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**Patient satisfaction: a strategic tool
for health services management**

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Anna Maria Murante

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Tutor: Prof.ssa Sabina Nuti

Advisors: Prof. Adalsteinn D. Brown and Prof. Renato Fiocca

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CONCLUSION

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INTRODUCTION

This doctoral thesis focuses on the role of patient satisfaction in health services management as a strategic measure of health organizations' performance. Most of the literature contributions on patient satisfaction were developed in US and UK; however, in the last years also Italian researchers and health managers have increased the interest and attention for the patient perspective.

In detail, this work mostly refers to the patient experience surveys systematically conducted in Tuscany Region and used to create indicators included in the Tuscan Performance Evaluation System. Since 2004 this system, developed by Laboratorio Management e Sanità of Scuola Superiore Sant'Anna, has been monitoring the results achieved by Tuscan Health Authorities considering also indicators on patient satisfaction .

In this no profit – based scenario, the patient satisfaction surveys are valuable data sources to improve patient health and service quality. To better meet the patients' needs and to achieve the main goals of a public health care system, the determinants of patient satisfaction and their changes across organizations have to be investigated.

Research questions

Based on these premises, the three articles that constitute the main body of this thesis aim to respond to the three research questions (RQs) hereafter presented.

RQ1. *Which are the dimensions that can explain patient satisfaction's concept?*

The complex nature of patient satisfaction's concept implies that dimensions to be investigated are well identified considering the patient perspective. In fact, a critical aspect in the patient satisfaction's measurement is that models and instruments sometimes reflect the providers' perspective rather than the patients' one (Calnan, 1988). Thus, in order to monitor patient satisfaction with a health service by using questionnaires it is not enough to identify the main aspects of care and to define questions related to them. On the opposite side, it is important to use appropriate and scientifically rigorous means to measure patient experience so that accurate and meaningful information is produced.

A common objection to patient satisfaction research is related to technical and methodological issues (Rubin, 1990; McDaniel and Nash,1990). In 1990s, when

patient satisfaction measures were increasingly used to monitor the performance of health services, Sitzia (1999) pointed out the poor attention to the validity and reliability properties of questionnaires adopted in previous studies. These properties explain the extent to which a questionnaire is really able to capture the construct it is supposed to measure (Streiner et al, 2008). When the questionnaire properties are not evaluated and methodological weaknesses exist, misleading results may be generated and erroneous signals may be sent out. Thus, a rigorous methodology has to be ensured.

On the basis of the above considerations, the first paper (Murante A.M., *Strumenti e metodi per misurare la patient satisfaction nei sistemi multidimensionali di valutazione della performance in sanità*, presented at AIES Conference, Bergamo, 2009) aims at analyzing the validity and reliability properties of a questionnaire used by the Regional Health Care Service (RHCS) of Liguria and then by the RHCS of Tuscany, Umbria, Val d'Aosta and Trento to measure citizens experience with primary care services. The validation process of the questionnaire allowed to identify the main dimensions that can explain the overall patient satisfaction with primary care.

RQ2. Which are the personal and organizational characteristics that better explain the variability of patient satisfaction?

A large number of studies analyzed how the patients' perception of health services' quality is influenced by their expectations, socio-demographic characteristics and clinical needs (Westaway, 2003; Bruster et al., 1994; Sitzia and Wood, 1997). Moreover, in recent years, the characteristics of the external environment have been also considered as additional factors influencing individual evaluation. Researchers mainly observed whether variations exist across different organizations (e.g. hospitals) (Stubble et al, 2007) (Kollen et al, 2010) and which their origins are (Veenstra et al, 2003; Brown et al, 2008; Hekkert et al, 2009; Salisbury et al, 2010; Van Empel et al, 2010). A combined analysis of both individual and contextual characteristics allows to take into account the main aspects influencing overall satisfaction. Furthermore, adjusting for these aspects, patients' ratings can also be compared across organizations.

The second paper (Murante A.M., Seghieri C., Nuti S., Brown A.D., *The effects of institutional characteristics on inpatient satisfaction. A multilevel analysis*, proceeding) focuses on the multidimensionality of the health quality concept. As

pointed out by Donabedian (Donabedian, 1988) structural and organizational aspects, healthcare process and patient satisfaction have to be considered together according to a comprehensive approach. The paper describes the results obtained using a multilevel model in order to investigate: (i) which are the personal (level 1) and organizational (level 2) characteristics that more affect patients' experience with Tuscan hospitals and (ii) how much of the overall variability is explained at each level. Investigating the variation of satisfaction within and between hospitals and its origins provides valuable information for planning effective policies of quality improvement. In fact, depending on whether patient experience is more influenced by patient or hospital characteristics, different actions have to be defined and implemented.

RQ3. Which are the elements to be considered in order to create patient-oriented services?

In the last years health systems changed the way of thinking and delivering care: patient became the centre of the overall care process and new organizational models were applied in order to provide patient-centered services. The publication *Seeing the person in the patient* (Goodrich and Cornwell, 2008) provides several definitions of the "patient-centered care" concept, of which the most complete and clear one identifies the following dimensions: "(i) compassion, empathy and responsiveness to needs, values and expressed preferences; (ii) co-ordination and integration; (iii) information, communication and education; (iv) physical comfort; (v) emotional support, relieving fear and anxiety; (vi) involvement of family and friends" (Institute of Medicine, 2001). This definition is consistent with the responsiveness's goal assigned to the international health systems by the World Health Organization. In fact, health services have to meet the clinical needs of population as well as to ensure respect for persons, prompt attention, quality of amenities, access to social support networks and choice of the provider.

Based on these premises, the third paper (Murante A.M., Nuti S., *A marketing approach for creating patient oriented pathways in hospital services*, accepted at the 10th International Marketing Trends Conference, Paris, January 2011) aims at promoting marketing's approaches and methods in order to orient health policies towards the actual needs of citizens. The study focuses on the elements that most affect the patient's overall experience and the factors to be improved in order to create patient-centered hospital service. The analysis highlights also the differences

existing among patients hospitalized in three different wards (medical, surgical and obstetrical, gynecological and pediatric).

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CHAPTER 1

The theoretical framework

Before proceeding with the complete presentation of the three research's papers, this first chapter introduces an overview of patient satisfaction literature with a focus on: (i) the patient role; (ii) the patient satisfaction's concept, its subjective nature and its determinants; (iii) the use of patient satisfaction measures as outcome and process indicators; (iv) the introduction of patient perspective in multidimensional systems for evaluating the performance of health organizations. All these issues are the basis of the patient experience and satisfaction research field and constitute the framework of this PhD thesis.

1. The patient role

Usually, words as *patient*, *user* and *consumer* are indistinctly used as synonyms, even though they differ for the nature of relationships between health professionals and citizens. While the *patient* is a person who has an illness and comes to doctors and nurses asking for advice and treatment, the *user* may identify people who used, use or could use health care services. Instead, the *consumer* reminds us of a person who purchases goods and services for his needs or a person who consumes something (Herxheimer and Goodare, 1999). According to McIver (1992) in 1980s a general shift towards consumerism, evident in UK National Health System, increased the promotion of a "customer service-oriented culture". Thus, even though the use of "consumer" concept in health care mainly received a wide opposition from the medical establishment (Wassersug, 1986) because of its strong commercial connotation (Blaxter, 1995; Leavy et al 1989, Normand, 1991), the consumerism movement introduced in health systems the issue of the protection of the consumers' interests. Patient becomes a consumer when he looks for health services after having collected all information helpful to make the best choice (Shackley and Ryan, 1994). In this regard, researchers questioned: *Can patient fulfil the role of consumer?* and more, *Does patient wish to fulfil it?* (Owens and Batchelor, 1996). In 2002 a study conducted in eight European countries (Germany, Italy, Poland, Slovenia, Spain, Sweden, Switzerland and UK) highlighted that patients ask for a more autonomous role in the health care decision-making process and, then, for more information,

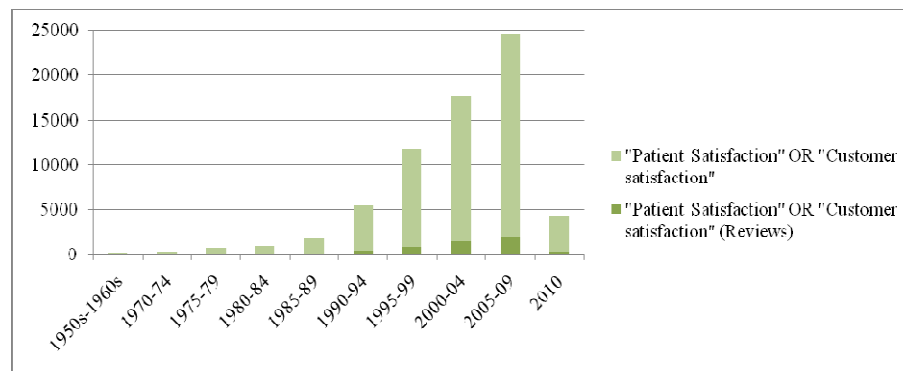
equitable access, freedom of choice, prompt attention, respect and quality of amenities (Coulter and Jenkinson, 2005).

Nonetheless, consumers of health care still are often not well and sufficiently informed. This information asymmetry causes an imbalance in the relationship between who asks for health services and who provides them. Even though much effort has been put into these issues, the Health Care Systems still have to work in order to move away from the idea of patient as a passive and dependent stakeholder.

2. Patient satisfaction: a complex concept

In 1990s researchers, health policy-makers and managers gave more attention to the patient perception of the quality of health services (Behm et al., 2000). In these years, the patient satisfaction studies have increased as shown by a PubMed search for “patient satisfaction” or “customer satisfaction” (Figure 1).

Figure 1 - Results of a PubMed search for “Patient satisfaction” or “Customer satisfaction” concepts (1950 – 2010).



Despite its large use, the patient satisfaction was initially considered as a difficult concept to be measured and interpreted (Fitzpatrick & Hopkins, 1983; Williams, 1994). An unanimous consensus on the definition of satisfaction with healthcare is not already fully achieved (Avis et al, 1996; Baker, 1997) due to the multidimensional and subjective nature of this concept, which is affected by individuals' expectations, needs or desires. For example, when users have limited knowledge of opportunities and low expectations of service quality, high satisfaction scores may be recorded even though poor standards of care have been ensured. Factors influencing dissatisfaction could be somewhat different from factors generating satisfaction. While on one side an adequate or acceptable standard of

quality might be considered as necessary, on the other, a feeling of satisfaction might result from an high quality service.

Moreover, when something negative happens consumers might be satisfied or not; for instance, this depends on whether the negative event is caused by the health professionals or it is not due to their behavior (Williams et al, 1998).

Thus, it is possible that what makes one person satisfied might make another one dissatisfied (Avis et al, 1996; Greeneich, 1993).

These ambiguities related to the “patient satisfaction” concept enhance the debate among researchers, health professionals and managers. In recent years, new approaches have also been evaluated and adopted in order to introduce more objective measures of the service’s quality. For instance, researchers ask people to report in detail their experience with health service using reporting and rating scales. The obtained results could be considered more helpful in order to identify weaknesses in the delivery and organization of the health services (Jenkinson et al, 2002). Sometimes, also patients’ willingness to use again and/or recommend services (e.g., hospital, general practitioner, etc.) is investigated as a reliable proxy of overall evaluation both in not for profit and in market-based health systems.

3. Patient satisfaction measurement

A critical aspect in the patient satisfaction’s measurement is that models and instruments sometimes reflect the providers’ perspective rather than the patients’ one (Calnan, 1988). For example, the patient capability to evaluate health services and professionals’ skills is frequently questioned (Ben-Sira, 1976; Rao et al, 2006), even when these items receive high satisfaction rates. According to Hopkins et al. (1994) patients are less capable of judging technical competence because of a real informative asymmetry and in any case they are more reserved in expressing critical comments with regard to the abilities of doctors. As a consequence, the high satisfaction scores observed may depend on the confidence in doctors’ capabilities. Instead, Coulter (2006) argued that well designed questionnaires allow to assess both the technical competence and interpersonal skills of health professionals.

The patient satisfaction measurements have been generally used in order to provide researchers, health managers and professionals with valuable information for understanding patients’ experience, promoting patient’s compliance with treatment, identifying the weaknesses in services and evaluating health service performance (Fitzpatrick, 1984; Sitzia and Wood, 1997).

Although the debate on the use of patient satisfaction as an outcome measure is still open (Reker et al, 2002; Norquist, 2009), it has been observed that satisfied patients are more compliant and more likely to participate in their treatment (Stewart, 1989; Guldvog, 1999). In fact, a satisfied patient is more aware of his care pathway and more willing to follow the physician prescriptions.

As said before, the level of satisfaction depends on several and different elements. For instance, healthy people tend to be more satisfied when they receive general information on health services and on their quality; on the contrary, people with a chronic condition may be more satisfied if involved in the decision-making process (Cleary, 1997). Thus, the improvement of patient compliance requires to adopt different actions depending on the patient's profile.

The assessment of patient satisfaction with the process of care is an important measure of the care quality and it allows to identify the phases of the process to be improved. Questionnaires using report style questions allow to observe how the care is delivered (Wensing et al, 2003; Leeper et al, 2003). Some studies have highlighted that satisfaction strongly increases when care is provided in accordance with the clinical standard procedures (Lantz et al, 2005; Marchisio et al, 2006).

Furthermore, the patients' point of view may help managers to evaluate activities such as the purchase of new technologies or the test of new medical treatments (Hopkins et al, 1994; Goulrey and Duncan, 1998; Dunlop et al, 2003; Ahmad et al, 2008; Van Koulil et al, 2009).

4. Patient experience: a new perspective for performance evaluation systems in health sector.

A famous statement on the performance–quality–management relationship argues: “The ultimate goal is to manage quality. But you cannot manage it until you have a way to measure it, and you cannot measure it until you can monitor it” (Eagle et al., 1993). Thus, a question is: *how to measure the quality in health care?* In most cases, managers and policy-makers who have approached performance measurement agreed with Donabedian's (1988) definition of health quality as a comprehensive concept including both service characteristics (structure, organization, care process) and patient satisfaction.

In the last years, several health care services have adopted multidimensional evaluation systems in order to monitor the outcome of health programs (Katesa et al., 2001) as well as the performance of organizations (Arah et al., 2003).

Table 1. Some examples of Systems of Performance Measurement in health sector adopting indicators on patient's perspective.

Systems of Performance Measurement	Indicators focused on Patient perspective	Source
Ontario Hospital Association (OHA), Canada, 1997	Patient Satisfaction	Ontario Hospital Association, Canada: <ul style="list-style-type: none"> • http://www.oha.com/ • www.hospitalreport.ca
Bridgeport Hospital, 2002	Hospital Consumer Assessments of Healthcare Providers and Systems (HCAHPS)	<ul style="list-style-type: none"> • http://www2.bridgeporthospital.com/quality/scores/default.aspx?dn=1
Duke University Hospital, 1998	Hospital Patient Satisfaction	<ul style="list-style-type: none"> • http://www.dukehealth.org/about_duke/quality/performance_measures/patient_satisfaction
Mayo Clinic, 2002	Hospital Consumer Assessment of Health Plans Survey (HCAHPS)	<ul style="list-style-type: none"> • http://www.mayoclinic.org/quality/hcahps.html
Dutch health system, 2002	Consumer perspective	<ul style="list-style-type: none"> • Sbroek et al, 2004
Performance Assessment Tool for Quality Improvement in Hospitals (PATH), 2003	Patient centeredness	<ul style="list-style-type: none"> • Veillard et al, 2005 • Groene , 2006 • Groene et al, 2008
COMPAQH, France, 2003	Patient satisfaction	<ul style="list-style-type: none"> • Grenier-Sennelier et al, 2005
Joint Commission on Accreditation of Health Care Organisations (JCAHO) (ORYX), USA, 1997	Patient centeredness	The Joint Commission, USA. <ul style="list-style-type: none"> • http://www.jointcommission.org/ • http://www.qualitycheck.org/consumer/searchQCR.aspx • Groene et al, 2008
Reporting of hospitals performance in Netherlands, 2003	Patient centeredness	<ul style="list-style-type: none"> • Berg et al, 2005.
Verein Outcome, 2000, Switzerland, 2000	Patient centeredness	<ul style="list-style-type: none"> • Luthi et al, 2002
Performance assessment of the Tuscan Health Services, 2004	Patient Satisfaction	<ul style="list-style-type: none"> • Nuti, 2008 • Nuti et al, 2009

Patient perspective was also included in the performance evaluation frameworks (Table 1) to observe whether organizations achieved all the three goals assigned to them by the World Health Organization: (i) good health for the population, (ii) fair payment systems and, last but not least, (iii) responsiveness to the public. Indicators which consider patients' perspective aim at monitoring whether health services meet the overall needs of patients and are really patient-centred.

