Needs

The core medical needs of medical tourists can be described in various ways, including access to high-quality healthcare services, accurate diagnosis and treatment, post-treatment care and expert consultation prior to treatment. Although cost advantage is often the primary motivation in medical tourism, the importance of receiving high-quality healthcare should not be underestimated. At this point, accreditation can be mentioned as an indicator of the quality of healthcare services. Accreditation is considered as an important procedure for medical tourism providers. It improves health-care process so that patients receive timely and high-quality care (Paffhausen et al., 2010). At this point, various social sharing platforms can play a significant role. Although still developing, there are already platforms where patients share their reviews and experiences. In addition, patients can gain insights through social media or Google reviews of medical facilities. For example, the website “www.medicaltourism.review” lists nearly 7,000 healthcare institutions across 123 countries. Patients can use this platform to select a treatment and country, and access institutions that match their needs and have received user reviews.

3.2.2. Cultural and Psychological Support

This group of needs typically arises after travel. Minimizing the cultural shock that a patient may experience in the country they have traveled to can be important. In this regard, individuals with high cultural sensitivity may require additional support. Kamassi et al. (2011) emphasized the necessity of international Islamic standards in medical tourism and pointed out the lack of Muslim-friendly practices (e.g., halal food, halal medication).

Companion support is also one of the most important needs of a patient. A family member or friend accompanying the patient can increase the patient's motivation at this point. Medical treatments range from simple procedures like liposuction to complex operations such as heart valve replacement. Especially in major surgeries, patients may require psychological support both before and after the treatment.

3.2.3. Support Services

Support services can be designed by medical consultancy companies in the context of application, treatment planning and medical travel organization. Post-treatment communication is also considered an important need for medical tourists. Complications experienced after treatment remain a significant problem in medical tourism (Gaines & Lee, 2019; Howze, 2007). After the medical tourist's primary treatment needs are met, they may also participate in various tour programs. Customized tour programs can be organized specifically for medical tourists.

3.2.4. Insurance and Financial Information

Insurance and financial support are another area of need for medical tourists. Individuals' insurance status can sometimes influence their decisions regarding medical travel. Many individuals seek care as medical tourists because insurance companies do not cover certain procedures. For example, lap band procedure, an elective medical procedure to help individuals lose weight, costs \$5,000 in Jordan compared to \$30,000 in the U.S. (Carruth & Carruth, 2010). In addition, medical tourists may need access to various platforms where they can obtain insurance and financial information.

3.2.5. Language and Communication

Another significant need of medical tourists is overcoming language barriers. To this end, the provision of interpreter services and facilitation of communication is crucial. Compared to other types of tourism, language communication plays a much more critical role in medical tourism

(Muth & Suryanarayan, 2020). During such an essential process as medical treatment, it is vital that the patient does not feel isolated; thus, access to interpreter services or the presence of healthcare personnel who speak a foreign language becomes highly important. Otherwise, issues in accessing services and resulting dissatisfaction may occur. For instance, Ngamvichaikit & Beise-Zee (2014) found that Western patients traveling to Thailand for medical tourism experienced communication problems due to language barriers, which negatively affected their satisfaction levels.

The medical tourism needs mentioned above can potentially be addressed within the framework of the sharing economy. The individualized nature of medical tourists' needs highlights the necessity for more specialized platforms. For example, a platform similar to TaskRabbit could be developed specifically for medical tourists. Especially for those traveling without a companion, temporary support person could be found through various social networks or by posting job listings. This could also lead to the emergence of new employment opportunities such as new profession called "treatment companion". Various information-sharing platforms could be established at individual or public levels to support these needs. In this context, individuals who gain access to accurate information including those who may have hesitations about engaging in medical tourism might be encouraged to participate in the system.

3.3. Moderators

When examining moderator variables, it is possible to state that they consist of cultural distance and the type of treatment. Cultural distance has a significant effect on medical tourists' destination choice (Eşiyok et al., 2017). In the early years of medical tourism development, Connell (2013) stated that the majority of medical tourism was short-distance and diasporic. In this sense, cultural proximity has played an important role in the development of medical tourism as it exists today.

Language barriers can still be considered an important variable that remains relevant. The most important role in overcoming language barriers belongs to interpreters. The success of interpreters also leads to a higher perceived quality of healthcare services (Heath et al., 2023). Today, especially individual health tourism consultancy/guidance has emerged as a new profession.

Finally, another important moderator can be identified as the type of healthcare service received. While a tooth extraction takes about five minutes, a root canal treatment may take a week and

implant treatment may take 2-3 months. The recovery period of a major surgery can be even longer. In this context, some treatments allow safe travel after the operation, whereas there are various procedures whose post-operative safety remains uncertain (Donnally et al., 2018). In this sense, it can be stated that moderator variables may play an important role between sharing economy applications and customer satisfaction.

4. CONCLUSION AND RECOMMENDATIONS

This study provides a novel perspective by examining the potential integration between medical tourism and the sharing economy at both theoretical and practical levels. Recognizing that medical tourism is not merely a healthcare service but a multidimensional travel experience (Jiang et al., 2024), it is essential to address the needs of medical tourists from both medical touristic standpoints. In this context, beyond conventional tourist needs such as accommodation, transportation and dining, patient-centered services like psychological support, language and communication assistance, cultural sensitivity, insurance and financial consultation emerge as critical components (Eşiyok et al., 2017; Hanefeld et al., 2015; Liu & Chen, 2013; Muth & Suryanarayan, 2020; Uzoni, 2020; Wu & Van Trung, 2025).

Sharing economy applications offer significant opportunities to meet these diverse needs of medical tourists. Adapting existing platforms such as Airbnb, Uber and EatWith for medical tourism can open new pathways for personalized and accessible services. Although platforms such as Airbnb and Uber are often classified within the sharing economy, recent literature argues that these systems increasingly operate under platform capitalism structures characterized by market concentration and algorithmic intermediation (Kane, 2016; Martin, 2016; Celata & Stabrowski, 2022). However, service logics still remain relevant for understanding flexible and peer-supported solutions in health tourism.

Additionally, local support networks for unaccompanied tourists or the emergence of new professions called a “treatment companion” may signal the rise of sharing-based employment models tailored to healthcare travelers. Looking ahead, the widespread use of AI-supported, data-driven and personalized healthcare services may enhance the competitive advantage of medical tourism destinations and provide safer, more satisfying experiences for international patients. A sustainable medical tourism ecosystem can be established by incorporating local community participation, promoting cultural sensitivity and embracing principles of social responsibility.

In conclusion, the intersection of medical tourism and the sharing economy presents a significant opportunity to make healthcare services more accessible, increasing global patient mobility and fostering a more inclusive approach to health travel. Future academic research, implementation frameworks and policy recommendations will play a key role in shaping this emerging field.

It is difficult to say that medical tourism and the sharing economy have been fully integrated thus far. However, considering the sharing economy application examples developed in the previous section, several future directions can be identified as:

- Personalized services
- Local community involvement and social responsibility
- Data-driven AI support

It can be anticipated that personalized services, as in many other areas of life, will play a significant role in the future of medical tourism. Given the expectation that mass consumption will evolve into individualized services, it is reasonable to suggest that personalized offerings will become an important service category within medical tourism. In this context, the development of platforms capable of providing tailor-made services to individuals appears both feasible and promising.

It may be possible for local communities to develop products tailored to the needs of medical tourists. In particular, market segmentation can be carried out by emphasizing the health benefits of local products. Additionally, social responsibility projects can contribute positively to the country's image. A medical tourism destination can attract health tourists through various slogans such as *"Health is here"* or *"You will recover in this country"*.

Finally with data-driven AI support, medical tourists can address a wide range of needs- from choosing a destination to treatment protocols, from financial support to touristic requirements. In particular, AI-supported, data-informed *"all-inclusive healthcare service"* packages can be developed. Based on an individual's medical history and related health fields, various tailored service recommendations can be offered.

This study has several limitations. First, the proposed framework is conceptual and has not yet been empirically tested. Second, the literature synthesis was limited to English-language peer-reviewed studies indexed in selected databases. Third, the dynamic and evolving nature of digital

platform ecosystems may limit the generalizability of the proposed relationships across different healthcare systems and cultural contexts. Future research should empirically validate the model through quantitative and comparative studies.

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Examining Postgraduate Theses Using Qualitative Research Methods in the Field of Health Management

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Abstract

Aim: To examine methodological characteristics and research trends of postgraduate theses using qualitative methods in the field of health management.

Methods: The YOK National Thesis Center database was searched using the keywords “health institutions management” and “qualitative.” A total of 98 theses were identified. These were evaluated through document review, content analysis, and grouped under three categories: Thesis Identity, Research Design, and Analysis Process.

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Results: Most theses were written in Turkish. Phenomenology and case study were the most common designs. Purposeful sampling was frequently used. Semi-structured interviews were the main data collection tool. Participant numbers ranged from 3 to 251. Interview periods ranged from 10 to 730 days. Content, descriptive, and thematic analysis were the most preferred methods. Many theses did not report pilot studies, researcher role, or validity and reliability procedures.

Conclusion: Future theses should clearly report sampling and design choices, improve transparency in data collection and analysis, and give greater attention to trustworthiness in qualitative research.

Keywords: Postgraduate Theses, Research Method, Qualitative Research, Health Management.

INTRODUCTION

Development and success in the field of health provide insight into a country's development. The health level of a country's citizens is also an indicator of the welfare and quality standards of its healthcare system (Khandakar et al., 2007). Since the early 20th century, with increasing awareness of health and easier access to healthcare facilities and information on health, the public's perspective on health has been changing and their expectations for health have increased (Greenhalgh et al., 2012; Ament et al., 2012; Goh et al., 2016). In the face of rising expectations, countries' health investments, and consequently, healthcare expenditures, are steadily increasing (OECD, 2023). Both technological advancements in healthcare and the increasing demand for healthcare services have increased the pressure on healthcare institutions, making them increasingly difficult to manage (Tengilimoğlu et al., 2018). This situation has brought to the fore the issue of separation of administrative and medical affairs and employment of professional managers in health institutions that have been managed by physician authority from past to present.

Professional management in healthcare institutions and the need for professional managers were first discussed in the book "Hospital Administration: A Career," written by Michael Marks Davies in the United States (Davis, 1929), which emphasized the need for hospital administrators to be trained through the necessary training. This work further expanded the understanding of training professional healthcare managers, and the University of Chicago's "Hospital Administration" graduate program became the first program in professional healthcare management (Sarvan, 1995).

The ever-evolving concept and training in professional health management came to Turkey in 1963 with the opening of the School of Health Administration. According to statistics from the

Council of Higher Education, there are currently 49 associate degree programs (YOK ATLAS, 2021) and 121 undergraduate health management programs within various universities in Turkey. With the recognition and development of health management as a scientific discipline, graduate programs, considered the highest level of education (YOK BYS, 2021), have also begun to be offered.

The primary objectives of graduate education are the production of scientific knowledge, social contribution, scientific research production, and the training of experts and academic staff in the field. Within the scope of graduate education, individuals contribute to their personal development, achieve status, and enhance their knowledge and skills, thereby adding value to their country (Toprak and Taşğın, 2017; Alkan, 2014). In Turkey, there are 63 graduate programs offering master's and doctoral degrees in health management, training experts and scientists in the field of health management (Özata and Karasu, 2022). As of the 2020-2021 academic year, there were 2,275 master's and 552 doctoral (PHD) students in various departments in health management (management of health institutions, management of health institutions, management and administration of health institutions, management of health institutions, and health management) (Şahin and Ocak, 2019). Within the scope of graduate education, knowledge and skills not acquired at the undergraduate level are acquired, new research methods and applications are learned in the name of science, and at the end of the education, the process is completed by producing postgraduate theses that compile and systematically bring together both theoretical knowledge and scientific research findings in the relevant field (YOK BYS, 2021).

In Turkey, theses prepared at both the master's and doctoral levels in the field of health management generally focus on organizational behaviour, hospital management, health policies, and health economics, and the vast majority of these theses utilize quantitative research methods (Şahin and Ocak, 2019). However, interest in qualitative research in health services and management increased in 1998 after a forum sponsored by the Agency for Healthcare Policy and Research and the Robert Wood Johnson Foundation for experienced health services researchers and qualitative methodologists to discuss the role of qualitative methods in examining the challenges facing the health system. Since then, studies on these topics that describe specific approaches to qualitative research, discuss strategies for addressing common methodological issues, and offer comparisons of qualitative and quantitative methods have begun to be accepted by editors and published in national and international journals (Weiner et al., 2011). Likewise, the

number of postgraduate theses using qualitative research methods in the field of health management in Turkey is gradually increasing. Despite this increase, previous studies have mostly focused on general thesis profiles or on theses written around specific topics. Limited attention has been paid to how qualitative research designs, sampling strategies, data collection procedures, analysis processes, and validity-reliability practices are reported in postgraduate theses in health management. Therefore, examining the methodological characteristics of qualitative theses is important for identifying both research tendencies and reporting gaps in the field.

When examining studies examining postgraduate theses written in the field of health management, it is seen that there are studies that examine theses structured around a specific topic and written on this topic with various variables (Bayın, 2015; İnam and Koç Tütüncü, 2017) or that reveal the profile and identities of theses written in the field of health management from a general perspective (Şahin and Ocak, 2019; Gül et al., 2015). However, there is a lack of studies focusing on scientific research methods and their use. Within the scope of this study, theses written in the field of health management were examined in terms of the use of scientific methods, focusing on theses that used qualitative research methods.

Identifying scientific studies or revealing their general appearance (Pekdemir et al., 2016: 82) contributes to the cumulative advancement of scientific knowledge in order to provide information about the scope, depth, prevalence, and impact of scientific research in a particular discipline. For this purpose, this study methodologically examined postgraduate theses prepared in the field of Health Management under the topic of management of health institutions and adopting qualitative research methods.

1. RESEARCH METHODOLOGY

This study adopted a document review model based on qualitative research methods. Document review is a systematic technique developed for examining or evaluating documents in print or online. It requires the examination and interpretation of data to derive meaning from the obtained documents, gain insight, and develop empirical knowledge (Corbin and Strauss, 2008). The document review process is also known as the examination of written materials containing information about the phenomenon or phenomena targeted for investigation (Yıldırım and Şimşek, 2016). This research was designed as a descriptive document review that aimed to methodologically examine graduate theses prepared using qualitative research methods in the field of Healthcare Institutions Management.

Data were obtained from the National Thesis Center of the Council of Higher Education database. On January 3, 2022, the keywords "health institutions management" and "qualitative" were searched together using the advanced search feature without any time limitation. As a result of this search, a total of 157 theses were identified. Theses were examined according to research method. Theses that used quantitative or mixed methods other than qualitative research methods were excluded from the study. After the elimination, 98 postgraduate theses prepared using qualitative research methods in the field of health institutions management were included in the analysis. These 98 postgraduate theses were subjected to content analysis in line with the purpose. A limitation of this search strategy is that the search was conducted only with the predetermined keywords. Therefore, some theses indexed with different keywords or described with different terms in the title, abstract, or methodology sections may have remained outside the scope of the study.

In order to collect data from theses, a coding form was created structured under three main categories:

- Thesis ID (basic information about theses) - department, publication year, thesis type, language, institute.
- Research Design-method, design, sample, sampling type, number of participants, research duration, interview duration, data collection method and technique, use of voice recorder.
- Analysis Process-analysis program, type of analysis, validity-reliability study, use of participant pseudonyms, participant confidentiality studies, pilot application, ethics committee/research committee approval, role of the researcher.

The coding process was guided by a structured coding form. The main categories were determined before the analysis in line with the aim of the study and the methodological characteristics examined in the theses. Therefore, the coding process was mainly deductive. During coding, the categories were reviewed, and minor revisions were made when necessary to ensure that the information in the theses was classified clearly. The final coding structure was established after these revisions. In the content analysis process, each postgraduate thesis was accepted as the unit of analysis. Each thesis was examined according to predefined categories such as research design, sampling method, data collection tool, type of analysis, validity-reliability procedures, and the role of the researcher. In this study, the themes refer to analytical categories used to classify

the methodological characteristics of the theses rather than themes derived from participant statements.

The dataset was created in Microsoft Excel for Microsoft 365 and systematically coded. The collected data was analysed using content analysis. Percentage (%) and frequency (f) values were calculated from descriptive statistics, and the findings were visualized using tables and graphs.

Because this research was conducted using publicly available datasets, no data was collected from individual participants, and no intervention was made. Therefore, ethics committee approval was not required. However, the Principles of Research and Publication Ethics were fully adhered to throughout the research process; theses were used with reference to their original sources, and the confidentiality of the data was maintained.

2. ANALYSIS

The findings obtained within the scope of the research were evaluated under the headings of “basic information about theses”, “qualitative research design”, “sample and participant information”, “data collection process”, “data analysis process”, “validity and reliability”.

2.1. Thesis ID (basic information about theses)

The table below shows the distribution of theses, which were examined under the title of management of health institutions and used qualitative research method, by department, institute, year, thesis type and language used.

Table 1. The department to which the theses belong, year, thesis type, and language

Department	Frequency (F)	Percentage (%)
Health Management	68	69.4
Business	14	14.3
Healthcare Management	9	9.2
Healthcare Facility Management	3	4.1
Business Education	1	1.0
International Trade and Logistics	1	1.0
Management in Hospitals and Healthcare Institutions	1	1.0
Total	98	100.0
Institute		
Institute of Educational Sciences	1	1.0
Business Institute	7	7.1
Graduate School Institute	8	8.2
Institute of Health Sciences	30	30.6
Institute of Social Sciences	52	53.1
Total	98	100.0
Year		
2010	1	1.0

2012	1	1.0
2014	2	2.0
2015	4	4.1
2016	8	8.2
2017	10	10.2
2018	14	14.3
2019	23	23.5
2020	13	13.3
2021	22	22.4
Total	98	100.0
Thesis Type		
Master	32	32.7
PhD	66	67.3
Total	98	100.0
Language		
Turkish	97	99.0
English	1	1.0
Total	98	100.0

An examination of Table 1 reveals that 68 theses using qualitative research methods were prepared in the Department of Health Management. This department is followed by Business Administration with 14 theses, Healthcare Institutions Administration with 9 theses, and Healthcare Institutions Management with 3 theses. When the distribution of theses is examined, it is seen that research in the field of health management is most concentrated in the Institute of Social Sciences (n=52). This demonstrates that the discipline of health management has a strong connection with the social sciences. Theses prepared at the Institute of Health Sciences rank second in number (n=30). This demonstrates a direct relationship between health management and health services. Because some of the graduate programs in Healthcare Institutions Administration are affiliated with the Institute of Social Sciences, while others are affiliated with the Institute of Health Sciences, it can be said that the examined theses are concentrated in these institutes. Similarly, the literature indicates that the majority of postgraduate theses in health management are conducted using social science methodology, indicating the interdisciplinary nature of the field (Gül et al., 2015; Şahin and Ocak, 2019). Theses, accessible in PDF format from YOKTEZ and meeting the research criteria, were published between 2010 and 2021. The most published theses using qualitative research were in 2019 with 23 theses, while the closest publication was in 2021 with 21 theses. It is observed that qualitative research methods were used less frequently between 2010 and 2015 (n<4) compared to other years. A noticeable increase is noted from 2016 (n>8). When looking at the type of theses, the majority of theses are at the doctoral level (n=65). At this point, it can be said that qualitative research methods are preferred more in doctoral-level theses.

When the publication language of the theses is examined, it is seen that all of them, except one, were prepared in Turkish.

2.2. Qualitative research design and planning

Under this heading, findings identified as pertaining to the construct of qualitative research have been compiled. In this context, information regarding the theses examined, in the categories of "research design" and "research duration," is provided below.

In studies using qualitative research methods, a research design is used to conduct the study more meticulously and carefully (Tomaszewski et al., 2020). In this context, the qualitative research designs used in theses are shown in Figure 1.

