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## A Pathmaking Journal



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## FACTORS AFFECTING THE PERCEPTION OF HYGIENE AIMED AT TURKISH HAMAMS AS CULTURAL HERITAGE: ANTALYA

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### ABSTRACT

*This study has been carried out in order to identify the factors affecting the perception of hygiene aimed at Turkish Hamams as cultural heritage. With respect to this goal, a survey has been performed by means of a sample method for local and foreign tourists who have used the hamams in the central district of Antalya. In total, 210 people have been reached. The value for Cronbach's alpha in the survey has been measured as 0.797. In the analysis of research data regarding the statistical method, factor analysis, regression and correlation have been used as analysis methods. As a result of the research done on factors affecting the perception of hygiene aimed at Turkish hamams, the elements such as the sensitivity of hamam personnel on hygiene, the fulfilment in general principles of hamam, and the physical competence of hamam have been identified as the three significant factors by the tourists involved in the survey.*

### KEYWORDS:

*Turkish Hamams; Hygiene; Sanitation; Antalya.*

### ECONLIT:

*Z390; I190; M390; Z100.*

## **1. INTRODUCTION**

Water has been one of the primary sources for life since the ages of adoption of natural existences as god. In ancient times, people made use of water for the purification of body and soul and used it for the arrangement of places that acted as the temple of body with the shape of open and close rooms intended for preservation of health. Afterwards, these places have formed the hamam structures which act as the source for today's bath culture. According to Kilito (1992), individuals experience the important instants of human existence in the bathroom. In other words, they do not only perform religious duties in religious places but they also purify themselves as a precept of their religion with water, thereby living and experiencing a feeling of crossing over to the other side in baths. The Turkish Hamam interrelates the hygiene of soul and body. Hamams are also an indicator of the respect for the Turkish-Islamic tradition in that they provide the needs for washing, ritual cleaning and purification of soul (Tsikaloudaki et al., 2013).

In Arabic, the word hamam is derived from the stem of "hamm" - 'to heat, to be hot'- and it means "the place that is heated" (Sarmiento and Kazemi, 2014) and heat treatment (Hoheb, 2010). The word 'hamam' is used as a general term for the structures in providing the needs of people for washing and cleaning (Aktaş, 2011, 63; Apaydın, 2009; Savaş, 2007; Bozok, 2006).

Bath houses and public bath structures which have existed since the Hellenistic period, developed in the Roman and Byzantine periods (Sibley, 2006), and later were begun to be used in the Ottoman period. Being a religious requirement and having developed as a bath complex next to other religious structures, Turkish hamams have had an impact on the emergence and development of a powerful bath tradition (Smolijaninovitè, 2007). Having nourished on the architectural and bathing culture brought by the Seljuks to Anatolia in the 11th century, the Turkish hamam became the most significant element of daily life and civil architecture in the Ottoman period. In the Ottoman society, Turkish hamams were sort of spaces for socialization and acted as entertainment areas for match-making, activities such as 'bath for bride and groom', besides being used by people for bathing, cleaning, and cures (Apaydın, 2009).

Playing an important cultural role today, hamams are notably a colorful part of the national culture of Turkey. According to Smolijaninová (2007), Turkish Hamams can be defined as locations where exotic and erotic cultures are blended, moreover they provide more specific traces belonging to Turks mostly by the effect of Islam. However, Turkish Hamams are used as issues for idioms, literature, movies, and they carry the Eastern mystical aura to the West.

Today the Turkish Hamam has placed itself as hot spring units being in the structure of accommodation enterprises in the tourism industry and particularly thermal resorts. In addition to that, they reside as health centers called SPA centers (Salus Per Aquas = Health by or through water) which apply various treatment styles as a part of technological developments. In pursuit of living different experiences, people also visit Turkish hamams on their trips to those centers. Presenting a possibility for experiencing the distinctive traditional Turkish culture to tourists, Turkish hamams are visited for various purposes such as interest, curiosity, search of alternative, advice from friend, bathing, and getting rubbed with a kese. On the other hand, the maintenance of hygiene in baths is one of the most essential topics regarding tourist health.

