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DETERMINING THE FACTORS AFFECTING THE FREQUENCY OF VISITS OF HOME HEALTHCARE PATIENTS

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Abstract

Aim: This study aims to determine the factors affecting the frequency of visits for patients benefiting from home healthcare services.

Methods: The sample of the study consisted of 1,454 patients received home healthcare service uninterruptedly for 12 months in 2019. Linear and log-linear regression methods were used to identify the factors affecting the number of visits in a year, and the statistical significance was evaluated at $p<0.05$ level.

Findings: The majority of the patients were 80 years and older (60.3%), female (68.4%), and fully dependent (55.1%). Cardiovascular and neuropsychiatric diseases were very common among patients

(82.9% and 76.3%, respectively). We identified that the need for INR test, having decubitis ulcer, using urinary catheter, demand for oxygen therapy or enteral nutrition, and having a neuropsychiatric disease significantly increase the number of visits by 62%, 51%, 37%, 25%, 17%, and 17%, respectively.

Conclusion: Several clinical features affect the number of services received during the year. The findings of this study are of great importance in terms of modeling studies aimed at improving home healthcare services and predicting future needs.

Keywords: *Home Healthcare, Home Care, Patient Visits, Care Needs.*

Introduction

Home healthcare is a type of care that is provided at home by healthcare professionals under the direction of a physician (Ellenbecker, et., al 2008). This type of care includes nursing care, home healthcare aides, physical therapy, occupational and speech therapy, and medical social services (Welch, et., al 1996; National Research Council, 2010).

Health care services are being directed toward homes recently. The emergence of various health needs due to old age, the decrease in hospital stay and the continued need for care after discharge, new reimbursement arrangements of insurance companies, and technological developments that allow more complicated home care are the most important reasons for this development (Bruce, et., al 2002; National Research Council, 2011). Besides, the fact that patients and their families are more aware of the advantages and availability of home healthcare services is another factor increasing this demand (Decker and Park-Lee, 2010).

1. Literature

Home healthcare services are getting important day by day not only in Turkey but also throughout the world. Ministry of Health drafted a directive in 2010 to provide effective, efficient, friendly, and human-centered health services by health institutions and organizations to the individuals in need in their homes and family environment (Ministry of Health, 2010). As a result, home healthcare units were established in public hospitals, and a total of 1 million 437 thousand patients benefited from this service until December 2019 (Ministry of Health (a)).

The majority of those patients benefit from home healthcare services are over 65 years of age (Han, et., al 2013; Caffrey, et., al 2011). Most of them have single or multiple chronic diseases including heart and circulatory system diseases, endocrine and metabolic diseases, immune disorders, musculoskeletal and connective tissue diseases, and also diabetes mellitus (NAHC, 2010; Ellenbecker, et., al 2008; Avalere Health, 2019).

It is estimated that the number of people who will need some form of long-term care will nearly be doubled by 2050 (Bercovitz, et., al 2007). According to the estimates developed by the Office of the Assistant Secretary for Planning and Evaluation of U.S. Department of Health & Human Services, the elderly population will increase as the baby boomers generation reaches the age of 85 after 2030. A small increase in the size of 25-54 age group is also expected between 2000 and 2050 (ASPE, 2003). Together with the prolongation of life expectancy, the decreasing birth rates and changing situation in the age structure show that the young population that can provide care to the elderly who need care will not be sufficient in the future (Rest, et., al 2012). Besides, home health care agencies in the USA have difficulty meeting the increasing demand due to nurse shortages (Ellenbecker, 2004). The scarcity of health resources in response to the increasing patient demand necessitates the effective management of this service.

Not only the shortage of service employees is an important problem, but also the services that require an extensive number of home visits increase the financial burden of agencies. For this reason, agencies look for ways to reduce visits while achieving quality results (Terry, et., al 2009). For example, the forward payment system in Medicare-financed home healthcare services in the USA varies according to patient characteristics, including the patient's clinical status, functional status, and need for rehabilitation treatment services. There is a mix of 153 categories of cases to determine payment rates (NAHC, 2010). This lump sum is designed to cover the costs of managing all aspects of patient care, including skilled care visits, support services, and supplies (Schwien, et., al 2005).

Welch et al. (1996) stated that the primary criterion for the use of home healthcare services was the number of visits, as opposed to the number of people receiving care or care episodes. In Turkey, there have been many studies investigating the demographic characteristics of patients benefiting from home healthcare and the reasons for using such services (Catak, 2012; Limnili and Ozcakar, 2013; Cayır, 2013; Karaman, et., al 2015). However, there is a lack of studies investigating the factors affecting the frequency of visits. It is thought that detailed studies regarding the frequency of visits according to patient-specific characteristics will contribute to literature to plan (or manage) the policies of home healthcare. This study aims to determine the factors affecting the frequency of visits for patients benefiting from home healthcare services. The research question

was determined as; "whether the frequency of visits for patients varies according to the service provided to the patients?".

2. Research Methodology

The population of the study consists of patients registered to Uskudar State Hospital Home Healthcare Coordination Center in Istanbul Province to obtain home healthcare services. There are approximately twenty thousand registered patients in the center. The center performs about 3000 visits per month. The registered patients are mostly over 65 years of age and most of them are half or fully dependent individuals with multiple chronic diseases. The patients need various care including urinary catheter, decubitis ulcer, oxygen therapy support or enteral nutrition needs.

This study was performed under the ethics committee approval by Yüksek Ihtisas University Ethics Committee (27/10/2020 Date and 2020/12/02 number). We considered those patients who received home healthcare service uninterruptedly for 12 months in 2019. Patients who received service before 2019 and those received services for less than 12 months were not included in the study. The sample of the study consists of randomly selected 1500 patients among those enrolled in the Center. The patients' data were extracted from the hospital information management system (HBYS) and provided to the researchers in anonymized form. During the pre-analysis of anonymous data, 64 patients were excluded from the study due to insufficient data.

In the analyses, the number of visits in a year and its log-transform were considered as the dependent variables. Age, gender, dependency level, presence of decubitis ulcer, presence of urinary catheter, enteral nutrition status, oxygen therapy status, presence of tracheostomy cannula, INR blood test follow-ups, and presence of systemic chronic diseases were evaluated as potential factors, and included in multivariate regression models as the independent variables (i.e., regressors).

In order to identify the factors affecting the number of visits, multivariate linear and log-linear regression methods were used. Initially, the ordinary least squares estimation was performed. Since the outcome variable (the number of visits) was not normally distributed[1] a logarithmic transformation was applied to normalize the variable of interest (Tobin, 1958). Then, a log-linear

[1] As the outcome variable (number of visits) can not take the values below zero, in other saying it is left censored, Tobit estimations have also been performed. Since the obtained marginal effects from Tobit estimations are not significantly different from OLS coefficients, the results are not presented in the study.

estimation was performed for the log-transformed outcome variable by the authors. The models were illustrated in the formula below:

$$y = \beta_0 + \beta_k X_k + u$$

where y depicts the outcome variable (i.e., the number of visits or its log-transform), X_k refers to kth regressor used in the model, β_k illustrates the impact coefficient for the *kth* regressor on the outcome variable, β_0 demonstrates the regression constant and u bears the effects that cannot be identified by the model.

3. Analysis

A total of 1454 patients were included in the study. The average age of the patients was 78.3 years (SD=15.02). A total of 8058 visits were made to the patients within a year. The average number of visits per patient was 5.54 (SD = 4.79; min = 1, max = 51).

The distributions of the patients according to their demographic characteristics and care needs are demonstrated in Table 1. The majority of the patients (60.3%) were at 80 years of age or above. Besides, most of them were female (68.4%) and fully dependent (55.1%). As for their health status indicators, 13.1% of the patients had decubitis ulcer, 19.7% were using urinary catheter and 6.6% had tracheostomy cannula. Additionally, 3% of the patients received home healthcare services need oxygen therapy, 9.4% of them need blood tests for INR monitoring regularly, and 16.6% were fed enter ally.

Table 1: Distribution of Demographic and Care Needs of Patients

Variable		**n**	**%**
Age	0-64 age	183	12.6
	65-79 age	394	27.1
	80+ age	877	60.3
Gender	Female	995	68.4
	Male	459	31.6
Dependency	Independent	17	1.2
	Half Dependent	636	43.7
	Fully Dependent	801	55.1

Decubitus Ulcer	Yes	191	13.1
	No	1263	86.9
Urinary Catheter	Yes	287	19.7
	No	1167	80.3
Enteral Nutrition	Yes	242	16.6
	No	1212	83.4
Tracheostomy Cannula	Yes	96	6.6
	No	1358	93.4
Oxygen Therapy	Yes	44	3.0
	No	1410	97.0
INR Blood Test	Yes	136	9.4
	No	1318	90.6

When the patients were categorized according to the diagnosis of any systemic diseases, we observed that cardiovascular diseases and neuropsychiatric diseases were very common among patients with %82.9 and %76.3, respectively (Table 2).

Table 2: Distribution of Patients by Disease Diagnosis

Variable		**n**	**%**
Cardiovascular system	Yes	1206	82.9
	No	248	17.1
Metabolic system	Yes	541	37.2
	No	913	62.8
Urinary system	Yes	96	6.6
	No	1358	93.4
Respiratory system	Yes	246	16.9
	No	1208	83.1
Oncological system	Yes	88	6.1
	No	1366	93.9
Neuropsychiatric system	Yes	1109	76.3
	No	345	23.7
Cerebrovascular system	Yes	54	3.7
	No	1400	96.3

According to the results of the multivariate linear regression analysis, the average number of visits for patients who do not need any care and who have not been diagnosed with any systemic disease examined within the scope of the study, was found to be 3.24 visits per year The linear regression analysis indicated statistically significant associations between the frequency of visits and having decubitis ulcer ($p<0.001$), using urinary catheter ($p<0.001$), presence of INR test ($p<0.001$), and need for oxygen therapy ($p=0.036$). Having decubitis ulcer or using urinary catheter increased the number of patient visits by a factor of 5.1, and 2.6, respectively. Moreover, the number of visits was increased 3.3-fold with the presence of INR test tracking, 2.4-fold with the need for oxygen therapy, and 0.6-fold under diagnosis with a neuropsychiatric disease. On the other hand, there was no significant relationship between the frequency of visits and other clinical features of the patients, such as age, gender, patient dependency level, and having a tracheostomy cannula ($p>0.05$). In terms of systemic diseases; there is no statistically significant relationship between the frequency of visits and six chronic diseases, namely cardiovascular system, metabolic system, urinary system, respiratory system, oncological system, cerebrovascular system diseases ($p>0.05$) (Table 3, First Column).

Table 3: Explained regression coefficients for patients who received home healthcare service uninterruptedly for 12 months in 2019.

	Number of Visits	***log* (Number of Visits)**
Age (65-79)	-0.263	0.035
	(0.532)	(0.064)
Age (80+)	-0.586	-0.011
	(0.525)	(0.063)
Female	0.511	-0.037
	(0.247)	(0.035)
Half Dependent	0.037	-0.018
	(0.674)	(0.141)
Fully Dependent	0.419	0.167
	(0.684)	(0.141)
Decubitis Ulser	**5.074*** **	**0.513*** **
	(0.638)	(0.059)
Urinary Catheter	**2.590*** **	**0.373*** **

	(0.392)	(0.042)
Enteral Nutrition	0.720	**0.171*** **
	(0.391)	(0.044)
Tracheotomy Cannula	0.695	0.084
	(0.728)	(0.068)
INR Test	**3.331*** **	**0.616*** **
	(0.365)	(0.047)
Oxygen Treatment	**2.354** **	**0.246** **
	(1.121)	(0.106)
Cardiovascular System	0.171	0.071
	(0.403)	(0.048)
Metabolic System	0.169	0.039
	(0.215)	(0.033)
Urinary System	0.434	0.104
	(0.410)	(0.062)
Respiratory System	-0.208	-0.007
	(0.274)	(0.042)
Oncological System	0.016	-0.001
	(0.390)	(0.063)
Neuropsychiatric System	**0.644** **	**0.174*** **
	(0.258)	(0.041)
Cerebrovascular System	0.829	-0.047
	(1.12)	(0.104)
Constant	**3.236*** **	**0.949*** **
	(0.942)	(0.161)
Number of Observations	1454	1454
F-value	14.32	29.64
R-squared	0.3	0.29

*** p<0.001, **p<0.01, *p<0.05.

According to the results of the log-linear regression analysis with log-transformation of the outcome variable (the number of visits), enteral nutrition was also found to be statistically significant with the number of patients visits ($p<0.001$) in addition to the resultant factors of the previous analysis (i.e., linear regression) The analysis results showed that the number of annual visits increased by 62% with INR test, 51% with decubitis ulcer, 37% with urinary catheter, 25%

with oxygen therapy, 17% with enteral nutrition and 17% with the presence of neuropsychiatric disease (Table 3, Second column).

4. Conclusion/Discussion and Recommendations

Home healthcare services consists of different activities. Jones et al. (2012) found that services commonly used by home health care patients aged 65 and over were skilled nursing services (84%), physical therapy (40%), assistance with daily living activities (ADLs) (37%), at home care services (17%), occupational therapy (14%), wound care (14%) and dietary counseling (14%).

Detailed characterization of the factors (i.e, demographic and clinical features of patients) and evaluation of their impact on the number of visits, i.e. the primary criterion for the use of home healthcare services (Welch, et., al 1996), are critical in policy development, planning, and management of home healthcare services. On the other hand, these factors are population-dependent. Despite studies investigating the demographic characteristics of patients benefiting from home healthcare in Turkey (Catak, 2012; Limnili and Ozcakar, 2013; Cayır, 2013; Karaman, et., al 2015), the potential impacts of demographic and clinical features of patients on the frequency of visits were not investigated comprehensively under a large sampling. Therefore, in the present study, we aimed to determine the factors affecting the visit frequency of patients benefiting from home healthcare services via employing a comprehensive dataset including the demographic characteristics, care needs, and diagnostic features of 1454 patients who received home healthcare service for at least 12 months in 2019.

In the study, most of the participants (60.3%) were 80 years old or older, and mean value of age was (78.04 years±15.2) in accordance with the age distribution of the previous samplings, in which the mean value of age was observed as 78.3 ± 15.02 (Han, et., al 2013), 85.5 ± 6.3 (Gjevjon, et., al 2013), 74.80 ± 18.60 (Cubuklu and Yazicioglu, 2016), 68.7 ± 19.2 (Cayır, 2013), 69.2 ± 17.8 (Korkmaz, et., al 2016), 67.9 (Akdemir, et., al 2011), 77.1 ± 15.6 (Uzan, et., al 2017), and 74.9 ± 15.4 (Hisar and Erdogdu, 2014) years old. Furthermore, the majority of the patients (68.4%) were female. Similar to our study, the rate of female patients was higher than that of male patients in previous samplings (Gjevjon, et., al 2013; Chang, et., al 2010; Çayır, 2013; Gumus and Sarıbas, 2017; Korkmaz, et., al 2016; Akdemir, et., al 2011; Uzan, et., al 2017; Karaman, et., al 2015; Hisar and Erdoğdu, 2014; Artantas and Koroglu, 2019). Based on these observations, we concluded that the female patients over 65 years old benefited most from the home healthcare services (Han, et.,

al 2013; Gumus and Sarıbas, 2017; Akdemir, et., al 2011; Karaman, et., al 2015; Artantas and Koroglu, 2019).

In our study, about half of the patients (55.1%) were fully dependent, whereas 43.7% were half dependent and only 1.2% were independent, consistent with the samplings by Cubuklu and Yazicioglu (2016) and Korkmaz et al. (2016), which reported similar percentages for fully dependent patients, i.e., 61.2% and 42.4%, respectively.

We determined the average number of visits per person per year as 5.54 (SD=4.79; min=1, max=51). This finding obtained in our study shows a little higher results to previous studies conducted in Turkey. Isik et al. (2016) found that the frequency of receiving care of 40.4% of the patients was 4 or more times. Cubuklu and Yazicioglu (2016) stated that patients used home healthcare services an average of 2.51 times annually, another study reported that services were provided 2.06 times for each patient (Artantas and Koroglu, 2019). On the other hand, it was observed that the average number of visits was higher in studies conducted abroad. For instance, in a study conducted in Taiwan in 2004, it was observed that 19,483 (0.9%) patients received home healthcare services with an average of 6.0±4.8 visits per person (Chang, et., al 2010). Gjevjon et al. (2013) stated that, the number of care visits varied between 11 and 190, with an average of 51 visits (median 50) during the 4-week data collection in their study in Norway.

In this study, we also observed that cardiovascular diseases and neuropsychiatric diseases are very common among patients (%82.9 and %76.3, respectively), who need home healthcare services. However, this should be population-dependent since previous investigations presented diverse findings. For instance, Karaman et al. (2015) reported that 51.6% of patients had neurological, 12.8% respiratory system, 7.3% endocrine system, 7.2% cardio-vascular system, 6.4% has oncological, 6.3% orthopedic and traumatological, 2.8% muscle, 3.3% psychiatric, 0.9% gastrointestinal system, 0.6% hematological, 0.5% urinary system and 0.2% had other diseases groups. Several studies showed that the incidence of cerebrovascular disease was higher among patients (Chang, et., al 2010; Hisar and Erdogdu, 2014; Korkmaz, et., al 2016). In the report by the National Association for Home Care & Hospice (2010), it was indicated that the first 5 highest ICD diagnoses among home healthcare patients in 2000 were diabetes, decubitis ulcers, essential hypertension, heart disease, and osteoarthritis.

It has been observed that the health problems and care needs of patients who benefit from home healthcare services are very similar even in different populations (Korkmaz, et., al 2016; Akdemir, et., al 2011; Westra, et., al 2013). In this study, 13.1% of the patients had decubitis ulcer, 19.7% had urinary catheter, and 6.6% had tracheostomy cannula. In addition, 3% of the patients received oxygen therapy, 9.4% of them regularly had blood tests for INR monitoring, and 16.6% of them were fed enterally. In addition to these, it has been reported that some patient groups used nasogastric catheter (3.6%) and jejunal tube (2.8%) (Korkmaz, et., al 2016), and had urinary incontinence (52.6%) and serious nutritional problem (3%), indicated by the need for parenteral or enteral therapy (Westra, et., al 2013).

Many studies indicated that decubitis ulcer is a common health problem in home healthcare. Decubitus ulcers constitute a major burden of care, since chronic wound care in homecare is costly, i.e., the inconsistency in wound evaluation and documentation and the use of inappropriate wound care products prolongs the healing time, as a result of this, the number of patient visits increases and recovery rates decreases (Schwien, et., al 2005). Moreover, decubitus ulcers require long-term treatment. The reported duration for average wound healing differs between 51 days to 27 months (Terry, et., al 2009; Teot, et., al 2020; Ellenbecker, 2008).

The frequency of decubitus ulcers among patients was also varying. The incidences of decubitis ulcers at the beginning of care among patients in 2003 and 2004 were 6.9% and 7%, respectively (Schwien, et., al 2005). However, it has been observed that the frequency of decubitus ulcers among patients has also increased over the years. Ellenbecker (2008) reported that more than a third of patients needed treatment for wounds, and 37% of those wounds were decubitis ulcers, and approximately 42% of patients had more than one wound. Approximately 10% of applicants treated by a large nonprofit homecare agency had wounds requiring nursing intervention (Terry, et., al 2009). According to Dale and Wright (2011), 9.3% of the patients had a diagnosis of skin and subcutaneous tissue disease including decubitis ulcers. Similarly, 42% of the patients evaluated within the scope of the study by Cayir et al. (2013) had decubitis ulcers.

The average number of visits for patients who do not need any care and who have not been diagnosed with any systemic disease examined within the scope of the study, was found to be 3.2 visits per year. However we found that several factors were effective in determination of the frequency of visit. A statistically significant relationship was found between the frequency of visits

and decubitis ulcer (p=0.000), urinary catheter (p=0.000), INR test (p=0.000), and oxygen therapy (p=0.036). Having decubitis ulcer increased the number of patient visits by 5.1 (51%). And visit number will increase by 2.6 (37%) if patient has a urinary catheter, by 3.3 (62%) presence of INR test tracking, by 2.4 (25%) oxygen therapy and by 0.6 (17%) visits neuropsychiatric disease. Additionally in the normalized results, enteral nutrition was found to be statistically significant with the number of patient visits (17%).