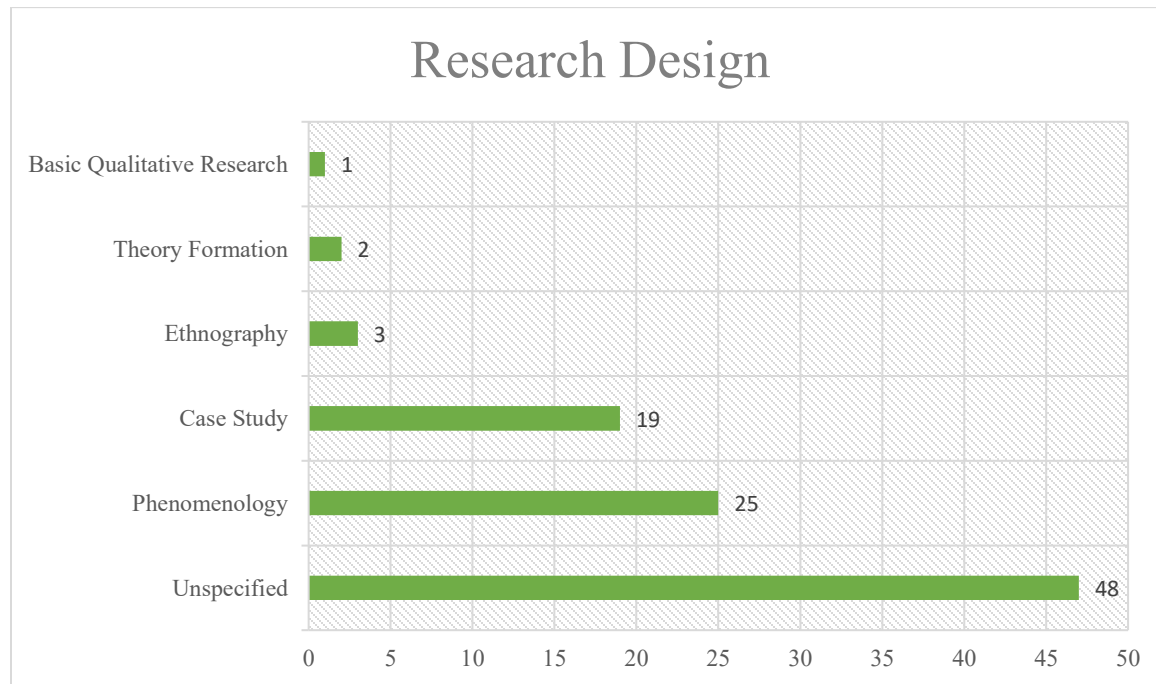


Figure 1. The design used in the thesis study

The qualitative research designs used in the reviewed theses were: Phenomenology, Case Study, Ethnography, Theory Building, and Basic Qualitative Research. The most commonly used qualitative research designs were Phenomenology (n=25) and Case Study (n=19). No information was provided regarding the design used in 48 of the theses. These findings reveal that, while qualitative studies in the field of health management in Türkiye vary in terms of design, they are generally limited to phenomenology and case studies. The literature emphasizes the need to increase the methodological diversity of qualitative studies in this field. For example, Şahin and

Ocak (2019) state that qualitative research requires a wider range of designs and that a particular focus should be placed on ethnographic and theoretical studies. Furthermore, methodologists such as Creswell (2014) and Patton (2014) argue that clearly stating the design in qualitative research will improve the quality of the study. In this context, the high number of studies whose designs are not specified shows that the theses are open to improvement in terms of methodological clarity.

In the examined theses, the information regarding the total duration of research designed within the scope of qualitative research method is given below.

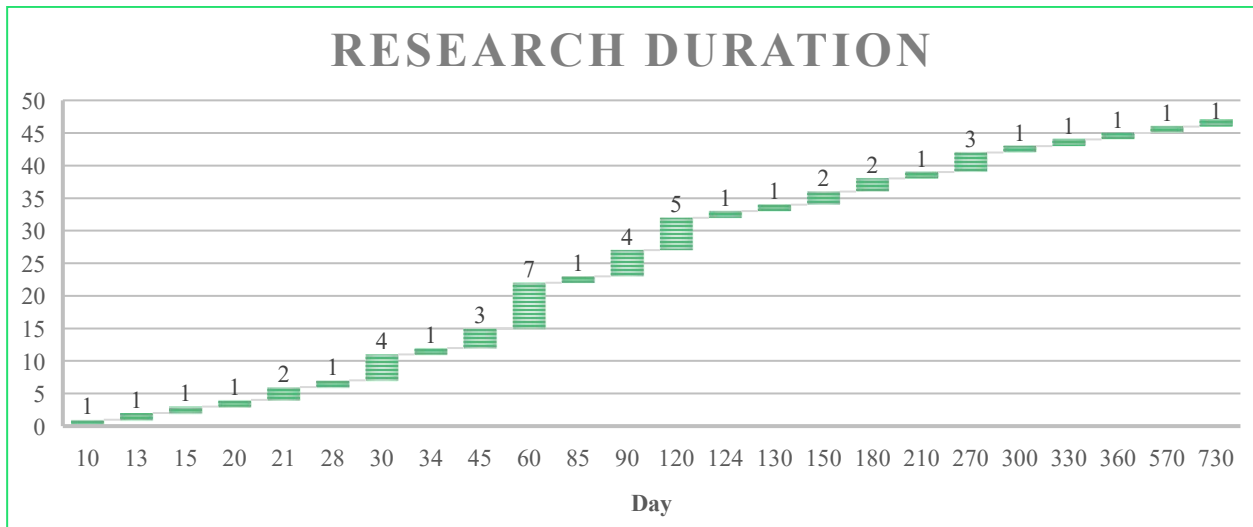


Figure 2. Research period for theses

Figure 2 shows the research duration of theses prepared using qualitative research methods. It was observed that a significant portion of the theses examined ($n=51$) did not specify the research duration. Figure 2 shows that the minimum completion time for interviews in theses was 10 days and the maximum was 730 days. Research durations are largely concentrated between 10 and 120 days, but there are also a few studies with durations of 270 days or longer. An examination of similar studies conducted in Turkey indicates that research in the field of health management is generally completed in a short time, which can limit methodological scope (Şahin and Ocak, 2019). At the same time, the scarcity of long-term studies can be interpreted as researchers facing both resource and time constraints.

The findings regarding the sample determination processes of the theses examined within the scope of the research were discussed in the categories of “sampling type”, “sample group” and “number of participants”.

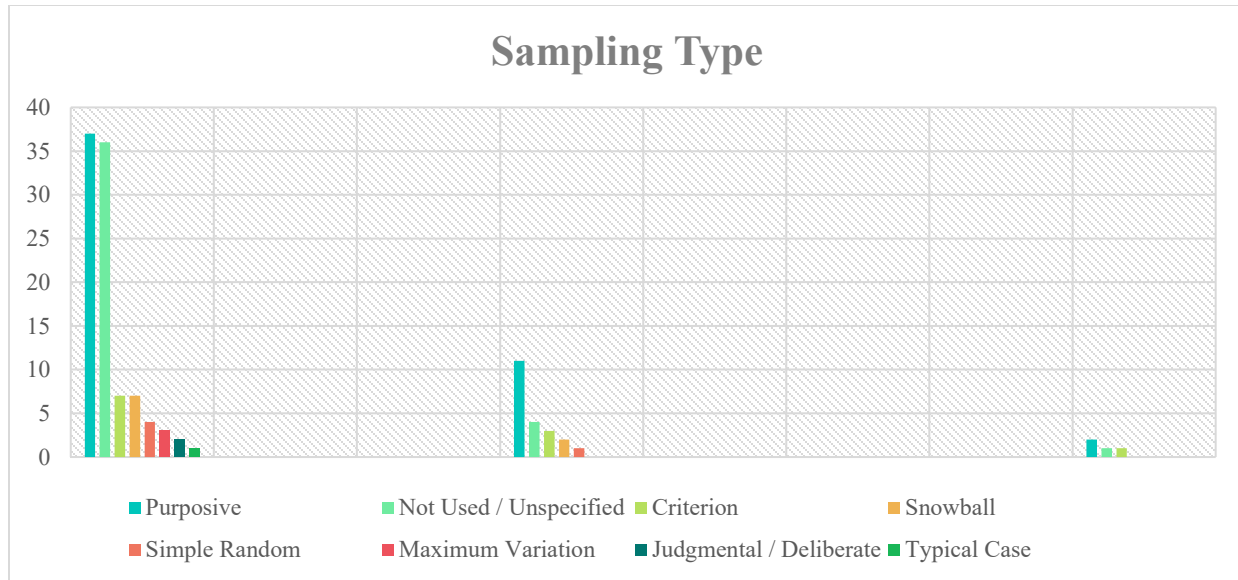


Figure 3. Sampling type of theses

The sampling types preferred by researchers in determining the study group in the reviewed theses are shown in Figure 3. The most preferred sampling type is purposive sampling (n=37). This sampling type is followed by criterion sampling (n=7), snowball sampling (n=7), simple random sampling (n=4), maximum variation sampling (n=3), deliberate terrestrial sampling (n=2), and typical case sampling (n=1). Purposive sampling is the most preferred sampling method in qualitative research (Grix, 2010). The findings support this. It was observed that more than one sampling method was used in some of the reviewed theses. The second most preferred sampling methods were criterion sampling (n=11), maximum variation sampling (n=4), snowball sampling (n=3), purposive sampling (n=2), and theoretical sampling (n=1). The third most preferred sampling methods were snowball sampling (n=2), criterion sampling (n=1), and convenience sampling (n=1). In qualitative research, sample selection directly impacts the quality of the study. Therefore, researchers must clearly state the type of sampling they choose and the reasons for it (Coyne, 1997). It is noteworthy that 36 of the dissertations examined in this context did not specify the sample type.

Figure 4 shows the participant groups that were sampled in the examined theses.

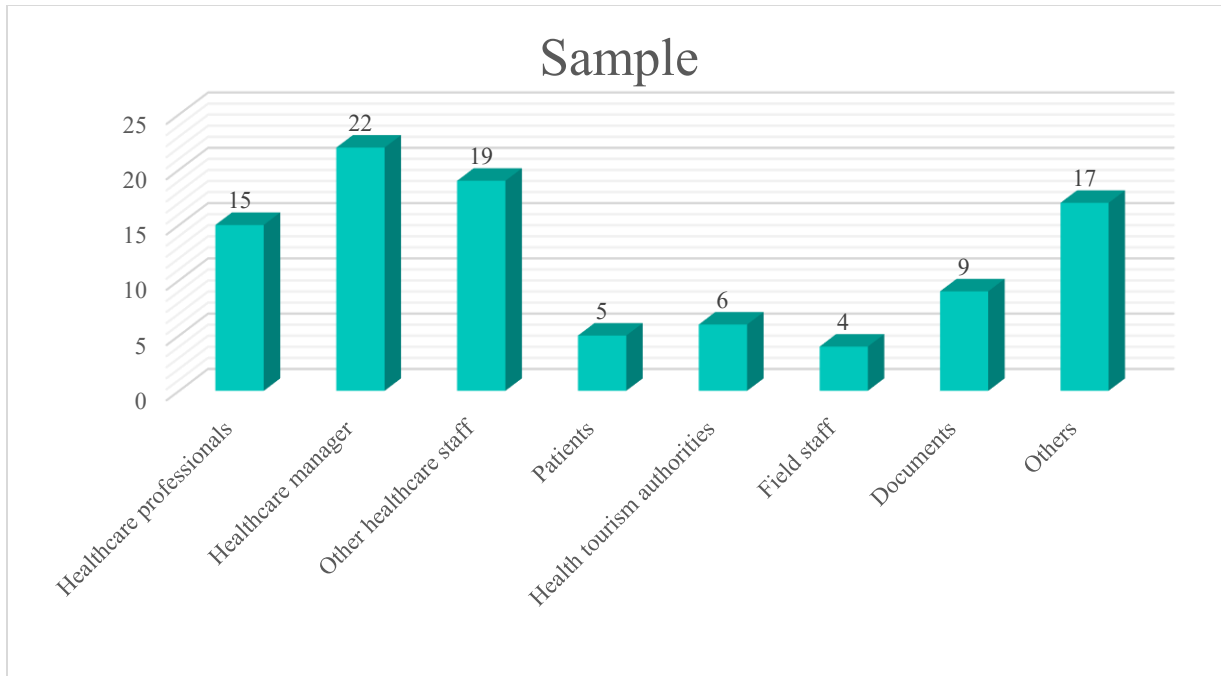


Figure 4. Sample group of theses

Of the theses examined, 22 included healthcare managers, 19 included other healthcare personnel, 18 included other participants (graduate students, married couples, medical company employees, etc.), 15 included healthcare professionals, 9 included documents, 6 included health tourism officials, 5 included patients, and 4 included healthcare management professionals. Similar findings were also found in a study examining postgraduate theses in healthcare management (Terekli Yeşilaydın et al., 2014). The prioritization of healthcare managers and personnel in theses suggests that studies in this area are mostly conducted at the organizational level (Şahin and Ocak, 2019). However, the less frequent use of patients and documents may indicate a lack of a broader perspective on healthcare services.

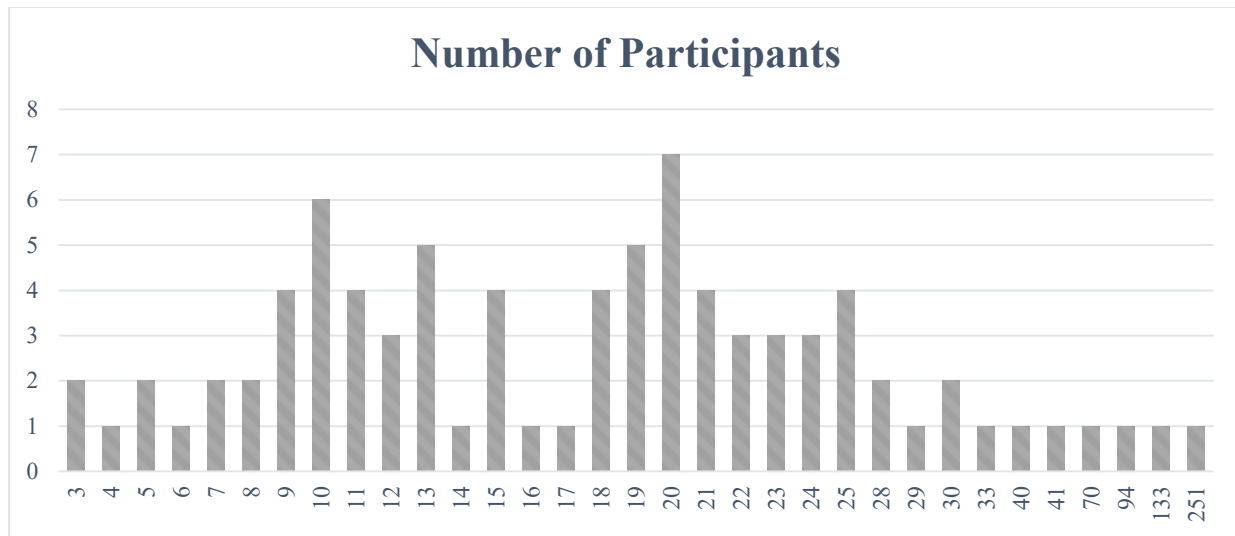


Figure 5. Number of participants of theses

Figure 5 shows that the majority of theses had between 10 and 25 participants. This suggests that qualitative research in the field of health management generally uses smaller, more manageable samples to collect in-depth data. The literature emphasizes that small sample sizes in qualitative research are suitable for in-depth analysis and achieving meaningful results (Creswell, 2014). The graph includes studies with over 50 participants and studies with under 10. The distribution of participant numbers is concentrated within a specific range, indicating a small number of studies using different sample sizes. This could be considered an area where sample diversity in qualitative research could be increased.

The data obtained regarding the data collection process of the theses were brought together in the categories of “data collection method”, “data collection technique”, “interview duration” and “use of voice recorder”.

Figure 6 shows the findings regarding the data collection methods of theses using qualitative research methods.

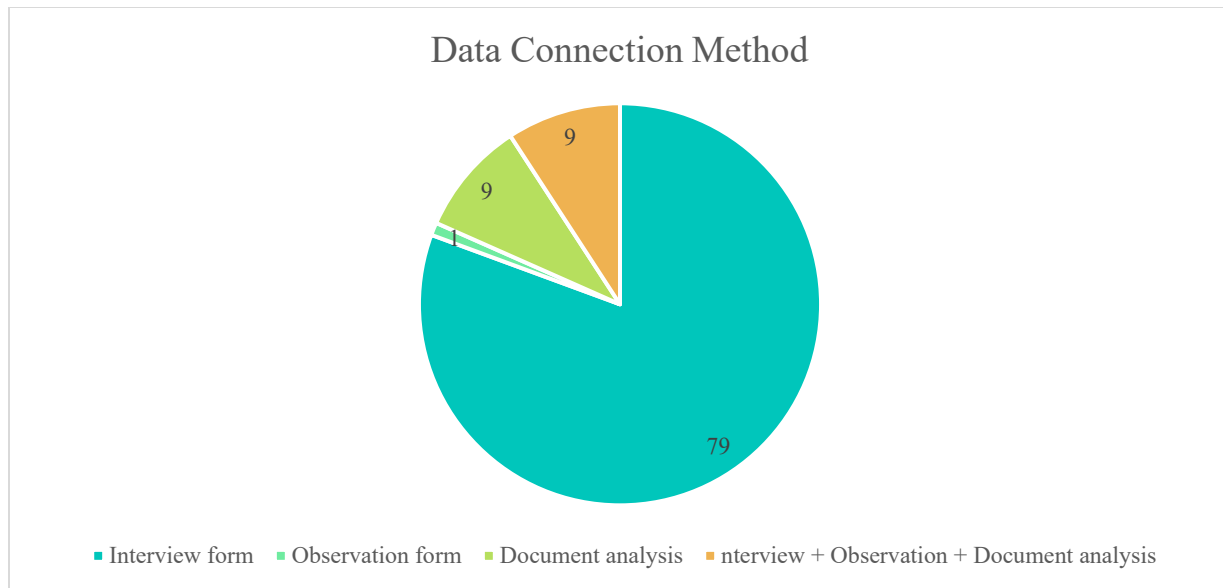


Figure 6. Data collection method for theses

When the findings are examined, it is noteworthy that the interview form was used more frequently (n=79) and accounted for a significant percentage of the total (81%). The most preferred data collection method after the interview form was a combination of interview, observation, and documents (n=9). Other preferred data collection methods were document review (n=9) and observation (n=1). In qualitative research, the interview form is considered the most common method due to its ability to collect in-depth information (Creswell, 2014). In the field of health management, the predominant use of this method in studies based on individual experiences and perceptions is consistent with the literature (Akdemir and Kılıç, 2021). However, the less frequent use of other methods, such as observation and document review, indicates limited methodological diversity.

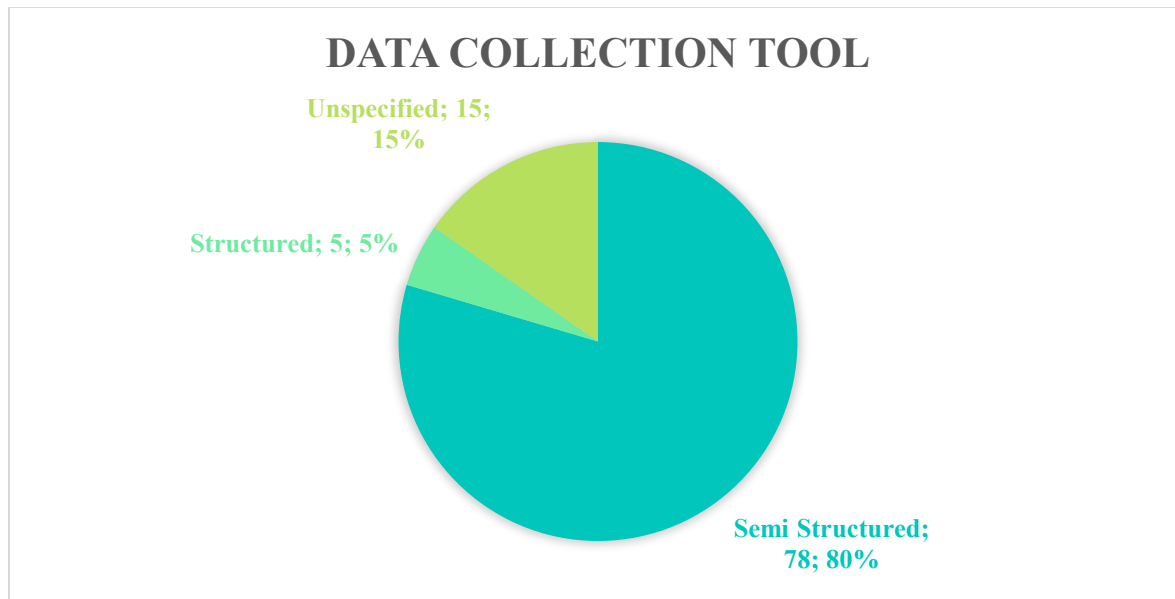


Figure 7. Data Collection Technique Used in Interviews

As a result of the analysis, when the data collection techniques in qualitative studies conducted by interviews were examined, it was seen that the semi-structured interview form was used in 77 theses, which was found to be 83% of all theses. While the structured interview form was used in 5 theses, no information about the interview form was found in 15 theses. Similarly, in the study examining doctoral theses conducted in the field of education programs and instruction by Özkal (2020), it was found that the semi-structured interview form was preferred in 57.71% of theses that used the interview technique (Özkal, 2020). Similarly, in the study conducted by Özan and Köse (2014), it was determined that the studies using the interview technique were mostly conducted through the semi-structured interview form. At this point, it can be said that researchers mostly used the semi-structured interview form in theses conducted with the qualitative research method.