The Performance Evaluation System (PES) adopted by Tuscany Region (Italy) (Nutti et al., 2009) is an example of a multidimensional approach of quality measurement including indicators on patient experience. A brief introduction to the PES is described below.

Tuscan Performance Evaluation System (PES) - In 2004 the Tuscan Health Care System has introduced a multidimensional PES to assess results achieved by its Health Authorities. The Tuscan Health Care System (THCS), that provides assistance to about 3.700.000 citizens, is universal, publicly funded and managed through a network of 12 local health authorities (LHAs) and five teaching hospitals (one of them is a pediatric hospital). LHAs are responsible for providing care services, from prevention to long-term care, including acute care, to the population living in their area, while the five teaching hospitals provide high-complexity care. 35 public hospitals are available in Tuscany; 30 of them are managed by the 12 LHAs, while the remaining 5 are Teaching Hospitals (THs). In 2008, 614.450 discharges were recorded in Tuscan hospitals delivering about 95% of the regional hospital care.

The PES, developed by Laboratorio Management e Sanità of Scuola Superiore Sant'Anna in Pisa, is based on 50 measures, made up of 130 indicators, organized into six dimensions: (a) Population health, (b) Regional policy targets, (c) Quality of care, (d) Patient satisfaction, (e) Staff satisfaction, and (f) Efficiency and financial performance (Nutti, 2008; Nutti et al, 2009). Indicators on patient experience with General Practitioners, Emergency Department, Hospital, Community Care, Home Care and Maternal Care services are included in the Patient satisfaction's dimension. Overall quality, accessibility, humanization, patient involvement, communication, trust in health care providers, etc, are measured (Table 2). All indicators are calculated using data systematically collected with sample surveys (Table 3). From 2004 to 2009 more than 80.000 users were interviewed (Murante, 2007, 2008, 2009, 2010).

Table 2 – Patient satisfaction indicators included in Tuscan PES.

Services			
Emergency department	Hospital care	Community care	Home care
Indicators			
Overall evaluation	Overall evaluation	Overall evaluation	Overall evaluation
Sub-indicators			
Doctors' professional skills	Doctors' communication	Organization	Patient and family involvement
Doctors' communication	Trust in doctors	Opening hours	Visit schedule
Doctors' kindness	Doctors' kindness	Health professionals' kindness	Health professionals' kindness
Trust in doctors	Doctors' care	Administrative workers' kindness	Health professionals' skills
Doctors and nurses team work	Doctors' respectful manners	Health professionals' skills	Health professionals' respectful manners
Nurses' professional skills	Doctor in charge of care	Administrative workers' skills	Nurses' care
Nurses' communication	Nurses' communication	Specialist services	Communication
Nurses' kindness	Trust in nurses	Diagnostic services	Listening
Trust in nurses	Nurses' kindness	Administrative services	Health professionals' team work
Pain management	Timely answer to call button		
Nurses' respectful manners	Nurses' respectful manners		
Doctors' respectful manners	Nurse in charge of care		
Involvement			
Staff helpfulness			
Information at discharge			
Waiting times			
Kidness of staff at triage			
Trust in staff at triage			
Waiting room's comfort			
Waiting room's cleanness			
Bathroom's cleanness			

Table 2 – Patient satisfaction indicators included in Tuscan PES (continued).

Services			
General Practitioner	General Pediatrician	Diagnostic outpatient service	Specialist outpatient service
Indicators			
Overall evaluation	Overall evaluation	Overall evaluation	Overall evaluation
Sub-indicators			
Home visit	Home visit	Kindness	Communication
Communication	Communication	Info on diagnostic test	Time dedicated
Time dedicated	Time dedicated	Info on side effects	Involvement
Involvement	Involvement	Communication	Professional skills
Professional skills	Professional skills	Professional skills	Listening
Listening	Listening		Trust
Trust	Trust		
	Timely responses within 24h		

The performance assessment is divided into five classes (very good performance, good performance, average performance, poor performance, very poor performance). Each Health Authority (HA) compares its results with the other HAs of the regional system. All the results are reported in a target chart and are also available for citizens on the web site www.valutazione-sanita-toscana.sssup.it.

The PES is a strategic tool for regional governance and management of HAs and results are linked to compensation of HAs' CEOs. Since 2008 seven new Italian Regions (Liguria, Umbria, Piemonte, Val d'Aosta, Trento, Bolzano, Basilicata) have adopted PES.

Table 3 – Surveys conducted in Tuscany since 2004

Survey	Emergency department	Primary care	Hospital care	Community care	Maternal Care	Home Care
Year	2005	2005/2004	2006	2008	2005/2004	2008
	2006	2007	2008	2010	2007	
	2007	2009			2010	
	2008					
	2009					
	2010					

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CHAPTER 2

Tools and methods to measure patient experience for the multidimensional performance evaluation systems in the health sector.

Abstract

Background - In the last years a growing number of health care organizations adopted multidimensional systems in order to evaluate the performance of health services, considering also the patient perspective. In most of the cases, patient satisfaction indicators are created by using data collected through surveys. However, it was observed that a critical aspect in the patient satisfaction measurement is related to the methodology issue about the properties of questionnaires.

Objectives - This study aims at describing the development of a questionnaire on patient satisfaction with primary care services in the Italian context and evaluating its validity and reliability properties.

Methodology - A structured questionnaire with 33 demands was created in order to investigate the patient experience with GP, Family Pediatricians, Specialist and Diagnostic outpatient services. In January 2009 a telephone survey (by means of Computer Aided Telephone Interviews technique) was conducted among a random sample of 2136 citizens of Liguria Region (Italy). Factor analysis, inter-items correlations and Cronbach's alpha were performed in order to evaluate the validity and reliability of the patient satisfaction dimensions.

Results - The psychometric analysis of the questionnaire properties provided positive evidences. Factor analysis confirmed the pattern of developed dimensions and identified four factors (substantial loading > 0.40) corresponding to: GPs care (factor1), Family Pediatricians care (factor2), specialist outpatient services (factor3) and diagnostic outpatient services (factor4). The internal consistency of the four dimensions ranged from 0.74 to 0.93 and the correlation between each item and the overall evaluation scale was generally <0.60.

Conclusion - The results of this study highlighted the validity and reliability of the Primary Care Patient Experience Questionnaire. As a consequence, the collected data can be considered a valid source in order to create indicators for evaluating the performance of primary care services.

Key words: primary care, questionnaire, validity, reliability, patient experience

Original Title: Strumenti e metodi per misurare l'esperienza del paziente nei sistemi multidimensionali di valutazione della performance in sanità.

Abstract

Contesto: Negli ultimi anni le organizzazioni sanitarie - sia a livello internazionale che nazionale e regionale - hanno adottato sistemi multidimensionali per la valutazione della performance dei servizi sanitari. Accanto ad indicatori clinici ed economici, viene considerata la patient satisfaction per offrire una nuova prospettiva di analisi agli stakeholders del sistema (policemakers, management e operatori sanitari). Con queste premesse, numerose indagini sono state condotte per conoscere e analizzare le determinanti della soddisfazione rispetto all'esperienza vissuta dagli utenti con i servizi e per comprendere quali azioni intraprendere per migliorarla.

Occorre però chiedersi quanto siano validi e affidabili gli strumenti utilizzati per indagare l'esperienza degli utenti, poiché spesso è stata riservata una scarsa attenzione agli aspetti di *validity* e *reliability*, che risultano invece essenziali per dare credibilità ai risultati raccolti.

Obiettivo: Questo studio descrive lo sviluppo e il processo di validazione di un questionario sulla soddisfazione degli utenti dei servizi di medicina territoriale (medici di medicina generale - MMG, pediatria di libera scelta - PLS, specialistica e diagnostica ambulatoriale) applicabile nel contesto italiano.

Metodologia: Il questionario oggetto di studio è stato costruito dopo aver ricercato nella bibliografia esistente le principali dimensioni misurate dai questionari sull'assistenza territoriale, adattando al contesto italiano gli items utilizzati nelle esperienze internazionali. Nel gennaio 2009 il questionario è stato somministrato nel corso di un'indagine (condotta con metodologia Computer Aided Telephone Interviews) rivolta ad un campione casuale di cittadini liguri che negli ultimi 12 mesi avevano avuto accesso ai servizi di medicina generale, pediatria di libera scelta, specialistica e diagnostica ambulatoriale presso le strutture delle aziende sanitarie liguri. Attraverso l'analisi fattoriale, l'alfa di Crombach e il coefficiente di correlazione si è voluto esaminare la relazione esistente tra gli items introdotti nel questionario e la loro affidabilità come misure di patient satisfaction con i servizi territoriali.

Risultati: L'analisi psicometrica condotta sulle dimensioni ha riportato evidenze positive sulla validità e affidabilità dello strumento. In particolare, l'analisi fattoriale

ha confermato la sussistenza delle dimensioni in cui il questionario è stato strutturato producendo 4 fattori (loading>0.40) che corrispondono alle dimensioni: MMG (fattore1), specialistica ambulatoriale (fattore2), PLS (fattore3), diagnostica ambulatoriale (fattore4). Il coefficiente di intercorrelazione tra i singoli fattori (<0.60) evidenzia un buon livello di indipendenza tra le dimensioni del questionario. Infine, l'alpha di Crombach, che misura la consistenza interna dei fattori, varia dallo 0.78 allo 0.95, mostrando una forte omogeneità tra gli items associati ai singoli fattori.

Conclusioni: I risultati dello studio evidenziano la validità e affidabilità del questionario sull'esperienza dei pazienti relativa ai servizi sanitari territoriali. I dati raccolti con questo strumento possono dunque essere utilizzati per costruire indicatori di patient experience al fine di misurare la qualità dei servizi sanitari territoriali secondo la prospettiva dell'utente..

Key words: questionario, validity, reliability, patient experience

2.1 - Introduction

Questo articolo si propone di descrivere il processo di sviluppo di un questionario sull'esperienza e soddisfazione dei cittadini che ricorrono ai servizi di medicina territoriale. Le informazioni raccolte con la sua somministrazione sono utilizzate per la costruzione di indicatori sulla qualità percepita degli utenti all'interno di un sistema multidimensionale di misurazione della performance sviluppato nel 2004 dal Laboratorio Management e Sanità per la Regione Toscana come strumento di *governance* e di misurazione della performance delle proprie aziende sanitarie (Nuti, 2005; Nuti, 2007) e successivamente, a partire dal 2008, adottato anche da altre regioni italiane (Liguria, Piemonte e Umbria).

Gli indicatori sulla medicina territoriale, insieme ad altri indicatori sulla qualità percepita dei servizi di pronto soccorso, di ricovero ospedaliero, del percorso nascita e dell'assistenza domiciliare, compongono la dimensione sulla valutazione esterna, che analizza i servizi dalla prospettiva del paziente che li utilizza, e che insieme alle dimensioni sullo stato di salute della popolazione, sulla capacità di perseguimento delle strategie regionali, sulla qualità sanitaria dell'assistenza, sull'efficienza produttiva e sulla valutazione dei dipendenti offre una fotografia rappresentativa della performance delle aziende sanitarie.

Nello specifico in questo articolo saranno valutati i requisiti di affidabilità (*reliability*) e validità (*validity*) del questionario inizialmente somministrato ai cittadini liguri nel gennaio 2009 per valutare il livello di soddisfazione per l'assistenza ricevuta dai Medici di Medicina Generale (MMG), dai Pediatri di Libera Scelta (PLS) e dai professionisti dei servizi ambulatoriali di medicina specialistica e diagnostica pubblici, e successivamente, nel corso dello stesso anno, anche ai cittadini delle altre regione che aderiscono al network.

2.2 – The theoretical framework

Secondo il noto motore di ricerca della U.S. National Library of Medicine, sono oltre 60.000 gli studi pubblicati dal 1953 ad oggi che affrontano il tema della *patient satisfaction*, a dimostrazione del fatto che la soddisfazione degli utenti dei servizi sanitari ha da tempo catturato l'interesse dei ricercatori di tutto il mondo, non solo sanitari ma anche di marketing e management. Le ragioni di questo interesse vanno ricercate nella natura complessa del rapporto che si instaura tra paziente (utente) e chi eroga la prestazione sanitaria (servizio) e nelle forti implicazioni che questo

rapporto può avere non solo sull'esito delle cure (*compliance*) ma anche sull'organizzazione e sulla gestione degli stessi servizi.

La raccolta dei feedback dei pazienti, attraverso indagini qualitative e quantitative, mentre in passato è stata oggetto di ricerche puntuali e finalizzate a studi temporalmente limitati, nell'ultimo decennio è diventata un'attività sistematica a supporto di chi gestisce e opera nelle strutture sanitarie, ponendo in questo modo fine al dibattito che in passato ha messo in discussione la capacità del paziente di valutare le caratteristiche dei servizi sanitari (Davis e Ware, 1988; Mirvis, 1998).

Come testimoniano i contributi della bibliografia internazionale e nazionale, sta crescendo il numero dei sistemi sanitari nazionali e regionali che adottano sistemi di misurazione multidimensionale della performance, completi anche di misure di *customer satisfaction* e in grado di monitorare la capacità dei provider di perseguire gli obiettivi di efficacia, appropriatezza ed efficienza nel rispetto delle attese e dei bisogni dei propri utenti (Atkinson et al., 1997; Li e Benton, 1996; Arah et al., 2003; Groene et al., 2008); Nuti, 2008). Anche l'Organizzazione Mondiale di Sanità (OMS) e l'Organizzazione per la Cooperazione e lo Sviluppo Economico (OCSE) (Veillard et al., 2005) hanno introdotto tra gli indicatori di qualità dei propri sistemi di valutazione della performance alcune misure che tengono conto dell'esperienza degli utenti: nello specifico si tratta di indicatori di *Responsiveness* o *Patient centeredness* che insieme ai tradizionali indicatori di *Effectiveness* e *Safety* restituiscono una fotografia rappresentativa dei risultati conseguiti in termini di qualità, partendo da una duplice prospettiva di analisi, esterna e interna (Arah et al., 2006).

Le indagini sull'esperienza dei pazienti sono diventate la principale fonte di dati per la costruzione di questi indicatori e a tal fine l'oggetto delle rilevazioni è stato esteso a temi ormai strategici nella gestione dei servizi sanitari, quali *patient centreness*¹ (Institute of Medicine, 2001), *patient involvement*² (Thompson, 2007), *patient*

¹ A health service is patient-centred when ensure: "(i) compassion, empathy and responsiveness to needs, values and expressed preferences; (ii) co-ordination and integration; (iii) information, communication and education; (iv) physical comfort; (v) emotional support, relieving fear and anxiety; (vi) involvement of family and friends" (Institute of Medicine, 2001).

² "Patient is involved when one or more of the following elements exists: information, explanations, openness, communication, shared knowledge, emotional care, exploration of choices, dialogue and decision making" (Thompson, 2007).

*empowerment*³ (Funnell et al.,1991) e *responsiveness* (The World Report, 2000), che compaiono ormai comunemente nei piani sanitari nazionali di tutti i paesi evoluti. In particolare, il concetto di *responsiveness* esplicitato dalla OMS nel 2000 introduce tutta una serie di obblighi a carico dei provider dei servizi sanitari ampliando la *mission* dei servizi sanitari d'ora in avanti dovranno non solo assicurare al paziente le migliori cure possibili, ma anche garantirgli la libertà di scelta e di accesso alle strutture, il diritto ad essere trattato con rispetto e dignità, il rispetto della propria privacy, il diritto ad un supporto sociale e condizioni confortevoli durante l'erogazione delle prestazioni sanitarie. Un altro item diventato centrale negli studi di *patient satisfaction* è l'informazione. Recenti indagini condotte in alcuni Paesi europei mettono in luce infatti il bisogno del paziente di una maggiore e completa informazione sui servizi disponibili e sui trattamenti sanitari a cui viene sottoposto, come presupposto indispensabile per il suo coinvolgimento nelle cure e per una sua partecipazione attiva nella definizione del percorso assistenziale (Coulter e Jenkinson, 2005; Goodrich e Cornwell, 2008).

2.3 Methodology

Chiunque voglia indagare il tema della *patient satisfaction* non può progettare l'intero studio o parte di esso trascurando alcuni elementi metodologici fondamentali che sono alla base della sua misurazione, e che riguardano in particolare lo strumento di rilevazione.

Una volta definito l'obiettivo dell'indagine (cosa misurare), è infatti molto importante scegliere e adottare la tecnica e gli strumenti di rilevazione più opportuni, rispettandone i requisiti di rigore metodologico che li caratterizzano. Se così non fosse, l'obiettivo dell'indagine potrebbe infatti non considerarsi pienamente raggiunto e i risultati raccolti correttamente utilizzabili per rappresentare l'intera popolazione indagata.