Water is a very considerable matter for hygiene and sanitation considering the protection against contagious diseases (Katherine et al., 2014). Hygiene is the complex of science which applies the information about health as a synthesis in order to protect and promote human health for the individual and society, and make them lead a healthy life for a long period of time (Yumuturuğ, 1980). Sanitation is derived from Latin; the word "sanitas". It means health and cleanness (Aktaş and Özdemir, 2012, 243). In general, the meanings of hygiene and sanitation are mistaken for each other. Hygiene refers to health rules whereas sanitation refers to the precautions taken for promotion of hygiene, health condition, and its continuity, in other words, it refers to the entire operations of required sterilization done for the creation of health conditions and their continuity (Merdol et al., 2000; Çiçek, 2008). Bacterial reproduction is prevented by the implementation of sanitation programs (Öztaş, 2002).

Hamams are areas where people go for personal cleaning and get cleaned to be healthy, therefore these areas are very important for human health. Hamams should

have dust, water, and microbe repellent surfaces that are easy to clean. While cleaning hamams we should not only consider visible contamination but also invisible threats. The applications of hygiene include both the necessary precaution for those invisible threats and the effort in establishing their control and elimination. The achievement of secure applications of hygiene and formation of health services in hamams have a vital importance in effacing the risk of transmission of diseases and infections, and their control (Kratzke et al., 2014).

In hamams, it deems necessary to drift away the microorganisms which threaten human health from the environment they are in, hence it is primarily necessary to pay attention to the quantity of water and conservation of possibly proper level of water heat (Boge et al., 2013; Açiksözlü, 2015). On the other hand, people carry the pathogenic microorganism in their body without being infected and can transmit them to everywhere when in contact. Apart from its transmission by means of direct contact, the transmission of diseases and infections can be possible by touching the contaminated surfaces and objects in hamams and spreading them by nose, eye, and mouth to the other people (Kratzke et al., 2014).

In spite of the fact that the main goal of the hamam enterprises or hamam units in the body of hotels is to make an economic profit; the fulfillment of customers' requests and needs, the need in providing the hygienic environment within the context of their level of contentment, and the reflection of a reliable impression of an enterprise are to be considered as crucial matters. In real terms, it requires to be professional to ensure hygiene in hamams because tourist health is affected by several factors including the quality of water, the chemicals used for cleaning and hygiene, and the cleanness of ventilation installation in hamams. This study has been carried out on account of benefiting from the experiences of professional hygiene suppliers and their cleaning systems, the training of working personnel on hygiene, and the demand for frequent inspection of hamams. As a matter of fact, it has been concluded that the topics such as hygiene and sanitation are not sufficiently taken into consideration. In addition, when the field of literature relating to research was examined, no studies were encountered considering the perception of hygiene on Turkish hamams. In the light of this study, it has been intended to determine the factors affecting the perception of hygiene of local and foreign tourists aimed at Turkish Hamams as a

cultural heritage, herewith the degree of importance of aforementioned factors. This study intends to contribute to the literature relating to its field.

## **2. METHOD**

### **The Model and Hypotheses of Research**

Being a part of social life, the environment in Turkish hamams will precipitate various contagious diseases to occur unless hygiene and sanitation are applied. In contrast with hamams' goal to clean and restore health, their risk of spreading contagious diseases will cause a negative impact on customer impression.

The variables used in the research are as follows;

1. The Water Quality and Sanitation
2. The General Cleanness of Hamam
3. The Sufficiency of Equipment in Hamam
4. The Disinfection of Hamam Before Use
5. The Hygienic Sufficiency of Hamam and Hamam Personnel
6. The Inspection and Maintenance of Hamam
7. The General Perception of Hygiene on Hamam

As a result the hypotheses of research follow the pattern below;

H<sub>1</sub>: The water quality and sanitation have a notable effect on the general perception of hygiene of hamam.

H<sub>2</sub>: The general cleanness of hamam has a notable effect on the general perception of hygiene aimed at hamam.

H<sub>3</sub>: The sufficiency of equipment has a notable effect on the general perception of hygiene aimed at hamam.

