

# **Patients' satisfaction and quality of care: An empirical study in a Greek central hospital**

**Lekidou Ilia**

MSc Management, T.E.I. of  
Larissa  
ilial@panafonet.gr

**Trivellas Panagiotis**

Assistant Professor TEI of  
Larissa  
[ptrivel@teilar.gr](mailto:ptrivel@teilar.gr)

**Ipsilandis Pandelis**

Professor TEI of Larissa  
ipsil@teilar.gr

## **Abstract**

*Patients' perceptions about the quality level of health services provided in hospitals seem to have been largely ignored by both researchers and practitioners. Patients' voice has to guide the design of health care service delivery processes in order to foster confidence and promote the usage of the available health care facilities. In this line, we investigate the relationship of patients' admission, accommodation aspects, external environment and the care provided by doctors, nurses and assistant personnel with service quality mirrored on patients' satisfaction. The current study is, therefore, patient-centered and identifies the quality factors that are important to patients; it also examines their links to patient satisfaction in the context of Greece. A field survey was conducted based on a sample of 164 patients of a central public hospital.*

*By using stepwise regression analysis, significant associations were found which shed light on the determinants of patients' satisfaction. Especially, results reveal that visiting hours, doctor's consistency, the kind of insurance, days of hospitalization, the type of clinic and hygiene's observance have a positive relationship with patients' satisfaction. On the other hand, patients are dissatisfied, if quiet is not observed, if it is difficult to locate doctors, if problems occur with parking, and admission process. In addition, the lack of communication with nurses, doctors' impoliteness, orderly improper behaviour, and health deterioration after patients' hospitalization exert negative impact on satisfaction.*

*Implications and future research issues are also discussed*

Keywords: Patient Satisfaction, Service Quality, Quality of care

JEL Classifications: I10, I11, I18, J24, L32, M10

Acknowledgements: This research has been carried out under the auspices of the ARCHIMEDES project that is co-funded by the European Social Fund and National Resources- EPEAEK II

## **Introduction**

Initially, it is difficult to define and implement any theory about quality in healthcare system. Academic suggestions are oriented in the generation of standards, which can be measured and improve the

outcome. It is remarkable that the definition of quality assurance in healthcare system is: «the assessment of final level of quality of provided services (and not only the medical work), in combination with the efforts for the modification of this services when this is necessary » (Black, 1990)

Quality systems in large organisations like hospitals can be viewed as complex networks (Blanas, 2003) since departments and employees in a variety of specializations interact with a variety of suppliers for the supply of large number of drugs, apparatus and other supplies and an increased variety of incoming patients suffering from an infinite variety of diseases and exposing stressed personalities. In healthcare system, the 'producer' (a basic resource) is the doctor and, as a result, he/she is responsible for the quality of provided services (Sigalas, 2003). The result is that quality is not a simple administrative - technical issue, but a holistic approach that encompasses the efficiency of medical care, the equal possibility of access and the effective supply of healthcare services. Although, patients are not able to assess directly the technical quality of received care, they use qualitative characteristics combined with healthcare system (Berwick, Godfrey and Roessner, 2002). The patients determine the quality of healthcare system in terms of empathy, reliability, response, communication and care. This means that they emphasize human traits and not the technical abilities of doctors (Breedlove, 1994). However, there are special technical principles and rules of TQM which can be implemented in the sector of healthcare services. For example, patient satisfaction cannot be measured by how much times he/she will return in hospital, but it is likely to be measured by how much times he/she will return for reasons that are related with a medical problem that he/she has faced in the past (Papanikolaou, 2003).

Using a management tool, namely satisfaction survey, we try to emphasize what can affect positively or negatively patient's satisfaction and, as a result, quality of care. The most important factors which are considered as determinants of patients' satisfaction are patients' admission, accommodation aspects, supporting facilities, the care of doctors, nurses, and assistant personnel.

In the following section, we briefly present international and Greek studies linked with healthcare and satisfaction, because they can be used as a common field and as a way to benchmark issues of great importance. There is no doubt that a well designed, implemented, and utilized patient satisfaction measurement system can help health care managers improve the quality of their clinical and administrative activities. Afterwards, it will be illustrated the data analysis followed by the discussions of the findings, and finally conclusions and implications about healthcare system are drawn.

## **Literature Review**

### **International Context**

The aim of a research that has been carried out by Hill and McCrory was to develop an amount of measurement tools about quality (Hill and McCrory, 1997). They focused on the utility of quality improvement techniques from obstetrical facilities where combined different cultures exist. The research was conducted using the assistance of combined methods, like focus group, personal interviews and observations in a big Maternity clinic of Dublin. Using a concrete

decision rule, the weak points of services were found and a "guide" of hospital management was created in order to find out the appropriate efforts and the sources for the service quality improvement.