Sono diverse le tecniche, qualitative e quantitative, a cui possono ricorrere i ricercatori e gli operatori sanitari per studiare l'esperienza e la soddisfazione degli utenti dei servizi sanitari: dall'analisi dei reclami e/o suggerimenti degli utenti ai *focus group*, dalle interviste *face to face* alla somministrazione di questionari (Del Vecchio, 2005). Molto frequente è l'utilizzo di questionari strutturati a risposte chiuse, che permettono di ottenere un numero elevato di informazioni all'interno di gruppi molto ampi nel rispetto di standard comuni nella raccolta dei dati. A seconda

³ "The goal of empowering patients is to promote autonomous self-regulation so that the individual's potential for health and wellness is maximized" (Funnell et al.,1991).

delle caratteristiche della popolazione da intervistare, della numerosità del campione, e a seconda delle risorse umane, temporali ed economiche a disposizione, i ricercatori possono inoltre optare per una somministrazione del questionario in loco, cioè presso le stesse strutture sanitarie, o al domicilio del paziente attraverso interviste postali, telefoniche o via web (Coulter et al., 2009).

Quando la scelta del gruppo di ricerca ricade sul questionario strutturato, indipendentemente dalla modalità di rilevazione, i contenuti che vengono somministrati al campione devono possedere requisiti che sono essenzialmente di due tipi e che, se sussistono, assicurino rispettivamente che:

1. i quesiti formulati riproducono in maniera chiara ed inequivocabile i concetti che si vogliono misurare (*validity*),
2. la variabilità dei risultati all'interno della popolazione che si osserva è dovuta ad una reale differenza tra gli individui che la compongono e non ad un errore nella misurazione (*reliability*). Quest'ultimo aspetto può essere verificato ad esempio analizzando la consistenza interna (omogeneità) tra gli items delle singole dimensioni in cui il questionario è stato diviso.

Il questionario può considerarsi quindi “validato” se queste proprietà sussistono.

Verificare la sussistenza di questi requisiti è fondamentale nel processo di rilevazione della soddisfazione degli utenti. Tuttavia, sono numerosi gli studi presenti in letteratura che non fanno cenno alcuno al processo di validazione, o che considerano lo strumento adottato valido per il solo fatto di averlo condiviso con esperti che ne hanno approvato i contenuti, senza approfondire il livello di *validity* e *reliability* del costrutto (Rubin, 1990; McDaniel e Nash, 1990). È quanto emerge anche dall'analisi condotta da Sitzia (1999) su 181 studi di tipo quantitativo condotti in diversi Paesi (USA, UK, Canada, Australia, etc), e che avevano come obiettivo la misurazione della qualità percepita dei servizi sanitari: solo nel 6% dei casi gli autori riportano informazioni che dimostrano in generale un'evidenza minima della sussistenza di queste proprietà.

Prendendo spunto da queste considerazioni, di seguito sarà descritto il processo di sviluppo del questionario sviluppato dal Laboratorio Management e Sanità della Scuola Superiore Sant'Anna di Pisa per misurare l'esperienza dei cittadini di quattro regioni italiane relativamente ad alcuni servizi di assistenza primaria, approfondendone inoltre, attraverso i risultati ottenuti da analisi psicometriche, le

caratteristiche di *validity e reliability*. I risultati riportati e discussi si riferiscono all'indagine condotta in Liguria.

Survey - Nel gennaio 2009 è stata condotta un'indagine sull'esperienza e soddisfazione dei cittadini liguri rispetto ad alcuni servizi di medicina territoriale per costruire un set di indicatori sulla qualità percepita dei servizi di medicina generale (MMG), pediatria di libera scelta (PLS), specialistica e diagnostica ambulatoriale. La rilevazione sull'esperienza dei cittadini con i servizi di medicina territoriale – oggetto di studio in questo articolo - è stata dunque progettata per rispondere a due obiettivi precisi: rilevare il vissuto dei cittadini e il loro livello di soddisfazione rispetto ai servizi ricevuti e ottenere risultati statisticamente significativi e metodologicamente validi al fine di renderli utilizzabili per la costruzione di indicatori di performance confrontabili in diversi contesti regionali.

Sampling frame - Per la definizione del campione da contattare è stata scelta come popolazione di riferimento il totale dei cittadini maggiorenni residenti nel territorio delle cinque aziende sanitarie della Liguria al primo gennaio 2008 (ASL 1 Spezzina, ASL 2 Savonese, ASL 3 Genovese, ASL4 Chiavarese e ASL 5 Imperiese) (Demo Istat, 2008). Per la definizione della numerosità campionaria a livello delle singole aziende è stata applicata la formula della stima delle proporzioni, a cui sono stati assegnati i seguenti valori in termini di significatività e precisione delle stime: $p=0.05$ e $d=0.05$. Solo nella definizione del campione della Asl 3 di Genova è stato fissato un errore del 6%, al fine di ampliare la numerosità delle osservazioni e poter rappresentare meglio le dimensioni della popolazione residente. Il campione complessivo richiesto a livello regionale ammontava a 2.136 cittadini.

Questionnaire – Il management delle aziende sanitarie liguri è stato coinvolto nella progettazione del questionario, ritenendo questo un passaggio fondamentale del processo di condivisione ed accettazione degli strumenti utilizzati per misurare la performance aziendale. Alla fase iniziale, di definizione degli obiettivi dell'indagine, è seguita la fase di sviluppo vero e proprio del questionario, che non è stato creato ex novo ma partendo dall'ultima versione somministrata in Toscana nel 2007. La versione Toscana, inizialmente strutturata nel 2004 per monitorare la soddisfazione dei cittadini rispetto non solo ai servizi territoriali (3 dimensioni) ma anche ai servizi di prevenzione (5 dimensioni) e di relazione con il pubblico (1 dimensione)

(Vainieri, 2006), prevedeva 4 dimensioni di analisi per i servizi di MMG, PLS e medicina specialistica e diagnostica ambulatoriale ed una dedicata interamente alle caratteristiche socio-demografiche dei rispondenti (Vainieri e Murante, 2008).

Il gruppo di ricerca allargato alle direzioni sanitarie è intervenuto con alcune modifiche nel testo delle domande, laddove risultasse necessario contestualizzare meglio il servizio e rendere i quesiti di più facile comprensione per i cittadini, ed eliminando alcuni degli items di natura più descrittiva presenti nella parte introduttiva delle quattro dimensioni. I quesiti eliminati erano stati utilizzati in Toscana per la raccolta di informazioni prettamente organizzative e di politica sanitaria, strettamente connesse al servizio sanitario toscano, e non replicabili in altri contesti regionali, proprio perché fortemente condizionati dalle strategie sanitarie locali. Non si esclude però, per le edizioni future dell'indagine, la possibilità di introdurre una dimensione separata dalle altre con cui le singole regioni possano rilevare quegli elementi di tipicità che caratterizzano l'erogazione dei propri servizi. Per quanto riguarda invece le scale di valutazione, sono stati realizzati alcuni interventi di adeguamento alle scale già adottate a livello internazionale, al fine di consentire, in fase di analisi, anche confronti con altri servizi sanitari nazionali.

Il nuovo questionario ha mantenuto le 5 sezioni del questionario toscano relative alle caratteristiche socio – demografiche dei rispondenti (1) e alla loro esperienza e soddisfazione rispetto ai quattro servizi di medicina territoriale (4), per un totale di 83 domande.

Le sezioni dedicate ai servizi presentano la medesima struttura: due domande, che introducono l'argomento della sezione, svolgono la funzione di filtro, per assicurare che a rispondere sia sempre un cittadino utente del servizio analizzato nella sezione presso una struttura ligure almeno una volta nei 12 mesi che precedono l'intervista. Seguono alcune domande di tipo descrittivo, che indagano ad esempio l'esistenza di forme associative nell'erogazione dei servizi di medicina generale o di pediatria di libera scelta o che rilevano i tempi di attesa per le prestazioni specialistiche e diagnostiche ambulatoriali. La sezione si chiude con le scale che misurano l'esperienza del cittadino e le valutazioni complessive sul servizio. In quest'ultima parte del questionario sono state utilizzati due tipi di misure, *reporting* e *rating*, rispettivamente a tre modalità di risposta (“Sì, sempre”, “Sì, a volte”, “No, mai” oppure “Sì, completamente”, “Sì, in parte”, “No”) e a cinque (“Ottimo”, “Buono”, “Sufficiente”, “Scarso” e “Pessimo”).

Tabella 1 – Dimensioni e items del questionario

Items	Scala
Medico di Medicina Generale	
Il medico ascolta quello che il paziente ha da dire	Reporting
Il medico dedica tempo sufficiente al paziente	Reporting
Il paziente è coinvolto nelle decisioni prese dal medico	Reporting
Il paziente riceve spiegazioni chiare	Reporting
Il medico dà suggerimenti sull'alimentazione, attività fisica, ecc.	Reporting
Il paziente ha fiducia nel medico	Reporting
Il medico è competente	Rating
Valutazione complessiva dell'assistenza ricevuta	Rating
Il paziente consiglierebbe ad altri il proprio medico	Reporting
Pediatra di Libera Scelta	
Il pediatra ascolta quello che i genitori hanno da dire	Reporting
Il pediatra dedica tempo sufficiente ai genitori	Reporting
I genitori sono coinvolti nelle decisioni prese dal pediatra	Reporting
I genitori ricevono spiegazioni chiare	Reporting
Il pediatra dà suggerimenti sull'alimentazione, attività fisica, ecc.	Reporting
I genitori hanno fiducia nel pediatra	Reporting
Il pediatra è competente	Rating
Valutazione complessiva dell'assistenza ricevuta	Rating
I genitori consiglierebbero ad altri il proprio pediatra	Reporting
Specialistica ambulatoriale	
Lo specialista ascolta quello che il paziente ha da dire	Reporting
Lo specialista dedica tempo sufficiente al paziente	Reporting
Il paziente è coinvolto nelle decisioni prese dallo specialista	Reporting
Il paziente riceve spiegazioni chiare	Reporting
Il paziente ha fiducia nello specialista	Reporting
Lo specialista è competente	Rating
Valutazione complessiva dell'assistenza ricevuta	Rating
Il paziente ritornerebbe dallo stesso specialista	Reporting
Diagnostica ambulatoriale	
Il personale sanitario spiega quali disturbi possono aversi durante l'esame	Reporting
Il personale sanitario spiega come si svolge l'esame	Reporting
Il personale sanitario risponde in modo chiaro alle domande del paziente	Reporting
Il personale sanitario è gentile	Rating
Il personale sanitario è competente	Rating
Valutazione complessiva dell'assistenza ricevuta	Rating
Il paziente ritornerebbe nello stesso ambulatorio diagnostico	Reporting
Scale reporting: "Sì, sempre", "Sì, a volte", "No, mai" oppure "Sì, completamente", "Sì, in parte", "No"	
Scale rating: "Ottimo", "Buono", "Sufficiente", "Scarso" e "Pessimo"	

Volutamente è stato scelto di utilizzare due metri di misurazione differenti perché: a) le scale a tre punte permettono di rilevare meglio i concetti legati al vissuto del paziente che nel corso di test pilota tendeva a rispondere istintivamente con un “Sì”, con un “No” o con un “Non so, dipende” alle domande sull’esperienza; b) mentre per la raccolta delle valutazioni è stata preferita una scala a cinque essendo emerso, sempre nel corso di test pilota, una chiara difficoltà dell’intervistato ad esprimere giudizi su una scala con meno di 5 attributi o valori, preferendo invece più frequentemente le scale di valutazione simili a quella valoriale utilizzata per i giudizi scolastici.

Interviews – Il questionario è stato somministrato telefonicamente per rendere agevole la partecipazione allo studio anche per quei cittadini con un basso livello di scolarizzazione. Le interviste si sono svolte secondo la tecnica di rilevazione *Computer Assisted Telephon Interviewing* (CATI) ha permesso di raccogliere i dati in tempo reale e di rendere i risultati disponibili in poco tempo (Coulter et al., 2009). La scelta di adottare questa tecnica di somministrazione è stata condizionata positivamente dai requisiti di efficienza ed efficacia che il CATI garantisce, soprattutto in termini di qualità dei dati raccolti. Il software utilizzato per la conduzione della telefonata è infatti in grado di gestire contemporaneamente l’estrazione casuale dei contatti, la visualizzazione e compilazione del questionario, ed effettua una elaborazione continua dei risultati oltre all’aggiornamento costante delle quote campionarie. Una volta caricati i contatti nella rubrica, specificate le soglie campionarie da raggiungere per ciascuna macro dimensione di analisi (ASL), e introdotto il testo del questionario, il rilevatore attraverso il monitor del suo personal computer entra in possesso di tutte le informazioni necessarie per procedere con l’intervista. La registrazione delle risposte è contestuale alla rilevazione, ed è prevista la possibilità di inserire una serie di vincoli di visualizzazione o di condizioni di controllo che impediscono al compilatore di incorrere in errori di digitazione. Le statistiche elaborate dal sistema in tempo reale, relative non solo all’attività di rilevazione (durata media dell’intervista, percentuale di partecipazione, etc.) ma anche ai risultati stessi, permettono un monitoraggio continuo dell’attività di ricerca.

La rilevazione è stata condotta nel mese di gennaio 2009 dal Centro CATI del Laboratorio Management e Sanità per un periodo complessivo di circa due settimane.

I nominativi dei cittadini da intervistare sono stati estratti dall'elenco telefonico elettronico del 2008. L'elenco degli abbonati alla telefonia fissa è stato scelto come lista campionaria perché costituiva al momento della progettazione dell'indagine la fonte più completa e aggiornata sulle informazioni minime necessarie per condurre un'intervista telefonica (numero di telefono e comune di residenza/domicilio) soprattutto rispetto alle anagrafi degli assistiti, non sempre facilmente accessibili anche per i vincoli imposti dalla normativa sulla privacy.

Tuttavia esistono dei limiti nel ricorso ad indagini telefoniche in generale e nell'utilizzo di elenchi telefonici in particolare, che sono riconducibili al numero ridotto di informazioni contenute in questo elenco (non è ad esempio possibile conoscere a priori se la persona che si sta contattando ha utilizzato un certo servizio o ha dei figli minorenni) e alla parziale disponibilità dei contatti (non tutti i cittadini sono abbonati alla telefonia fissa).

Mentre nel secondo caso si tiene conto di quanto osservato dall'Istat nel 2001 in occasione nell'analisi dei risultati della Multiscopo, e cioè che non sussistono differenze statisticamente significative nel ricorso ai servizi sanitari o nello stato di salute percepito tra i cittadini che posseggono un telefono fisso e coloro che non lo posseggono, il primo limite ha richiesto alcuni interventi nel disegno dell'indagine. Ad esempio si è scelto di non campionare la popolazione minorenni, che in ogni caso sarebbe stato difficile intervistare tenuto conto della normativa vigente, e di rivolgere ad uno dei genitori le domande sul servizio di PLS di cui è comunque utente, seppur indiretto, in quanto l'interlocutore principale dello stesso specialista, data la giovane età dell'assistito. E nel questionario sono state introdotte delle domande che svolgono funzione di filtro per individuare quei cittadini che negli ultimi 12 mesi sono stati utenti di almeno uno dei quattro servizi monitorati con l'indagine.

2.4 - Results

Participants – Complessivamente la popolazione dei rispondenti è composta soprattutto da donne (74.36%), ha un'età superiore ai 65 anni (41.36%) o compresa tra i 46 e i 65 anni (38.24%), possiede la licenza di scuola media superiore (36.75%), ha uno stato di salute soddisfacente (54.58%) e si rivolge al proprio MMG più di tre volte in un anno (57.18%). I genitori intervistati che ricorrono al pediatra pubblico per l'assistenza dei propri figli (68.56%) lo fanno due o tre volte in un anno (40.60%) o più di tre (46.87%). Inoltre, dei 2.136 cittadini intervistati il 23.78% si è

rivolto ad uno specialistica ambulatoriale pubblico e il 43.35% ha effettuato un esame diagnostico in regime ambulatoriale presso le strutture delle aziende sanitarie della Liguria.

Il campione intervistato presenta caratteristiche demografiche (sesso ed età) in parte differenti rispetto alla popolazione di riferimento dello studio, poiché l'estrazione casuale del campione non è stata stratificata per sesso e per età. Ciò ha comportato una sovra rappresentazione delle fasce più adulte e della componente femminile, che è stata corretta in fase di elaborazione dei risultati con l'applicazione di pesi di riporto all'universo.

