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Investigation of Factors Affecting Satisfaction with Health Services During the Covid-19 Period Using the Continuation Ratio Model

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ABSTRACT

The aim of this study is to identify the factors influencing individuals' satisfaction with health services in Turkey during the COVID-19 period through the Continuation Ratio Model, utilizing microdata sets from the 2021 Life Satisfaction Survey conducted by the Turkish Statistical Institute. When the model results are examined, it is observed that variables such as age, marital status, level of education, level of happiness, satisfaction with one's health, hospital visits, satisfaction with medical examinations, problems with doctor behavior, problems with nurse behavior, competence of doctors and healthcare personnel, issues related to waiting times, problems with co-payment fees, presence of health problems, household size, number of rooms in the residence, square meterage of the residence, and income level are significant. The study concludes that as individuals age, their likelihood of being satisfied with health services increases. According to the findings, married individuals are less likely to be satisfied with health services compared to single individuals. Additionally, the results indicate that as the level of education increases, the likelihood of being satisfied with health services decreases.

Keywords: Satisfaction with Health Services, Continuation Ratio Model, COVID-19

COVID-19 Döneminde Sağlık Hizmetlerinden Memnuniyeti Etkileyen Faktörlerin Sürekli Oran Modeli Kullanılarak İncelenmesi

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ÖZ

Bu çalışmanın amacı, Türkiye İstatistik Kurumu tarafından yürütülen 2021 Yaşam Memnuniyeti Araştırması'ndan elde edilen mikro veri setlerini kullanarak, COVID-19 döneminde Türkiye'deki bireylerin sağlık hizmetlerinden memnuniyetini etkileyen faktörleri Devam Oranı Modeli (Continuation Ratio Model) aracılığıyla belirlemektir. Model sonuçları incelendiğinde; yaş, medeni durum, eğitim düzeyi, mutluluk düzeyi, kendi sağlığından memnuniyet, hastane ziyaretleri, tıbbi muayenelerden memnuniyet, doktor davranışlarıyla ilgili sorunlar, hemşire davranışlarıyla ilgili sorunlar, doktorların ve sağlık personelinin yetkinliği, bekleme süreleriyle ilgili sorunlar, katkı payı ücretleriyle ilgili sorunlar, sağlık sorunlarının varlığı, hanehalkı büyüklüğü, konuttaki oda sayısı, konutun metraji (metrekaresi) ve gelir düzeyi gibi değişkenlerin anlamlı olduğu görülmüştür. Çalışma, bireylerin yaşlandıkça sağlık hizmetlerinden memnun olma olasılıklarının arttığı sonucuna varmaktadır. Bulgulara göre, evli bireylerin sağlık hizmetlerinden memnun olma olasılığı bekar bireylere kıyasla daha düşüktür. Ayrıca sonuçlar, eğitim düzeyi arttıkça sağlık hizmetlerinden memnun olma olasılığının azaldığını göstermektedir.

Anahtar Kelimeler: Sağlık Hizmetlerinden Memnuniyet, Devam Oranı Modeli, COVID-19

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Introduction

Health, a multifaceted concept, is defined by the World Health Organization (WHO) as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." According to this definition, health services encompass a far broader scope than merely the medical services provided to patients (Sarría-Santamera et al., 2021). Health services constitute a set of activities including the elimination and prevention of various factors threatening human health, the treatment of diseases, and the rehabilitation of individuals with physical and mental disabilities (Özer & Çakmak, 2020). Unlike other services, health services are irreplaceable, cannot be postponed, and concern the entire society, making them distinct from other types of services. Moreover, health services are not solely the responsibility of healthcare institutions; they concern the whole society and require cooperation with various institutions and organizations (Schulz & Johnson, 1990). Prevention, treatment, and rehabilitation constitute the three dimensions of health services. The first dimension, which represents the primary aim of health services, is to prevent individuals and societies from falling ill. Despite all efforts, the treatment of individuals who do become ill represents the second aim. The third aim of health services is to rehabilitate individuals who cannot be completely cured so that they can live independently (Sarría-Santamera et al., 2021).

Satisfaction is a general evaluation based on the cumulative experience of purchasing and consuming a good or service over time (Anderson, Fornell, & Lehmann, 1994). Defined as a customer's rating of a service or product, satisfaction levels vary from person to person and from product/service to product/service (Zeithaml, Bitner, & Gremler, 2006). Health services represent a barometer of a country's economic, social, and cultural development, and the quality of health services has a significant impact on regional and national economic development (Săvoiu, Necşulescu, Ţaicu, Serbănescu, & Crişan, 2014). The analysis of health system reforms in transitioning systems and the quality evaluation of provided services are conducted using indicators aimed at both subjective and objective evaluations (Mihaliovic, Kocic, Trajkovic, & Jakovljevic, 2017). Satisfaction with health services is used in reform analyses of health systems across Europe, Asia, and America, representing the ratio between expected and received healthcare services (Bleich, Özaltin, & Murray, 2009; Gupta & Lis, 2015). The most common determinants of individuals' satisfaction with health services include age, health status, income, the type of service provided (public or private sector), communication, the courtesy of the staff, and the hospital environment (Xesfingi & Vozikis, 2016; Friese, Lake, Aiken, Silber, & Sochalski, 2008). Due to the lack of a universal instrument to measure satisfaction with health services and the absence of a correlation between satisfaction and economic power, the degree of satisfaction with health services is determined indirectly based on service quality and communication with healthcare professionals (Adang & Borm, 2007; Mihaliovic, Kocic, Trajkovic, & Jakovljevic, 2017). The literature emphasizes that physician-patient interaction is a fundamental component of the long-studied physician-patient relationship in healthcare (Zhang, Guo, Lai, & Yi, 2018). Therefore, satisfaction with health services is an extension of customer satisfaction, which defines the extent to which customer expectations are met by the service providers (Wu, Zhao, & Wu, 2023).

