

*Full Length Research Paper*

## Quality dimension evaluation of a public health network in South Region of Sao Paulo City, in Brazil

Andréa Cristina Micchelucci Malanga<sup>1\*</sup>, Roberto Bernardes<sup>1</sup> and Suzana Bierrenbach de Souza Santos<sup>2</sup>

<sup>1</sup>Universidade Sumaré, Rua Olavo Bilac, 242, 13B – Brazil – CEP: 04671-050.

<sup>2</sup>fundação Armando Alvares Penteado – FAAP, Rua Patápio Silva, 158 – São Paulo – Brasil – CEP: 05436-010.

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This research aimed to evaluate the quality of health services provided by public network, in the south region of Sao Paulo city in Brazil, by the perspective of patients' satisfaction. The field research involved 80 high-risk pregnant women because they used all kinds of health units that make up the Brazilian Unified Health Services System in this region. The research model was adapted to cover the last five dimensions of services quality proposed by Parasuraman et al, and the perceptions of users proposed by Cronin and Taylor. Two quantitative methods of analysis were applied: the descriptive statistics and the method of factor analysis with multiple correspondences. The knowledge generated by this research captured important aspects about the perception of quality by these patients not only in the units but in the regional health services network as a whole. The results contributed to the knowledge level about patient satisfaction and the identification of potential problems which directly impact the health network services quality. The research pointed that 90% of patients were satisfied with units of primary care (UBS) and hospitals, and 82% with specialty ambulatories services (AMA and AMA-E).

**Key words:** Brazilian Unified Health Services System (SUS), Services Network, customer satisfaction, quality evaluation.

### INTRODUCTION

The Brazilian Unified Health Services System (SUS) was created in 1988 by the last reformed Constitution that made access to healthcare a right of all Brazilians. Until then, the health care services model in Brazil divided the people into three categories: those who could afford private health services; those who were entitled to public health because they were insured by social security and registered workers; and those who had no rights at all. Today about 80% of the Brazilian population depends solely on public health services provided by SUS.

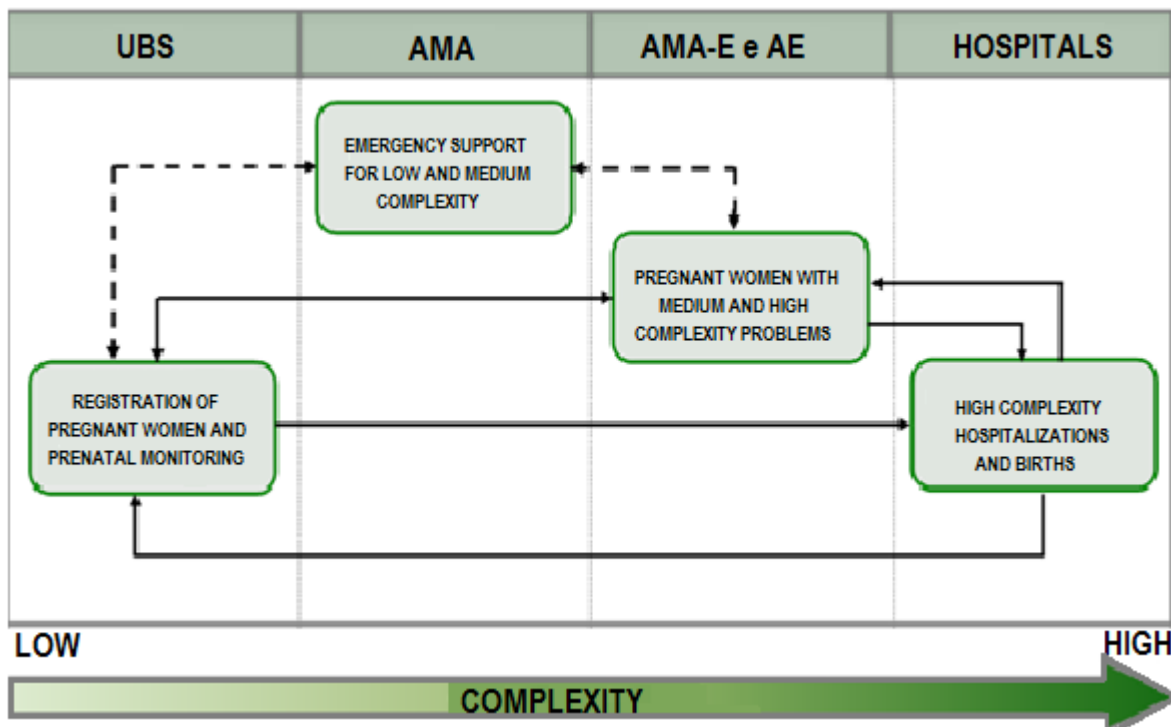
The Brazilian Unified Health Services System (SUS), in the São Paulo City (Brazil), works as a network where units are integrated by treatments complexity in three levels. The first level of treatment covers health care