Tabella 2 – Caratteristiche socio-demografiche dei rispondenti

Caratteristiche intervistati	%	Caratteristiche intervistati	%
Età		Sesso	
<i>18 - 45 anni</i>	20.40	<i>F</i>	74.36
<i>46 - 65 anni</i>	38.24	<i>M</i>	25.64
<i>> 65</i>	41.36		
Livello di istruzione		Stato di salute	
<i>Nessuno - licenza elementare</i>	26.45	<i>Eccellente</i>	4.38
<i>Diploma media inferiore</i>	24.28	<i>Buono</i>	28.03
<i>Diploma media superiore</i>	36.75	<i>Sufficiente</i>	54.58
<i>Laurea e Post laurea</i>	12.52	<i>Cattivo</i>	11.37
		<i>Pessimo</i>	1.64

Le valutazioni dei servizi nel loro complesso sono state molto positive per tutti e quattro i servizi. La Tabella 3 mostra che ci sono stati giudizi più alti per il servizio di PLS, mentre i servizi di diagnostica ambulatoriale registrano la *Willingness to recommend* più alta. Più critici invece sono stati gli utenti del servizio di medicina specialistica ambulatoriale. Nel confronto con la Regione Toscana (Murante, 2008), i servizi delle due regioni registrano performance molto simili, con valutazioni più alte per la Liguria.

Validation process - L'analisi fattoriale, l'alpha di Cronbach, il coefficiente di correlazione e un modello di regressione lineare sono stati utilizzati per analizzare le caratteristiche del questionario somministrato, allo scopo di osservare la relazione esistente tra gli items del questionario e la loro affidabilità come misure di *patient satisfaction* con i servizi territoriali (Carey e Sibert, 1993; Pettersen et al., 2004). Le analisi sono state elaborate con il software Stata10 (Hamilton, 2009).

Tabella 3 – Risultati principali: % di rispondenti che hanno espresso una valutazione complessiva positiva per i servizi di Pediatria di Libera Scelta, Medicina Generale, Specialistica e Diagnostica Ambulatoriale.

Variabili	%	Variabili	%
Servizio di Pediatria di Libera Scelta		Servizio di Specialistica ambulatoriale	
<i>Valutazione Complessiva</i>	89.26 ^a	<i>Valutazione Complessiva (a)</i>	79.46 ^a
<i>Willingness to recommend</i>	91.94 ^b	<i>Willingness to return (b)</i>	83.93 ^b
Servizio di Medicina Generale		Servizio di Diagnostica ambulatoriale	
<i>Valutazione Complessiva (a)</i>	88.03 ^a	<i>Valutazione Complessiva (a)</i>	84.30 ^a
<i>Willingness to recommend (b)</i>	86.78 ^b	<i>Willingness to return (b)</i>	94.42 ^b

(a) % di cittadini che hanno risposto “Ottimo” e “Buono”

(b) % di cittadini che hanno risposto “Sempre”

A) Factor Analysis - La procedura di validazione del questionario è iniziata con la verifica dei costrutti inizialmente definiti per rilevare l’esperienza dei cittadini di una qualsiasi regione italiana con alcuni dei servizi di assistenza territoriale. Uno degli obiettivi fissati in fase di progettazione del questionario era infatti poter garantire la somministrabilità del questionario anche nelle altre regioni che partecipano al benchmarking interregionale (Toscana, Piemonte e Umbria). Tali costrutti avevano portato allo sviluppo di cinque dimensioni di analisi, di cui una dedicata alla rilevazione delle caratteristiche socio – demografiche degli intervistati e le altre quattro ai servizi di pediatria di libera scelta, medicina generale, specialistica e diagnostica ambulatoriale. Per verificare se gli items (sia di tipo *rating* che *reporting*) sviluppati per misurare le quattro dimensioni siano effettivamente in grado di rilevare in maniera chiara ed inequivocabile i concetti che si volevano indagare è stata condotta una analisi fattoriale con l’estrazione dei fattori per componenti principali di varianza, e rotazione ortogonale Varimax.

Nell’analisi non sono stati considerati gli items di natura meramente descrittiva e quelli che rilevano la valutazione complessiva per i servizi.

Tabella 4 – Analisi fattoriale e Alpha di Cronbach

Fattori e items	Loading sul primo fattore (>0.40)	Fattori e items	Loading sul primo fattore (>0.40)
Fattore1 – PLS		Fattore3 – MMG	
Ascolto	0.96	Tempo dedicato	0.96
Tempo dedicato	0.96	Spiegazioni chiare	0.93
Coinvolgimento	0.96	Ascolto	0.93
Spiegazioni chiare	0.96	Coinvolgimento	0.90
Fiducia nel pediatra di famiglia	0.76	Fiducia	0.61
Fiducia nello specialista ambulatoriale	0.73		
<i>Alpha di Crombach: 0.68</i>		<i>Alpha di Crombach: 0.91</i>	
Fattore2 - DIAGNOSTICA		Fattore4 – SPECIALISTICA	
Info su effetti indesiderati	0.97	Ascolto	0.96
Info sulla procedura d'esame	0.97	Coinvolgimento	0.96
Spiegazioni chiare	0.97	Tempo dedicato	0.91
Gentilezza	0.94	Spiegazioni chiare	0.91
Competenza	0.84		
<i>Alpha di Crombac: 0.86</i>		<i>Alpha di Crombach: 0.95</i>	

I risultati ottenuti hanno confermato l'esistenza di 4 fattori esattamente rappresentativi dei quattro servizi indagati: PLS (Fattore 1), diagnostica ambulatoriale (Fattore 2), MMG (Fattore 3), specialistica ambulatoriale (Fattore 4). Per ciascun fattore sono stati presi in considerazione solo quegli items con un singolo loading > 0.40 (Tabella 4). Sono stati invece esclusi dalle scale per la misurazione dell'esperienza dei cittadini con i servizi territoriali, oltre agli items con un loading < 0.40, anche quelli che presentavano un secondo loading > 0.40 (ad esempio, tutte le variabili sulla competenza professionale e quelle sulle attività di educazione alla salute).

L'unico item che contraddice il costrutto iniziale si riferisce alla fiducia nello specialista ambulatoriale che secondo i risultati dell'analisi fattoriale risulta associato al fattore 1 (PLS) anziché al fattore 4 (SPECIALISTICA). Per entrambi i servizi i prestatori dell'assistenza sono medici specialisti, che esercitano però la professione in due regimi assistenziale (e contrattuali) diversi.

B) Cronbach's alpha – Indagare la *reliability* di un questionario aiuta a comprendere cosa c'è dietro alla variabilità dei risultati della popolazione intervistata, se una reale differenza tra gli individui che la compongono o un errore nella misurazione. Un modo per misurarla è analizzare la omogeneità - o consistenza interna - tra gli items che l'analisi fattoriale ha raggruppato sotto lo stesso fattore, calcolandone l'alpha di Cronbach.

I coefficienti prodotti dall'analisi hanno evidenziato l'ottima affidabilità di tutti i fattori, soprattutto di quelli relativi agli MMG (0.91) e alla medicina specialistica ambulatoriale (0.95). Altrettanto buona, anche se più bassa rispetto ai due precedenti fattori, è l'alpha è per i fattori della diagnostica, pari a 0.86, e dei PLS, pari a 0.68. Quest'ultimo coefficiente è stato calcolato considerando anche la variabile sulla fiducia nello specialista, che se fosse esclusa dall'analisi, mantenendo quindi solo le variabili concettualmente collegate a questa dimensione, farebbe invece crescere l'alpha confermando un effetto negativo di questo item sulla consistenza interna del fattore PLS e giustificandone un'eventuale esclusione dalle analisi successive.

C) L'interdipendenza tra i fattori – Strutturare un questionario per dimensioni ha l'obiettivo di rilevare con ciascuna di esse, in modo chiaro ed esclusivo, aspetti precisi del fenomeno che si sta studiando, e cioè l'esperienza che i cittadini hanno avuto durante l'accesso a servizi sanitari differenti dell'assistenza territoriale. Una volta verificata la reale indipendenza tra le dimensioni è possibile leggere i risultati anche autonomamente, mettendo il management nelle condizioni di osservare separatamente gli effetti che eventuali azioni di miglioramento intraprese a livello macro possono avere avuto su ciascun servizio.

A questo punto dell'analisi è stato dunque misurato il livello di correlazione interna tra le quattro dimensioni, confermate dall'analisi fattoriale e considerate omogenee dall'alpha di Cronbach, per osservare se le informazioni raccolte su PLS, MMG, e servizi di medicina specialistica e diagnostica ambulatoriale possono considerarsi indipendenti tra loro.

Prima di calcolare l'intercorrelazione sono stati creati quattro indicatori di sintesi, uno per dimensione, come media dei risultati delle variabili in cui sono state declinate (senza considerare quelle di valutazione complessiva), uniformandone precedentemente le scala di risposta (le modalità a 3 o 5 punte sono state riportate su una scala da 0 a 100). Questa procedura applicata in diversi contesti di analisi dei

dati sulla soddisfazione dell'utenza (Hospital E-Scorecard, 2008; Brown et al., 2008), ha dimostrato di non influenzarne il risultato finale dell'analisi.

Come suggerito da Carey et Seibert (1993), nell'interpretazione dei risultati sono stati considerati accettabili i livelli di correlazione non superiori allo 0.60, rifiutando l'ipotesi di dipendenza tra le quattro dimensioni.

I risultati contenuti nella Tabella 5 confermano una buona indipendenza tra i quattro indicatori: i coefficienti di correlazione sono tutti largamente inferiori allo standard di riferimento (0.60) e all'alpha di Cronbach (espressa dal valore tra parentesi), ad eccezione del coefficiente di correlazione tra PLS e diagnostica. Per questi due indicatori il livello di interdipendenza si ridurre notevolmente (diventando 0.17) se nella costruzione dell'indicatore PLS non fosse stata considerata la variabile che misura la fiducia nello specialista ambulatoriale.

Tabella 5 – Livello di interdipendenza tra le quattro dimensioni del questionario (Coefficiente di Pearson)

Dimensioni	N° di items	PLS	MMG	SPEC	DIAGN
PLS	6	(0.68)			
MMG	5	0.04	(0.91)		
SPEC	4	0.67	0.05	(0.95)	
DIAGN	5	0.17	0.06	0.27	(0.86)

D) Overall evaluation and its dimensions – Analizzando la relazione esistente tra i singoli indicatori e la valutazione complessiva dei servizi, è stato possibile capire quale peso ha avuto l'esperienza dei paziente con i quattro servizi nella valutazione complessiva dei servizi di assistenza territoriale. L'indicatore VALUTAZIONECOMPLESSIVA è stato introdotto come variabile dipendente nel modello di regressione lineare, insieme agli indicatori di sintesi di ciascuna dimensione (variabili indipendenti). La variabile dipendente è stata calcolata come media delle variabili che misurano la *Valutazione complessiva* e la *Willingness to recommend* (nel caso di PLS, MMG e specialistica) o la *Willingness to return* (nel caso dei servizi di specialistica e diagnostica ambulatoriale) per i quattro servizi.

Tabella 6 – La relazione esistente tra la soddisfazione complessiva e le dimensioni del questionario (modello di regressione lineare).

Soddisfazione complessiva per i servizi territoriali	Coefficiente	p - value
Soddisfazione per il servizio di PLS	0.153	0.000
Soddisfazione per il servizio di MMG	0.270	0.000
Soddisfazione per il servizio di SPECIALISTICA	0.100	0.000
Soddisfazione per il servizio di DIAGNOSTICA	0.133	0.000

R-squared = 0.5047

I risultati riportati nella Tabella 6 mostrano l'esistenza di una relazione diretta tra gli indicatori che misurano l'esperienza dei cittadini con i quattro servizi e l'indicatore "Valutazione Complessiva" ($p < 0.001$), con coefficienti di correlazione che variano da 0.10 (SPEC) a 0.27 (MMG). Inoltre le quattro dimensioni spiegano complessivamente il 51% della varianza della soddisfazione complessiva ($R\text{-squared} = 50\%$).

2.5 Discussion

La discussione aperta in letteratura sul tema della validazione dei questionari di *patient satisfaction* pone sicuramente l'attenzione su un tema delicato ma importantissimo della ricerca sociale in generale, e dell'affidabilità dei risultati che queste indagini producono nello specifico. Solo se un questionario è in grado di riprodurre il costrutto inizialmente teorizzato (validity) e la variabilità dei risultati prodotti non è riconducibile ad errori di misurazioni ma ad una reale variabilità nell'esperienza della popolazione di riferimento (reliability), le informazioni ottenute potranno considerarsi rappresentative del fenomeno che è stato misurato.

Prima di utilizzare i dati raccolti durante l'indagine di soddisfazione dei cittadini liguri con i servizi di assistenza territoriale per costruire indicatori di valutazione è stato dunque necessario verificare la validità e fattibilità del questionario somministrato.

Quanto emerso dall'analisi presentata in questo articolo conferma l'esistenza di una quasi totale corrispondenza tra i costrutti inizialmente teorizzati e i quattro fattori prodotti dall'analisi fattoriale, tanti quante le dimensioni del questionario sviluppato dal Laboratorio Management e Sanità.

Per alcuni quesiti, come ad esempio quelli sul ruolo del medico o del pediatra di famiglia o quelli sul tema dell'educazione fisica ed alimentare, è stato osservato un cross loading tra i fattori, cioè queste variabili presentavano un loading > 0.40 in più

di un fattore. Significa che la variabilità di questi items è spiegata da più fattori. È dunque possibile che i quesiti non siano stati formulati correttamente o che nel rispondere a queste domande gli intervistati siano stati condizionati da altre variabili. Un risultato non facile da spiegare è la relazione che l'analisi fattoriale ha colto tra la variabile *Fiducia nel medico specialista ambulatoriale* e il fattore 1 (PLS) a cui sono associati items specifici del servizio di pediatria di libera scelta. È ipotizzabile che il paziente si sia approcciato a questa valutazione con gli stessi criteri, trattandosi in entrambi i casi di figure specialistiche, senza fare distinzione tra i due ruoli, chiaramente distinti, che questi professionisti hanno nell'assistenza territoriale.

I risultati hanno inoltre dimostrato che la coerenza interna del fattore 1 migliorerebbe del 14% se la variabile *Fiducia nel medico specialista ambulatoriale* fosse esclusa dalla dimensione.

Il livello di coerenza interna degli altri fattori è invece molto alto, soprattutto per i quesiti che misurano l'esperienza con i servizi specialistici ambulatoriali. Questi risultati aggiungono nuove informazioni sulle proprietà del questionario: l'alpha di Cronbach conferma infatti che lo strumento è in grado di rilevare l'esperienza dei cittadini con i quattro servizi di medicina territoriale indagati perché i singoli items usati per misurarli sono omogenei tra loro. Le quattro dimensioni possono dunque essere considerate misure attendibili, escludendo l'ipotesi che la variabilità nei risultati sia dovuta ad errori di misurazione.

Il livello di interdipendenza riscontrato tra le dimensioni del questionario è molto buono, con coefficienti inferiori allo standard suggerito in letteratura. Nella lettura dei risultati della rilevazione il management delle aziende sanitarie potrà dunque osservare l'impatto che le eventuali strategie gestionali aziendali hanno avuto sui singoli servizi.

Infine, dall'analisi emerge che la valutazione complessiva è influenzata positivamente dai quattro fattori, in particolare dall'esperienza dei cittadini con l'assistenza del medico di famiglia, risultato facilmente interpretabile perché gli MMG sono figura medica con cui i cittadini hanno il maggior numero di contatti. Inoltre, i quattro fattori spiegano complessivamente poco più del 50% della sua varianza. In futuro potrebbe essere interessante approfondire quest'ultimo tema per capire quali sono gli elementi che condizionano la restante parte di variabilità: se, ad esempio, le caratteristiche socio – demografiche, lo stato di salute degli individui, aspetti legati all'organizzazione e alle risorse impiegate per l'erogazione dei servizi

stessi, o infine altri aspetti che potrebbero riguardare l'esperienza degli assistiti con i servizi sanitari e che questo questionario non ha ancora indagato.

2.6 Conclusion

Per i sistemi sanitari, nazionali e locali, che valutano la performance dei provider interni (azienda sanitarie e ospedaliere, distretti socio sanitari, ecc.) attraverso sistemi multidimensionali fondati sulla logica del *benchmarking*, come elemento caratterizzante e leva vincente per l'*improvement* degli stessi servizi, è fondamentale utilizzare misure omogenee e capaci di offrire una lettura trasversale di un sistema complesso come quello sanitario. Allo stesso tempo è importante adottare parametri di valutazione che siano definiti e condivisi (standard), come, ad esempio, protocolli o raccomandazioni cliniche nel caso degli indicatori di qualità clinica, o principi contabili condivisi per quelli economici.