A study, carried out from 1991 to 1994, in nine primary care clinics in the Negev district of Kupat Holim Clinic, Israel's largest sick fund, evaluated the impact of a budgetary-holding program on patient satisfaction and other selected indicators of quality of care, using a controlled case study methodology. The findings counter fears that budgetary control and cost containment negatively affect quality of care and patient satisfaction. However, the program did not fulfill expectations regarding improvement in clinic services and patient satisfaction (Gross and Nirel, 1998).

Milosevic and Bayyigit (1999) stated that "the value of assessing patient satisfaction to health care organizations, where the organization must attempt to respond to reasonable expectations of patients. If health care organizations are in the business to provide service for their customers, then they must strongly consider the needs and expectations of their most important customers: patients. Furthermore, health care organizations are in the business of caring for human beings. Patients entrust their lives and wellbeing to providers. Thus, monitoring patient satisfaction is a crucial element of an organization's effectiveness and should be part of the quality improvement initiative" (Torres and Guo, 2004).

Wensing and Elwyn (2002) emphasized three components of patients' views on health care: preferences, evaluations and reports. Preferences are essentially a patient's desires and expectations about what should occur in the health care setting. There are both qualitative and quantitative methods for measuring preferences. Among the qualitative methods are individual interviews and focus groups. Quantitative measures include surveys, nominal group techniques, and consensus methods. Some examples of qualitative methods include evaluations and patient reports. Evaluation refers to the patient's reaction to the service he/she received from a health care organization. Evaluations from the patients most often come in the form of questionnaires. Finally, patient reports are objective observations that patients make about an organization or its processes. For example, a patient can usually indicate the number of times he/she was seen by a physician during a hospital stay regardless of whether or not he/she thinks it was a sufficient amount with an appropriate level of care (Torres and Guo, 2004).

It is widely accepted that responsiveness differs and it is not identified with patient's satisfaction and the quality of health care, even if there are certain interdependent dimensions between these significances. The World Organization of Health fulfilled researches which lead to the determination of responsiveness' characteristics. According to De Silva (De Silva, 2000), these characteristics are: dignity, independence, accuracy, confidentiality of information, communication, supplier's choice, social support and environment.

Patient satisfaction has emerged as an important component of the quality of medical care. Generally, the factors that influence the concept of patient satisfaction, as seen from the patients' perspective, are of primary importance. Other perspectives, such as those of the health care professionals, are of lesser value (Mahon, 1996). This new emphasis on quality of care and outcome measurement

has led to an increased appreciation of the significance of patients' perception of care. In fact, patient satisfaction is a focal concern of quality assurance and an expected outcome of care (Donabedian, 1980). According to another definition of patient satisfaction, it is described as patients' value judgements and subsequent reactions to the stimuli they perceive in the health environment just before, during, and after the course of their inpatient stay or clinical visit (Strasser and Schweikhart, 1992).

Following Pascoe view (Pascoe, 1983), the degree of an individual's experience compared with his or her expectations is known as satisfaction. Furthermore, Asadi-Lari, Tamburini and Gray (Asadi-Lari, Tamburini and Gray, 2004) stated that: "Patients' satisfaction is related to the extent to which general health care needs and condition-specific needs are met. Evaluating to what extent patients are satisfied with health services is clinically relevant, as satisfied patients are more likely to conform with treatment, be interested about their own care, to continue using medical care services and stay within a health provider (where there are some choices) and maintain with a specific system. In addition, health professionals may benefit from satisfaction surveys that identify potential areas for service improvement and health expenditure may be optimised through patient-guided planning and evaluation".

### **Greek Context**

Karayianni Vilma (Karayianni, 1994) presented the elaboration of a study of quality's comparative evaluation of two different systems of medicine's distribution in Greek Hospitals. During the medicine's distribution circle and the localization of the two systems dysfunctional areas, the objective of this study was the description and the analysis of pharmaceutical activities, the existence of better hospitals' organization, better management and the improvement of service quality in healthcare system.

In addition, Merkouris, Yfantopoulos, Lanara and Lemonidou (Merkouris et al, 1999) attempted to develop a reliable and valid instrument to measure patient satisfaction with nursing care. The conclusion was that the psychometric properties of the instrument was satisfactory but there is a need for continuous improvement, evaluation and verification for other studies. However, other studies found that patients' ratings regarding basic needs are always negative in relation to other areas of nursing care (Sigalas and Papanikolaou, 1995).

Patient satisfaction can be considered also, as a measure in which those that provide health care have achieved to correspond in patient's needs and its expectations. Patients' satisfaction has been determined as a variable that affects the effectiveness of health care (Kyriopoulos, 2003), and also the collaboration within those that provide qualitative health care. Furthermore, patients' satisfaction can affect the access (Kyriopoulos, 2003) and the use of healthcare, emphasizing its great importance to the planning and the determination of health strategy.