On the other hand, we found that there was no significant relationship between age, gender, patient dependency level, having a tracheostomy cannula and frequency of visits (p>0.05). Six of the chronic diseases studied in the analysis had not a significantly important relationship (cardiovascular system, metabolic system, urinary system, respiratory system, oncological system, cerebrovascular system diseases) with the frequency of visits (p>0.05).

It has been observed that the health problems and care needs of patients who benefit from home healthcare services are very similar even in different populations. According to Karaman et al, (2015) 78.7% of the patients were given only physical examination services, 9.5% were given decubitis care, 7.3% were given urinary catheterization care, and 0.2% were given care practices such as tracheostomy care. Artantas and Koroglu (2019) found that wound dressing was 16.0% and urinary catheter application was 6.6%. In another study, when the distribution between visits was examined, wound dressing was 11.1%, urinary catheter application was 3.3% (Gumus and Saribas, 2017). Injection, catheter and wound care services were provided to the most of the patients (67.7%) (Isik, et., al 2016).

Westra et al. found that the highest prevalence of clinical condition of patients was urinary incontinence, which accounts for almost half (43.6%) of all maintenance episodes (2013). On the other hand, according to Cubuklu and Yazicioglu (2016) decubitis dressing had the highest number of visits and foley catheter was the most used invasive intervention. In a study qualified nursing services at home were ranked as exchanging tubes (95%), wound care (4.6%), ostomy care (0.2%), IV fluid injection (0.2%) (Chang, et., al 2010). Also in another study, as a treatment service, wound care, dressing and urinary catheter were installed in 56.5% of the patients (Hisar and Erdogdu, 2014).

Patients who benefit from home healthcare have different chronic diseases and their care needs also vary. Different clinical conditions and care needs specific to each patient affect the number of

services that patients receive from home healthcare providers throughout the year. There is a need for studies to determine the frequency of visits appropriate to the patient profile in order to make an efficient application in the management of home health services in our country. The limitation of this study is that the patients were selected among people who received service from only one home health care center in Istanbul. In addition, only the provided services were evaluated. Their service requirements in cases of not getting or not requesting were unknown. Nevertheless, the findings of this study are of great importance in terms of modeling studies aimed at improving home healthcare services and predicting future needs.

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HOTEL MANAGEMENTS' STATUS OF MEETING THE NEEDS OF FAMILIES WITH CHILDREN

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Abstract: This study was performed to identify whether the hotel managements met the needs of families with children aged 0-18 years. The research covered 84 hotels which had management permit obtained from the Ministry of Health of Turkey, agreed to participate in the research and were located in the city centers of Sivas, Kayseri and Ankara provinces of Turkey. Data were gathered with a questionnaire, constructed by the researcher in the light of the relevant literature, was consisted of two parts. The first part is comprised of 10 questions about the properties of the hotels. The second part is consisted of 34 questions aiming to evaluate whether the hotels satisfy the hygiene, security, comfort, entertainment, culture and arts, health and nutrition needs of the families with children. In the research in which hotel managements were assessed solely on the basis of whether they had the competency to meet the needs of families with children. For the analysis percentage and frequency distributions were utilized. It was found that, of the hotels, 60.0% were on the main street, 81.2% had no garden, 67.5% had no grab bar in the swimming pool, bathroom and toilet, 71.3% had no warning sign, 32.5% had no power outlet with child protection, 32.5% had furniture design incompatible with children's safety needs, 43.8% had no break-resistant glassware, 60.0% had faucets with easy open handle, 38.7% did not offer any form of health service and 72.6% had no club or playground for children.

Keywords: *Needs of Families With Children, Hotel Managements' Status of Meeting the Needs of Families With Children, Expectation Of Families*

Introduction

In tourism, the child factor turned to be quite important both to families and to the hotel managements. Children of all ages from infancy to adolescence represent a significant segment of the world population and tourism market alone and as members of the family (Emir & Pekyaman, 2010; Carr, 2011).

Child tourism was described as the tourism form creating touristic settings in which children could healthfully play and spend time away from any form of violence, develop themselves, get respect and love and adopt respect and love as their behaviors, enhance their creativity, would feel safe and the demands of families with children could be met (Tuna, 2018). In this conjunction, touristic businesses are expected to be equipped with qualifications which can respond to the wishes and needs of families with children.

Several studies performed in recent years indicate that children had a noticeable effect on the selection of hotels to be stayed (Çakıcı & İyitoğlu, 2012; Emir & Pekyaman, 2010; Caruana & Vassallo, 2003). Children are affected considerably by their relations with the environment and can clearly see the key aspects of the quality of life of the places in which they live (Bilgin, 1984). In spatial sense, children constantly try to comprehend the environments and places where they grow up, prosper, play and travel during their development process (Akarsu, 1984). Families mostly prefer good-quality accommodation spaces which meet their children's needs as well as their own needs. Which human needs the space is capable of meeting and to what extent, and what opportunities the space offers and in this sense how the space shapes user behaviors are directly linked with the quality. 'Spatial quality' is a qualification which should be addressed within the context of the relationship between human and space (Kahraman, 2014). In their quests to complete mental and physical development, children of all ages have the right to have fun, play and learn. There are a lot of steps which need to be taken in Turkey for ensuring that the change which is focused on child rights is made (Çakırer & Özservet, 2015). In order to meet the demands of families with children, the hotels should prioritize children's basic needs such as health, security needs such as being able to walk on the street alone in safety, comfort needs such as playing with friends and having access to green fields and cultural needs such as participating in the social activities (http://unicef.org.tr/sayfa.aspx?id=64&dil=en&d=1)

Needs of families with children can be examined in general under five categories as (i) comfort,

(ii) security, (iii) hygiene, (iv) culture, arts and entertainment and (v) health and nutrition.

	Having daily cleaning service (room, bathroom, toilet)
	Having laundry service accessible for 24 hours
	Having swimming pool cleaning
Hygiene Needs	Having clean rooms (beds, mattresses, pillows, towels)
	Having the facilities at an easily accessible safe location away from the traffic jam (areas for freely going for a walk away from the busy traffic)
	Having baby monitors in rooms for the child safety
	Having child protection for power outlets
	Having playthings for children
	Having stair rails tall enough to protect children
	Having warning signs for guiding children (traffic lights, colored animal figures)
Security Needs	Having doors opening outwards
	Having furniture designed as per the children's dimensions
	Having lockable balcony and terrace doors
	Having break-resistant glasses and windows
	Monitoring children constantly
	Having stools in front of the lavatories
	Having child bathtubs in bathrooms
	Having thermometers in bathrooms
	Having faucets with easy open handle
	Having baby diaper change units installed on the wall (for the purpose of saving space)
	Having smoke-free spaces which are not overcrowded
	Having service staff to help children in the elevators (having the elevator button panel low enough for children to reach)
	Having no poisonous or thorny plants
	Having large rooms
	Having family rooms with cribs and with separate bedrooms (two separate rooms with a connecting door)
	Having baby diaper change units, buckets and basins in rooms
	Having saucepans and pots in the rooms for warming-up purposes

Comfort Needs	Having fumigators for feeding bottles or jars
	Having feeding bottle or jar heaters
	Having rental baby carriages, strollers and baby slings
	Having woods and grass (suitable for walking on)
	Having libraries which contain books of child and youth literature (audio books for illiterate small children)
Culture, Arts and Entertainment Needs	Having a separate TV room
	Having TV rooms located in a smoke-free space
	Providing children with the opportunity to watch child programs (Child movies and so on)
	Being in the vicinity of natural beauties
	Having playgrounds 200 meters away from the hotel (in a distance allowing parents to see and hear their children)
Nutrition Needs	Having a separate restaurant section for families with children
	Having kitchen which is open for 24 hours
Health Needs	Medical Doctor, Nurse, Infirmary, Medicine Cabinet

Figure 1: Needs of families with children (This figure was configured on the basis of Yılmaz (2007) and Parasuraman et al. (1988)

External setting of hotels is comprised of water places, roads, parks and gardens, and internal setting is made up of rooms, bathrooms, aisles, the lobby and restaurants. Both the external and internal settings of hotels which are occupied during holiday seasons should be well-equipped to meet the needs of children (Öktem, 2013).

Swarbrooke and Horner (1999) stated that families made holiday decisions by taking into consideration the children's needs and ages. The primary needs of families with infants aged 0-24 months are the security and comfort of the infants. Whilst hotels which offer special services such as the nutrition designed specifically for babies and which meet the security and hygiene needs are preferred, hotel managements with low hygiene standards are avoided by families. The security is a consideration important to the families with pre-school children aged 2-5 years. These families choose the hotel which takes necessary security precautions in the balcony and swimming pool. Besides, as children of this age group are likely to get bored soon, short-distance destinations can be primarily preferred by such families. Child menus, toys and childminders are among the elements preferred by these families. School children aged 5-12 years in general want to play with

their peers in places such as playgrounds or swimming pools. Animation shows and recreational facilities specifically intended for this age group will help these children have a happier and more comfortable holiday. Children aged 13-18 years aspire to participate in increasingly more independent and entertaining adult activities (Swarbrooke & Horner, 1999; Carr, 2011).

One of the properties to be possessed by a hotel serving the families with children is that the hotel is located in a safe place which is easily accessible but away from the traffic jam and has areas for going for a walk freely. Besides, such hotels should be in the proximity of shopping malls and natural beauties of the city (Yılmaz, 2007). Moreover, it is necessary to have car parks at the hotel entrance, woods and grass suitable for walking on in front of the hotel, to have playgrounds and football fields for children 200 meters away from the hotel in a distance allowing parents to see and hear children and to have instructions providing information on the walking pace and the ground. Furthermore, the configuration of the garden in a way to attract the children with statues and figures, artificial hills, canopied seating spaces and parasols are certain properties which will meet the expectations of families. It is essential not to have poisonous or thorny plants in the gardens.

Just as the size of the hotel room which makes up the internal setting of the hotels is of importance, the hotel room which offers two separate bedrooms through a connecting door and has a crib is more convenient to the families. Moreover, extras in the hotel rooms such as the baby diaper change units installed on the wall for saving space, bathroom buckets and bathtubs, saucepans and pots for warming-up purposes, feeding bottle or jar heaters, fumigators for feeding bottles or jars, rental baby carriages, strollers and baby slings and baby monitors for child safety are among the primary expectations of the families (Turkish Regulation on the Certification and Qualifications of Touristic Facilities, https://www.resmigazete.gov.tr/eskiler/2005/06/20050621-11.htm)

One of the most crucial properties to be sought by families at a hotel is the security. Assuring the security of children is to be made possible by taking measures and making arrangements at the hotel and by ensuring that parents and hotel employees have awareness about the dangerous zones and hotelwares. Lighting accessories such as lampshades, chandeliers and lamps, TV sets, mirrors, tables, wardrobes, plants, radiators, cables, curtain ropes, plastic bags, power outlets and heavy objects placed one on top of the other are among the items which are likely to give rise to accidents at hotels. Besides paying attention to these items, security measures such as the child protection

for power outlets, stair rails tall enough to protect children, warning signs for guiding children (traffic lights, colored animal figures), doors opening outwards, furniture designed as per the children's dimensions, lockable balcony and terrace doors, break-resistant glasses and windows, stools in front of the lavatories, child bathtubs and thermometers in bathrooms and faucets with easy open handle should all be taken in all child-friendly hotels (Yıldırım, 2016).

There should be smoke-free spaces which are not overcrowded. Aisles should be designed considering also the needs of children, and service staff to help children in the elevators should be employed (the elevator button panel should be low enough for children to reach.). There should be a separate TV room for children to watch child programs (Child movies and so on). There should be books of child and youth literature (audio books for illiterate small children). Laundry service and clothes dryer accessible for 24 hours, child menus in the hotel restaurants, child portions, forks and spoons for children, child tables and chairs, a separate restaurant section for families with children and kitchen open for 24 hours are among the properties to be possessed for meeting the needs of families with children.

1. Research Methodology

It is ascertained that there were studies addressing complaints about the hotel managements in Turkey (Yavas et al., 2004; Karatepe, 2006), however, it is found that there was no study exploring particularly the expectations of families with children. The research was performed as a descriptive study for identifying whether internal and external settings of certain hotels in Sivas, Kayseri and Ankara provinces which are locations affecting the decency of holidays of families with children as temporary affection areas. As the research was in need of the contribution of different areas of specialization, it was supported with data collected from other areas of study and with articles and theses which were previously composed in this area.

1. 1. Population and Sample

The research population was comprised of hotels which had management permit obtained from the Ministry of Health of Turkey, were located in city centers of Sivas, Kayseri and Ankara provinces and agreed to participate in the research. Upon the receipt of permits and endorsements from the authorized hotel representatives and managements by having face-to-face meetings with hotel managers in Sivas province where the researcher lived and by contacting the hotel

managements in Kayseri and Ankara by e-mail, the research was completed with the participation of a total of 84 hotels which voluntarily agreed to take part in the research and filled in the survey form in full. These hotels which were included into the research considering that they could represent two metropolises and a provincial city of Central Anatolia Region of Turkey were examined solely in terms of whether they had the competency to meet the expectations of families with children aged 0-18 years.

1. 2. Data Collection Tool and Its Application

In this study, data were gathered by means of the survey technique applied face-to-face and through internet. The survey form which was created in light of the previous studies performed in other disciplines contains two parts. The first part of the survey form is comprised of 10 questions designed to identify the properties such as the province where the hotel is located, the year when the hotel is built, location of the hotel in terms of the street, which means of transport is used by families to go to the hotel, the number of rooms at the hotel, the number of children who stayed at the hotel for the last year, age group of the children, whether there is any child bed and garden and the number of stars which the hotel possessed. The second part of the survey form intends to find out the factors which are associated with the decision of families with children to select the hotels. Upon the review of the relevant literature on the properties which the hotels serving the families with children should possess so that families with children can have a safe holiday during which they will have no trouble in meeting the basic needs of their children, questions in the second part of the survey form was produced by means of 'SERVQUAL', a scale comprised of five dimensions and developed by Parasuraman et al. (1988) for measuring the service quality, and of the criteria specified in 'properties to be possessed by hotels which serve the families' proposed by Yılmaz (2007). The second part of the survey form contains a total of 34 questions aiming to evaluate whether the hotels satisfy the hygiene (5 questions), security (12 questions), comfort (9 questions), entertainment, culture and arts (4 questions), health (2 questions) and nutrition (2 questions) needs which the families set as their expectations for children. The research rested on the assumption that the hotel managers responded reliably to the survey questions which were used as the data collection tool.

1. 3. Evaluation of the Collected Data

Statistical analysis of the research data was performed through IBM SPSS 23.0 software. Descriptive statistics obtained through the research were expressed as percentages and frequencies. As the research was in need of the contribution of different areas of specialization, it was supported with data collected from other areas of study and with articles and theses which were previously written in this area.

2. Analysis

Table 1. Certain Descriptive Properties of the Hotels

Descriptive Properties (n=84)		**Number**	**%**
The province where the hotel is located	Sivas	24	28.6
	Kayseri	15	17.9
	Ankara	45	53.6
The construction year of the hotel	1961-1980	10	11.9
	1980-2000	18	66.7
	2001-2017	56	21.4
The number of stars	5	14	16.7
	4	22	26.2
	3	26	31.0
	No star	22	26.2
Which means of transport is used by families to reach the hotel	Personal means of transport	69	82.1
	Hotel's transport service	15	17.9
Hotel location in terms of the street	On the main street	51	61.2
	On the side street	32	38.4
	Outside residential area	1	1.2
The number of rooms at the hotel	10-40	26	31.8
	41-70	34	40.5
	71-100	16	18.2
	100 and above	8	9.5
The number of children who stayed at the hotel for the last year	1-50	37	44.4
	51-100	27	32.4
	101-150	14	16.8
	150 and above	6	7.2
Age groups of children	0-6	45	54.0
	6-12	30	35.2
	12-18	9	10.8
Whether there is any child bed	Yes	39	46.4
	No	45	53.6
Whether there is any child garden	Yes	15	18.8
	No	65	81.2
Whether there is any playground for children	Yes	16	81.0
	No	68	19.0

Table 1 exhibited the data on the evaluation of whether 84 hotels located in city centers of Sivas, Ankara and Kayseri provinces had competencies to meet the expectations of families with children.

Table 1, it is discerned that, of 84 hotels addressed within the scope of this research, 54% (45) were located in Ankara province, 28.8% (24) were located in Sivas province and 17.2% (15) were located in Kayseri province, and 11.9% were built prior to 2000 (nearly 50 years-old) whilst 66.7% were built after 2000. Besides, of 84 hotels, 31.2% had three stars and 16.7% had five stars, and 17.9% would pick the families up from their locations if demanded by them whereas the families were supposed to reach 82.1% of the hotels by personal means. Moreover, it was ascertained that, of 84 hotels, 38.1% were located on the side street whilst 60.7% were on the main street, 81.2% had garden, 40.5% had 40-70 rooms, 9.5% had more than 100 rooms, and 53.6% had no child bed. Furthermore, it was identified that a total of 1345 children stayed at 84 hotels for the last year and of 1345 children, 46.4%were aged 0-6 years, 35.7% were aged 6-12 years and 10.7% were aged 12-18 years (6 hotels did not indicate the age of children).

Table 2: Competency of the hotels to meet the hygiene expectations of the families with children

Variables			Number	%
HYGIENE NEEDS	Routine cleaning	Everyday	41	48.8
		When dirty	16	19.0
		Everyday and when dirty	27	32.1
	Children's pool Cleaning (n=19)	Once a week	27	32.1
		Every Day	55	65.5
		When dirty	2	2.4
	Laundry Service	Yes	72	85.7
		No	12	14.3

In Table 2, it is seen that 80.9% of the hotels do the cleaning of the rooms and other areas every day and once, but 19.0% do the cleaning as the hotel gets dirty. While 85.7% of the hotels have a laundry service, it is seen that 14.3% of them had no.

Table 3: Competency of the hotels to meet the security needs of the families with children

Variables			Number	%
SECURITY NEEDS	Power outlets with child protection	Yes	58	69.0
		No	26	31.0
	Grab bars	Yes	30	35.7
		No	54	64.3
	Warning signs	Yes	24	28.6
		No	60	71.4
	Baby monitors	Yes	26	31.0
		No	58	69.0
	Night lightings	Yes	67	79.8
		No	17	20.2
	Unsafe garden plant	-		
		No	84	100.0
	The direction to which the door is opened	Inward	58	69.0
		Outward	26	31.0
	Furniture design	Suitable	54	67.5
		Unsuitable	26	32.5
	Whether the balcony and terrace doors can be locked (n=66)	Lockable	42	50.0
		No lock	26	31.0
	Break-resistance of the glassware	Break-resistant	49	58.3
		Not break-resistant	35	41.7

It was found that, of hotels covered by this research, 69% had power outlets with child protection, 64.3% had no grab bar, 71.4% had no warning sign, 69% had no baby monitor, 63.7% had room and balcony doors opening inwards, 67.5% had furniture design suitable for children, 50% had lockable balcony and terrace doors, 58.3% had break-resistant glassware.