workers located in the Basic Health Units (UBS) that have to care of health promotion and prevention programs.

The second level covers Ambulatory Medical Care (AMA) and Ambulatory of Specialties (AE), and the third level is the hospital that, at any time, can be accessed by emergencies and high risk situations. The laboratory services can also be used as a diagnoses support at any time and in different units. Figure 1 details the configuration of this network of health services as used by pregnant women at high risk.

The Brazilian Unified Health Services System Network aims to improve the quality life of the people which directly impacts social and economic indicators as

\*Corresponding author. E-mail: [acmicchelucci@hotmail.com](mailto:acmicchelucci@hotmail.com). Tel: 5511-2528-5601.



**Figure 1.** SUS NETWORK, according to the degree of complexity of services provided for high risk pregnancy. Source: drawn by the authors.

education, production, productiveness and income. The users of a network of health services are crucial, because without them there is no service. According to Parasuraman et al. (1988) the user satisfaction increases confidence in the quality of services, generating reliability for the health system as a whole.

Historically, public health in Brazil always had long waits for care, inadequate supply of specialized services of clinical analysis laboratory and imaging, resulting in high dissatisfaction of the population. Thus, it is imperative to rethink the professional practices and procedures aimed at improving the degree of user satisfaction. According to Benazzi et al. (2010), user satisfaction should be a goal to be evaluated periodically.

In short, the quality of health care should be evaluated for compliance or appropriateness with expectations or standards; and not solely by technical or medical practice, but by a set of factors involving individual and collective elements.

Parasuraman et al. (1985) define the quality of service as a measure of how the service meets or exceeds the expectations of the client or user. User satisfaction is characterized as an evaluation of outcomes and is associated with effectiveness of care or a specific gain for a particular type of intervention (Vuori, 1987).

The studies of Parasuraman et al. (1988) and Cronin and Taylor (1992, 1994) proved a strong relationship between user satisfaction and service quality. In

evaluation of the quality service, the knowledge of positive and negative aspects permit to concentrate efforts to solve the problems in order to attain the expected improvement.

Thus, this research aims to evaluate the quality of services provided by Brazilian Unified Health Services System Network from the perspective of satisfaction of users. To assess the degree of satisfaction with the services provided by this health network, it has been selected the program "Mother Paulistana" held in the city of São Paulo and a sample of women with high-risk pregnancy because these patients use the health network services with greater frequency and all the units that make up the network.

The South Region of the city of São Paulo was chosen for the sample of this research due to its high population density of 9,071 inhabitants per km<sup>2</sup> (in 2010); it has one of the worst rates of annual per capita income of the city (US\$ 153.11 in 2000) and the higher incidence of high-risk pregnant women (41% in total) during the period from November 2010 to April 2011. In 2000, this region has a human development index of 0.773, classified as medium; however is one of the lowest in the city.

### Importance of study

For the manager, this understanding helps and directs

strategies and actions to be implemented. For other professionals, this information is valuable not only for the humanization of these services, but also to increase the reliability of customers for services rendered. Thus, the knowledge of satisfactions and dissatisfactions of the users of the network about the quality of service leads to better results as much for the network in each one of its operating units, as for network as a whole.