H<sub>4</sub>: The disinfection of hamam before using has a notable effect on the general perception of hygiene aimed at hamam.

H<sub>5</sub>: The hygienic sufficiency of hamam and hamam personnel have a notable effect on the general perception of hygiene aimed at hamam.

H<sub>6</sub>: The inspection and maintenance of hamam have a notable effect on the general perception of hygiene aimed at hamam.

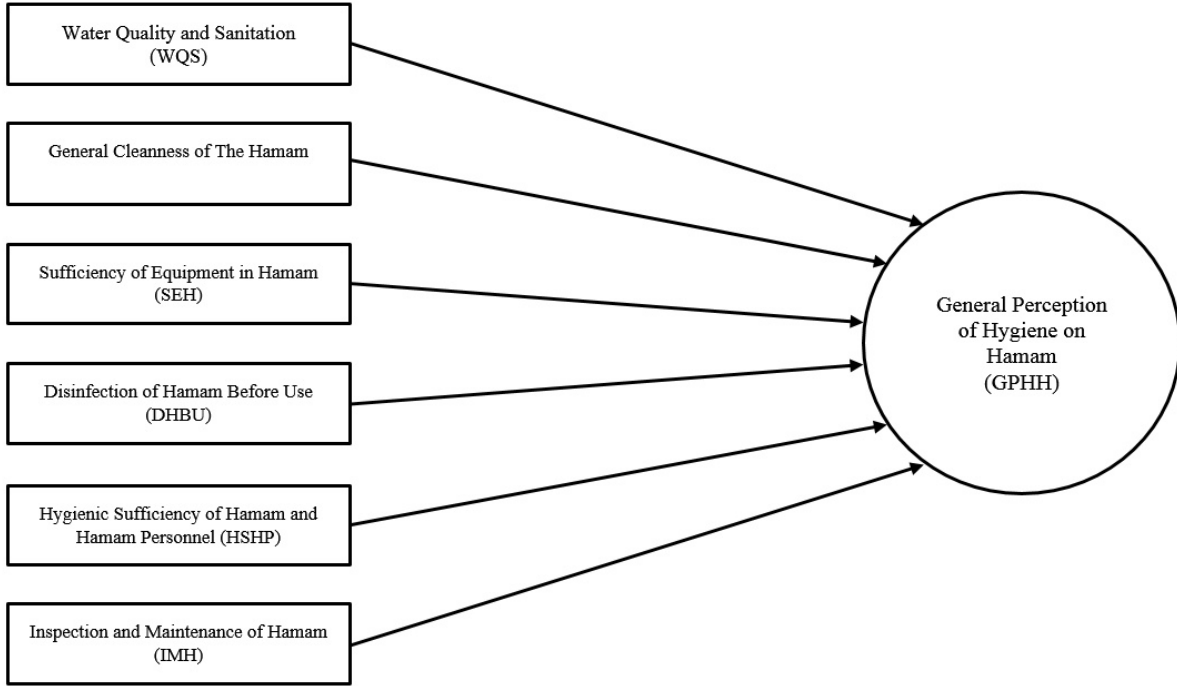


Figure 1: The Model of Research

### **3. THE EMPIRICAL RESEARCH**

In this study, the nature of research is based on the local and foreign tourists using hamam enterprises located in the city, Antalya. The data collection method used in the research is the survey study based on convenience sampling. In this context, a survey has been applied on 210 tourists using the hamams in Antalya.

8 questions from the survey which have been used as a data collection method in the research, were taken from Aydın, Tütüncü, and Aydın (2013), and 18 questions were taken from the study done by Açığsözlü (2015). This survey consists of two parts. In the first part, there are demographic characteristics based on the participants, and in the second part there are 29 statements measuring the tourists' level of perception of hygiene aimed at hamams. During the analyses, 3 statements have been excluded from the scale and in total 26 statements have been proceeded to be used in the analysis. Depending on the aforementioned variables, a 5 point Likert scale has been used.