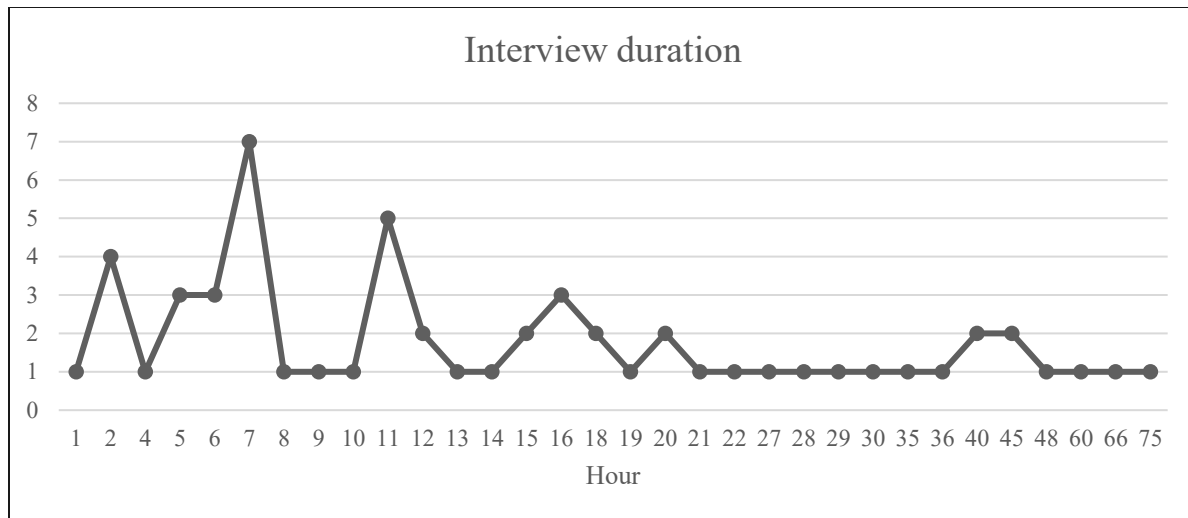


Figure 8. Interview duration of theses

An examination of Figure 8 reveals that the researchers' total interview duration with participants ranged from 1 hour to 75 hours. Although interview durations varied significantly, 7 theses had 7 hours, 5 had 12 hours, and 4 had 2 hours. The literature emphasizes that the duration of qualitative interviews varies depending on the nature of the research and the characteristics of the participant group. It has been noted that qualitative interviews are generally limited to 1-2 hour sessions to allow for in-depth analysis, but in some cases, longer interviews can yield more complex and detailed data (Yin, 2009). In this context, Şahin and Ocak (2019) stated that interview durations in health management theses in Turkey are generally short, which can negatively impact methodological depth. Therefore, it is important to balance the research objectives and data collection strategies when determining interview durations.

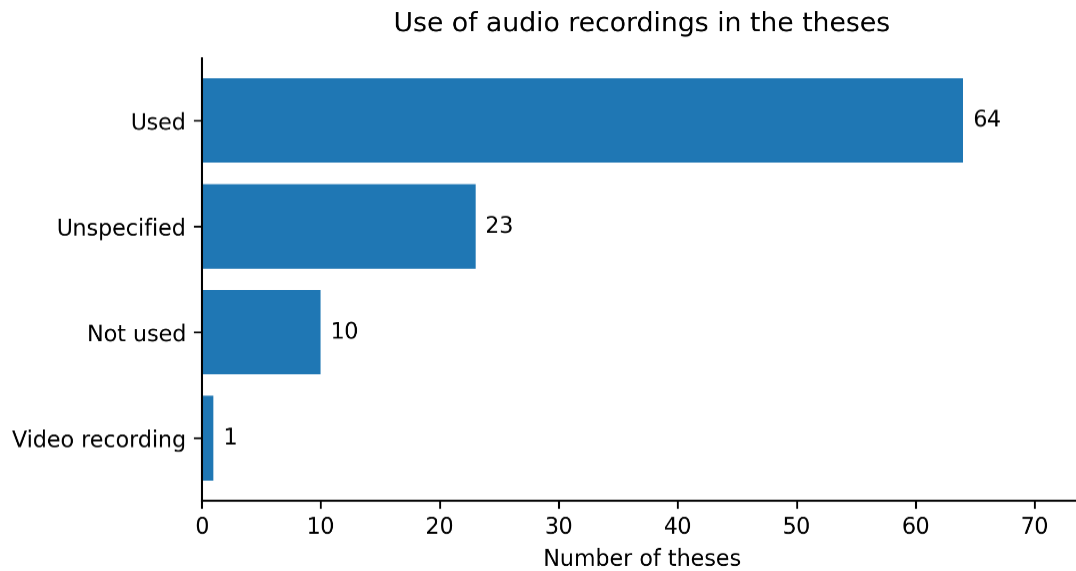


Figure 9. Use of voice recorders in theses

In qualitative research, it is very difficult for the researcher to transcribe every response given during the interview verbatim. Recording the entire interview is crucial for the researcher to review the interviews (Patton, 2014; Miles and Huberman, 2016). Therefore, it can be said that voice recorders are frequently used in qualitative research. As shown in Figure 9, audio recording was used in 64 theses. In 10 theses, audio recording was not used. In 23 theses, no clear information was provided about the use of audio recording. One thesis reported the use of video recording.

2.3. Analysis Process

The information provided by the authors regarding the data analysis process in the theses sampled within the scope of the research was evaluated in the categories of “analysis method”, “use of analysis program”, and “participant confidentiality studies”.

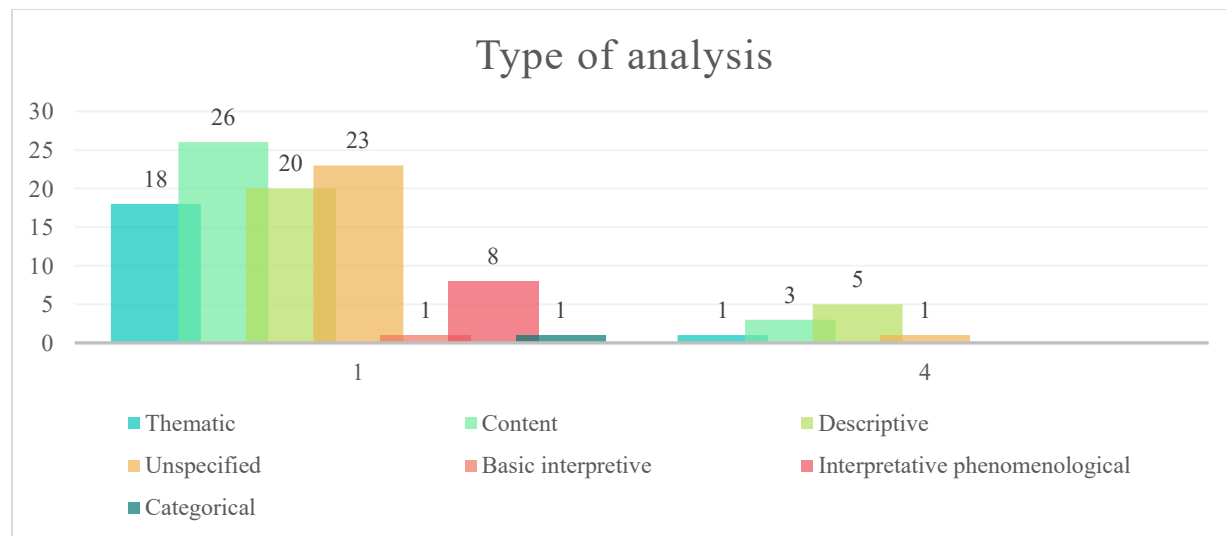


Figure 10. Analysis Method of Theses

When the type of analysis used in the examined theses was examined, it was seen that content analysis (n=26) was the most commonly used, followed by descriptive analysis (n=20) and thematic analysis (n=18). Other types of analysis used were interpretative phenomenological (n=8), basic interpretive (n=1), and categorical analysis (n=1), respectively. Similar studies examining theses using qualitative research methods also show that the most frequently used types of analysis are content analysis, descriptive analysis, and thematic analysis (Üzümcü, 2016; Demir and Çalışkan, 2021). It was observed that two types of analysis were used together in 9 of the theses. Descriptive analysis (n=5), content analysis (n=3), and thematic analysis (n=1) were preferred as the second type of analysis. It is noteworthy that the type of analysis was not specified in 23 theses. Thematic analysis is one of the most frequently used methods in theses on health management in Turkey, consistent with the literature (Şahin and Ocak, 2019). However, the high rate of analysis type not being specified reflects a significant shortcoming in methodological reporting. Patton (2014) emphasizes that clearly specifying the type of analysis is critical for the transparency and validity of the study.

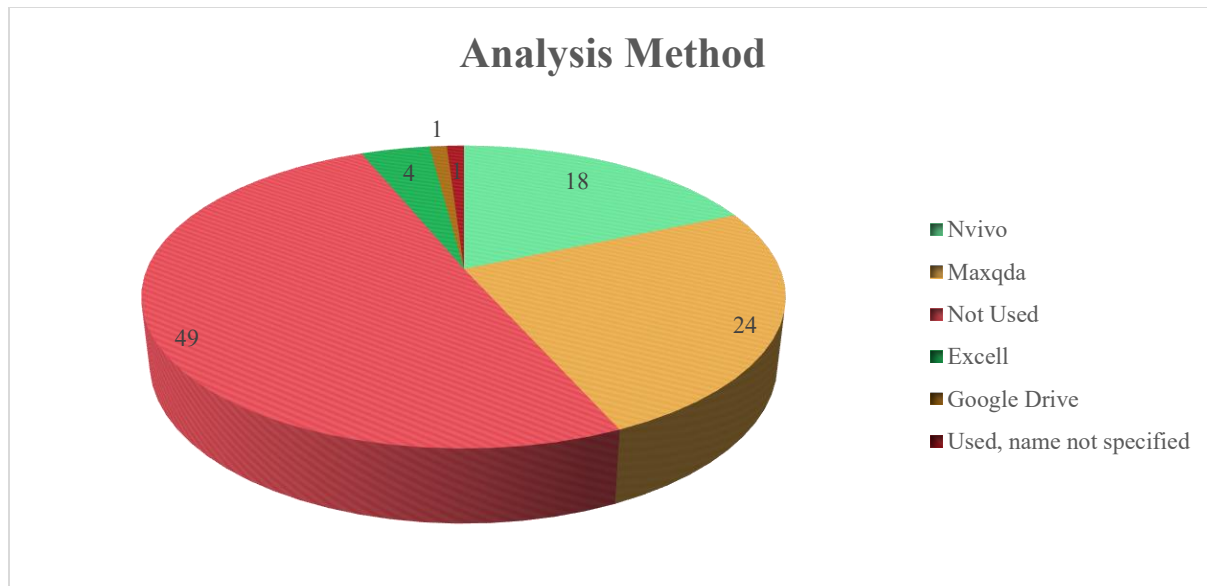


Figure 11. Analysis Program Used.

The use of computer programs is quite common when conducting qualitative data analysis. These programs facilitate data storage, organization, coding, retrieval, and integration (Corbin and Strauss, 2008). However, as seen in Figure 11, it is noteworthy that 49 of the theses examined did not utilize a computer program. The most commonly used computer program was Maxqda (n=24).

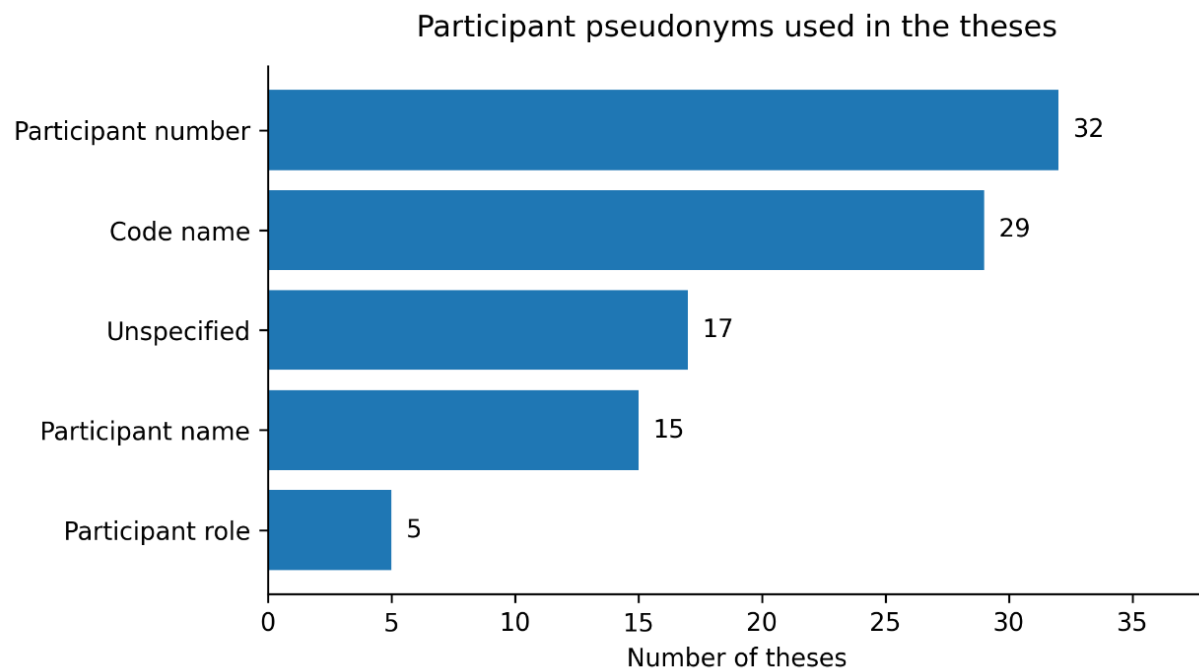


Figure 12. Participant nicknames of theses.

During the analysis and writing processes of qualitative research, the choice of participant pseudonyms is directly related to ethical requirements in qualitative research. In the literature, Creswell (2014) recommends the use of participant numbers or code names for anonymity and compliance with ethical principles, while recommends using participant names only if the necessary permissions are obtained. When we look at the way participants are expressed in the examined theses, we see that code names, participant number, participant name, and participant role. In qualitative research, pseudonyms can be given to participants in order to protect participant confidentiality and privacy (Çelik, 2018). In this context, as seen in Figure 12, it is seen that participant numbers (n=32) and code names (n=29) were used the most in the examined theses. These are followed by participant name (n=15) and participant role (n=5), respectively. No information could be reached on the use of participant pseudonyms in 17 of the theses. In theses that did not include participant pseudonym information; Participants were expressed as “one of the participants” or “most of the participants.”

2.4.Validity and Reliability

Findings regarding the validity and reliability processes of qualitative research were gathered under the categories of “knowledge of validity and reliability techniques”, “whether a committee (peer review) was conducted”, “whether a pilot application was conducted” and “writing the role of the researcher”.

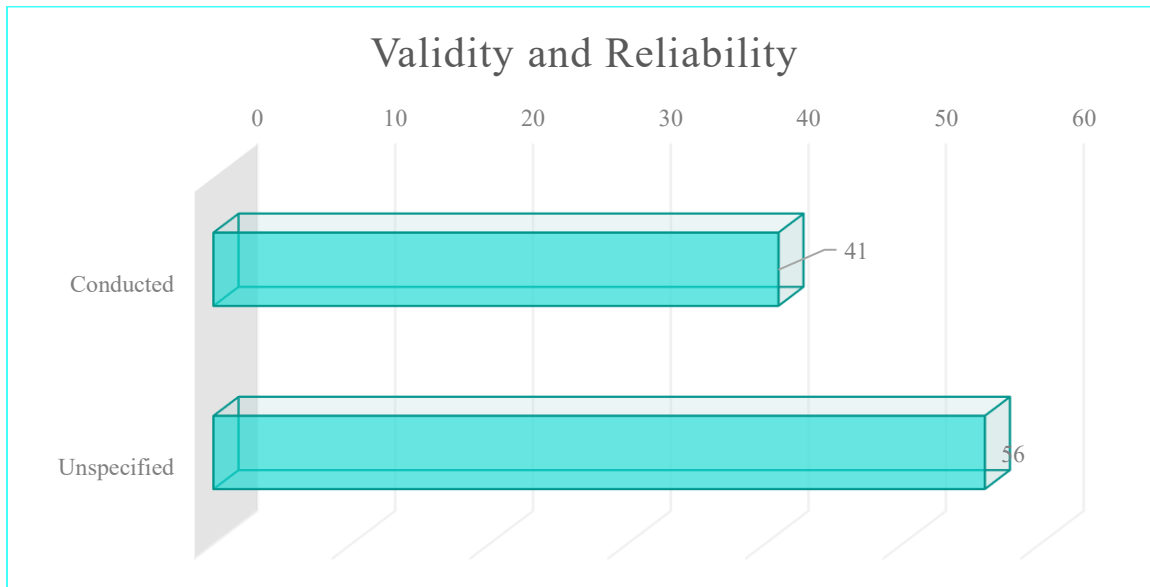


Figure 13. Validity and reliability of theses

In this respect, validity and reliability are the two most widely used criteria in research. Validity and reliability are critical elements for ensuring the accuracy and reliability of data in qualitative research (Shenton, 2004; Başkale, 2016). Creswell (2014) emphasizes that validity and reliability in qualitative research can be ensured through methods such as participant verification, triangulation, or obtaining expert opinion. Figure 13 shows the validity and reliability study statuses of the examined theses. While information was provided that validity and reliability studies were conducted in 42 theses, information regarding validity and reliability studies was not provided in 56 theses. The number of theses that did not state validity and reliability studies constituted 52.1% of all theses. In a similar study examining theses using qualitative research methods, this rate was found to be 59.3% for validity information and 51.3% for reliability information (Üzümcü, 2016). Similarly, some qualitative studies report that these steps are frequently skipped or not reported (Şahin and Ocak, 2019). The high rate of validity and reliability studies not conducted or reported indicates that methodological standards in health management theses are not yet fully established.



Figure 14. Thesis committee

According to Creswell and Miller (2000), to ensure validity and reliability in qualitative research, committees/peer reviews consisting of experts in the field should be conducted to prepare interview questions or evaluate codes. These committees, established in qualitative research, are considered important both for the validity and reliability of the research and for providing the researcher with different perspectives, allowing for objective evaluation of the findings (Guba and Lincoln, 1994). However, Figure 14 shows that the vast majority of the theses examined (n=76) did not have a committee. Only 22 theses had committees.

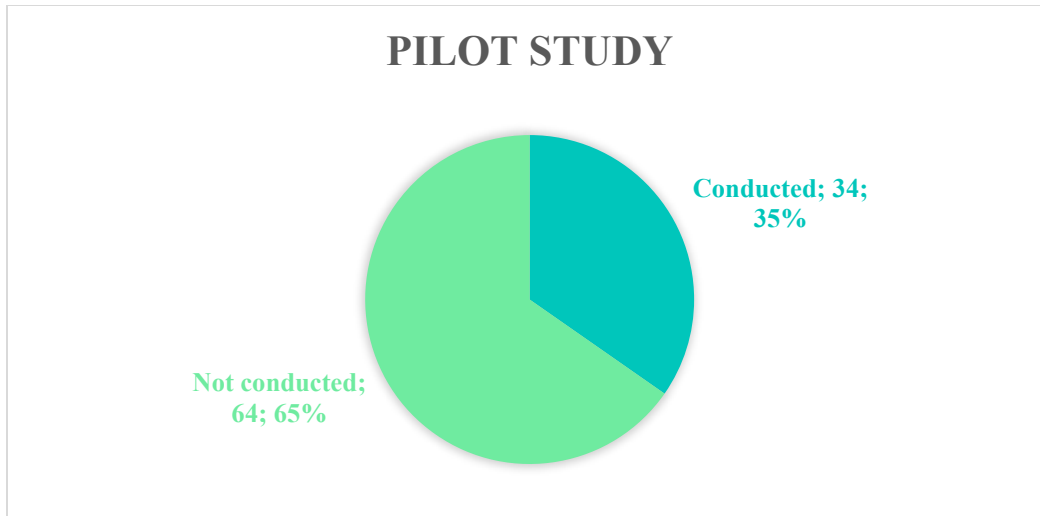


Figure 15. Pilot application of theses

In qualitative research, especially when data collection is done through interviews, pilot studies are conducted to develop questions and ensure the validity of the study. However, more than half of the theses examined ($n=64$) did not undergo a pilot study. This constitutes a significant proportion of all theses, at 65%. Pilot studies were conducted in 35% of theses. Pilot studies are considered an important step in qualitative research to test the accuracy of data collection tools. Patton (2014) stated that pilot studies are an important tool for increasing methodological validity, especially in studies conducted on complex social systems. However, as in the study by Şahin and Ocak (2019), studies in the field of health management often tend to skip this step and focus directly on data collection.

According to Patton (2014), the reliability of the researcher in qualitative research depends on the skill, competence and meticulousness of the person doing the fieldwork.

