

# **Development of a Paper-based Questionnaire to Measure Patients' Satisfaction from Healthcare Services**

**Stamatia Ilioudi<sup>1</sup>, Athina Lazakidou<sup>2</sup> and Maria Tsironi<sup>3</sup>**

## **Abstract**

The creation of a valid scale, fit for any station, clinic or health centre for the measurement of the patient's satisfaction by the given health services. Based on the bibliography the scale to measure patient satisfaction from health services was constructed. For checking the questionnaire concerning its validity and reliability a pilot testing was held in two phases. Totally 746 questionnaires were collected from 900 patients that fulfilled the participation criteria (response 82,8%), that were analyzed and through which the calculation of the Cronbach factor yielded an  $\alpha = 0.95$  for the scale. The high reliability of the scale formed in this study became known.

**Keywords:** Healthcare; Patient Satisfaction; Healthcare Services Quality; Electronic Survey.

## **1 Introduction**

The interest of health scientists focuses progressively more on the needs of patients-consumers and the degree of satisfaction with the health care provided, and patient satisfaction is the adjusted measure of perception of the efficiency of hospitals [1], while being a legal and moral obligation and is recognized as one of the most important and most reliable indicators for evaluating and determining the quality of health services [2-3]. Depicting the opinion of the patient for the services he receives is an integral element and an identifiable measure of the quality of health services, as it is considered more

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<sup>1</sup>University of Peloponnese, Faculty of Human Movement and Quality of Life Sciences, Department of Nursing, Orthias Artemidos & Plateon, GR-23100, Sparta, Greece.

<sup>2</sup>University of Peloponnese, Faculty of Human Movement and Quality of Life Sciences, Department of Nursing, Orthias Artemidos & Plateon, GR-23100, Sparta, Greece.

<sup>3</sup>University of Peloponnese, Faculty of Human Movement and Quality of Life Sciences, Department of Nursing, Orthias Artemidos & Plateon, GR-23100, Sparta, Greece.

accurate than the corresponding criteria and standards relating to the delivering of the same services [4-5].

However, apart from the significance of recording the view of the user-patient of health services and its evaluation by the Health Agencies it is observed that every healthcare institution uses its own scale to determine the degree of satisfaction resulting many subjects in this area of knowledge to be presented as research gaps.

## 2 Description of the Research Tool

The satisfaction of patient by the healthcare provided depends on a number of factors, which can be divided into three categories [6-13]:

- ***The organizational and functional characteristics of organizations providing of health services.*** This category refers to bureaucratic procedures, the ease of patient access to health services, to the luxuries of common areas and to the management of financial issues.
- ***The patient's characteristics.*** This category includes the socio-demographic characteristics such as age, gender, marital status, education and economical insurance, as well as the reason for which the patient is in the healthcare agency.
- ***The characteristics developed in relations between health professionals and the patient.*** This category refers to specific characteristics, such as trust, informing and security, which should govern a proper relationship between the patient and the healthcare professionals, as well as the scientific and professional skill that the healthcare professionals possess.

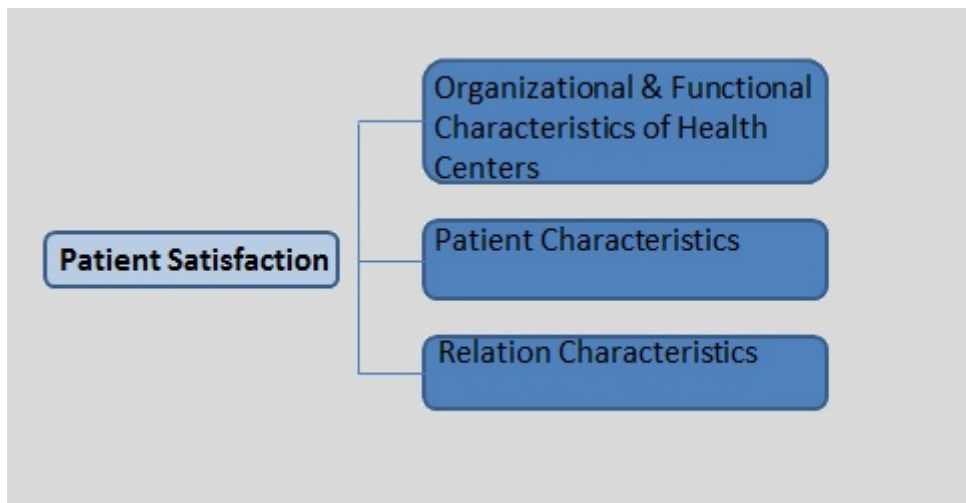


Figure 1: Factors that determine patients' satisfaction

Based on the three categories, the questions of a paper-based questionnaire break down in the following sections: Reception, Waiting, General Services, Patient Data, Nursing Care and Medical Services.