## The Aim and Importance of Research

As a feature, Turkish Hamams are a cultural heritage for Turkey. Having a significant place in the social life of local people, Turkish hamams widely kindle tourists' interest. Tourists visit hamams because of their intriguing historical and socio-cultural structure, and with the intention of restoring health. However, health problems might be in question in case hygiene and sanitation are ignored concerning efficient health conditions. The aim of this research is to determine the factors affecting the general perception of hygiene aimed at Turkish Hamams in Antalya.

## The Analysis and Reliability of Data

This scale has been formed to measure the general perception of hygiene in hamams and its reliability has been tested by Cronbach's alpha as a technique. The results depending on the reliability analysis are shown in Table 1.

Value for Cronbach's Alpha	Statement Number in Scale
0,797	26

Table 1: Results of Scale on Reliability Analysis

According to the result of analysis, Cronbach's alpha has been found as 0, 797. This value is sufficient enough to signify the validity of scale as a whole (Altunışık et al., 2007).

Sex	n	%	Level of Education	n	%
<b>Male</b>	87	41,4	Primary School Degree	3	1,4
<b>Female</b>	123	58,6	Junior High School Degree	11	5,2
<i>Age</i>	<b>n</b>	<b>%</b>	High School Degree	64	30,5
<b>24 and below</b>	37	17,6	Associate's Degree	49	23,3
<b>25-34</b>	42	20,0	Bachelor's Degree	56	26,7
<b>35-44</b>	55	26,2	Master's Degree	27	12,9
<b>45-54</b>	54	25,7	<b>Nationality</b>		
<b>55 and above</b>	20	9,5	Turkish	47	22,4
			German	68	32,4
			English	54	25,7
			Russian	41	19,5

Table 2. Findings Based on Demographic Variables

12,9 % of the participants in the survey hold a Bachelor's Degree, 23,3 % of the participants hold an Associate's Degree, and 30,5 % of the participants hold a High

School Degree. 6,6 % of the participants hold a Primary and High School Degree. In addition to that, when nationalities of the participants are regarded, it has been observed that 32,4 % of the participants are German with the highest rate, and 19,5 % of the participants are Russians with the lowest rate.

Factors	Statements	x	s.s
<b>Water Quality and Sanitation (WQS)</b>	There is no color and odor in water used in hamams.	2,08	1,297
	Heat of water is not annoying.	2,31	1,196
	Basins of hamams are clean.	2,02	1,014
	There are thermometers showing interior heat.	2,27	1,169
	Glass, plate, and cup are not used in hamams.	3,85	,887
<b>General Cleanness of Hamam(GCH)</b>	Garbage bins are closed and the surrounding is clean.	4,22	,917
	There are single toilets and the private rooms are cleaned.	3,90	1,104
	Eating and drinking places are cleaned.	3,48	1,175
	Heat and cleannes of the central massage platform are convenient.	3,85	1,056
<b>Sufficiency of Equipment in Hamam (SEH)</b>	Lighting systems in hamams are sufficient.	3,34	1,160
	There is no puddle of water in any section of hamams.	4,00	,764
	Marbles of hamam do not get mossy.	3,48	1,207
	There are materials such as towel, waistcloth, kese etc. of individual use.	3,72	1,063
	Floor is not slippery and it prevents any risk of falling.	3,73	1,114
	Ventilation systems in hamams are sufficient.	3,71	1,213
	<b>Disinfection of Hamam Before Use (DHBU)</b>	Necessary information is given to the people whose health condition shows inconvenience in respect to health and hygiene in hamams.	3,07
Disinfection of body is made before the entrance of hamam units.		4,15	,810
People are asked whether or not they carry any contagious disease.		4,27	,793
Necessary information concerning the heat of hamams before the entrance is given by the personnel.		3,32	1,393
<b>Hygienic Sufficiency of Hamam and Hamam Personnel (HSHP)</b>	Hamam enterprises should pay attention to hygiene and sanitation even if they are not inspected.	4,07	1,102
	Hair, beard, and nails of the personnel are well-kept and clean.	2,30	1,116
	Hamam personnel pay attention to their hygiene.	2,26	,970
	Hamam enterprises should preserve customer health meticulously.	2,55	1,157
<b>Inspection and Maintenance of Hamam (IMH)</b>	Psychologically, I think that hamams are not hygienic.	3,87	1,124
	I think that hamam units are not inspected periodically.	2,67	1,112
<b>General Perception of Hygiene on Hamam (GPHH)</b>	In general, I think that hamams are hygienic.	2,90	1,257