Finally, Theodorakioglou (1998) conducted a survey about medical care in Greece. The basic aim of this survey was to verify utility's and implementation's degree of quality approaches and spot basic problems that the most important public institutions confront in Greece. The results of the research indicated that the implementation of quality approaches was rare and the leadership, that plays the most

determinative role for the support of these approaches, lacks basic education and information about quality's issues (Tsiotras, 2002).

## **Research Approach**

### **The objectives of the research**

The aim of the current research is the assessment of the quality of care that is provided by a typical public hospital in Greece, as mirrored by patients' satisfaction. Specifically, patients' perceptions were addressed for the determination of the factors that contribute to the evaluation of good or bad quality, which is related to:

- Care and attention from doctors, nurses and assistant personnel
- The effectiveness of medical care (hygiene, feeding and wards' condition)
- The importance of the external environment (canteen's service, canteen's prices, information office, security, parking, piloting)

It is worth to say that the final aim of this study is to describe several approaches of implementing quality improvement initiatives and suggest ways to improve patient satisfaction. Patient satisfaction enables health-care organizations to position themselves for success in today's global and increasingly competitive environment.

### **Research Method**

The field research presented at this paper, conducted in 2005 using a structured questionnaire, which was developed based on literature review and pre-tested through a pilot qualitative study. Our analysis was based on personal interviews with 164 patients in 8 types of clinics (A' Pathology, B' Pathology, A' Cardiology, B' Cardiology, Otolaryngology, Orthopedics, C' Neurology and A' Pneumonology). The sample is comprised by patients who are in their last stage of completion of their hospitalization.

It is worth mentioning that, the total number of patients that we conducted for interviewing was 220. The high response rate ensures the reliability of the answers received and it is also indicative of how important the research has been considered by patients.

The 54% of the respondents were male. Most of the respondents (63%) have graduated elementary or high school. The 68% of the patients were characterized by less than 10 days of hospitalisation. Furthermore, the 32% of the patients were imported in public hospital for the first time, while the 23% for the second one. A sample of patients with more than 10 days hospitalisation would be more reliable. However, this is not feasible because of the small percentage of patients who were treated in hospital more than 10 days. In addition, the 70% of the patients consider that their health problem is important and the 73% of the patients feel better and healthier. Finally, with regard to access time, 80% of patients were dissatisfied, because hospital is too far from their home and they believe that the route is difficult, but this is not hospital's appositeness and obligation.

The structured questionnaire consisted of a total of 48 items, and it was used a five-point Likert scale. The research instrument was

tested twice before it was released. Firstly, it was examined with key informants from four hospitals, to comment on. Secondly, it was provided to academics for in depth discussions. This process was fruitful, since they confirmed the relevance of the questionnaire to determinants of patients' satisfaction.

The questionnaire included items referring to: (a) patients' demographics, (b) the importance of patients' problem, (b) patients' admission, doctors' care (behavior, quality of communication with patients, informative, and their availability), (c) nurses' care (behavior, quality of communication with patients, informative, their availability and their adequacy), (d) assistant personnel care (orderly care, cleaning personnel, waiters), (e) accommodation aspects (hygiene, feeding and wards' condition) and (f) external environment (canteen's service, canteen's prices, information office, security, parking, access to hospital, piloting).

The patients interviewed were hospitalized in "Georgios Papanikolaou" hospital. This healthcare facility was chosen, because it is a public hospital which has 702 beds and 1682 employees and the number of patients who visit this hospital per day is approximately 250 (scheduled or emergency incidents). Furthermore, it accommodates all the types of clinics and, as a result, many different kinds of medical cases and almost all the range of medical science expertise are exercised.

### **Data Analysis and Discussion**

Multiple stepwise regression analysis was conducted with patients' satisfaction as dependent variable, testing the impact of medical, nursing and general care factors. No serious problems of multi-collinearity exist between the independent variables as Variance Inflation Factors (VIF) is far below the 10 points limit suggested in Social Sciences literature. Table 1 presents the regression results, including standardized beta, VIF, adjusted  $R^2$ , and significance levels. The data were examined for outliers, skewness, kurtosis, and multivariate normality using statistical procedures and plots available by the Statistical Package for the Social Sciences (SPSS). The variance explained in the regression model by the effect of the independent variables on patients' satisfaction accounts for 75% ( $p < 0,01$ ).

{Insert Table 1 from appendix here}

The fact that quality is high for patients who believe that guidance after hospitalization is easy to understand (66, 7%) as it may be attributed to the high relation of dependence that a patient develop with doctors, especially when the problem is very important, and which usually does not cease to exist after patient's hospitalization.

Regarding age, unsatisfied patients seem to be people who are aged more than 56 (90%) contrary to those who are less than 36. This can be explained by the fact that older people grew up in a society where institutions were managed by people who didn't care about patient's opinion. Despite the fact that the need for medical and nursing care increases with age, older people seem to be more satisfied. A possible explanation is that people, who are elder, fear the future and, as a result, their own need of care is greatest. Furthermore, patients who are more than 56 seem to be more satisfied by doctor's care rather than patients who are less than 46.