Table 4: Competency of the hotels to meet the comfort needs of families with children

Variables			Number	%
COMFORT NEEDS	Baby care units in the shared toilets	Yes	26	31.0
		No	58	69.0
	Check-in at the lobby	Yes	24	28.6
		No	60	71.4
	Extras for the babies in the rooms	Yes	30	35.7
		No	54	64.3
	Baby carriages, strollers, baby slings	Yes	22	26.2
		No	63	73.8
	Curtains in the rooms	Yes	67	79.8
		No	17	20.2
	Wardrobe hanging rails compatible with child's height	Yes	20	23.8
		No	64	76.2
	Whether there is any separate child room	Yes	32	38.1
		No	52	61.9
	Whether elevator button panel is compatible with child's height	Yes	41	48.8
		No	43	51.2

It was found that, of hotels covered by this research, 69% had no baby diaper change unit in the shared toilets, 71.4%had no check-in at the

	Childminders	Yes	23	27.4
		No	61	72.6

lobby, 64.3% had no extras for the babies (bathroom buckets, bathtub, heaters) in the rooms, 73.8% had no baby carriage, baby slings and strollers, 79.8% had curtains in the rooms, 76.2% had no wardrobe hanging rail compatible with child's height, 61.9% had no separate child room, 51.2% had elevator button panels low enough for children to reach.

Table 5: Competency of the hotels to meet the culture, arts and entertainment needs of the families with children

Variables			Number	%
CULTUR, ART AND ENTERTAINMENT NEEDS	Library for children	Yes	19	22.6
		No	65	77.4
	Children's club/playground	Yes	22	26.2
		No	62	73.8
	TV room for children	Yes	24	28.6
		No	60	71.4

It was identified that, of 84hotels, 22.6% had library for children whereas 77.4% had no library for children, 26.2% had club or playground for children whilst 73.8% had no club or playground, and 28.6% had a separate TV room.

Table 6: Competency of the hotels to meet the health and nutrition needs of the families with children

Variables			Number	%
HEALTH AND NUTRITION NEEDS	Medicine cabinet, medical doctor, nurse, infirmary	Yes	31	36.9
		No	53	63.1
	Children's menu, baby food, highchairs	Yes	29	35.5
		No	55	65.5

It was discerned that, of the hotels addressed by this research, 63.1% did not offer health service while 36.9% provided health service (medicine cabinet, medical doctor, nurse, infirmary).

İt was ascertained that, of hotels taking part in this research, 34.5% had feeding chair, kids menu, child serving and had a separate restaurant section for families with children whereas 64.5% had no feeding chair, kids menu, child serving and section for families with children.

3. Conclusion/Discussion and Recommendations

Children's needs and desires which change as per their ages is a determining factor in the selection of hotels. In the context of the selection of hotels by families, meeting all physical and mental expectations of families and consequently assuring their satisfaction became of importance to hotel managements. It will be possible for hotel managements to meet expectations and promote satisfaction only if the service standards are clearly specified and raised (Emir, 2007).

One of the practices to be applied by the hotel managements for making the physical setting more enjoyable for children is to build playgrounds which contribute to the child development and meet children's desires and needs and to design these playgrounds in a way to be safe for children and compatible with children's ages (Tandogan, 2014). As a whole, the physical setting for children is as diversified as the residence, vicinity of the residence, parks, gardens and hotels as the temporary affection areas in parallel to the physical, perceptual-cognitive and societal-emotional development of children. Of hotels covered by this study, 38.4% (32 hotels) are located on side streets, 61.2% (51 hotels) are on main streets and 81.2% have no garden (Table 1). Hotels which are located on the main streets with busy traffic and have no garden violate the rights of children to walk and play on streets safely, to interact with animals and plants, to have green fields and to partake in cultural and social events (http://unicef.org.tr/sayfa.aspx?id=64&dil=en&d=1).

The aim of meeting the expectations of families by transforming the settings inhabited by children into more hygienic, healthful, safer and entertaining spaces is achieved through 'child-friendly hotel' also known as family-friendly hotel or family hotel (http://cocukdostuturizm.org/assets/documents/publications/ICCTurizmBrosur-hll.pdf). In general, child-friendly hotels can be described as facilities which are designed to meet family needs and include different playgrounds for each age group, private swimming pools for small children, children's clubs, special menus for children and even babysitting services (Obrador, 2012). The reason for the families with children to select the child-friendly hotels is that the families do not want to have any problem in meeting the needs of their children as well as their own needs (Güven et al., 2017). Among the preferred elements in child-friendly hotels are to have cribs and cupboards for children in the rooms, child menus in the restaurant and family rooms, to attach importance to the hygiene and to have swimming pools for the children and stair rails. Safe playgrounds for all age groups of children and also child menus, toys and childminders are also among the preferred elements.

One of the key elements which affects the selection of holidays by families is the security. Even if children of all age groups have accidents, children aged 0-6 years are more likely to have accidents especially for reasons such as being unaware of dangers, being sensitive and open to environmental risks and being curious about exploring and learning. Accidents such as falling from height, having injuries and burns and drowning which are ranked as the fourth among the causes of child deaths can be prevented by taking certain simple precautions, and these accidents have the risk of being experienced in all living spaces including the hotels. As children are unable to protect themselves from accidents, it should be considered that the responsibility belongs to the adults for ensuring that the children are accommodated at places which are safe against accidents, that the protective measures are taken in the rooms, swimming pools, elevators, stairs, gardens and balconies, and that the safety is regularly checked (Yıldırım, 2016). Upon the review of measures taken by hotels covered by this research, it was found that, of 84 hotels, 67.5% had no grab bar in the swimming pools, bathrooms and toilets and 71.3% had no warning signs around aisles and stairs. Moreover, it was ascertained that, of 84 hotels, 32.5% had no power outlets with child protection, 32.5% had no furniture design well-suited to the needs of children, 43.8% had no break-resistant glassware and 60% had faucets with easy open handle (Table 3). In a previous study in which the complaints about a hotel were examined, security problems such as having bathtub too high from the ground, having no life guard on the coast or in the swimming pool, having child pool which was too deep for children and not cleaning the broken glassware around the swimming pool were identified (Güzel, 2014).

In this current research, it was found that the cleaning was done everyday in 51.2% of the hotels for meeting the hygiene needs of families with children whereas cleaning was done only when facilities got dirty in 20% of the hotels (Table 2). Moreover, it was discerned that, while laundry service was available everyday in 85% of the hotels, there was no laundry service in 15% of the hotels, and also, the swimming pool was cleaned everyday in 11 out of 18 hotels with swimming pool whilst the swimming pool was cleaned when it got dirty in other seven hotels. In a previous study, it was demonstrated that families had certain complaints and grievances about child-friendly hotels, and hotel's cleanliness, hygiene, food safety and environmental sanitation came at the top of these grievances. From studies performed on the effectiveness of the cleaning, it can be inferred

that more cleaning can be necessary even if the hotel employees clean the hotel rooms and shared facilities on a regular basis (Park et al., 2017).

Having foodstuff and drinks specifically designed for children and paying attention to the healthfulness of these foods and drinks are of particular importance. Menus offering different options to children should be made available. Having kitchens and laundry facilities open for 24 hours is again one of the key needs of families with children during the holiday. Children can be interested in eating some foodstuff or drinking milk before going to bed. If the room service offers some milk to a family with children for free, it will undoubtedly be a positive touch to be remembered and will positively affect the future decisions on the selection of the same hotel in the next visits (Açikgöz, 2018).

Through certain studies, it was indicated that dangers arising from the failure to find medical doctor, the lack of medical equipment and the foot-and-mouth disease would be in place (Aslan, Tosun & Arslan Kurtuluş, 2019). Under this current study, it can be deduced that families' health problems would be solved if the need arose in 61.3% of the hotels which had nurses and medical doctors whereas the health needs of the families with children would not be met if the need for medical service emerged in 38.8% of the hotels with no health professionals (Table 6). Most hotels which obtained management permit from the Ministry of Health of Turkey did not employ medical doctors and nurses. This situation gives rise to certain disadvantages and risky circumstances. In particular, in the study performed by Çiçek and Avderen on thermal hotels, it was found that, out of a total of 47 hotels, only 29.8% employed medical doctors, 70.2% had no medical doctor, and 53.2% employed nurses whereas 46.8% had no nurse (Table 6). In fact, Article 14 of the regulation of the Ministry of Health of Turkey on the thermal springs stipulates the following: "In thermal springs, at least (a) medical ecology and hydroclimatology specialist or physical therapy and rehabilitation specialist or, as required by the medical evaluation council depending on the medical indications, medical doctor from other areas of specialization experienced or having certification in thermal spring therapy, (b) a physiotherapist or a nurse or a health worker or a health technician are employed (Official Gazette of Turkey: December 9, 2004 / 25665)." On the other hand, despite this regulation, most hotels which obtained permit from the Ministry of Health of Turkey do not employ any medical doctor, nurse, physiotherapist or health worker.

Most families prefer hotels which offer entertainment, culture and arts facilities especially for children at primary school age (Açıkgöz, Emir & Pekyaman, 2010). Doing the best for children is a matter of culture. For the formation of the culture, the child libraries undertake a crucial task as they enable people to get to know each other, socialize with each other, do favors for each other and share with each other in a multi-layered fashion. So that the outlook toward the child in the society and toward the life with the child can healthfully develop, child libraries and bookshelves will occupy a significant place in the formation of the reading culture of children and the establishment of social and societal ties in Turkey of the future (Akçay-Duff & Edizer, 2015). İn the study, it was found that, out of a total of 84 hotels, only 22.6% employed library for children, %77.4 had no library for children (Table 5).

Childminding and children's club are services which are important to the promotion of satisfaction with the hotel. It was found that 72.6% of the hotels covered by this study had no childminder (Table 1). When childminding service is offered, the assumption of this task by people who are capable of responding to guest's demands, reliable, responsible and specialist in this field is of significance to the prestige of the hotel and family's satisfaction (İnceöz,2018).

Tourism should offer new destination opportunities for countries especially with young and dynamic populations like Turkey (Tengilimoglu and Özdemir, 2013). In Turkey, for firms such as ETS Tur, Tatil Sepeti and Tatil Budur, criteria to be met by hotels designated as child/family hotels are to have family rooms which offer the opportunity to have easy access to the child room through a door from parents' room, to have special swimming pools designed in small size solely for children, to have wide spaces with water slides and aqua parks, to offer babysitting service, to have mini clubs offering different services to each age group, to have amusement parks, to provide special food alternatives, to have buffets for babies and children, to have menus specifically designed for children, to have special offerings during the day (ice-cream, corn and so on) and to offer day-long entertainment activities such as special animation shows performed for children, sleeping rooms, face painting, handcrafts, t-shirt painting, mini volleyball, boccia and bowling (https://www.etstur.com/Cocuklu-Misafirlere-Uygun-Tesisler?gclid=EAIaIQobChMI , https://www.tatilbudur.com/cocuk-dostu-oteller?gclid= , https://www.tatilsepeti.com/cocuk-dostu-oteller?gclid=EAIaIQobChMIg-). These criteria also meet the comfort needs of families with children. These criteria also meet the comfort needs of families with children. It was found

that, of hotels covered by this research, 69% had no baby diaper change unit in the shared toilets, 71.4% had no check-in at the lobby, 64.3% had no extras for the babies (bathroom buckets, bathtub, heaters) in the rooms, 73.8% had no baby carriage, baby slings and strollers, 79.8% had curtains in the rooms, 76.2% had no wardrobe hanging rail compatible with child's height, 61.9% had no separate child room, 51.2% had elevator button panels low enough for children to reach. İt was determined that the facilities to meet the comfort needs of the family were not sufficient (Table 4).

It is discerned that there are a number of civilian initiatives which develop child-friendly hotel criteria in some countries, and, from them, hotels can optionally obtain certificates proving that they are child-friendly hotels. Through the cooperation between the German Child Protection Association (Deutscher Kinderschutzbund) and Technical Inspection Association (TÜV NORD CERT), criteria particularly for child-friendly services and products were specified and quality certificates were issued. In cooperation with the Technical Inspection Association, child-friendly inspection criteria were developed for hotels, holiday resorts and parks, the application of these criteria was launched as of November 15, 2002, and was formalized as "TÜV Service Check–Ok für Kids". Designed as an independent quality certificate, "Ok für Kids" is the certificate which states that the business is 'Suitable for Children' and is granted to businesses meeting the relevant criteria and successfully completing the certification procedure.

One of the examples of child-friendly hotels in Europe is Kinderhotels. Kinderhotels Europa is a marketing company which brings the first-class family hotels together. It was established with the goal of enhancing specialization by meeting the best quality standards for the family holiday, expanded at international level after a decade, and was transformed into a limited liability company. Under the brand name of Kinderhotels Europa, 50 hotels operate in four countries (Austria, Germany, Italy and Croatia).

In this research conducted to identify the competency of 84 hotel managements in city centers of Sivas, Kayseri and Ankara provinces to meet the expectations of families with children, it was found that none of the hotels met the criteria specified for being designaed as the child-friendly hotel.

'Child-Friendly Hotel' practices should be launched for accommodation facilities located in city centers, and subsequently they should be extended to other tourism-related sectors (transportation,

catering). Hotels, the majority of which are located in urbanized spaces, should be transformed into places meeting children's and families' needs, demands and expectations. Particularly the hygiene is a matter of importance to the families with children that have sensitivities about the issue of health. Thus, it is necessary to ensure the hygiene of foodstuff and the hygiene of employees, to pay attention to hygiene rules for rooms, to clean every spot assuming that the children are likely to touch everything. Moreover, it will be viable to provide hotel employees with education on the course of action to be adopted toward children and families with children. On the other hand, it is recommended that all these efforts be made with reference to the UN Convention on the Rights of the Child and with the participation of the children as urged by one of the main principles specified in this convention.

Turkey is a well-known travel destination with high quality resorts especially very suitable for families with children. However, this study doesn't cover any of these resort hotels except one hotel. According to the Ministry of Tourism and Culture, most of the hotels covered by in this study are small and have limited room numbers. They are mostly located in city center and can be defined as small business hotels.

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MODELING OF ACCESS TO HEALTH SERVICES IN TURKEY: THE COUNT DATA MODELS WITH A POISSON DISTRIBUTION

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Abstract: In simple terms, access refers to people's ability to obtain and use quality health care technologies when they need. In this study, data collected by TurksStat, Turkish Statistical Institute, through Turkey Health Survey which was applied across the country was analyzed. This survey was carried out every two years, for the first time in 2008 and the last time in 2016. The aim of this study is to examine the level of access to health services in terms of some socio-demographic variables such as gender, age, education, health status and income in Turkey between the years 2008-2016. The results obtained with the analysis show that all variables differ according to years and they are statistically significant. According to the analysis conducted as part of the study, it was concluded that, in Turkey, the status of income and health insurance do not constitute a risk factor on the access to health services. It is thought that the presence of a social security system involving the whole country has an effect on this result. Considering from this point

of view, in countries that do not have a strong social security system, out-of-pocket health spending and private health insurance increase the inequalities among the social segments. Therefore, private health insurances and income systems to reduce dependence on out-of-pocket health spending should be developed, and access to health services should not be an indicator of income. In this respect, more research is needed in which access to health services is evaluated from all aspects.

Keywords: *access, health, the count data models, healthcare management*

Introduction

Patients' recognition of their needs for services and their decisions to seek medical care generally form the first step in the process of accessing services. The probability of utilizing services depends on the balance between individuals' perceptions of their needs and their attitudes, beliefs and previous experiences with health services (Mechanic, 1978). Access to health services implies that individuals recognize and accept their need for services, consent to a role as service user, and acknowledge socially generated resources that they are willing to utilize. The U.S. Institute of Medicine defined access as 'timely use of personal health care to achieve the best possible outcome' (Millman, 1993). On the other hand, access as a concept is an "uncertain and complicated" process for policy makers and practitioners as well as the public (Racher and Vollman, 2002). Access to a health technology depends on providing the "right" product in the "right" place, with the "right" protocol at the "right" time (Frost and Reich, 2008: 8). In this respect, the proof of access is not only the existence of a facility, but the use of the service (Donabedian, 1972). Penchansky and Thomas developed this idea by Donabedian, suggesting that access describes the 'degree of compliance' between patients and the health system (Penchansky and Thomas, 1981). This 'degree of compliance' may be affected by the acceptability, affordability and provision of services. Penchansky and Thomas's approach has taken the concept of access beyond service usability, considering the personal, financial and organizational barriers to service use (Gulliford et al., 2002: 187).

In order to measure access, service use and the results obtained from the use are brought together. This structure is used to define five basic components: health policy, features of delivery system, population at risk, consumer satisfaction. (Ricketts and Goldsmith, 2005: 274). Having access to health care requires an adequate supply of health services available. According to this dimension, access to health care is concerned with the opportunity to obtain health care when it is desired or

needed. The availability of services is measured traditionally using indicators such as the numbers of doctors or hospital beds per capita (Gulliford et al., 2002).

One of the main issues in access assessment is the assessment of access equity. The difficulty in the assessment of equity is that health problems of different groups are diverse, health care needs for similar health problems vary and different groups have their own priorities and values. Groups with different needs require access to services that are appropriately differentiated in terms of volume and quality. This vertical dimension to equity (the unequal treatment of nonequals) is acknowledged to be more difficult to measure than the horizontal, not least because there is little consensus on how vertical equity could be judged to exist. In this respect, it is necessary to distinguish between horizontal and vertical equity. With horizontal equity, while the health care system needs to deliver essentially the same health care services (or a distribution of services that equate results) for people in approximately the same economic conditions, vertical equity requires government participation in the financing of care. Achieving horizontal equity requires this to be at the level of government (Fein, 2005: 4-5). Health-related facilities and services can be available within a country, but they can also be inaccessible to all those who need them. For example, access to essential medicines is an indispensable part of the right to health care in many aspects. First, medicines must be accessible in remote rural areas as well as in urban centers, which has major implications for the design of medicine supply systems. Inequality in access to medicines is part of inequality in health care. Since equal access is not always guaranteed by equal treatment, the state should sometimes take measures in favor of disadvantaged people (Hunt and Khosla, 2008: 99; Hogerzeil and Mirza, 2011: 8).

One of the main reasons why access is difficult is that there are other failures under most insufficient access situations. Access problems occur as a result of a combination of market failures, government failures and nonprofit failures. In order to eliminate more than one error, several steps should be taken for actors at the global, national and local level, and this requires a variety of expertise. Solutions often include economic, political and perceptual strategies. Problems related to access can rarely be solved by providing more money. Similarly, intellectual property rights can be a challenging barrier to access new products but removing patent barriers does not necessarily and immediately provide access (Frost and Reich, 2008: 10).

1. Research Methodology

Analysis carried out in this study were based on data collected by TurksStat through Turkey Health Survey which was applied across the country. This survey was carried out every two years, for the first time in 2008 and the last time in 2016. With Turkey Health Survey, it is aimed to close the information gap by retrieving the data related to the health indicator which has an important share in development indicators showing the development level of countries. In addition to reflecting the country in general, the study is considered to be important in terms of both providing international comparisons and shedding light on national needs. It aims to examine the level of access to health services in terms of some socio-demographic variables such as gender, age, education, health status and income in Turkey between the years 2008-2016.

1.1 Statistical Analysis Methods

In order to examine the distribution of variables as well as their changes by years, chi-square analysis was applied for categorical variables and one-way analysis of variance (ANOVA) was used for continuous variables. Detailed information is given in Table 1.

In the continuation of the study, assumptions were tested. It is tested to find which of the discrete distributions of access to health services are suitable. According to this, it shows Poisson distribution (χ^2= 8.354; p = .138), not Negative Binomial (χ^2= 12.072; p =.016). The null hypothesis, on the other hand, is based on the distribution of interest appropriate. In addition, Poisson regression is used in non-negative variables with the mean and variance being equal or close, and Negative Binomial regression is used when variance exceeds the mean ($\bar{x}$_(Access to Health Services)=.327, s_(Access to Health Services)=.683). However, the assumption of variance equals to the mean resulting in being very difficult for the zero excess count data to follow a Poisson model (Xu et.al., 2017). Since the distribution of access to health services is Poisson distribution, the models and theoretical knowledge are emphasized on Poisson distribution. The results of the modeling of access to health services were given in Table 2-4.

1.2 Modeling

The main control mechanism for continuous variables is based on normal distribution. However, the situation is different for discrete variables. The types of discrete variables also differ. Binary, ordinal, categorical and count type variables can be listed as examples. For this type of variables,

model selection is the most important thing. In particular, count variables are often used in modeling in epidemiology. In this study, the variable that we want to estimate is of the count type and is a variable with many zero observations.