Previous studies have shown that patient satisfaction with health services can influence healthcare-seeking behavior for both minor and major health issues, as well as communication and adherence to medical advice (Alkureishi et al., 2016; Rubin et al., 1993; Lagarija et al., 2023). Studies also reveal that patients with higher levels of satisfaction are more likely to adhere to treatment (Lagarija et al., 2023). This is particularly important in emergencies such as the New Coronavirus Disease (COVID-19) pandemic, where treatment compliance declined, dissatisfaction with treatment increased, and patient follow-up was interrupted (Gironi et al., 2020). COVID-19 has been regarded as the most significant global health crisis of the century and the greatest challenge faced by humanity since World War II (Alkan, Küçükoğlu & Ünver, 2024). The COVID-19 outbreak, which began in Wuhan, China, at the end of 2019 and was declared a pandemic by WHO on March 11, 2020, has severely affected healthcare systems worldwide, including in Turkey (Çirakli, Orhan, Sayar, & Demiray, 2023).

During the pandemic, even wealthy countries encountered critical challenges. Governments were compelled to swiftly allocate resources and provide additional protection for at-risk groups while seeking treatments for COVID-19. Health systems, already under strain before the pandemic, were not only required to remain resilient and sustainable while preparing for future waves of the virus but also had to restructure and support themselves in the best way possible by drawing lessons from the pandemic (Sarría-Santamera et al., 2021). Some studies on public satisfaction with services related to COVID-19 have focused on antecedent variables such as government-level performance management and sources of performance information (Noda, 2019; James & Petersen, 2018). Meanwhile, other researchers have examined the outcome variables of public satisfaction. In a study conducted in China on public satisfaction with government services related to COVID-19, it was suggested that public satisfaction could enhance government image and public trust (Wu et al., 2021). Service image has already been considered an outcome variable of satisfaction in traditional customer satisfaction studies, and this has once again been

confirmed in studies related to COVID-19 services (Xie, Xie, & Guo, 2022).

Research on public satisfaction with COVID-19 services features two main characteristics (Lee et al., 2016). While some studies have examined the factors affecting public satisfaction with government services related to COVID-19, fewer have focused on community-based services (Yang, 2012). Although some scholars have studied the antecedents of public satisfaction and others its outcomes, very few have examined both simultaneously (Xie, Xie, & Guo, 2022). The aim of this study is to identify the factors influencing individuals' satisfaction with health services in Turkey during the COVID-19 period using the Continuation Ratio Model, based on the microdata set of the 2021 Life Satisfaction Survey conducted by the Turkish Statistical Institute (TurkStat).

Literature Review

Researchers have been conducting studies in fields such as sociology, health, psychology, and education concerning COVID-19, which has had a significant impact on human life and healthcare systems. Among the topics addressed within these disciplines during the COVID-19 period, considered one of the greatest challenges faced by our societies in recent memory, is satisfaction with health services (Xie, Xie, & Guo, 2022). Many studies on this subject exist in both national and international literature.

Kaur et al. (2022) aimed in their study to systematically evaluate patient satisfaction with telemedicine health services during the COVID-19 period. Their literature review, which included eight articles, was conducted using the "PubMed," "Google Scholar," and "Embase" databases. All included studies were carried out in seven countries/states/cities (India, the Philippines, Saudi Arabia, UAE, Los Angeles, Iran, and New York City). According to the study, the most used telemedicine tools were voice calls, video calls, and messaging/email. The findings indicated that most participants were satisfied with the quality of telemedicine provided to them. The study concluded that this systematic review could help improve telemedicine services and enhance the overall healthcare delivery system (Kaur et al., 2022).

Lucca, Kurdi, Albaqshi, and Joseph (2022) conducted a study in Saudi Arabia to examine the level of medication adherence and satisfaction with medical care services provided during the COVID-19 pandemic among patients with chronic illnesses. The survey used in the study was created through Google Forms and distributed via online channels. It targeted 385 participants. The study, which employed multiple linear regression analysis, found that patients under the age of 18 had significantly higher overall satisfaction scores compared to those over 60. Female participants also reported higher satisfaction levels than males. In addition, the study found that patients with poor or moderate health status before the pandemic reported lower satisfaction levels compared to those in good health. The study concluded by emphasizing that pharmacists should take on a more proactive and consultative role in meeting the healthcare needs of patients with chronic conditions (Lucca, Kurdi, Albaqshi, & Joseph, 2022).

Mittone, Bailey, Eddy, Napolitano, and Vyas (2022), in their study conducted in the United States on pregnant women, aimed to determine whether demographic factors (i.e., race, age, marital status, education level, household income, and employment status) were associated with telehealth satisfaction during the COVID-19 pandemic. Using descriptive statistics and chi-square analysis, the study found that the average telehealth satisfaction score was 3.97. Additionally, being aged 18–24, having an annual income below $50,000, and being currently pregnant were associated with lower telehealth satisfaction (Mittone, Bailey, Eddy, Napolitano, & Vyas, 2022).

Li, Shen, Yang, Guo, and Tang (2022) aimed in their study to investigate the subjective emotions of older adults during the COVID-19 pandemic and to evaluate their satisfaction with healthcare services. The study is based on data obtained from a survey conducted with 325 outpatients aged 60 in Shanghai during the COVID-19 outbreak. Logistic regression analysis was used to examine the relationship between satisfaction with healthcare services and social factors. The analysis revealed that certain social factors, such as distance to the hospital, living conditions, and frequency of hospital visits, were associated with satisfaction levels among older adults. The findings support the need not only to promote the motivation behind the use of internet-based medical services among the elderly, but also to transform design factors and behavioral patterns (Li, Shen, Yang, Guo, and Tang, 2022).

Neumann, König, Bokermann, and Hajek (2023) aimed to investigate the key determinants of patient utilization and satisfaction with synchronous telemental health services during the COVID-19 pandemic. The study included peer-reviewed quantitative research that examined the determinants of either the use of synchronous telemental health services or satisfaction with such services during the COVID-19 pandemic. For studies published in English and German from 2020 onward, database searches were conducted in PubMed, PsycInfo, and Web of Science in August 2022. Among the 20 included studies, 10 examined determinants of service use, 7 examined determinants of satisfaction, and 3 investigated both outcomes. Most studies considered sociodemographic characteristics and health-related determinants. The findings identified potential target groups for post-pandemic telemental health interventions, such as women and younger patients with mild symptoms (Neumann, König, Bokermann, and Hajek, 2023).