'Good' quality mirrored on patients' satisfaction depends also on the type of clinic. As a result, people, who were hospitalized in A' Cardiology (40%) and in Otolaryngology (40%), created a negative opinion about nursing care. On the other hand, there is a high percentage of satisfied people who were hospitalized in B' Pathology (43%). In addition, certain insurance organizations are most appreciated by patients. For example, IKA has the highest percentage, because it covers the majority of patients' hospitalization and, generally, it has more benefits rather than other insurance bodies.

Patients seem to be unsatisfied by certain factors which determine quality of care such as admission process (stand. $\beta$ =-0,172,  $p$ <0,001) and by the fact that their health is not improved after their hospitalization (stand. $\beta$ =-0,069,  $p$ <0,001).

It is remarkable that patients' satisfaction from doctors is negative, when their health is not better after their hospitalization (stand.  $\beta$ =-0,069,  $p$ <0,05). The percentage of patients who are satisfied by the provided medical care and are recovered is equal to 54%, but the percentage of patients who have neutral opinion about medical care and are in the same condition is only 23%.

The easiness to locate doctors when they are needed is negatively related to patients' satisfaction (stand. $\beta$ =-0,176,  $p$ <0,001). The percentage of patients who are disappointed and hardly trace doctors when they require them is 47%.

Doctors' politeness exhibits also a negative relationship (stand. $\beta$ =-0,157,  $p$ <0,001), but doctors' consistency illustrates a positive relationship (stand. $\beta$ =0,323,  $p$ <0,001) with satisfaction. Additionally, when patients communicate with doctors are more satisfied by medical care.

Moreover, patients who had hospitalized in B' Pathology seem to be strongly satisfied by doctors in this clinic (44,4%) contrary to patients who had hospitalized in A' Cardiology (33,3%).

Communication with nurses (stand. $\beta$ =-0,302,  $p$ <0,001) and maintenance of silence (stand. $\beta$ =-0,284,  $p$ <0,001) negatively influence satisfaction, while the number of days of hospitalisation (stand. $\beta$ =0,103,  $p$ <0,01) is positively associated with satisfaction.

Regarding assistant personnel, patients feel unsatisfied when orderly do not behave properly and courteously (stand. $\beta$ =-0,104,  $p$ <0,01).

Moreover, mentioning accommodation aspects, patients seem to be unsatisfied by specific factors like hospital beds allocation (stand. $\beta$ =-0,120,  $p$ <0,01) and quiet's maintenance (stand. $\beta$ =-0,284,  $p$ <0,05), but hygiene's observance (stand. $\beta$ =0,105,  $p$ <0,05) and visiting hours (stand. $\beta$ =0,121,  $p$ <0,001) contribute towards patients' satisfaction.

Finally, certain factors from external environment such as parking (stand. $\beta$ =-0,170,  $p$ <0,001) and canteen's prices (stand. $\beta$ =-0,101,  $p$ <0,01) can affect negatively patient's satisfaction.

## Conclusions

The current empirical study aims to shed light on the relationship between doctors' care, nurses' care, assistant personnel's care,

accommodation's aspects, external environment and patients' satisfaction in a central Greek Hospital.

The results of multiple regression analysis pointed out that a number of factors determine quality of care reflected on patients' satisfaction.

Findings leave little doubt that doctors' characteristics such as politeness and consistency exert higher levels of influence on patients' satisfaction.

The patients emphasized the importance of effectual information and that there was a need for improved information in order to promote satisfaction. Moreover, patients stated that the creation of a good relationship between care-receiver and doctors is based on: information, mutual understanding, respect, trust, honesty, cooperation and humour.

Narthost-Böös and his colleagues (2001) conducted a research to evaluate two models, namely QSP (Quality Satisfaction Performance) model and QPP (Quality from Patient's Perspective) model. They found that 'medical care', 'treatment by the doctor' and 'access to nursing treatment' obtained high scores in 'perceived reality', while 'accessibility' and 'participation' obtained low scores. Moreover, QPP model has a comprehensive and solid question bank and QSP model has immediate usefulness and clear graphic presentation. It has been proved that both approaches may be useful to measure patient satisfaction.

Initially, doctors come when it is scheduled and if visiting hours are being kept properly, patients seem to be very satisfied. In particular, according to Andaleeb (1998), patient satisfaction can be enhanced by improving the quality of communication with patients by explaining medical procedures, discussing questions of concern, by consulting with them regarding their care and by having proper facilities. This specific survey also illustrated that competitive advantage can be gained through delivering patient satisfaction. Additionally, service quality dimensions have also influenced the terms which are used in health services.

