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Patient Satisfaction: the Importance of Its Measurement in Improving the Quality of Care and Services in a Public Paediatrics Department

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Abstract
Patient satisfaction is crucial to healthcare quality since it represents how far the delivered care and services meet the subjective and objective needs and requirements of the patient.
Our study aimed to conduct a survey in order to describe factors which influence patient satisfaction about the conditions of access to a public paediatrics department. The survey consisted in asking 44 questions to a sample of 105 outpatients. Statistical analysis showed that dissatisfaction was mainly associated with waiting time and the waiting room. The Multiple Factor Analysis helped defining different patients' profiles and several actions were implemented.
Keywords: Healthcare quality, Patient satisfaction, Satisfaction survey, Multiple Factor Analysis.

1. Introduction

Since the eighties, the economic and competitive environment of Business has changed. Supply exceeding demand and the increasing customer's requirements about the performance of products; have changed the organizations' functioning. Quality management has become necessary for companies to survive.
Hospitals, like any other company offering services and having customers, were impacted by these changes. They needed to be sensitive to needs and demands of the population. Therefore, patient satisfaction and public participation in decision making have become the key objectives of health facilities, independently from the clinical and economic goals.
Indeed, more the "Customer-Patient" is informed, more he is able to assess the quality of care. The «Customer-Patient», because of changes in his living standard of knowledge, has expectations in terms of improving the quality of care and hospitality.
Our study aims to highlight the importance of measuring "Patient satisfaction" with the objective to improve quality of care and services, it reports the results of a satisfaction survey within a public paediatrics department and how it helped defining the perception of quality of care and services delivered to patients.

2. Concept of Quality in the health care field:

The quality of care means the best care delivery and the achievement of best outcomes whenever a person uses health system or its services. It is basically to do the best possible job with the available resources [6].
In the literature, there are several definitions of quality of care, the most recognized are: [1]
• "High quality of care corresponds to delivering care in the objective of maximizing the well-being of patients, taking into consideration the relation benefit/risk at every stage of the care process. (Donabedian 1980)
• "Deliver to each patient the assortment of diagnostic and therapeutic acts which will ensure the best results in terms of health, in accordance with the current status of medical science, for the lowest cost for the same outcome, the lesser iatrogenic risk and to his greatest satisfaction regarding procedures, outcomes and human relationships within the care system". (World Health Organization, 1982)
• "Health care with high quality is an important contributor to increasing or maintaining quality of life and/or the life. (American Medical Association, 1984)
• The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge". (Institute Of Medicine, 1990)
According to these definitions, quality of care cannot be dissociated from the necessity of satisfying the patient's expectations regarding the improvement of his health status, of his quality of life and of the suitability of the conditions where care is delivered to him: accessibility, organization of services and attitude of staff, in addition to information and communication with the facility staff.
The importance of Patient Satisfaction arises from its significant role in achieving optimal results, since health care depends heavily on factors related to Patient, his behaviour and his loyalty [9]. Patient satisfaction is therefore an essential element in the measurement and assessment of quality, in order to meet the requirements

and expectations of patients by improving the quality of care and services.

3. Patient satisfaction:

Definition:

The definition of « Patient Satisfaction » is quite difficult since it is about an indicator that depends on several domains rather than one specific item or provider.

- Satisfaction refers generally to the match between expectations and real circumstances of treatment. If expectations and service circumstances are equal, the client is generally satisfied or conversely if the service circumstances fall below expectations, the client is dissatisfied (Custer 2012).
- Satisfaction is an evaluation of service directly received by the patient. It was the health care recipient's reaction to the context, process, and result of the experience (Pascoe, 1983). [3]
- Satisfaction is a multidimensional term that addresses, in addition to the care itself, other aspects such as access, quality, or cost (Hall et Dornan 1988).[3]
- Satisfaction could be composed of determinants (i.e., patient characteristics and expectations) and components of satisfaction (i.e., interpersonal manner, outcomes of care, physical environment). (Sitzia and Wood 1997)
- Satisfaction is considered as an outcome indicator according to the Donabedian Model for evaluating the quality of care. (Donabedian 1966).
- The American Nurses Association (1999) defined the patient satisfaction as measuring patient/family opinion regarding care received from nursing staff. This definition takes into consideration the importance of patient's family feedback about delivered care.
- Patient satisfaction can be described as "the extent of an individual's experience compared with his or her expectations" and as "the patient's evaluation of the process of taking the medication and the outcomes associated with the medication". The patient attaches values to specific attributes of the treatment or service, and that these are unique to each individual's experience. (Speight 2005).