As is known from many studies, count variables rarely meet the distributional assumptions of ordinary least squares linear regression (Hofstetter et al., 2016). However, zero excess is not an issue to be dealt with, such as the assumption of distribution. When the outcome variable is of the count type, already known methods (such as multiple regression) will no longer be sufficient. While the known methods have nothing to do for exceeds of zeros, count regression approaches, as the name suggests, will be a much more convenient technique. The most commonly used models for modeling outcome variables of count type are Poisson Regression, Negative-Binomial Regression, Zero-Inflated Poisson Regression, Zero-Inflated Negative-Binomial Regression and Hurdle (Poisson, Negative-Binomial) Regression. These methods have their own assumptions as in linear regression. In model selection, commonly used criteria can be used such as AIC, Akaike information criterion and BIC, Bayesian information criterion. Since the distribution of the outcome (dependent) variable is important among the assumptions, the suitability of the outcome (dependent) variable in our study was tested. In addition, Poisson regression is used in non-negative variables with the mean and variance being equal or close. Negative Binomial regression is used when variance exceeds the mean (Hu et al., 2011).

Poisson Regression Model

Poisson regression is quite similar to multiple linear regression except that the dependent Y (outcome) variable is a non-negative count with the Poisson distribution. Thus, the non-negative counts 0, 1, 2, 3,… and mostly, large counts are uncommon.

Let Y be the number of events occurring in a fixed period of time t and $y_i, i = 1,2, \dots n$ is the value of the dependent variable. Besides, Y is a Poisson distribution with parameter μ. The parameter μ, represents the expected number of occurrences in a fixed period of time $E[Y] = \mu$ (Cameron and Trivedi, 1998).

In Poisson regression, suppose that the Poisson mean (incidence rate) $\mu_i, i = 1,2, \dots n$ is determined by a function of covariates $\boldsymbol{x} = [x_{i1}, x_{i2}, \dots, x_{ik}]^T, i = 1,2, \dots, n$. This is also defined

as $\mu_i = exp(\boldsymbol{x_i^T \beta})$. The regression coefficients $\boldsymbol{\beta} = [\beta_1, \beta_2, \dots, \beta_k]$ are unknown parameters related to k covariates.

Then the Poisson regression model is as follows:

$$P_{Poisson}(Y_i = y_i) = \frac{e^{-\mu_i}(\mu_i)^{y_i}}{y_i!} \quad (1)$$

Zero Inflated Poisson Model

The Zero-inflated Poisson (ZIP) model is used for count data that exhibit overdispersion and excess zeros. So that the model assumes a mixture of a zero component distribution and a count distribution. In other words, a zero count can be estimated in either the excess zero part (2)(a) or in the count distribution (2)(b). Most of the notation is common with the Poisson model. $\mu_i, i = 1,2, \dots n$ is determined by a function of covariates $\boldsymbol{x} = \left[x_{i1}, x_{i2}, \dots, x_{ik_1}\right]^T, i = 1,2, \dots, n$. It is defined as $\mu_i = exp(\boldsymbol{x_i^T \beta})$. The regression coefficients $\boldsymbol{\beta} = \left[\beta_1, \beta_2, \dots, \beta_{k_1}\right]$ are unknown parameters related to k_1 covariates in the count part (2)(b). k_1 denotes the number of independent variables in the count part. The estimated probability of occurrences of excess zero part is π_i and it is known as the logistic link function. It is shown as $\pi_i = e^{z_i\gamma}/1 + e^{z_i\gamma}$ where $\boldsymbol{z} = \left[z_{i1}, z_{i2}, \dots, z_{ik_2}\right]^T, i = 1,2, \dots, n$ is a vector of independent variables in the excess zero part and $\boldsymbol{\gamma} = \left[\gamma_1, \gamma_2, \dots, \gamma_{k_2}\right]$ is a vector of coefficients.

$$P_{ZIP}(Y_i = y_i) = \begin{cases} \frac{e^{z_i\gamma}}{1 + e^{z_i\gamma}} + \left(1 - \frac{e^{z_i\gamma}}{1 + e^{z_i\gamma}}\right) e^{-\mu_i} & if\ y_i = 0\ (a) \\ \left[1 - \frac{e^{z_i\gamma}}{1 + e^{z_i\gamma}}\right] \frac{e^{-\mu_i}(\mu_i)^{y_i}}{y_i!} & if\ y_i > 0\ (b) \end{cases} \quad (2)$$

The excess zero part (2)(a) represents the subpopulation of individuals who have no problems with access to health services, whereas the count part (2)(b) represents those individuals who have problems with access to health services.

Hurdle-Poisson Model

The hurdle model (H-P) is also a count model with two parts, which was introduced by Mullahy (1986). In particular, the hurdle model combines a dichotomous outcomes part (3)(a) and a

truncated count part (3)(b). The truncated count part is also known as the hurdle part (3)(b). The dichotomous outcomes part (3)(a) models the probability that the threshold is crossed. In general, the threshold is usually at zero but can be any value. The notations are the same as the zero-inflated Poisson model (ZIP). $\mu_i, i = 1,2, \dots n$ is determined by a function of covariates $\boldsymbol{x} = \left[x_{i1}, x_{i2}, \dots, x_{ik_1}\right]^T, i = 1,2, \dots, n$ and defined as $\mu_i = exp\left(\boldsymbol{x_i^T \beta}\right)$. The regression coefficients $\boldsymbol{\beta} = \left[\beta_1, \beta_2, \dots, \beta_{k_1}\right]$ is a vector of coefficients belonging to $\boldsymbol{x}$ in the zero hurdle part (3)(b). k_1 denotes the number of independent variables in the zero hurdle part. $\boldsymbol{z} = \left[z_{i1}, z_{i2}, \dots, z_{ik_2}\right]^T, i = 1,2, \dots, n$ is a vector of independent variables in the excess zero part and $\boldsymbol{\gamma} = \left[\gamma_1, \gamma_2, \dots, \gamma_{k_2}\right]$ is a vector of coefficients belonging to $\boldsymbol{z}$ (Zeileis et al., 2008).

$$P_{H-P}(Y_i = y_i) = \begin{cases} (1 + e^{z_i\gamma})^{-1} & if\ y_i = 0\ (a) \\ [1 - (1 + e^{z_i\gamma})^{-1}] \dfrac{e^{-\mu_i}(\mu_i)^{y_i}}{(1 - e^{-\mu_i})y_i!} & if\ y_i > 0\ (b) \end{cases} \quad (3)$$

The dichotomous outcomes part shows the subpopulation of individuals ($Y = 0$) who have difficulties in accessing the health care services and the truncated count part is a modeling that shows individuals (for those with $Y > 0$) who have problem with accessing the health care services.

From eq. (2) and (3), the difference between the zero-inflated and hurdle models is the way they model zero values. The zero-inflated model allows a large number of zeros in the model while the hurdle model does not.

For the model selection, classical methods such as Akaike information criterion (Akaike, 1973) and Bayesian information criterion (Schwarz, 1978) can be used. Other methods can be also considered such as the Vuong statistic (Vuong, 198). It can be also used to decide which model has a better fit (Sheu et. al., 2004). The purpose is to test the validity of the hurdle model against the zero-inflated model, the hurdle model against the Poisson model and the zero-inflated model against the Poisson model. Significant Vuong statistics show that one model is closer to the true model.

2. Analysis

Table 1. Descriptive Statistics Test Statistics Results according to Years

Year	2008	2010	2012	2014	2016	p-value
	(n=20624)	(n=20200)	(n=37979)	(n=26075)	(n=23606)	
Gender						**<0.001[b]**
- Male	9703 (47.05%)	9122 (45.16%)	18015 (47.43%)	12276 (47.08%)	10973 (46.48%)	
- Female	10921 (52.95%)	11078 (54.84%)	19964 (52.57%)	13799 (52.92%)	12633 (53.52%)	
Age	31.00 ± 20.85	32.12 ± 21.53	33.04 ± 21.40	33.27 ± 21.78	33.92 ± 22.35	**<0.001[a]**
Education						**<0.001[b]**
- No answer	2062 (10.00%)	2021 (10.00%)	3468 (9.13%)	2566 (9.84%)	2376 (10.07%)	
- Illiterate	6710 (32.53%)	6411 (31.74%)	10831 (28.52%)	5319 (20.40%)	4515 (19.13%)	
- Primary school	6962 (33.76%)	6925 (34.28%)	13690 (36.05%)	10260 (39.35%)	8875 (37.60%)	
- Middle school	1154 (5.60%)	1076 (5.33%)	1682 (4.43%)	1967 (7.54%)	2170 (9.19%)	
- High school	2457 (11.91%)	2280 (11.29%)	4937 (13.00%)	3362 (12.89%)	3106 (13.16%)	
- 2-Year/ University	1185 (5.75%)	1387 (6.87%)	3132 (8.25%)	2359 (9.05%)	2335 (9.89%)	
-Masters/ Doctorate	94 (0.46%)	100 (0.50%)	239 (0.63%)	242 (0.93%)	229 (0.97%)	
Social Security Status						**<0.001[b]**
- Social Security Institution (SSI)	17683 (85.74%)	17720 (87.72%)	35077 (92.36%)	23952 (91.86%)	21872 (92.65%)	
- Private	22 (0.11%)	105 (0.52%)	220 (0.58%)	479 (1.84%)	126 (0.53%)	
- SSI + Private	53 (0.26%)	118 (0.58%)	255 (0.67%)	1543 (5.92%)	493 (2.09%)	
- No insurance	2866 (13.90%)	2257 (11.17%)	2427 (6.39%)	101 (0.39%)	1115 (4.72%)	
Marital Status						**<0.001[b]**
- No answer	5969 (28.94%)	5753 (28.48%)	9924 (26.13%)	6946 (26.64%)	6364 (26.96%)	
- Single	4378 (21.23%)	4417 (21.87%)	8835 (23.26%)	5968 (22.89%)	5330 (22.58%)	
- Married	10277 (49.83%)	10030 (49.65%)	19220 (50.61%)	13161 (50.47%)	11912 (50.46%)	
Working Status						**<0.001[b]**
- No answer	11443 (55.48%)	5753 (28.48%)	9924 (26.13%)	6946 (26.64%)	6364 (26.96%)	
- Working	3147 (15.26%)	5243 (25.96%)	10445 (27.50%)	7415 (28.44%)	6457 (27.35%)	

- Not Working	6034 (29.26%)	9204 (45.56%)	17610 (46.37%)	11714 (44.92%)	10785 (45.69%)	
Income						**<0.001[b]**
- 0 - 1100 TL	18912 (91.70%)	17425 (86.26%)	30676 (80.77%)	8470 (32.48%)	5183 (21.96%)	
- 1101- 1700 TL	1085 (5.26%)	1435 (7.10%)	3683 (9.70%)	5288 (20.28%)	6629 (28.08%)	
- 1701 - 2300 TL	257 (1.25%)	534 (2.64%)	1580 (4.16%)	4184 (16.05%)	4326 (18.33%)	
- 2301 + TL	370 (1.79%)	806 (3.99%)	2040 (5.37%)	8133 (31.19%)	7468 (31.64%)	
Health Status						**<0.001[b]**
- No answer	5973 (28.96%)	5766 (28.54%)	9928 (26.14%)	6946 (26.64%)	6364 (26.96%)	
- Very good	1465 (7.10%)	1395 (6.91%)	3584 (9.44%)	2169 (8.32%)	1554 (6.58%)	
- Good	7564 (36.68%)	7504 (37.15%)	15543 (40.93%)	8988 (34.47%)	8720 (36.94%)	
- Moderate	4018 (19.48%)	3911 (19.36%)	6700 (17.64%)	5646 (21.65%)	4901 (20.76%)	
- Bad	1396 (6.77%)	1392 (6.89%)	1960 (5.16%)	1982 (7.60%)	1852 (7.85%)	
- Very bad	208 (1.01%)	232 (1.15%)	264 (0.70%)	344 (1.32%)	215 (0.91%)	
Chronic Disease						**<0.001[b]**
- No answer	5969 (28.94%)	5753 (28.48%)	9923 (26.13%)	6946 (26.64%)	6364 (26.96%)	
- Have chronic disease	5744 (27.85%)	2165 (10.72%)	3694 (9.73%)	7161 (27.46%)	6027 (25.53%)	
- No chronic disease	8911 (43.21%)	12282 (60.80%)	24362 (64.15%)	11968 (45.90%)	11215 (47.51%)	
Disorders						**<0.001[b]**
- No answer	5994 (29.06%)	5792 (28.67%)	9951 (26.20%)	6946 (26.64%)	6364 (26.96%)	
- No disorders	7896 (38.29%)	7848 (38.85%)	16233 (42.74%)	8640 (33.14%)	7922 (33.56%)	
- Have disorders	6734 (32.65%)	6560 (32.48%)	11795 (31.06%)	10489 (40.23%)	9320 (39.48%)	
Difficulty in payment						**<0.001[b]**
- No answer	19877 (96.38%)	19602 (97.04%)	37253 (98.09%)	13881 (53.23%)	14277 (60.48%)	
- Yes	332 (1.61%)	270 (1.34%)	228 (0.60%)	2382 (9.14%)	1474 (6.24%)	
- No	415 (2.01%)	328 (1.62%)	498 (1.31%)	9812 (37.63%)	7855 (33.28%)	
Late appointment						**<0.001[b]**
- No answer	19877 (96.38%)	19602 (97.04%)	37253 (98.09%)	12804 (49.10%)	13877 (58.79%)	
- Yes	12 (0.06%)	3 (0.01%)	12 (0.03%)	3338 (12.80%)	2524 (10.69%)	

- No	735 (3.56%)	595 (2.95%)	714 (1.88%)	9933 (38.09%)	7205 (30.52%)	
Transportation problems						**<0.001**[b]
- No answer	19877 (96.38%)	19602 (97.04%)	37253 (98.09%)	14473 (55.51%)	14933 (63.26%)	
- Yes	27 (0.13%)	20 (0.10%)	48 (0.13%)	2221 (8.52%)	1576 (6.68%)	
- No	720 (3.49%)	578 (2.86%)	678 (1.79%)	9381 (35.98%)	7097 (30.06%)	
Access to Health Services						**<0.001**[b]
- No	19867 (96.33%)	19597 (97.01%)	37249 (98.08%)	12079 (46.32%)	12988 (55.02%)	
- Major	416 (2.02%)	321 (1.59%)	338 (0.89%)	6639 (25.46%)	4163 (17.64%)	
- Moderate	331 (1.60%)	277 (1.37%)	388 (1.02%)	6946 (26.64%)	6364 (26.96%)	
- Minor	10 (0.05%)	5 (0.02%)	4 (0.01%)	411 (1.58%)	91 (0.39%)	

a. One-way ANOVA test, b. Chi-Square test

The results shown in Table 1 indicate that all variables differ according to years and they are statistically significant.

Table 2. Summary of Possion Regression Models For Access to Health Services

Count Data Model	***Poisson section***	
(Possion)	$\boldsymbol{\beta}$ $(\boldsymbol{s.e})$	***p-value***
Intercept	-4.437 (0.038)	**<0.001**
Year	0.311 (0.006)	**<0.001**
Age	-0.004 (0.0005)	**<0.001**
Gender	0.045 (0.010)	**<0.001**
Education	0.010 (0.004)	**0.018**
Social Security Status	-0.008 (0.007)	0.303
Marital Status	0.066 (0.016)	**<0.001**
Working Status	-0.023 (0.015)	0.114
Income	0.028 (0.004)	**<0.001**
Health Status	0.163 (0.0109)	**<0.001**
Chronic Disease	-0.254 (0.014)	**<0.001**
Disorders	0.243 (0.017)	**<0.001**
Difficulty in payment	0.668 (0.015)	**<0.001**
Late appointment	1.205 (0.017)	**<0.001**
Transportation problems	-0.0787 (0.016)	**<0.001**
n	128484	
df	15	

$-2\log L$	-45592.2
p-value	**<0.001**
AIC	91214.39
BIC	91360.85

Poisson model shows that social security status and working status do not affect access to health care. The model is statistically significant ($-2\log L$ =-45592.2; p<0.001).

Table 3. Summary of Zero-Inflated Poisson Regression Models For Access to Health Services

Count Data Model	***Possion section***		***Logit section***	
(ZIP)	$\boldsymbol{\beta}$ $(\boldsymbol{s.e})$	***p-value***	$\boldsymbol{\beta}$ $(\boldsymbol{s.e})$	***p-value***
Intercept	0.556 (0.054)	**<0.001**	31.122 (39211.78)	0.999
Year	-0.072 (0.010)	**<0.001**	-0.172 (7444.01)	0.999
Age	0.001 (0.0005)	**0.015**	.0003 (375.6288)	0.999
Gender	0.007 (0.010)	0.466	.054 (11330.2)	0.999
Education	-0.006 (0.004)	0.192	.013 (4375.61)	0.999
Social Security Status	-0.008 (0.008)	0.293	.013 (7318.973)	0.999
Marital Status	-0.065 (0.016)	**<0.001**	-.192 (10869.07)	0.999
Working Status	-0.067 (0.015)	**<0.001**	-.276 (10923.49)	0.999
Income	-0.003 (0.004)	0.376	-.078 (4996.197)	0.999
Health Status	-0.058 (0.011)	**<0.001**	-.033 (7130.434)	0.999
Chronic Disease	-0.051 (0.014)	**<0.001**	-.003 (9936.682)	0.999
Disorders	-0.072 (0.018)	**<0.001**	-.182 (10983.14)	0.999
Difficulty in payment	0.079 (0.011)	**<0.001**	-54.808 (18039.01)	0.998
Late appointment	0.072 (0.014)	**<0.001**	-54.766 (16831.25)	0.997
Transportation problems	0.078 (0.014)	**<0.001**	-57.360 (48779.02)	0.999
n	128484			
df	30			
$-2\text{Log}\,L$	-34579.86			
p-value	**<0.001**			
AIC	69219.72			
BIC	69512.63			

The Zero-inflated Poisson model in the logit section shows that none of the variables were risk factors which affect access to health care. On the other hand, this section tries to model those who do not have problems in accessing health services. The Poisson section shows that gender, education, social security status, and income did not have a significant effect on access to health care. Other variables have an effect on access to health care. The model is also statistically significant ($-2\log L$ =-34579.86; p<0.001).

Table 4. Summary of Hurdle - Poisson Regression Models For Access to Health Services

Count Data Model	***Poisson section***		***Logit section***	
(H-P)	$\boldsymbol{\beta}$ $(\boldsymbol{s.e})$	***p-value***	$\boldsymbol{\beta}$ $(\boldsymbol{s.e})$	***p-value***
Intercept	-1.426 (0.121)	**<0.001**	-8.371 (0.143)	**<0.001**
Year	-0.102 (0.012)	**<0.001**	0.899 (0.023)	**<0.001**
Age	0.0005(0.001)	0.675	-0.001 (0.001)	0.225
Gender	0.025 (0.015)	0.087	-0.053 (0.039)	0.173
Education	-0.0005 (0.008)	0.945	0.021 (0.015)	0.160
Social Security Status	-0.061 (0.014)	**<0.001**	0.076 (0.026)	**0.003**
Marital Status	-0.139 (0.040)	**<0.001**	0.175 (0.039)	**<0.001**
Working Status	-0.185 (0.033)	**<0.001**	0.142 (0.039)	**0.034**
Income	-0.006 (0.006)	0.285	0.098 (0.017)	**<0.001**
Health Status	-0.140 (0.027)	**<0.001**	0.132 (0.025)	**<0.001**
Chronic Disease	-0.264 (0.035)	**<0.001**	-0.057 (0.035)	0.101
Disorders	0.091 (0.044)	**0.041**	0.168 (0.039)	**<0.001**
Difficulty in payment	-0.230 (0.032)	**<0.001**	2.592 (0.035)	**<0.001**
Late appointment	-0.186 (0.042)	**<0.001**	3.064 (0.037)	**<0.001**
Transportation problems	1.612 (0.056)	**<0.001**	0.357 (0.045)	**<0.001**
n	128484			
df	30			
$\boldsymbol{-2\log L}$	-32164.51			
p-value	**<0.001**			
AIC	64389.02			
BIC	64681.93			

In the Hurdle Poisson model, the Poisson section shows that results are close to those in ZIP's Poisson section. In the Poisson section, age, gender, education, and income do not affect access to health care for those who have problems in accessing health services. The logit section indicates that, as mentioned in the previous section, the way of modeling the excess zeros parts shows differences. The logit section shows that age, gender, education and having a chronic disease do not contribute to having any problems accessing to health care. Age, gender and education are not significant in modeling those who have problems accessing to health care as well. The model is also statistically significant ($-2\log L$ =-32164.51; p<0.001).