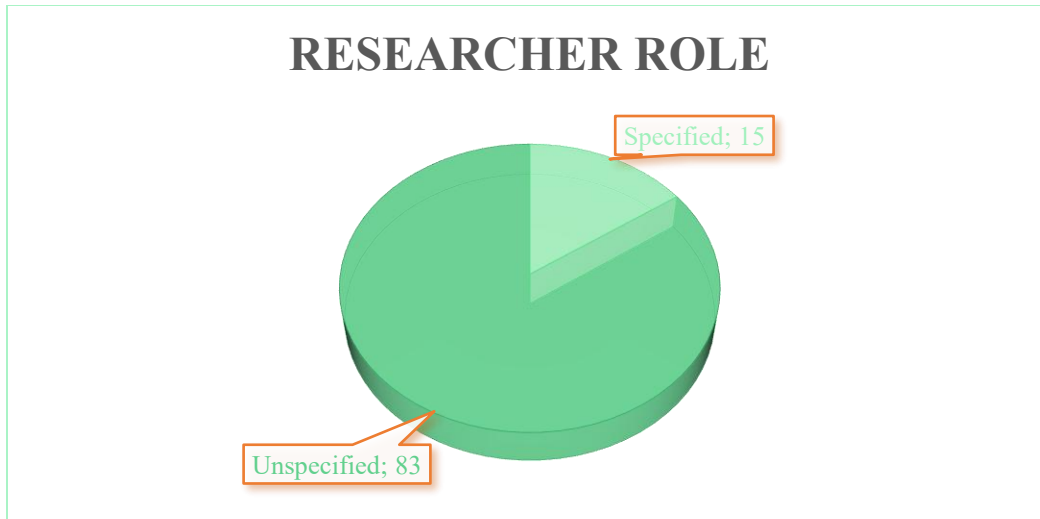


Figure 16. Researcher role in theses

In qualitative research, the researcher is someone present in the study field, in direct contact with individuals and society, and experiencing the events taking place. If the researcher plays a participatory role, this should be clearly stated (Yıldırım and Şimşek, 2016). Figure 16 shows that the role of the researcher is stated in only 15 of the examined theses. This percentage of all theses is 15.3%, a strikingly low rate. This situation highlights the importance of defining the role of the researcher in qualitative research. It also demonstrates the need for improved reporting standards in qualitative research. Qualitative researchers embrace the idea of the researcher as a tool in data collection. Researchers should reflect on their roles in the study, their personal histories, and how these shape their interpretations (Creswell and Poth, 2016).

3. DISCUSSION/CONCLUSIONS AND RECOMMENDATIONS

This study conducted a general assessment of the distribution and characteristics of theses using qualitative research methods in the field of health management. This assessment yielded significant findings regarding the departments, years, types of theses, languages used, institute distribution, and qualitative research designs used. Health Management was found to be the department with the highest concentration of theses using qualitative research methods within the field of health management. While the number of theses using qualitative methods has increased since 2010, more theses have been prepared at the doctoral level than at the master's level. Almost all of the published theses are in Turkish. These findings show that qualitative research has become more visible in postgraduate studies in health management. However, they also indicate that methodological reporting needs improvement. In qualitative theses, researchers should clearly

explain the research design, sampling strategy, data collection process, coding procedure, and trustworthiness techniques. This would improve the transparency and credibility of qualitative research in the field. This finding indicates that the main issue in qualitative theses in health management is not only the choice of methods, but also the justification and reporting of these methods. Failure to clearly report the research design, sampling strategy, and analysis process makes it difficult for readers to evaluate the methodological coherence of the study. When examined by institute, theses are mostly published in departments affiliated with the Institute of Social Sciences, with the Institute of Health Sciences ranking second. Phenomenology and case study designs were frequently employed in the theses. A notable deficiency is that the number of theses that did not specify a design was higher than the number that did. The lack of information regarding the design used is a deficiency that can be seen in the quality of the thesis. While the theses most frequently use purposive sampling, a significant portion of theses do not mention any sampling type. These theses include a minimum of 3 and a maximum of 251 participants. The interviews in these theses take a minimum of 10 days and a maximum of 730 days to complete. A large portion of theses lacked a pilot study and provided no information about the researcher's role. An interview form was used as the data collection tool, and some theses utilized a triangulation of data: interview form, observation, and document analysis. A voice recorder was used in 10 interviews, 64 interviews were recorded with a voice recorder, and no information was provided on how the data was collected for 18 interviews. It was also concluded that the majority of theses used a semi-structured form as the data collection technique, while only five theses used a structured form, and no information was provided about the characteristics of the data collection tool. A striking finding in the findings regarding the analysis method was that no analysis program was used in half of the theses. Content analysis, descriptive analysis and thematic analysis are the most preferred types of analysis, and these types are also included as a second type of analysis. The use of qualitative analysis software does not, by itself, guarantee the quality of qualitative research. However, such software may facilitate data organization, traceability of codes, and a more systematic analysis process. Therefore, in studies where analysis software is not used, it becomes even more important to explain in detail how coding and analysis were conducted.

The lack of any information on validity and reliability in 56 theses can be viewed as a scientific shortcoming. To increase scientific credibility, future theses should pay attention to methods for ensuring the validity and reliability of qualitative research.

The fact that healthcare managers, healthcare personnel, and healthcare professionals constitute the majority of the participant groups in theses prepared in the field of health management demonstrates the importance of healthcare professionals in this field. The fact that the sample for these theses consists of individuals from the field will enable us to gather their perspectives on problems experienced in the field and contribute to both administrative practices and policy-making processes. Furthermore, for a theses prepared in the field of health management, it provides the convenience of access to individuals from the field and provides a first-hand understanding of the situation. These results also have practical implications for postgraduate education. Graduate students should receive more systematic training on qualitative research design, sampling, coding, and trustworthiness. Thesis supervisors may also encourage students to report methodological decisions more clearly. This may help improve the quality and transparency of qualitative theses in health management.

As a result, it is recommended that the sampling method and research design should be clearly stated, more transparency should be provided in the data collection and analysis processes, and more emphasis should be placed on validity and reliability studies in order to conduct theses with qualitative research methods more meticulously.

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Informed Consent Challenges in Cross-Cultural Medical Tourism: A Narrative Review of Language, Legal, And Ethical Barriers in Patient Decision-Making

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Abstract

Aim: This narrative review examines how linguistic, legal, and ethical-cultural barriers influence the quality of informed consent in cross-cultural medical tourism and evaluates emerging strategies to strengthen patient autonomy and safety in cross-border healthcare.

Methods: A narrative review methodology informed by SANRA reporting principles was used. Literature published between 2000 and 2026 was identified through PubMed, Google Scholar, and institutional repositories of the WHO, OECD, and Joint Commission International. Twenty-four sources were purposively selected and synthesized thematically around linguistic, legal, ethical, and technological dimensions affecting informed consent

Results: Language discordance, jurisdictional asymmetries, and divergent ethical norms were found to significantly compromise patient comprehension, voluntariness, and legal protection in medical tourism settings. Additional challenges emerged from commercial facilitation structures, fragmented continuity of

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care, and uneven regulatory oversight. Recent developments in tele-consent systems, AI-assisted translation, and multilingual digital decision aids offer potential improvements but also introduce new concerns regarding accuracy, accountability, and equitable access.

Conclusion: Strengthening informed consent in medical tourism requires integrated multilingual communication strategies, transparent legal disclosure, culturally responsive governance, and ethically regulated digital health technologies. Harmonized standards and patient-centered oversight mechanisms are essential to support autonomy, safety, and trust in cross-border healthcare.

Keywords: Medical tourism, Informed consent, Ethics

INTRODUCTION

Medical tourism, the deliberate travel across international borders to access planned medical interventions, often elective procedures such as cosmetic surgery, dental care, fertility treatments, orthopaedic operations, or advanced cardiovascular and oncological therapies, has evolved from a niche phenomenon into a substantial component of global healthcare mobility (Organisation for Economic Co-operation and Development [OECD], 2012, 2024). Driven by escalating domestic healthcare costs in high-income countries, prolonged waiting lists for non-urgent procedures, perceived quality advantages in accredited facilities abroad, and aggressive marketing by destination providers and facilitators, the sector has demonstrated remarkable resilience and growth. Recent industry and policy analyses indicate that the global medical tourism sector continues to expand rapidly, driven by rising healthcare costs, prolonged waiting times, increasing international mobility, and the growing commercialization of cross-border healthcare services (OECD, 2024; World Health Organization, 2025). Countries in Asia (notably India, Thailand, and Malaysia), Europe (Hungary, Spain, and Germany for specific niches), and Latin America continue to dominate as destinations, attracting millions of patients annually from North America, Europe, the Middle East, and increasingly from within regions (OECD, 2024).

This expansion, while enhancing access to timely and affordable care for many individuals, simultaneously exposes patients to unique vulnerabilities that challenge the ethical and legal cornerstone of modern medicine: informed consent. Informed consent is not merely a procedural formality or signature on a document; it constitutes a process through which a competent patient receives clear, accurate, and comprehensible information about the nature of the proposed intervention, its anticipated benefits, material risks, reasonable alternatives, and the right to refuse

or withdraw at any time, all free from coercion, undue influence, or misrepresentation (Beauchamp & Childress, 2019; Bazzano et al., 2021). The principle rests on respect for patient autonomy, a value enshrined in international ethical frameworks such as the Declaration of Helsinki and reinforced by WHO guidance on patient rights and safety (Kurihara et al., 2023; WHO, 2019). In cross-cultural medical tourism, however, this process is frequently compromised by intersecting barriers that transcend simple translation issues. Language disparities, where patients encounter explanations in non-native languages or through inconsistent or unqualified interpreters, erode comprehension of complex risk-benefit profiles and post-procedure obligations (Snyder et al., 2011; Johnston et al., 2010). Legal asymmetries compound the problem: stringent autonomy-focused disclosure requirements typical of patients' home jurisdictions (e.g., detailed risk enumeration and independent second opinions) often contrast sharply with more procedural or paternalistic approaches in some destination settings, where liability protections may be limited, malpractice recourse difficult to pursue across borders, and regulatory oversight variable (Joint Commission International, 2020; AlAmer & AlQarni, 2024). Ethical tensions arise from cultural divergences in decision-making norms and from structural power imbalances inherent in transactional care models, where financial incentives for providers and facilitators can subtly influence risk communication toward optimism bias (Beladi et al., 2019; Mogaka et al., 2017). The World Health Organization has repeatedly emphasized patient safety in global care mobility, highlighting that inadequate informed consent contributes to avoidable harm, continuity-of-care gaps, and inequities in resource allocation within destination health systems (WHO, 2019, 2025). Similarly, OECD analyses medical tourism underscore exposure to disparate regulatory environments, fragmented follow-up arrangements, and heightened vulnerability among patients seeking care far from established support networks (OECD, 2012, 2024).

Empirical studies, including reviews of broker communications and patient experiences, consistently document incomplete or overly optimistic risk disclosure, cultural misunderstandings in consent processes, and practical difficulties in verifying comprehension amid brief pre-travel consultations or rushed on-site interactions (Snyder et al., 2011; Adams et al., 2015). These challenges are not peripheral; they strike at the heart of equitable global health. When informed consent becomes superficial and reduced to obtaining a signature rather than ensuring genuine understanding and voluntariness, patients risk unrealistic expectations, unanticipated complications without adequate recourse, and erosion of trust in cross-border care.

Moreover, unchecked growth in medical tourism without robust safeguards may exacerbate local health inequities in destination countries by diverting skilled personnel and infrastructure toward higher-paying international patients (World Medical Association, 2018).

Accordingly, this narrative review aims to examine how linguistic, legal, and ethical-cultural barriers interact to compromise the substantive quality of informed consent in cross-cultural medical tourism. To structure the review, the study addresses the following research questions:

RQ1: To what extent does language discordance impair patients' comprehension of procedural risks, benefits, and alternatives, and which structured interventions may reduce these gaps?

RQ2: How do jurisdictional asymmetries in disclosure standards, malpractice liability, and regulatory oversight shape patients' substantive consent rights and capacity for legal recourse?

RQ3: In what ways do divergent ethical frameworks, relational decision-making norms, and commercial incentives influence disclosure practices, voluntariness, and the verifiability of informed consent?

RQ4: Which integrated multi-level strategies including legal, linguistic, technological, and institutional interventions may strengthen informed consent processes in medical tourism?

By addressing these questions, the review seeks to provide an integrated conceptual understanding of informed consent vulnerabilities in cross-border healthcare while identifying practical and policy-oriented pathways for improving patient autonomy, safety, and transparency.

1. RESEARCH METHODOLOGY

This narrative review was designed as a narrative review to provide an interpretive and conceptually integrated synthesis of the literature addressing informed consent challenges in cross-cultural medical tourism. A narrative review methodology was selected because the topic spans interdisciplinary domains including bioethics, health policy, international healthcare management, patient safety, and cross-cultural communication, where heterogeneous evidence and conceptual discussions predominate over standardized empirical datasets.

Unlike systematic reviews, narrative reviews allow flexible integration of ethical analyses, policy frameworks, qualitative findings, and international regulatory perspectives to generate contextual and forward-looking interpretations. The review process was informed by the Scale for the Assessment of Narrative Review Articles (SANRA) reporting principles proposed by Baethge

et al. (2019), particularly regarding transparency of objectives, literature selection logic, and synthesis structure.

Literature searches were conducted between January and March 2026 using PubMed (MEDLINE), Google Scholar, and official repositories of the World Health Organization (WHO), Organisation for Economic Co-operation and Development (OECD), and Joint Commission International (JCI). The search strategy was derived from the study's research questions and combined keywords including "medical tourism," "cross-border healthcare," "informed consent," "language barriers," "ethical issues," "legal barriers," "patient autonomy," "cultural competence," "tele-consent," and "digital health communication."

The initial search process yielded 110 records across databases and institutional repositories. After preliminary screening for relevance, duplication, conceptual overlap, and alignment with the review objectives, 24 sources were included in the final synthesis.

Inclusion criteria consisted of: (i) peer-reviewed academic publications or authoritative institutional reports; (ii) direct relevance to informed consent processes in medical tourism or cross-border healthcare; (iii) discussion of linguistic, legal, ethical, or technological dimensions affecting patient decision-making; and (iv) English-language availability. Priority was given to publications from 2000 onwards to capture contemporary developments in global healthcare mobility.

Exclusion criteria included purely promotional market reports lacking analytical or ethical relevance, duplicate publications, non-English sources, and studies focused exclusively on domestic healthcare settings without cross-border implications. Study selection followed a purposive and thematic approach consistent with narrative review methodology. Titles, abstracts, executive summaries, and full texts were screened for conceptual relevance to the review questions. Sources were selected based on their contribution to understanding the interaction between linguistic barriers, legal asymmetries, ethical-cultural norms, and patient autonomy within medical tourism contexts.

In line with narrative review conventions, no formal risk-of-bias assessment or quantitative quality scoring system was applied. Instead, sources were evaluated according to relevance, conceptual contribution, publication credibility, citation influence, and consistency with international ethical and patient-safety frameworks.

2. ANALYSIS

2.1. Impact on Patient Comprehension

Effective informed consent hinges on genuine comprehension: patients must understand not only the literal meaning of disclosed information but also its probabilistic, contextual, and personal implications. In cross-cultural medical tourism, language barriers systematically undermine this requirement. Most destination countries rely on English as the lingua franca of international patient communication, yet proficiency levels among clinical staff vary widely, and patients themselves frequently possess only limited functional English, particularly when discussing nuanced medical concepts such as relative versus absolute risk, long-term sequelae, or quality-of-life trade-offs (Snyder et al., 2011).

Empirical evidence consistently documents these deficits. Qualitative studies of medical tourists from non-English-speaking high-income countries report frequent experiences of rushed consultations, incomplete explanations, and reliance on non-professional interpreters (family members, hotel staff, or facilitators), all of which correlate with lower perceived understanding of risks and alternatives (Johnston et al., 2010; Mashayekhi & Farzanehpour, 2025). Quantitative work in analogous settings, such as multilingual tertiary hospitals, shows that patients with limited English proficiency have significantly lower rates of fully informed consent documentation and poorer recall of key elements (e.g., major complications, alternative treatments) even when professional interpreters are used sporadically (Bazzano et al., 2021). In medical tourism, where pre-procedure interactions are often virtual, brief, and mediated by commercial facilitators, these problems intensify: optimistic framing predominates, technical jargon persists untranslated, and patients may nod affirmatively to maintain social harmony rather than admit misunderstanding (Adams et al., 2015).

The consequences extend beyond immediate decision-making. Miscomprehension contributes to unrealistic expectations (e.g., underestimation of revision rates in cosmetic procedures or recovery timelines in joint replacements), delayed recognition of postoperative complications, and fragmented continuity of care upon return home (Kurihara et al., 2023; World Health Organization [WHO], 2019). WHO guidance on patient safety in medical travel explicitly identifies inadequate language support as a modifiable risk factor for avoidable harm, noting that language discordance amplifies vulnerability in already complex cross-border pathways (WHO, 2019).

2.2 Strategies for Overcoming Language Challenges

Mitigating language barriers demands more than ad hoc translation; it requires structured, verifiable systems embedded in the care pathway. Best-practice recommendations include provision of procedure-specific consent forms in the patient's preferred language, use of qualified medical interpreters (certified and bound by confidentiality rather than ad hoc or telephone services when feasible), and pre-travel educational materials co-developed with linguistic and cultural experts (Joint Commission International, 2020; Beauchamp & Childress, 2019). Accreditation programs such as those from the Joint Commission International (JCI) and the International Society for Quality in Health Care increasingly mandate multilingual documentation and cultural-competency training for staff interacting with international patients. Emerging digital tools multilingual decision aids, animated risk visualisations, and asynchronous clarification platforms offer promise for enhancing comprehension without relying solely on real-time interpretation (World Health Organization [WHO], 2023). Pilot interventions in destination hospitals have demonstrated improved patient-reported understanding and satisfaction when standardised, translated materials are combined with teach-back methods (where patients restate key information in their own words) (Organisation for Economic Co-operation and Development [OECD], 2024). Nevertheless, implementation remains uneven. Many facilitators and lower-tier providers continue to prioritise speed and volume over linguistic precision, and even accredited facilities report resource constraints that limit consistent interpreter availability (AlAmer & AlQarni, 2024).

Moreover, comprehension is not solely linguistic; it intersects with health literacy, cultural conceptualisations of risk, and trust in the provider factors that require broader cultural humility training beyond translation services alone (WHO, 2023). Taken together, language barriers in medical tourism transform informed consent from a robust safeguard of autonomy into a fragile and frequently superficial process. Overcoming them necessitates not incremental adjustments but deliberate redesign of communication protocols to prioritise verifiable understanding over procedural completion.

2.3. Legal Barriers in Cross-Cultural Medical Tourism

2.3.1 Variations in Legal Frameworks Across Jurisdictions

Legal safeguards surrounding informed consent exhibit marked heterogeneity across national jurisdictions, creating a fragmented landscape for patients who cross borders for care. High-income source countries such as the United States, Canada, the United Kingdom, and most

EU member states typically enforce robust, autonomy-centric standards rooted in common-law or civil-law traditions. These require comprehensive, individualized disclosure of material risks (often quantified where possible), clear delineation of alternatives, explicit voluntariness, and documentation that withstands judicial scrutiny in the event of litigation (Beauchamp & Childress, 2019; AlAmer & AlQarni, 2024). Courts in these jurisdictions have repeatedly upheld the principle that consent must be informed in a manner comprehensible to the reasonable patient, not merely the reasonable physician (World Health Organization, 2025).

In contrast, many popular medical tourism destinations particularly in Southeast Asia (Thailand, Malaysia), South Asia (India), Europe–Middle East healthcare corridor and parts of Latin America operate under legal regimes that, while increasingly aligned with international accreditation standards, often retain more procedural or provider-oriented approaches to consent. Disclosure obligations may be satisfied through standardised forms or verbal explanations in the dominant local or English language, with less emphasis on verifying patient-specific comprehension or documenting alternatives exhaustively (Joint Commission International, 2020; AlAmer & AlQarni, 2024).

Malpractice liability thresholds can be higher, statutes of limitation shorter, and cross-border enforcement mechanisms weak or non-existent, rendering home-country legal protections largely theoretical (Organisation for Economic Co-operation and Development [OECD], 2024). This jurisdictional mismatch generates several concrete risks. Patients may sign consent documents that appear compliant in the destination context but would be deemed inadequate under home-country law, leaving them without realistic recourse for alleged deficiencies in disclosure (Mogaka et al., 2017; Beauchamp & Childress, 2019). OECD analyses of medical tourism highlight that patients frequently encounter “legal limbo”: home-country courts may decline jurisdiction over foreign providers, while destination-country systems offer limited avenues for non-residents to pursue claims, especially when complications manifest after return (OECD, 2012, 2024). Empirical reviews of patient complaints and litigation patterns in medical tourism confirm that inadequate informed consent ranks among the leading grievances, often compounded by difficulties in obtaining medical records or expert testimony across borders (Le et al., 2024). To illustrate these asymmetries, a conceptual framework can be useful.

The following figure 1 (to be generated separately) depicts a comparative matrix of key informed consent elements across representative jurisdiction: Vertical axis: Core elements of

informed consent (nature of procedure, benefits, material risks, alternatives, right to refuse/withdraw, voluntariness). Horizontal axis, Jurisdictional archetypes (High-income source countries; Accredited middle-income destinations; Less-regulated settings) and cells Intensity/emphasis of legal requirement (strong/mandatory; moderate/procedural; variable/minimal), with colour coding or shading to highlight divergences.