The Patient satisfaction was mostly linked to the interaction between Physician and Patient, and then it exceeded that area to other domains of satisfaction (Custer 2012).

Several authors assume that the Patient satisfaction is composed of domains related to external and internal factors. The internal factors include relationships with providers or client participation in services provided such as: safety, timeliness, efficiency of service delivery. And the external factors include logistics as accessible parking and location of the facility [3]. These numerous factors could be considered as comprising the content domains of Patient satisfaction (Custer 2012). In fact Patient satisfaction has now become an integral part of strategic management of healthcare quality (Urden, 2002) [3]

Patient satisfaction: Is it a quality indicator?

According to many studies, the patient satisfaction was defined as an indicator of healthcare quality and/or an outcome [3]. It is considered as one of the measures of health system effectiveness and as an outcome indicator since it expresses the patient's experience of healthcare. [6]. Patient satisfaction has become an important quality outcome indicator of services provided (Yellen et al., 2002). It is a client-centred indicator, meaning that only the client can know this and report it (Custer 2012).

Patient satisfaction has emerged as an increasingly important parameter in the assessment of health care quality (Yeddula 2012). The importance given to the concept of Patient satisfaction has reflected an evolving focus in the service-oriented healthcare market (Umar 2011) and signalled a new emphasis on the client as an active consumer rather than a passive recipient of healthcare (Speight, 2005).

In the healthcare sector, the importance of measuring patient satisfaction is well articulated and has been studied and measured extensively as a stand-alone construct and as a component of outcome quality (Yeddula 2012).The Satisfied clients are more likely to be compliant, have higher quality of life and better outcomes and are more likely to return to the same provider or institution for future care (Keith, 1998).

According to McAlexander and al (1994), Patient satisfaction and service quality have a significant effect on future purchase intentions. Therefore, for a business to succeed, a company has to offer higher level of products or services quality than its competitor.

Understanding satisfaction and healthcare quality have been recognized as critical to developing many improvement strategies (ACHE, 2006). The Feedback collection from the patient is essential for the provider to ascertain patient satisfaction and scope for improvisation (Yeddula 2012).

The measurement of patient satisfaction has a range of applications and is important in a variety of clinical contexts (Speight 2005). Shikiar and Rentz have proposed a three-level hierarchy of satisfaction which includes: [12]

- Satisfaction with health-care delivery: the clinic or service, including issues of accessibility, clinician-patient communication, quality of facilities…

- Satisfaction with treatment: with medication and other aspects of the treatment (dietary and exercise recommendations…)
- Satisfaction with medication: focusing on the medication per se, rather than the broader treatment experience

The measurement of patient satisfaction through patient satisfaction surveys has helped organizational leaders incorporate patient perspectives as a way to create a culture where service is deemed an important strategic goal for healthcare facilities (Yeddula 2012).

4. Materials and Methods:

In an international environment which promotes quality and considers it as solution to improve organizations' performance, and taking into consideration the importance of patients' satisfaction as an indicator of quality, a public paediatrics department decided to use quality tools to resolve the problem of its permanently overcrowded waiting-room. This paediatrics department needed to define the causes of this problem but the most important was to define how the patients perceived this situation. Thus, a patient satisfaction survey seemed to be the more appropriate tool to achieve those objectives.

Satisfaction survey is the ideal tool to follow up the evolution of patients' expectations and their level of satisfaction. Its results would orient the internal policy, and allow necessary adjustments in order to take patients perceptions into consideration. For the organizations which care about the Quality, satisfaction surveys represent a way to know to better act [10].

4.1 The objective of the satisfaction survey:

The survey aims to determine conditions of access to care within a paediatrics department in order to improve them. The targeted population is accompanying adults of the outpatients.

4.2 The questionnaire preparation:

The survey adopts the Funnel questioning technique: The survey starts with generic questions and ends up with specific ones with an increasing difficulty. Additionally, there is a sense of logic behind the chain of questions as a kind of help to the surveyed.

According to the patients' activities, we organized the questions by 5 topics: reception, advice and information, waiting room, the consultation, and after the consultation. The questions were established on the basis of department's activities. Then, a pilot survey was conducted to approve the final version of the questionnaire, based on the interaction with the interviewees.