It is worth mentioning that the Brazilian Unified Health Services System Network in the region consists of 36 units, of which: 24 are Basic Health Units (UBS), responsible for activities of primary care and comprehensive evaluation of patients through the actions of health promotion, disease prevention, care and treatment; 8 are Ambulatory Medical Care (AMA) – responsible for immediate care to patients with diseases of low and medium complexity, in the areas of: general practitioner, pediatrics, general surgery, and gynecology. 1 is Ambulatory of Specialties (AMA-E or AE) - that meet users scheduled by the Basic Health Units; or patients with medical request for consultations in the following specialties: cardiology, neurology, dermatology, general orthopedics, general surgery, gynecology, otorhinolaryngology, ophthalmology, pulmonology, psychiatry, and other specialties; and 3 hospitals serving serious cases, emergencies and perform highly complex procedures. This regional network also integrates 3 laboratory units of analyses clinical and of images, based on agreement between public and private institutions.

## THEORETICAL FRAMEWORK

This section covers two topics. The first is related with healthcare networks involving the major theoretical issues and associated with a brief account about the network issue. The second refers to methodologies of evaluating the quality of services, from the perspective of user satisfaction.

### Network HealthCare Services

According to Shortell et al. (1993), organized systems of providing health services are organizations of networks that provide services on an ongoing basis to a specific population and are responsible for clinical, financial and supporting care of this population.

These authors in 1996 studied the health care networks in the United States. According to them, "integrated health network systems" are characterized by: Focus on health needs of the population; Coordination and Integration of Health Care in a continuous manner; Information systems that connect consumers, providers and service users daily; Information about cost, quality and user satisfaction; Use of financial incentives and organizational structures to align governance,

management and healthcare professionals in order to achieve its objectives, and continuous improvement of services.

According to Kongstvedt and Gates (2001), the Network Integrated Health Service models should involve: Health professionals; Professionals and healthcare facilities, and Professionals, businesses and health insurers.

Montenegro (2003) defines "health service networks" as the operation of units providing services with the following characteristics: specific nature; hierarchical levels of complexity; geographic location known; single coordinating; operational standards; standard information systems and use of shared resources and logistics; and that has a common purpose.

PAHO/WHO (2010) defines "integrated networks of health" as the management of health services provided to the population in a continuous and preventive manner, involving the treatment, diagnosis, monitoring of diseases, rehabilitation and palliative care, through different levels and places of service during the course of their lives.

Health networks can be organized through the integration of agents or public actors (local, state and federal) and private actors (mainly formed by laboratories and hospitals). According to PAHO/WHO (2010), services which comprise the network may be not from the same property, because the network may be formalized through many strategic alliances of complementary services.

According to the Pan American Health Organization in 2010, the networks can be integrated to form horizontal, vertical, real or virtual. These types of network integration are characterized in Table 1.

### Quality of health services

Lee and Jones (1933, p.6) define quality as "a matter of judgments with respect to certain aspects, properties, ingredients or dimensions of a process called health service." Donabedian (2005, p.692) defines quality as a reflection of values and goals of a health system, in accordance with users' expectation.

Donabedian (1980) proposes that the quality assessment of the health service is performed using three aspects: structure, process and results. The "structure" involves aspects of administrative organization, the characteristics of facilities, medical staff available, appropriateness to the current guidelines, preparation and experience of professional employees. The "process" includes the analysis of medical treatment of health problems and use of protocols in attendance; and the "results" include the physical capacity and functional status of the patient, the impact of diseases on the health of the individual and the personal perception of

**Table 1.** Types of network integration.

Concepts	Definition	Comments
Horizontal integration	The coordination of the functions, activities or operating units that are at the same stage of the production process of services.	Examples of this type of integration are the consolidations, mergers and shared services from the same level of attention.
Vertical integration	The coordination of the functions, activities or operating units that are in different stages of the production process.	Examples of this type of integration are the links of the hospitals with medical groups, ambulatory surgery centers and local care agencies. There is vertical integration forward, until the patient or user, and backward integration in relation to supplies, such as medical equipment and supplies companies. In addition there is the possibility of vertical integration with insurers and health plans.
Real integration	Is the integration through the direct control and ownership of all parts of the system (unified property assets).	
Virtual integration	Integration through relationships and not by ownership of assets, as a means of collaboration between the components of a system.	Mode uses contracts, agreements, strategic alliances, affiliations and franchises, which "simulate" the benefits of ownership of the assets. This type of integration can coexist with the ownership of the assets.