Furthermore, the kind of insurance, the duration of hospitalization, the type of clinic and hygiene's observance can affect positively patients' satisfaction. Ware, Davies-Avery and Stewart (1978) believe that basic parameters which must be examined, during patients satisfaction, are (Souliotis, 2003): health professional's training and behaviour, the infrastructure of hospitalization (residence conditions), the access to services, the cost of provided care, the external environment, the availability of hospital personnel, the duration of hospitalization and the outcome. It is worth mentioning that Carman (2000) found that hospital service quality dimensions are: the technical aspect (nursing care, outcome and physician care) and the accommodation aspect (food, noise, room temperature, cleanliness, privacy and parking).

On the contrary, this research illustrated that communication with nurses and doctors' politeness affect negatively patients' satisfaction. It is necessary for hospital personnel to try to correspond in natural, sentimental and social needs of patients. When the care is friendly and full of hope, interest and effort, the fear and the anxiety of illness (unknown for the patient) can be disappeared. This relation should be based on the confidence and it



should promote the secrecy and the high expectations of patient, who suffers (Andaleeb, 1998).

Proper relations between patient and doctor can be generated when the doctor is suitably trained, especially on communication issues. Furthermore, using the existing experience of past, the doctor must create confidence to the patient for any necessary support. Moreover, in hospitals, communication can be testified from assistant personnel (Coyle and Williams, 1999), like the personnel in entrance or information office or elevator.

This study revealed also that if patients have problems during their admission, if their health is not improved after their hospitalization and if it is not easy to find doctors when patients need them, patients tend to be seriously unsatisfied by provided health services. Moreover, improper assistants' behaviour, and especially orderly's behaviour, can cause negative patients' satisfaction. Linder-Pelz (1982) emphasized that the dimensions of the care experience can include: interactions with providers, the ease of access, the burden of costs, and environmental issues such as cleanliness of the health care facility. She also advocated that the concept of patient satisfaction should be confronted as a multidimensional concept. Furthermore, other studies underlined that patient satisfaction can be gained through special factors such as access (Hall and Press, 1996; McKinley et al., 1997; Piette, 1999) and communication (Cooper-Patrick et al., 1999; Joos et al., 1996; Piette, 1999; Roter et al., 1997), which have consistently a positive association with patients' satisfaction.

Additionally, mentioning accommodation aspects, patients seem to be unsatisfied by specific factors like hospital beds allocation and silence preservation. External environment dimensions, such as canteen prices and parking, are linked with satisfaction deterioration. Andaleeb (Andaleeb, 2001) has conducted a field survey in Bangladesh using factor analysis and multiple regression. He found significant associations between the five service quality factors (responsiveness, assurance, communication, discipline and baksheesh) and patient satisfaction. Merkouris, Papathanassoglou and Lemonidou (2004) accentuated that the obvious and covert aspects of patients' satisfaction, as well as probable antecedents and causes, can be illustrated by qualitative approaches. In addition, these approaches can assist organisational and management decisions in order to humanise and update health care to meet patients' needs.

Finally, healthcare administrators should to be focused on organizational changes, including direct incentives for hospital employees, like positive feedback and reimbursement for the additional effort in order to improve services (Gross and Nirel, 1998). Concluding, it is figured out that patient satisfaction constitutes an indicator of quality for the public health and it is, therefore, useful to implement further studies that clarify patient satisfaction. This means that more qualitative and quantitative studies are needed for future research in order to study patient's perspective and find ways to implement innovativeness and quality tools in management action (Stavroulakis, 1997; Reklitis, 2001; Athanassopoulos et al., 2000).

