

**Abstract.** *Customer's value perception of products and services is a variable with important implications on the marketing performance of the organizations. In this article we intend to analyse influences of waiting time and servicescape perception on the perceived value of customers of a dental clinic. The empirical research carried out for the elaboration of this article is part of a wider research concerning the multidimensional approach of the service value perceived by clients. Survey findings show that managers working in organizations that provide medical services must give as much importance to all the elements that form value perception: servicescape perception, waiting time perception, technical quality perception and functional perception. The servicescape concept was assessed using five dimensions: accessibility, facility aesthetics, waiting space comfort, electronic displays, facility cleanliness. In order to assess servicescape and waiting time perception we used a five point Likert scale. In order to select the sample that has been interviewed a non-probability sampling method was chosen, namely convenience sampling. Data analysis implied testing the normal distribution of values using the Skewness and Kurtosis indicators, testing the reliability of each scale, conducting exploratory factor analysis and finally, research hypothesis testing through simple linear regression.*

**Keywords:** time, servicescape, benefits, sacrifices, perceived value, marketing, medical services

## **A MARKETING PERSPECTIVE ON THE INFLUENCES OF WAITING TIME AND SERVICESCAPE ON PERCEIVED VALUE**

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*Management & Marketing  
Challenges for the Knowledge Society  
(2013) Vol. 8, No. 4, pp. 683-698*

## 1. Introduction

The concept of value is one of the most used and exploited concepts in human and social sciences, and in particular, in the marketing literature (Leszinski and Marn, 1997). Consumers' perception of the value of a product/service means comparing the quality and benefits associated with the product to the sacrifices they make by paying the asked price (Monroe, 1990). Day (1990) believes that perceived value is the surplus between customer's perceived benefits and customer's perceived costs. Huber et al. (2001) consider that benefits and costs are defined in terms of consumer's perception associated with the purchase activities, consumption and maintenance and in terms of the consumers' expectations regarding personal satisfaction goals set before buying. Perceived value results from the exchange between producers and consumers through judging/evaluating positive consequences (benefits) and negative consequences (sacrifices) (Woodruff and Gardial, 1996). Zeithaml (1988) has identified four types of definitions for perceived value: low price (the concept focuses on the sacrifices accepted by the client); everything the consumer wanted to obtain by buying the product/service (the definition focuses on the benefits obtained by the customer); the quality obtained for the paid price; all the gained benefits compared to the total sacrifices made when buying the product.

Gunawardane (2011) based his study on the perspective opened by Pine and Gilmore in 1988, by conceptualizing the "experience economy". The author suggests taking into account both the functional and the emotional outcomes of the service use in shaping the perceived quality and the perceived value. Gunawardane (2011) classifies perceived quality dimensions in the following categories: perceived quality of the core services, perceived functional outcomes, perceived emotional outcomes, perceived physical environment and perceived social interaction.

Woodall (2003) has developed a summary regarding the dimensions of perceived value, identifying among these not just monetary sacrifices, but also sacrifices linked to time consumption, effort and human energy consumption. These dimensions are better reflected in Table 1.

The ideas found in Woodall's (2003) synthesis represent the starting point for the present paper.

Alongside time consumption, in this article we addressed the influences of servicescape on customer perceived value. The analysis arises from the efforts of Bitner (1992) and Helson's adaptation level theory (1964, cited in Tellis, 1998) which talks about the influence of the environment on the basic stimulus perception. The service environment dimension has two sub-dimensions, the spatial and the temporal sub-dimension (Heinonen, 2004). We attributed particular importance to time as it is a resource for the consumer and it influences his/her perception of value. Time is divided into time for gathering information, time for programming, waiting time at the place where the service is delivered and the time for obtaining results. We took into account several features related to the consumer's perception of time: flexibility, adaptability, speed etc.

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*Table 1*

**Benefits and sacrifices**

Benefits		Sacrifices
Attributes	Outcomes	
Perceived quality	Functional benefits	Price
Product quality	Utility	Market price
Quality	Use function	Monetary costs
Service quality	Aesthetic function	Financial
Technical quality	Operational benefits	Costs
Functional quality	Economy	Costs of use
Performance quality	Logistical benefits	Perceived costs
Service performance	Product benefits	Search costs
Service	Strategic benefits	Acquisition costs
Service support	Financial benefits	Opportunity costs
Special service aspects	Results for the customer	Delivery and installation costs
Additional services	Social benefits	Costs of repair
Core solution	Security	Training and maintenance costs
Customization	Convenience	Non-monetary costs
Reliability	Enjoyment	Non-financial costs
Product characteristics	Appreciation from users	Relationship costs
Product attributes	Knowledge, humor	Psychological costs
Features	Self-expression	Time
Performance	Personal benefits	Human energy
	Association with social groups	Effort
	Affective arousal	

**Source:** Woodall (2003).

Furthermore, our study uses the ideas proposed by Vargo and Lusch (2004), that classify the outcomes of the services into functional and emotional outcomes. These dimensions can be divided in the following categories: physical or tangible elements (servicescape); outcome related elements (core medical services, competence, reliability); access related elements (waiting times); process related elements (information, communications and courtesy).