\* Shortell et al. (1993). Building integrated systems: the holographic organization. *Healthcare Forum Journal* (1993; 36(2): 20-6. \*\* Satinsky (1998) The foundations of integrated care: facing the challenges of change. American Hospital Publishing. Inc.

quality of healthcare; Donabedian (2005) emphasizes that they are usually neglected. Some are easily measured like the inpatients' death in terminal cases, whereas others are more complex, such as patients' satisfaction, social reintegration and physical rehabilitation.

Oliver (1980) applied a satisfaction survey to the American Federal Program to Prevent Influenza. The sample had a return of 3,000 (three thousand) questionnaires to evaluate the program before the vaccination procedure and after the application of vaccines. The author concluded that user satisfaction was directly related to the difference between expectations and perceptions after using the service. According to this author and Oliver (1980), the client makes a pre-trial of the product or service, forming a pattern, for which the assessment is made real. Satisfaction, according to according to the author, is conceptualized as a pattern formed by expectations and perceived quality modified by the consumption of the product or service. In this model, expectations are goals to be reached and either confirmed or not these expectations change the resulting satisfaction.

Grönroos (1984), as well as Oliver (1980) defines perceived quality that arises from the difference between customer expectations and their judgments about the performance of the service, adding an analysis of a number of features, including the location and its resources available for consumption. The model of Gronroos (1984) showed a percentage for each of the applied questions, guiding numerous subsequent works. That author, in his research, applied questionnaires to executives in the Swedish service sector, involving the

following industries: banking, insurance worker, lodging and meals; airlines (companies), maintenance and cleaning; rental cars and tourism (agencies). The variables adopted in this research involved several issues, such as daily contact with customers, corporate image, courtesy and communication with clients and the understanding of customer needs. The result of his research was the focus of other researchers in defining the dimensions of quality (Miguel, 2004).

Parasuraman et al. (1988) applied the model "Servqual" to measure the quality dimensions importance in a food retailing company; credit card companies; securities dealers; and firms in repairs and maintenance. The authors in this study outlined the issues that contribute to the formation of expectations and perceptions of service quality in general, which relate to: reliability, responsibility, competence, access, courtesy, communication, credibility, security, understanding or knowledge about client, and other tangible aspects.

Carman (1990) used the tool "Servqual", emphasizing the concentration of the dimensions of perceived user satisfaction regarding the assessment of quality proposed by Parasuraman et al (1988) in three categories: a tyre store, a dental clinic, and a retail shopping center. In applied research, the author noted that the dimensions of the perception of quality do not vary for tangibility, reliability and security.

Parasuraman et al. (1991) reassessed the original version of "Servqual" (1985, 1988) summarizing the quality into five dimensions: Reliability - including the ability to deliver as committed; Empathy - involving the possibility of individualized attention to customers; Responsibility - which refers to responsiveness to

customers; Security (Assurance) - which represents knowledge, courteous staff, skills of persuasion, and confidence, and; Tangibility - which refers to the physical structure, equipment, communication materials and information.

Cronin and Taylor (1992, 1994) developed a model called "Servperf" based solely on the perception of performance of services in general. The clear distinction between the two models ("Servqual" and "Servperf") has great importance, because the suppliers of service have a need to know if what your goal is to have customers who are satisfied with their performance, or if the goal is to provide services with a highest level of quality perceived. To justify their model, Cronin and Taylor (1992) emphasize that quality is defined more as a customer attitude with regard to the dimensions of quality, that should be measured based on the model of satisfaction of Oliver (1980) and not through differences between expectations and performance as recommended by the model of Parasuraman et al. (1985).

