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Evaluation of the satisfaction of the clients of the Anatomical Pathology laboratory of the Ibn Rochd University Hospital of Casablanca

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ABSTRACT: *Introduction:* The search for quality must be the essential and constant preoccupation of the laboratory staff who must organise themselves to evaluate not only the reliability of the results, but also the satisfaction of the clients. The satisfaction survey is one of the main tools for this type of evaluation, as recommended by the quality standards.
Objectives: To measure the level of satisfaction of its customers and to define areas for improvement.
Methods: This is a cross-sectional, descriptive survey conducted among 200 patients admitted to the laboratory and 60 prescribing physicians of the clinical services of the Ibn Rochd University Hospital, over a period of 3 months. Similarly, interviews were conducted with the Pathologists to determine their expectations of the clinical services.
Results: The satisfaction score for reception was 67% and for communication 65.8%. The satisfaction score for the response time for results was 34%. And the overall patient satisfaction score was 66%.
The results for prescribers show that the satisfaction score for the clarity of the test form was 62%, and for the test panel was 75%. The score for the delay in responding to results was 54%. The overall satisfaction score for doctors was 67%.
The correlation between the dimensions of patient satisfaction and their personal characteristics revealed a non-significant relationship.
As for the interviews, they revealed that collaboration between prescribers and pathologists is necessary to meet the expectations of both and to guarantee an accurate, rapid and complete diagnosis.
Conclusion: Measuring satisfaction is a tool for improving and optimising the quality of services provided by the laboratory. The results obtained in our survey are encouraging. On the other hand, some deviations were identified and can be improved through proposed corrective actions.

KEYWORDS: Satisfaction survey, patients, prescribers, pathologists, the axis of improvement.

1 INTRODUCTION

Evaluating the quality of care and services provided is an essential task in the health care field, and satisfaction surveys are a major tool for achieving this. This objective approach allows the collection of client perceptions and expectations in a systematic way [1, 2]. The results of a survey are influenced both by the gap between clients' expectations and their perception of the quality of services and care [3] and by other socio-cultural factors [4].

Measuring customer satisfaction is also an important requirement of both ISO 9001 [5] and ISO 15189 in Chapter 4.8 (Complaints handling) [6], making it a central element of quality strategies in laboratories. In order to improve customer satisfaction, it is crucial to listen carefully to their needs and expectations, and to adapt the services accordingly. In this context, the team of the Anatomical Pathology laboratory of the Ibn Rochd University Hospital of Casablanca conducted an evaluation of the satisfaction of its external clients, patients and prescribing physicians, in order to determine the expectations of pathologists with respect to prescribing physicians.

The objective of this study is to evaluate customer satisfaction and to define areas for improvement.

2 MATERIALS AND METHODS

This work is part of the logic of continuous quality improvement, according to the principle of the PDCA method or Deming Wheel [7]. By following the PDCA steps, it is possible to identify areas for improvement and then implement corrective actions. In addition, this method encourages the involvement of all stakeholders in the improvement process, which promotes a participative and collaborative approach.

2.1 SURVEY PLANNING

2.1.1 TARGET POPULATION

In our study, we conducted a survey of 248 participants, including 200 patients collected during our survey period and 48 prescribing physicians, over a 3-month period. The selection of patients was made among volunteers who gave their consent to participate in the survey. Regarding the prescribing physicians, we selected those who frequently use our laboratory.

In addition, we initiated interviews with pathologists to determine their expectations of the prescribing physicians.

2.1.2 TYPE OF SURVEY AND DATA COLLECTION

Within the framework of this project, we have developed two types of satisfaction survey questionnaires and an interview guide for pathologists. The first questionnaire aims to assess patient satisfaction, with both closed and open questions. This questionnaire is designed to collect as much information as possible from patients. A part of the questionnaire also allows patients to express themselves freely and to propose solutions to continuously improve the processes in place. The second questionnaire is addressed to the prescribing physicians of the clinical services. It consists of specific questions to which the participating physicians are invited both to answer questions concerning the different aspects of the services provided by the laboratory and to express their suggestions for improvement.