Table 5. The Results of the Vuong Statistics

Count Data Model	Vuong z-statistic	p-value
Zero-Inflated Poisson vs Poisson	101.60	**<0.001**
Hurdle – Poisson vs Poisson	78.249	**<0.001**
Hurdle – Poisson vs Zero-Inflated Poisson	16.970	**<0.001**

According to the results of table 2-5, in terms of AIC and BIC for model selection, the H-P model's AIC= 64389.02 and BIC=64681.93 values are the lowest when compared to others. Vuong statistics show that comparing the zero-inflated Poisson model with the Poisson model, the Vuong statistic is significant (Vuong = 101.60, p < 0.001). It indicated that the zero-inflated Poisson model showed a better fit. Comparing the hurdle Poisson model with the Poisson model, the Vuong statistic is significant (Vuong = 78.249, p < 0.001). It indicated that the hurdle model showed a better fit. Comparing the hurdle Poisson model with the zero-inflated Poisson model, the Vuong statistic is significant (Vuong = 16.970, p < 0.001). It indicated that the hurdle model showed a better fit.

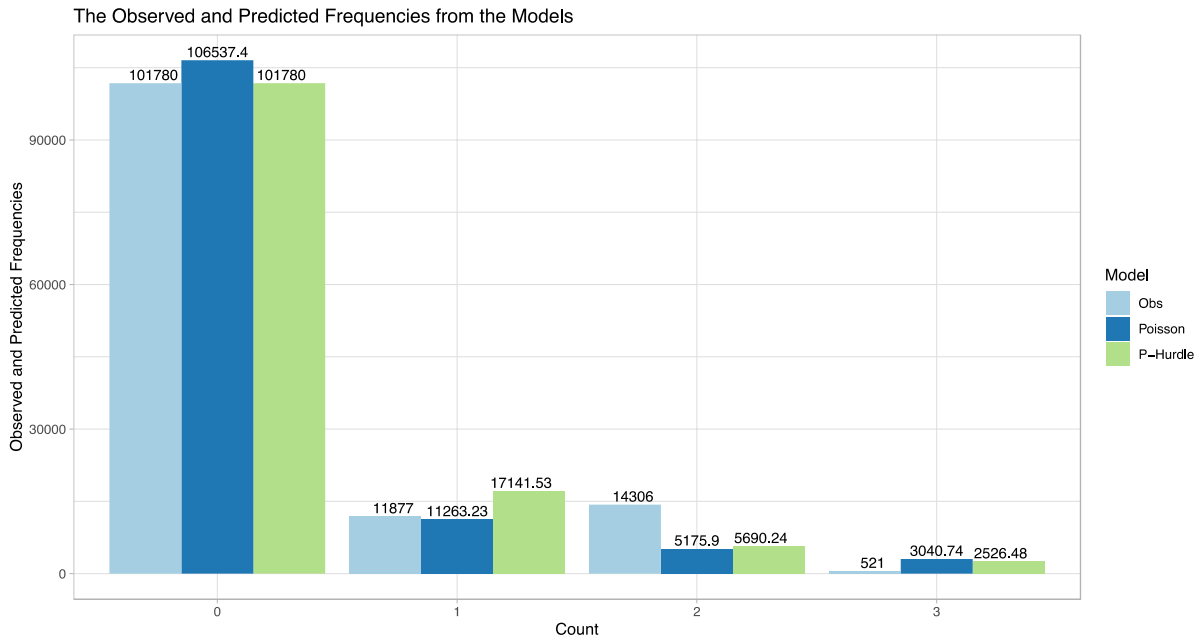

Figure 1. The Observed and Predicted Frequencies from the Models

According to table 5, frequencies were not calculated for the zero-inflated Poisson model. In figure 1 The Poisson model does not adequately fit the count data. However, The Hurdle Poisson model does not fit the bigger count data. It may result from some reasons: (a) outcome variable has extreme over-dispersion, (b) correlated data which cannnot be explained with covariates and (c) unobserved heterogeneity.

3. Discussion and Recommendations

Access, in general terms, refers to the ability of people to obtain and use quality health technologies when they need. It is not only a technical issue involving the logistics of moving a technology from the supplier to the end user, but it also includes social values, economic interests and political processes, and it requires a product as well as services and is linked to how health systems perform in practice (Frost and Reich, 2008: 8). Research on the utilization of health services suggests important manipulable (policy) dependent variables and nonmanipulable (control) independent variables that might be incorporated into a framework for the study of access to health care (Candidate and Anderson, 1974: 216). (Candidate and Anderson, 1974: 216). The right to have the highest achievable health standard covers medical care, access to safe drinking water, adequate health care, education, health information, and other key determinants of health; it includes rights

such as the right to exemption from discrimination and involuntary medical treatment, and rights such as basic primary care right (Committee on Economic, Social and Cultural Rights, 2000).

In the study, data obtained from the Turkey Health Survey, which was conducted throughout Turkey every two years by TurkStat were analyzed. The results obtained with the analysis show that all variables differ according to years and they are statistically significant.

It is stated that user costs and other costs arising from access to care affect different socio-economic groups in different ways. While access may not be compromised for some groups, costs may be an important deterrent to others (Lundberg et al., 1998). The impact depends on the magnitude of the costs and on the user's willingness and ability to pay. In other words, equal costs do not necessarily give equal access. Financial incentives for service providers can also affect the availability of services and the types of services available (Gulliford et al., 2002).

The level of access to health services vary in the same country in terms of socio-demographic variables as well as countries. For example, in the USA, access often refers only to whether the individual is insured, and while differences such as the level of insurance or the size of payments are of secondary importance, in Europe, where almost all citizens are insured, access can be a very sensitive concept (Goddard and Smith, 2001). In Turkey, social security institutions were entegrated and Social Security Institute was established in 2008 providing that all citizens pay a certain premium under the guarantee of the social security system.

In countries at all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health. According to the analysis conducted as part of the study, it was concluded that the status of income and health insurance do not constitute a risk factor on the access to health services. It is thought that the presence of a social security system involving the whole country has an effect on this result.

In researches about access, it is stated that the scope of health insurance is a very important predictor of the use of services (Berk and Schur, 1998). According to the analysis conducted as part of the study, it was concluded that the status of income and health insurance do not constitute a risk factor on the access to health services.

Health services can have an important impact on health inequalities both in a positive and negative way. There is, however, much that can be done to increase the probability that the effect will be beneficial. This requires a better understanding of the reciprocal relationship between poverty and ill health, ensuring that the organization of care is such that it collects resources fairly, enhances

access to care, and takes advantage of the opportunities actively to promote health. Action is also required to address the specific needs of disadvantaged populations, in a way that is contextually appropriate. Countries should develop income systems to reduce dependency on these systems, as out-of-pocket health spending and private health insurance increase inequalities among the community. In this respect, more research is needed in which access to health services is evaluated from all aspects.

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EVALUATION OF US AND TAIWAN HEALTH SYSTEM PERFORMANCE:A REVIEW OF THE LITERATURE

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Review Article

Abstract: The delivery and coverage of healthcare varies drastically country to country. The United States (U.S.) and Taiwan present a case of contrasting healthcare systems from the roots up as one relies on a single-payer system and the other utilizes a multi-payer system. Along with other differences including health status, cost of care, and utilization of care, there are also notable similarities among the two systems. This paper will analyze the similarities and major differences between the two systems. A literature review was conducted to identify the major characteristics of the two systems and report health statuses for the two countries to compare the level of care provided under varying delivery models. Both qualitative and quantitative data was used to draw conclusions regarding the similarities and difference between the U.S.

multi-payer system and the Taiwan single payer national health insurance system. It was concluded that while there are few similarities, especially when comparing the U.S. Medicare and Medicaid programs to the Taiwan National Health Insurance system, there are mainly differences present between the two systems.

Keywords:

Introduction

Across the globe, there are numerous different ways healthcare is mandated and delivered. There has been much debate surrounding which system is the most efficient and effective at delivering high quality, low cost healthcare to the population it serves. Four main types of healthcare systems have emerged as the building blocks for which most developed countries' systems are built upon. These include the Beveridge model, the Bismark model, the National Health Insurance model, and the out-of-pocket model (Wallace 2013). Most countries rely heavily on one of the main four models; conversely, the United States (U.S.) relies on aspects of all four models. While this method has worked in some instances, it hasn't necessarily led to the most successful or innovative way to deliver care. In theory, the best healthcare model is believed to be the one that cares for patients from birth to death as this puts an emphasis on preventative care and, in turn, improves the health of the population while simultaneously reducing costs (Wallace 2013). Two healthcare systems that can provide vastly differing views of each other while still presenting with similar tendencies are the U.S. system and the Taiwan National Health Insurance system.

1. Research Methodology

A literature review was conducted on the various aspects of the U.S. healthcare system and the Taiwan healthcare system. Distinctive characteristics and major features of the two systems were recorded and then analyzed to determine the similarities and differences present between the two countries. Health data and statistics were also used to provide quantitative measures for comparison.

1.1. UNITED STATES HEALTHCARE SYSTEM

The U.S. is among the few advanced nations that does not provide universal health coverage. However, the lack of a single-payer plan allows patients to shop for plans that fit their needs. This has led to patient empowerment and increased awareness of healthcare costs. Conversely, some patients opt out of care they need due to sub-par coverage or inability to pay, negatively affecting patient health outcomes. It is estimated that more than 30.7 million people in the U.S. have no health insurance, further contributing to the poor health outcomes commonly reported (Cohen et al. 2020).

Out of the 37 Organization for Economic Co-operation and Development (OECD) countries, the U.S. stands at 28th position for life expectancy. The average life expectancy at birth of the U.S. population is 78.6 years, lesser than the average of 80.7 years of the OECD countries (America's Health Rankings Annual Report 2020). The 2019 infant mortality rate in the U.S. was 5.8 deaths per 1,000 live infant births ranking 33rd, which is higher than the OECD average rate of 3.8 deaths per 1,000 live births (America's Health Rankings Report 2020). For maternal mortality rate, the U.S. ranked 25th out of 26 OECD countries in 2018 (11 OECD countries did not report data for 2018 on maternal mortality), with an average of 17.4 deaths per 100,000 live births (OECD 2020a).

The U.S. has both public and private health insurance, with the private sector serving as the major source of coverage for the population. As of 2019, a total of 62.1% and 37.4% of the population were covered by private and public health insurance, respectively, and a significant part of population (9.5% which corresponds to 30.7 million people) lacked any type of health insurance (Cohen et al. 2020). Additionally, the per capita costs of healthcare spending has been very high in the U.S. According to the Centers for Medicare and Medicaid Services (CMS). In 2018, it increased by 4.6%, making total spending per capita equal to $3.6 trillion; in the same year, the health care spending was $11,172 per person (CMS 2020). Increase in health insurance costs due to the reinstatement of the health care tax was the primary reason for this rapid increase in the health care spending (CMS 2020).

Throughout its history, the U.S. has had problems with focusing on patient care and excessive spending (Kunnath 2012). While the U.S. has many of the world's best-equipped hospitals and highly specialized physicians, its health care system often falls short of providing the highest quality of care despite spending double the median of industrialized countries at 16 percent of gross domestic product (GDP) (Schoen et al. 2006).

The Patient Protection and Affordable Care Act (ACA)

It has been inferred by researchers in the past that improving the experience of care and the health of populations, as well as, reducing the per capita costs of healthcare are areas where the U.S. healthcare system needs to improve (Berwick et al 2008). Since the implementation of Medicare and Medicaid, improvements were developed to address these areas within the Patient Protection and Affordable Care Act (ACA). The ACA was intended to fundamentally change nearly every aspect of healthcare, and it represents the most significant transformation of the U.S. healthcare system to date (Manchikanti 2011). The ACA launched in 2010 expanding Medicaid to all individuals in families earning less than 133 percent of the federal poverty level (FPL) and provided subsidies to uninsured lower-income individuals (Hofer et al 2011). Before the expansion, only some low-income people met the eligibility criteria, such as children, pregnant women, people with disabilities, and individuals more than 65 years old. The provision of health insurance for everyone was a foundational issue within the ACA since coverage is a major determinant of access to healthcare expanded by the law, which has remarkably decreased the uninsured population of all races in the U.S. (see Figure 1).

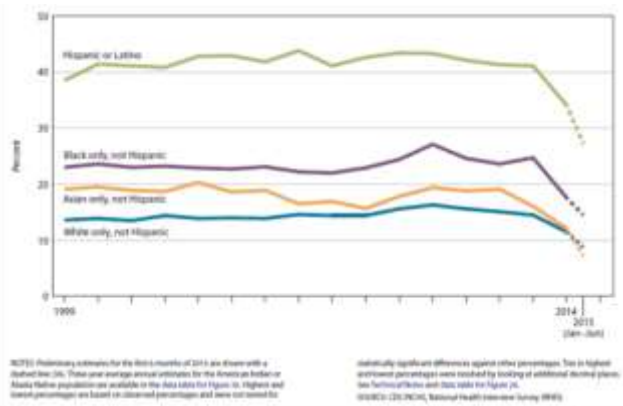

Figure 1. *No Health Insurance Coverage among Adults Aged 18-64, by Race and Hispanic Origin: United States, 1999-June 2015.* National Center for Health Statistics. "Health, United States, 2015: With Special Feature on Racial and Ethnic Health Disparities." 2016. https://www.cdc.gov/nchs/data/hus/hus15.pdf

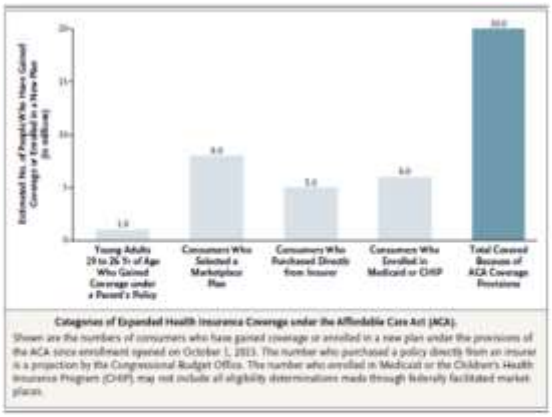

Figure 2. *Categories of Expanded Health Insurance Coverage under the Affordable Care Act (ACA).* Blumenthal, David, and Sara R. Collins. "Health Care Coverage under the Affordable Care Act — A Progress Report." *New England Journal of Medicine* 371, no. 3 (2014), 275–81. https://doi.org/10.1056/nejmhpr1405667.

It is estimated that 20 million Americans were covered as of May 1, 2014 under the ACA which is close to half of the Americans without coverage (44 million in 2013) prior to the enactment of the ACA (see Figure 2) (Garfield et al. 2019). By 2016, the U.S. had reached the

lowest number of uninsured Americans to date; however, the Congressional Budget Office (CBO) in 2017 projected an increase in the uninsured rate for the U.S. as the penalties for not having insurance were repealed. The CBO estimated that in 2018, the uninsured rate would be around 14 million, and, without changes to the current legislation, by 2026 nearly 56 million American's will be uninsured (CBO 2017).

1.2 TAIWAN HEALTHCARE SYSTEM

In 1995, Taiwan implemented the National Health Insurance Act, which created the National Health Insurance (NHI) system. Prior to implementing the NHI system, Taiwan health insurance consisted of separate plans and coverage systems providing insurance for roughly 57% of the population (Wu et al. 2010). During this time, out-of-pocket payments were high. In order to form the NHI system, four previous group insurance programs - the labor insurance, government employee insurance, farmers' health insurance, and fisherman's health insurance - were combined into one comprehensive plan with coverage for all (Wu et al. 2010).

The National Health Insurance Act was implemented with three main objectives: financial sustainability, equity, and efficiency. The implementation of the Act allowed for a public single-payer system, a national global budget, easier accessibility, and comprehensive coverage for its population at lower costs with a higher rate of coverage. The higher rate of coverage is due to the mandatory requirement that all Taiwanese citizens must join their NHI system; foreign guests visiting Taiwan for more than six months are also eligible for coverage (Wu et al. 2010). Additionally, a nationwide research data bank has allowed for planning, monitoring, and evaluation of services provided.

Taiwanese Healthcare Characteristics

Taiwan has distinctive aspects of its health care system, which may not be seen elsewhere. After the implementation of the National Health Insurance Act in 1995, their health system remarkably improved, affecting both rural and urban areas. Out of the three main objectives of the National Health Insurance Act, emerge important characteristics that make Taiwan's health care system unique such as, universal and comprehensive coverage, a public single-payer system, national global budget, and patient satisfaction, which is the one of important quality indicators used for health system performance (Aydin 2018). Additionally, Taiwan has achieved a level of interoperability within its NHI system. By using a patient's NHI integrated circuit (IC) card, or

smart card, healthcare organizations are able to access every aspect of the patient's medical record immediately. The NHI IC card is also the source of billing and payment information for the patient, making all of their medically necessary information available in one place.

Through the NHI system, Taiwan has been able to significantly improve upon the average ratings for life expectancy, infant mortality rate, birth rate, and the percentage of health expenditure on the GDP (Wu et al 2010). As of 2018, the infant mortality rate in Taiwan was 4.2 deaths per 1,000 births, the maternal mortality rate was 12.2 deaths per 1,000 births, and average life expectancy was 80.19 years (Thomala 2019; Textor 2019). While Taiwan is not an OECD country, they would have ranked 29th out of 37 for infant mortality, 30th out of 34 for maternal mortality, and 27th out of 37 for life expectancy in 2018.

The public single-payer system has played a key role in controlling total cost as well as quality. The system's administration decides the fee for drugs, hospitalization, and patient care as a single purchaser playing a role in the market, by which total health expenditure can be standardized and controlled. Likewise, Taiwan has a national global budget method for resource allocation which prevents exceeding budget allocations (Cheng 2003; Lu & Hsiao 2003). This type of budget method helps to control resources, motivate workers to strive to achieve budget goals, and allows for the assignment of accountability (Wolfe & Moran1993). Taiwan has been reporting consistently low costs and spending for care as a result the NHI system and budgeting process they adopted. In 2018, Taiwan spent 40 billion New Taiwan dollars (equivalent to $1,360,706,200 U.S. dollars) on healthcare (Textor 2020). Additionally, Taiwan only spends 6.1% of its GDP on health expenditures, while the U.S. spent nearly 17.5% of its GDP and the average for OECD

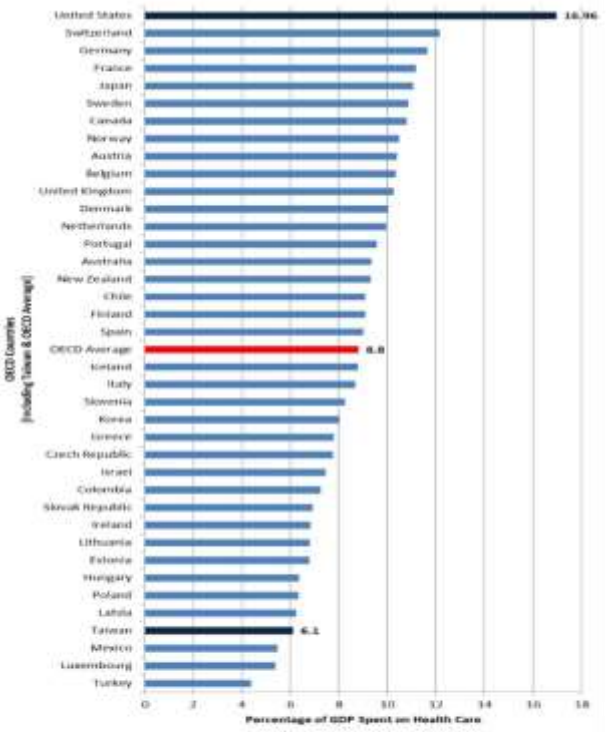

Figure 3. *Percentage of GDP per Country Spent on Health Care in 2018.* OECD. "Health Expenditure." 2019. https://www.oecd.org/els/health-systems/health-expenditure.htm#:~:text=Health%20spending%20as%20a%20share,stayed%20at%208.8%25%20in%202018.

countries was around 8.8% in 2017 (see figure 3) (Cheng 2019; OECD 2019).