All these ideas linked to service perceived value can be applied in the healthcare sector. As shown by Habersam and Piper (2003, cited in Vasilache and Prejmorean, 2008) intangible resources are highly relevant, in the case of hospitals, as patients are more involved than other categories of customers, demanding a higher quality of service. Their level of information tends to become higher because before making the decision patients investigate more sources of personal and impersonal information regarding their disease and the cure for it. Also, the study conducted by Gunawardane (2011) points out that the SERVQUAL scale dimensions such as reliability, responsiveness, assurance, empathy, tangibility can be used in addressing perceived quality and perceived value of the medical services.

Still, we have identified only a few papers that approach this subject, therefore we considered the investigation of this subject interesting and necessary.

## 2. Waiting time and perceived value of service – a review

In the marketing literature, numerous studies have investigated the effects of waiting time on perceived value and consumer decisions (Hui and Tse, 1996; Katz et al., 1991; Pruyn and Smidts, 1998 in Antonides et al., 2000). The topics of studies on time consumption perception, regarded as the sacrifice made by the customer to buy and use a service, refer to: the relationship between the objective waiting time and the perceived waiting time; the effect of the expectations regarding waiting time on the objective waiting time and on the perceived value of the service; the effects of the stimuli encountered by the customer while waiting, on the perception of waiting time and on the perception of value (Katz et al., 1991; Pruyn and Smidts, 1998; Taylor, 1994; Tom et al., 1997, in Antonides et al., 2000).

Time is an important dimension that affects perceived value, and includes components that are linked to benefits and components that are linked to sacrifices (Heinonen, 2004). According to the author, the temporal benefits refer to the temporal flexibility (the possibility to choose the moment of service delivery, immediacy, spontaneity, convenience of opening hours etc.), to the waiting time perception and the service delivery perception (how fast the service is delivered, time saving, etc.). The temporal restrictions in getting the service, the interruptions, time spending, the temporal inefficiency and the disruption in the process of getting the service are seen as sacrifices (Heinonen, 2004).

Okada et al. (2003) studied the relationship between time consumption and consumer perceived monetary sacrifice. An economic interpretation of this relationship can be that the value of one's time that can be expressed in monetary terms, time being considered an opportunity cost which is often represented by the wage level that would be achieved in that period of time (Becker, 1965, in Okada et al., 2003). Time and money are exchange mediums, people can purchase products paying in cash (money) or expending effort (time), but usually there is a trade-off between the two currencies. Consumers bear the costs of the temporal transactions in the search for information and uncertainty reduction or as an additional cost of consumption as delays (Okada et al., 2003). In general, consumers pay a premium for convenience and accept to travel a great distance for a bargain. There are reasons to give credit to the idea that consumers do not treat time and money in the same way. Research has shown that people fail to calculate the opportunity costs of time when not set and underestimate them when they are explicitly requested (Hoskin, 1980, in Okada et al., 2003). Opportunity cost under appreciation makes people spend time with unimportant activities at the expense of more important activities because saving money is more important than saving time. People can effectively be trained to use the normative cost-benefit rules of choice (Larrick et al. 1990, in Okada et al., 2003). A key difference between time and money as currencies is that the opportunity cost of money is easier to assess, while the opportunity cost of time is more ambiguous. Money has a fast exchange market, is very liquid and fungible and can be saved. Time cannot be changed easily; it is perishable and cannot be stored for use at a later date,

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despite the possibilities of postponement. In general, time is amore ambiguous currency than money, open to multiple interpretations, depending on the situation (Hoch and Ha, 1986, in Okada et al., 2003). As people face daily decisions on how to use the time, they have greater freedom in choosing how to spend it.