## References

- Andaleeb, S.S., 1998, "Determinants of customer satisfaction with hospitals: a managerial model" *International Journal of Health Care Quality Assurance*, Vol.11, No. 6, pp. 181-187.
- Andaleeb, S.S., 2001, "Service quality perceptions and patient satisfaction: a study of hospitals in a developing country", *Social Science & Medicine*, Vol. 52, pp. 1359-1370.
- Andriotis, K.B., 2003, "Quantitative research and data analysis using SPSS 11.5" Edition Kleidarithmos, Greece, Athens, pp. 109-139, ISBN: 960-209-670-5.
- Asadi-Lari, M., Tamburini, M. and Gray, D., 2004, "Patients' needs, satisfaction, and health related quality of life: Towards a comprehensive model", *Health and Quality of Life Outcomes*, 2:32.
- Athanassopoulos A., Reklitis P., Y. Spanos, L. Papagiannakis, 2000, "Firm Capabilities, Market Environment & Innovativeness: Evidence from Greek manufacturing firms", *Les Cahiers du Management Technologique*, Vol. 10, No 1, pp 9-28.
- Berwick, D., Godfrey, B. and Roessner, J., 2002, "Curing Health Care: New Strategies for Quality Improvement Conference, Jossey - Bass Publishers, San Francisco, California, ISBN: 0-7879-6452-2.
- Black, N., 1990, "Quality Assurance of medical care" *Journal of Public Health Medicine*, Vol. 12, No. 2, pp. 97-104. In: Tsiotras, Y.D. (2002) "Quality's Improvement" (Second Edition), Edition E. Benou, Athens, ISBN: 960-359-00-0.
- Blanas, G. (2003) "Total Quality Networking - TQM and IS Networks, Patakis Publications, Athens, ISBN 960-16-0954-7
- Breedlove, T. H., 1994, 'Measuring the impact of quality improvement efforts', *Healthcare Financial Management*, Sep 1994, Vol. 48, No. 9, pp. 32 - 35.
- Carman, J., 2000, "Patient perceptions of service quality: combining the dimensions", *Journal of Management in Medicine*, Vol. 14 No. 5/6, pp. 339-56.
- Cleary PD, Edgman-Levitan S., 1997, "Health care quality. Incorporating consumer perspectives", *Jama*, Vol.278, pp.1608-1612. In: Gasquet, I., Villeminot, S., Estaquio, C, Durieux, P., Ravaud, P. and Falissard, B. (2004) "Construction of a questionnaire measuring outpatients' opinion of quality of hospital consultation departments" *Health and Quality of Life Outcomes*, Vol.2, pp.43.
- Cooper-Patrick, L., Gallo, J.J., Gonzales, J.J., Vu, H.T., Powe, N.R., Nelson, C. and Ford, D.E., 1999, "Race, gender, and partnership in the patient-physician relationship", *JAMA*, Vol. 282, pp. 583-9. In: Tucker III, J.L. and Adams, S.R., 2001, "Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care", *Managing Service Quality*, Vol. 11. No. 4, pp. 272-286.
- Coyle, J. and Williams, B., 1999, "Seeing the wood for the trees: defining the forgotten concept of patient dissatisfaction in the light of patient satisfaction research", *International Journal of Health Care Quality Assurance incorporating Leadership in Health Services*, Vol.12, No. 4, pp. i-ix.
- Donabedian A., 1988, "Quality assessment and assurance: unity of purpose, diversity of means", *Inquiry*, Vol. 25, Spring, pp. 173-92. In: Andaleeb, S.S., 1998, "Determinants of customer satisfaction with hospitals: a managerial model" *International Journal of Health Care Quality Assurance*, Vol.11, No. 6, pp. 181-187.
- Donabedian, A., 1980, "The Definition of Quality and Approaches to its Assessment", Health Administration Press, Ann Arbor, MI.
- Gasquet, I., Villeminot, S., Estaquio, C, Durieux, P., Ravaud, P. and Falissard, B., 2004, "Construction of a questionnaire

- measuring outpatients' opinion of quality of hospital consultation departments" *Health and Quality of Life Outcomes*, Vol.2, pp.43.
- Gross Revital and Nirel Nurit,1998, "Quality of care and patient satisfaction in budget-holding clinics" *International Journal of Health Care Quality Assurance*, Vol.11, No.3, pp. 77-89.
- Hall, M.F. and Press, I.,1996, "Keys to patient satisfaction in the emergency department: results of a multiple facility study", *Hospital and Health Services Administration*, Vol. 41, pp. 515-32. In: Tucker III, J.L. and Adams, S.R., 2001, "Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care", *Managing Service Quality*, Vol. 11. No. 4, pp. 272-286.
- Hill M.Frances and McCrory L. Marlena, 1997, "An attempt to measure service quality at a Belfast maternity hospital: Some methodology issues and some results" *Total Quality Management* Vol.8, No. 5, October 1997, Special Issue: Total Quality management in Health Care.
- Johanson P., Oléni M. and Fridlund B., 2002, "Patient satisfaction with nursing care in the context of health care: a literature study" *Nordic College of Caring sciences, Scand J Caring Sci*, 16, pp. 337-344.
- Joos, S.K., Hickam, D.H., Gordon, G.H. and Baker, L.H., 1996, "Effects of physician communication ntervention on patient care outcomes", *Journal of eneral Internal Medicine*, Vol. 11, pp. 147-55. In: Tucker III, J.L. and Adams, S.R., 2001, "Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care", *Managing Service Quality*, Vol. 11. No. 4, pp. 272-286.
- Karayianni, V., 1994, "The quality of the functional circle of medicine's distribution in Greek Hospitals: comparative evaluation of two different systems" *Proceeding of congress: TQM In Health Care*, 4,5 and 6 November, pp. 161-173.
- Kyriopoulos, Y., Gregory, S. and Oikonomou, H., 2003, "Health and Healthcare Services in Greek Population", Edition Papazisi, Athens, ISBN: 960-02-1624-X.
- Kyriopoulos, Y., Lionis, C., Souliotis, K. and Tsakos, Y., 2003, "Society and Health", Edition Themelio, Greece, Athens, ISBN: 960-310-299-7.
- Linder-Pelz, S., 1982, "Toward a theory of patient satisfaction". *Social Science and Medicine*, Vol. 16, pp. 577-82. In: Tucker III, J.L. and Adams, S.R., 2001, "Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care", *Managing Service Quality*, Vol. 11. No. 4, pp. 272-286.
- Ludwig-Beymer, P., Ryan, C.J., Johnson, N.J., Hennessy, K.A., Gattuso, M.C., Epsom, R. and Czurylo, K.T., 1993, "Using patient perceptions to improve quality care", *Journal of Nursing Care Quality*, Vol. 7, pp. 42-51. In: Johanson P., Oléni M. and Fridlund B., 2002, "Patient satisfaction with nursing care in the context of health care: a literature study" *Nordic College of Caring sciences, Scand J Caring Sci*, 16, pp. 337-344.
- Mahon, Y.P., 1996, "An analysis of the concept 'patient satisfaction' as it relates to contemporary nursing care" *J Adv Nurs*, Vol. 24, pp. 1241-1248. In: Johanson P., Oléni M. and Fridlund B., 2002, "Patient satisfaction with nursing care in the context of health care: a literature study" *Nordic College of Caring sciences, Scand J Caring Sci*, 16, pp. 337-344.
- McKinley, R.K., Manku-Scott, T., Hastings, A.M., French, D.P. and Baker, R., 1997, "Reliability and validity of a new measure of patient satisfaction with out of hours primary medical care in the United Kingdom: development of a patient questionnaire", *BMJ*, Vol.