The public single payer system and the national global budget methodology in Taiwan have had a remarkable impact on patient satisfaction, which is the one of most important quality indicators used for health system performance. Taiwan's patient satisfaction rate of the national health insurance is more than 80 percent, and there is no evidence to support that patients in the Taiwan NHI system are disappointed or upset about not having a choice regarding insurers (Cheng 2019). However, while the satisfaction rate is generally high in Taiwan, the quality of care, especially for outpatient visits can be lacking at times. This is partially reflective of the culture in Taiwan to take medicine and seek healthcare frequently, which is supported by the NHI system (Wu et al. 2010). The frequency of seeking healthcare has led to a higher than average rate for the average amount of times a patient sees a provider per year. In 2016, Taiwan patients average 12.2 visits per year compared to the OECD average of 6.3 and the U.S. average of 4.0 visits per year (Cheng 2019). The heightened amount of visits subsequently puts a strain on the healthcare system to provide the care demanded. For a provider in Taiwan, it is not unusual for them to see over 50 patients in one morning alone making it increasingly difficult to provide high quality care to every patient (Wu et al. 2010).

2. Analysis

Similarities

While the U.S. and Taiwan health systems primarily represent a comparison of differences, there are some similarities present between the two countries. Even though Taiwan, statistically,

has better health measures for life expectancy, maternal mortality and infant mortality, when ranked with the other OECD countries, they ranked comparable to the U.S. (see Figure 4). Additionally, Taiwan and the U.S. both struggle with disparities and barriers to care in rural areas. This has led to physician shortages in both countries, with more physicians present in the heavily populated areas instead of the rural or remote towns. Comparatively, the ratio of physicians per 1,000 people in 2015 was 2.6 for the U.S. and 1.7 for Taiwan; the OECD average was 3.3 physicians per 1,000 people (Cheng 2015; The World Bank 2018).

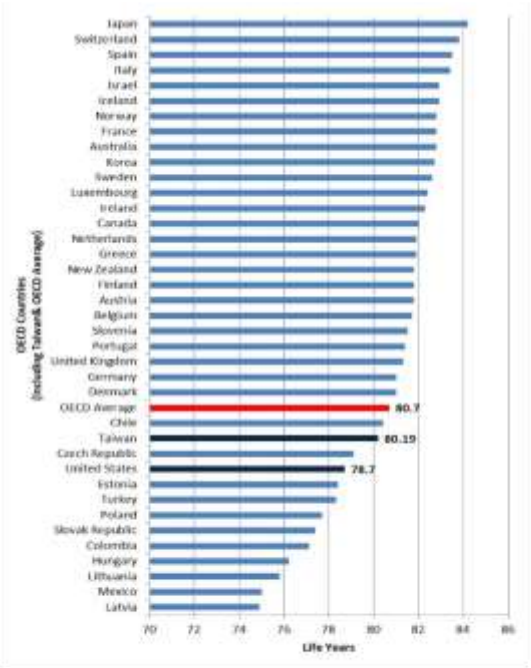

Figure 4. *Average Life Expectancy per Country in 2018.* OECD. Life expectancy at birth (indicator). 2020. DOI: 10.1787/27e0fc9d-en (Accessed on 25 July 2020)

Additional similarities can be found in the structure and formation of healthcare in Taiwan and the U.S. Almost all privately owned hospitals in Taiwan are not-for-profit, as is the most common in the U.S. Patients in both countries are subject to paying copayments and any out-of-pocket expenses for services that are not covered under their insurance. Additionally, there is a degree of freedom in selecting providers to receive care. In the U.S., patients are able to choose any provider, but they may not be in their network resulting in higher costs or no coverage; in Taiwan, patients are free to select any provider without incurring out-of-network expenses. Both countries have also made strides in improving the quality of care delivered to patients, placing an emphasis on quality over quantity through different reimbursement programs. The U.S. utilizes the pay-for-performance system while Taiwan has the fee-for-outcomes approach.

Differences

Among the similarities that can be found between the U.S. and Taiwan healthcare systems, there are also significant differences including delivery model, costs, and health ratings and utilization. Aside from the major difference of insurance models, spending for healthcare is another area of significant difference between the two countries, mainly driven by the high administrative and sunk costs associated with the U.S. healthcare system. Taiwan spent 11.1% less of its GDP on

healthcare costs in 2017 (Cheng 2019). With the single-payer system in Taiwan, all healthcare costs are set by the government. This eliminates competition and price gouging that is common practice in the U.S., especially in pharmaceuticals, in order for different insurers and providers to make a profit. Additionally, the single-payer system creates a unified and simplified process for delivering care thus reducing administrative complexity and associated costs.

Accessibility is one of the key features of a health care system and represents another area of difference between the U.S. and Taiwan. It influences the physical and social wellbeing, along with the mental health status and overall quality of life. People throughout the U.S. do not experience equal access to healthcare. There is a wide range of disparity depending upon the geographic area, race, ethnicity socio-economic condition, and other factors such as age, sex, and disability status.

Insurance coverage, which is another important component in determining the access to health care system, is also less in the U.S. as compared to Taiwan. One of the main characteristics of the Taiwan health care system is good accessibility and comprehensive insurance coverage (Wu et al. 2010). With universal coverage except for the prisoners and the people who have moved out of the country, the entire population of Taiwan has health insurance coverage. Conversely, the much fragmented multi payer system in the U.S. leaves behind a large portion of the population (30.7 million) without any type of coverage for their health care needs (Cohen et al. 2020).

Utilization of healthcare services is drastically higher in Taiwan compared to most developed countries, which can be attributed to the increased accessibility and coverage within their health system; this can be both a positive and negative measure. Positively, Taiwan citizens are able to access the care they need when they need it, resulting in a healthier population. It is reported that even with the high utilization rate present in Taiwan, patients experience shorter wait for most major healthcare procedures (Cheng 2019). Negatively, there is evidence of overuse in the system as Taiwan recorded nearly double the OECD average amount of provider visits per year, which can lead to lower quality care provided. The U.S. was two visits lower than the average OECD provider visits per year rate, but this could be attributed to the lack of insurance coverage and/or high costs for care associated with provider visits.

3. Conclusion

Through a comparison analysis of the U.S. and Taiwan healthcare systems there are evident differences, paired with few similarities, between the two systems. The Taiwan NHI system offers

comprehensive and low cost health insurance to the citizens of Taiwan. Since the enactment of the NHI Act in 1995, the country has experienced consistently lower healthcare spending and increased health outcomes as a result. This has also allowed for the technological advancement of interoperability across the country. Patients are able to go to any healthcare organization with their NHI IC card and have their medical records immediately; thus enhancing patient satisfaction and reducing the potential for medical errors.

The U.S. healthcare system is unlike any other. It comprises elements of multiple healthcare insurance models and relies on both public and private insurance to cover healthcare services. The ACA, enacted in 2010, was the first step towards government-run healthcare similar to Taiwan. This act resulted in the U.S. achieving its lowest number of uninsured Americans in 2016. However, moving forward it will be important for the U.S. healthcare system to make fundamental changes to its healthcare insurance model as costs and the uninsured rate continues to rise. Following the process of systems like the Taiwan NHI system could be beneficial in implementing these changes.

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JHMT Editorial

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INVESTIGATION OF THE IMPACTS OF ECONOMIC CRISES ON THE HEALTHSYSTEM IN TURKEY: AN ARDL BOUNDS TESTING APPROACH

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Research Article

Abstract: In this study, the impacts of 1994, 2001 and 2009 economic crises on 9 indicators related to the health system in Turkey between 1974-2015 were investigated through the ARDL Cointegration approach. It was found that the 1994 economic crisis affected the total number of other health personnel significantly ($p<0.05$) in a negative way. The 2001 economic crisis was found to have a significantly negative effect on public health expenditures, total health expenditures and number of beds. For the 2009 economic crisis, private and total health expenditures decreased significantly ($p<0,05$), while public health expenditures increased significantly ($p<0.05$). Conclusively, in this study, it has been found that political choice plays an important factor in the impacts of the economic crises on the health system.

Keywords: *Economic crisis, health system, Turkey, ARDL bounds testing*

Introduction

In an economic crisis, countries often apply austerity measures in many areas, and the health system emerges as one of the important areas in which these measures are implemented (Doctors of World, 2014). In crises, these responses, which are generally given by countries as short-term changes in health policies, also indicate the effects of economic crises on the health system (Modrek et al., 2013). Therefore, these influences on the health system also significantly affect the health of the population and the individual. Decisions on the health care system may protect health from the effects of the crisis, but on the contrary, may lead to the worsening of the health of the population and the individual (Musgrove, 1997, 2004; Thomas et al., 2012). Studies show that mortality rates are higher in countries where economic crises have a relatively negative impact on the health system (Borowy, 2011; Cutler et al., 2002; Stuckler et al., 2009).

One of the important areas that economic crises affect is health expenditure. As is known, there is a pro-cyclical relationship between health expenditures and GDP. Health expenditures also increase when GDP increases. From this point of view, it can be said that health expenditures will decrease in line with the decrease of GDP in times of economic crisis (Keegan et al., 2013). On the other hand, it is theoretically stated that health expenditures will increase during periods of economic crisis for three reasons (Thomas et al., 2012): Reducing opportunity cost of time may lead to greater use of health services. Opportunity to renew the existing capital and make basic repairs may increase health spending. An increase in the number of eligible people for state-funded health programs may also increase health spending. Contrary to this theoreticalexplanation, there is evidence in many developing countries that health spending has declined, but not permanently, during an economic crisis (Thomas et al., 2012; WHO, 2009).

One of the most common interventions to reduce public spending and control health spending in economic crises is the reduction of health budgets (Clemens et al., 2014). As a consequence of the 2008 economic crisis, many Eurozone countries have decreased their health budgets (Dubois and Molinuevo, 2014; HOPE (European Hospital and Healthcare Federation), 2011; KPGM (KPGM International Cooperative), 2012). In addition to the countries that have cut their health budgets, there are also countries that have increased their health budgets. Malta, Armenia, Albania, Georgia, Lithuania, Moldova, Macedonia, Kyrgyzstan, and Turkey are countries that have increased their health budgets (HOPE (European Hospital and Healthcare Federation), 2011; McKee, 2013; WHO, 2009).

In the event of an economic crisis, one of the short-term responses by policymakers to save money in health budgets comes from postponing or canceling capital investments (Clemens et al., 2014; WHO, 2009). During the economic crisis, some measures directly affect health professionals (HOPE (European Hospital and Healthcare Federation), 2011). Measures such as reducing the number of health personnel, freezing the recruitment of new health personnel or reducing the number of new personnel recruitment or reducing personnel wages or awards, and freezing wage increases emerge as applications that affect the health personnel directly (Clemens et al., 2014; De Belvis et al., 2012; Dubois and Molinuevo, 2014; Kondilis et al., 2013; Menabde, 2009; Mladovsky et al., 2012a, b; WHO, 2009).

1. Research Methodology

1.1 Study Design

To investigate the impact of economic crises on the health system, ARDL cointegration analysis will be applied. The stationary of the series lies at the basis of the cointegration analyzes, which is developed for the determination of long-run relationships between time series and variables. In this context, the ordinary least squares (OLS) technique can be used if all variables are stationary at the level values, i.e. I(0) (Ciftci and Yildiz, 2015). Nevertheless, macroeconomic time series data are generally stationary at their first difference, not in level values (Gujarati, 2004, 2011). Some cointegration techniques like Engle and Granger (1987), Johansen (1988), Phillips and Hansen (1990), and Johansen and Juselius (1990) can be used instead of the standard regression technique when all the variables to be used in econometric analysis are stationary at their first difference, i.e. I(1) (Ciftci and Yildiz, 2015; Erdogan and Bozkurt, 2008).

The ARDL bounds testing approach developed by Pesaran et al. (2001) does not require all the explanatory variables to be I(1), unlike the other cointegration techniques (Pesaran et al., 2001).
It is also stated that the ARDL bounds testing approach provides robust and efficient results in studies with few observations (Musgrove, 1997; Narayan and Smith, 2006; Narayan and Narayan, 2004; Wang, 2009; WHO, 2009). Moreover, since it includes error correction factors for previous years, analysis of error correction and delay difference terms can allow testing of both long and short-term relationships between variables. For this reason, the ARDL approach can be used within a set of variables, including economic crises (Wang, 2009). In the ARDL procedure, there are many studies that introduce the variables such as economic crisis and policy changes to the model as dummy variables, and investigate the impacts of these variables on the independent variable (Babych, 2011; Erdem et al., 2011; Oskanbayev et al., 2011; Salleh et al., 2007; Wang, 2009). The

introduction of economic crises as a dummy variable is usually done by assigning 1 for the years of crisis and 0 for other years (Salleh et al., 2007; Wang, 2009). Since the health effects of economic crises are often delayed (De Belvis et al., 2012; Dubois, and Molinuevo, 2014; Kim and Serra-Garcia, 2010; Lehto et al., 2012; Stuckler et al., 2011; Tangcharoensathien et al., 2000) and the lagged values of the variables are taken into account in the ARDL method, it is possible to reveal the impacts of the economic crises on health in a better way.

1.2 Data

The data of the study were obtained annually with a total of 42 observations between 1974 and 2015. These data are shown in Table 1. In addition to these data, three crisis dummy variables were added for the economic crises of 1994, 2001 and 2009. The coding of these variables was carried out by assigning 1 for negative years of GDP and 0 for other years.

Table 1. Data, Abbreviations and Data Source

Data	Abbreviation	Data Source
% of public health expenditures in total health expenditures	Public Health Expenditures	(OECD, 2016)
% of private health expenditures in total health expenditures	Private Health Expenditures	(OECD, 2016)
% of total health expenditures in GDP	Total Health Expenditures	(OECD, 2016)
Share of Ministry of Health budget in General Budget (%)	Ministry of Health Budget	BUMKO
Number of physicians		(TurkStat, 2016b)
Number of other health personnel		(TurkStat, 2016b)
Number of total health personnel		(TurkStat, 2016b)
Number of inpatient health institutions		(TurkStat, 2016b)
Total number of beds		(TurkStat, 2017)
Real GDP	RGDP	(World Bank, 2016)
Unemployment rate	UNEPM	(TurkStat, 2016a), (Bulutay,1995) (Turkey, 2014)
Inflation rate	INF	(World Bank, 2016)

1.3. Statistical Analysis

To perform the ARDL cointegration method, the EViews 9.5 statistical program was used. The ARDL method was carried out in four stages. First, unit root tests for time series were performed. The Augmented Dickey-Fuller (ADF) test was used for the unit root test (Ciftci, 2009; Tuncsiper and Bicen, 2013). Second, an Unrestricted Error Correction Model (UECM) was built, the model was estimated with the OLS technique, and the boundary test (Wald test) was performed. Then, it was decided whether there was a cointegration relation between the variables by comparing F-statistic value obtained from the Wald test with the upper and lower critical values derived by Pesaran et al. (2001) (Pesaran et al., 2001). Akaike information criterion is used to calculate the optimal lag length for each variable in the UECM. In the determination of the maximum lag length of the estimated model, the lag length at which no autocorrelation is found is taken into account. Whether autocorrelation is present or absent was determined by the Breusch-Godfrey LM test for autocorrelation. Due to the fact that the lagged values of the dependent variable are included in the model as explanatory variables, Breusch- Godfrey autocorrelation LM is used instead of the Durbin-Watson test statistic in investigating the autocorrelation problem. In addition, diagnostic tests of the selected model have been carried out. In this context, the Jarque-Berra test for normal distribution fit, the ARCH test for heteroskedasticity, and the Ramsey Reset test for the functional form misspecification were performed. Moreover, CUSUM and CUSUM-SQ tests were performed to determine the stability of the models.

In the third stage, the ARDL model was estimated to determine the long-term coefficients. At this stage, the Akaike information criterion was used to determine the maximum lag length. For the estimated model, the diagnostic tests, and CUSUM and CUSUM-SQ stability tests were again performed. In the fourth stage, the Error Correction Model (ECM) was created by using the ARDL model and this model was estimated with the OLS technique.

1.4. Limitations and Assumptions

It is accepted that the data obtained for our study is accurate. Real GDP, unemployment, and inflation rates have been used as independent (explanatory) variables in our study. There are many factors besides these variables that affect health system-related variables. In this context, it is assumed that the results of the estimation obtained from the related models in our research

are valid with other factors that are fixed (ceteris paribus). Also, in our research, the years when the real gross domestic product was negative were taken as indicators of an economic crisis. Another important limitation of our research is related to the number of observations. The data with 42 observations can be assumed as small when evaluated in the scope of the time series analysis.

2. Results

2.1. Unit root test results

The results of unit root tests are shown in Table 2 and are only given for the models which are used in the ARDL bound tests. By comparing the ADF unit test statistics with the critical values of MacKinnon (1996), it is observed that all the variables have the condition of not being stationary in their level values but being stationary in their first difference values.

Table 2. Unit root test results

Variables	Models	Level Values		First Difference Values	
		t	p	t	p
Inflation	Intercept	-0.88	0.7816	**-6.26*** **	0.0000
	Int. and Trend	-2.05	0.5540	**-6.53*** **	0.0000
	No Int. and Trend	-0.53	0.4802	**-6.32*** **	0.0000
Real GDP	Intercept	-0.39	0.9013	**-6.44*** **	0.0000
	Int. and Trend	-3.20	0.0983	**-6.35*** **	0.0000
	No Int. and Trend	6.21	1.0000	**-2.66*** **	0.0090
Unemployment	Intercept	-2.14	0.2273	**-5.50*** **	0.0000
	Intercept and Trend	-2. 40	0.3723	**-5.43*** **	0.000
	No Int. and Trend	0.40	0.7951	**-5.54*** **	0.0000
Public Health Expenditures	No Int. and Trend	1.092	0.925	**-1.679***	0.087
Private Health Expenditures	Intercept	-0.82	0.800	**-5.26*** **	0.000
Total Health Expenditures	Intercept	-0.82	0.801	**-6.82*** **	0.000
Ministry of Health Budget	Intercept and Trend	-2.70	0.238	**-7.22*** **	0.000
Number of Physicians	Intercept	-2.21	0.204	**-3.60****	0.010
Number of Other Health Personnel	Intercept	-0.23	0.925	**-4.46*** **	0.000
Number of Total Health Personnel	Intercept	-0.72	0.829	**-3.95*** **	0.003
Number of Inpatient Health Institutions	Intercept	0,21	0,970	**-5,25*** **	0,000
Total Number of Beds	Intercept	-0.68	0.837	**-7.02*** **	0.000

Note: * 10% significance level, ** 5% significance level, *** 1% significance level.