Durrand-Moreau (1999) studied waiting time for services through an overview of the main empirical research in this area. The author described the findings of Maister (1985), a well-known author for operational research related to queuing theory, his conclusions being a reference point for the studies on this topic:

- Unoccupied time feels longer than occupied time (distraction);
- Pre-process waiting time seems longer than the waiting time during the process (moment);
  - Anxiety makes the wait seem longer (anxiety);
  - Uncertain waits are longer than certain waits (uncertainty);
  - Unexplained waits seem longer than explained waits (explanation);
  - Unfair waits seem longer than fair waits (fairness);
  - The more valuable the service, the longer the customer will wait (value);
  - Solo waits feel longer than group waits (solo wait).

The perception of time can be influenced by many stimuli that the consumer encounters during the waiting period, such as information about waiting time, queue length, ambient music and other stimuli. In the second stage, it is assumed that the waiting is evaluated in comparison with a reference point. Monetary costs of waiting and of the stimuli encountered during the wait can influence evaluations about the sacrifice of waiting. The stimuli the consumer meets during the waiting period affect perceived waiting time (Antonides et al., 2000). In the research in the field of psychophysics, Ornstein (1969, in Antonides et al., 2000) argues that perceived duration increases with the complexity of the stimuli presented within a timeframe. Hogan (1978, in Antonides et al., 2000) implies that there is an optimum level of complexity which means that the simple stimuli (for example, the ease of listening to music) may reduce the perceived duration but complex stimuli (for example, subjects carrying out a difficult task while waiting) could increase the perceived length. Research shows that the effect of the stimuli consumers encounter during waiting on perceived waiting time is generally low (Durrand-Moreau, 1999) and seems to depend on the context of the study and the type the experiment used (experiment in the lab or in the field). Katz et al. (1991, in Antonides et al., 2000) believe that there is a negative effect of duration information on perceived waiting time. The relationship can be explained by the fact that information about waiting time reduces customer uncertainty about how long to wait (Kumar et al., 1997, in Antonides et al., 2000). Some researchers believe entertainment during the wait extends the perceived waiting time, while others believe that musical entertainment shortens the perceived waiting time (Antonides et al., 2000). Existing stimuli during waiting, such as television programs and music, could positively affect waiting time evaluation (idem). This result can be explained by the fact that people feel less stressed because of this

information (Osuna, 1985; Unzicker, 1999, in Antonides et al., 2000). Hui and Tse (1996, in Antonides et al., 2000) also reported the positive effect of information on waiting time perception in the case of long waiting periods (10-15 minutes). For Ratchordin (1982, in Antonides et al., 2000) the cost of waiting has similar effects on consumer behaviour as search costs. A higher monetary cost should lead to a lower willingness to wait. Consequently, since the cost of waiting generally increases with waiting duration, monetary costs of waiting moderate the effect of perceived waiting time on waiting evaluation. Waiting monetary costs will increase consumer attention on waiting time. Particular attention leads to greater involvement which subsequently increases the negative effect on evaluation (Antonides et al., 2000).

De Man et al. (2004) studied the waiting experience and consumer perception on the service quality in the outpatient clinics. Consumers are faced with a sequence of events during service delivery. They can wait before, during and after a transaction, which means they can have a pre-process, in-process and post-process waiting experience. The pre-process period occurs before the delivery of the service - for example, the waiting period before being seen by the doctor. This wait may be due to the fact that the consumer has come too early or the doctor's consultation started late or because there was a line in the waiting room when all consumers have come without a prearranged appointment. In-process waiting occurs during the process of service delivery after a customer came into the room in which he/she is being examined - for example, while the doctor receives a phone call or performs administrative tasks that are not related to the consumer. The post-process waiting occurs after the service is delivered - for example, when a consumer must wait to pay the bill. Previous research showed that the pre-process and post-process waiting generates more intense negative emotional responses than the in-process waiting. The empirical study conducted by De Man et al. (2004) was limited to pre-process waiting in outpatient clinics. Perceived waiting time is influenced by situational factors related to service design characteristics and the consumer's individual characteristics. Special waiting situations vary by the control the service provider exercises over its service design and the control that individuals exercise over their own characteristics (Durrand-Moreau, 1999). Situational factors influence the subjective interpretation of individual consumers of waiting and determine their estimated and acceptable waiting time. Service design characteristics that may influence the waiting experience are the physical discomfort given by wait, the actions of the service provider and the physical environment in the waiting room given by color and visual stimuli (Gelinias-Cheb and Filiatrault, 1993 in De Man et al., 2004). An understanding of how these factors contribute to a level of satisfaction/dissatisfaction related to waiting can lead to better management of those aspects linked to waiting that can be controlled (Beqiri and Tadisina, 2002 in De Man et al. 2004). The service provider cannot control factors that are related to customers. Individual characteristics relate to the perceived value of the service to the consumer, mood before the waiting period, the consumer's time value and the consumer's socio-demographic characteristics (Beqiri and Tadisina, 2002, in

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De Man et al., 2004). De Man et al. developed in 2004 a synthesis of the empirical studies that deal with waiting time. These studies are described in Table 2.