- 314, pp. 193-8. In: Tucker III, J.L. and Adams, S.R., 2001, "Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care", *Managing Service Quality*, Vol. 11. No. 4, pp. 272-286.
- Merkouris, A., Papathanassoglou, E.D.E. and Lemonidou, C., 2004, "Evaluation of patient satisfaction with nursing care: quantitative or qualitative approach?", *International Journal of Nursing Studies*, Vol. 41, pp. 355-367.
- Merkouris, A., Yfantopoulos, J., Lanara, V. and Lemonidou, C., 1999, "Developing an instrument to measure patient satisfaction with nursing care in Greece", *Journal of Nursing Care*, Vol. 7, pp. 91-100.
- Milosevic, D. and Bayyigit, M., 1999, "Quality improvement: what is in it for the patient?" *IEEE Transactions on Engineering Management*, Vol. 46 No. 3, pp. 346-7. In: Torres E. Joseph and Guo Kristina L., 2004, "Quality improvement techniques to improve patient satisfaction" *International Journal of Health Care Quality Assurance* Vol. 17, No. 6, pp. 334-338.
- Moreno, L., Aquilar, R.M., Martin, C.A., Pineiro, J.D., Estévez, J. I., Sánchez, J. L., Sigut, J. F. and Jiménez, V.I., 1998, "Patient-centered computer simulation in hospital management", *Journal of Network and Computer Applications*, Vol. 21, pp. 287-310.
- Nathorst-Böös, J., Munck, I.M.E, Eckerlund, I. and Ekfeldt-Sandberg, C., 2001, "An evaluation of the QSP and the QPP: two methods for measuring patient satisfaction", *International Journal for Quality in Health Care*, Vol. 13, No. 3, pp. 257-264.
- Papanikolaou, V. & Sigalas, 1995, "Patient satisfaction as indicator of hospital care", *Health Review*, Vol. 56, pp. 248-256.
- Papanikolaou, V., 2003, "Introducing and maintaining a program of total quality/continuous improvement of hospital care: developing models and output measures". In: Kyriopoulos, Y., Lionis, C., Souliotis, K. and Tsakos, Y., 2003, "Society and Health", Edition Themelio, Greece, Athens, ISBN: 960-310-299-7.
- Papanikolaou, V., 2003, "Quality of healthcare services and users satisfaction". In: Kyriopoulos, Y., Lionis, C., Souliotis, K. and Tsakos, Y., 2003,) "Society and Health", Edition Themelio, Greece, Athens, ISBN: 960-310-299-7.
- Papanikolaou, V. and Sigalas, I., 1995, "Patient Satisfaction as indicator of the quality of hospital care", *Health Review*, Vol. 56, pp.248-256. In: Merkouris, A., Yfantopoulos, J., Lanara, V. and Lemonidou, C., 1999, "Developing an instrument to measure patient satisfaction with nursing care in Greece", *Journal of Nursing Care*, Vol. 7, pp. 91-100.
- Pascoe, G.C., 1983, "Patient satisfaction in primary health care: a literature review and analysis" *Eval Program Plann*, 6:185-210. In: Asadi-Lari, M., Tamburini, M. and Gray, D., 2004, "Patients' needs, satisfaction, and health related quality of life: Towards a comprehensive model", *Health and Quality of Life Outcomes*, 2:32, doi: 10.1186/1477-7525-2-32.
- Piette, J.D., 1999, "Satisfaction with care among patients with diabetes in two public health care systems", *Medical Care*, Vol. 37, pp. 527-8. In: Tucker III, J.L. and Adams, S.R., 2001, "Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care", *Managing Service Quality*, Vol. 11. No. 4, pp. 272-286.
- Reklitis P., 2001, "Relating corporate innovative behavior to Porter's strategies and organizational structure: the case of the Greek industry". *Les Cahiers du Management Technologique*, Vol. 11, No 1, pp 67-83.