	High-Income Source Countries (USA, UK, Canada)	Accredited Middle-Income Destinations (Thailand, India, Turkey with JCI)	Variable or Less-Regulated Settings
Disclosure of Procedure Nature	 Strong / Mandatory	 Moderate / Procedural	 Variable / Minimal
Expected Benefits	 Strong / Patient-Standard	 Moderate / Physician-Standard	 Variable / Minimal
Material Risks (including Quantification)	 Strong / Detailed	 Moderate / Basic	 Variable / Minimal
Reasonable Alternatives	 Strong / Mandatory	 Moderate / Procedural	 Variable / Minimal
Right to Refuse / Withdraw	 Strong / Mandatory	 Moderate / Procedural	 Variable / Minimal
Voluntariness and Absence of Coercion	 Strong / Mandatory	 Moderate / Procedural	 Variable / Minimal

Figure 1. Comparative Legal Frameworks for Informed Consent in Medical Tourism Jurisdictions

Note: The figure presents a conceptual comparison of informed consent standards across representative jurisdictional archetypes synthesized from WHO guidance, OECD analyses, and international accreditation frameworks. The categories are illustrative rather than exhaustive and are intended to demonstrate relative differences in disclosure intensity, patient autonomy protections, and procedural safeguards.

These legal disparities directly erode patient autonomy by constraining the conditions under which truly informed, voluntary decisions can occur. When disclosure falls short of home-country benchmarks whether through abbreviated risk communication, optimistic bias introduced by facilitators, or cultural norms that prioritise trust in the physician over exhaustive detail patients may proceed with interventions they would decline if fully apprised under familiar legal standards (Beladi et al., 2019).

The transactional nature of medical tourism further amplifies this vulnerability: financial incentives for providers and intermediaries can subtly skew information toward reassurance rather than candour, while patients, often motivated by urgency or cost, may accept incomplete explanations to avoid derailing travel plans (Snyder et al., 2011). Liability implications are equally troubling. Patients who experience adverse outcomes attributable to inadequate consent face formidable barriers to redress. Cross-border litigation is costly, protracted, and frequently unsuccessful due to forum non-convenient doctrines, sovereign immunity defences in public facilities, or practical obstacles in serving process and enforcing judgments abroad (AlAmer & AlQarni, 2024; Kurihara et al., 2023). International ethical guidance, including statements from the World Medical Association, urges explicit pre-travel disclosure of these legal differences so that patients can weigh them in decision-making (World Medical Association, 2018). Yet compliance remains inconsistent, and few destination providers routinely include such warnings in consent processes or marketing materials (AlAmer & AlQarni, 2024). In aggregate, the prevailing legal patchwork in medical tourism shifts risk disproportionately onto patients, transforming autonomy from a protected right into a contingent privilege shaped by the weakest link in the jurisdictional chain. Addressing this requires not only bilateral agreements or harmonised minimum standards but also proactive transparency mechanisms that empower patients to anticipate and navigate these asymmetries before departure.

2.3.2 The Turkish Medical Tourism Context and Informed Consent Governance

Türkiye has emerged as a major transcontinental hub for medical tourism due to its combination of internationally accredited healthcare institutions, comparatively lower treatment costs, advanced hospital infrastructure, and strategic geographic location connecting Europe, Asia, and the Middle East. In addition to extensive investments in health tourism promotion, the Turkish healthcare system has increasingly integrated international accreditation frameworks, particularly Joint Commission International (JCI) standards, into private and tertiary-care hospital governance structures. The governance of informed consent in Türkiye is shaped by multiple overlapping regulatory and ethical instruments, including the Patient Rights Regulation, the Turkish Medical Association's Code of Medical Ethics. Collectively, these frameworks emphasize patient information rights, voluntariness, confidentiality, and the physician's obligation to provide comprehensible disclosure regarding risks, benefits, and treatment alternatives. (Pirzada, 2022; Ministry of Health of the Republic of Türkiye, 2025)

Nevertheless, important implementation challenges remain in cross-border care settings. International patients frequently encounter language discordance, variable interpreter availability, time-constrained consultations, and differing expectations regarding physician authority and family involvement in decision-making. In high-volume private-sector environments, informed consent processes may risk becoming proceduralized rather than dialogical, particularly when commercial facilitation intermediaries are involved. At the same time, Türkiye also represents an important example of how middle-income destination countries can attempt to harmonize international accreditation standards with national patient-rights legislation. This intersection between global accreditation systems and domestic ethical-legal governance remains underexplored in international medical tourism literature and warrants further comparative research.

2.4. Cultural Differences in Ethical Norms

Informed consent is deeply embedded in ethical principles that vary across cultural contexts, and medical tourism routinely juxtaposes these differences. Western bioethical frameworks, predominantly influenced by Beauchamp and Childress's principlism, prioritise individual autonomy as the paramount value, mandating detailed, personalised disclosure and unilateral patient decision-making free from external pressure (Beauchamp & Childress, 2019; Christoforidis & Anastasiadou, 2025). This individualistic paradigm underpins consent practices in most high-income source countries, where patients are expected to weigh information independently and exercise self-determination.

In many destination countries, however particularly in parts of Asia, the Middle East, and Latin America, ethical decision-making often follows more relational or collectivist models. Family involvement is not merely permitted but frequently expected or normative; senior family members may assume proxy authority, and disclosure may be tempered to protect the patient from anxiety or to preserve harmony (Organisation for Economic Co-operation and Development [OECD], 2024; Connell, 2006). Religious or spiritual worldviews can further shape norms: some traditions discourage explicit discussion of mortality risks or fatal complications, viewing such candour as potentially harmful or inauspicious (Connell, 2006). When patients from autonomy-centric cultures encounter these collectivist approaches, the result is often misalignment: what the provider regards as respectful family-centred care may be perceived by the patient as paternalistic interference or coercion (Agochukwu-Mmonu & Chung, 2019).

Medical tourism exacerbates these tensions through structural factors. Commercial facilitators and destination providers operate in a market-driven environment where retaining the paying client is paramount; this can lead to subtle (or overt) pressure to downplay risks, expedite consent, or defer to family preferences even when the patient expresses discomfort (Beladi et al., 2019). Qualitative accounts from returned medical tourists frequently describe feeling marginalised in decision processes dominated by interpreters, companions, or providers who interpret cultural norms in ways that sideline individual voice (Adams et al., 2015; World Medical Association, 2018). Such dynamics risk converting informed consent into a culturally inflected performance rather than a genuine safeguard of autonomy.

2.4.1 Balancing Beneficence and Justice in Global Contexts

Beyond cultural relativism, medical tourism raises broader ethical questions about beneficence (acting in the patient's best interest) and justice (fair distribution of benefits and burdens). Providers in destination settings face dual loyalties: maximising benefit for the international patient who funds premium services, while managing finite resources within local health systems that often serve populations with greater unmet needs (Medhekar et al., 2020). The diversion of skilled personnel, operating theatres, and intensive-care capacity toward elective tourism procedures can indirectly compromise care quality for both tourists and locals, raising concerns about whether true beneficence is achievable when systemic strain is present (Christoforidis & Anastasiadou, 2025; Mashayekhi & Farzanehpour, 2025).

Justice is further implicated in consent quality itself. Patients from high-income countries benefit from mobility and choice, yet this privilege rests on global inequities that make lower-cost care viable in middle-income destinations (World Medical Association, 2018; Mashayekhi & Farzanehpour, 2025). Ethical critiques argue that overly optimistic or incomplete risk disclosure sometimes framed as “cultural sensitivity” or “positive framing” may exploit patients' information asymmetry and desperation, violating the duty of non-maleficence (Mashayekhi & Farzanehpour, 2025). WHO patient safety frameworks underscore that ethical care in cross-border contexts must include transparent acknowledgment of these structural imbalances, ensuring that consent processes do not obscure the broader societal trade-offs inherent in medical tourism (World Health Organization [WHO], 2019, 2025).

To illustrate the interplay of these ethical principles across cultural and systemic dimensions, the table below provides a structured overview:

This table 1 highlights how ethical norms intersect with market dynamics to create consent vulnerabilities that are difficult to resolve through unilateral cultural adaptation alone.

Table 1. Integrated Conceptual Framework of Linguistic, Legal, Ethical-Cultural, and Institutional Barriers Affecting Informed Consent in Medical Tourism

Ethical Principle	Western/Individualistic Emphasis	Collectivist/Relational Emphasis	Structural Tension in Medical Tourism	Implications for Patient Autonomy and Consent Integrity
Autonomy	Individual decision-making; detailed personal disclosure	Family-centred; senior members often guide or decide	Commercial pressure may override patient voice	Risk of perceived coercion or marginalisation
Beneficence	Full risk-benefit disclosure to enable best choice	Protection from harmful knowledge (e.g., mortality risks)	Optimistic framing to retain client; resource competition	Incomplete or biased information delivery
Non-maleficence	Avoid harm through exhaustive risk communication	Avoid psychological harm via selective disclosure	Overburdened systems increase complication risk	Consent may not reflect realistic harm probabilities
Justice	Equal application of standards regardless of origin	Prioritisation based on social hierarchy or need	Resource diversion from locals to paying tourists	Inequitable access and quality gaps obscured in consent

As illustrated in Table 1, informed consent vulnerabilities in medical tourism rarely emerge from a single barrier alone. Linguistic limitations may intensify legal misunderstandings, while ethical-cultural expectations may shape how risks are disclosed, interpreted, or questioned by patients. For example, inadequate interpretation services can weaken the patient's ability to understand liability limitations or post-treatment responsibilities, thereby compounding both ethical and legal vulnerabilities. The table also demonstrates that institutional safeguards such as accreditation systems, multilingual communication protocols, culturally responsive counseling, and standardized disclosure practices function most effectively when implemented as integrated rather than isolated interventions. This reinforces the argument that informed consent in cross-border healthcare should be understood as a multidimensional governance process rather than a

purely administrative or documentation-based requirement. Importantly, the comparative framework highlights that the substantive quality of informed consent depends not only on the transfer of information but also on the patient's capacity to comprehend, evaluate, and voluntarily act upon that information within diverse cultural, legal, and technological contexts.

The post-pandemic transformation of global healthcare delivery has significantly altered informed consent practices in medical tourism. Following the COVID-19 pandemic, cross-border healthcare increasingly incorporated telemedicine consultations, asynchronous pre-travel communication, digital consent platforms, multilingual educational interfaces, and AI-assisted translation technologies (AlAmer & AlQarni, 2024; Christoforidis & Anastasiadou, 2025). These developments have expanded the accessibility of pre-procedure information while simultaneously introducing new ethical, legal, and governance challenges (Mashayekhi & Farzanehpour, 2025; Mogaka et al., 2017). Tele-consent systems and virtual consultations may improve continuity and accessibility by allowing patients to receive information before international travel, thereby reducing time pressure during on-site decision-making (Bazzano et al., 2021). Similarly, multilingual digital decision aids, automated subtitle systems, and real-time machine translation applications have the potential to reduce language discordance and improve procedural comprehension, particularly for patients without access to certified medical interpreters (Beauchamp & Childress, 2019; Le et al., 2024).

In summary, ethical barriers in medical tourism are not merely cultural misunderstandings but manifestations of deeper asymmetries in power, resources, and normative expectations. Meaningful progress demands ethical reflexivity: providers and facilitators must move beyond superficial cultural competency toward genuine dialogue that respects diverse values while upholding non-negotiable minima of autonomy, transparency, and justice.

3. DISCUSSION/CONCLUSIONS AND RECOMMENDATIONS

The barriers delineated throughout this review linguistic discordance, legal fragmentation, and ethical-cultural misalignment do not operate in isolation; they interact synergistically to render informed consent in cross-cultural medical tourism fragile and often performative. Language limitations erode comprehension, jurisdictional asymmetries constrain meaningful recourse, and cultural-normative divergences can mask subtle coercion or incomplete disclosure. Together, these factors transform a process intended to protect autonomy into one that, in its weakest

manifestations, merely secures procedural compliance while exposing patients to preventable harm and eroded trust.

Yet the evidence also points toward feasible remediation. Integrated strategies must target the entire care pathway: pre-travel risk education using multilingual, health-literacy-adapted digital decision aids; mandatory deployment of certified medical interpreters throughout consultations; standardised, jurisdictionally transparent consent templates that explicitly flag legal and cultural differences; and routine teach-back verification to confirm understanding rather than mere signature acquisition. Accreditation bodies and destination governments could incentivise these practices through tiered recognition schemes, while source-country health authorities might integrate medical-tourism risk counselling into routine pre-travel health advisories.

Digital innovation holds particular promise secure platforms enabling asynchronous clarification, visual risk representations, and continuity-of-care coordination across borders could bridge gaps that currently fragment responsibility across cross-border care pathways. Critically, such tools must be co-designed with input from diverse patient populations to avoid reinforcing existing inequities.

Policymakers in both source and destination countries should prioritise harmonisation of minimum informed-consent standards for cross-border care, potentially under WHO or OECD auspices, without suppressing legitimate jurisdictional variation. Mandatory pre-procedure disclosure of legal recourse limitations, interpreter qualifications, and post-procedure continuity arrangements would empower patients to make contextually realistic choices. Commercial facilitators require tighter regulations to prevent overly optimistic marketing that undermines balanced risk communication.

For providers, the imperative is ethical reflexivity: moving beyond token cultural competency toward genuine partnership models that respect relational decision-making norms while safeguarding irreducible minima of individual autonomy and transparent risk disclosure. Longitudinal patient-outcome registries, stratified by procedure and destination, would generate much-needed evidence on consent quality and its downstream effects on safety and satisfaction. Future research should shift from descriptive accounts toward intervention studies evaluating the efficacy of combined linguistic, legal, and ethical safeguards. Comparative effectiveness trials of digital versus in-person consent augmentation, qualitative explorations of power dynamics in

collectivist-provider interactions, and policy analyses of bilateral agreements on liability and continuity would all advance the field.

This narrative review has several limitations that should be acknowledged. First, the study adopted a purposive and interpretive narrative-review methodology rather than a systematic review design; therefore, source selection and thematic interpretation may reflect a degree of author subjectivity. Second, only English-language publications and institutional reports were included, which may have limited representation of perspectives from non-English-speaking destination countries and local regulatory contexts.

Third, no formal risk-of-bias assessment or quantitative quality appraisal was conducted, consistent with the exploratory and conceptual aims of narrative reviews. Although priority was given to high-impact peer-reviewed literature and authoritative institutional frameworks, variations in methodological rigor across included sources remain possible. Fourth, much of the available literature on informed consent in medical tourism reflects the perspectives of patients from high-income source countries, potentially underrepresenting the experiences of patients, healthcare professionals, and regulators in destination settings.

Finally, the rapidly evolving nature of digital health technologies, tele-consent systems, and AI-assisted communication tools means that some regulatory and technological developments may continue to evolve beyond the timeframe captured in this review. Despite these limitations, the study provides an integrative conceptual synthesis intended to support future empirical, comparative, and policy-oriented research on informed consent governance in cross-border healthcare.

In conclusion, medical tourism offers undeniable benefits in access and affordability, yet its sustainability hinges on restoring substantive informed consent as a non-negotiable safeguard. By confronting language, legal, and ethical barriers through deliberate, evidence-informed redesign rather than incremental patchwork, the global community can transform cross-border care from a source of vulnerability into a model of equitable, patient-centred innovation. Failure to act risks entrenching avoidable harm in an increasingly mobile healthcare landscape; decisive, collaborative action can instead secure autonomy, safety, and justice for all who seek care beyond borders.

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An Examination of Expatriates' Awareness of Health Tourism in Turkey ^a

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Abstract

Aim: To determine the awareness levels of Turkish citizens (expatriates) living in Europe regarding health tourism in Turkey, and whether this awareness varies according to demographic variables.

Methods: In this study, the survey model, one of the quantitative research methods, was employed. While the population of the research consists of Turkish citizens living in Europe (expatriates), the sample comprises 498 participants who fully completed the online survey form. The 17-item "Health Tourism Awareness Scale" developed by Yaba (2022) was used as the data collection tool. The analysis of the data obtained was performed using the SPSS 22.0 statistical software package.

Results: In the context of educational status, it was determined that the awareness and positive perceptions of expatriates with basic and secondary education levels were higher than those of higher education graduates. Taking the region of residence into consideration, it was found that expatriates residing in

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Northern Europe have a higher general awareness and image perception regarding health tourism compared to those living in Western and Southern Europe. Additionally, it was understood that the awareness and perceptions of the participants whose hometowns in Turkey are in the Eastern and Southeastern Anatolia regions are higher, especially compared to those from the Marmara and Black Sea regions

Conclusion: When the sub-dimensions of the scale were examined, it was determined that the perception of "institutional competence" had the lowest average, while the "effects of health tourism" dimension had the highest average. As a result, it is emphasized that Turkey's potential in the field of health tourism is largely known by expatriates; however, in order to fully utilize this potential, there is a need for target-audience-oriented special promotion and communication strategies that will address institutional trust deficiencies and take demographic differences such as region and gender into account.

Keywords: Health Tourism: Awareness: Expatriates

INTRODUCTION

There appears to be a general consensus in the literature regarding the definition of the concept of medical tourism (Acar, Turan 2016; Aktepe 2013; Altın et al. 2012; Bülbül 2015). Within this consensus, health tourism is defined as a form of tourism encompassing journeys made by individuals outside their own country to receive medical treatment, rehabilitation or other health-related services. In this context, health tourism covers not only medical interventions but also a wide range of services such as rehabilitation, dental care, advanced diagnostic tests and diagnostic services. Globally, and particularly in Turkey, a large number of patients are seeking various options to maintain a healthy lifestyle. Patients first explore suitable treatment options in their local area; however, when local facilities are insufficient, they may be forced to travel to other cities or countries. Although high-quality and rapid treatment options are available in developed countries, the cost of these services is quite high. Consequently, patients unable to afford these high costs opt for alternative treatment methods (Göçer, Aydın 2016).

When planning their trips, patients consider both the accommodation and transport arrangements related to their treatment process and the support mechanisms available during this process, such as insurance, translation and guidance services (Göçer, Aydın 2016). Viewed on a global scale, the medical tourism market is growing at double-digit rates each year and, as of 2020, has reached a volume exceeding approximately 150 billion US dollars. Within this market share, developing countries are securing a share of this pie thanks to their low-cost advantage and rapid

service delivery, whilst developed countries are gaining a competitive edge through high technology and accreditation standards (Kuşat, Esen 2022).

When examined from a historical perspective, health tourism has emerged in various forms throughout different periods of human history and has evolved over time to attain its current multifaceted structure. It has been a common phenomenon throughout history for people to travel beyond their own region to other areas in search of recovery, healing and improved well-being. According to Aydın (2012), during the Ancient Greek period, individuals visited thermal water sources located in the Mediterranean basin for therapeutic purposes. In this period, health tourism was generally practised in close association with religious beliefs and natural resources. It is known that the so-called ‘Asklepions’—temples of healing—served as the health centres of this era. Research by the Turkish Health Foundation and the Health Association (2012) reveals that health tourism underwent significant development in subsequent centuries, particularly during the Renaissance. Between the 14th and 17th centuries, a period marked by the rise of art and science, notable advancements were also made in the field of health. For example, with the discovery of iron-rich thermal springs in the region known as Ville d’Eaux (Town of Waters) in Europe in 1326, the foundations were laid for the concept of ‘SPA’ that is widely used today. In this context, SPA centres not only provide healing but also fulfil the functions of socialising and spiritual relaxation. With the discovery of the New World, health tourism became increasingly diverse and spread across vast geographical areas during the 17th century. It is known that English and Dutch settlers established primitive health facilities on the American continent by constructing wooden structures around mineral springs. During this period, the indigenous peoples’ mastery of herbal treatment methods was also closely observed by European travellers, and over time this knowledge was transmitted through intercontinental interaction (Gülen, Demirci 2012). Herbal cures, natural healing waters and massage techniques were particularly in vogue during this period. By the 18th century, members of Europe’s wealthy classes had begun travelling to different regions in pursuit of a healthy lifestyle. It is evident that the thermal springs around the Nile River became attractive destinations for health-seeking Europeans during this period. Such journeys were undertaken not only for physical recovery but also with the aim of spiritual purification (Smith, Puczkó 2009). By the 21st century, the direction of health tourism had shifted, with a significant increase in demand for countries offering access to lower-cost, high-quality healthcare services. In particular, high

healthcare costs and long waiting times in developed countries have led individuals to seek alternative solutions (Connell 2013).

Following its historical development, health tourism has now become a major global industry. Among the leading countries in the field of medical tourism worldwide are Panama, Brazil, Malaysia, Costa Rica and India. These countries stand out for their affordable healthcare services and technological infrastructure (Özer, Songur 2012). In terms of thermal tourism, India, Turkey and Malaysia stand out, whilst destinations such as Hungary, the Czech Republic, Austria, Bali and the Maldives are favoured for spa and wellness. In Europe, Germany is one of the leading countries in the utilisation of thermal resources, whilst the Czech Republic and Slovakia attract health tourists with their modernised spa infrastructure. Similarly, Mediterranean countries such as France, Spain and Italy also host a large number of thermal facilities. Russia possesses significant tourism potential with its spa centres, whilst Japan boasts over 1,500 spa facilities, combining its historical heritage in this field with modern technology. In the United States, too, an increase in investment in thermal facilities has been observed, particularly in recent years. Hungary, meanwhile, is regarded as one of Europe's key health centres thanks to its geothermal resources and strategic location (Aktepe 2013). Across the Asian continent, India stands out as one of the leading countries in terms of health tourism.