*Table 2*

**Synthesis of the empirical studies on the waiting time**

Author(s)	Research design	Type of waiting	Services studied	Dependent variable	Independent variables
Houston et al. (1998)	Cross-sectional survey	Queue waiting	Bank	Service quality evaluation	Attributions, negative affect, apology, acceptable waiting, waiting cost, expected wait, transaction importance, encounter with service employee, prior service experience, perceived duration
McKinnon et al. (1998)	Cross-sectional survey	Pre-processing delay	Outpatient clinics	Consumer satisfaction	Length of consultation, objective average waiting time
Pruyn and Smidts (1998)	Cross-sectional survey	Pre-processing delay	Outpatient clinics	Consumer satisfaction	Appraisal of waiting, objective waiting time, acceptable waiting time
Davis and Heineke (1998)	Cross-sectional survey	Queue waiting	Fast food sector	Consumer satisfaction	Actual, perceived and expected waiting time
Durrande-Moreau (1999)	Literature overview empirical studies				
Durrande-Moreau and Usunier (1999)	Cross-sectional survey	Queue waiting	Transport sector	Consumer satisfaction	Objective waiting time, time styles
Boudreaux et al. (2000)	Cross-sectional survey	Queue waiting	Urgent care	Consumer satisfaction	Consumer demographics, visit characteristics
Nauman and Miles (2001)	Cross-sectional survey	Queue waiting	Urgent care	Consumer satisfaction	Occupied waiting, expected waiting, objective waiting time, voice
Cameron et al. (2003)	Experiment	Pre-process delay	Educational services	Overall experience	music, mood, length of wait

**Source:** De Man et al. (2004, p. 25).

### 3. Servicescape perceived quality

Bitner (1992) first used the term “servicescape” to refer to the physical surroundings in which the service is delivered and consumed (Zeithaml et al., 2009). The author classifies servicescape stimuli into three categories: ambient conditions; spatial layout and functionality; signs, symbols and artefacts (Bitner, 1992). Servicescape has different consequences on the value offered to clients and the management of service providers. According to Rosenbaum and Massiah (2011) the service environment has the following dimensions: the physical, the social, the socially symbolic and the natural dimension that may exist in the servicescape and that

can cause the acceptance/avoidance of employees'/customers' decisions and facilitate/hinder social interaction. Managers understand the physical dimension the easiest because it includes manufactured, observable or measurable stimuli that are controlled by the company to enhance (or constrain) the relationships created between employees and the customers' actions (Zeithaml et al., 2009). For example, ambient conditions are the atmospheric factors that affect the five human senses (Tombs and McColl-Kennedy, 2003). These factors include: visual elements, such as lighting, colors, brightness, shape (Dijkstra et al, 2008 in Rosenbaum and Massiah, 2011); olfactory elements, such as odor; ambient such as temperature (Reimer and Kuehn, 2005); and auditory elements, such as music, noises (Tombs and McColl-Kennedy, 2003; Reimer and Kuehn, 2005). Space refers to the interior design, architecture of the location where the service is delivered to the customer (Michaelia, 2008), the way in which the equipment and furniture are arranged, their sizes and shapes and the spatial relationship between them (Bitner, 1992). The comfort, aspect and accessibility of the space influence consumers to adopt/avoid decisions (Rosenbaum and Massiah, 2011). Functionality is given by the capacity of all these physical elements to help customers in the delivery process of the service (Bitner, 1992). The sign, the symbols, and the artefacts are implicit or explicit signals that organizations use to communicate about the servicescape to its consumers (Bitner, 1992). For example, labels such as name of department or company, directional rules (exit/rest room), caution (wet floors), and rules of behavior (no smoking/no parking), facilitate a customer's way through a servicescape (Rosenbaum and Massiah, 2011). Symbols used by organizations, such as flags, artwork and decorative items are aimed to make consumers understand the meaning of the place, to create a certain experience. For example, in sport pubs the walls might be decorated with posters of football players, or scarfs representing different football clubs. Organizations also use visual signs specific to corporate branding (Thompson and Arsel, 2004).