In the present study, to create a valid, adaptable scale, a fourth category was added, titled "Specific Elements". This category includes elements that characterize the segment, the clinic or health provider, who visits the patient.

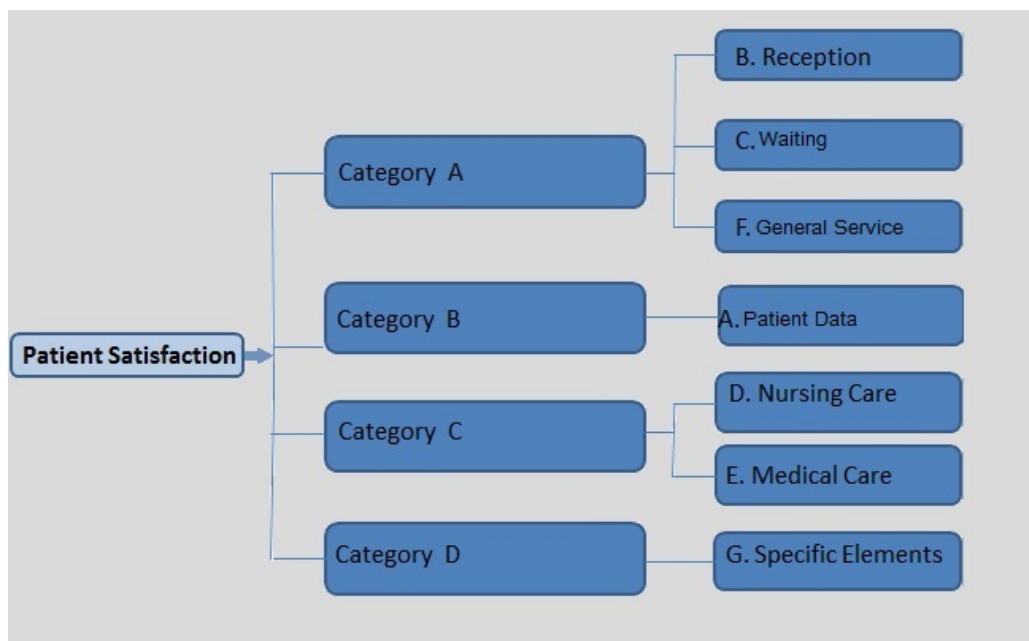


Figure 2: Structure of a paper-based questionnaire

In detail, the paper-based questionnaire (see APPENDIX A) that was designed had the following structure:

- **A. Patient Data:** The first section includes questions regarding the social-demographic characteristics of the patients, such as gender, age, education-level and Insurance Administration, as well as his reason for visiting the healthcare agency (Questions 1-9).
- **B. Reception:** The second section includes questions that focus on the behaviour of the reception personnel towards the patients (Questions 10-12).
- **C. Waiting:** The third section includes questions referring to both the characteristics of the waiting room's infrastructure, such as cleanliness, space capacity, temperature, as well as the waiting time of the patient in it (Questions 13-17).
- **D. Nursing Care:** The fourth section includes questions regarding the patient's satisfaction by the nursing staff, evaluating both behaviour and knowledge, in addition to the scientific and professional skill of the nurses (Questions 18-25).
- **E. Medical Care:** In the fifth section it is asked of the patients to evaluate and express their level of satisfaction concerning the personnel's scientific and professionalism skill, the personnel's behaviour and how much information they received from the personnel through a series of questions. (Questions 26-32).
- **F. General Services:** The sixth section focuses on internal procedures of the health service for the management of the patients, as well as services such as easy access to the facilities (Questions 33-39).
- **G. Specific Elements:** The seventh section includes questions that can be adjusted according to the department/clinic or the healthcare agency that was visited or introduced to the patient. (Questions 40-x, where x is the final number of the questions of the category "Specific Elements").