Table 3. Arithmetic Means and Standart Deviations Based on Hygiene and Sanitation in Hamams

The Arithmetic Means and Standart Deviations Based on Hygiene and Sanitation in Hamams are given in Table 3. When the data in Table 3 is examined, it can be stated that the weakest extent of the values depending on the hygiene of hamams is the quality of water and sanitation. The allocation of water resource, its quality or an ambiguous periodic cleaning and maintenance of the inventories relating to water can be indicated among the factors causing this condition.

## Findings of Factor Analysis Based on the Study

The results of the test carried out to classify the variables in the study are shown in Table 4.

STATEMENTS	1	2	3	4	5	6
WQS1	0,802					
WQS2	0,774					
WQS3	0,745					
WQS4	0,533					
WQS5	0,530					
GCH6		0,826				
GCH7		0,769				
GCH8		0,706				
GCH9		0,509				
SEH10			0,760			
SEH11			0,698			
SEH12			0,639			
SEH13			0,598			
SEH14			0,481			
SEH15			0,401			
DHBU16				0,887		
DHBU17				0,857		
DHBU18				0,621		
DHBU19				0,484		
HSHP20					0,781	
HSHP21					0,708	
HSHP22					0,476	
HSHP23					0,428	
IMH24						0,501
IMH25						0,430
<b>Core Values</b>	4,968	2,880	1,821	1,716	1,381	1,268
<b>Variance Defined (%)</b>	19,873	11,521	7,283	6,865	5,524	5,073
<b>Total Variance Defined</b>	<b>% 56,139</b>					
<b>KMO Measure of Sampling Adequacy</b>	<b>0,710</b>					
<b>Value for Bartlett's Test of Sphericity</b>	<b>Approx. Chi-Square: 1738,683 Sig. :0,0001</b>					

Table 4. Results of Factor Analysis

The result of KMO test which is beneficial to measure the sampling adequacy, is expected to be above 60,0 % (Nakip, 2006). In other words, when the KMO value is high, any variable in the scale might be meant to be impeccably estimated by the other variables. In fact, in the study, the KMO value has had the expected value which is 0,710. Subsequently, in the study the p value for Bartlett's Test of Sphericity has been measured as 0,0001 which meets the condition that the p value for

Bartlett's test has to be lower than 0,05. It has been concluded that the factor analysis can be proceeded in accordance with the results.

Each distribution of the statement to factors has been examined in the scale, the fact notwithstanding that the considered factors which have 1 and higher core value are determined to have 6 as the scale factor number. In order to specify on which factor, statements do have a powerful correlation, rotated component matrix has been formed, besides examining whether the statements fulfill the acceptance level of overlapping and values of factor load. Because of the existence of two statements in two different factors and the difference between two factors having a load value lower than 0,1, the statements have been detected to exhibit an overlap. The result depicts that the statements do not measure a single characteristic in the scale and these statements have to be excluded from the analysis. In another statement, the factor load has been lower than 0,40 and the statement has been removed from the scale. Thus, the statement number has dropped to 26 in the scale.

Consequently, the total contribution of these factors to the total variance has been viewed as 56,139 %. The variables according to the magnitude of contribution they have made to the total variance defined are enumerated as follows; WQS forming 19,873 % of total variance, GCH forming 11,521 % of total variance, SEH forming 7,283 % of total variance, DHBU forming 6,865 % of total variance, HSHP forming 5,524 % of total variance, and IMH forming 5,073 % of total variance.

### **Findings Relating to Correlation Analysis**

A correlation analysis has been done with an eye to put forth the relationship between the general perceptions of hygiene of tourists and the subaltern dimensions on hygiene and sanitation in hamams. The findings of the analysis are shown in Table 5.