Nella misurazione della qualità percepita dagli utenti del servizio è frequente invece il ricorso ai risultati di indagini di soddisfazione. Non esistono standard internazionali che individuano esattamente le variabili da considerare nella costruzione di questi indicatori data la natura complessa del fenomeno *patient satisfaction*, fortemente condizionata dalle caratteristiche del servizio e della sua utenza può. Tuttavia, affinché questi indicatori possano garantire il confronto tra le performance dei servizi erogati in un determinato contesto territoriale e al tempo stesso costituire misure realmente rappresentative del fenomeno a cui si riferiscono, occorre che ciascuna rilevazione (intervista) sia condotta secondo una metodologia uniforme e utilizzando strumenti (questionari) affidabili e validi.

Di qui la necessità di considerare la validazione dei questionari di *patient satisfaction* un passaggio obbligato negli studi sulla soddisfazione degli utenti dei servizi sanitari, e propedeutico alla costruzione di indicatori di valutazione.

Di qui la necessità di osservare la robustezza del questionario utilizzato per raccogliere le informazioni sull'esperienza dei cittadini con i servizi di assistenza territoriale, per poter poi procedere con la costruzione di indicatori di qualità percepita da introdurre nel sistema di valutazione della performance dei sistemi sanitari regionali di Liguria, Piemonte, Toscana e Umbria.

Sulla base dei risultati ottenuti dall'analisi descritta in questo articolo, è stata infatti possibile definire la struttura di quattro indicatori sulla medicina territoriale, uno per servizio (MMG, PLS, diagnostica e specialistica ambulatoriale), introducendo due livelli di osservazione: il primo, generale, tiene conto dei giudizi che i cittadini

intervistati hanno espresso sul servizio nel suo complesso; il secondo, più analitico, considera la loro esperienza rispetto ad aspetti specifici del servizio.

Le variabili presenti nel secondo livello (sottoindicatori) sono volutamente pochi - circa cinque o sei per ciascun indicatore - per una scelta di metodo, che predilige l'adozione di un numero limitato di misure su cui concentrare l'attenzione del management. Si tratta per lo più di items relativi al rapporto tra paziente e professionista (medico o pediatra di famiglia, specialista o operatore sanitario che esegue l'esame diagnostico), con un focus sui temi della comunicazione e della fiducia. Per il futuro è possibile pensare di condurre singole indagini focalizzate su ciascuno dei quattro servizi, in modo da poter ampliare gli aspetti del servizio da indagare (accesso al servizio, continuità di cura, ecc.) e da introdurre nell'indicatore. In tal caso occorrerà ripetere l'analisi di validazione sui nuovi questionari.

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CHAPTER 3

The effects of institutional characteristics on inpatient satisfaction. A multilevel analysis.

Abstract

Background: In the last years an increasing interest for the benchmarking of health services' quality was observed across organizations. A comprehensive approach was mostly adopted in order to consider together the several measures of quality, including patient satisfaction.

Objectives: This study aims at investigating the individual and organizational determinants of patient satisfaction with Tuscan public hospitals. Particularly, the analysis focuses on the effect of hospital characteristics (size, institutional status and percentage of patients who leave hospital against the medical advice) on overall evaluations and on the between-hospitals variability.

Methods: Four linear hierarchical models were applied in order to capture the influence of patient (level 1) and hospital (level 2) characteristics on: (i) overall patient satisfaction, (ii) patient experience with doctors and (iii) nurses assistance and (iv) with communication process. Moreover, ICCs were measured in order to investigate the amount of the overall variance explained at hospital level.

Results: Age, education, self rated health status, admission mode, residence, hospitalization ward and continuity of care were statistically significant predictors of patient satisfaction with hospital. Furthermore, a negative influence of hospital size and percentage of voluntary discharge was observed. This study confirms findings of previous researches about the low between-hospitals variability, implying a moderate contextual effect that is much smaller than the personal one.

Conclusion: Patients' feedbacks are essential in order to measure performance and to make healthcare professionals more aware of aspects enhancing users' satisfaction. Particularly, looking at the patient characteristics as well as the contextual elements that more influence the patient experience can be helpful in order to better identify the service area to be improved.

Key words: patient satisfaction, contextual effect, voluntary discharges

3.1 - Introduction

As pointed out by Donabedian (Donabedian, 1988) aspects such as the structure, the organization of the healthcare process and patient satisfaction have to be considered together in a comprehensive approach regarding healthcare quality. Since 1990s multidimensional evaluation systems, using also indicators on patients' perceptions of care or satisfaction, have been adopted by health systems to measure the results achieved (Veillard et al., 2005) (Arah et al., 2006) and, in some cases, to compare performance across organizations (Nutti et al, 2009).

The main criticism towards patient satisfaction indicators is about the fairness of comparison since patients' ratings reflect subjective factors such as: (i) their personal preferences and expectations and (ii) the realities of the care received (Woodbury et al, 1998). These factors are strongly correlated to patient socio demographic characteristics, patient experiences with health services and organizational and environmental features of context where care is provided.

A large number of studies investigated how perceptions of health services' quality is influenced by the socio demographic and clinical characteristics of patients. Authors observed that a poor self rated health status negatively affects satisfaction with organizational quality of care (Westaway et al., 2003) and a high education decreases overall satisfaction rates (Pilpel, 1996). On the contrary, a positive relationship between age and satisfaction exists (Bruster et al., 1994).

Moreover, in recent years, the characteristics of the external environment were also considered as factors influencing individual evaluations. Thus, researches focused on the influence of the contextual effects and aimed at investigating whether variation between different settings exist and which its origin is. In some cases the analysis is restricted to the measurement of the between-organizations' variation (Stubble et al, 2007) (Kollen et al, 2010). However, more often the nature of variation was also measured in terms of geographical elements (Young et al, 2000), administrative characteristics (e.g. health jurisdictions) (Brown et al, 2008), dimension (Salisbury et al, 2010), institutional status (e.g. teaching vs community hospitals) (Hekkert et al, 2009), employees' satisfaction (Veenstra et al, 2003) and training programs (Van Empel et al, 2010). All these factors have been demonstrated to influence the process of care, its features and consequently patients' experience.

Some statistical approaches, such as covariance analysis and contextual analysis, allow to identify patient and organizational variables affecting patient satisfaction. However, only multilevel model allows to measure both individual and setting

effects that influence patient satisfaction and to return separate information on variability within and between organizations (Duncan et al., 1998). This model, also known as hierarchical model, can be applied only when data have a multilevel structure, that is when units at the lower level (e.g. patients) are nested within groups at the higher level (e.g. hospitals) (Snijders et al., 1999). Then, the use of multilevel model contributes to predict indicators of patient satisfaction controlling also for setting characteristics and makes possible their comparison across organizations.

3.2 - Objectives

Since 2004 the Regional Health System of Tuscany (Italy) has been adopting a Performance Evaluation System (PES) - developed by Laboratorio Management e Sanità (Mes Lab) of Scuola Superiore Sant'Anna in Pisa (SSSUP) – in order to monitor the results achieved by health providers (12 Local Health Authorities and 5 Teaching Hospitals). This system comprises more than 130 indicators, organized into six dimensions: (a) Population health, (b) Regional policy targets, (c) Quality of care, (d) Patient satisfaction, (e) Staff satisfaction and (f) Efficiency and financial performance (Nutti et al, 2009). Dimension (d) includes about fifteen indicators on patient satisfaction with health services (e.g. primary care, emergency department, home care, hospital service) that are created using data collected by telephone surveys.

In order to provide detailed information about inpatient experience to AHs managers, this study aims at (i) exploring which are the determinants of patients' satisfaction with hospital care at patient and hospital levels and (ii) measuring the variability at both levels. Investigating the variation of satisfaction within and between hospitals and their origins can be essential for planning effective policies of quality improvement. In fact, depending on whether patient experience is more influenced by patient or hospital characteristics, different actions have to be implemented. In detail, socio-demographic characteristics (age, gender, education, self assessed health status) and variables related to patient' hospitalization (e.g. whether patients live in the hospital area, whether admission was planned, length of stay, hospitalization ward, previous accesses, etc.) were considered at patient level. Besides the most commonly used characteristics such as size and institutional status, at hospital level percentage of voluntary discharges was also investigated as a possible aspect of organization predicting patient rates.

3.3 - Data and Methodology

Survey - A stratified random sampling procedure was used to select participants for this study. The sampling frame was composed of inpatients discharged from Tuscan hospitals during the period September – December 2008. All public hospitals, 30 managed by LHAs and 4 teaching hospitals (excluding the pediatric one), were involved in the study. Patients hospitalized in medical, surgical and obstetrician – gynaecologic – paediatric (OGP) wards were involved, while newborn babies, patients treated in intensive care units or with a day hospital access were excluded. When repeated accesses were recorded, only the last one was then considered. Therefore, patient' s records with no information on the phone number have been excluded from the sampling list because patients were interviewed at home by telephone. The computer Assisted Telephone Interviewing (CATI) technique was used and it was preferred to a postal or CAWI – based survey since this method allows to control data entry while conducting interviews, to obtain results quickly and also to reach low literacy groups (A. Coulter, 2009).

Out of 79.143 eligible inpatients discharged, a sample of 17.409 patients was required in order to return statistically significant results at hospital ward level (medical, surgical and OGP).

Questionnaire – A brief Inpatient Experience Questionnaire (IEQ) was developed by considering the current literature and previous surveys undertaken in Tuscany Region (Nuti, 2008) and in international health systems (Charles et al, 1994; Jenkinson et al, 2002; González et al., 2005). Twenty-eight questions were designed to investigate the patient relationship with doctors and nurses, communication process, information provided at discharge and overall evaluation of care (Table 1). Finally, also seven questions were about patient socio-demographic characteristics (age, gender, educational level, self reported health status, job position, chronic disease, previous hospitalization).

Report style questions were mainly preferred to satisfaction ones, because of the wide subjective nature of patient satisfaction concept which may be affected by expectancies, pre-evaluation and previous experience (Cleary et al, 1992; Cleary 1999). Three type of scales were used for measuring the different aspects of care: (i) a 3-point scale (1 = *No*, 2 = *Yes, sometimes*, 3 = *Yes, always*) was adopted to gather

Table 1 – Questionnaire items and scales

Items	Scales
admission mode	descriptive scale*
doctor in charge of patient care	yes/no
clearness of doctors' answers	3 points scale
trust in doctors	3 points scale
doctors' respectful manners	3 points scale
doctors' courtesy	5 points scale
doctors' care	5 points scale
how doctors and nurses work together	5 points scale
nurse in charge of patient care	yes/no
clearness of nurses' answers	3 points scale
trust in nurses	3 points scale
nurses' respectful manners	3 points scale
nurses' courtesy	5 points scale
waiting time for nurses' response to the button call	3 points scale
information on health status and treatment	3 points scale
family members' difficulty to talk with doctors	3 points scale
respect for privacy during consultations	3 points scale
discordant information	3 points scale
communication among doctors and nurses	3 points scale
pain management	3 points scale
surgical treatment	yes/no
infection after the surgical treatment	yes/no
at discharge: written information on medicines	3 points scale
at discharge: information on side effects	3 points scale
GP informed about hospitalization	yes/no
GP asking for patient hospitalization	yes/no
overall evaluation of care	5 points scale
overall evaluation of organization	5 points scale

* planned, no planned (moving from emergency department), no planned (unexpectedly arriving to ward)

information on the frequency of selected events during the whole process of care; (ii) a five points scale (1 = *Very poor*, 2 = *Poor*, 3 = *Pair*, 4 = *Good*, 5 = *Excellent*) was used to assess doctor assistance, team work of doctors and nurses, overall assistance and organization of hospital wards; (iii) finally, the scale “*Certainly*”, “*Probably*” and “*No*” was used in order to record the patient willingness to recommend the hospital.

Questionnaire validity was measured by applying a factor analysis only to reporting and rating items, excluding the overall evaluation's ones. Three meaningful factors accounting for about 57% of the variance were retained and interpreted based on their psychometric properties as measures of (i) satisfaction with doctors' assistance, (ii) satisfaction with nurses' assistance and (iv) satisfaction with the extent to which information and communication met patient's needs. Cronbach's alpha greater than 0.70 highlighted a good internal consistency of these dimensions (table 2).

3.4 - Multilevel Analysis

Data collected presented a hierarchical structure which had patient (level 1) nested in hospital (level 2). This multilevel data framework allowed to investigate whether and how: (i) individual patient experience with hospital services varies among hospitals (heterogeneity), (ii) patients within a hospital have similar experience with assistance and (iii) individual experience depends on both patient and hospital characteristics (Goldstein, Spiegelhalter, 1996).

In order to mainly observe the hospital effect on patient satisfaction, a random intercept multilevel model was preferred to other statistical approaches because it manages more levels simultaneously and returns separate residual variance components for between and within-group (higher levels) variability. Ignoring the hierarchical structure of the data might lead to well known forms of fallacy as the "atomistic" and the "ecological" fallacy (Diez Roux, 2002).

Regression coefficients and variance components at hospital and patient levels were estimated for four indicators related to: (i) overall satisfaction with care experience, (ii) satisfaction with doctors' assistance, (iii) satisfaction with nurses' assistance and (iv) satisfaction with the extent to which information and communication needs were met.

All indicators were calculated by averaging their subscale scores. The composite score of indicator (i) was computed considering patients' answers about both overall evaluation of hospital experience and their willingness to recommend the hospital. Furthermore, the subscales of factors identified as meaningful measures of inpatient satisfaction (see factor analysis results in "questionnaire" section) were considered in order to build indicators (ii), (iii) and (iv). The patient evaluation assigned to items were averaged to build the indicators' scores.

All the responses used for calculating the above mentioned indicators were first transformed into a 0 – 100 scale with higher score indicating the best evaluation. The three point scales were converted to scores of 0, 50 and 100, while the five point

scales were converted to scores of 0, 25, 50, 75 and 100. This method of scoring – already adopted in other studies - differs from the method described by Jenkinson et al (Jenkinson et al, 2002) according to which items are classified as problematic or not. A continuous scale was preferred in order to preserve the gradations of patient s’ evaluation (Brown et al, 2008).

Table 2- Patient satisfaction indicators and items.

Indictors/Items	Mean	Std. Dev.
Doctors (Cronbach’s alpha 0.86)	84.87	17.41
<i>Courtesy</i>	85.98	18.56
<i>Assistance</i>	85.78	19.30
<i>How doctors and nurses work together</i>	83.73	19.37
Nurses (Cronbach’s alpha 0.73)	92.26	14.34
<i>Clear answers</i>	92.51	21.37
<i>Trust</i>	94.08	18.36
<i>Respect</i>	96.77	14.23
<i>Timely answer to call button</i>	83.29	20.86
Communication (Cronbach’s alpha 0.71)	93.67	13.70
<i>Clear answers by doctors</i>	94.03	19.52
<i>Info on care and treatment</i>	89.73	26.92
<i>Respect (doctors)</i>	95.53	16.72
<i>Privacy</i>	96.27	16.01
<i>Concordance on information</i>	94.35	18.24
<i>Between doctors and nurses</i>	94.34	19.66
Overall evaluation (Cronbach’s alpha 0.73)	88.23	19.49
<i>Assistance</i>	84.53	19.71
<i>Willingness to recommend</i>	92.63	23.26

For each patient satisfaction’s indicators two models were fitted. The first model does not consider explanatory variables (empty model) and its intercept measures the overall mean of patients’ scores. The second model measures the residual

variance explained at lower and higher level after adjusting for patient and hospital characteristics. Furthermore, Intra-class Correlation Coefficients (ICCs) were calculated in order to observe the amount of variance in patient satisfaction score due to differences between hospitals.

Patient – level and hospital – level variables introduced in the second model and their measures are hereafter presented.

Explanatory variables, patient level – Age (a), gender (b), educational level (c) self reported health status (d) and elements monitoring hospitalization experience were introduced as explanatory variables at patient level. In detail, hospitalization experience was measured considering the following variables: admission mode (e), length of stay (f), hospitalization’s ward (g), whether patient lived in the hospital geographical area (h), whether either a doctor or a nurse was in charge of patient care (i), whether a chronic disease caused admission (l), whether a general practitioner was informed on patient hospitalization (m) and whether the patient had any previous stays (n). Variables (f), (g), (h) were derived from hospital’s patient administrative records, while variables (a), (b), (c), (d), (e), (i), (l), (m), (n) were reported directly by patients during the interview.