Although, as mentioned before, the presence of these stimuli in the servicescape is controlled by the organization, we have to take into consideration that consumers perceive servicescapes subjectively. In servicescape evaluation and in the association of meanings consumers rely on their own life experiences, which influence them directly, to approach/avoid decisions (Rosenbaum and Massiah, 2011).

Most marketplace exchanges are mixed exchanges, in which consumers fulfil not only their utilitarian needs but also their social and psychological needs (Bagozzi, 1975, in Rosenbaum, 2005). Thus, customers' acceptance/avoidance of decisions is influenced not only by the physical stimuli but also by social, humanistic stimuli. The social dimension of servicescapes is conceptualized through the following stimuli: employee, consumers (Rosenbaum and Massiah, 2011), social density, context and displayed emotions of others (Tombs and McColl-Kennedy, 2003).

Employees that work directly with customers may often connect with the customer on a personal and emotional level, a situation that is difficult to control by the management. Employees might be one of the reasons customers return or talk favourably about the organization to others and affect the overall quality perceptions



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of a service. Employees should be considered stimuli that influence a customer's approach/avoidance of decisions (Rosenbaum and Massiah, 2011).

Including customers in the servicescape is important mainly because many services are performed in the presence of other customers and because the customers attracted in the service delivery space are an attraction for other customers. This is easily observable in the case of restaurants, where costumers avoid entering empty restaurants. Consumers are influenced by the perceived social density of a servicescape. Empirical studies have shown that the influence of social density on the servicescape depends on whether it is a private or group consumption (Tombs and McColl-Kennedy, 2003). High densities of customers can negatively affect decisions making because of the loss of perceived control or they can induce positive feedback on the offer (Rosenbaum and Massiah, 2011). Customers are attracted to a high social density servicescape mainly when they interact with customers that share their goals, for example when going to a concert or when watching a football game.

Consumers show different emotions through gestures, mimics and comments during the three stages of the service delivery: pre-service delivery, during the service delivery and post-delivery of the service. These displayed emotions in the servicescape influence other customers to approach/avoid decisions (Tombs and McColl-Kennedy, 2003).

Signs, symbols, and artefacts are a part of the servicescape (Bitner, 1992). There are: "general", frequently used signs, such as company and department signs, directional signs, and architectural designs. In order to reach groups of customers with a unique ethnic, sub-cultural, or marginalized societal status, some service organizations may intentionally use signs, symbols and artefacts that have a strong social meaning. In the presence of social symbols that they can relate to, customers feel more comfortable and have a sense of belonging, which is why through this strategic manipulation of the socially symbolic servicescape, organizations try to influence customer behaviour (Rosenbaum, 2005 in Rosenbaum and Massiah, 2011). To win customers with distinct symbolic universes organizations need to develop a symbolic servicescape design that transmits a welcoming message to these customers (Rosenbaum and Massiah, 2011).

The research on the effect of the natural dimension of servicescapes on customer behaviours starts with articles from psychology and medical sciences regarding the impact of nature on human health. A hospital garden contributes to the well-being of a patient (Whitehouse et al., 2001, in Rosenbaum and Massiah, 2011).

Michaelia (2008) studied the relationship between five servicescape components: layout accessibility, facility aesthetics, seating comfort, electronic equipment/displays, and facility cleanliness. According to the author, the perception of these dimensions influences the servicescape's perceived quality which in turn influences service satisfaction. Finally, service satisfaction influences both revisiting intentions and the desire to stay in the service area. Reimer and Kuehn (2004) present a synthesis of studies and items developed by various authors to capture the influence of service cape on the perceived value of services.

**Studies regarding the influence of servicescape perception on quality and value perception**

Item	Authors
T3. The employees are neat in appearance.	Baker et al., 1988; Parasuraman et al., 1991; Wakefield and Blodgett, 1999; Baker et al., 2002;
T4. Brochures and other communication materials/menus are visually appealing	Parasuraman et al., 1991
T5. The building's architecture is visually appealing	Wakefield and Baker, 1998; Turley and Milliman, 2000.
T6. The interior design is visually appealing	Wakefield and Baker, 1998; Wakefield and Blodgett, 1996; Wakefield and Blodgett, 1999.
T7. The odor is pleasant	Baker et al., 1988; Turley and Milliman, 2000; Bittner, 1992.
T8. The noise level is acceptable	Baker et al., 1988; Bittner, 1992.
T9. The physical facilities are clean	Wakefield and Blodgett, 1996; Turley and Milliman, 2000; Wakefield and Blodgett, 1999.
T10. Room temperature is pleasant	Baker et al., 1988; Bittner, 1992; Wakefield and Baker, 1998; Wakefield and Blodgett, 1999; Turley and Milliman, 2000;
T11. Background music is pleasant	Baker et al., 1988; Bittner, 1992; Wakefield and Baker, 1998;
T12. The colors of the physical facilities and the interior are pleasant	Baker et al., 1988; Bittner, 1992; Wakefield and Baker, 1998; Wakefield and Blodgett, 1999; Turley and Milliman, 2000; Baker et al., 2002.
T13. The lighting is comfortable	Baker et al., 1988; Wakefield and Baker, 1998; Turley and Milliman, 2000;