With regard to the result of correlation analysis, it has been observed that there is a considerable and positive aspect in the intention of referring to three independent variables in the study. The independent variables concerning the correlation levels on the general perception of hygiene in hamams, which are dependent variables, are put in order according to their intensity as follows; the hygienic sufficiency of hamam

and hamam personnel (0,512), the sufficiency of equipment in hamam (0,208), and the disinfection of hamam before use (0,194).

	WQS	GCH	SEH	DHBU	HSHP	IMH	GPHH
WQS	1	0,346**	0,312**	-0,051	0,011	0,105	-0,005
GCH	0,346**	1	0,516**	0,186**	0,342**	-0,073	-0,004
SEH	0,312**	0,516**	1	0,150*	0,222**	0,032	0,208**
DHBU	-0,051	0,186**	0,150*	1	0,222**	0,024	0,194**
HSHP	0,011	0,342**	0,222**	0,222**	1	-0,067	0,512**
IMH	0,105	-0,073	0,032	0,024	-0,067	1	0,004
GPHH	-0,005	-0,004	0,208**	0,194**	0,512**	0,004	1

\*\*Correlation is meaningful at level 0.01.

\* Correlation is meaningful at level 0.05.

Table 5. Findings Relating to Correlation Coefficients of Inter-Variables

In other words, the personnel's obedience to the rules of cleaning and hygiene in hamams located in Antalya, the effective operation of lighting and ventilation systems, and the precautions taken before use of those hamams positively enhance tourists' perception of hygiene on hamams.

### Findings Relating to Regression Analysis

A regression analysis has been done with an eye to put forth the effect of the variables relating to hygiene of hamams on the general perception of hygiene. Durbin-Watson test has been applied for the independence of errors in the analysis. The purpose of the application of test has resulted from a regression model, which has been once predicted, can be benefited as a number to test whether or not the terms are in correlation. Thus, the test value has been found as 1,447. Being in the acceptable limits, the value in question is between 1-3 (Nakip, 2006). On the other hand, VIF and Tolerance values are also examined so as to be convinced whether or not the problem of multiple correlation occurs among the variables. It can be stated that since VIF values are lower than 10 and Tolerance values are not lower than 0,01, the problem of multiple correlation of inter-variables does not exist. The results of the test are shown in Table 6.

Variable	B	Standard Error	$\beta$	T	P	Tolerance	VIF
Static	0,105	0,639		0,165	0,869		
WQS	0,08	0,132	0,040	0,648	0,518	0,815	1,226
GCH	0,48	0,100	0,350	4,884	<b>0,000</b>	0,619	1,616
SEH	0,39	0,110	0,237	3,527	<b>0,001</b>	0,703	1,423
DHBU	0,14	0,085	0,102	1,742	0,083	0,918	1,089
HSHP	0,94	0,104	0,556	9,063	<b>0,000</b>	0,843	1,186
IMH	0,00	0,096	0,002	0,027	0,978	0,968	1,033

R=0,596    R<sup>2</sup>=0,356    Adjusted R<sup>2</sup>=0,336    Durbin-Watson=1,447    F<sub>(6,390)</sub>= 18,665; p<0,001  
 Table 6. Findings Relating to Regression Analysis

According to the results of analysis, the constituted model depending on the general perception of hygiene aimed at hamams in Antalya is partially meaningful (F<sub>(6,390)</sub>=18,665; p<0,001). Three independent variables have been examined to correlate with the general perception of hygiene being the dependent variable in the research model. Among those extents, the variable with the biggest contribution to the model and the best definition on the changes of dependent variable, is the hygienic sufficiency of hamam and hamam personnel ( $\beta=0,556$ ). 1-unit increase/decrease which occurs in the variable HSHP causes 0,94-unit increase/decrease in the general perception of hygiene being the independent variable. This linear relation is also meaningful at level 0,01(t=9,063). This variable is followed by the general cleanness ( $\beta=0,350$ ) of hamams. 1-unit increase/decrease that occurs in the variable GCH causes 0,48-unit increase/decrease in the general perception of hygiene being the dependent variable. This linear relation is also meaningful at level 0,01(t=4,884). One of the other meaningful relations in the model is the extent of sufficiency of equipment in hamams ( $\beta=0,237$ ). 1-unit increase/decrease that occurs in the variable AEH causes 0,39-unit increase/decrease in the general perception of hygiene being the dependent variable. This linear relation is also meaningful at level 0,01(t=3,527). The rest of the variables are observed not to have a statistically meaningful relation on the general perception of hygiene in hamams. In accordance with that, while hypotheses H<sub>2</sub>, H<sub>3</sub> ve H<sub>5</sub> are accepted, hypotheses H<sub>1</sub>, H<sub>4</sub> and H<sub>6</sub> are denied. On the other hand, the independent variables in the model define 35 % of the changes in the dependent