Wu, Zhao, and Wu (2023) aimed to identify specific communication strategies that could help physicians deliver higher quality internet hospital services. The study also offered recommendations for hospitals to operate their internet hospital platforms more effectively. A dataset was collected from an internet hospital platform operated by a leading hospital in China. Based on the logistic regression analysis used in the study, response burden was found to have a significant and negative impact on patient satisfaction. According to this finding, when physicians do not respond promptly and thoroughly, patients report lower levels of satisfaction. The study also found that compared to free services, emotional reassurance had a stronger positive effect on patient satisfaction in paid services. Furthermore, the findings suggest that the identified communication strategies may help physicians provide better internet hospital experiences for patients (Wu, Zhao, and Wu, 2023).

Xu, Zhang, Zheng, Lee, and Wong (2023) aimed in their study to evaluate the feasibility and use of online health services among older adults with multiple chronic conditions in Hong Kong's primary healthcare system during the COVID-19 period, including their satisfaction, preferences, and encountered challenges. The research is a cross-sectional study conducted between November 2020 and March 2021 among older adults with multimorbidity enrolled in a primary care program in Hong Kong. The study included 752 participants, of whom 66.1% reported daily use of social media. The findings indicated that participants who declined to use online services were significantly older, lived alone, had lower income, received social assistance, exhibited greater cognitive decline, and reported lower levels of depression. According to the study, 14.6% of participants preferred online services over face-to-face services. Lower education levels, fewer internet connectivity issues, and greater self-efficacy in using mobile applications were associated with higher levels of online service satisfaction after adjustment (Xu, Zhang, Zheng, Lee, and Wong, 2023).

Yıldız et al. (2014) aimed in their study to identify the factors affecting the satisfaction levels of hospitalized patients with nursing care services. The study sample consisted of 184 patients receiving treatment in surgical departments. According to the findings, which were obtained using the Mann-Whitney U test and Kruskal-Wallis test, patients reported a high level of satisfaction with nursing care services (Yıldız et al., 2014).

Atasever, Karaca, Yavuz, Afra, and Hasan (2018) investigated the relationship between satisfaction with health services, the proportion of households incurring catastrophic health expenditures, and the share of out-of-pocket spending in total health expenditures in Turkey. The study examined household budget data from 2002 to 2015 in conjunction with Life Satisfaction Survey data for the same years in terms of satisfaction rates. According to the findings based on linear regression analysis, there is a strong negative relationship between satisfaction with health services and both the proportion of households incurring catastrophic health spending and the share of out-of-pocket payments within total health expenditures. The study also found that as out-of-pocket expenditures decreased, the rate of households facing catastrophic health spending also declined, indicating a tendency for increased satisfaction with health services (Atasever, Karaca, Yavuz, Afra, and Hasan, 2018).

Bicilioğlu and Ergonul (2022) aimed in their study to evaluate, from their own perspective, the fear of COVID-19 and job satisfaction among adult and pediatric emergency physicians in the western region of Turkey during the initial phase of the pandemic and its fourth month. The study, which employed descriptive statistics and chi-square analysis, found that by the fourth month of the pandemic, physicians' satisfaction with working conditions had increased compared to pre-pandemic levels. According to the findings, COVID-19 fear scores among physicians were higher at the beginning of the pandemic than in its fourth month. The study also identified being female, having children, and age as factors that contributed to increased fear of COVID-19. Despite high levels of fear, the study concluded that high satisfaction with the arrangements made at the beginning of the pandemic was likely due to the heavy workload associated with pre-pandemic working conditions. According to the study, the primary cause of this excessive workload was the high rate of patients using emergency services despite not needing emergency care (Bicilioğlu and Ergonul, 2022).

Material and Method

Data

The dataset for this study was obtained from the 2021 Life Satisfaction Survey conducted by the Turkish Statistical Institute (TurkStat). The scope of the Life Satisfaction Survey includes individuals aged 18 and over residing within the borders of the Republic of Turkey (TurkStat, 2021).

This study utilized data from 10,073 individuals who participated in the Life Satisfaction Survey in 2021.

Variables

The dependent variable of the study is the level of satisfaction with healthcare services, measured by the question "Are you satisfied with healthcare services?" with response categories: Very satisfied/Satisfied; Moderate; Dissatisfied/Very Dissatisfied. Explanations regarding the independent variables are presented in Table 3.1. The reference categories for the independent variables were selected based on the best-fitting model.