Table 3 – Explanatory variables used in the random intercept model

Variable	Type of variable	Scale	Reference group
Age	Continuous	0 – 99	
Gender	Dichotomous	female, male	Male
Education	Ordinal	primary, secondary, high, degree	Degree
Self rated health status	Ordinal	very poor, poor, fair, good, excellent	Very poor
Living in hospital area	Dichotomous	yes, no	No
Admission mode	Dichotomous	planned, no planned	No planned
Length of stay	Continuous	0 – 115	
Hospitalization ward	Categorical	medica, surgical, OGP	Surgical
Hospitalization reason	Dichotomous	chronic disease, others	Others
Previous stays	Categorical	no, one time, more times	No
Doctor incharge	Dichotomous	yes, no	No
Nurse incharge	Dichotomous	yes, no	No
GP informed	Dichotomous	yes, no	No
Institutional status	Dichotomous	teaching, no teaching	No teaching
% of voluntary discharge	Continuous	0.10 - 6.17	
Hospital size	Categorical	small, medium, large	Small

Explanatory variables, hospital level - Hospital size, institutional status and percentage of voluntary discharges were introduced as predictors of patient satisfaction at hospital level. Hospital size was defined considering the percentile distribution of number of beds ('small' <= 153 beds, 'medium' <= 416, 'large' >416), while the variable on institutional status classified hospitals as teaching or non- teaching.

Voluntary discharges indicator measures the percentage of patients that leave hospital against the medical advice (out of total discharges). Haywood et al. (2010) confirmed that patient trust and poor quality interpersonal experiences with care may be associated with hospital self-discharge and that this outcome can be considered as an indicator of the quality of care received. All data on hospital characteristics were derived from the regional administrative system. Table 3 describes whether explanatory variables adopted are continuous, dichotomous, ordinal or categorical and which are their scales.

Table 4 - Patients and hospitals characteristics

LEVEL 1 – Patients characteristics			
Age, mean (SD, range)		53.82	(22.69) (0 - 99)
Gender			
	<i>M (%)</i>	38.83	
	<i>F (%)</i>	61.17	
Educational level			
	<i>primary (%)</i>	39.29	
	<i>secondary (%)</i>	24.74	
	<i>high (%)</i>	26.3	
	<i>degree (%)</i>	9.68	
Self reported Health Status			
	<i>very poor (%)</i>	1.66	
	<i>poor (%)</i>	13.24	
	<i>fair (%)</i>	49.53	
	<i>good (%)</i>	24.5	
	<i>excellent (%)</i>	11.07	

Table 4 - **Patients and hospitals characteristics** (continued)

LEVEL 1 – Patients hospitalization			
Place of residence			
	<i>Hospital Area (%)</i>	87.38	
	<i>No hospital Area (%)</i>	12.62	
Admission mode			
	<i>planned (%)</i>	38.34	
	<i>noplanned (%)</i>	61.66	
Length of stay (days), mean (SD, range)		5.85	(5.67) (0 - 115)
Hospitalization Area			
	<i>medical (%)</i>	35.67	
	<i>surgical (%)</i>	35.03	
	<i>OGP (%)</i>	29.3	
Admission for chronic disease			
	<i>yes (%)</i>	22.56	
	<i>no (%)</i>	77.44	
Previous admissions			
	<i>no (%)</i>	78.68	
	<i>onetime (%)</i>	15.69	
	<i>more (%)</i>	5.63	
Doctor in charge			
	<i>yes (%)</i>	30.37	
	<i>no (%)</i>	69.63	
Nurse in charge			
	<i>yes (%)</i>	1.07	
	<i>no (%)</i>	98.93	
GP informed			
	<i>yes (%)</i>	71.99	
	<i>no (%)</i>	28.01	
LEVEL 2 – Hospitals characteristics			
Hospital size			
	<i>small (%)</i>	35.29%	
	<i>medium (%)</i>	32.35%	
	<i>large (%)</i>	32.35%	
Hospital institutional status			
	<i>Teaching (%)</i>	25%	
	<i>No teaching (%)</i>	75%	
Voluntary discharges, % average (SD, range)		1.17	(1.02) (0.10 - 6.17)

3.5 - Results

About 25.510 patients were contacted by phone during a four months period and 15.474 questionnaires were filled in with a response rate of 61% that varies from 52% to 84% across the Tuscan Health Authorities.

Descriptive analysis - Analyzed results referred to 14.934 patients (users of teaching pediatric hospitals were not included in this study) who were in average 54 years old, predominantly female, with a primary school license, with a passable self reported health status and experiencing their first hospitalization. The majority of the patients lived in the hospital area, did not have a planned admission, stayed in hospital in average about six days and the hospitalization's reason generally was not a chronic disease. Patients were discharged by either medical (36%), surgical (35%) or OGP wards (29%). Moreover, thirty per cent of patients reported that during the hospitalization a specific doctor was in charge of his care, only 1% reported to be followed by a specific nurse and 72% said that the general practitioner was informed about the hospitalization.

In 2008, the 34 surveyed hospitals had in average about 360 beds (range 33– 1645), most of them were community hospitals (75%) and they recorded 1% (range 0,1% - 6,2%) of patients who voluntarily decided to leave the hospital.

Patient satisfaction with Tuscan hospitals' service was generally positive. In a score ranging from 0 to 100, patients rated hospital assistance and willingness to recommend a specific hospital as 85 and 93 respectively. Satisfaction with communication had the highest score: patients received clear answers to their questions (94), adequate (90) and concordant information (94), during communication their privacy was respected (96) and they were treated as persons (96).

Furthermore, the relationship with nurses (92) was evaluated more positively than the relationship with doctors (85), even though the timeliness of nurses to respond to call button received the lowest ratings(83).

Multilevel model results –Firstly, variances at patient and hospital levels were analyzed for each indicator (Overall experience, Doctor assistance, Nurses assistance, Communication), without considering explanatory variables. In all empty models, a statistically significant variance was observed at hospital level and it was larger for indicators on overall experience and relationship between patient and doctors.

Table 5 - Multilevel Models. Dependent variables: Overall experience and Doctors.

	Model 1 Overall		Model 2 Doctors	
Units: hospitals	34		34	
Units: patients	11749		11730	
Fixed Part: level1	Coeff.	S.E.	Coeff.	S.E.
Cons	69.888	1.787	69.698	1.58
Age, mean	0.088 °	0.04	0.132 *	0.035
Age2, mean	0	0	0	0
Gender, male	0.549	0.4	0.208	0.352
Education				
<i>primary</i>	4.475 *	0.722	4.552 *	0.636
<i>secondary</i>	3.796 *	0.691	4.184 *	0.608
<i>high</i>	2.58 *	0.669	2.751 *	0.589
Self reported health status				
<i>fair</i>	9.039 *	1.461	6.204 *	1.288
<i>passable</i>	14.62 *	1.411	10.508 *	1.244
<i>good</i>	17.131 *	1.453	13.446 *	1.281
<i>excellent</i>	20.903 *	1.514	17.507 *	1.335
Place of residence, Hospital area	-1.403 +	0.551	-1.943 *	0.485
Admission mode, planned	1.677 *	0.403	1.463 *	0.355
length_of_stay, mean	-0.049	0.057	-0.007	0.05
length_of_stay2, mean	0.001	0.001	0.001	0.001
Hospitalization area				
<i>med</i>	1.446 *	0.458	1.309 *	0.403
<i>OGP</i>	1.939 *	0.59	2.413 *	0.519
Hospitalization for chronic disease, yes	0.46	0.47	0.883 °	0.413
Previous stays				
<i>more</i>	-1.37 °	0.795	-1.119	0.7
<i>onetime</i>	-0.558	0.487	-0.219	0.429
Doctor incharge, yes	4.226 *	0.396	5.087 *	0.348
Nurse incharge, yes	2.901 °	1.761	0.64	1.549
GP informed	0.811 °	0.423	0.978 +	0.372

Table 5 - Multilevel Models. Dependent variables: Overall experience and Doctors (cotinued).

	Model 1		Model 2	
	Overall		Doctors	
Fixed Part: level1	Coeff.	S.E.	Coeff.	S.E.
Hospital size				
<i>medium</i>	-2.587 ⁺	0.861	-1.909 ⁺	0.777
<i>large</i>	-3.998 [*]	0.875	-3.864 [*]	0.788
Teaching status, yes	1.568	1.083	1.846 [°]	0.979
% voluntary discharges	-1.081 ⁺	0.355	-0.640 [°]	0.320
Random Part				
Level2 variance: hospitals, var(U0j)	2.44	0.861	2.037	0.705
Level1 variance: patients, var(Rij)	349.552	4.567	270.203	3.533
ICC	%		%	
var(U0j)/[var(U0j)+var(Rij)]	0.69%		0.75%	
-2*loglikelihood (Level2):	102191.9		99008.26	
-2*loglikelihood (Level1):	102238.3		99059.49	
	p<0.0001		p<0.0001	

[°]<=0.050, ⁺ p<=0.010, ^{*} p<=0.001

However, hospital level generally explained only a low percentage of overall variance (ICCs ranged from 1,14% to 1,86%) implying a moderate contextual effect, much smaller than the personal one. This results is not surprising and is in line with other studies on patient satisfaction (Stubbe et al, 2007) and on outcomes' measures (Silber et al, 1995). Also a low ICC (1.28%) was found when measuring betweenwards variability (Veenstra et al, 2003).

Patient level - It was observed that gender had a significant statistical effect only on patient experience with nurses and communication; in particular, males were likely to provide higher scores than females. As expected, results showed that age, education and self reported health status were statistically significant predictors of patient satisfaction with hospital care (Veenstra et Hofoss, 2003; Stubble et al., 2007; Hekkert et al, 2009). Being older and in good health increased the probability of declaring a high subjective satisfaction. Instead, the less-educated patients were more satisfied than those with an university education.

Table 6 - Multilevel Models. Dependent variables: Nurses and Communication.

	Model 3 Nurses		Model 4 Communication	
Units: hospitals	34		34	
Units: patients	11747		11754	
Fixed Part: level1	Coeff.	S.E.	Coeff.	S.E.
Cons	84.118	1.31	80.785	1.225
Age, mean	0.074 ⁺	0.03	0.069 ⁺	0.028
Age2, mean	0	0	0	0
Gender, male	1.622 [*]	0.295	0.595 [°]	0.276
Education				
<i>primary</i>	3.017 [*]	0.533	3.358 [*]	0.498
<i>secondary</i>	1.838 [*]	0.51	2.615 [*]	0.477
<i>high</i>	1.408 ⁺	0.494	1.211 ⁺	0.461
Self reported health status				
<i>fair</i>	4.75 [*]	1.078	7.131 [*]	1.008
<i>passable</i>	7.071 [*]	1.041	10.066 [*]	0.973
<i>good</i>	7.47 [*]	1.072	11.723 [*]	1.002
<i>excellent</i>	8.857 [*]	1.117	13.08 [*]	1.044
Place of residence, Hospital area	-0.584	0.406	-0.325	0.379
Admission mode, planned	1.405 [*]	0.297	1.095 [*]	0.278
length_of_stay, mean	-0.19 [*]	0.042	-0.101 ⁺	0.039
length_of_stay2, mean	0.003 ⁺	0.001	0.001	0.001
Hospitalization area				
<i>med</i>	1.736 [*]	0.338	0.953 ⁺	0.316
<i>OGP</i>	0.992 [°]	0.435	0.822 [°]	0.407
Hospitalization for chronic disease, yes	-0.091	0.347	-0.261	0.324
Previous stays				
<i>more</i>	-2.256 [*]	0.587	-1.941 [*]	0.548
<i>onetime</i>	-0.422	0.359	-0.636 [°]	0.336
Doctor incharge, yes	0.806 ⁺	0.292	2.516 [*]	0.273
Nurse incharge, yes	0.201	1.3	-1.491	1.215
GP informed	0.102	0.312	1.003 [*]	0.291

Table 6 - Multilevel Models. Dependent variables: Nurses and Communication (continued).

	Model 3 Nurses		Model 4 Communication		
	Coeff.	S.E.	Coeff.	S.E.	
Fixed Part: level1					
Hospital size					
	<i>medium</i>	-2.758 *	0.599	-1.854 *	0.563
	<i>large</i>	-2.896 *	0.608	-2.195 *	0.571
Teaching status, yes		-0.764	0.748	0.425	0.703
% voluntary discharges		-0.309	0.247	-0.210	0.232
Random Part					
Level2 variance: hospitals, var(U0j)		1.095	0.413	0.973	0.365
Level1 variance: patients, var(Rij)		190.311	2.487	166.304	2.172
ICC		%		%	
var(U0j)/[var(U0j)+var(Rij)]		0.57%		0.58%	
-2*loglikelihood (Level2):		95028.16		93500.18	
-2*loglikelihood (Level1):		95064.36		93537.87	
		p<0.0001		p<0.0001	

°<=0.050, + p<=0.010, * p<=0.001

Living in the hospital area negatively affected both patients' overall experience and the relationship with doctors, while the longer the patient stayed in the hospital the lower the scores on nurses assistance and communication were.

On one hand, having had only one previous hospitalization experience decreased the probability of being satisfied with communication, on the other being hospitalized more than once had a negative effect on overall experience and patient - nurses relationship. A planned admission (versus an emergency access in ward or through the emergency department) was found to be a positive predictor of all the four indicators. Whether patients was hospitalized in a medical or OGP ward they generally judged hospital service more positively than patients assisted in a surgical one. When a doctor was in charge of patient care all indicators scores were higher, while when a nurse was in charge of patient care only the overall experience increased. Moreover, if the general practitioner was informed about hospitalization a positive effect was observed on all indicators with exception of nurses care.

Hospital level – Having being hospitalized in medium or large hospitals (*versus* small hospitals) seemed to improve all the levels of patient satisfaction, while having been assisted in a teaching hospital positively affected doctors assistance only. Last but not least, as the percentage of discharges against medical advice increased, so satisfaction with overall experience and doctor assistance were lower. By adjusting for patients and hospitals characteristics, ICCs decreased for each patient satisfaction indicators after adjusting for patient and hospital characteristics. Particularly the explanatory variables mostly reduced the overall evaluations variability (63%).

3.6 - Discussion and conclusions

This study identified patients and hospitals' characteristics affecting satisfaction with hospitalization experience and observed whether and how individual experiences varied across and within hospitals. Most of the variance in ratings was observed at patient level, confirming previous studies according to which variability is larger within organizations (hospitals or wards) than between organizations (Stubbe et al, 2007, Veenstra et Hofoss, 2003). Results confirmed also that older, male, less educated and healthier patients tended to rate the hospital service more positively than the others. In addition, a planned admission tends to have a positive influence on patient evaluation (Veenstra et Hofoss, 2003).

Measures of patient's diagnosis could not be considered in the analysis since the reason for hospitalization was not available because of privacy law restrictions. However, information on hospitalization ward (i.e. if it is medical, surgical or OGP) was considered and some differences were observed across the four indicators. In particular, patients who had been hospitalized in any surgical ward tended to be generally unsatisfied. Thus, what is it that makes patients hospitalized in surgical wards less satisfied with the received care than other patients? A possible explanation could be in the characteristics of patients treated in the three different kind of wards. For instance, patients in medical wards are generally older than those in surgical ones and affected by chronic conditions, OGP patients are mostly pregnant women or new moms, while surgical patients are more likely to suffer of more severe conditions implying a surgical operation. The first two groups of patients tend to give higher evaluation because older people are more positive and pregnant women live a happy event respectively, while the second one tend to be more negative because they take a more critical look at their clinical conditions.

Interesting results were observed when considering the continuity of care during the hospitalization and after the patient's discharge. The presence of a specific doctor in charge of care during the hospitalization made patients feel safe and followed up, increased their compliance with treatments and improved their perception on quality of care. Moreover, having had a constantly informed GP about hospitalization positively affected ratings on hospital doctor care and overall experience. Positive ratings to satisfaction with doctors assistance were also likely to be given when any chronic disease was the main reason for hospitalization. Chronic patients seemed to be more satisfied with doctor assistance and this is probably explained by the fact that often the hospital doctor is the same specialist who is in charge of patient pathway, within and outside the hospital. In most cases hospitalization events cannot be considered isolated episodes of care, but they are part of an overall process of care. Continuity of care before, during and after admission allows to assist patients in an effective and efficient way and in that context physicians play a very strategic role.

Furthermore, receiving care in a hospital far from home had a positive impact on hospitalization experience (overall and doctors' assistance). This results could be explained by taking into account that in Tuscany 95% of patients still choose their local hospital rather than travelling further to a different one, while the remaining 5% is expected to make an informed decision specifically to avoid closest hospitals on the basis of their needs and preferences (Barsanti, 2010).