The questions in the sections of Reception, Waiting, Nursing Care, Medical Care, General Services and Specific Elements which study the patients' satisfaction from the given services, are close-type Likert questions, for which the people in question are asked to express their opinion following the 5-level scale (Likert). The answers follow the form «1: Very Dissatisfied» and «5: Very Satisfied».

In the current study, the 5-level scale was preferred over scales with more levels, as it is considered sufficient by the international bibliography and the research addresses patients with health problems, who either because of their health or because of their age have trouble with remembering big part of information [14-15].

### 3 Results

The pilot testing of paper-based questionnaires was carried out in two phases. Initially by patients of short hospitalization to the Emergency Department of General Hospital of the 6th Health Region Peloponnese, then in three Health Centers of Laconia, to further study the reliability and validity of the questionnaire.

From the General Hospital in Peloponnese 500 people was part of the research, who were chosen based on the method of random sampling from all patients using the services of the Emergency Department during the period July-September of 2011. Eventually, 450 people completed the questionnaire after their visit and their providing of healthcare just before their departure from the hospital or their transfer to a clinic (for those cases that required hospitalization of the patient).

At the same time, at the health centers, during the pilot test of the distribution of the paper-based questionnaires, the researched group was composed by 400 people, for the period September-December of 2011. Specifically, 336 individuals after they had been informed of the purpose of the research completed the questionnaire before their departure from the Health Center they had visited.

Based on the results obtained in the pilot testing of paper-based questionnaires it was estimated that the internal consistency of Cronbach is "a", which yielded  $\alpha = 0.95$  for the suggested scale. At the same time, reliability was calculated for each section of the questionnaire, and the Cronbach factor "a" was formed with values:  $\alpha \geq 0.8$  and  $\alpha \leq 0.95$ .

### 4 Conclusions

Based on scientific bibliographic review it is concluded that the degree of patient satisfaction is not easy to explore and assess. The fact that every healthcare institution uses its own scale to determine the degree of patient satisfaction results in many topics in this subject area to be presented as research failures. The recording of the opinion of health services users and the evaluation thereof by the Health Agencies may be used as an indicator of the quality of services they provide. The purpose of the research effort is the creation of a user-friendly and customizable web application which will be adjusted to this scale, in order to use mobile devices to measure the satisfaction of hospitalized patients, replacing in this way the traditional methods such as print questionnaires, postal questionnaires or telephone interviews, which are used to this day for this purpose.

As part of the research it is necessary to answer the following questions:

- How the socio-demographic data of the users are associated with the degree of satisfaction?
- How do the physical characteristics, such as the staying equipment of the healthcare agency, influence the patient's opinion?
- How do the non-physical characteristics, such as the emotional support, the informing, the behaviour by the health professionals affect the patient's opinion?
- Which device is considered optimal by the users for the ease of internet access?
- Which features such as device size or font size, do users believe that the device should have to be considered easy to use?
- Which characteristics of the hospitalized patients are related positively with the use of Internet access?

This study has identifying and researching the criteria through which a valid and customizable scale may be used as it purpose, in order:

- to reflect the satisfaction of patients by healthcare professionals.
- for the healthcare provider to be evaluated by the patients.
- to determine the weaknesses of the current service providing.
- for the health professionals' performance in Health Agencies to be evaluated.
- to allow the users of health services to express their opinions and take part in designing healthcare services.