It has become a preferred destination for citizens of many countries, particularly due to the quality of its medical services and the advantage of affordable prices. Countries such as Singapore, Indonesia, Malaysia and China are attractive destinations for medical tourists from South Asia and the Middle East. Thailand, meanwhile, is a regional leader in the fields of cosmetic surgery, organ transplantation, dentistry, orthopaedics, cardiology and general surgery. With its advanced healthcare infrastructure, team of specialist doctors and patient-friendly practices, the country attracts a significant flow of patients. Countries such as Jordan, Saudi Arabia and South Korea are also prominent destinations in the medical tourism sector, thanks to the quality of their healthcare services and regional advantages (Connell 2006; Western Mediterranean Development Agency 2013).

In addition to these dynamics in the global market, Turkey has made significant strides in the field of medical tourism since the 1990s, establishing itself as a major global player in this sector. Various challenges faced in the 1980s—such as infrastructure deficiencies, the fragmented nature of the social security system, and issues regarding the qualifications of healthcare

personnel—were transformed into opportunities in the post-1990 period. In particular, the growing interest in medical tourism from both the public and private sectors from 2005 onwards, alongside initiatives such as the 2010–2014 strategic plans and the establishment of the Medical Tourism Unit in 2010, have brought management processes in the sector under a more centralised structure. Turkey has established a firm foothold in the field of health tourism, alongside its historical and natural heritage. Significant achievements have been recorded, particularly in areas such as organ transplantation, genetic diagnosis, eye health, cardiology and dentistry.

According to the World Tourism Organisation's (UNWTO) 2013 report, although the number of international patients visiting Turkey has increased, it remains below the global average. Whilst this indicates that the healthcare infrastructure and staff qualifications are beginning to improve, it also demonstrates that the sector has strong growth potential, despite remaining below the average for OECD countries. For Turkey to make further progress in this area, the infrastructure must be continuously strengthened, service quality must be raised to international standards, and promotional activities must be intensified. It is believed that Turkey could thus achieve a more competitive position in the global health tourism market and catch up with the global average (www.satirk.gov.tr, accessed 30 April 2024). Turkey is attracting the interest of an increasing number of tourists by improving the quality and efficiency of its health tourism sector. In this process, both public and private sector investments, alongside the improvement in the qualifications of healthcare personnel, have played a critical role. These developments have enabled Turkey to approach European standards and have provided momentum for the continuation of health tourism activities (Barca et al. 2013). As stated by Bülbül (2015), the reasons for choosing Turkey can be listed as follows:

Its strategic geographical location,
High-quality healthcare staff,
Cost-effectiveness,
Accredited and reliable healthcare institutions,
The number and quality of thermal springs,
Natural beauty,
Favourable climatic conditions,
A rich historical heritage.

Increasing competition in the field of medical tourism has given a strong impetus to Turkey's development efforts in this sector. Investments in the private sector, which gained momentum after the 2000s, have also influenced the public sector due to their high returns. Turkey has focused on enhancing the professional qualifications of healthcare personnel to attract more tourists; within this framework, education programmes in foreign languages have been expanded in medical faculties, thereby strengthening the capacity to provide services in line with international standards (Acar, Turan 2016). These strategic steps have reinforced Turkey's competitiveness in the medical tourism market, establishing the country as a leading destination.

When examining the impact of these developments in health tourism on the patient profile, the concept of 'mindfulness' comes to the fore. Mindfulness is defined as an individual's ability to consciously perceive what is happening in their surroundings, their internal processes, or a specific subject. This concept is particularly prominent within the discipline of psychology and meditation practices, and involves focusing one's attention on one's current experiences, thoughts, emotions and sensory perceptions, and accepting them without judgement. Furthermore, awareness can also refer to possessing a certain level of knowledge regarding a specific subject. For example, health awareness refers to individuals having knowledge about healthy living practices and using this knowledge effectively in their decision-making processes. An increase in this level of awareness is generally achieved through awareness-raising and educational activities (Akşit, Özsoy 2018).

On the other hand, mindfulness has a long history dating back some 2,500 years. It is known that this concept was first incorporated into daily practice by the Buddha. Over time, it has formed the basis of practice and philosophical systems in Buddhist monasteries (Almond 1988).

This concept, which can be translated into Turkish as 'a state of deep awareness', has been defined by Brown and Ryan (2003) as 'living in the present moment without judgement'. Mindfulness is regarded not merely as a mental state, but also as a practice and mental skill that is cultivated on a regular basis. This approach enables individuals to better analyse the reasons behind their reactions to environmental stimuli, to facilitate problem-solving processes, and to enhance their creativity (Steele 2008). Mindfulness is a state of consciousness that develops on the basis of "detachment", enabling the individual to confront distressing thoughts and emotions. The opposite of this is when an individual becomes overly identified with their emotions, leading to a loss of psychological balance (Ögel 2012). This state of consciousness is viewed as a universal skill that

can be developed regardless of an individual's mental capacity or demographic background, and it holds the potential to enhance life satisfaction and general well-being (Dutt, Ninov 2016). This level of awareness involves the individual observing and making sense of negative emotions without judgement, rather than suppressing or avoiding them (Kirkpatrick 2005).

Furthermore, in the literature, Grossman (2010) defines mindfulness as a path that transcends everyday life and transforms an individual's life. This approach supports inner peace and alleviates psychological distress by developing the individual's emotional, behavioural, cognitive, moral and social aspects. According to Çeliker (2017), however, this is defined as the ability to accept and observe the present moment as it is, without judgement. This definition is based on the individual directing their attention with an open and curious attitude.

When examining the implications of the concept of mindfulness in the context of tourism, it becomes apparent that the relationship between these two variables is noteworthy. The first study to examine the relationship between mindful awareness and tourism was conducted in 1986 by Moscardo and Pearce at a cultural heritage site in the United Kingdom. This research aimed to analyse how tourists perceive cultural heritage sites and how they evaluate the services provided. The findings revealed that tourists with a high level of awareness gained more information from these sites and experienced higher overall satisfaction (Moscardo & Pearce 2009). This clearly demonstrates the positive effects of conscious awareness on tourism experiences. Increasing awareness supports tourists in understanding historical and cultural sites more deeply and deriving a higher level of satisfaction from these experiences. A clear understanding of the concept of conscious awareness plays a significant role in identifying tourists with this characteristic; for such tourists are individuals who are open to learning, engage in in-depth evaluation, and take pleasure in deriving meaning from the sites they visit.

According to Moscardo (1996), conscious tourists experience cultural heritage sites more thoughtfully by engaging actively in the process of acquiring information. Furthermore, this state of awareness not only contributes to an enhanced quality of experience but also facilitates the establishment of a sustainable connection between the tourist and the heritage site. Tourists with a high level of awareness actively analyse information from their surroundings, approach activities at destinations with a critical perspective, and thereby gain a deeper understanding of the meaning of cultural heritage (Prentice, Guerin, McGugan 1998). As Moscardo (2009) notes, this profile holds a significant place in the tourism sector. This is because these individuals evaluate the areas

they visit more consciously than other tourists and avoid attitudes and behaviours that could harm the environment or other people. At the same time, these tourists experience a higher level of satisfaction with the places they visit and are inclined to recommend their experiences to others.

1. RESEARCH METHODOLOGY

In this study, which was conducted to determine the awareness levels of Turkish citizens living abroad regarding health tourism services in Turkey, a quantitative research method (Creswell, 2013, p. 4), where relationships between variables are analyzed using numerical data, was adopted. In this context, it was aimed to obtain realistic and reliable results by utilizing the survey model (Karasar, 2014, p. 77), which aims to describe the current situation in its natural state without any intervention.

Research data was collected using the "Health Tourism Awareness Scale" developed by Yaba (2022). The scale, which accounts for 52.31% of the total variance, consists of a total of 17 items in four sub-dimensions: awareness (6 items), institutional competence (5 items), effects of health tourism (3 items), and image (3 items).

Prior to the data collection process, ethical approval was obtained from the Sivas Cumhuriyet University Social Sciences Scientific Research Proposals Ethical Review Board with the decision dated November 20, 2024, and numbered E-99711239-050.04-492855. Following the ethical approval, the questionnaire was transferred to an online platform via Google Forms. Between December 20, 2024, and June 20, 2025, the questionnaire link was sent to 500 expatriates, and 498 individuals were reached within the scope of the research. Statistical analyses of the obtained data were performed using the SPSS software.

2. ANALYSIS

Table 1. Reliability Coefficients for the Health Tourism Awareness Scale

Sub-dimensions	Number of Items	Cronbach's Alpha
Awareness	6	0.92
Institutional Competence	5	0.94
Impacts of Health Tourism	3	0.91
Image	3	0.95
General Health Tourism Awareness	17	0.96

The overall Cronbach's alpha internal consistency coefficient for the 17-item Health Tourism Awareness Scale was calculated as 0.96. The reliability coefficients for its sub-dimensions were 0.92 for awareness (6 items), 0.94 for institutional competence (5 items), 0.91 for the effects of health tourism (3 items), and 0.95 for image (3 items). All values exceeding the 0.90 threshold indicates that the measurement tool and its sub-dimensions are highly reliable.

Table 2. Skewness and Kurtosis Values for the Health Tourism Awareness Scale

Sub-dimensions	N	Skewness Value	Skewness Error	Std. Kurtosis Value	Kurtosis Error	Std.
Awareness	498	-0.61	0.11	-0.64	0.22	
Institutional Competence	498	-0.29	0.11	-1.21	0.22	
Impacts of Health Tourism	498	-1.41	0.11	1.08	0.22	
Image	498	-0.68	0.11	-0.98	0.22	
General Health Tourism Awareness	498	-0.69	0.11	-0.54	0.22	

Skewness and kurtosis values (within the ± 2 range) confirmed that the data exhibited a normal distribution (George, Mallery 2010). Consequently, parametric tests (t-test and ANOVA) were utilized for the analysis, with the Tukey post-hoc test applied afterward to determine specific group differences.

Table 3. Demographic Characteristics of Migrants Participating in the Study

Variable	Category	N	%
Gender	Female	162	32.5
	Male	336	67.5
Age	18-25 Years	16	3.2
	26-35 Years	75	15.1
	36-45 Years	141	28.3
	46-55 Years	101	20.3
	56-65 Years	134	26.9
	66 Years and Over	31	6.2
Marital Status	Married	269	54.0
	Single	229	46.0

Education Level	Primary School	85	17.1
	Middle School	99	19.9
	High School	110	22.1
	Associate Degree	41	8.2
	Bachelor's Degree	124	24.9
	Postgraduate	39	7.8
Country of Residence	Western Europe (Germany)	126	25.3
	Western Europe (Belgium)	54	10.8
	Northern Europe (Denmark)	28	5.6
	Western Europe (France)	96	19.3
	Western Europe (Netherlands)	65	13.1
	Northern Europe (England)	44	8.8
	Southern Europe (Hungary)	15	3.0
	Southern Europe (Macedonia)	14	2.8
	Northern Europe (Norway)	50	10.0
	Southern Europe (Italy)	6	1.2
Hometown in Turkey	Eastern Anatolia (Ağrı)	14	2.8
	Marmara (Bilecik)	10	2.0
	Eastern Anatolia (Bingöl)	60	12.0
	Black Sea (Bolu)	74	14.9
	Mediterranean (Burdur)	11	2.2
	Marmara (Bursa)	14	2.8
	Aegean (Denizli)	15	3.0
	Central Anatolia (Konya)	26	5.2
	Aegean (Manisa)	16	3.2
	Central Anatolia (Sivas)	49	9.8
	Black Sea (Tokat)	82	16.5
	Mediterranean (Adana)	1	0.2
	Aegean (Afyonkarahisar)	5	1.0
	Central Anatolia (Ankara)	2	0.4

Mediterranean (Antalya)	1	0.2
Eastern Anatolia (Ardahan)	3	0.6
Aegean (Aydın)	1	0.2
Marmara (Balıkesir)	1	0.2
Black Sea (Bartın)	4	0.8
Eastern Anatolia (Bitlis)	6	1.2
Black Sea (Çorum)	5	1.0
Black Sea (Düzce)	3	0.6
Marmara (Edirne)	3	0.6
Eastern Anatolia (Elazığ)	5	1.0
Eastern Anatolia (Erzurum)	1	0.2
Central Anatolia (Eskişehir)	1	0.2
Southeastern Anatolia (Gaziantep)	1	0.2
Eastern Anatolia (Iğdır)	5	1.0
Mediterranean (Isparta)	5	1.0
Marmara (İstanbul)	3	0.6
Aegean (İzmir)	9	1.8
Eastern Anatolia (Kars)	6	1.2
Central Anatolia (Kayseri)	2	0.4
Aegean (Kütahya)	1	0.2
Aegean (Muğla)	7	1.4
Eastern Anatolia (Muş)	1	0.2
Black Sea (Ordu)	2	0.4
Mediterranean (Osmaniye)	1	0.2
Marmara (Sakarya)	6	1.2
Black Sea (Samsun)	4	0.8
Southeastern Anatolia (Siirt)	4	0.8
Marmara (Tekirdağ)	1	0.2
Black Sea (Trabzon)	3	0.6
Eastern Anatolia (Tunceli)	4	0.8

Southeastern Anatolia (Şanlıurfa)	1	0.2
Aegean (Uşak)	8	1.6
Eastern Anatolia (Van)	4	0.8
Central Anatolia (Yozgat)	7	1.4

An analysis of the demographic data in the table reveals that the profile of the 498-person group participating in the study consists predominantly of men (67.5%) and married individuals (54%). Looking at the age distribution, it is notable that the vast majority of participants are concentrated in the middle-aged and older age group (36–65 years), whilst the younger population is relatively small. Although educational backgrounds show a fairly diverse distribution, the largest shares are held by university graduates (24.9%), high school graduates (22.1%) and secondary school graduates (19.9%). Data on the countries where participants reside indicates that this group consists of the Turkish diaspora living in Europe; it is understood that participants reside predominantly in Western European countries, particularly Germany (25.3%) and France (19.3%). When examining their home regions in Turkey, although origins are spread across various regions, it is noted that the provinces of Bolu (14.9%) and Bingöl (12%) stand out significantly compared to others.

Table 4. t-Test for the Gender Variable in the Health Tourism Awareness Scale

Sub-dimensions	Gender	N	$\bar{X}$	SD	t	p
Awareness	Female	162	03.06	1.46	-4.36	0.000**
	Male	336	3.62	1.08		
Institutional Competence	Female	162	2.69	1.42	-6.37	0.000**
	Male	336	3.52	1.25		
Impacts of Health Tourism	Female	162	04.03	1.22	-1.95	0,052
	Male	336	4.25	1.06		
Image	Female	162	3.29	1.58	-3.33	0.001**
	Male	336	3.77	1.37		
General Health Tourism Awareness	Female	162	3.16	1.30	-4.91	0.000**
	Male	336	3.73	0.97		

According to the analysis, with the exception of the “effects of health tourism” sub-dimension ($p=0.052$), a statistically significant difference exists between men and women across all other dimensions (“Awareness”, “Institutional Competence”, “Image”, and “General Awareness”) ($p<0.05$). In all these dimensions, male participants scored significantly higher than female participants. In summary, the findings indicate that men possess higher levels of general health tourism awareness, positive image perceptions, and assessments of institutional competence compared to women.

Table 5. ANOVA Test for the Age Variable in the Health Tourism Awareness Scale

Sub-dimensions	Age	N	$\bar{X}$	SD	F	p	Post-Hoc
Awareness	18-25 Years	16	3.27	1.32	7.19	0.000**	56-65 Years > 26-35 Years 56-65 Years > 36-45 Years 56-65 Years > 46-55 Years 66 Years and Over > 26-35 Years 66 Years and Over > 36-45 Years 66 Years and Over > 46-55 Years
	26-35 Years	75	3.12	1.45			
	36-45 Years	141	3.24	1.23			
	46-55 Years	101	3.25	1.30			
	56-65 Years	134	3.82	0.98			
	66 Years and Over	31	4.15	0.94			
Institutional Competence	18-25 Years	16	2.70	1.52	7.73	0.000**	36-45 Years > 26-35 Years 46-55 Years > 26-35 Years 56-65 Years > 26-35 Years 66 Years and Over > 18-25 Years 66 Years and Over > 26-35 Years
	26-35 Years	75	2.57	1.43			
	36-45 Years	141	3.25	1.36			
	46-55 Years	101	3.22	1.37			
	56-65 Years	134	3.58	1.18			
	66 Years and Over	31	3.87	01.05			

Impacts of Health Tourism	18-25 Years	16	4.10	1.10	1.29 267	
	26-35 Years	75	4.15	1.13		
	36-45 Years	141	04.08	1.15		
	46-55 Years	101	4.15	1.18		
	56-65 Years	134	4.21	1.11		
	66 Years and Over	31	4.62	0.65		
Image	18-25 Years	16	3.15	1.51	4.68 0.000**	56-65 Years > 36-45 Years 66 Years and Over > 18-25 Years 66 Years and Over > 26-35 Years 66 Years and Over > 36-45 Years 66 Years and Over > 46-55 Years
	26-35 Years	75	3.35	1.62		
	36-45 Years	141	3.38	1.46		
	46-55 Years	101	3.60	1.46		
	56-65 Years	134	3.89	1.34		
	66 Years and Over	31	4.44	0.85		
General Health Tourism Awareness	18-25 Years	16	3.23	1.26	6.57 0.000**	56-65 Years > 26-35 Years 56-65 Years > 36-45 Years 66 Years and Over > 18-25 Years 66 Years and Over > 26-35 Years 66 Years and Over > 36-45 Years 66 Years and Over > 46-55 Years
	26-35 Years	75	3.18	1.24		
	36-45 Years	141	3.42	1.13		
	46-55 Years	101	3.46	1.22		
	56-65 Years	134	3.83	0.89		
	66 Years and Over	31	4.20	0.75		

An analysis of expatriates' health tourism awareness based on age reveals no significant differences in the “effects of health tourism” sub-dimension ($p>0.05$). However, significant differences were identified in the “awareness,” “institutional competence,” and “image” sub-dimensions ($p<0.05$). Upon closer examination, older participants—particularly those aged 56 and over (and 36 and over for institutional competence)—scored significantly higher than younger groups. In summary, the findings clearly indicate that as age increases, participants' health tourism awareness, positive image, and perceptions of institutional competence consistently improve.

Table 6. t-Test for the Marital Status Variable on the Health Tourism Awareness Scale

Sub-dimensions	Marital Status	N	$\bar{X}$	SD	t	p
Awareness	Married	269	3.86	1.04	8.66	0.000**
	Single	229	2.94	1.28		
Institutional Competence	Married	269	3.70	1.19	8.49	0.000**
	Single	229	2.72	1.36		
Impacts of Health Tourism	Married	269	4.41	0.96	5.15	0.000**
	Single	229	3.90	1.22		
Image	Married	269	3.97	1.28	06.05	0.000**
	Single	229	3.20	1.53		
General Health Tourism Awareness	Married	269	3.93	0.91	8.77	0.000**
	Single	229	03.09	1.18		

* $p<0.01$; * $p<0.05$

According to the analysis results in Table 6, which examines the levels of awareness of health tourism among expatriates according to the marital status variable; statistically significant differences were found between the groups both in the overall total of the scale and in all its sub-dimensions (“awareness”, “institutional competence”, “effects of health tourism” and “image”) ($p<0.05$). Upon examining the mean scores, it was found that married expatriates had significantly higher levels of both general health tourism awareness and perceptions regarding all sub-dimensions of the scale compared to single expatriates.

Table 7. ANOVA Test for the Educational Status Variable in the Health Tourism Awareness Scale

Sub-dimensions	Education Level	N	$\bar{X}$	SD	F	p	Post-Hoc
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Awareness	Primary School	85	3.97	1.16	14.49	0.000**	Primary School > Associate Degree Primary School > Bachelor's Degree Primary School > Postgraduate Middle School > Associate Degree Middle School > Bachelor's Degree Middle School > Postgraduate High School > Associate Degree High School > Bachelor's Degree High School > Postgraduate
	Middle School	99	3.72	01.09			
	High School	110	3.75	01.09			
	Associate Degree	41	2.93	1.20			
	Bachelor's Degree	124	2.91	1.22			
	Postgraduate	39	2.92	1.38			
Institutional Competence	Primary School	85	3.74	1.21	11.74	0.000**	Primary School > Associate Degree Primary School > Bachelor's Degree Primary School > Postgraduate Middle School > Associate Degree Middle School > Bachelor's Degree Middle School > Postgraduate High School > Associate Degree High School > Bachelor's Degree High School > Postgraduate
	Middle School	99	3.55	1.28			
	High School	110	3.58	1.30			
	Associate Degree	41	2.54	1.33			
	Bachelor's Degree	124	2.76	1.30			
	Postgraduate	39	2.83	1.40			
Impacts of Health Tourism	Primary School	85	4.43	0.95	3.51	0.004**	Primary School > Bachelor's Degree High School > Bachelor's Degree
	Middle School	99	04.09	1.25			
	High School	110	4.39	0.93			
	Associate Degree	41	4.24	01.08			
	Bachelor's Degree	124	3.95	1.16			
	Postgraduate	39	3.86	1.31			
Image	Primary School	85	4.13	1.17	5.98	0.000**	Primary School > Associate Degree Primary School > Bachelor's Degree Primary School > Postgraduate

General Health Tourism Awareness	Middle School	99	3.77	1.38	12.43	0.000**	PostgraduateMiddle School > Bachelor's DegreeHigh School > Bachelor's Degree
	High School	110	3.80	1.41			
	Associate Degree	41	3.27	1.62			
	Bachelor's Degree	124	3.19	1.47			
	Postgraduate	39	3.29	1.63			
	Primary School	85	04.01	0.95			
	Middle School	99	3.75	01.05			
	High School	110	3.82	1.00			
	Associate Degree	41	3.10	01.09			
	Bachelor's Degree	124	3.10	1.11			
	Postgraduate	39	3.12	1.29			

**p<0,01; *p<0,05

An analysis examining expatriates' health tourism awareness based on their educational status reveals statistically significant differences across all sub-dimensions of the scale (“awareness,” “institutional competence,” “effects,” and “image”) ($p<0.05$). Specifically, participants with primary, secondary, and high school education consistently scored significantly higher in these dimensions compared to those with higher education qualifications (associate, bachelor's, and postgraduate degrees). Broadly speaking, the findings indicate that expatriates with lower educational backgrounds (primary and secondary levels) possess higher awareness and more positive perceptions regarding health tourism than higher education graduates.