Source: Reimer and Kuehn (2004, p. 808).

#### 4. Research methodology

##### 4.1. Research framework and research hypotheses

The empirical research carried out for the elaboration of this article is part of a wider research carried out based on the model below. Through this research we aimed to identify the dimensions of patient perceptions about the value of dental care services and to establish correlations between perceived value and satisfaction.

The research hypotheses that refer to the perception of servicescape and waiting time are:

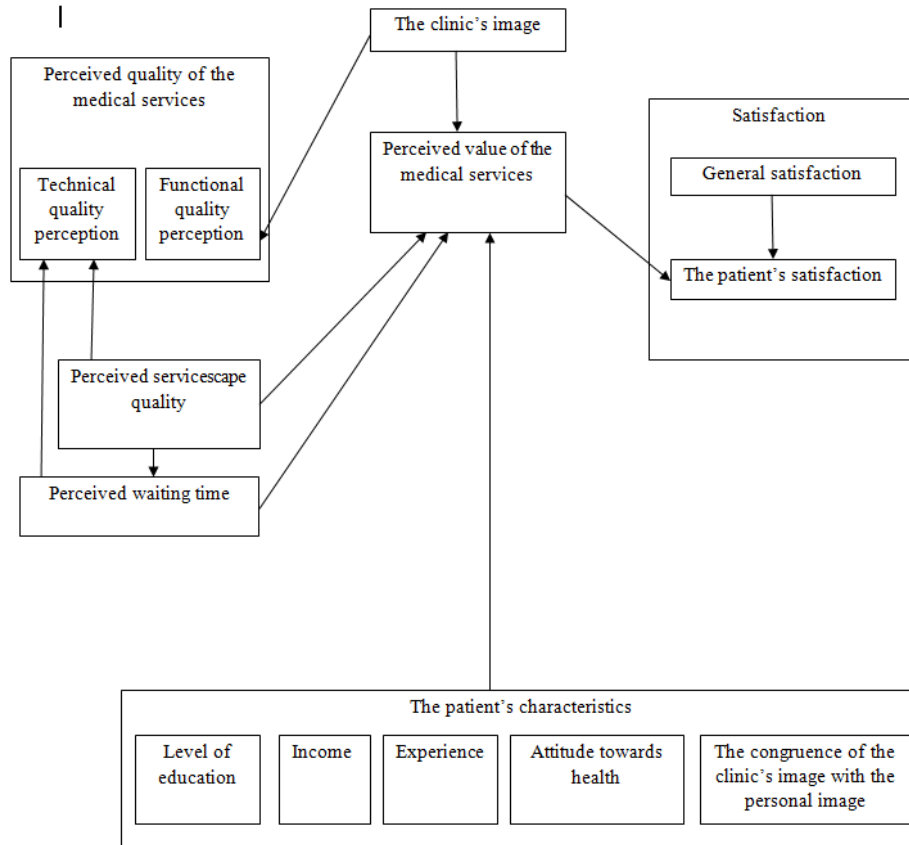
H1: Perceived servicescape quality influences the medical act's technical quality perception.

H2: The clinic's ambience influences the waiting time perception.

H3: Waiting time perception influences the perception of the technical quality of the medical act.

H4: Perceived servicescape influences the medical services' value perception.

H5: Patients' waiting time perception has a direct influence on their perception regarding the value of the medical services.



Source: Authors' contribution.

Figure 1. The research framework

#### 4.2. Method, sample and data collection

The servicescape concept was assessed using all the five dimensions proposed by Reimer and Kuehn (2004) and Michael (2008): accessibility, facility aesthetics, waiting space comfort, electronic displays, facility cleanliness. In order to assess servicescape perception we used a five point Likert scale, with anchors ranging from “strongly disagree” to “strongly agree” and 11 items. Waiting time was operationalized starting from the measures used by De Man et al. (2004). Perceived waiting time was measured with a five point Likert scale, with anchors ranging from “strongly disagree” to “strongly agree”, with the help of 11 items.