Table 3.1. Independent Variables Used in the Analysis

Variables	Remarks
Satisfaction with health care	The individual's level of satisfaction with healthcare services is represented by 3 separate categories defined as dummy variables. These categories are as follows: dissatisfied/very dissatisfied, moderate, and very satisfied/satisfied. Each variable takes the value of 1 if the individual falls into that category, and 0 otherwise.
Age	Age is represented by 6 dummy categories: 24 and under, 25–34, 35–44, 45–54, 55–64, and 65 and over. Each variable takes the value of 1 if the individual belongs to that age group, and 0 otherwise.
Marital status	Marital status is coded as 0 for single and 1 for married individuals.
Education	The individual's education level is represented by 5 dummy categories: no degree, primary school, middle school, high school, and university. Each variable takes the value of 1 if the individual belongs to that category, and 0 otherwise.
Happiness level	The happiness level, considering life as a whole, is represented by 5 dummy categories: very happy, happy, neutral, unhappy, and very unhappy. Each variable takes the value of 1 if the individual belongs to that category, and 0 otherwise.
Level of satisfaction with health	Satisfaction with personal health is also represented by 5 dummy categories: very satisfied, satisfied, moderate, dissatisfied, and very dissatisfied. Each variable takes the value of 1 if the individual belongs to that category, and 0 otherwise.
Type of Hospital Visited	The place of first contact when ill is represented by 3 dummy categories: Family Physician/Family Health Center, Public/University Hospital, and Private Hospital/Private Clinic/Medical Center/Private Practice/Workplace Doctor/Other. Each variable takes the value of 1 if the individual falls into that category, and 0 otherwise.
Satisfaction examination	Satisfaction with the medical examination in general healthcare institutions is measured such that the variable takes the value of 1 if there was a problem, and 0 if there was no problem or if the respondent had no opinion.
Problem with doctor	Issues with doctors' behavior toward patients in general healthcare institutions are coded as 1 if a problem was reported, and 0 if no problem was reported or if there was no opinion.
Problem with nurse	Issues with nurses' or caregivers' behavior toward patients are similarly coded: 1 if a problem exists, 0 if not or if no opinion was given.
Adequate Staff Problem	The adequacy of the number of doctors and healthcare staff is coded as 1 if considered adequate, and 0 if considered inadequate or if there was no opinion.
Waiting time problem	Problems with waiting time for examination and/or testing are coded as 1 if reported, and 0 if not or if there was no opinion.
Co-payment problem	Viewing the co-payment fee for examination as a problem is coded as 1 if considered a problem, and 0 if not or if there was no opinion.
Health problem status	If the individual experienced a serious health problem in the past year, the variable takes the value of 1; if not, 0.
Household size	Household size is represented by 3 dummy categories: 1–3 persons, 4–5 persons, and 6 or more persons. Each variable takes the value of 1 if the individual falls into that category, and 0 otherwise.
Number of rooms in the household	The number of rooms in the household is represented by 5 dummy categories as follows: 2 or fewer, 3, 4, 5, and 6 or more rooms. Each variable takes the value of 1 if the individual belongs to that category, and 0 otherwise.
Household Size (Square Meters)	The floor area of the house is represented by 5 dummy categories: 60 m^2 or less, 61–90 m^2, 91–120 m^2, 121–150 m^2, and 151 m^2 or more. Each variable takes the value of 1 if the individual falls into that category, and 0 otherwise.
Income level	Monthly total net household income (from wages, salaries, rent, interest, entrepreneurship, etc.) is represented by 5 dummy income level categories. Each variable takes the value of 1 if the individual belongs to that category, and 0 otherwise.

Ordinal and nominal variables were defined as dummy variables to observe the effects of all categories of the variables to be included in the model (Ünver, 2024; Ünver & Alkan, 2023).

Descriptive statistics for the independent variables are presented in Table 3.2.

Table 3.2. Descriptive Statistics of Independent Variables

	n(%)	Satisfaction Level	P

			Dissatisfied/Very dissatisfied	Moderate	Very satisfied/ Satisfied	
Age	24 and below*	1260(12,5)	233(18,5)	232(18,4)	795(63,1)	0.000[a]
	25-34	1925(19,1)	394(20,5)	318(16,5)	1213(63,0)	
	35-44	2171(21,6)	430(19,8)	354(16,3)	138763,9)	
	45-54	1825(18,1)	318(17,4)	260(14,2)	1247(68,3)	
	55-64	1520(15,1)	211(13,9)	185(12,2)	1124(73,9)	
	65 and over	1372(13,6)	145(10,6)	140(10,2)	1087(79,2)	
Marital status	Married	7128(70,8)	1217(17,1)	1010(14,2)	4901(68,8)	0.016[a]
	Single*	2945(29,2)	514(17,5)	479(16,3)	1952(66,3)	
Education	No degree*	1164(11,6)	144(12,4)	142(12,2)	878(75,4)	0.000[a]
	Primary school	3147(31,2)	410(13,0)	363(11,5)	2374(75,4)	
	Middle school	1408(14,0)	257(18,3)	202(14,3)	949(67,4)	
	High school	2282(22,7)	457(20,0)	377(16,5)	1448(63,5)	
	University	2072(20,6)	463(22,3)	405(19,5)	1204(58,1)	
Happiness level	Very happy	545(5,4)	60(11,0)	37(6,8)	448(82,2)	0.000[a]
	Happy*	4500(44,7)	491(10,9)	476(10,6)	3533(78,5)	
	Moderate	3422(34,0)	678(19,8)	698(20,4)	2046(59,8)	
	Unhappy	1271(12,6)	385(30,3)	218(17,2)	668(52,6)	
	Very unhappy	335(3,3)	117(34,9)	60(17,9)	158(47,2)	
Satisfaction with Personal Health	Very satisfied*	661(6,6)	105(15,9)	79(12,0)	477(72,2)	0.000[a]
	Satisfied	6270(62,2)	883(14,1)	761(12,1)	4626(73,8)	
	Moderate	1924(19,1)	354(18,4)	492(25,6)	1078(10,7)	
	Dissatisfied	1061(10,5)	339(32,0)	139(13,1)	583(54,9)	
	Very dissatisfied	157(1,6)	50(31,8)	18(11,5)	89(56,7)	
Type of Hospital Visited	Family Physician/Family Health Center	3629(36,0)	547(15,1)	550(15,2)	2532(69,8)	0.000[a]
	State Hospital/University Hospital	5075(50,4)	845(16,7)	731(14,4)	3499(68,9)	
	Private Hospital/Private Polyclinic and Medical Center/Private Practice/Institution	1369(13,6)	339(24,8)	208(15,2)	822(60,0)	
	Doctor/Other*					
Satisfaction with examination	Yes	6721(66,7)	874(13,0)	878(13,1)	4969(73,9)	0.000[a]
	No/No opinion*	3352(33,3)	857(25,6)	611(18,2)	1884(56,2)	
Problem with doctor	Yes	2338(23,2)	693(29,6)	404(17,4)	1241(53,1)	0.000[a]
	No/No opinion*	7735(76,8)	1038(13,4)	1085(14,0)	5612(72,6)	
Problem with nurse	Yes	2052(20,4)	620(30,2)	368(17,9)	1064(51,9)	0.000[a]
	No/No opinion*	8021(79,6)	1111(13,9)	1121(14,0)	5789(72,2)	
Adequate Staff Problem	Yes	424(11,3)	392(10,5)	2926(78,2)	3742(37,1)	0.000[a]
	No/No opinion*	6331(62,9)	1307(20,6)	1097(17,3)	3927(62,0)	
Waiting time problem	Yes	4380(43,5)	1168(26,7)	788(18,0)	2424(55,3)	0.000[a]
	No/No opinion*	5693(56,5)	563(9,9)	701(12,3)	4429(77,8)	
Co-payment problem	Yes	5909(58,7)	1371(23,2)	1000(16,9)	3538(59,9)	0.000[a]
	No/No opinion*	4164(41,3)	360(8,6)	489(11,7)	3315(79,6)	
Health problem status	Yes	1528(15,2)	348(22,8)	210(13,7)	970(63,5)	0.000[a]
	No/No opinion*	8545(84,8)	1383(16,2)	1279(15,0)	5883(68,8)	
Household size	1-3 persons*	5217(51,8)	880(16,9)	760(14,6)	3577(68,6)	0.039[b]
	4-5 persons	3724(37,0)	630(16,9)	585(15,7)	2509(67,4)	
	6 and above	1132(11,2)	221(19,5)	144(12,7)	767(67,8)	
Number of rooms in the household	2 and below	530(5,3)	94(17,7)	69(13,0)	367(69,2)	0.852
	3*	3795(37,7)	649(17,1)	558(14,7)	2588(68,2)	
	4	4887(48,5)	832(17,0)	746(15,3)	3309(67,7)	
	5	696(6,9)	128(18,4)	92(13,2)	476(68,4)	
	6 and above	165(1,6)	28(17,0)	24(14,5)	113(68,5)	
Household Size (Square Meters)	60 m^2 and less	375(3,7)	66(17,6)	55(14,7)	254(67,7)	0.165
	61-90	2476(24,6)	407(16,4)	384(15,5)	1685(68,1)	
	91-120	4212(41,8)	691(16,4)	619(14,7)	2902(68,9)	
	121-150	1895(18,8)	356(18,8)	285(15,0)	1254(66,2)	
	151 m^2 and more*	1115(11,1)	211(18,9)	146(13,1)	758(68,0)	
Income level	1st income level (min) *	1883(18,7)	274(14,6)	265(14,1)	1344(71,4)	0.002[a]
	2nd income level	2250(22,3)	367(16,3)	317(14,1)	1566(69,6)	
	3rd income level	1938(19,2)	354(18,3)	287(14,8)	1297(66,9)	
	4th income level	1888(18,7)	349(18,5)	279(14,8)	1260(66,7)	
	5th income level (max)	2114(21,0)	387(18,3)	341(16,1)	1386(65,6)	