Table 8. ANOVA Test for the ‘Region of Residence’ Variable on the Health Tourism Awareness Scale

Sub-dimensions	Region of Residence	N	$\bar{X}$	SD	F	p	Post-Hoc
Awareness	Western Europe	341	3.36	1.31	5.42	0.005**	

	Southern Europe	35	3.15	1.00				Northern Europe > Western Europe
	Northern Europe	122	3.74	01.06				Northern Europe > Southern Europe
	Western Europe	341	3.22	1.39				
Institutional Competence	Southern Europe	35	2.85	1.19	2.96	53		
	Northern Europe	122	3.45	1.28				
	Western Europe	341	4.13	1.15				
Impacts of Health Tourism	Southern Europe	35	3.97	01.08	2.52	82		
	Northern Europe	122	4.36	01.02				
	Western Europe	341	3.46	1.51				
Image	Southern Europe	35	3.46	1.34	8.82	0.000**	Northern Europe > Western Europe	
	Northern Europe	122	04.09	1.22				
	Western Europe	341	3.47	1.17				
General Health Tourism Awareness	Southern Europe	35	3.26	0.87	5.80	3	Northern Europe > Western Europe	
	Northern Europe	122	3.83	0.99				
	Western Europe	341	3.47	1.17				

**p<0,01; *p<0,05

An analysis of expatriates' health tourism awareness based on their region of residence reveals no significant differences in the “institutional competence” and “effects of health tourism” sub-dimensions ($p>0.05$). However, significant differences were found in “general awareness,” “awareness,” and “image” ($p<0.05$). Ultimately, the findings show that expatriates residing in

Northern Europe possess significantly higher levels of general health tourism awareness and more positive image perceptions compared to those living in other regions, particularly Western and Southern Europe.

Table 9. Health Tourism Awareness Scale Hometown Variable ANOVA Test

Sub-dimensions	Hometown	N	$\bar{X}$	SD	F	p	Post-Hoc
Awareness	Mediterranean	19	3.32	1.18	9.99	0.000**	E. and S.E. Anatolia > Black Sea E. and S.E. Anatolia > Marmara Aegean > Black Sea Aegean > Marmara Central Anatolia > Marmara
	E. and S.E. Anatolia	115	3.95	0.89			
	Aegean	62	3.72	1.16			
	Central Anatolia	87	3.48	1.17			
	Black Sea	177	3.17	1.40			
	Marmara	38	2.66	01.01			
Institutional Competence	Mediterranean	19	3.60	1.50	12.00	0.000**	Mediterranean > Marmara E. and S.E. Anatolia > Black Sea E. and S.E. Anatolia > Marmara Aegean > Marmara Central Anatolia > Marmara Black Sea > Marmara
	E. and S.E. Anatolia	115	3.72	1.10			
	Aegean	62	3.51	1.37			
	Central Anatolia	87	3.45	1.31			
	Black Sea	177	2.97	1.40			
	Marmara	38	02.09	0.97			
Impacts of Health Tourism	Mediterranean	19	4.11	1.18	7.62	0.000**	E. and S.E. Anatolia > Black Sea E. and S.E. Anatolia > Marmara Central Anatolia > Black Sea
	E. and S.E. Anatolia	115	4.60	0.76			
	Aegean	62	4.22	01.09			
	Central Anatolia	87	4.34	0.87			
	Black Sea	177	3.84	1.29			
	Marmara	38	04.01	1.19			
Image	Mediterranean	19	3.56	1.60	10.02	0.000**	

General Health Tourism Awareness	E. and S.E. Anatolia	115	4.31	01.05	
	Aegean	62	3.70	1.38	
	Central Anatolia	87	3.69	1.34	
	Black Sea	177	3.25	1.57	
	Marmara	38	2.93	1.41	
	Mediterranean	19	3.59	1.25	E. and S.E. Anatolia > Central Anatolia E. and S.E. Anatolia > Black Sea E. and S.E. Anatolia > Marmara
	E. and S.E. Anatolia	115	04.06	0.78	
	Aegean	62	3.74	01.05	
	Central Anatolia	87	3.66	01.01	
	Black Sea	177	3.24	1.24	
	Marmara	38	2.78	0.92	

**p<0,01; *p<0,05

The analysis reveals statistically significant regional differences ($p<0.05$) in expatriates' health tourism awareness based on their hometowns in Turkey. Overall, expatriates originating from the Eastern and Southeastern Anatolia regions demonstrate the highest levels of awareness, institutional competence, and perceived impacts compared to other regions, particularly the Black Sea. Conversely, the Marmara Region consistently scored the lowest across all examined sub-dimensions, falling behind all other regions in terms of perception and awareness.

3. DISCUSSION/CONCLUSIONS AND RECOMMENDATIONS

This study was conducted to determine the level of awareness among Turkish citizens living abroad (expatriates) regarding health tourism in Turkey and to establish whether this awareness varies according to demographic variables. The findings indicate that health tourism must be considered not only in terms of service supply but also in terms of perception and awareness.

According to the research findings, participants' overall level of awareness of health tourism is medium-high ($\bar{x}=3.54$). This indicates that Turkey's healthcare infrastructure, service diversity

and cost advantages are largely known to expatriates. However, it was found that awareness is not evenly distributed across all sub-dimensions, with significant differences observed in certain areas.

3.1. Assessment of Awareness Levels by Gender

The empirical evidence indicating that male participants demonstrate a higher general awareness, more positive image perceptions, and stronger evaluations of institutional competence compared to female participants points toward distinct health-seeking behaviors and information processing channels. In diaspora communities, structural and logistical decision-making processes—such as managing cross-border finances, arranging travel logistics, and assessing legal or corporate competence—are frequently driven predominantly by male family members. This traditional division of responsibility exposes male expatriates to greater informational flow regarding healthcare alternatives, market costs, and administrative qualities. Consequently, while female participants approach healthcare choices through localized, experiential, and trust-centered micro-dynamics, male participants engage more extensively with the institutional and macroeconomic dimensions of Turkey's medical tourism market.

According to the research findings, there is a statistically significant difference in levels of awareness of health tourism in terms of the gender variable ($p < 0.01$). This finding indicates that male participants' levels of awareness of health tourism are higher than those of female participants. The results obtained reveal that male individuals seek more information during decision-making processes regarding healthcare services and evaluate factors such as treatment options, cost comparisons and service access more intensively.

Similarly, the literature indicates that men adopt a more rational, benefit- and outcome-oriented approach in their decision-making processes regarding healthcare services (Aydın, 2012). This supports the findings of the present study.

On the other hand, it appears that female participants' awareness of health tourism is shaped primarily by emotional, social and experiential factors. According to the research findings, it can be said that women take greater account of factors such as perceived trust, empathy, quality of communication and the influence of their social environment in their healthcare decision-making processes. This aligns with the findings highlighted in Yaba's (2022) study, which suggest that women are more sensitive to emotional and relational factors in healthcare services. In this context, it is important to develop gender-sensitive strategies for promotional and marketing activities in the field of health tourism. It is recommended that studies targeting men prioritise

rational factors such as cost, quality, accessibility and treatment success; whilst studies targeting women should emphasise emotional and social dimensions such as trust, empathy, quality of care and service experience. It is believed that this approach will contribute to raising awareness of health tourism and to the development of more effective communication strategies for the target audience (Tengilimoğlu, 2017).

3.2. A Comparison of Northern and Southern Europe

The higher general awareness and positive image perceptions among expatriates residing in Northern Europe compared to those in Western and Southern regions can be attributed to the specific operational models of Northern European welfare states. While healthcare in Northern Europe is highly institutionalized, it is frequently characterized by rigid bureaucratic protocols, strict gatekeeping systems via general practitioners, and protracted waiting lists for non-emergency or elective procedures. These systemic delays prompt Northern European expatriates to seek alternative, high-speed solutions abroad. Additionally, the high costs of dental care, cosmetic procedures, and specialized rehabilitation services not fully covered by public insurance in Northern Europe enhance the relative utility and financial attractiveness of Turkey's health tourism capacity, thereby fostering an enhanced awareness and positive institutional image.

One of the most striking findings of the study is that levels of awareness of health tourism vary significantly depending on the region of residence. In particular, it was found that expatriates living in Northern Europe have significantly higher levels of awareness of health tourism compared to those living in Western and Southern Europe ($p < 0.01$). The average level of general awareness of health tourism among individuals living in Northern Europe was $\bar{x} = 3.74$, whilst this value was $\bar{x} = 3.36$ for those living in Western Europe and $\bar{x} = 3.15$ for those living in Southern Europe. Similarly, there are significant differences in favour of Northern Europe in the 'image' and 'general awareness' sub-dimensions. In particular, it is noteworthy that the average for the Northern Europe group in the 'image' dimension ($\bar{x} = 4.09$) is quite high.

This difference stems from the fact that Turkish citizens living in Northern European countries have greater interaction with their healthcare systems, a high level of digital health literacy, and well-developed skills in comparing and evaluating healthcare services. Furthermore, the bureaucratic constraints and long waiting times associated with accessing healthcare services in these countries are driving individuals to seek alternatives; Turkey is perceived as a strong alternative in this regard. The lower level of awareness among expatriates living in Southern

European countries can be explained by the relatively easier access to healthcare services in these countries and the fact that cultural proximity reduces the perceived need for healthcare services. In this context, communication and promotional strategies for medical tourism must be restructured to take regional differences into account.

3.2.1. Assessment of Awareness Levels by Hometown Origins

The findings show that expatriates originating from Eastern and Southeastern Anatolia have higher awareness and more positive perceptions compared to those originating from the Marmara region. This difference stems from the rapid sharing of positive healthcare experiences thanks to this group's collectivist structure in Europe and their direct experience of Turkey's modern medical infrastructure through frequent homeland visits.

3.3. Perceived Institutional Competence and Image

The study found that the ‘institutional competence’ dimension had a lower average score compared to the other sub-dimensions ($\bar{x}=3.25$). This indicates that, although Turkey’s healthcare infrastructure is robust, this strength is not sufficiently reflected at the perceptual level. In particular, there are perceptual gaps regarding issues such as accreditation processes, patient safety, transparency and compliance with international standards. Conversely, the fact that the “effects of health tourism” dimension has the highest mean score ($\bar{x}=4.17$) indicates that individuals strongly believe in the economic, social and individual benefits of health tourism. This situation reveals that whilst Turkey’s potential for health tourism is recognised, this potential has not been sufficiently integrated with the institutional image.

3.4. Comparison of the Findings with the Literature

When the findings regarding educational status are evaluated, it is observed that expatriates with basic and secondary education levels exhibit higher health tourism awareness and more positive perceptions compared to those with higher education degrees. This situation can be conceptualized through the lens of institutional trust and risk perception profiles associated with educational backgrounds. Higher education graduates tend to possess a more critical and questioning approach toward health systems, rendering them more cautious regarding cross-border healthcare risks, legal protections, and international accreditation complexities. Conversely, individuals with lower educational attainment may rely more heavily on information from immediate social networks and community-based references rather than formal structural dimensions. Furthermore, lower education groups may face greater financial and bureaucratic

barriers within Western European healthcare systems leading them to perceive Turkey's fast, affordable, and culturally familiar healthcare environment as a more substantial relative advantage, thereby shaping a more favorable image perception.

The research findings largely align with those of studies in the literature. The findings indicating that awareness of health tourism is linked to individuals' level of education, country of residence and cultural capital demonstrate that health tourism is a phenomenon closely connected to the socio-cultural structure. This aligns with previous research indicating that awareness of health tourism is influenced by individual characteristics and social factors (Yaba, 2022). Furthermore, findings indicating that trust, perceived service quality and organisational image are decisive factors in decision-making processes align with studies in the literature (Zengingönül et al., 2012).

This study has revealed that Turkish citizens living abroad generally have a high level of awareness regarding health tourism in Turkey; however, this awareness varies significantly according to demographic variables. In particular, it was found that Turkish expatriates living in Northern Europe have a higher level of awareness of health tourism compared to those in Western and Southern Europe. This situation is directly related to regional living conditions, the structure of healthcare systems and the level of access to information. The research findings indicate that health tourism policies should not be uniform but should be implemented through strategies tailored to the target audience. In particular, informative campaigns, digital health communication and trust-based promotional activities aimed at Turkish citizens living in Southern Europe should be increased. Furthermore, in health tourism communication targeting women, emotional trust, patient experience and quality of care should be prioritised.

3.5. Academic and Industry Recommendations

To maximize health tourism potential, strategic steps must be taken across various stakeholders. Policymakers should focus promotional campaigns on regions with low awareness, while healthcare institutions need to highlight quality accreditations to build trust and adopt multilingual digital systems for online booking and patient tracking. In academic research, utilizing qualitative methods is recommended to better understand the socio-psychological factors influencing awareness. The business and tourism sectors should implement country-specific marketing strategies—aimed at maintaining the Northern European market and expanding into Southern Europe—and utilize platforms like Turkish Airlines' in-flight screens for broader

promotion. Ultimately, Turkey's significant medical tourism potential can only be fully realized through comprehensive, target-audience-focused strategies that carefully account for regional differences.

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Dental Care Under General Anesthesia for Individuals with Disabilities: Challenges in Children and Adults

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Abstract

Aim: Individuals with disabilities experience barriers to accessing dental care. This study aimed to evaluate treatment needs and service process indicators of children and adults with disabilities receiving dental care under general anesthesia (GA) at a faculty of dentistry.

Methods: In this retrospective study, Hospital Information Management System records of 262 patients who were examined and/or received dental treatment under GA between March 2017 and March 2020 were analyzed. In the study, GA sessions, waiting times, operation durations, medical consultation and referral status, out-of-pocket payment status and treatment needs as variables were included.

Results: Overall, 38.2% of the patients were children while adults represented 61.8%. The most common medical diagnoses were neurodevelopmental disorders, diseases of the nervous system, and developmental anomalies. The proportion of patients with out-of-pocket payments (Children [C]: 11.0%; Adults [A]: 38.9%; $p=0.000$) and the rate of receiving multiple GA sessions (C: 1.0%; A: 22.2%; $p=0.000$) were higher among adults.

Conclusion: Dental treatment needs under GA varied by age group, with a more comprehensive and complex treatment burden emerging among adults. Therefore, improving preventive care and ensuring timely access to dental care should be key priorities in developing oral health policies for individuals with disabilities.

Keywords: Dental care for individuals with disabilities, General anesthesia, Treatment needs, Health services accessibility, Hospital information management systems

INTRODUCTION

Individuals with special health care needs comprise a highly heterogeneous group characterized by complex conditions that require specialized health services because of physical, mental, developmental, behavioral, sensory or cognitive limitations (American Academy of Pediatric Dentistry, 2025). According to the World Health Organization (WHO), approximately 1.3 billion people representing 16% of the global population live with a significant disability. Although individuals with disabilities have the right to equal access to the highest attainable standard of health, persistent health inequities continue to expose them to poorer health outcomes and an increased risk of premature mortality (WHO, 2022). Inadequate accessibility, affordability, and availability of health services are among the principal determinants of these inequities (WHO, 2022; Kuper et al., 2024; Marinho et al., 2022).

Oral health is one of the principal domains where health inequities become more pronounced in individuals with disabilities. Oral health indicators in this population have been

reported to be poorer than those observed among individuals without disabilities, with correspondingly greater treatment needs (Köksal et al., 2021; Zare et al., 2024; Devinsky et al., 2020; Márquez-Arrico et al., 2022; Ciftci and Yazicioglu, 2020). Motor skill limitations, difficulties with cooperation, limited caregiver awareness, challenges in maintaining oral hygiene, medication use, regulation of dietary restrictions, and the presence of comorbidities may all adversely affect oral health status (Polat et al., 2025; Marinho et al., 2022; Köksal et al., 2021). As general health problems take precedence and the caregiving burden increases, oral health problems are postponed or neglected. Consequently, these individuals are at an increased risk of requiring emergency dental care (Devinsky et al., 2020; Biasotto et al., 2024; Auerbacher et al., 2023; Schulz-Weidner et al., 2022). Despite these risks, dental health services remain among the most frequently unmet healthcare needs for individuals with disabilities (Devinsky et al., 2020). Individuals with disabilities who cannot tolerate standard dental procedures because of their behavioral, intellectual, or neurodevelopmental limitations require dental treatment under general anesthesia (GA) (Wilson et al., 2019; Lima et al., 2021). In this group, limited cooperation and behavioral challenges, physical limitations, comprehensive dental treatment needs and the lengthy duration of complex procedures can often make treatment in a conventional clinical setting unfeasible. In some cases, even clinical examinations and radiographic evaluations may be performed only under GA (Márquez-Arrico et al., 2022; Marinho et al., 2022; Choi and Doh, 2021; Jockusch et al., 2020; Schulz-Weidner et al., 2022; Akpinar, 2019; Brailo et al., 2019). After anesthesia-specific clinical risks are assessed, GA enables the safe and effective completion of comprehensive dental care in a single session (Wilson et al., 2019; Choi and Doh, 2021; Mallineni and Yiu, 2016; Brailo et al., 2019). However, the inability to maintain oral hygiene and the need for additional treatments may result in the need for repeated GA over time (McGeown et al., 2024; Márquez-Arrico et al., 2022).

Dental treatment under GA for individuals with disabilities is a costly and time-intensive service that requires hospital infrastructure, an anesthesia team, multidisciplinary specialist support, and advanced organizational capacity (Köksal et al., 2021; Marinho et al., 2022; Pecci-Lloret et al., 2021). An insufficient number of treatment centers, workforce shortages, long waiting lists, limited caregiver awareness, coordination challenges between medical and dental teams, and uncertainties in referral and consultation processes may lead to delays in access to care and further deepen existing inequities (Zare et al., 2024; Al-Mashhadani et al., 2024; Marinho et al., 2022; Da

Rosa et al., 2020; WHO, 2022). Under these conditions, dental care under GA for individuals with disabilities should be regarded not only as a clinical treatment modality but also as an important component of health service planning, encompassing equitable access to care, care coordination, and efficient resource allocation.

Within this context, evidence-based data regarding the treatment needs of individuals with disabilities receiving dental treatment under GA are essential for equitable service delivery and resource planning. Patient information, service process data, and treatment records maintained in Hospital Information Management Systems (HIMS) provide critical information for health managers to evaluate healthcare needs, as well as to support planning and monitoring (Kuper et al., 2024; WHO, 2024). Although previous studies have primarily focused on clinical outcomes and treatment characteristics, evidence regarding service process indicators such as waiting times, consultation requirements, the number of GA sessions, operation duration, referral requirements and out-of-pocket payment remains limited (Akpınar, 2019; Marinho et al., 2022). Moreover, children and adults with disabilities have rarely been compared within the same service setting with respect to both treatment needs and GA service process indicators (Arapovic et al., 2021). Therefore, this study aimed to evaluate treatment needs and service process indicators of children and adults with disabilities receiving dental care under general anesthesia (GA) at a faculty of dentistry.

1. RESEARCH METHODOLOGY

1.1. Study Design, Population, and Setting

This retrospective study included 262 individuals with disabilities who received dental health services (examination and/or treatment) under GA at least once between March 27, 2017 and March 11, 2020, at the Marmara University Faculty of Dentistry, a tertiary public oral and dental healthcare provider in Istanbul. Relevant HIMS records were retrospectively reviewed to obtain clinical and administrative data related to the GA service process. The study period was limited to March 11, 2020, because institutional GA services were suspended as of that date during the COVID-19 pandemic. The study was approved by the Ethics Committee of the Institute of Health Sciences at Marmara University (18.10.2021-116). Institutional permission was also obtained to access anonymized electronic health records (EHRs).

The study population included patients who had received dental services under GA at least once at the institution and who required caregiver accompaniment and/or legal consent during the

service process. They were classified as having a disability in the institutional records. According to the institution's practice, patients aged 14 years and younger were classified as children, whereas those aged 15 years and older were classified as adults. In some adult patients (n=43), oral examinations could not be performed in conventional clinical settings and were therefore conducted under GA. While these patients were included in the sociodemographic and clinical profile analyses, they were excluded from the waiting time and operation duration analyses because of their distinct operational pathway. Since 21 of these adult patients were examined under GA without receiving treatment, they were excluded from the treatment-related analyses among adults (n=141). Patients without a documented disability who underwent GA solely for reasons such as dental anxiety, inability to cooperate, or medical risk were excluded.