In order to select the sample that has been interviewed a non-probability sampling method was chosen, namely convenience sampling. Several dental clinics in the city of Timișoara were selected where questionnaires were administered to patients who attended the clinic during the analyzed period and expressed their willingness to answer the questions. Prior to its administration, the questionnaire was sent to experts,

people working in dental clinics in Timisoara, asking them to verify the proper use of dental specialty terms and, if necessary, to make certain suggestions for improving the questionnaire. Changes mentioned by the experts were made, then, the actual administration of the questionnaires was made. The questionnaire was administered using two methods, the content and design of the questionnaire being identical. In the initial phase, the questionnaire was administered through the Google Docs service provided by Google Inc. and it was loaded on the personal website of the research team. Due the difficulties encountered in terms of getting the answers to the online questionnaire weal so opted for personal administration of the questionnaire. In the data analysis there were included 165 questionnaires, 124 administered face to face and 41 questionnaires administered online.

The collected data analysis plan had two phases:

- The formal verification of responses, made to remove or correct elements that could lead to low quality of the data set;
- The statistical processing of the data, by using SPSS (version 19).

The collected data was processed using SPSS Statistics, version 19 (Barnes and Vidgen, 2002). Testing the normal distribution of values for the variables was performed using two existing indicators: Skewness and Kurtosis. For a normal distribution of the variables, these indicators have values in the interval (-2, +2). After testing the reliability of each scale we observed that by removing some items in some of the scales we obtained a higher value for the Cronbach alpha coefficient. In order to determine the factor scores we aggregated variables using factor analysis. Also, through this analysis we eliminated irrelevant items, items with low factor loadings. Carrying out this procedure involved three steps for each construct. In the first phase we checked if factor analysis was suitable for the studied data. We made this by using the Kaiser-Meyer-Olkin (KMO) indicator and Bartlett's test of sphericity. Bartlett test of sphericity tests the null hypothesis according to which the analyzed variables are not correlated. A low level of significance for the test ( $p < 0.05$ ) would indicate the existence of correlations, so that factor analysis is appropriate. The KMO indicator measures the intensity of the correlations between analyzed variables. This indicator can range between 0 and 1, and a value of at least 0.7 shows that these correlations can be explored through factor analysis. We proceeded to the second phase if KMO measures were greater than 0.7 and if Bartlett's significance levels were  $< 0.05$ . In the second phase we made an exploratory factor analysis for each construct, the aim of the analysis was to identify latent factors. Through the exploratory factor analysis we aimed to prove that each set of variables is the component of a single construct. This hypothesis is valid if performing factor analysis, from the set of variables only one factor will be extracted. The criterion for extracting factors was the Kaiser criterion (Eigenvalue  $> 1$ ). We used the extraction method based on the size of the Skewness and Kurtosis coefficients. If the variables have a normal distribution (coefficients had values between (-2, +2)), the maximum likelihood extraction method is used. If the Skewness and Kurtosis coefficients show an abnormal distribution we use the principal components extraction method. In our case we used the principal components method, variables following an abnormal distribution. We used the VARIMAX rotation as rotation method because it

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allows extracted factors to be correlated. Items with factor loadings > 0.5 can be used for further statistical analysis. If there are items with factor loadings < 0.5, they will be eliminated from further analysis.

**4.3. Research results**

H1: Perceived servicescape quality influences the medical act’s technical quality perception.

To test this hypothesis we used simple linear regression, the technical quality of medical services being the dependent variable and the servicescape the independent variable. The intensity of the relationship between the technical quality of medical services and the servicescape is 0.644 which means that the intensity of the relationship between the two constructs is medium to high. The value of R<sup>2</sup> (the coefficient of determination) is 0.414 which means that 41.4% of the variation of the technical quality of medical services is explained by the servicescape. Hypothesis H1 is validated because the value of the significance level Sig is 0.000, so, the medical act’s technical quality perception is directly and positively influenced by the perceived servicescape quality (Table 4).

*Table 4*

**Research model hypotheses testing results**

Hypothesis	Unstandardized B coefficient	Statistical T value	Significance level Sig	Hypothesis testing result
H1	0,686	10,441	0,000	Accepted
H2	-0,517	-4,799	0,000	Accepted
H3	-0,412	-8,269	0,000	Accepted
H4	0,565	18,003	0,000	Accepted
H5	-0,096	-2,531	0,012	Accepted

H2: The clinic’s ambience influences the waiting time perception.