variable as a whole ( $R^2=0,356$ ). The remaining part with 75 % is defined by the other excluded variables in the study. The presence of these relations in the model demonstrates that the research model is partially verified.

#### **4. CONCLUSION**

Anyone who lives in a touristic region or is engaged in trade, directly or indirectly reaps a profit from the tourism sector. In return for this profit, each individual or foundation/establishment has to bear the responsibility to contribute to the regional tourism system up to a degree. This contribution or compensation might be conceived as a material and spiritual responsibility in which the mindset of service quality is embedded including the financial support.

The reality is that there won't be any developments in tourism and an increase and permanence in the profit gained as long as a sense of responsibility is not fostered in the hotel hamams and city, which is one of the actors giving service in tourism. Additionally, this condition has to be widely considered by hamam enterprises as a reality. It is a must for hamam enterprises, by their very nature, to have a principal as a mindset of perception focused on hygiene and human health on the grounds that a tourist won't be willing to stay in an environment for which he gives certain reasons that there might be health risks.

As a matter of fact, the findings of this research have the quality to support this condition. In the study, it has been intended to nail down which presence of criteria is sufficient for a hamam to be examined hygienically in the eye of tourists using hamams. With reference to the conclusion of regression analysis, three important criteria have been detected which specify whether or not a hamam for tourists is convenient for human health. Being the dependent variable of research, the primary criterion is the variable of hygienic sufficiency of hamam personnel, which has the biggest impact on the general perception of hygiene in hamams ( $p<0,001$ ,  $\beta=0,556$ ). Hamam enterprises are enterprises that provide service to customers depending on human labor. From this point of view, it can be stated that the elements profoundly observed by the tourists regarding the hygiene in hamams, are the hamam personnel. Hamam enterprises are enterprises that provide service to customers

depending on human labor. The customer builds a close relationship and mostly makes direct contact with the personnel as long as he is provided service. In that respect, the customer will be willing to be faced with a neat employee who pays attention to his personal hygiene.

Another criterion that the tourists consider concerning the hygiene of hamam is the obedience of general cleaning principals in hamam. According to the findings of research, the variable of general cleanness of hamams is the second determinant affecting the general perception of hygiene of customers ( $p < 0,001$ ,  $\beta = 0,350$ ). By making simple observations, the tourist can figure out whether or not the service of hamam is meeting the general principles of hygiene. The attention-grabbing primary precautions such as closed garbage bags with a clean surrounding or the maintenance of eating and drinking places in hamam might be given as examples to this condition. As every environment cannot be a topic for discussion on hygiene, each unclean environment cannot be discussed on the same basis either. Hence, the attention paid to the cleanness of toilets and private rooms, eating and drinking places, and the surrounding of garbage bags in hamams are important matters.