In addition to the two questionnaires mentioned above, we used an interview guide with the pathologists to find out about their expectations of the prescribing physicians.

2.2 CONDUCTING THE SATISFACTION SURVEY

2.2.1 CONDUCT OF THE PATIENT SURVEY

All patients participating in the survey completed and returned the questionnaire immediately.

2.2.2 CONDUCTING THE SATISFACTION SURVEY WITH PRESCRIBING PHYSICIANS

The questionnaire was distributed in the clinical departments after a brief presentation of the objectives of the survey and the interest of their involvement. The completed questionnaires were collected according to the agreed deadline. Hence, 48 prescribers, i.e. 80% of the sample, completed and returned the questionnaire.

2.2.3 INTERVIEWS WITH PATHOLOGISTS

In order to determine the expectations of the laboratory pathologists, interviews were conducted with them to find out their relationship with the prescribing physicians and what each one expects from the other.

2.3 ANALYSIS AND DISCUSSION OF THE DATA

The information collected was recorded on Microsoft Office Excel software and then compiled and processed.

3 RESULTS

3.1 RESULTS OF THE PATIENT SATISFACTION SURVEY

3.1.1 PATIENT CHARACTERISTICS

3.1.1.1 AGE AND GENDER DISTRIBUTION OF PATIENTS

Patients included in the study had an average age of 53.2 years, with an age range from 28 to 84 years. Of these, 63% (N=126) were between 40 and 60. Regarding the gender distribution, women were in the majority, representing 62% (N=124) of the patients, while men constituted only 38% (N=76), giving a sex-ratio of 0.61 **(Fig. 1, A).**

3.1.1.2 EDUCATIONAL LEVEL

We found that 34% (N= 68) of the patients have primary level, 30% (N= 60) have secondary level and 28% (N= 54) are even illiterate. However, we revealed that 8% of the patients have a university level **(Fig. 1, B).**

3.1.1.3 INSURANCE SCHEME

Looking at the data presented **(Fig. 1, C),** we found that the majority of patients, 70% (N= 140) were on the Government medical assistance plan for low economical status ("RAMED") while 28% (N= 56) had insurance **(Fig. 1, C).**