[a] p<0.01; [b] p<0.05; [c] p<0.10

*Note: * Indicates the reference categories for the relevant variable.*

Statistical Analysis

Testing statistical hypotheses is one of the main areas of statistical inference (Ünver, Alkan, & Oktay, 2024). SPSS 20 and Stata 15 software were used to analyze the data. First, the satisfaction levels of individuals participating in the study with healthcare services and the frequencies and percentages of the independent variables were obtained. Then, the Continuation Ratio Model was applied to identify the factors affecting individuals' satisfaction with healthcare services.

Model Estimation

The Continuation Ratio Model was employed to determine the factors affecting individuals' satisfaction with healthcare services. The estimated coefficients for the model are presented in Table 3.3. When the estimation results in Table 3.3 are examined, the variables age (45–54, 55–64, 65 and over), marital status, education level (middle school, high school, university), level of happiness, satisfaction with personal health (moderate, dissatisfied, very dissatisfied), hospital visit, satisfaction with medical examination, problems with physician behavior, problems with nurse behavior, adequacy of physician and healthcare personnel, problems with waiting time, co-payment fee issues, health problem status, household size (6 and above), number of rooms in the residence (2 or fewer), size of the house in square meters, and income level (3rd and 4th income levels) are found to be statistically significant.

Table 3.3. Estimation Results of Continuation Ratio Model Coefficients

Variables	Moderate				Very satisfied/ Satisfied			
	β	Std. Error	OR	Std. Hata	β	Std. Error	OR	Std. Error
Age (reference: 24 and below)								
25-34	-0,215	0,141	0,806	0,114	0,128	0,093	1.137	0.107
35-44	-0,220	0,147	0,803	0,118	0,138	0,098	1.148	0.111
45-54	-0,302[b]	0,160	0,739	0,118	0,252[b]	0,105	1.288	0.135
55-64	-0,302[c]	0,179	0,739	0,132	0,50[a]	0,114	1.633	0.187
65 and over	-0,310	0,194	0,736	0,143	0,725[a]	0,121	2.066	0.251
Marital status (reference: single)								
Married	-0.114	0.099	0.901	0.090	-0,200[a]	0.0640	0.818	0.052
Education (reference: no degree)								
Primary school	-0.202	0.160	0.817	0.130	0.062	0.092	1.064	0.098
Middle school	-0.280	0.180	0.757	0.136	-0179[c]	0.107	0.836	0.090
High school	-0,317[c]	0.175	0.728	0.128	-0,463[a]	0.104	0.630	0.065
University	-0.188	0.182	0.830	0.151	-0,668[a]	0.110	0.512	0.056
Happiness level (reference: happy)								
Very happy	-0,514[b]	0.230	0.597	0.137	0,218[c]	0.128	1.244	0.160
Moderate	.0061	0.090	1.062	0.095	-0,690[a]	0.055	0.501	0.027
Unhappy	-0,481[a]	0.115	0.618	0.071	-0,834[a]	0.076	0.434	0.033
Very unhappy	-0,398[b]	0.185	0.672	0.125	-0,917[a]	0.130	0.400	0.052
Satisfaction with Personal Health (reference: very satisfied)								
Satisfied	0.101	0.165	1.106	0.183	0.093	0.101	1.098	0.111
Moderate	0,626[a]	0.177	1.870	0.331	-0,744[a]	0.112	0.475	0.053
Dissatisfied	-0,503[b]	0.198	0.604	0.120	-0,796[a]	0.125	0.451	0.056
Very dissatisfied	-0,585[c]	0.333	0.557	0.185	-0,714[a]	0.210	0.400	0.102
Type of Hospital Visited (reference: private hospital/private polyclinic and medical center/private practice/ınstitution doctor/other)								
Family Physician/Family Health Center	0,588[a]	0.120	1.800	0.215	0,414[a]	0.078	1.513	0.118
State Hospital/University Hospital	0,534[a]	0.115	1.705	0.198	0,474[a]	0.075	1.608	0.121
Satisfaction with examination (reference: no/no opinion)								
Yes	0,350[a]	0.078	1.418	0.111	0,717[a]	0.051	2.050	0.104
Problem with doctor (reference: no/no opinion)								
Yes	-0.376	0.110	0.686	0.757	-0,296[a]	0.077	0.743	0.600
Problem with nurse (reference: no/no opinion)								
Yes	-0.673	0.114	0.934	0.106	-0,297[a]	0.080	0.742	0.0600
Adequate Staff Problem (reference: no/no opinion)								
Yes	0.036	0.090	1.036	0.092	0,513[a]	0.053	1.671	0.090
Waiting time problem (reference: no/no opinion)								
Yes	-0,350[a]	0.086	0.705	0.061	-0,553[a]	0.054	0.574	0.031
Co-payment problem (reference: no/no opinion)								
Yes	-0,334[a]	0.094	0.716	0.067	-0,512[a]	0.057	0.600	0.034
Health problem status (reference: no/no opinion)								
Yes	-0,193[c]	0.105	0.823	0.087	.051	0.069	1.053	0.073
Household size (reference: 1-3 persons)								
4-5 persons	0.053	0.088	1.054	0.093	0.084	0.057	1.087	0.062
6 and above	-0,287[p]	0.137	0.750	0.103	0,146[c]	0.086	1.157	0.099
Number of rooms in the household (reference: 3)								
2 and below	-0,352[c]	0.208	0.703	0.146	-0.113	0.132	0.892	0.118
4	0.152	0.098	1.164	0.114	-0.003	0.063	0.996	0.062
5	0.129	0.188	1.137	0.214	-0.268	0.121	0.973	0.118
6 and above	0.258	0.330	1.295	0.428	-0.184	0.212	0.831	0.176
Household Size (Square Meters) (reference: 151 m² and more)								
60 m² and less	0,608[p]	0.282	1.836	0.519	-0.240	0.181	0.976	0.177
61-90	0,536[a]	0.176	1.710	0.301	-0.094	0.112	0.909	0.102