Regarding the organization characteristics, either small or teaching hospitals received higher scores than medium/large and community counterparts respectively. Particularly, being hospitalized in a teaching structure significantly and positively affected only ratings on doctors' assistance. These findings on hospital dimension and academic status may appear conflicting at least because teaching hospitals usually have a larger dimension in term of beds than community ones. Moreover, the patients' case-mix of teaching and community hospitals deserves additional considerations. Firstly, patients in small community hospitals do not always require complex care and do not have high expectancies, and these elements make easier to satisfy patients' overall needs. On the contrary, reason for being hospitalized in a teaching hospital could mainly be the need for a complex care (Messina, Scotti et al, 2009); however, it was generally observed that sicker patients tend to give more negative evaluations. That said, the results obtained in this study, according to which ratings about doctors' assistance are slightly higher in teaching hospitals than in

other ones, could be in part explained by the reputation the academic status provides to doctors working in teaching hospitals, which, in turn, might positively influence patients' expectations of service and care. At this stage the analysis of the relationship between patient satisfaction hospital status remained a complex issue which needs further research in both the teaching and nonteaching environment.

Finally an important result in terms of managerial implication is the significant relationship between satisfaction and percentage of voluntary discharges. Since the percentage of patients that leave hospital against the medical advice may be considered as a proxy indicator of patient satisfaction with hospital service, the observed result allows health care management to have at their disposal several measures considering patient perspective even when the more costly and time consuming survey data are not available.

In conclusion, patients' feedbacks are essential in order to measure performance and to make healthcare professionals more aware of aspects enhancing users' satisfaction. Mainly, they have to remember that more satisfied patients are more they are likely to respond to treatments and to get better health outcomes.

Regarding to methodological approach adopted in this study, the use of multilevel models helped to (i) identify the determinants of inpatient satisfaction (overall, with doctors and nurses, and with communication received) and, (ii) to make more comparable results across the hospitals of Tuscan Health Authorities, by controlling data for personal and environmental characteristics that most explained patient satisfaction. These results can be then provided to managers in order to promote actions of quality improvement. However, the reluctance of who sometimes disagrees with benchmarking because of differences in patients case mix and in organizational features could be overcome.

Having observed that patient satisfaction is a complex and wide concept to be analyzed, the present study is the first attempt towards future researches which deeply investigate the correlation between levels of patient satisfaction and other indicators included in Tuscan PES (such as job satisfaction and health outcomes).

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CHAPTER 4

A marketing approach for creating patient oriented pathways in hospital services

ABSTRACT

Background: The patient's experience has become an important tool in health services management, reflecting a new habit in using marketing tools able to change the focus towards patient-oriented health care services. It was observed that the patient that leaves the hospital with a positive perception increases his compliance with care and is less likely to complain against the health care organization.

Objectives: The study aims to identify the main factors that affect patient experience with hospital services and if there are differences depending on whether they are hospitalized in medical, surgical or obstetrical, gynecological and pediatric hospital wards.

Methods: A random sample of patients was surveyed from Tuscan public hospitals by means of Computer Aided Telephone Interviews. A structured questionnaire was used to collect information related to patient experience with doctors, nurses, communication and discharge process. Two regression models were performed using as dependent variables the overall satisfaction with hospital experience and the willingness to recommend the hospital to friends or family's members.

Results: Patient satisfaction is consistently predicted by patients' perceptions across a variety of care domains, such as the physicians and nurses' attitudes, the ability of the hospital staff to work as a team and the communication process. Moreover, statistically significant differences were observed among patients in charge by medical, surgical and obstetrical, gynecological and pediatric hospital wards.

Conclusions: Results provide valuable information in order to improve the quality of hospital services and to make them more effective and patient centered. The study points out that doctors have a strategic role in patient experience with hospital services and that the collaboration between nurses and doctors is a crucial aspect to ensure the best possible care.

KEY WORDS: evaluation of health services, patient oriented health services, patient experience, team work.

4.1 Introduction and Objectives

In the years health systems have changed the way of thinking and delivering care: patient became the centre of the overall process and new organizational models were applied in order to provide patient-oriented services. The mission of health systems expanded to meet the population's health needs and expectations regarding how patient should be treated by providers. Strategies focused on responsiveness have been developed since 2000s (WHO, 2000). They were based on both respect for patients as persons (respect for dignity, confidentiality, autonomy) and the more objective elements such as prompt attention, quality of amenities, access to social support networks and choice of the provider.

In this context patient's feedbacks become an important source to evaluate the capability of health systems in order to respond to patients' needs. Since 1990s health systems have adopted multidimensional systems to evaluate the results achieved including also indicators related to patient experience and satisfaction (Veillard et al., 2005) (Arah et al., 2006) (Nutti, 2008).

In fact, despite the debate about the opportunity to consider patients as customers (Shackly and Ryan, 1994; Hudak et al., 2003), it cannot be denied that patients are the main actors of their care pathway. Then, the quality and the effectiveness of care have to be evaluated also through the patient's eyes.

Using the results of a survey on inpatient experience, this study aims at identifying those factors that more influence the patient perception of quality in hospital services considering elements related to care experience, such as the relationship with nurses and doctors or the communication. In particular, the study also analyzes the differences in patients' perception across medical, surgical and obstetrical, gynecological and pediatric.

4.2 - Literature review

Health care services - According to Stanton and Varaldo (1989) marketing contributes to create value for costumers, ensuring on one site the satisfaction of needs and desires and on the other enhancing profit for firms. After a twenty-years debate on the use of a marketing approach to non-profit based services (Kotler and Levy, 1969; Arndt, 1978), many authors offered several contributions on the utility of marketing for the health sector. Particularly, according to the business marketing approach population needs have to be identified in order to improve health policies and service quality; moreover, it considers necessary to investigate the relationship

between providers and patients/users to strength the patient perspective (Gilligan and Lowe, 1995).

A broad range of New Public Management (NPM) approaches has been adapted to the health sector during 80s in European countries (Saltman and Busse, 2002). The most popular efforts have been carried out in order to re-configure public hospitals and change them into organizations managed in a semi-autonomous way. NPM provided the public health services with a variety of innovations, such as: promoting intra-public sector competition, separating the purchase function from the provision one, and introducing the performance measurement (Hood, 1991; Saltman and Bankauskaite 2006). In particular, following the 90s reforms (1.502/92 and 229/99), the Italian National Health System (NHS) adopted the NPM approach, devolving organizational and managerial powers to Regional Health Systems and Health Authorities. In those years, the Italian NHS has been devoted to set managerial and organizational aspects in order to meet its overall mission to protect and universally guarantee health as a fundamental right of the individual and a collective interest (art.32 of the Italian Constitution). However, for a long time, the concept of the protection of the health right was considered as the satisfaction of a care need and not in its broad sense as a citizen's right (Borgonovi E., 2008).

Some progresses have been done towards health services considering the patient as a protagonist of care pathway. In fact, a paradigm change in the patient care has been the introduction of the “patient centeredness” concept against the traditional “service centeredness” one. In 2000s the Italian researchers have expressed the necessity to create and organize services considering the patient healthcare pathway (Casati 1999, Casati 2000, Lega 2001 Nuti et al 2004). Although many studies and experiences highlighted the importance of the patient satisfaction measurement (Cinotti e Cipolla 2003) and described its strategic role in the performance evaluation (Baraldi 2005), only few Italian Regions have adopted patient satisfaction indicators as managerial and strategic tools (Nuti e Vainieri 2009).

Patient satisfaction - Patient’s satisfaction is mainly important because a satisfied patient is more responsible of his care pathway and more willing to follow the physician prescriptions (Guldvog, 1999). Thus, assessing patient experience is even more crucial in health care than in the business sector because of satisfaction’s impact on health outcomes. Moreover, the measurement of patient experience also provides process indicators on how promptly and comprehensively care is delivered.

Consequently, a great effort was made to measure customer satisfaction also in the health sector.

Although several patient surveys were conducted from 1970s, the interest for patient satisfaction increased in 1990s, both in competitive and public health systems, mostly in US and UK (Crow et al., 2002).

In the literature a large number of studies concerned the determinants of patient satisfaction in terms of expectations, health status, socioeconomic and demographic characteristics and also of service characteristics. Particularly, it was observed that expectations do not totally explain satisfaction with service but influence positively patients satisfaction (Abramovitz et al., 1987) and when the self reported health status is poor dissatisfaction with organizational quality of care increases (Westaway et al., 2003). Many studies highlight that a positive relationship between age and satisfaction exists (Bruster et al., 1994) while an high education negatively affects satisfaction rates (Pilpel, 1996). Furthermore, nurses and physicians assistance is a predictor of satisfaction more than the quality of food and the cleanliness of rooms (Cleary et al., 1989). Also, patients hospitalized in surgical wards tend to be less satisfied than patients in medical or gynecological wards (Alasad et al., 2003).

In the last years the measurement of the service' quality from the patient perspective is slightly changed. In fact, measures more closely related to patient experience were introduced asking patients to report in detail the episodes of care and not only to rate them (Cleary et al., 1992; Cleary 1999). These measures were mainly adopted because they help to better understand the multidimensional and subjective nature of satisfaction and allow to work on quality improvement using more objective information.

4.3 - Methodology

Setting - This study concerned the patient's experience with the hospital service was conducted in the Tuscany Region (Italy) which counts on about 3.700.000 inhabitants. The Tuscan Health Care System (THCS) is universal, publicly funded and managed through a network of 12 local health authorities (LHAs) and five teaching hospitals (one of them is a pediatric hospital). LHAs are responsible for providing care services to the population living in their area throughout the entire continuum of care, from prevention to long-term care, including acute care; while the five teaching hospitals (THs) provide high-complexity care. In total, 35 public hospitals are available in Tuscany; 30 of them are managed by the 12 LHAs and the

remaining 5 THs. In 2008, about 614.450 discharges were recorded in public Tuscan hospitals which respond to about 95% of the regional hospital care needs.

Since 2004 the THCS has adopted a multidimensional Performance Evaluation System (PES) to assess its 12 LHAs and 5 THs. The PES, developed by Laboratorio Management e Sanità of Scuola Superiore Sant'Anna, is based on 50 measures, made up of 130 indicators and organized into six dimensions: (a) Population health, (b) Regional policy targets, (c) Quality of care, (d) Patient satisfaction, (e) Staff satisfaction and (f) Efficiency and financial performance (Nuti, 2008; Nuti et al, 2009). Indicators on patient experience with General Practitioners, Emergency Department, Hospital, Community Care, Home Care and Maternal Care services are included in Patient satisfaction's dimension. Overall quality, accessibility, humanization, patient involvement, communication, trust in health providers, etc, are measured. These indicators are calculated using data collected with biennial sample surveys. From 2004 to 2009 more than 80.000 users were interviewed.

The patient satisfaction indicators, like all the PES indicators, can be compared across the 17 Health Authorities (HAs). Some of them are included in the HAs' CEOs rewarding system. The performance is assessed in five bands: 0-1 "very poor performance", 1-2 "poor performance", 2-3 "average performance", 3-4 "good performance", 4-5 "very good performance". The evaluations are displayed on a target chart and can be consulted by citizens on the web site www.valutazione-sanita-toscana.sssup.it. Furthermore Since 2008 other eight Italian Regions have adopted PES.

This system is an example of how some regional governments and the Italian NHS are working hard to develop policies and thereby to promote activities that improve the delivery of care in terms of effectiveness, appropriateness and efficiency. However, the use of patient satisfaction indicators as strategic measurement tools and their introduction in the rewarding system of health services' CEOs are not usual practices in the Italian context, even though the Italian legislation considers them. In fact, policy makers are still reticent in introducing the patient perspective in health services management and in considering the results collected through patient surveys as a valuable source for the improvement of the service quality (Nuti e Vainieri 2009).

However, something is changing and a new orientation by central government and of some regional systems has been observed in regard to the involvement of group of patients. For instance, the civic audit was introduced as a reporting system on the

Health Authorities' activities. It is promoted by civic organizations and associations in order to provide citizens with information about the quality of community and hospital services (Cittadinanza attiva, 2009).

Survey - In 2009 a telephone survey was conducted in Tuscany Region to observe patient experience with hospital care services. A sample of about 17,145 patients was generated using a stratified random sampling approach in order to return representative results at three levels: HA, hospital and ward (medical, surgical and obstetrical, gynecological and pediatric).

All public hospitals were surveyed, 30 managed by LHAs and 5 Teaching Hospitals, but only patients discharged by medical, surgical or obstetrical, gynecological and pediatric (OGP) wards during the period September – December 2008 were considered eligible. When patient were less than 18 year-old patients parents were interviewed on their children hospitalization. The patients' list was extracted from administrative dataset managed by ICT systems of HAs and when patients had repeated accesses, only the last one was considered. In each hospital about 200 interviews were requested for each ward (medical, surgical, OGP), but this goal was not always achieved when patients' records were not complete with their telephone numbers.

Patients were interviewed about 1 month or more after their discharge using the Computer Assisted Telephone Interviewing (CATI) technique that was preferred to a postal or CAWI – based survey because it allows: to control data entry while conducting interviews, to obtain results quickly and to also contact low literacy groups (Coulter et al., 2009).

A structured questionnaire was used to capture patient experience with hospital services. The questions were defined by considering the current literature and previous surveys undertaken both at national and at international levels (Charles et al, 1994; Jenkinson et al, 2002; González et al., 2005). The resulting questionnaire had totally 28 questions, focusing on relationship of patients with health professionals (doctors and nurses) and on the communication process (during the hospitalization and at discharge). Moreover, 7 questions were about patient's characteristics: age, gender, educational level, self reported health status, job position, chronic disease, previous hospitalization. Three questions on overall experience with hospital service were used in order to analyze wards' organization, care and patient's willingness to recommend hospital to others (Table 1).

Table 1 – Questionnaire items and scales

Items	Scales
admission mode	descriptive scale*
doctor in charge of patient care	yes/no
clearness of doctors' answers	3 points scale
trust in doctors	3 points scale
doctors' respectful manners	3 points scale
doctors' courtesy	5 points scale
doctors' care	5 points scale
how doctors and nurses work together	5 points scale
nurse in charge of patient care	yes/no
clearness of nurses' answers	3 points scale
trust in nurses	3 points scale
nurses' respectful manners	3 points scale
nurses' courtesy	5 points scale
waiting time for nurses' response to the button call	3 points scale
information on health status and treatment	3 points scale
family members' difficulty to talk with doctors	3 points scale
respect for privacy during consultations	3 points scale
discordant information	3 points scale
communication among doctors and nurses	3 points scale
pain management	3 points scale
surgical treatment	yes/no
infection after the surgical treatment	yes/no
at discharge: written information on medicines	3 points scale
at discharge: information on side effects	3 points scale
GP informed about hospitalization	yes/no
GP asking for patient hospitalization	yes/no
overall evaluation of care	5 points scale
overall evaluation of organization	5 points scale

* planned, no planned (moving from emergency department), no planned (unexpectedly arriving to ward)

Items were measured using report style questions based on 3 points scales (e.g., 1 = “no”, 2 = “yes, sometimes”, 3 = “yes, always” or 1 = “no”, 2 = “yes, to some extent”, 3 = “yes, completely”) and on 5 points rating scales (e.g., 1 = “very poor”, 2 = “poor”, 3 = “fair”, 4 = “good”, 5 = “excellent”). These scales allowed to ask patients to report in detail about their experiences with hospital service, focusing on specific episodes, as well as to rate doctors and nurses care, how doctors and nurses work together, the overall evaluation of assistance and how well organized

hospitals' wards were (Table 1). The scales were transformed into a 0 – 100 scale in order to consider them as continuous variables and to preserve the gradations of patients' evaluation (Brown et al, 2008). For each variable Kendall's tau index confirmed the agreement between the ordinal and the continuous scales into which the first ones were transformed.

Statistical analysis - Data collected on experience of patients hospitalized in the pediatric TH was not taken into account in this study because, unlike in other hospitals, all patients were less than 18 year-old.

An explanatory factor analysis tested the validity of all reporting and rating style questions measuring the patient experience with various aspects of hospital service. The items with a loading > 0.40 were considered in the following analysis.

Two multivariate linear regression models were performed in order to observe the effect of fourteen (valid) items related to patient experience on (i) the overall satisfaction score and (ii) the willingness to recommend the hospital to others (*dependent variables*). The regression diagnostics were performed and are available upon request to authors.

Models were applied dealing separately with the three samples of patients discharged by medical, surgical and OGP hospital wards, after having performed one-way ANOVA in order to test the presence of significant differences among the means of the three independent groups.

Stata statistical software (version 11.0) was used to realize the analysis.

4.4 - Results

Descriptive statistics - About 15.000 patients were interviewed: 5.327 from medical wards, 5.232 from surgical wards and 4.375 from OGP wards. The overall evaluation was in average 84.53 and the willingness to recommend measure was 92.63. Patients in charge in medical wards were more satisfied (90.23%) and more willing to recommend the hospital (91.05) than other patients.

Overall experience significantly differed in the three wards ($p < 0.001$). As a consequence, the three patient samples were analyzed separately.

The socio demographic characteristics by the three patients groups are listed in Table 2. Patients in charge in medical wards were older, less educated and had a lower self-reported health status than patients in surgical and OGP wards. Moreover their hospitalization was mostly no planned (73.17%).