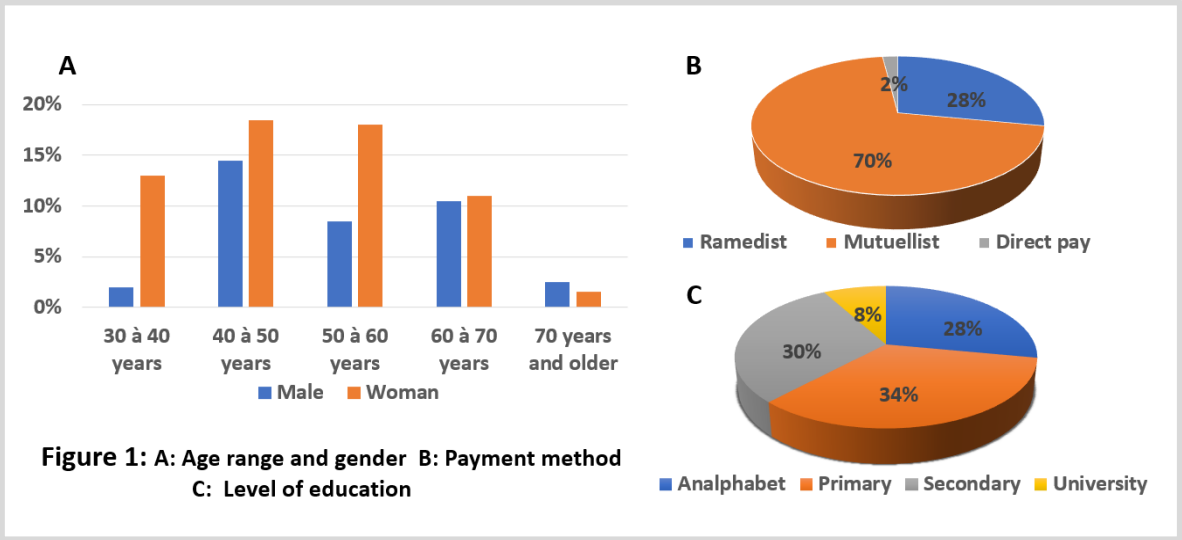

Figure 1: A: Age range and gender B: Payment method C: Level of education

3.1.2 PATIENT SATISFACTION

Figure 2 represents the results of the patient satisfaction survey. The results indicate that the majority of patients find the waiting time satisfactory, although 27% of patients find the waiting time moderately satisfactory and 20% are dissatisfied. Regarding the reception, the results show that 70% of patients are satisfied, while 19% are not very satisfied and 11% are dissatisfied. Similarly, the response to information requested was satisfactory for 70% of patients, but only 16% were moderately satisfied and 14% were dissatisfied. Regarding the response time of the results, the results are mixed, with 34% of patients satisfied, 36% moderately satisfied and 30% dissatisfied. Finally, the overall performance of the laboratory was satisfactory for the majority of patients (68%), but 17% were moderately satisfied and 15% were dissatisfied **(Fig. 2).**

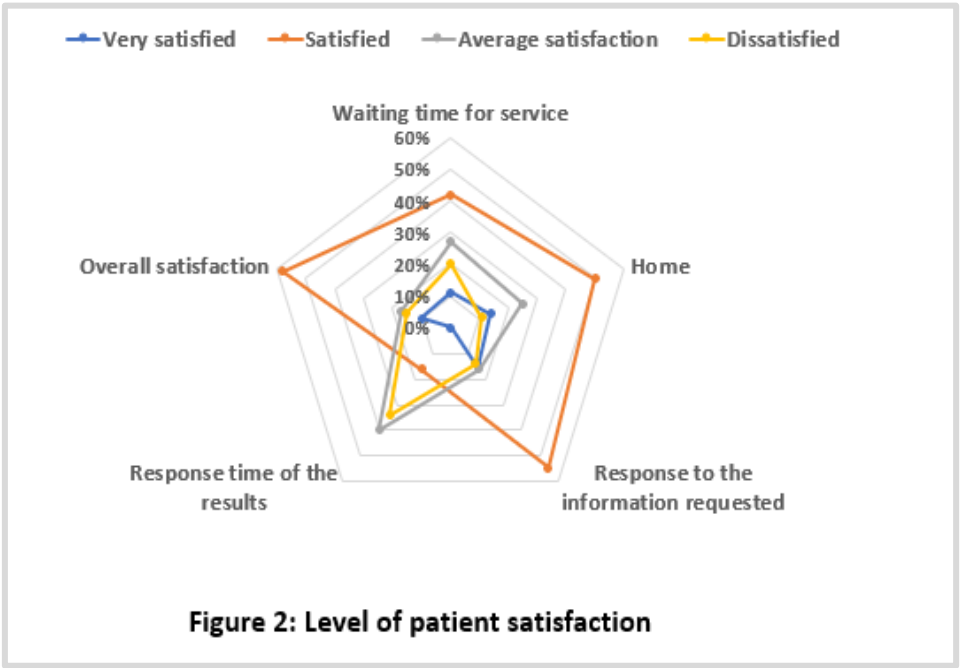

Figure 2: Level of patient satisfaction

3.1.3 Analysis Of The Results Of The Patient Satisfaction Survey

The rating of each item is evaluated on a scale of 1 to 4 points, which makes it possible to calculate the average score for each dimension. Each point on the scale corresponds to a different level of satisfaction, ranging from dissatisfied to very satisfied. Thus, the overall patient satisfaction score is 66%, and the results of the satisfaction rates for the other dimensions studied are shown in Table 1.

Table 1: Summary of the results of patient and prescriber satisfaction rates.