To test this hypothesis we used simple linear regression, the servicescape is the independent variable and waiting time is the dependent variable. The intensity of the relationship between the servicescape and the waiting time is 0.361 which means that the intensity of the relationship between the two constructs is low to medium. The value of R<sup>2</sup> (the coefficient of determination) is 0.130 which means that 13% of the variation in waiting time is explained by the clinic’s ambience. Hypothesis H2 is accepted because the value of the significance level Sig is 0.000, so the more pleasant the clinic’s ambience is, the shorter the waiting time seems (Table 4).

H3: Waiting time perception influences the perception of the technical quality of the medical act.

To test this hypothesis we used simple linear regression, the technical quality of medical services being the dependent variable and the waiting time the independent variable. The intensity of the relationship between technical quality and waiting time is 0.555 which means that the intensity of the relationship between the two constructs is average. The value of R<sup>2</sup> (the coefficient of determination) is 0.307 which means that 30.7% of the variation of technical quality is explained by perceived waiting time.

Hypothesis H3 is accepted because the value of the significance level Sig is 0.000, so the waiting time perception is negatively correlated with the perception of technical quality (Table 4).

H4: Perceived servicescape influences the medical services' value perception.

To test this hypothesis we used simple linear regression, perceived value of the medical services is the dependent variable and the servicescape perception is the independent variable. The intensity of the relationship between perceived value of the medical services and perceived servicescape is 0.823 which means that the intensity of the relationship between the two constructs is strong. The value of  $R^2$  (the coefficient of determination) is 0.678 which means that 67.8% of the variance in perceived value of the medical services is explained by servicescape perception. Hypothesis H4 is accepted because the value of the significance level Sig is  $0.000 < 0.05$ , so between perceived value of the medical services and perceived servicescape there is a direct and positive, statistically significant relationship (Table 4). In conclusion, the more pleasant the clinic's ambience is, the higher the medical services' value perception is.

H5: Patients' waiting time perception has a direct influence on their perception regarding the value of the medical services.

To test this hypothesis we used simple linear regression, perceived value of the medical services is the dependent variable and the perceived waiting time is the independent variable. The intensity of the relationship between perceived value of the medical services and perceived waiting time is 0,200 which means that the intensity of the relationship between the two constructs is weak. The value of  $R^2$  (the coefficient of determination) is 0.40 which means that only 4% of the variance in perceived value of the medical services is explained by waiting time perception. Hypothesis H5 is accepted because the value of the significance level Sig is  $0,012 < 0.05$ , so between perceived value of the medical services and perceived waiting time there is a direct and negative, statistically significant relationship (Table 4).

### 5. Conclusions and managerial implications

The main limitation of the research is related to how the sampling was carried out. First, due to the lack of a sampling frame we used a non-probability sampling method, the convenience sampling, through personal contacts. Also, the final size of the sample is 165 people, which is not large enough to generalize the results of the research for the studied population. The size of the sample was not determined a priori, it resulted after the online and face to face administration of the questionnaire, given the time resources and the unavailability/refusal of the patients to participate in the study. Another limitation of the research is the lack of a previous qualitative research. We started with insufficient knowledge about the dental health care sector and without a qualitative research we could not identify deeper issues pertaining to the relationship between patients and dental clinics. Another limitation is related to the increase in the sampling frame because there are large differences between dental clinics in Timișoara in terms of dental care quality.

## A marketing perspective on the influences of waiting time and servicescape

Based on the present study and the obtained results, we determined the possible directions for future research:

- conducting an experimental research in which the same sample or different samples will be exposed to different servicescapes, in order to determine their influence on the affective state of the patient, respectively the perceived value and satisfaction;
- conducting an experimental research in which the same sample or different samples will face variations of the different divisions of waiting time: time to make an appointment, time spent during the consultation and treatment, time spent after the treatment to obtain test results or to carry various administrative tasks paying the service, rescheduling. The influence of variations in time consumption for judging the value of medical services will be studied in correlation with various moderating factors: the servicescape, the amount and quality of information patients have regarding the waiting time, the quality of the relationship between customers and suppliers.

As shown in this research, waiting time perception and servicescape perception have a direct influence on the dental clinic's perceived value. Waiting time perception and servicescape perception also have an indirect influence on the dental clinic's perceived value through their impact on the technical quality of the medical act. These two findings highlight the fact that managers of dental clinics need to pay attention to the way in which they design the clinic's ambience and to optimize the waiting time for their patients.

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