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**Appendix**


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**UNIVERSITY OF PELOPONNESE  
MEASURING PATIENT SATISFACTION**

<b>Date : ...../...../2011</b>		
<b>The Questionnaire refers to :</b>		
<input type="checkbox"/> <b>EMERGENCY DEPARTMENT</b>		
<input type="checkbox"/> <b>OUTPATIENTS</b>		
<input type="checkbox"/> <b>HEALTH CENTER</b>		
<input type="checkbox"/> <b>CLINIC/DEPARTMENT</b>		
<b>The Health Center you were visiting : ..... (please fill in)</b>		
<b>A. PATIENT INFORMATION</b>		
1	The person who fills in the questionnaire:	<input type="checkbox"/> Patient <input type="checkbox"/> Relative or nurse
2	Sex:	<input type="checkbox"/> Male <input type="checkbox"/> Female
3	Age:	<input type="checkbox"/> ≤17 <input type="checkbox"/> 18-24 <input type="checkbox"/> 25-34 <input type="checkbox"/> 35-44 <input type="checkbox"/> 45-54 <input type="checkbox"/> 55-64 <input type="checkbox"/> ≥65
4	Education:	<input type="checkbox"/> Illiterate <input type="checkbox"/> Elementary School <input type="checkbox"/> Secondary Education <input type="checkbox"/> Higher Education <input type="checkbox"/> Technological Education <input type="checkbox"/> Technological Institute Degree <input type="checkbox"/> University Degree <input type="checkbox"/> MSc, MA, MBA <input type="checkbox"/> PhD
5	Your visit was:	<input type="checkbox"/> Urgent <input type="checkbox"/> Chronic health problem <input type="checkbox"/> Checking <input type="checkbox"/> Precaution
6	Insurance Administration:	<input type="checkbox"/> No insurance <input type="checkbox"/> Public Insurance <input type="checkbox"/> IKA <input type="checkbox"/> OGA <input type="checkbox"/> O.A.E.E <input type="checkbox"/> TSMEDE <input type="checkbox"/> TSA <input type="checkbox"/> DEH <input type="checkbox"/> Bank Officers' Insurance <input type="checkbox"/> Other Insurance: .....
7	Marital Status:	<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Widower
8	Nationality:	<input type="checkbox"/> Greek <input type="checkbox"/> Other (please define: .....)
9	Residence Place:	.....

<b>B. RECEPTION</b>						
		<b>Very Dissatisfied</b>	<b>Dissatisfied</b>	<b>Undetermined</b>	<b>Satisfied</b>	<b>Very Satisfied</b>
10	By the polite behavior of the staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	By the informing of the staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	By the willingness of the staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C. PENDING</b>						
		<b>Very Dissatisfied</b>	<b>Dissatisfied</b>	<b>Undetermined</b>	<b>Satisfied</b>	<b>Very Satisfied</b>
13	By the cleanliness of the room I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	By the spacious hall I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	By the easiness to find a seat while waiting I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	By the temperature of the room I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	By the waiting time I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D. NURSERY CARE</b>						
		<b>Very Dissatisfied</b>	<b>Dissatisfied</b>	<b>Undetermined</b>	<b>Satisfied</b>	<b>Very Satisfied</b>
18	By the friendly behavior of the staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	By the willingness of the healthcare professionals to answer my questions I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	By the scientific knowledge of the healthcare professionals I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	By the provided information of the healthcare professionals I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	By the experience of the healthcare professionals I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	By the emotional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



	support of the healthcare professionals I am...					
24	By the time that the healthcare professionals devoted to me I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	By the time performing a nursery act I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>E. MEDICAL CARE</b>						
		<b>Very Dissatisfied</b>	<b>Dissatisfied</b>	<b>Undetermined</b>	<b>Satisfied</b>	<b>Very Satisfied</b>
26	By the information about my health status given by my doctor I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	By the time that the doctor devoted to me I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	By the instructions given by my doctor I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	By my participation to the methods of treatment I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	By the friendly behavior of the medical staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	By the scientific knowledge of the medical staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	By the willingness of the medical staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>F. GENERAL SERVICE</b>						
		<b>Very Dissatisfied</b>	<b>Dissatisfied</b>	<b>Undetermined</b>	<b>Satisfied</b>	<b>Very Satisfied</b>
33	By the level of communication by the secretary staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	By the easiness of parking I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	By the way of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	dealing with escorts or relatives of the secretarial staff I am...					
36	By the ease of access to premises I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	By the throughput of procedures by the secretary staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	By the mechanism of contact and cooperation with regard to handling my needs I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	By the respect shown by the staff I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>G. SPECIAL FEATURES</b>						
		<b>Very Dissatisfied</b>	<b>Dissatisfied</b>	<b>Undetermined</b>	<b>Satisfied</b>	<b>Very Satisfied</b>
40	By the clinic I visited I am...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>