Variable	Average score	Standard deviation	Satisfaction rate
Patient Satisfaction Study			
Waiting time	2,44	0,90	61%
Home	2,78	0,88	70%
Response to the information requested	2,71	0,80	68%
Response time of the results	2,02	0,95	49%
Overall satisfaction	2,63	0,85	66%
Satisfaction survey of prescribing doctors			
Clarity of reporting	3,27	O,52	93%
Presentation of the report	3,27	0,52	93%
Test panel conducted	2,72	0,58	71%
Clarity of the application form	2,58	0,61	68%
Laboratory/prescriber communication	2,48	0,57	65%
Response time of the results	1,4	0,68	42%
Overall opinion on the laboratory	2,57	0,53	67%

3.1.4 Correlation Between Satisfaction Dimensions And Socio-Demographic Characteristics Of Patients

Finally, the correlation between the dimensions of the laboratory customers' satisfaction and their personal characteristics revealed a non-significant relationship, as the correlation coefficients range from 0.11 to 0.36.

3.2 Results Of The Satisfaction Survey Of Prescribing Doctors

3.2.1 Distribution Of Prescribing Doctors By Age And Gender

In examining the results of our study conducted on 48 prescribing doctors, we found that most of the participating doctors are under 40 years of age. Indeed, the age category between 25 and 40 years old represents 96% of the participants, of which more than half are between 25 and 30 years old. Only 4% of the participants are over 40 years of age. In addition, the majority of participants are women, representing 62% of the sample, while men represent only 38%. The sex ratio is 0.61 **(Fig. 3, A).**

3.2.2 Distribution Of Participating Doctors According To Their Specialties

In this study, the distribution of prescribing doctors varied by clinical service and specialty. The Gynecology department had the largest number of prescribing doctors, representing 29% of the surveyed sample. The department of General Surgery came second with 25% of physicians, followed closely by the department of Pulmonology with 19%. Thoracic surgeons represent 23% of the respondents, while Urologists represent only 4% of the sample **(Fig. 3, B).**

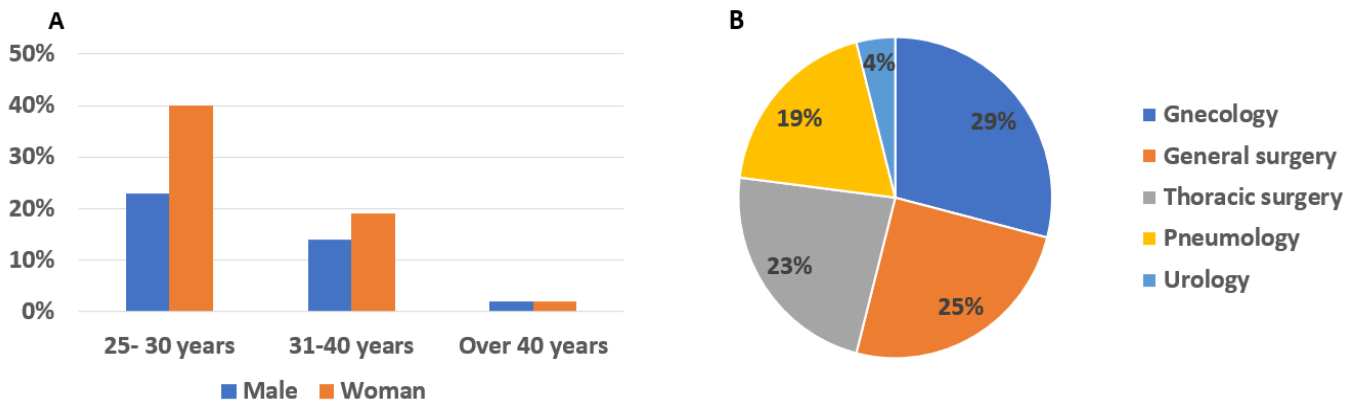

Figure 3: Characteristics of prescribing physicians
A: Age range and gender B: Physicians' specialties

3.2.3 PATIENT INFORMATION ON THE NATURE OF THE EXAMINATIONS

When doctors were asked about their communication practices with their patients, it emerged that a majority of 63% of them systematically informed their patients about the nature of the medical examinations to be performed **(Fig. 4, A).**