There have been 44 questions in the final version of the questionnaire. The target population was interviewed on 2 phases: 34 questions before consultation and the rest of questions after consultation.

4.3 The survey conduction:

The final version of our questionnaire included 22 items (44 questions), asked directly to the accompanying adults of outpatients. Responses were written by the investigator on a copy of the questionnaire. The survey was spread out over a period of three weeks, from Monday to Friday of every week, in order to include the different types of outpatients and consultations and to have a good representation rate of all the interviewed population categories. The observed sample was 105 outpatients, with a response rate of 99% (104 usable questionnaires). We would like to clarify that the 1% of non-response is not due to our investigation but to the personal conditions of the interviewee. The collected data was processed by using: Excel 2007 and R. The data processing consisted of: [2; 10]

- Univariate analysis: the objective of this analysis consisted in giving a detailed description of all factors affecting the process of access to care, so we could study them according to the different points of view. We made the univariate analysis of 21 factors. This part of the study enabled us to combine the modalities of qualitative variables to have variables with similar number of modalities (between 3 and 5) having almost balanced sizes.
- Bivariate analysis: this phase of the study aimed to analyze the relationships existing between the factors affecting the process of access to care (2 to 2), using the statistical test Chi-square $\chi 2$. We could perform this test for all variables for a significance level of 5%.
- Multiple-Factor Analysis: this analysis consisted of studying globally the dependence relationships, after eliminating the independent variables issued from the bivariate analysis.

After the Multiple Factor Analysis, we applied the Hierarchical Cluster Analysis using the **Ward's method.** This method is an agglomerative hierarchical clustering procedure consisting of aggregating progressively similar individuals. The similarity is defined on the basis of a similarity or dissimilarity index. This method based on Euclidean distance enables to classify the modalities and make useful relevant conclusions to our Analysis.

5. Results and Discussion:

We carried out 105 interviews with a response rate of 99%. Data processing was based on the univariate analysis,

the bivariate analysis and the Multiple Factor Analysis.

5.1 The univariate analysis:

The survey results revealed that 67% of the patients come from the same city and 33% come from other cities and villages where the needed healthcare isn't available. This paediatrics department covers the needs of a large population which exceeds the capacity of available human and material resources. According to results, the department receives the biggest number of patients on Monday (26.9%) and Friday (26.9%). These results should inspire the department to take special measures in those two days in order to face this situation.

74% of the respondents have visited the paediatrics department between 1 and 4 times. We can say that the majority have a recent experience with the provided healthcare and services.

Relating to "Reason for choosing the studied paediatrics department": 63% said that they were transferred from another institution or another department within the same hospital, so mostly the choice of this department doesn't refer to patients but essentially to the previous care entity which probably couldn't ensure the needed and appropriate healthcare. However, 13% of respondents came on the basis of the good reputation of the department and its staff skill, 12% chose this department because the healthcare cost is cheaper than private institutions and 8% of respondents said that they simply came because someone from the hospital staff helped them to get access to the hospital. The rest of respondents came for other reasons. This department offers healthcare and services which aren't available in either public or private institutions, it has a good reputation and the healthcare cost is cheaper. Also, some members of the staff give advantages to their relatives, which could compromise the department's image and the equity in receiving healthcare.

Regarding the "reason for visiting the department" in the day of the survey": 43% of the respondents came according to an appointment. 30% were transferred from another private or public institution, or another department within the same hospital, this percentage could be interesting for the management of transferred patients. 21% of the respondents came for a follow-up visit, 5% wanted to make an appointment with a paediatrician, and the rest of the patients came for administrative reasons which don't necessarily require the intervention of the treating doctor. These patients who came for making an appointment or who needed administrative services shouldn't wait as the needed services aren't complicated and don't require long time to be resolved.

Among respondents who have already visited the service, 58.7% were satisfied with their previous consultation, this satisfaction was essentially thanks to the good contact with the medical staff and/or positive results of delivered healthcare. 31.7% of respondents remained neutral because they wouldn't give a negative opinion and compromise their relationship with their doctors or because they were still waiting for clear outcomes to assess the effectiveness of the treatment. 9.6% were dissatisfied.