91-120	0,344[p]	0.151	1.410	0.214	-0.066	0.097	0.935	0.091
121-150	0.235	0.155	1.265	0.196	-0,194[c]	0.099	0.823	0.082
Income level (reference: 1st income level (min))								
2nd income level	-0.143	0.130	0.886	0.112	0.020	0.080	1.021	0.082
3rd income level	-0,230[c]	0.133	0.794	0.106	-0.120	0.083	0.886	0.074
4th income level	-0,253[c]	0.139	0.775	0.107	-0.097	0.086	0.907	0.078
5th income level (max)	-0.059	0.143	0.942	0.135	-0.023	0.090	0.976	0.088
Constant term	0.038	0.327	1.039	0.340	1.297	0.204	3.658	0.749

[a] p<0.01; [b] p<0.05; [c] p<0.10

As only the direction of the relationship between the dependent and independent variables can be inferred from the coefficient values in Table 3.3, the interpretation of the Continuation Ratio Model is based on the marginal effects calculated and presented in Table 3.4. Additionally, the variance inflation factor (VIF) values of the independent

variables were examined to test whether the model includes multicollinearity (Ünver & Alkan, 2022). Variables with VIF values of 5 and above are considered to indicate moderate multicollinearity, while values of 10 and above suggest high multicollinearity (Alkan & Ünver, 2021; Ünver & Alkan, 2020). In this study, no variable was found to cause multicollinearity among the predictors. VIF values are presented in Table 3.4.

Table 3.4. Marginal Effects of the Continuation Ratio Model

Variables	Dissatisfied/Very dissatisfied		Moderate		Very satisfied/ Satisfied		VIF
	M.E	Std. Error	M.E	Std. Error	M.E	Std. Error	
Age (reference: 24 and below)							
25-34	0,035[b]	0,099	-0,180[b]	0.087	0.045	0.033	2,52
35-44	0.03	0,104	-0,188[b]	0.090	0.048	0.034	2,95
45-54	-0,005	0,112	-0,306[a]	0.101	0,086[b]	0.036	2,97
55-64	-0,171	0,125	-0,473[a]	0.113	0,158[a]	0.037	2,96
65 and over	-0,342[b]	0,133	-0,649[a]	0.125	0,219[a]	0.037	2,89
Marital status (reference: single)							
Married	0,197[a]	0.069	0.083	0.064	-0,062[a]	0.019	1.46
Education (reference: no degree)							
Primary school	0.064	0.112	-0.138	0.098	0.016	0.025	2.88
Middle school	0,275[b]	0.125	-0.003	0.113	-0,516[c]	0.309	2.35
High school	0,485[a]	0.121	0.168	0.108	-0,145[a]	0.031	3.20
University	0,547[a]	0.126	0,360[a]	0.111	-0,222[a]	0.035	3.38
Happiness level (reference: happy)							
Very happy	0.077	0.140	-0.436	0.165	0,051[c]	0.028	1.11
Moderate	0,442[a]	0.063	0,503[a]	0.056	-0,213[a]	0.017	1.24
Unhappy	0,795[a]	0.074	0.314	0.079	-0,270[a]	0.027	1.24
Very unhappy	0,807[a]	0.115	0.410	0.127	-0,304[a]	0.052	1.10
Satisfaction with Personal Health (reference: very satisfied)							
Satisfied	-0.118	0.111	-0.016	0.111	0.025	0.028	4.15
Moderate	0.131	0.121	0.758	0.116	-0,261[a]	0.036	3.46
Dissatisfied	0,729[a]	0.124	0.225	0.137	-0,283[a]	0.043	2.67
Very dissatisfied	0,712[a]	0.183	0.126	0.242	-0,248[a]	0.811	1.31
Type of Hospital Visited (reference: private hospital/private polyclinic and medical center/private practice/institution doctor/other)							
Family Physician/Family Health Center	-0,547[a]	0.073	0.040	0.082	0,145[a]	0.028	2.58
State Hospital/University Hospital	-0,560[a]	0.070	-0.267	0.080	0,164[a]	0.028	2.64
Satisfaction with examination (reference: no/no opinion)							
Yes	-0,650[a]	0.052	-0,300[a]	0.051	0,243[a]	0.018	1.08
Problem with doctor (reference: no/no opinion)							
Yes	0,383[a]	0.073	0.006	0.077	-0,098[a]	0.026	2.11
Problem with nurse (reference: no/no opinion)							
Yes	0,232[a]	0.079	0,165[b]	0.077	-0,099[a]	0.028	2.11
Adequate Staff Problem (reference: no/no opinion)							
Yes	-0,375[a]	-0.375	-0,339[a]	-0.339	0,156[a]	0.015	1.09
Waiting time problem (reference: no/no opinion)							
Yes	0,554[a]	0.058	0,205[a]	0.056	-0,177[a]	0.017	1.36
Co-payment problem (reference: no/no opinion)							
Yes	0,529[a]	0.065	0,195[a]	0.059	-0,157[a]	0.016	1.32
Health problem status (reference: no/no opinion)							
Yes	0.061	0.070	-0,132[c]	0.072	0.016	0.022	1.11
Household size (reference: 1-3 persons)							
4-5 persons	-0.085	0.061	-0.032	0.567	0.027	0.018	1.34
6 and above	0.039	0.088	-0,247[a]	0.095	0,046[c]	0.026	1.32
Number of rooms in the household (reference: 3)							
2 and below	0,238[c]	0.126	-0.113	0.148	-0.037	0.043	1.50
4	-0.076	0.067	0,075[c]	0.064	-0.001	0.020	1.69
5	-0.048	0.128	0,080[c]	0.121	-0.008	0.039	1.60
6 and above	-0.014	0.230	0.244	0.107	-0.061	0.073	1.26
Household Size (Square Meters) (reference: 151 m^2 and more)							
60 m^2 and less	-0.292	0.202	0,315[c]	0.181	-0.007	0.055	2.07
61-90	-0,203[c]	0.115	0,333[a]	0.121	-0.029	0.034	4.10
91-120	-0.118	0.097	0,225[b]	0.107	-0.020	0.029	4.04
121-150	0.222	0.099	0,257[b]	0.109	-0,062[b]	0.031	2.68
Income level (reference: 1st income level (min))							
2nd income level	0.061	0.090	-0.081	0.082	0.006	0.025	1.88
3rd income level	0,201[b]	0.092	-0.028	0.085	-0.038	0.027	1.86
4th income level	0,197[b]	0.094	-0.055	0.088	-0.031	0.027	1.95
5th income level (max)	0.048	0.101	-0.011	0.091	-0.007	0.028	2.36