3.2.4 MULTIDISCIPLINARY BOARD MEETINGS

According to the survey, the majority of participating doctors (58%) are involved in multidisciplinary board meetings as part of the therapeutic management of their patients **(Fig. 4, B).**

3.2.5 TRAINING ON PRE-ANALYTICAL CONDITIONS

A proportion of 33% of the respondents stated that they do not know of a standard protocol for the packaging and routing of pathology samples **(Fig. 4, C)** and 27% that they had not received any training or awareness session on the pre-analytical conditions **(Fig. 4, D).**

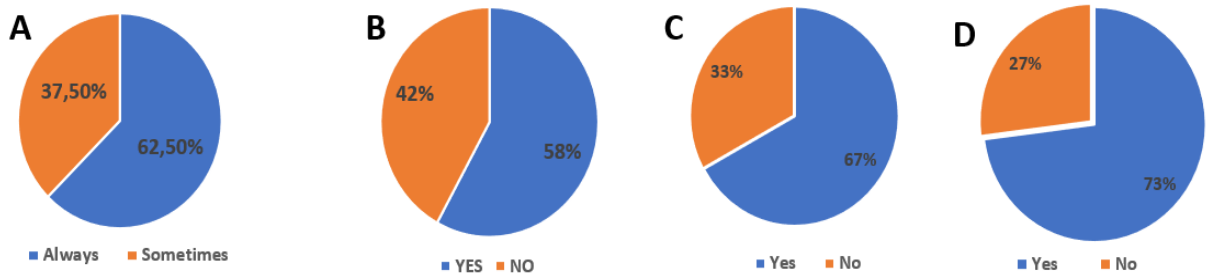

Figure 4: A: Patient information; B: Multidisciplinary consultation meeting; C: Existence of protocol for the management of samples ; D: Need for training on pre-analytical conditions

3.2.6 PRESCRIBING PHYSICIANS SATISFACTION

The satisfaction report of the prescribing physicians regarding the different aspects of the services provided by the laboratory is presented in Figure 4. The results show that the percentage of satisfaction of the prescribing physicians regarding the clarity and content of the examination

request form is 62%, while 38% of the physicians expressed an average satisfaction. Regarding the range of examinations and tests performed by the laboratory for diagnostic or theranostic purposes, 75% of the responses were satisfactory and 25% were moderately satisfactory.

In terms of communication between the laboratory and the prescribers, 68% of the patients interviewed expressed satisfaction, while 32% were moderately satisfied. Physicians surveyed expressed high satisfaction with the presentation and clarity of test reports, with a 98% satisfaction rate. Only 2% of physicians expressed moderate satisfaction.

However, 54% of the physicians participating in the survey were dissatisfied with the time required to respond to the results, while 36% were moderately satisfied and only 10% of the physicians were satisfied with the time required. Finally, with regard to the services provided by the laboratory, 64 % of the physicians expressed satisfaction, while 36 % of the cases were moderately satisfied **(Fig. 5).**