Concerning the current consultation, 57.7% of patients were satisfied, 36.5% didn't express their opinions because they didn't want to give a negative opinion and compromise their relationship with their doctors or because they were still waiting for the outcomes to assess the effectiveness of the treatment, or simply because they didn't see their doctors and 5.8% were dissatisfied.

36% of respondents expressed as main comment about the department: the long waiting time. Keeping in mind that 7% of patients waited and left without seeing their doctors.

Upon their arrival at the service, only 76% of the respondents said that they talked to the receptionist. 17% said that they didn't and 7% didn't reply to this question. On the first hand, each visitor should be informed that he needs to pass by the reception to get necessary information, on the other hand the receptionist should be trained to interact with the visitors for a better organization of the work.

Only 67% of the respondents had a ticket indicating their turn for the consultation; this may create a problem, taking into consideration the big number of patients and the diversity of consultations. The receptionist should give a ticket to each patient in order to organize the flow of patients and to ensure them that their turn will be respected. Some patients create issues when they feel that their turn wasn't respected. Sometimes security staff may intervene which impacts negatively the image of the department.

By examining what is written on the appointment card: we found that only 28% of respondents had a written appointment, 19% said that their appointment was oral. This could explain the conflicts between patients who came according to the appointment given orally by their doctors and the receptionist who needs a justification to organize consultations and to let patients meet their doctors. Sometimes, the receptionist needs to check with the treating doctors which could disturb them and interrupt consultations. All the appointments given to patients should be written to help the receptionist organizing the access appropriately.

The respondents, who talk to the receptionist when they arrived, said that they were given these answers from her: 32% were informed that they should wait their turn because there are many patients, 30% were informed that they should wait because their doctor isn't available to receive them, 19% said that they haven't received any explanations from the receptionist and 8% of patients were informed that their doctor was absent and weren't advised about any alternative so they preferred to wait. Provided information to patients should be

detailed about the reason of waiting, the time limit, the alternatives proposed in case of any issues.
Only 49% of patients were called by the receptionist once it was their turn to see the doctor. This calls into question about the organization of patients' access. 37% of respondents believe that their turn was respected, reflecting the patients' perception regarding the equity in access and their confidence in receptionist.
According to the results, 61% of respondents think that the waiting room is beautiful and clean, 21% said that it isn't clean and 18% did not give their opinions. 58% said it was uncomfortable, 73% said that the number of seats was insufficient and 65% believe that the seats are not comfortable.51% of the respondents came to see specialized paediatricians in Cardiology, Pulmonology, Gastroenterology, Neurology, Diabetes and Oncology. The availability of specialized paediatricians in these disciplines is unique to this department, not only in the city but in the whole region. The presence of these doctors gives to the population the opportunity to be treated by doctors with high profiles, for an affordable charge even by indigent patients.
Respondents spent different durations with their paediatricians, which is quite logical according to different kinds of delivered care and the severity of the patient's case.
55% of respondents said that their paediatrician gave them explanations about their case. 10% confirmed that they didn't receive any explanation from their treating paediatrician and even if it is a small percentage, it has a non-negligible weight; because this issue compromises the confidence of the patient to his doctor and the department reputation. 63% believe that the language used by their paediatrician is appropriate.
The univarite analysis of 21 factors enabled us to make important conclusions about the opinions of interviewees about the different steps, they go through, to receive care and services in the studied Paediatrics department. This part of the survey will be the basis of the second part "Bivariate Analysis".

5.2 Bivariate analysis:

The bivariate analysis was based on the statistical test "Chi-square test" which showed:

- The dependence between the availability of seats and the waiting room comfort: 34% of respondents said that they find the waiting room uncomfortable, at the same time; they said that they didn't find available seats to sit while waiting.
- The dependence between the cleanliness and the comfort of the waiting room: the worrying percentage is the percentage of respondents who find the waiting room dirty and uncomfortable. It represents 34.6%.
- The dependence between the adequacy and the comfort of the seats: 62.5% of the patients believe, at the same time, that the number of seats is not enough and that they are uncomfortable.
- The dependence between the satisfaction about the last consultation and the current consultation: The Bivariate analysis showed that compared to 58.7% of patients satisfied with their last consultation, only 37.5% have kept this feeling of satisfaction after consultation in the day of survey.
- The dependence between the satisfaction of the consultation and the treating doctor: Among 58.7% patients satisfied about their last consultation,31.7% of satisfied respondents have consulted specialized paediatricians (in Cardiology, Neurology, Gastroenterology and Pneumology...).We found that the major satisfaction rate is related to specialized paediatricians, and this is not a coincidence, because we have already noticed in the univariate analysis, that the main characteristic of the department is the presence of those specialized paediatricians.