Table2 – Patients characteristics (age, education, health status) by wards.

Variable	Wards	
Age, mean (SD)	Medical	65.24 (18.56)
	Surgical	57.73 (21.10)
	OGP	29.98 (16.02)
No compulsory education (primary school and secondary school), %	Medical	25.14
	Surgical	30.83
	OGP	61.51
Poor health status, %	Medical	82.82
	Surgical	68.71
	OGP	37.44

Multivariate linear regression model - Results of regression models are listed in Tables 3 and 4. It was observed that overall satisfaction is mostly predicted by how doctors and nurses work together. Also, the doctors' courtesy and care, the trust in nurses' work and information on treatment and care influenced overall satisfaction of the three patients' groups.

Overall evaluation of OGP wards was also positively explained by: clearness of nurses' answers and their timely response to the call button, no conflicting information and respect of privacy during communication; while when doctors talked in front of patient as if he wasn't there a negative effect was observed. In all three models, more than 70% of variance of overall satisfaction was explained.

Depending on ward, the main predictors of patient' willingness to recommend the hospital to others were: the clearness of doctors' answers (medical ward), the quality of doctors' care (surgical wards), how doctors and nurses work together and information on treatment and health status (OGP wards). Furthermore, increasing clarity of information on medicines and danger signals to manage at home had a positive effect on the willingness to recommend the hospital to others when patients were hospitalized in medical or surgical wards. More than 40% of variance of willingness to recommend hospital to others was explained by all three models.

Table 3 – Predictors of Overall care evaluation. By wards.

	Medical wards		Surgical wards		OGP wards	
	No Standardized Coef.	Standardized Coef.	No standardized Coef.	Standardized Coef.	No standardized Coef.	Standardized Coef.
doctors' courtesy	0.08*	0.07	0.13*	0.12	0.1*	0.09
doctors' care	0.16*	0.15	0.17*	0.17	0.25*	0.24
how doctors and nurses work together	0.63*	0.64	0.56*	0.57	0.42*	0.44
clearness of nurses' answers	-0.02	-0.02	0.01	0.02	0.06*	0.06
trust in nurses	0.04**	0.03	0.05*	0.05	0.05**	0.05
nurses' respectful manners	0.02	0.01	-0.01	-0.01	0.02	0.01
waiting time for nurses' response to the button call	0.01	0.01	0.01	0.01	0.03**	0.03
clearness of doctors' answers	0.06*	0.05	0.01	0.01	0.03	0.03
information on health status and treatment	0.04*	0.05	0.03**	0.03	0.04*	0.05
doctors' respectful manners	-0.02	-0.01	0	0	-0.05	-0.04
respect for privacy during consultations	-0.02	-0.02	-0.01	-0.01	0.07*	0.05
discordant information	0.02	0.01	0.02	0.02	0.03**	0.04
at discharge: written information on medicines	0.03**	0.03	0.02	0.02	0.04*	0.06
at discharge: information on side effects	0.01	0.01	0.03	0.02	0.03	0.02
_cons	-3.63	.	-1.72	.	-11.72	.

* p=0.000; **p<=0.05

Table 4 – Predictors of Willingness to recommend hospital. By wards.

	Medical wards		Surgical wards		OGP wards	
	No Standar dized Coef.	Standar dized Coef.	No standar dized Coef.	Standar dized Coef.	No standar dized Coef.	Standar dized Coef.
doctors' courtesy	-0.02	-0.02	-0.01	-0.01	0.05	0.04
doctors' care	0.19*	0.16	0.17*	0.15	0.1**	0.07
how doctors and nurses work together	0.22*	0.20	0.14*	0.13	0.23*	0.20
clearness of nurses' answers	-0.04	-0.03	0.04	0.04	0.06**	0.05
trust in nurses	0.21*	0.15	0.16*	0.14	0.15*	0.13
nurses' respectful manners	0.04	0.03	0.06**	0.04	0.08*	0.05
waiting time for nurses' response to the button call	0.03	0.03	0.06*	0.06	0.02	0.02
clearness of doctors' answers	0.27*	0.21	0.18*	0.14	0.2*	0.16
information on health status and treatment	0.1*	0.10	0.13*	0.14	0.21*	0.20
doctors' respectful manners	0.00	0.00	0.01	0.01	-0.05	-0.03
respect for privacy during consultations	0.00	0.00	0.02	0.02	0.04	0.02
discordant information	0.15*	0.11	0.09*	0.07	0.07*	0.07
at discharge: written information on medicines	0.09*	0.09	0.05*	0.05	0.00	0.00
at discharge: information on side effects	0.08*	0.05	0.06**	0.04	0.04	0.02
_cons	-29.85	.	-13.84	.	-18.02	.

* p=0.000; **p<=0.05

4.5 - Discussion

The study identifies the main factors that influence patient experience with hospital services. The doctor's role in the patient assistance affects largely the overall evaluation of hospital service regardless of the three patients' groups: particularly, patients evaluation is explained by how doctors and nurses work together and by doctors' care. Team work is a fundamental element of new organizational models for all health services: it could have positive effects both on patient experience, as confirmed also by Seghieri et al. (2009), and on professionals' satisfaction. From the professionals' perspective, it was observed that predictors satisfaction with inter-professional co-operation can be different for nurse and doctor; thus it is not correct to believe that the team work is equally appreciated and understood by both professions (Krogstad et al., 2004). For this reason it is important to focus on cultural changes in order to improve hospital quality. Firstly, having the same goals for the same patient has to become the starting point for building a team of professionals. Using a common language and sharing information and clinical protocols have benefits for professionals and mostly for the patient.

Also, doctors and nurses interpersonal skills may affect their relationship with patients. However, "patient – health professionals relationship" is not thoroughly taught in the Italian undergraduate and postgraduate medicine courses. Consequently, doctors and nurses mostly learn to deal with a clinical case and not with patients as persons. More investments in continuous training on relational aspects have therefore to be required.

When patients are asked if they would recommend hospitals to others, their answers were influenced by different aspects depending on hospitalization ward. While team work is still the main predictors for OGP patients, clearness of doctors' answers and doctors' care mostly explain the medical and surgical patients' intent to recommend the hospital. The latter result is consistent with previous studies according to which doctors' technical competence and interpersonal skills are strong predictors for recommendation of hospital both among medical and surgical patients (Cheng et al., 2003).

Communication process also influences the patient experience so much to affect the patient' willing to recommend hospital to friends or family members. As it was also observed in others studies, communication is a crucial predictor of a good relationship between patient and doctor and, generally, of the overall patient satisfaction (Sitzia and Wood, 1997). A survey conducted in 2002 among eight

European countries (Germany, Italy, Poland, Slovenia, Spain, Sweden, Switzerland and the UK) pointed out that the patient's need to get more information increased as well as the desire to be more involved in his care pathway (Coulter and Jenkinson, 2005). An appropriate and focused communication strategy should be useful to respond to these needs and to promote the patient's empowerment and participation. In this way, the patient could have an active role in the decision-making process and become responsible for his care pathway.

4.6 - Managerial implications

Data on patient experience, collected using survey tools, can be considered a valid source for performance indicators from patient perspective. While administrative data on patient behaviors (such as patient who leaves hospital against medical advice, or patients using Emergency Department for no serious problem instead of coming to General Practitioner, etc.) return an indirect measure of patient evaluation of services' quality, sample surveys allow to know patient experience directly through his eyes.

If health policies have to be patient centered, managers and public officers need to monitor patient experience and to consider the results obtained to plan services and to evaluate performance. Too often strategies are designed considering only the professionals needs with a poor attention to patient experience (Calnan, 1988). Promoting surveys regarding patient experience and considering them as a systematic tool to detect patient needs help to give more importance to the role of patient in health care.

In particular, it seems a significant finding that a good relationship between doctors and nurses is relevant to the patient's eyes. In fact, an hospital environment characterized by trust and respect among professional actors has a relevant influence on patient's anxious feelings. Moreover, the behavior of doctors and nurses can have a great impact on emotional well-being of patient. Consequently, all health providers, managers as well as health professionals have to know the patient evaluation on these aspects in order to remember how they are important for patients. The service performance may be improved only if each professional is made accountable for the quality of assistance he delivers. For the above reasons, the results of this study were returned to wards' directors in order to use the wards' evaluations to identify the weakness of delivered services and to promote actions able to improve the quality of care.

4.7 - Limitations and further research

Results show which are the predictors of patient satisfaction with hospital services and also consider differences among wards. The fourteen items introduced in the models mostly explained the variance in overall evaluation, while they less influence the willingness to recommend the hospital to the members of family or to friends. Thus, further items related to patient experience have to be investigated in order to better understand which are the aspects that more affect the will of patients to recommend the hospitals to others.

Moreover, this study refers to data collected across three types of wards (medical, surgical and OGP) but does not consider the hospitalization reasons and that patients hospitalized in surgical wards include patients with orthopedic or cardiovascular problems.

Future researches could identify the patient's profile for each ward in order to create specific clusters, taking into account also differences in terms of clinical needs. Thus, considering clusters characteristics, HAs and hospitals' managers may design specific strategies for single target of assistance.

Furthermore, since data on inpatient's satisfaction and experience collected in Tuscany Region are used to create indicators of the regional PES, further researches will also be focused on the analysis of possible and significant correlations between inpatient's evaluations and other indicators adopted to measure HAs performance. Particularly, the relationship between patient experience and employees satisfaction could be investigated.

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CONCLUSION

The three studies described in this doctoral thesis point out important results on patient satisfaction measurement helpful for the Tuscan Health Care System and also for the national and international scientific community, with interesting implications for health managers and health policy-makers.

The paper *“Strumenti e metodi per misurare la patient satisfaction nei sistemi multidimensionali di valutazione della performance in sanità”* focuses on methodological issues related to the questionnaire definition. In order to create standardized questionnaires for all patients accessing to the same service, researchers have firstly to identify the construct to be surveyed and its dimensions. Then, the validity and reliability properties of questions adopted have to be evaluated and described in the research deliverables. These procedures have to be adopted in order to avoid the use of not well designed questionnaires to look into the issue they are supposed to measure.

Moreover, the first study attempts to answer to the first research question **“Which are the dimensions that can explain patient satisfaction’s concept?”** by investigating the main dimensions that better describe the patient satisfaction with primary care. In detail, the obtained results allow to conclude that the questionnaire developed by Laboratorio Management e Sanità of Scuola Superiore Sant’Anna in Pisa is able to survey patient experience with General Practitioner, General Paediatrician and Diagnostic and Specialist outpatient services. These dimensions are mostly measured by items related to patient-doctor relationship.

The second paper (*“The effects of institutional characteristics on inpatient satisfaction. A multilevel analysis”*) analyzes the determinants of inpatients’ satisfactions and aims to answer to the second research question: **Which are the personal and organizational characteristics that better explain the variability of patient satisfaction?** By using a multilevel model, two different groups of statistically significant predictors of inpatient satisfaction are identified: (i) age, education, health status, residence, admission mode, ward, continuity of care (patient characteristics) and (ii) hospital size and percentage of discharges against the medical advice (contextual elements). An interesting result is that patients are less satisfied when hospitalized in hospitals with a higher percentage of voluntary discharges. Moreover, it is observed that hospital setting generally slightly influences the patient experience. The latter result is also confirmed by the research related to GP service that was also carried out during the PhD period: *“The extent to*

which contextual effects explain the patient satisfaction with GP assistance in four Italian Regions” (Table 1). The aim of this last study was to observe whether the patient evaluation of GP care was also affected by the characteristics of Local Health Authorities (LHA) that provide this service. Also in this case, results highlighted that patients’ rates are slightly explained by the context level (LHA). Thus, the patient experience with health services is mainly explained by patients’ characteristics.

Finally, the last paper (“*A marketing approach for creating patient oriented pathways in hospital services*”) aims to answer to the third research question: ***Which are the elements to be considered in order to create patient - oriented services?*** In detail, it attempts to identify the elements of the hospitalization experience that more affect inpatient satisfaction. It was generally observed that the doctors’ role influences patient perception of overall care and his willingness to recommend hospital to friends or family’s members. Particularly, how doctors and nurses work together is the main predictor of patient satisfaction. These results imply some considerations about whether and to which extent topics such as “patient – health professionals relationship” and “inter-professionals cooperation” are thoroughly taught in the Italian undergraduate and postgraduate courses attended by health professionals. It is important that training courses on these issues are provided because “health professionals relationship” and “inter-professionals cooperation” cannot be considered only as personal qualities.

Moreover, this study confirms that in order to provide patient centered hospital services also clinical needs have to be taken into account. In fact, it is observed that depending on whether the patient is hospitalized in a medical, surgical or obstetrical, gynecological and pediatric (OGP) ward, the factors affecting the satisfaction can change.

Then, results suggest that all the elements related to patient’s profile, such as socio demographical characteristics, clinical needs and hospitalization experience, are helpful to identify specific clusters for each health service and to design cluster-oriented strategies. In the PhD period other researches confirmed that a large correlation exists between patient satisfaction and patient – doctor relationship (Panero C., Murante A.M., Nuti S., “*Come la comunicazione influenza la relazione medico – paziente? L’esperienza dei cittadini di quattro regioni italiane a confronto.*”) and also that homogeneous groups can be identified among patients

Table 1 – Publications and participation in conferences (period 2008-2010)

Setting	Authors	Title	Conference or journal	Year
General practitioner and Hospital service	Nuti S., Murante A. M.,	Informed and involved patients in care decision making: a goal for management and clinicians (poster)	International Conference Heps2008, Strasburg	2008
Emergency Department	Seghieri C., Murante A.M., Marcacci L., Nuti S.	Which factors determine patient satisfaction with Emergency Care? Some evidence from an explorative study across Tuscan Health Authorities (poster)	SQua's 25rd International Conference 2008, Copenhagen	2008
General practitioner	Seghieri C., Murante A.M., Barsanti S., Nuti S.,	Which are the Determinants of Chronic Patient Satisfaction with GPs' Management Care? Some Evidence from an Explorative Study Across Tuscan Health Authorities (poster)	Academy Health 2009 Annual Research Meeting, Chicago	2009
Community care	Barsanti S., Mengoni A., Murante A.M., Nuti S.	Innovative communication processes and patient's role: some evidence from the Tuscany Healthcare System (poster)	European Health Management Association Annual Conference, Innsbruck	2009
General Practitioner	Murante A.M.	Strumenti e metodi per misurare la patient satisfaction nei sistemi multidimensionali di valutazione della performance in sanità (paper)	AIES 2009: 14° Convegno Annuale: La valutazione delle performance in sanità, Bergamo	2009
Maternal Care	Nuti S., Bonini A., Murante a.M., Vainieri M.	Performance assessment in the maternity pathway in Tuscany Region	Health Service Management Research, Vol.22, pp115-121	2009
General Practitioner	Panero C., Murante A. M., Perucca G.	The patient needs and the answer general practitioner: the Italian citizens experience (paper)	ORAHS 2010: "OR for patient-centered healthcare delivery", Genoa	2010
General Practitioner	Murante A. M., Panero C., Nuti S.	L'esperienza dei cittadini del servizio di medicina generale: come la comunicazione influenza la relazione medico – paziente. Quattro regioni a confronto(paper)	VIII Congresso Nazionale CARD, Padova	2010
General Practitioner	Murante A. M., Panero C., Nuti S.	The extent to which contextual effects explain the patient satisfaction with GP assistance in four italian Regions (paper)	The 2010 conference of "The Future of Primary Health Care in Europe III", Pisa	2010
Community care	Mengoni A., Murante A.M., Nuti S., Tedeschi P.,	Segmentazione e Marketing per la sanità pubblica	Mercati e Competitività. Vol.1:119-39.	2010
Hospital service	Murante A.M., Nuti S.	A marketing approach for creating patient oriented pathways in hospital services (paper)	10th International Marketing Trends Conference, Paris	2011
Hospital service	Carradori T., Bravi F., Carretta E., Caruso B., Murante A.M., Nuti S., Fantini M.P.	Il medico di riferimento del caso nelle strutture di ricovero: l'esperienza dell'Azienda Usl di Ravenna	Politiche sanitarie (submitted)	

using health services (Mengoni A., Murante A.M., Nuti S., Tedeschi P., “*Segmentazione e Marketing per la sanità pubblica*”) (Table 1).

All these evidences, observed on the study of patient experience with health services during this three years period (see Table 1), were shared with health professionals and managers, in the attempt to make data on patient experience a strategic tool in the health service management. In this regard many progresses have been made such as: (i) to link the rewarding system of HAs’ CEOs also to the improvement of the patient satisfaction results and (ii) to introduce a regional law for financing the restoration of Emergency Departments’ structures that interviewed patients judged as inadequate. The hope is that much more can be done in order to further involve citizens in the strategic health plans definition.