[a]p < .01; [b]p < .05; [c]p < .10; M.E: Marginal effects

According to the Continuation Ratio Model results presented in Table 3.4, the probability that an individual aged 25–34 is moderately satisfied with healthcare services is 18% lower than that of the reference group. For individuals aged 35–44, the probability of being moderately satisfied is 18.88% lower than that of the

reference group. For those aged 45–54, the probability of being very satisfied/satisfied is 8.6% higher, while the probability of being moderately satisfied is 30.6% lower than the reference group. Individuals aged 55–64 have a 15.8% higher probability of being very satisfied/satisfied and a 47.3% lower probability of being moderately satisfied. For individuals aged 65 and over, the probability of being very satisfied/satisfied is 21.9% higher, while the probability of being moderately satisfied is 64.9% lower than the reference group.

Married individuals are 6.2% less likely to be very satisfied/satisfied with healthcare services compared to the reference group. University-educated individuals are 36% more likely to be moderately satisfied. Those with a middle school education are 51.6% less likely to be very satisfied/satisfied, while those with a high school education are 1.45% less likely. Individuals with a university education are 2.22% less likely to be very satisfied/satisfied compared to the reference group.

An individual with a moderate level of happiness is 50.3% more likely than the reference group to be moderately satisfied with healthcare services. An individual who is very happy is 5.1% more likely to be very satisfied/satisfied compared to the reference group. An individual with a moderate level of happiness is 21.3% less likely to be very satisfied/satisfied. An individual who is unhappy is 27% less likely, and one who is very unhappy is 30.4% less likely to be very satisfied/satisfied with healthcare services than the reference group.

An individual who is moderately satisfied with their health is 26.1% less likely than the reference group to be very satisfied/satisfied with healthcare services. An individual who is dissatisfied with their health is 28.3% less likely, and one who is completely dissatisfied is 24.8% less likely to be very satisfied/satisfied. An individual who visits a family physician or Family Health Center is 14.5% more likely than the reference group to be very satisfied/satisfied with healthcare services. An individual who visits a public or university hospital is 16.4% more likely to be very satisfied/satisfied. An individual satisfied with their examination is 30% less likely to be moderately satisfied, while 24.3% more likely to be very satisfied/satisfied compared to the reference group.

An individual who reported problems with doctors' behavior toward patients is 9.8% less likely than the reference group to be very satisfied/satisfied. An individual who reported problems with nurses' or caregivers' behavior is 16.5% more likely to be moderately satisfied, while 9.9% less likely to be very satisfied/satisfied. An individual who considers the number of doctors and healthcare personnel sufficient is 33.9% less likely to be moderately satisfied, but 15.6% more likely to be very satisfied/satisfied. An individual who reported problems with waiting times for examination or tests is 20.5% more likely to be moderately satisfied, but 17.7% less likely to be very satisfied/satisfied. An individual who considers co-payment fees for examinations problematic is 19.5% more likely to be moderately satisfied, but 15.7% less likely to be very satisfied/satisfied.

An individual with health problems is 13.2% less likely than the reference group to be moderately satisfied with healthcare services. An individual from a household with six or more members is 24.7% less likely to be moderately satisfied, but 4.6% more likely to be very satisfied/satisfied.

An individual living in a home with four rooms is 7.5% more likely to be moderately satisfied compared to the reference group. For five-room homes, this probability increases by 8%. An individual living in a house of 60 m^2 or less is 31.5% more likely to be moderately satisfied. An individual living in a house sized 61–90 m^2 is 33.3% more likely than the reference group to be moderately satisfied with healthcare services. An individual living in a house sized 91–120 m^2 is 22.5% more likely to be moderately satisfied. For those residing in a 121–150 m^2 house, the likelihood of being moderately satisfied is 25.7% higher than the reference group, while the likelihood of being very satisfied/satisfied is 6.2% lower.