The Bivariate analysis revealed the dependence between some factors issued from the univariate analysis, which could be useful for the implementation of corrective actions to increase patient satisfaction and represents the basis of the third part of the study: Multiple Factor Analysis"

5.3 The Multiple Factor Analysis:

The Multiple Factor Analysis was based on the discriminating variables found on the basis of the Chi-square test. We have considered that the related variables to Patient Satisfaction are active variables, and we took them as the basis to form the factorial axes. The Multiple Factor Analysis enabled us to retain 14 factorial axes to represent the modalities of active variables.
We decided to project modalities on the two first factorial axes as per the figure below:

5.3.1 Projection of the modalities on the two first factorial axes:

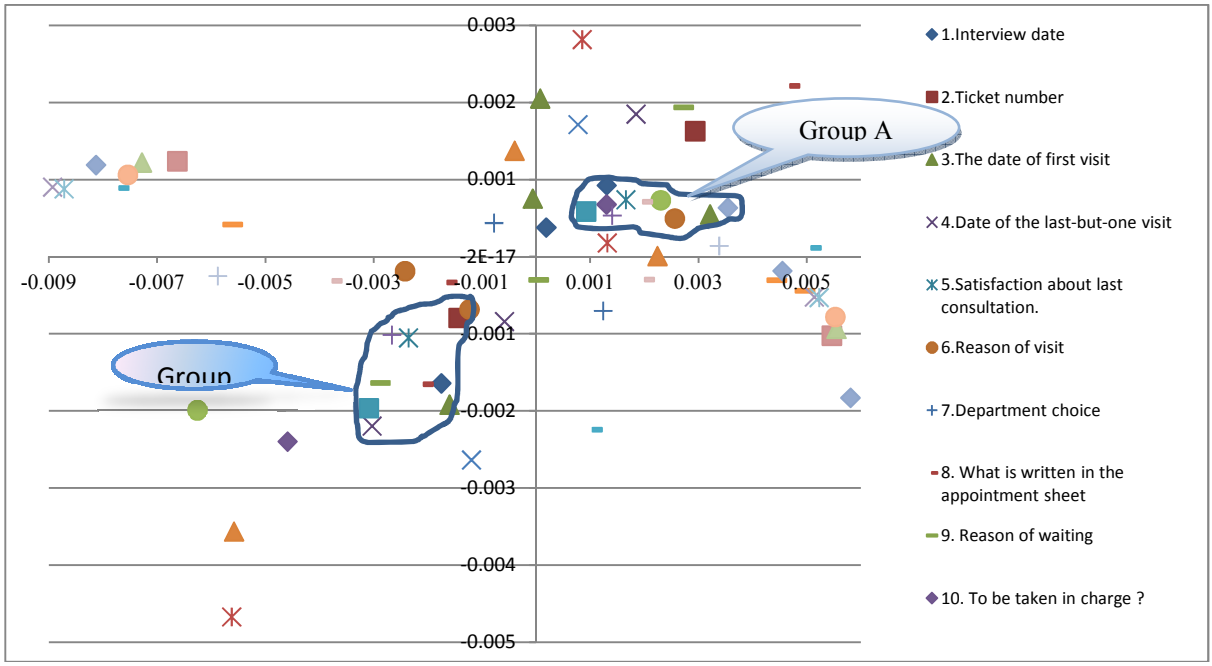

Figure 1: Projection of modalities on the two first factorial axes

According to the representation above (Figure 1), there are two principle groups:

- **Group A:** This group includes patients who visited the department on Tuesdays and Wednesdays. These patients came according to defined appointments but when they arrived no one took them in charge. They tried to get necessary information from the receptionist who answered their questions immediately. This group of patients have an experience with healthcare in this department because the first time they came to it, was one year ago. They were satisfied about the last consultation. They find the seats in waiting room uncomfortable and their number inadequate. They spent less than five minutes with the treating doctor. The principle reproach of this patients group was the fact that sometimes they wait for a long time without seeing their doctor.