2.2. Unrestricted Error Correction Model Results (ARDL Bounds Testing)

The results of ARDL Bound tests are shown in the Table 3. According to test results, it is observed that the LNIHI model (number of inpatient health institutions) has cointegration at 10% level of significance, the LNPHYC model (physician number) and LMOHB (Ministry of

Health budget) have cointegration at 5% level of significance, the LPPBHETHE and LTHEGDP models have cointegration at 2.5% significance level, and the others have cointegration at 1% significance level. Note that, diagnostic tests including the Breusch- Godfrey autocorrelation LM test, Jarque-Berra normality test, ARCH test, Ramsey Reset test and, CUSUM and CUSUM-SQ stability tests were performed for all UECM models shown in Table 3. According to the results of diagnostic tests, there were no problems in the models except for the result of CUSUM-SQ for number of other health personnel. There was a small overflow in CUSUM-SQ of number of other health personnel. According to Yakisik and Cetin (2014)49, such small overflows do not disturb the stability of the model as long as they return to the confidence interval. In this context, it can be said that the coefficients belonging to the model are stable since the small overflow in the CUSUM-SQ graph of the estimated model returns to the confidence interval again.

Table 3 The Results of ARDL Bound Tests

Estimated ARDL Model	**k****	**F**	**p**	**R^2**	**A-R**	Pesaran, Shin & Smith (2001) Tables
Number of Physicians (2, 0)	1	4.74	0.008	0.35	0.17	Table CI(ii) *
Number of Other Health Personnel (1, 0)	1	5.95	0.002	0.35	0.21	
Number of Total Health Personnel (1, 0)	1	6.05	0.002	0.39	0.26	
Number of Inpatient Health Institutions (1, 0)	1	4.10	0.014	0.28	0.12	
Total Number of Beds (2, 4)	1	8.35	0.000	0.62	0.44	
Share of Ministry of Health budget in General Budget (%) (2, 4, 0, 0)	3	Nis.29	0.008	0.62	0.28	Table CI(iv) *
% of private health expenditures in total health expenditures (2, 2, 2, 0)	3	6.Oca	0.001	0.73	0.53	Table CI(ii) *
% of total health expenditures in GDP (2, 4, 4, 4)	3	4.Oca	0.02	0.82	0.47	
% of public health expenditures in total health expenditures (2, 4, 4, 2)	3	Nis.31	0.016	0.85	0.65	Table CI(i) *

* **Critical Values for:**

Table CI (ii): for 1%– the lower limit 4.94. – the upper limit 5.58; for 2.5%– the lower limit 4.18 and the upper limit 4.79; for 5%– the lower limit 3.62 and the upper limit 4,16; for 10%– the lower limit 3.02 and the upper limit 3.51.

Table CI (iv): for 1%– the lower limit 4.3 – the upper limit 5.23; for 2.5%– the lower limit 3,80 and the upper limit 4.68; for 5%– the lower limit 3.38 and the upper limit 4.23; for 10%– the lower limit 2.97 and the upper limit 3.74.

Table CI (ii): for 1%– the lower limit 3.65 – the upper limit 4.66; for 2.5%– the lower limit 3.15 and the upper limit 4.08; for 5%– the lower limit 2.79 and the upper limit 3.67; for 10%– the lower limit 2.37 and the upper limit 3.20.

CI (i): for 1%.– the lower limit 3.42 – the upper limit 4.84; for 2.5%– the lower limit 2.87 and the upper limit 4.16; for 5%.– the lower limit 2.45 and the upper limit 3.63; for 10% – the lower limit 2.01 and the upper limit 3.10.

2.2.1. The Results of ARDL Error Correction Models

In Table 4, the results of the ARDL error correction model are shown and are only given for estimation results of the short-term coefficients for the economic crisis variables, although both long-term and short-term estimations are done.

Table 4. Results of ARDL Error Correction Models

ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**		
(1, 4, 3, 3)	Coefficient	0.144	-0.667	0.389	-0.15		
Ind. Var.: ΔL Public Health	t	0.827	-3.020***	2.331**	-3.587***		
Expenditure	p	0.418	0.007	0.03	0.002		
ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**	**C**	
(2, 2, 0, 2)	Coefficient	-0.156	-0.135	-0.555	-0.618	31.933	
Ind. Var.: ΔL Private Health	t	-1.925	-1.678	-5.628***	-4.756**	2.113***	
Expenditure	p	0.065	0.105	0.000	0.000	0.000	
ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**	**C**	
(2, 5, 5, 5)	Coefficient	-0.039	-0.276	-0.272	-0.238	-27.639	
Ind. Var.: ΔL Total Health	t	-0.626	-3.965***	-4.402***	-6.979***	-2.213**	
Expenditure	p	0.542	0.002	0.001	0.000	0.045	
ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**	**C**	**Trend**
(1, 0, 4, 4)	Coefficient	0.151	0.296	0.152	-71.931	-0.756	-0.154
Ind. Var.: ΔL Ministry of	t	1.102	2.113**	1.143	-4.931***	-4.926***	-1.969*
Health Budget	p	0.283	0.047	0.266	0.000	0.000	0.062
ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**	**C**	
(2, 0)	Coefficient	0.022	0.014	0.008	-0.04	-7.46	
Ind. Var.: ΔL Number of	t	1.777	1.181	0.619	-3.960***	-0.642	
Physicians	p	0.085	0.246	0.54	0.000	0.525	
ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**	**C**	
(2, 0)	Coefficient	-0.038	0.01	-0.018	-0.204	-21.261	
Ind. Var.: ΔL Number of	t	-2.081**	0.576	-0.999	-5.010***	-16.220***	
Other Health Personnel	p	0.045	0.569	0.325	0.000	0.000	
ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**	**C**	
(2, 0)	Coefficient	-0.016	0.013	-0.009	-0.156	-18.726	
Ind. Var.: ΔL Number of	t	-1.292	1.043	-0.743	-4.997***	-15.673***	
Total Health Personnel	p	0.205	0.305	0.463	0.000	0.000	
ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**	**C**	
(1, 0)	Coefficient	-0.001	0.033	0.003	-0.24	-7.657	
Ind. Var.: ΔL Number of	t	-0.035	0.991	0.086	-3.500***	-3.983***	
Inpatient Health Institutions	p	0.972	0.328	0.932	0.001	0.000	
ARDL Model:	**Variables**	**ΔD_1994**	**ΔD_2001**	**ΔD_2009**	**ECM(-1)**	**C**	
(3, 5)	Coefficient	-0.002	-0.124	-0.027	-1.508	-2.707	
Ind. Var.: ΔL Total Number	t	-0.12	-3.400***	-1.225	-5.951***	-33.508***	
of Beds	p	0.904	0.002	0.232	0.000	0.000	

Note: In ΔL, Δ refers to differencing term and L refers to logarithmic values of variables. It should also be noted that diagnostic tests of the models (Breusch-Godfrey LM test for autocorrelation, Jarque-Berra normality test and Ramsey Reset test) were conducted and there were no problem in the models regarding diagnostic tests.

According to the ECM results shown in Table 4, it is observed that all the coefficients of ECM(-1) are negative and statistically significant as expected. These coefficients are interpreted as the following examples:

- For the public health expenditure, it can be said that 15% of the deviations in the long-term equilibrium of the system after the shocks that can occur in the short-term period in the system after the error correction model coefficient (-0.15) will be eliminated.

- The coefficient of the error correction model for the total number of beds is found to be -1,508. As stated by Narayan and Smyth (2006), when the coefficient is greater than 1, the system will balance by fluctuating, and this fluctuation will decrease every time and return to the balance in the long term.

According to the error correction model results shown in Table 4, for the percentage of public health expenditures in total health expenditures, it was found that the coefficient for the 1994 economic crisis was not statistically significant (p= 0.418). In contrast, the 2001 economic crisis had negatively (-0,667) and statistically significantly (p = 0.007) affected the public health expenditures. The effect of the 2009 economic crisis was positively (0.389) and statistically significant (p=0.030) on the public health expenditures. When the effects of economic crises on the share of private health expenditures in total health expenditures are examined, it is observed that the economic crises of 1994, 2001 and 2009 have a negative effect on the private health expenditures. However, only the effect of the 2009 economic crisis (-0.555) was statistically significant (p=0,000), while the others had no significant effect (p>0.05). When the effects of economic crises on the share of total health expenditures in GDP are examined, it is observed that the coefficients of the 1994, 2001 and 2009 economic crises were negative. However, the negative effects of the 2001 and 2009 economic crises were statistically significant (p= 0.000).

The results in Table 4 show that the economic crises of 1994, 2001 and 2009 did not significantly affect the number of physicians (p>0,05). On the other hand, it was found that the 1994 economic crisis significantly (p=0,045) negatively (-0,03) affected the number of other health personnel. But, the 2009 economic crisis had no significant effect on the number of other health personnel (p>0.05). For the total number of health personnel, it is observed that the economic crisis has no significant effect (p>0.05).

Although the coefficient of the 1994 crisis is negative and the coefficients of the 2001 and 2009 economic crises are positive, there are no significant effects of these crises on the number of inpatient health institutions (p>0,05). It is also detected that only the 2001 crisis had a significant effect on the total number of beds (p<0,05), although the coefficients of the 1994, 2001 and 2009 crises are negative.

3. Discussions

In this study, it was found that the percentage of public health expenditures in total health expenditures have reduced significantly in the 2001 economic crisis, while it increased in the 2009 economic crisis. It is argued that the reason of the negative effect of the 2001 economic crisis may have been due to people delaying the health care use. On the other hand, it is argued that the increase after the 2009 economic crisis may be directly related to political choice. This is because the policies play an important role in the increase or decrease of public health expenditures during crisis periods. Especially with the Health Transformation Program, the government has adopted making health services more accessible as one of its priority policy areas. As a result of the initiatives made in this context, the government introduced universal health insurance in 2006 in line with its policy of making health services more accessible, and this practice entered into force in 2008. The government's making health services more accessible may also be a factor in the increase in health expenditures, not being affected by the 2009 crisis.

This study shows that only the 2009 economic crisis significantly reduced the share of private health expenditures in total health spending, while the others have had no significant effect. It is evaluated that the private health expenditures may be influenced directly by the increasing number of people eligible for public health programs during crises.

For the share of total health expenditures in real GDP, it is possible to say that the 2001 and 2009 economic crises significantly reduced the total health expenditures. In the 2001 economic crisis, which is more severe in terms of the negative growth in real GDP, it is considered that political choice plays an important factor in the significant reduction of both public health expenditures and total health expenditures. On the other hand, for the 2009 economic crisis, the decline in private health spending may be the reason for decrease of the share of total health expenditures in real GDP.

The results of estimates show that the 1994, 2001 and 2009 economic crises had an increasing effect on the budget of the Ministry of Health, but only the 2001 economic crisis was significant. Therefore, it can be said that political preferences in times of economic crisis in Turkey actualized as increases in the budget to protect the public from potential adverse effects of economic crises.

In this study, it was found that the number of physicians has not been affected by the economic crises. Considering the fact that an examination of physician recruitment is usually not carried

out and physician recruitment is made according to the chart of personnel distribution in Turkey, and even taking into consideration the work carried out by the physicians from abroad, the number of physicians is considered to have developed independently from the economic crises in Turkey. On the other hand, it is evaluated that the significantly reducing effect of the 1994 economic crisis on the number of other health personnel reflects the political choice.

This study shows that the 1994, 2001 and 2009 economic crises have no significant effect on the number of inpatient health institutions. Construction of health institutions is a high capital investment. In this context, it is difficult for the economic crises to have significant decreasing effects on the number of inpatient health institutions unless they are very severe and long. From these results, it is possible to say that during the economic crisis in 2001, Turkey reduced the total number of beds. This result is thought to be because the 2001 economic crisis was relatively more severe than the others were.

4. Conclusions and Suggestions

The main aim of this study was to evaluate the impact of the economic crises on the health system in Turkey. In this context, the impact of the 1994, 2001 and 2009 economic crises on 9 indicators related to the health system in Turkey was investigated through the ARDL Cointegration approach.

As a result of the analyses made, in terms of the impacts of the economic crises on the health system in Turkey, it was found that the 1994 economic crisis affected 3 of the 9 indicators significantly ($p<0.05$) in a negative way, namely, total health expenditures, total number of health personnel, and total number of beds. In addition, the 1994 economic crisis was observed to not have had a significant positive effect on any variable ($p>0.05$). The 2001 economic crisis was found to have a significant negative effect on 3 out of 9 variables; public health expenditures, total health expenditures and total number of beds. On the other hand, it was found that the 2001 economic crisis affected only one variable significantly positive, which was the budget of the Ministry of Health. For the 2009 economic crisis, private and total health expenditures decreased significantly ($p<0,05$), while public health expenditures increased significantly ($p<0.05$).

It can be concluded from the results of this study that while private health expenditures generally decreased during the 1994, 2001 and 2009 economic crises in Turkey, public health expenditures increased during the 1994 and 2009 economic crises and decreased during the 2001 economic crisis. Therefore, it can be concluded that private health expenditures tend to

decrease during crisis periods. Furthermore, it can be said that political preference during the crisis period has been developed to increase the budget of the Ministry of Health in Turkey in order to protect public health from possible adverse effects of crisis.

This study shows that the results obtained here are positive for the number of physicians, but uncertain in terms of the number of other health personnel in case of an economic crisis in Turkey. For this reason, politicians need to give some importance to the employment of other health personnel. Since the health sector is a labor-intensive sector, it is going to be difficult to meet the increasing number of health service demands in terms of quality and quantity during the crisis period. In this case, crises are increasingly likely to have a negative impact on health. In the study, we conclude that economic crises will not have a decreasing effect on the number of inpatient health institutions and the number of beds unless they are very severe and long.

Conclusively, in this study, it has been found that economic crises have both negative and positive impacts on the health system in Turkey, and political choice plays an important factor in the impact of economic crisis on the health system. On the other hand, the positive effects of economic crises on the health system in Turkey should not be perceived as a positive phenomenon for economic crises. It should be emphasized that factors that enable economic crises to have a positive impact on the health system, how these factors are maintained at a time when the economy is good, and how to prevent the possible negative effects of economic growth periods on the health system are determined.

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THE INVESTIGATION OF THE CONSUMERS' TOURISM PREFERENCES IN THE COVID-19 PANDEMIC*

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Abstract

Aim: The new coronavirus (COVID-19) which is rapidly spreading and affecting the whole world, has had significant effects on consumer behavior as in almost every society and industry. Especially, it is expected the fact that the global panic that occurs during the pandemic will impact the tourism sector in this process,

* The study was presented as a verbal, summary report with the title of " The Effect of COVID-19 on the Tourism Preferences of Consumers" at the Congress named "5th International EMI Entrepreneurship Social Sciences Congress (29.06.2020-30.06.2020).

change the holiday tourism preferences of the consumers, that consumers will be more selective. The study aims to determine the impact of the COVID-19 pandemic on tourism preferences of the consumers.

Methods: Within the scope of the research, 403 people were reached with the online survey application and the data were analyzed with the Jamovi (version 1.2.12.0) statistical program.

Findings: In the correlation analysis, it was found that there are significant relationships between expressions. The items with the highest relationship are "Infirmary and Medical Services (Doctor) at the Facility" and "Hospitals and Other Medical Institutions in the Region Where the Facility is Located." (r= .764); “Health Precautions Taken for Pandemic in the Facility/Area” and “Cleaning and Hygiene of the Facility” (r= .523).

Conclusion: According to the results, the participants think that cleaning/hygiene and health precautions in the facility/area are more important than entertainment and activities in holiday preferences during the COVID-19 pandemic.

Keywords: COVID-19, Pandemic, Consumer Behavior, Consumers’ Tourism Preferences

Introduction

The change that is a part of our lives and takes place unpredictably, shows its effect on consumer behavior as in every field. The attitudes that arise with the internal and external factors used by the consumer when making a purchase decision against goods and services constitute the behavior of the consumers. Therefore, it is not only enough to consider the current needs and wishes of the consumers, but also the likely needs and requests that may arise should also be predicted (Muter, 2002). Thus, it is more difficult to perform this nowadays, when production and consumption experience stagnation like never. This stagnation process started with the detection of a new coronavirus infection called COVID-19 (Corona Virus Disease 2019) in patients presenting with an unexplained pneumonia outbreak in Wuhan, China in December 2019 (Huang et al., 2020; Fang et al., 2020). It can be said that the tourism sector is of the sector most affected by the COVID-19 epidemic, which has shaken many sectors and the world economy. As a matter of fact that, the World Travel and Tourism Council showed the seriousness of the situation by saying that 50 million jobs serving in the travel and tourism sector may be at risk (Kumar, 2020). Similarly, it was observed that it affects the tourism sector negatively in previous outbreaks (Pine and McKercher, 2004; Zeng et al. 2005). The principal reason for this risk is the change in the tourism

preferences of the consumers with the pandemic. There are several factors that people take into consideration when their intentions to have a vacation arise. According to their economic situation, the popularity of the area that they will holiday in, the charm, the price of the hotel, the quality/comfort of the property, animation shows, night entertainment, children's activities for families, and the richness of the facility's kitchen are some of the factors they consider. As a matter of fact, along with the contagious feature of the pandemic, the holiday preferences, and the features they seek during their vacation will also change in line with the changing needs and expectations of individuals. It is expected that individuals used to living with the isolation rules for a long time also take into consideration the crowded place of the holiday place in their holiday preferences, and because of the importance of hygiene rules is known since the first day of the virus, individuals are expected to take more precautions against hygiene and health.

1. Literature

1.1. Consumer Behavior

Consumer behavior, which is one of the primary topics of marketing, has become a new and significant important behavioral science that has entered our lives with the development of modern economies and technology. While this branch of science, at first at the macro level examines the sociological and economic status of the consumer, today in addition to these, it examines special topics such as psychology, organizational behavior, economics, and statistics (Durukan, 2006). Consumer behavior has been defined as an area that explores how individuals, groups, and organizations select, Purchase, and use goods, services, experiences, or products to meet their needs and desires (Kotler, 2000). According to another definition, "the person's decisions and purchasing activities principally in economic products and services." defined as (Türk, 2004).

1.2. Consumer Purchase Process

Although there is a general agreement that consumer behavior refers to the act of purchasing a particular product or service, this is not the only stage that draws the attention of disciplines interested in consumer psychology (Ajzen, 2014). The purchasing process of the consumer is defined by a five-stage model. These stages, which are not under the control of businesses, but they are effective in consumer behavior, are factors that should be taken into account during the organization of marketing studies (Keskin and Baş, 2015) and benefit from a marketer's

understanding of the buyer's behavior at every stage and what effects are dominant (Kotler, 2000). These factors are:

a. The Emergence of Need (Awareness / Problem Recognition): Problem recognition is the first stage of the consumer decision process. The need arises when the consumer thinks that there are some differences between their situation and their desired or ideal state (Bakshi, 2012). At this stage, the need can be triggered by internal stimuli (such as hunger) or external stimuli (such as advertising awareness) (Kotler, 2002).

b. Determining Alternatives (Gathering Information): A consumer that is in need will tend to obtain more information. At this stage, the person will be actively seeking information by browsing the internet, visiting shops, talking to family, friends, and neighbors (Kotler, 2000). In this factor, word-of-mouth marketing and information exchange is very important. The impact of word-of-mouth marketing has increased even more, with communication being easy and fast via social media (Erdoğan Tarakçı and Göktaş, 2020b)

c. Evaluation of Alternatives: The consumer, who intends to meet a need, sees each product as a variety of features with distinct qualities to meet this need. Since many successful marketers know that they are looking for features that will meet the needs of consumers, they divide their markets according to distinct consumer groups and uncommon features (Kotler, 2000).

d. Purchase Decision: There are four types of purchase decisions (Keskin and Baş, 2015):

- *Planned purchasing behavior being specific:* It is the purpose of the consumer to make the purchase in a planned manner with the specific brand and product, without going to the store or examining other available opportunities.
- *Planned purchasing behavior being general:* It is the purchasing behavior that the consumer determines the product group before going to the store but does not determine the brand and the product features.
- *Purchasing behavior being substitution:* It is the purchase of a product or brand that can replace the general or specially planned product or brand with the properties of the product.
- *Unscheduled purchasing behavior*: It is the purchasing behavior that the consumer does not intend to buy consciously while entering the store, but that he/ she is affected by in-store stimulants.

e. Post-Purchase Behavior*:* At this stage, which constitutes the last stage of the purchasing process, consumers will experience certain levels of satisfaction or dissatisfaction. Therefore, the

marketer should especially monitor post-purchase satisfaction status, post-purchase actions, and post-purchase product uses (Kotler, 2000).