Discussion and Conclusion

The COVID-19 pandemic, which swept across the world, began in December 2019 in Wuhan, China, and reached Turkey on March 10, 2020. In Turkey and globally, medical research continues to identify the pandemic's impact on people and various sectors. This topic, while central to medical studies, has also attracted significant interest in the social sciences. It is observed that the healthcare sector has undergone considerable change and development in recent years. For institutions providing healthcare services to sustain their operations, they must prioritize service quality and the satisfaction of patients and their relatives. As a result, patients and their families who are satisfied with the services provided are more likely to return to the same institution when in need. For healthcare institutions, identifying the factors that affect patient and relative satisfaction or dissatisfaction and offering services accordingly will enhance satisfaction, improve institutional quality, and ensure competitiveness in today's conditions.

This study uses data from 10,073 individuals who participated in the 2021 Life Satisfaction Survey conducted by the Turkish Statistical Institute (TURKSTAT). The aim of the study is to identify the factors influencing individuals' satisfaction with healthcare services in Turkey during the COVID-19 period using the Continuation Ratio Model. According to the analysis results, variables such as age (45–54, 55–64, 65 and over), marital status, education level (middle school, high school, university), level of happiness, satisfaction with one's health (moderate, dissatisfied, very dissatisfied), type of hospital visited, satisfaction with the examination, problems with doctor or nurse behavior, adequacy of medical staff, problems with waiting time, co-payment issues, health condition, household size (6 or more), number of rooms in the residence (2 or fewer), housing area, and income

level (3rd and 4th income levels) were found to be statistically significant.

The study concludes that as individuals age, their likelihood of being satisfied with healthcare services increases. A similar finding was observed in a study conducted on pregnant women in the United States (Mittone, Bailey, Eddy, Napolitano, & Vyas, 2022). However, contradictory results also exist in the literature. Some recent studies during the pandemic have found that older individuals are generally less satisfied with healthcare services (Cho et al., 2021). Possible explanations include greater difficulties with technology and more privacy concerns among older adults. A study on telehealth satisfaction in a rural community during the pandemic found that adults aged 35 and over were less satisfied than younger adults aged 18 to 34 (Phenicie, Wright, & Holzberg, 2021). Similarly, a study conducted on patients in an urban community found that younger adults had more positive experiences with telehealth visits compared to older adults (Pasquinelli et al., 2022).

The study also found that married individuals were less likely to be satisfied with healthcare services compared to single individuals. In contrast, previous studies in the United States reported findings that contradicted this result (Mittone, Bailey, Eddy, Napolitano, & Vyas, 2022; Connolly et al., 2022). The study also concludes that individuals with higher levels of education are less likely to be satisfied with healthcare services. Recent studies investigating the effect of education on satisfaction with healthcare services have produced varied and inconsistent findings (Kyle, Blendon, Findling, & Benson, 2021). One study found no significant difference in healthcare satisfaction based on education level (Pasquinelli et al., 2022), while another found that higher education levels were associated with greater satisfaction with telehealth services (Mittone, Bailey, Eddy, Napolitano, & Vyas, 2022). Another earlier study suggested that increased investment in education and its continuity could enhance potential output and employment in the economy, leading to improvements in health and satisfaction with healthcare services (Yılmaz & Ünver, 2019).

The study also shows that as income levels increase, satisfaction with healthcare services decreases. A nationally representative survey conducted during the pandemic on U.S. households found that although telehealth use was lowest among households earning less than $100,000 annually, satisfaction with telehealth did not vary significantly by income (Kyle, Blendon, Findling, & Benson, 2021). Similarly, another study found no significant difference in patient satisfaction by income level (Cho et al., 2021). Interestingly, a study on low-income pregnant women found that women with annual household incomes below $25,000 were significantly more likely to prefer telehealth over in-person visits than those earning more (Garcia et al., 2022).

The study also concludes that individuals who are dissatisfied with their health are less likely to be satisfied with healthcare services compared to those who are very satisfied with their health. A person's perception of life satisfaction is closely related to their physical and psychological well-being. Studies have shown that individuals who are physically healthy and feel mentally well also report higher life satisfaction (Korkmaz, Germir, Yücel, & Gürkan, 2015). In addition, individuals who first seek care from family physicians, Family Health Centers, or public/university hospitals are more likely to be satisfied with healthcare services compared to those who turn to private hospitals, polyclinics, private practices, or workplace doctors. According to the study results, those who were satisfied with their examination were more likely to be satisfied with healthcare services than those who were not. Another finding of the study is that individuals who reported problems with doctors' behavior toward patients were less likely to be satisfied than those who did not. Similarly, those who reported problems with nurses' behavior were also less likely to be satisfied compared to those who did not report such issues.

Another result of the study is that individuals who considered the number of doctors and healthcare personnel to be sufficient were more likely to be satisfied with healthcare services compared to those who found the numbers inadequate. According to the study, those who experienced problems with waiting times for examinations or tests were less likely to be satisfied than those who did not. Similarly, those who saw co-payment fees as a problem were less likely to be satisfied than those who did not. The study also found that individuals who experienced a serious health problem within the last year were less likely to be satisfied compared to those who did not. As household size increases, individuals' likelihood of being satisfied with healthcare services also increases. Another finding of the study is that the number of rooms in the household is positively associated with satisfaction with healthcare services.

Healthcare services, which hold a significant place among public services, are also provided by private sector institutions in Turkey, but remain one of the essential services the state is obligated to provide adequately to its citizens. Healthcare services differ markedly from other industrial and service sectors due to several characteristics: their continuity, the unpredictability of their scope, their random usage, the lack of alternatives or substitutes, their non-deferrable nature, the inability to monetize their outputs, the non-negotiable cost, and their outcomes being considered a public good. To improve the quality of healthcare services and patient satisfaction, the institutions providing these services must be equipped with physical features such as hygiene, technological infrastructure, and timeliness, in line with optimal standards of modern medical care. Furthermore, it is essential that healthcare personnel communicate effectively with patients, act respectfully toward their personal rights, and establish trust.

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