1.2. Data Sources and Data Collection

The study was conducted using secondary data. Data were obtained from the HIMS using anonymized patient record numbers, with permission from institutional management and the support of the software unit. Records from the demographic information, medical history, examination, anesthesia, surgery, notes, and billing modules were matched using anonymized patient record numbers. Data on treatment procedures were obtained primarily from billing records.

1.3. Institutional Workflow and General Anesthesia Care Pathway

At the institution, patients with disabilities were given priority access to outpatient clinical examinations. During the initial dental assessment, GA was indicated based on the oral examination, radiographic evaluation, the general health status of patients as well as the patient's level of cooperation and communication. Patients were placed on the GA waiting list after their treatment plans had been developed in the clinical setting. However, in selected patients, GA was indicated for diagnostic examination when intraoral and radiographic examinations could not be performed due to a lack of cooperation and communication during the initial assessment.

When a patient's turn came on the waiting list, a pre-anesthesia evaluation (PAE) appointment was scheduled. The anesthesiologist examined the patient to determine their clinical status and perioperative risks and, if needed, requested consultations and laboratory tests. Patients completed these procedures at other healthcare institutions and submitted the results to the dental institution. For patients approved for GA, the operation date was scheduled, information about the process was provided, and written informed consent was obtained from their legal guardians. On

the scheduled date, dental care was performed under general anesthesia. Patients were monitored in the ward and discharged home once they were clinically stable and free of complications. When the entire treatment could not be completed in a single session, additional GA sessions were scheduled.

1.4. Variables and Operational Definitions

The variables were sociodemographic characteristics and clinical profiles, including age at the time of the first GA session, gender, place of residence, insurance/referral status, out-of-pocket payment status, medical diagnoses, American Society of Anesthesiologists (ASA) score, history of dental treatment under GA and/or sedation, and the need for medical consultations before GA. Diagnoses of patients were categorized according to the International Classification of Diseases, 11th Revision (ICD-11), using physician-entered diagnostic records retrieved from the HIMS.

The 'insurance/referral status' variable was categorized based on the patient's health insurance type and referral data recorded in the HIMS. Under the Social Security Institution (SGK) regulations in Türkiye, low-income individuals whose premiums are covered by the state (green card beneficiaries) are subject to a mandatory referral requirement to access covered services at tertiary-level public healthcare institutions (Republic of Türkiye, 2006; Social Security Institution, 2013). Additionally, the out-of-pocket payment was defined according to the presence of any personal payment or billing records in the HIMS database for the dental treatments performed.

Variables related to the GA service process were recorded as follows: the modality of the initial examination (in-clinic or under GA), the number of GA sessions, operation duration, waiting time, treatment under sedation, and in-clinic (chairside) treatment. The number of GA sessions was classified as "once" or "more than once". The GA operation duration was defined as the total time of operating room utilization. GA waiting time was calculated as the number of days from the date of the initial examination to the first treatment-related GA session, reflecting the standardized care pathway. To evaluate the preoperative preparation process, the time from the first PAE to the first GA operation was calculated separately. In this study, sedation and in-clinic treatment were evaluated only with respect to their occurrence during the service process.

Treatment procedures performed under GA were classified as surgical, specific pediatric dental, periodontal, restorative, endodontic, and prosthetic treatments based on the procedure codes and categories listed in the Healthcare Implementation Communiqué (SUT) published by the Social Security Institution of Türkiye. Each treatment type was coded on a patient level as

either present or absent. A patient could have multiple treatment types. Additionally, the “number of treatment types” variable was calculated as the total number of distinct treatment types performed under GA for each patient. For example, if a patient received restorative, surgical, and endodontic treatments, the number of treatment types was recorded as 3.

1.5. Statistical analysis

Analyses were performed using IBM SPSS Statistics version 28.0. The distributional characteristics of continuous variables were assessed using normality tests and graphical methods. Since the normality assumption was not met, intergroup comparisons were performed using the chi-square test for categorical variables and the Mann–Whitney U test for continuous variables. The significance level was accepted as $p < 0.05$.

2. ANALYSIS

2.1. Sample and Sociodemographic Characteristics

A total of 262 patients with disabilities were included in this retrospective study. Overall, 38.2% of the patients were children while adults represented 61.8%. The mean age was $8,4 \pm 3,2$ years among children (median: 8 years) and $25,8 \pm 9,5$ years among adults (median: 23 years). The proportion of patients residing outside Istanbul was 21.0% ($n = 21$) among children and 13.0% ($n = 21$) among adults. Patients residing outside Istanbul were from 13 provinces: Kocaeli ($n=25$), Kastamonu ($n=3$), Ardahan, Sinop, and Trabzon ($n=2$ each) and Balıkesir, Bursa, Düzce, Giresun, Mardin, Ordu, Sivas, and Yalova ($n=1$ each). The proportion of patients with Green Card coverage (a state-subsidized health insurance scheme for low-income individuals) who were subject to a referral requirement was 6.0% ($n = 6$) among children and 13.0% ($n = 21$) among adults. All patients were covered by Türkiye’s General Health Insurance scheme. The “Other (no referral required)” category included the Government Employees Retirement Fund, the Social Insurance Institution, and voluntary health insurance. According to the HIMS payment and billing records, the proportion of patients with a recorded out-of-pocket payment was significantly higher among adults than among children (38.9% vs. 11.0%, respectively; $p=0.000$) (Table 1).

2.2. Clinical Profiles and Preoperative Evaluation

When ICD-11 disease chapters were examined, diagnoses in both children and adults were concentrated primarily in Chapter 06 (Mental, behavioral, or neurodevelopmental disorders), Chapter 08 (Diseases of the nervous system), and Chapter 20 (Developmental anomalies). These chapters accounted for 59.0%, 35.0%, and 36.0% of the children, and 82.1%, 41.4%, and 21.6%

of the adults, respectively. Based on the HIMS records, the most prevalent medical diagnoses among children were intellectual disability (30.0%), autism (29.0%), epilepsy (24.0%), and cerebral palsy (17.0%). Among adults, the most frequent medical diagnoses were intellectual disability (71.6%), epilepsy (30.2%), autism (16.7%), and cerebral palsy (14.8%).

The ratio of patients with a history of dental treatment under GA and/or sedation before their first visit was significantly higher among adults than among children (53.7% vs 19.2%; $p=0.000$). The mean number of recorded medical diagnoses was also higher in adults (2.3 ± 1.2) than in children (2.0 ± 1.0) ($p = 0.021$). The need for external medical consultation before GA was common in both groups (children: 69.7%; adults: 67.3%; $p=0.692$) (Table 1). Among patients who required consultations, the most frequently consulted specialties were pediatrics (53.6%), neurology (27.5%), and cardiology (21.7%) among children, and neurology (43.7%), internal medicine (24.3%), cardiology (19.4%), and psychiatry (19.4%) among adults. Patients required consultations from multiple specialties.

Table 1. Profiles of children and adults with disabilities included in the study

Variables	Children (n=100)		Adults (n=162)		p
	n	%	n	%	
Gender					
Female	36	36.0	71	43.8	0.211
Male	64	64.0	91	56.2	
Place of residence					
Istanbul (Asian side)	72	72.0	130	80.2	0.219
Istanbul (European side)	7	7.0	11	6.8	
Other provinces (outside Istanbul)	21	21.0	21	13.0	
Insurance/referral status					
Green card (referral required)	6	6.0	21	13.0	0.072
Other (No referral required)	94	94.0	141	87.0	
Out-of-pocket payment status					
Present	11	11.0	63	38.9	0.000*
Absent	89	89.0	99	61.1	
ASA					
I	-	-	1	0.7	0.854
II	69	76.7	112	77.8	
III	20	22.2	29	20.1	
IV	1	1.1	2	1.4	
History of dental treatment under GA and/or sedation					
Present	19	19.2	80	53.7	0.000*
Absent	80	80.8	69	46.3	
Need for pre-GA medical consultation					
Present	69	69.7	103	67.3	0.692

Absent	30	30.3	50	32.7	
	Mean±SD	Median (Q1-Q3)	Mean±SD	Median (Q1-Q3)	p
Age	8.4±3.2	8 (6-11)	25.8±9.5	23 (20-30)	0.000[†]
Number of medical diagnoses	2.0±1.0	2 (1-3)	2.3±1.2	2 (1-3)	0.021[†]

Note: * Chi-square test; † Mann-Whitney U test.

2.3. Key Indicators Related to the GA Service Process

In the group, 99.0% of children and 77.8% of adults received a single GA session. The rate of patients receiving multiple GA sessions was 22.2% among adults (19.1% received two sessions and 3.1% received three sessions) (Table 2). The proportion of patients treated under sedation was higher among adults than among children (16.0% vs. 3.0%, respectively; $p = 0.001$), whereas the proportion receiving in-clinic treatment did not differ significantly between the groups (18.5% vs. 25.0%, respectively; $p=0.211$) (Table 2). The duration of the first treatment-related GA session was shorter in children (median: 170 min) than in adults (median: 195 min) ($p = 0.039$) (Table 2). Among adults who underwent multiple GA sessions, the operation duration decreased with successive sessions. Waiting times did not differ significantly between groups (Table 2).

Table 2. Key indicators of general anesthesia utilization among children and adults with disabilities

Variables	Children		Adults		p
	n	%	n	%	
Number of GA session					
Single	99	99.0	126	77.8	-
Multiple (2 or 3 sessions)	1	1.0	36	22.2	
Sedation (present)	3	3.0	26	16.0	-
In-clinic treatment (present)	25	25.0	30	18.5	0.211
	Median (Q1-Q3)		Median (Q1-Q3)		
Duration of first GA (min)	170 (125 – 210)		195 (142.5 – 240)		0.039[†]
Waiting time from the initial examination to the first GA (days)	157 (83 - 510)		224 (91 - 365)		0.919
Waiting time from the first PAE to first GA (days)	42 (21 – 89)		43 (23 – 93)		0.491

Note: † Mann-Whitney U test. PAE, Pre-anesthesia evaluation; GA, General anesthesia.

2.4. Level and Distribution of Treatment Needs Under GA

In this study, the mean number of treatment types performed per patient under GA was higher among adults than among children (3.03 ± 1.07 vs. 2.68 ± 1.01 respectively; $p=0.006$). At the patient level, the most frequently performed treatments under GA among children were restorative

(91.0%), surgical (88.0%), and specific pediatric dental (62.0%) treatments, whereas periodontal (90.1%), restorative (87.2%), and surgical treatments (66.0%) predominated among adults (Table 3). The proportions of patients receiving periodontal (90.1%) and endodontic (34.8%) treatments were higher among adults, whereas the proportion receiving surgical treatment (88.0%) was higher among children ($p=0.000$) (Table 3).

Table 3. Dental treatments performed under general anesthesia in children and adults with disabilities

Treatment type	Children (n=100)		Adults (n=141)		p
	n	%	n	%	
Surgical treatments	88	88.0	93	66.0	0.000*
Specific Pediatric dental treatments	62	62.0	0	0.0	-
Periodontal treatments	16	16.0	127	90.1	0.000*
Restorative treatments	91	91.0	123	87.2	0.412
Endodontic treatments	11	11.0	49	34.8	0.000*
Prosthetic treatments	0	0.0	36	25.5	-

Note: * Chi-square test. Percentages may exceed 100% as patients could receive multiple types of treatment.

3. DISCUSSION/CONCLUSIONS AND RECOMMENDATIONS

3.1. Discussion

Individuals with disabilities often face difficulties in improving and maintaining their oral health status. In this population, the need for dental treatment under GA reflects an ongoing need for dental care throughout the life course (Lima et al., 2021; Marinho et al., 2022; Márquez-Arrico et al., 2022; Yen et al., 2024). Most studies have predominantly focused on either children (Yazdanbakhsh et al., 2025; Ciftci and Yazicioglu, 2020) or adults (Jockusch et al., 2020; McGeown et al., 2024). However, studies comparing children and adults receiving dental treatment under GA remain limited and have primarily focused on oral health outcomes (Mallineni and Yiu, 2018; Arapovic et al., 2021; Biasotto et al., 2024). By comparatively evaluating the treatment needs of children and adults with disabilities alongside key indicators of the GA service process, the present study extends previous research by adopting a health services management perspective.

In this study, medical diagnoses were primarily clustered within ICD-11 Chapters 06 (Mental, behavioral, and neurodevelopmental disorders), 08 (Diseases of the nervous system), and 20 (Developmental anomalies). This pattern was consistent with previous studies suggesting that

both difficulties with cooperation and higher comorbidity burden may contribute to the indication for GA (Choi and Doh, 2021; Hendzel, 2014; Márquez-Arrico et al., 2022). Moreover, the predominance of ASA II–III classifications in both groups underscores the importance of comprehensive medical evaluation and preoperative risk management (Choi and Doh, 2021). The need for external medical consultation further highlighted the importance of multidisciplinary collaboration between dental teams and physicians, as well as interinstitutional coordination to ensure safe care for patients with disabilities (Dziedzic, 2017; Akpınar, 2019; Al-Mashhadani et al., 2024). The presence of patients residing outside the city, the referral requirements and the frequent need for external medical consultation suggested that access tertiary-level dental care under GA often involves a multistep care pathway rather than a single clinical encounter. This geographic distribution of patients may reflect the concentration of service capacity in a limited number of centers (Da Rosa et al., 2020; Lima et al., 2021). Such centralization may impose additional burdens on patients and caregivers related to transportation, caregiving responsibilities and time, thereby potentially exacerbating geographic inequities in access to care (Zare et al., 2024; Da Silva et al., 2022; Lima et al., 2024). The mandatory referral requirements for Green Card beneficiaries and the need for external medical consultations represent important organizational dimensions of access (Levesque et al., 2013). Disruptions in these processes have been reported to increase administrative burden, hinder information flow and delay access to care (Al-Mashhadani et al., 2024; Dziedzic, 2017; Geddis-Regan et al., 2022; Chiao et al., 2022). These findings highlight the importance of interinstitutional coordination and well-integrated consultation pathways in ensuring equitable access to tertiary-level dental care under GA.

The relatively long waiting times observed in this study may be associated with the limited operating room capacity allocated to GA services for individuals with disabilities and with the concentration of these services in tertiary care centers (Akpınar, 2019; Da Rosa et al., 2020; Pecci-Lloret et al., 2021; Schulz-Weidner et al., 2022). In such settings, accumulated demand has been reported to prolong waiting times and constitute an important barrier to accessing care (Da Rosa et al., 2020; Jockusch et al., 2021; Lima et al., 2021; Zare et al., 2024). In the present study, waiting times did not differ significantly between children and adults. However, the relatively long waiting times observed in both groups suggest that timely access to GA services was a shared service challenge across age groups. Accordingly, waiting time may serve as a key process indicator for

monitoring capacity constraints and informing decisions regarding prioritization and resource allocation in GA service planning.

Although nearly all children completed treatment in a single GA session, adults more frequently required multiple GA sessions, had a longer duration of the first GA session, and received a higher number of treatment types per patient, suggesting a more extensive and complex treatment burden in this group. Multiple GA procedures have generally been associated with new treatment needs arising during follow-up (Bücher et al., 2016; McGeown et al., 2024; Pecci-Lloret et al., 2021). Additional GA sessions may be required to complete the same course of treatment rather than address newly developed treatment needs. The greater treatment scope and longer operation duration observed among adults suggest that these age-group differences may have implications for operating room time, multidisciplinary team workload, and scheduling requirements. Moreover, the possibility that treatment may require additional GA sessions should be incorporated into capacity and resource planning. Accordingly, treatment burden, operation duration, and the number of GA sessions may be monitored as key process indicators for operating room utilization, workforce planning and waiting-list management in GA services for individuals with disabilities.

Adults were more likely to have a history of dental treatment under GA or sedation before admission to the institution, which may reflect the cumulative need for repeated dental treatment needs over time in this group. Previous studies have linked repeated GA sessions among individuals with disabilities to persistent caries risk, inadequate preventive care and limitations in follow-up care (Choi and Doh, 2021; Dziedzic, 2017; Jockusch et al., 2021; Lima et al., 2021; McGeown et al., 2024; Bücher et al., 2016). In this study, the predominance of young adults was consistent with previous reports indicating that patients with disabilities treated under GA are often concentrated among children, adolescents and young adults (Arapovic et al., 2021; McGeown et al., 2024; Biasotto et al., 2024; Yen et al., 2024). However, the age distribution of GA-treated patients with disabilities should be interpreted cautiously, as it may reflect not only clinical characteristics, such as disability profile, comorbidity burden, and treatment scope, but also differences in service access, service organization, and the broader health policy context (Biasotto et al., 2024; Ciftci and Yazicioglu, 2020; Marinho et al., 2022; Yazdanbakhsh et al., 2025; Zare et al., 2024).

In the present study, the distribution of treatment types performed under GA differed significantly between age groups. Restorative and surgical treatments predominated among children, whereas periodontal, endodontic, and prosthetic treatments were more frequently observed among adults, alongside restorative treatment needs. These results are consistent with the accumulation of oral health problems with age and persistent difficulties in maintaining oral hygiene (Jockusch et al., 2021; McGeown et al., 2024). The higher frequency of endodontic treatment and the presence of prosthetic treatment needs among adults suggest a broader scope of care involving tooth preservation and functional rehabilitation. However, the range of treatments performed under GA may also depend on the institution's technical infrastructure and service capacity (Lima et al., 2021; McGeown et al., 2022). The predominance of restorative treatment needs suggests an emphasis on tooth preservation. However, the greater frequency of surgical treatment among children may be explained by the higher prevalence of teeth with poor prognosis during the primary dentition period (Biasotto et al., 2024; Sari et al., 2014; Schulz-Weidner et al., 2022). These results highlighted the importance of early personalized risk-based preventive programs, regular follow-up, and improving caregivers' oral health literacy (Jockusch et al., 2021; Marinho et al., 2022; McGeown et al., 2024; Schulz-Weidner et al., 2022; Akdoğan and Çabuk, 2024; Sari et al., 2014; Brailo et al., 2019).

In the present study, out-of-pocket payments were more commonly observed among adults. Socioeconomic disadvantage has been recognized as an important barrier to accessing dental care for individuals with disabilities and may further exacerbate oral health inequities (Kim and Ryu, 2023; Marinho et al., 2022; Zare et al., 2024). Considered together with the greater cumulative treatment burden observed among adults, this finding suggests that the economic burden of care may be more pronounced in this group. However, the specific services and payment amounts underlying out-of-pocket payments were not examined in this study.

When patients were assessed according to gender, the higher proportion of males in both groups was consistent with studies reporting that males are more frequently represented among individuals with disabilities treated under GA (Hendzel, 2014; Jockusch et al., 2020; Marinho et al., 2022; Pecci-Lloret et al., 2021; Yılmaz et al., 2023). This may be related to the higher prevalence of certain neurodevelopmental conditions (e.g., autism) among males (Akpınar, 2019; Marinho et al., 2022; Polat et al., 2025).

Previous studies have primarily focused on the clinical characteristics and dental treatment needs of individuals with disabilities receiving dental care under GA (Kaynar and Dinçer, 2025; Yang et al., 2026). However, evidence regarding service process indicators, such as waiting times, the number of GA sessions, and out-of-pocket payments, remains limited, particularly in comparative evaluations of children and adults with disabilities. By examining these indicators alongside treatment needs in both age groups, the present study extends previous research from an oral health services and policy perspective. From this perspective, our findings highlight that the provision of dental care under GA for individuals with disabilities should be considered not only in relation to clinical treatment needs but also with respect to access pathways, care coordination, and the organization of dental services.

3.2. Limitations and Strengths

The retrospective design and reliance on institutional HIMS data limited the analyses to routinely recorded variables and precluded detailed assessment of incompletely documented factors (e.g., disability type and severity), patient experiences, and the underlying reasons for service process patterns. Since the study was conducted at a single tertiary public dental institution, the results may reflect institution-specific organizational structures and service processes that should therefore only be generalized to other healthcare settings with caution. Moreover, the onset of the COVID-19 pandemic led to the suspension of institutional dental services under general anesthesia, thereby limiting the data collection period to the pre-pandemic era. Despite these limitations, the study has several strengths, including its comparative evaluation of children and adults with disabilities and its assessment of service process indicators alongside treatment needs, thereby providing evidence to inform oral health policy, service planning, resource allocation, and future research on individuals with disabilities requiring GA for dental treatment.

3.3. Conclusion and Recommendations

This study indicated that strategies to reduce the accumulated treatment burden and the need for GA in individuals with disabilities should be developed within an oral health policy framework. In this context, such strategies should extend beyond increasing treatment capacity and prioritize early, risk-based, preventive, and continuous care. Results related to comprehensive care needs and service process indicators, including consultation requirements, referral status, and waiting times, highlight the importance of multidisciplinary care coordination and structured follow-up strategies for improving oral health outcomes among individuals with disabilities. From

the perspective of special care dentistry, standardized recording systems and the routine monitoring of core process indicators within hospital information management systems (HIMS) may generate more robust evidence to support service planning, priority setting, and the development of oral health policies.

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