That consumer behavior is constantly changing and people have different expectations and preferences makes it difficult to reflect and follow consumer behavior in a standard pattern.

1.3. Tourism Preferences of Consumers

Despite the increasing consumer base, tourism enterprises have entered a hard race with the increase of competition and technological developments. It is significant to understand consumer behavior and thus to offer tourism products in line with the wishes of the consumers and to be ahead in this hard race (Demir and Kozak, 2011).

When looking at the factors affecting the tourist to buy a certain tourism product, there are motivation tools that encourage the tourist to want to buy a particular product and there are determining factors the extent to which the tourists can buy the product they want. Personality, lifestyle, experiences, how they want to be perceived by others are the main motivational factors. Although every tourist and the factors that motivate them are different, the motivation tools of individuals change within the framework of conditions such as income change, deterioration of health status, and having children. The determining factors are the factors that determine the extent to which tourists can buy the product they want and include the destination point of the trip, how to make the trip, the duration of the trip, the accommodation type when to make the trip (Horner and Swarbrokee, 2007). In other words, economic factors (income of individuals and the price of the holiday they want to make), social factors (personal characteristics, time constraints, lack of information, education, profession, and settlement unit) and psychological factors (learning, perception, attitude, and belief) in determining the tourism preferences of consumers play an active role (Demirhan, 1999).

1.4. Effects of COVID-19 on Tourism

COVID-19 was first announced in Wuhan, China at the end of December 2019, and was adopted as a new coronavirus in January 2020 (Kumar, 2020). The virus, which started on 12 December 2019, caused 11,327,790 cases, which resulted in 532,340 deaths worldwide until 6 July 2020. In Turkey, the first case was seen on March 11, 2020, and so far has caused 205,758 laboratory-approved cases, resulting in 5,225 deaths (WHO, 2020).

Large-scale quarantines travel restrictions, and social distance rules applied throughout the COVID-19 pandemic, which is rapidly spreading all over the world, cause a sharp decline in consumption and production, thereby creating significant effects on economic development (Bakar and Rosbi, 2020). Indeed, in many countries, it has led to the closure of international and internal borders, and the tourism industry has been affected to an unprecedented extent outside of wartime (Prideaux et al. 2020) and it has been one of the sectors worst affected by pandemic (Nicola et al. 2020). It is expected that the profitability will decrease and the prices will increase since the tourism regions work far below the maximum occupancy rate with the applications that reduce the capacity due to social distance (Assaf and Scuderi, 2020).

With the pandemic, the above-mentioned consumers' tourism preferences are expected to gain a different dimension. It is foreseen that consumers will primarily consider hygiene conditions, crowded state of the facility, way of serving food, hospitals, and other medical institutions in the region where the facility is located, infirmary, and medical services (physician) in the facility.

As a matter of fact, the perception of consumers can be changed with the strategies to be implemented in this process. Reducing the occupancy rate of the facility, providing food needs with room service rather than crowded areas, limiting the activities offered for the guests to the activities carried out only in open-air environments, maybe a few of the strategies to be applied to change the perception of the consumers in this process (Assaf and Scuderi, 2020).

This study was carried out to examine the change in the tourism preferences and consumption behaviors of the consumers because of the COVID-19 pandemic, thus contributing to tourism businesses by providing ideas.

2. Research Methodology

2.1. The Universe and the Sample of the Research

The universe of the study is composed of people included in the population of Turkey. Since the universe contains many people, it is impossible to reach the entire universe due to reasons such as cost and time limit, so it was preferred a sample from the universe. When analyzed the literature, it is seen that a sample of 384 people represents a population between 1,000,000-100,000,000 people with a %95 confidence interval and % 5 error margin (Yazıcıoğlu and Erdoğan 2004).

2.2. Limitations of the Study

Since the study is prepared and distributed online, people who do not use the internet and cannot reach the web link of the google forms are among the limitations of the research. Also, the study is limited to the date of 10.06.22020 to 23.06.2020.

2.3. Data Collection

To collect data related to the study, the survey method was used. The questionnaire used consists of two parts. In the first part, there are 20 questions and items to determine both the personal and professional characteristics and tourism preferences of the participants. In the second part, there is a scale about which factors are important in participants' holiday preferences during the COVID-19 pandemic, and that developed by researchers, comprising 13 items and prepared in a 5-point Likert type (1 = Does not matter, 5 = Very important).

The questionnaire was sent to one academician and one tourism marketer who were experts in the field before the final form was given, and after some statements were removed and some statements were corrected, the scale became final. The data collection tool that created was delivered to the participants using the online survey method (Google Forms) and filled in by the participants. The total number of participants surveyed is 403.

2.4. Analysis of Data

Jamovi program (version 1.2.12.0) were used in the analysis of data. Firstly, it was analyzed socio-demographic characteristics of the participants and secondly, frequency of shopping, the shopping environment, pre-cautions of COVID-19, health expenditures, instruments used in hotel reservation, and holiday planning for this summer of them in COVID-19 pandemic process.

The normality test were used to determine whether the data show normal distribution. The relationship between items was analyzed by the Spearman correlation test.

3. Analysis

Table 1. Socio-Demographic Characteristics of the Participants

Age	***n***	***%***	***Gender***	***n***	***%***
18-24	156	38,7	Female	278	69,0
25-34	151	37,5	Male	125	31,0
35-44	61	15,1	***Marital status***	***n***	***%***
45-54	27	6,7	Married	140	34,7
55-64	6	1,5	Single	263	65,3

65 +	2	,5	***The Status of Your Home***	***n***	***%***
Education	***n***	***%***	Rent	126	31,3
Primary-middle school	9	2,2	Housing	10	2,5
High school	25	6,2	Self-house	118	29,3
Undergraduate	47	11,7	Family house	144	35,7
Bachelor	212	52,6	Other	5	1,2
Master/doctorate	110	27,3	***Number of Households***	***n***	***%***
Occupation/Working status	***n***	***%***	1	18	4,5
Student	171	42,4	2	50	12,4
Worker	33	8,2	3	85	21,1
Manager	27	6,7	4	122	30,3
Officer	71	17,6	5	69	17,1
Tradesman	7	1,7	6	29	7,2
Academician	22	5,5	7 +	18	7,4
Housekeeper	12	3,0	***Individual monthly income (TL)***	***n***	***%***
Teacher	11	2,7	1-1000	120	29,8
Retired	7	1,7	1001-2000	30	7,4
Architect-Engineer	10	2,5	2001-3000	65	16,1
Unemployed-Not working	7	1,7	3001-4000	48	11,9
Others	25	6,2	4001 +	140	34,7

TL=Turkish Lira

As seen socio-demographic characteristics of the participants;

The rate of young people is rather high (76.2%). Female participants are higher than male. Those who bachelor degree are more than half of the participants. The proportion of students in the occupation/ working situation is quite high among others. The rate of female participants is higher than that of men, and the rate of singles is higher than married people (Table 1).

Table 2. Frequency of Shopping Before and With the COVID-19 Pandemic

How often did you shop online?	**before the COVID-19 pandemic**		**with the COVID-19 pandemic**	
	N	%	N	%
More than 4 times a month	22	5,5	75	18,6
2-3 times a month	63	15,6	111	27,5
Once a month	80	19,9	87	21,6
1 or less in 2-3 months	191	47,4	83	20,6
Never	47	11,7	47	11,7

The rate of those who shop more than 4 times a month before the COVID-19 raise about 13% with the COVID-19 pandemic. Those who shop 2-3 times a month before the COVID-19 raise about 12% with the COVID-19. Those who shop once a month before the COVID-19 raise about 2% with the COVID-19. But the rate of those who shop 1 or less in 2-3 months before the COVID-19 has decreased about 27% with the COVID-19 pandemic. It has shown that people tend to shop online. We can say that online shopping is the most popular method for shopping (Table 2).

Table 3. The shopping environment

Do you shop more in the virtual market or in the real environment?	n	%
Virtual	79	19,6
Real	324	80,4

The participants think real shopping in the COVID-19 process (Table 3).

Table 4. Pre-cautions of COVID-19

I find …….. measures taken in the COVID-19 pandemic process.	n	%
Totally enough	36	8,9
Enough	111	27,5
Partly Enough	189	46,9
Insufficient	52	12,9
Totally inadequate	15	3,7

About half of the participants think that measures taken in the COVID-19 pandemic process are partly enough. Those who totally enough are higher than totally inadequate (Table 4).

Table 5. Health expenditures in the COVID-19 process

Did your health expenditures increase in the COVID-19 pandemic process?	n	%
Yes	235	58,3
No	168	41,7

More than half of the participants (58.3%) think there is an increase in health expenditures (Table 5).

Table 6. Instruments used in hotel reservation

Where do you make your holiday reservations?	n	%
1. Going to the tourism agency	**44**	**10,9**
1, 2, 3, 4	1	,2
1, 2, 4	1	,2
1, 3	2	,5
1, 4	5	1,2
2. By calling the hotel itself	**107**	**26,6**
2, 3	6	1,5
2, 3, 4	3	,7
2, 4	9	2,2
3. From the hotel website	**42**	**10,4**
3, 4	6	1,5
4. Via the Internet (like tatilsepeti ..)	**177**	**43,9**
Total	403	100,0

1. Going to the tourism agency; **2.** By calling the hotel itself; **3.** From the hotel website; **4.** Via the Internet (like tatilsepeti ..)

The participants mostly use via the Internet (like tatilsepeti ..) in hotel reservation (Table 6).

Table 7. Holiday planning for this summer

Are you planning to go on holiday this summer?	n	%
Yes	70	17,4
No	333	82,6
If you do not plan to go on vacation, for what reasons do you not think?	N	%
1. Because of the pandemic	166	0.50
1, 2	61	0.18
1, 2, 3	3	0.01
1, 3	5	0.02
1, 4	1	0.00
2. Because of the economic reasons	83	0.25
2, 3	3	0.01
3. Since I cannot get permission from the workplace	4	0.01
4. Other	7	0.02
Total	333	100,0

1. Because of the pandemic; **2.** Because of the economic reasons; **3.** Since I cannot get permission from the workplace; **4.** Other

The vast majority of the participants (82.6%) do not plan to go on holiday this summer. The half of them do not think to go on vacation because of the pandemic. The quarter of whom do not think to go on vacation because of the economic reasons (Table 7).

Table 8. Descriptive Statistics and Normality Test for the Scale

The Factors that are Important in Participants' Holiday Preferences During the COVID-19 Pandemic	**Mean**	**sd**	**Shapiro-Wilk**
13. Cleaning and Hygiene of the Facility	4,84	0,503	,000
5. Health Precautions Taken for Pandemic in the Facility/Area	4,74	0,624	,000
4. Being that holiday destination is crowded	4,45	0,828	,000
2. Comfort/quality of facility	4,35	0,743	,000
11. Infirmary and Medical Services (Doctor) at the Facility	4,3	0,915	,000
12. Hospitals and Other Medical Institutions in the Region Where the Facility Is Located	4,28	0,864	,000
1. Price	4,11	0,887	,000
3. Attraction of holiday destination	4,07	0,858	,000
9. The Richness of the Kitchen	4,01	0,992	,000
10. Wellness services	3,4	1,226	,000
6. Activities for Children	3,15	1,522	,000
8. Night Entertainment	2,54	1,355	,000
7. Animation Shows	2,48	1,297	,000

Seen to all items cleaning and hygiene of the facility is high score ($\bar{x}$=4.84). Animation Shows is low score ($\bar{x}$=2.48). According to the descriptive results, the participants think that

cleaning/hygiene and health precautions in the facility/area are more important than entertainment and activities in holiday preferences during the COVID-19 pandemic (Table 8).

Table 9. The Correlation Analysis among the Scale Items

The Factors that are Important in Participants' Holiday Preferences		1	2	3	4	5	6	7	8	9	10	11	12	13
1. Price	r	-	.144**	.130**	.186**	.176**	.046	-.020	-.038	.095	.054	.057	.111*	.119*
2. Comfort/quality of the facility	r		-	.391**	.369**	.383**	.232**	.097	.014	.387**	.164**	.272**	.277**	.359**
3. Attraction of holiday destination	r			-	.228**	.166**	.103*	.085	.106*	.311**	.097	.147**	.180**	.199**
4. Being that holiday destination is crowded	r				-	.407**	.133**	.004	-.065	.167**	.096	.256**	.314**	.348**
5. Health Precautions Taken for Pandemic in the Facility/Area	r					-	.180**	.091	.069	.323**	.253**	.428**	.374**	.523**
6. Activities for Children	r						-	.519**	.117*	.300**	.241**	.329**	.317**	.193**
7. Animation Shows	r							-	.437**	.329**	.251**	.185**	.179**	.091
8. Night Entertainment	r								-	.300**	.238**	.157**	.103*	.048
9. The Richness of the Kitchen	r									-	.374**	.334**	.277**	.312**
10. Wellness services	r										-	.359**	.265**	.192**
11. Infirmary and Medical Services (Doctor) at the Facility	r											-	.764**	.378**
12. Hospitals and Other Medical Institutions in the Region Where the Facility is Located	r												-	.370**
13. Cleaning and Hygiene of the Facility	r													-

Correlation is significant at the 0.01 level (2-tailed).**
Correlation is significant at the 0.05 level (2-tailed).* n= 403

The strength of the relationship between the items in the scale is given in Table 9. According to this; 0-20 is too low; low from 21 to 40; medium 41-60; high from 61 to 80 and very high between 81-100.

When looking at the correlation between expressions, it was found that there is a relationship between expressions. The items with the highest relationship are "Infirmary and Medical Services (Doctor) at the Facility" and "Hospitals and Other Medical Institutions in the Region Where the Facility is Located." (r= .764). This is followed by “Health Precautions Taken for Pandemic in the Facility/Area” and “Cleaning and Hygiene of the Facility” (r= .523) (Table 9).

4. Conclusion and Recommendations

Because of its dynamic nature, consumer behavior constantly changes depending on environmental changes. Especially the changes that affect the life and lifestyles of the society completely transform the buying habits and consumption preferences of the consumers. The pandemic process, which has experienced internationally has deeply influenced all societies around the world. Consumer behaviors have changed with the development of awareness of consumers in the field of health as individuals of society.

In a study conducted to owners in the travel industry in Montana, the majority of respondents said that this will be a long and slow recovery, and if so continues, their business will be able to not withstand for over six months. In case of business reopening, new cleaning practices, working hours adjusted to keep employees and customers safe are among the innovations to be introduced (Hartman and Nickerson, 2020).

Today, family structures have changed because women are more involved in business life, business complexity on the one hand and the speed of urban life on the other hand, and time has become the most important factor for reasons such as crowding of cities and traffic problems. Because of all these changes, consumption habits have changed, physical stores have been replaced by virtual stores and the online shopping culture has developed. Online shopping habit, which is becoming more and more popular in the new digital age, which is constantly digitalized by globalization and technological developments, has become more widespread in the pandemic process and has become a must in some product groups.

As can be seen from the data of the study, the online shopping rates have increased to a large extent in the pandemic process. In addition to online shopping, the percentage of shoppers that shop 2-3 times a month or more has increased by 25% and the rate of shoppers that shop once a month is 2%, while the 27% decrease in the number of shoppers that shop once in 2-3 months indicates that the frequency of shopping is greatly increased. Although measures are taken during the pandemic process, curfews and warnings encouraged consumers to make their purchases through online channels, the increase in the total amount of shopping reveals that consumption habits also changed in this process.

On the other hand, when consumers were asked whether they prefer virtual stores or physical stores, 80.4% of consumers stated that they prefer physical stores to virtual stores. The reasons for this may be that the consumers are not yet experienced in online shopping or they cannot give up their old habits, on the other hand, they may also have problems in shipping processes, lack of

visual content of the web pages, trust or failure to send the products in the desired way. At this point, it will be appropriate for brands to constantly update their web pages, ensure the security of personal data of consumers and try to catch the effectiveness of face-to-face communication by communicating more strongly with consumers in this process.

The precautions taken during the pandemic process are found to be partially sufficient by almost half of the participants, but the number of those who find it completely sufficient is more than the number of those who find it insufficient. This demonstrates that the process is managed correctly in the eyes of consumers. Since the lack of uncertainty and confidence will cause consumers to limit their spending in this direction, considering the process to be managed well has economically positive results, preventing the consumption restrictions and chaos environment.

The pandemic process also led to the development of awareness in the field of health. In this process, while 58.3% of consumers discarded health expenditures to a large extent, it remained stable in 41.7%. In addition to preventive measures such as disinfectant, mask, disposable gloves, it has been observed that immune-strengthening vitamins and food supplements are highly preferred and started to be consumed. The increase in these product groups reveals that the awareness of the consumers about health has developed and they have started to make purchasing decisions accordingly.

When consumers were asked whether they made a vacation plan during the summer months when the pandemic continued, 82.6% stated that they would not go and 17.4% stated that they would go on vacation. While the pandemic continues with a rate of 50% in the first place among the reasons for not going on vacation, economic reasons come in the second place with a rate of 25%. Especially when it is evaluated in terms of health tourism, planning of vacation plans to be realized in camp, chalet or rural areas is a new opportunity to be evaluated in terms of health tourism. Considering the well-being awareness of the consumers and the social distance rules required by the pandemic, it can be said that camping, villas, or VIP accommodation type facilities that can be intertwined with nature and where there will be no contact with other people can turn this process into an advantage. Since the rate of those who state that they will not go on vacation for economic reasons is too high to be ignored (25%), the mentioned holiday alternatives, which can be considered as a luxury before the pandemic, should be diversified by taking into account the lower-income groups and make them accessible for lower-income groups. This will benefit both in terms of social responsibility, the mental health of the society, and total tourism revenues.

43.9% of the participants stated that they make their hotel reservations through holiday booking sites on the internet. 26.6% stated that they made a reservation by calling the hotel. On the other hand, the rate of those who book through the hotel's website is 10.4%. The increase in online shopping, especially in the pandemic process, shows that the internet has started to take an important place in the shopping of consumers. With the holiday reservation sites, it has become easier for consumers to plan their vacations, make reservations and get information with the fact that information can be easily shared on the internet (Erdoğan Tarakçı and Göktaş, 2020b). Therefore, it would be appropriate for hotel operators and online holiday reservation sites to enrich the visual content of their websites, focus on advertising and promotion activities through their web pages, provide more effective communication and online support opportunities with their customers through corporate websites, social media, and other communication channels and offer personalized product alternatives to create a competitive advantage.

In the pandemic process, the cleaning and hygiene of the facility come to the fore as the most important determinant factor in vacation preferences. This is followed by a small margin, the measures taken by the facility for the pandemic, whether the holiday area is crowded, or the comfort/quality of the facility. Night entertainment and animation shows are the least important elements. Correlation analysis also shows similar results. The infirmary and the medical services provided at the facility, as well as the presence of the hospitals and health institutions in the region where the facility is located, were identified as the factors with the strongest relationship. This is followed by the measures taken for pandemic at the facility and the cleaning and hygiene of the facility.

In the light of the data obtained from the study, it can be said that the awareness of the consumers about health increased in the pandemic process, this reshaped the consumption habits and affected the purchasing decisions. Especially in countries such as Turkey that have a very advantageous location and opportunities in terms of health tourism, it is very important to take this awareness into consideration to diversify their services, to make many services that was considered luxurious in previous periods more accessible and also to develop facilities and tourism alternatives for consumers who are outside the high income group.

According to the data of previous studies, the use of the internet is increasing day by day (Yavuz, 2019), and considering that online shopping habits increase with Pandemic and the total amount

of consumption has increased, it can be said that this disadvantageous period can be turned into an advantage for businesses that can reach their customers and communicate effectively over the internet. In today's market structure, where competition increases day by day and differences between brands decrease, businesses that can turn this period into an advantage with innovative initiatives and catch the opportunities on time will make a difference to their competitors, and the fastest will win in this process.

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