Cronin and Taylor (1992) propose the model "Servperf" as an alternative to "Servqual". First, they consider the dimensions of quality in service, previously proposed by Parasuraman et al. (1988), are sufficiently supported, but considered irrelevant to the evaluation of user expectations. However, these authors found that quality service leads to customer satisfaction. This causal relationship between service quality and customer satisfaction was measured using the technique of structural equation modeling with latent variables.

Cronin and Taylor (1992, 1994) concluded that the "Servperf" instrument is more sensitive in depicting the variations in quality compared with other scales tested. This conclusion was based both on the use of statistical test of "chi-squared ( $\chi^2$ ) as proof of significance of the empirical distributions of data and also by the determination coefficient of the linear regression.

According to Parasuraman et al. (1985), quality of service is defined in general as the service that meets or exceeds the expectations of the client or user. In 1996, these same authors suggest the use of model assessment of customer satisfaction regarding quality of services, "Servqual" to adapt the services offered to meet what the customer wants. The authors acknowledge the difficulty in measuring quality in services, due to the fact that service quality represents an abstract issue, intangible, inseparable, heterogeneous product. The authors established a model based on an understanding of five GAPs (the difference between perception and expectation of customers) that measures the quality of services.

Salome (2004) noted that few empirical studies, such as Lee et al. (2000) indicate that the model "Servperf" better reflects the quality of services than the "Servqual" model. However, it is understood that it is not possible to be conclusive at this point. More recently, a number of authors have applied the "Servqual" and "Servperf"

models to assess satisfaction with service delivery in health.

Akter et al. (2008) used the model "Servqual" in a public hospital in Bangladesh. The survey results concluded that the services provided were not satisfactory to users for the following reasons: lack of prompt service, availability and attention of officials, lack of confidentiality and warmth; deficiency in terms of expertise, lack of preventive actions and inadequate spaces used in cleaning.

Quader (2009) investigated the satisfaction of users of health services provided by a hospital in England, examining the GAP's between users' expectations regarding the quality and perception of the same post-service use. The research result showed that the hospital exceeded the users quality expectation. The good result of this research is attributed to cultural issues, technical knowledge and motivation of employees.

According to Quader (2009), improving the quality of a health service generates an expectation of benefits, among which are: retention of staff, ethics in professional conduct, loyalty and recommendation of the service user, or treatment of the resolution problem, appropriate allocation of investments, and even improving the quality of services. Thus, good quality improves user satisfaction, which directly impacts the number of patients who use or choose the hospital.

Lonial et al. (2010) used the model of service evaluation "Servqual" of Parasuraman et al. (1985, 1988 and 1991) for patients in Turkey. The results suggest that the dimensions of quality in the "Servqual" model are reliable, valid and applicable in different cultural and economic countries.

## METHODOLOGY

This research is a multiple case study, quantitative and qualitative assessment about the quality of service delivery of public health system, made from high-risk pregnant patients who participated in the program "Mother Paulistana" in a Regional Health of São Paulo.

According to Yin (2005), a case study refers to a multivariate empirical research that investigates a contemporary phenomenon within its real context; an evaluation of quality in health service be searched in all phases of the network, allowing a comparative study on the perception of high risk pregnant.

The project is organized into seven phases:

Phase 1 - Preliminary Study - In the first phase, a study was undertaken in order to capture the information available in a Social Organization, in charge of several health units, located in a Regional Health in São Paulo. With such information, we designed a mapping in this region, involving all units of the network at all levels of

complexity in health services, namely UBS Hospital, administered either by social organizations, such as the Public Sector (Municipal and State) and Private Sector.

Phase 2 - Selection of program to be evaluated - To collect information needed to reflect the reality of the health services network, meetings were held with experts of this area, seeking to select an activity or program that involves the use of all types units, according to the complexity of care, which forms the public health system, in a region of São Paulo. Thus, the program chosen was "Mother Paulistana" because it allows evaluation from the provision of services for women during pre-natal until childbirth, analyzing the covering route by these mothers.