  This group includes patients having a long experience with healthcare in this paediatrics department so they know perfectly that they should present themselves to the receptionist when they arrive to be better informed. Their satisfaction about last consultation is probably representing their satisfaction about delivered healthcare. Even though they seem to be satisfied about the quality of care, they have comments about the comfort of seats in waiting room and the long waiting time.
- **Group B:** this group includes patients who visited the department on Mondays. Most of these patients came to the department because they were transferred from another public or private institution. Their first visit to the department occurred within the last two months. Some of these patients said that when they arrived to the department, they waited a long time before getting the attention of the receptionist and the others didn't provide a response about this item. No record indicates that they have an appointment, some of them said that their appointment was oral; they don't have a ticket precising their turn. Some of these patients said that they weren't satisfied about their last consultation and the others avoided to express their opinion about it. They found the seats uncomfortable.

  This group of patients represents patients with small experience with the department. They weren't informed enough about the functioning of the department and the receptionist didn't make an effort to help them. They have no record that they have an appointment neither a ticket precising their turn, that's why their access to the department may be complicated. Their dissatisfaction, about the last consultation or the non response about this item, may be due to difficulties they faced to be informed or to the absence of clear good outcomes of the delivered healthcare.

The projection of modalities on the first axes allowed us getting information about two different profiles of the investigated population. In order to get the maximum of information stored, we used the **Ward's method** because it will allow us to consolidate all our modalities and retain 75% of available information in the 14 factorial axes selected previously.

5.3.2 Ward's method

Using the R software with the Ward's method, we had as a result the following dendrogram:

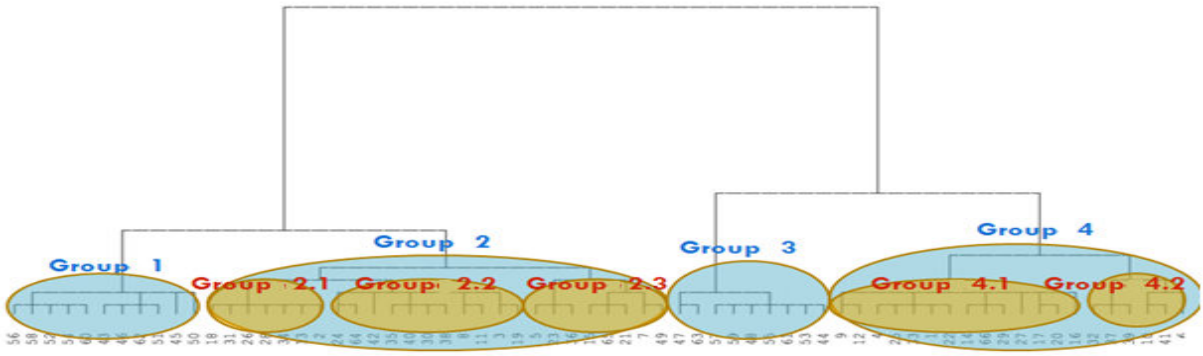

Figure 2: The dendrogram of Patients groups issued from Multiple Factor Analysis and WARD's method

❖ **Group 1:** Patients who were called to see their paediatrician by the receptionist but they felt that their turn hasn't been respected. They were satisfied about the consultation, about the devoted time by the paediatrician, and about his/her explanations and the language he/she used. Globally, they were satisfied and they confirmed that they never had issues in the department.

❖ **Group 2:** This group include 3 subgroups:

➢ **Group n°2.1:** This group concerns patients who came in Tuesdays and Wednesdays. Respondents said they were satisfied about the previous consultation. They were transferred from another department within the same hospital or another health institution. When they arrived, they didn't talk to the receptionist, they found available seats and they said that the waiting room was clean.

➢ **Group n° 2.2:** This group of patients visited the department in Thursdays or Fridays. Their first and last visits occurred between 2 to 4 months ago. They chose this department because the cost of care is higher in private institutions. They were waiting because their paediatrician is absent or unavailable. They haven't found available seats, they think that the waiting room isn't clean and that the seats are uncomfortable and aren't enough. They said that the receptionist didn't call them once it was their turn. Their main comment about the department was: the very long waiting time.

➢ **Group n ° 2.3:** Those patients have a ticket indicating their turn. They have a written appointment and their first consultation was one year ago. They were waiting because of the big number of patients. They think that the waiting room is comfortable. They spent with their treating doctor less than five minutes or they left without consultation.