- Rose Raduan Che, Uli Jegak, Abdul Mohani and Ng Kim Looi, 2004, "Hospital service quality: a managerial challenge" *International Journal of Health Care Quality Assurance*, Vol. 17, No. 3, pp. 146-159.
- Roter, D.L., Stewart, M., Putnam, S. M., Lipkin, M., Stiles and Inui, T.S., 1997, "Communication patterns of primary care physicians", *JAMA*, Vol. 277 No. 4, p. 350-6. In: Tucker III, J.L. and Adams, S.R., 2001, "Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care", *Managing Service Quality*, Vol. 11. No. 4, pp. 272-286.
- Sigalas, I., 2003, "Conditions and factors that improve or deteriorate the quality of care". In: Kyriopoulos, Y., Lionis, C., Souliotis, K. and Tsakos, Y., 2003, "Society and Health", Edition Themelio, Greece, Athens, ISBN: 960-310-299-7.
- Silva de, A., 2000, "A framework for measuring responsiveness", World Health Organization, Geneva, (GPE Discussion Paper Series: No 32). In: Kyriopoulos, Y., Gregory, S. and Oikonomou, H., 2003, "Health and Healthcare Services in Greek Population", Edition Papazisi, Athens, ISBN: 960-02-1624-X.
- Souliotis, K., Dolgeras, A. and Kyriopoulos, Y., 2003, "Users satisfaction from healthcare services: inquiring results in the region of Athens. In: Kyriopoulos, Y., Lionis, C., Souliotis, K. and Tsakos, Y., 2003, "Society and Health", Edition Themelio, Greece, Athens, ISBN: 960-310-299-7.
- Stavroulakis, D., 1997, "Quality Circles Autonomy. Evidence from a Japanese and a Western Subsidiary", *International Journal of Quality and Reliability Management*, vol 14, issue 2-3, pp. 146-159.
- Strasser, S., and Schweikhart, 1992, "Measuring Patient Satisfaction for Improved Patient Service" Ann Arbor, MI: Health Administration Press.
- Torres E. J. and Guo K. L., 2004, "Quality improvement techniques to improve patient satisfaction" *International Journal of Health Care Quality Assurance* Vol. 17, No. 6, pp. 334-338.
- Tsantas, N., Moisiadis, H., Bayiatis, D. and Hatzipandelis, T., 1999, "Data Analysis with statistical programs", Edition Ziti, Greece, Thessaloniki, pp. 2(4 -15), 2(63-69), ISBN: 960-431-518-8.
- Tsiotras, Y.D., 2002, "Quality's Improvement" (Second Edition), Edition E. Benou, Athens, ISBN: 960-359-00-0.
- Tucker III, J.L. and Adams, S.R., 2001, "Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care", *Managing Service Quality*, Vol. 11. No. 4, pp. 272-286.
- Wensing, M. and Elwyn, G., 2002, "Research on patients' views in the evaluation and improvement of quality of care", *Quality and Safety in Health Care*, Vol. 11 No. 2, June 2002, pp. 153-7.

## Appendix

**Table 1: Results of Regression Analysis for the determinants of patients' satisfaction.**

	Independent Variables	stand. $\beta$	Sign.	VIF	Dependent Var.	Sign. of the model
1.	If it is easy to find doctors when patients need them	-,176	,000	2,088	Patients' satisfaction	<b>0,010</b>
2.	Doctor's politeness	-,157	,000	2,248	Adj. $R^2=0,746$	
3.	Doctor's consistency	,323	,000	1,811		
4.	If there is improvement after their hospitalization	-,069	,031	1,227		
5.	Communication with nurses	-,302	,000	1,919		
6.	Quiet satisfaction	-,284	,000	2,089		
7.	Days of hospitalization	,103	,001	1,109		
8.	The type of clinic	,083	,008	1,158		
9.	The kind of insurance	,100	,001	1,080		
10	Visiting hours	,121	,000	1,379		
11	Hygiene's observance	,105	,016	2,214		
12	Admission's process satisfaction	-,172	,000	1,656		
13	Parking satisfaction	-,170	,000	1,462		
14	Canteen's prices satisfaction	-,101	,002	1,197		
15	Orderly satisfaction	-,104	,007	1,774		
16	The allocation of hospital's beds	-,120	,002	1,687		