The Complexity of High-Risk refers to a set of procedures involving high technology and high cost, for example, surgery, dialysis, chemotherapy, radiotherapy, hemotherapy, etc., aiming to provide people access to services more qualified, by integrating it with other levels of Health Care ("Primary" and "Average Complexity").

Phase 3 - The target group of research - The choice fell on the high risk patient, during pregnancy period. The prenatal monitoring was performed in the unit of medium and high complexity (AMA-E or AE), where the patient returns after giving birth for an assessment.

Phase 4 - Theoretical Basis - The questionnaire contemplates the five dimensions of quality proposed by Parasuraman et al. (1988): Reliability; Empathy; Accountability; Security, and Tangibility.

Cronin and Taylor (1994) criticize the measurement model of quality proposed by Parasuraman et al. (1985, 1988) in their studies and say that it is not necessary to measure the user's expectation, but their perception regarding quality of services provided.

Although they confirm that there is a relationship between user satisfaction and service quality, Parasuraman et al. (1988) argue that user satisfaction increases the quality of provision of a service, while Cronin and Taylor (1992, 1994) stated that quality service leads to user satisfaction; this position also was adopted in this work.

Phase 5 - Preparation of the field surveys - The questionnaire was designed to be answered by high-risk pregnant women assisted by the Program "Mãe Paulistana" at the time of their return after childbirth for the AMA-E or AE, when there is the finalization of care during pregnancy.

The questionnaire involves the "quality dimensions" proposed by Parasuraman et al. (1985). For the evaluation of satisfaction of users regarding the quality of services to be as objective as possible, the Likert scale in the studies of Parasuraman et al. (1985, 1988 and 1991) was not used.

Phase 6 - Model - In this study the model used covers the last five dimensions proposed by Parasuraman et al. (1985), specifically in relation to perceptions of users about the quality of a service, as proposed by Cronin and Taylor (1992, 1994).

**Table 2.** Quality services evaluation results.

	UBS	AMA E	Hospitals
Satisfied patients	51%	50%	64%
Partially satisfied patients	39%	32%	26%
Dissatisfied patients	10%	9%	10%
Total	100%	100%	100%

Source: the authors, after research results.

Phase 7 - Quantitative Methods - Two quantitative methods were applied. Besides the use of descriptive statistics was used the method of factorial analysis with multiple correspondence. Factor analysis is used to identify groups of pregnant women that had similar responses, evaluating the quality of services provided by each unit that comprises the Brazilian Unified Health Services System (SUS).

### Sample

The sample was composed of high risk pregnant women covered by "Mãe Paulistana" program that give birth during November 2010 to April 2011. The sample covers 41% of the total high risk pregnant women supported by "Programa Mãe Paulistana" in the South Region of São Paulo city; 90% were older than 18 years.

The questionnaire was applied on phone or at pregnant women's homes.

### RESULTS

The multifactorial analyses permitted the level of patients' satisfaction in the Brazilian Unified Health Services System in the South Region of São Paulo City. This knowledge will help managers and the governor understand if the actual model has being well accepted by the populations and also point what should be done to improve the quality services.

As demonstrated in Table 1, the analyses segregated the sample of 80 respondents in three groups. The first group was composed of patients whom were totally satisfied with the services; the second group, patients partially satisfied and the third group, dissatisfied patients.

The research pointed that 90% of respondent patients were satisfied with primary care (UBS) and hospitals, and 82% with specialty ambulatories services (Table 2). There were only 10% in the average of dissatisfaction. The dissatisfaction issues are as follows:

1. Primary care: employee's courtesy, waiting time for more than 30 min, exams waiting period for more than a month.
2. Hospitals: different due date expectation, localization

and lack of directions inside the hospital.

3. AMA E: Employee's courtesy, bad cleaning conditions, lack of emergency orientation or information, difficulties in understand Physician treatment.

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