❖ **Group n ° 3:** Patients who weren't satisfied at all about the consultation. This group of patients had previously problems in this department.

❖ **Group n°4:** This group includes two subgroups:

➢ **Group n ° 4.1:** Patients who came to the first day of the week (Monday), they don't have a ticket indicating their turn. They have an appointment which isn't written. They were helped by someone from the department's staff so they didn't need to talk to the receptionist as the majority (76%). Although they haven't needed to wait for a long time, they expressed a negative opinion about the cleanliness of the waiting room.

➢ **Group n ° 4.2:** This group have no opinion on several factors; they refuse to express their point of view. The patients groups issued from Multiple Factor Analysis and the WARD's method helped us define the profiles of patients who are visiting paediatrics department and determining the different problems they faced.

Univariate analysis, bivariate analysis and Multiple Factor Analysis demonstrated that there is a global satisfaction about consultations but there are critics concerning the waiting room, waiting time and that there are problems of general organization. By observing the department activity and using the results of this survey, we were inspired to implement some actions according to available resources, in order to meet the patients' requirements and improve their conditions of access to care and services.

Several actions have been implemented:

❖ Improving conditions of patients' reception: increasing the number of seats, improving the cleanliness and comfort of the waiting room.

❖ Reducing waiting time: Establishing a project to reduce the waiting time by using the Statistical Process Control.

❖ Keeping the receptionist informed about the planning of vacations, congresses, meetings, to give appropriate information to patients and to avoid letting patients wait for doctors who aren't working.

❖ Beginning the access of medical representatives from 12 pm to avoid the interruption of consultations during the morning and give priority to the patients.
❖ Eliminating the consultation of patients coming with medical staff or at least organize it so they respect the turn to ensure equity in access to care.
❖ Respecting working hours to improve the profitability and performance of medical staff.
❖ Ending the morning medical staff at 9: 30 am to avoid delay in consultations.
❖ Classifying files containing analysis, reports of patients coming for medical advice to show them to the treating doctor each hour to avoid the long waiting time of patients who don't require the consultation.
❖ Organizing the presence of a paediatrician in the diagnosis center to reduce number of simple cases.
❖ Displaying:
✓ The timetable of medical representatives visits.
✓ The timetable for visiting hospitalized children.

This survey is a way to listen for the patients in order to determine the conditions of access to care as they perceived them. This research work enabled us to identify priorities, critics and the patients requirements about delivered care and services, in order to implement the necessary actions to satisfy them, and win their loyalty.

Conclusion

Measuring customer satisfaction has become an essential element of quality. It is necessary to assess client satisfaction and compliance of products and services for the evaluation and monitoring processes in order to improve their effectiveness. As per the standard ISO 9001 v 2008, the organization should monitor information about the client's perception about the level of his requirements satisfaction, as one of the performance measures. Our study consisted in conducting a satisfaction survey in order to determine the conditions of patients' access to healthcare and services in a public paediatrics department and to improve those conditions. The target population was the accompanying adults of outpatients. We have developed a questionnaire of 44 questions asked directly to patients in two phases: the first phase was prior to the consultation (34 questions) and the second phase was after consultation (10 Questions). The observed sample was 104 representing a response rate of 99%.

Our methodology of results analysis was based on three steps:

1. The univariate analysis: this analysis enabled us to study 21 factors and helped us make several conclusions about patients' perception regarding:
❖ General organization of the department's activity: access to care, respect of appointments, waiting time...
❖ Reception conditions: waiting room, receptionist, communication, information...
❖ Consultations quality: paediatrician performance, devoted time for patients, adequacy of used language, care outcomes....
2. The bi-variate analysis: this analysis permitted to study the factors (2 to 2) to visualize the dependences between them. This part of the analysis showed dependence between several factors. The gathered information facilitated orientation of actions taken to improve discriminating factors of patients' satisfaction.
3. The Multiple Factor Analysis: The Multiple Factor Analysis and hierarchical cluster analysis (Ward's method) were performed to study the factors dependence globally and not just 2 to 2. This analysis helped identify at the end, seven groups of patients and each group represents a different profile. Those profiles inspired us about implementing improvement actions which fit with patients requirements.

The survey results represented factual elements representing the basis for implementing several actions according to available resources in the aim of meeting the patients' requirements and giving proof of caring about maintaining quality.

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