According to the findings of research, the third and final determinant is the variable of physical sufficiency of hamams, which affects the general perception of hygiene on hamams ( $p < 0,001$ ,  $\beta = 0,237$ ). In accordance with that, the elements relating to the sufficiency of interior lighting systems of hamam, the ventilation system, the cleanness of hamam floor, and the presence of materials such as towel, waistcloth, and kese used in hamam are evaluated and found mandatory for a hamam customer. Ventilation and lighting systems are required elements in hamam, yet some enterprises might come up short on them. Health problems will arise in case of lack of these elements in hamam enterprises. The other important matters are the fact that materials such as towel, waistcloth, kese are disposable and that they can be reused after being cleaned and disinfected. Thus, the physical elements in hamam may be shown among the criteria considered by the tourists when examining the hygiene of hamam. Additionally, it has been observed that in the research model, the variables of quality of water and sanitation ( $p > 0,05$ ), disinfection of hamam before use ( $p > 0,05$ ), inspection and maintenance of hamam ( $p > 0,05$ ), which are anticipated to have a possibly meaningful impact on the perception of hygiene on hamams, do



not have a statistically meaningful impact. In other words, it can be stated that these three variables are not antecedent values which measure the general perception of hygiene in hamams. When the model of research is evaluated as a whole, it is observed to clarify 35% of the variations on the dependent variable ( $R^2=0,356$ ). Accordingly, the independent variables, which have a meaningful contribution to the model, can be implied to be taken as criteria by a hamam customer once the conditions of hygiene are evaluated.

By making use of the results manifested in the study, a certain number of suggestions have been put forward relating to the attainment of a clean and hygienic hamam.

- Warning signs should be available for individuals with an inconvenient condition for hamam regarding hygiene and health (asthma, skin infections, open wounds and cuts, contagious diseases) and they should be informed by the personnel. Otherwise, health threats might appear.
- The importance of lighting and ventilation systems should be grasped by the enterprises and the attention should be specifically paid to the installment of a fine ventilation system. Ventilation systems have to have the quality to eliminate smoke, soot, dust, and the entrance of harmful bacteria. The air flows from an unclean area to a clean should be prevented.
- A time schedule on cleaning should be made for the consumption at eating and drinking places, in addition cleaning should be provided as a part of hygiene rules by using proper cleaning products. In general areas and toilets, garbage bags should be closed without giving off odor, and be regularly collected. Furthermore, the general cleaning of hamam should be taken care of, besides taking heed to the basin and central massage platform including the removal of scratches and cracks in marbles.
- All the materials such as kese, waistcloth, towel and fiber should be disposable, otherwise they should be disinfected and kept as hygienic after being used by each customer.
- Hamam personnel have to pay attention to their own hygiene and cleanness and take precautions against contagious diseases. Their close relation with the customer increases the risk of the transmission of disease from a sick

patient. Hamam enterprises should have the manner in which they are able to ensure the health of personnel and customers. The employees should be allowed to seize upon the fact that the hygiene of hamam personnel is the most important factor on contagious diseases. In this respect, fundamental trainings should be given by the enterprise to the personnel on a regular basis and the facilities promoting personnel health and hygiene should be arranged.

- The personnel should go through a medical examination before employment and this condition should be kept under control by allowing them to renew their examinations every six months.
- The fulfillment of hamam enterprises' inspections by public corporations is a requirement. The aforementioned inspections pertaining to the institution/corporation and their scope of application are governed by law. However, it is very important for the authorities and competent people to carry out the inspections regularly. The inspections should be archived regularly and the hamam enterprises which disobey the hygiene and sanitation rules should be shut down as a penal sanction.
- Apart from cleaning, hygiene and sanitation, the verification of medical certificate and hygiene training document of hamam personnel, and certain enforcements are required in inspections.
- After the inspections, a certificate might be given to the enterprise as a reward unless there is a problem regarding cleaning, hygiene and sanitation. An application such as Blue Flag might be developed within certain procedures aimed at the hygiene and health in Turkish Hamams, thus the enterprise will be able to advertise itself much better. In addition, travel agencies and operators will be able to promote tourist safety by selecting those enterprises with the above-mentioned certificate when selling package tours with hamams included.
- The research has been carried out on the enterprises in Antalya only with a hamam service. In this respect, this study can be applied in several regions and hamam enterprises. As a result, a possibility of comparison for enterprises and regions with alternating extents will be available.

- In this study, the analysis has been made on the effect of specified variables relating to the hygiene of hamams on the general perception of hygiene. It has been conceived that the probable researches of hygiene and degrees of hygiene on customer satisfaction or the effect of perceived quality will contribute to the literature.

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