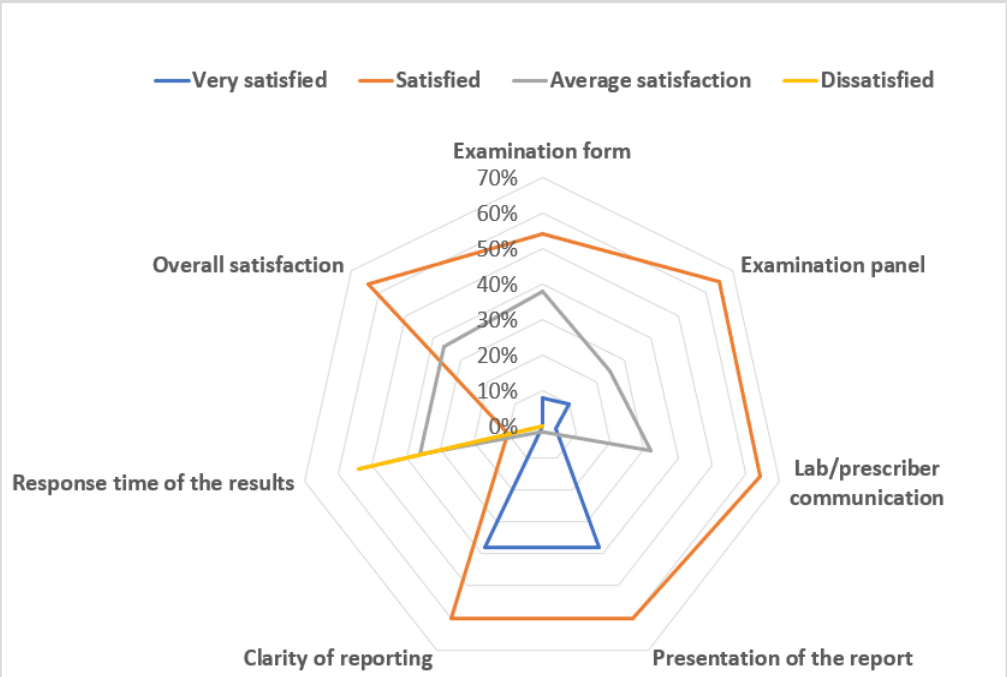

Figure 5: Level of satisfaction of prescribing physicians

3.2.7 Analysis Of The Results Of The Satisfaction Survey Of Prescribing Physicians

In this evaluation, relevant dimensions were measured on a rating scale ranging from 1 to 4 points.

The scores obtained were then categorized into four levels of satisfaction ranging from Dissatisfied (score of 1) to Very Satisfied (score of 4). Intermediate levels of satisfaction include Moderately Satisfied (score of 2) and Satisfied (score of 3). By using this rating scale, we were able to obtain accurate and useful results to assess the different dimensions studied. The overall satisfaction score of the prescribing physicians is 67%, the results of the satisfaction rates of the other dimensions studied are illustrated in **Table 1**.

3.3 Suggestions From Patients And Prescribers

3.3.1 Patients' Suggestions

By asking patients about their expectations and suggestions, we were able to obtain answers about aspects to be improved and difficulties encountered, as well as proposals to remedy them. The analysis of the answers showed that the majority of the clients who complained about the delay in issuing the reports suggested improving this point to reasonable delays, as well as providing a comfortable waiting area with receptionists to welcome patients, in addition to listening carefully and responding quickly to patient complaints.

3.3.2 SUGGESTIONS FROM PRESCRIBING PHYSICIANS

The survey shows that prescribers are concerned about the accuracy and timeliness of diagnostic results. Thus, to meet their expectations, they recommend multidisciplinary meetings for better coordination, a reduction in the time required to issue the reports, training and awareness-raising on the pre-analytical requirements of anatomopathological examinations, as well as continuous intercommunication between the clinical service and the laboratory.

3.4 PATHOLOGISTS' EXPECTATIONS OF PRESCRIBING PHYSICIANS

Interviews with pathologists revealed the following expectations of prescribing physicians. They stressed that the quality of the pathological diagnosis is directly linked to the exhaustivity of clinical information and data transmitted before and sometimes during the analytical process. They recommended that the examination request form should always contain clinical, biological, and radiological data to facilitate a correct diagnosis.

The pathologists also emphasized the orientation of specimens for identification and margins, the use of suitable and well-listed containers, and the transmission of the fresh specimen within a reasonable time.

They also stressed the importance of immediate fixation with buffered formalin, as well as the rapid transport of the specimens to allow the pathologist to proceed immediately to the opening of hollow organs or the slicing of solid specimens.

Finally, the pathologists emphasized the importance of remaining available to discuss cases and to quickly report any important remark for the management of patients, including additional analyses or techniques requiring repeat macroscopic examinations or additional samples, knowing that the parts are kept for 2 to 3 weeks after the report is sent.

4 DISCUSSION

The measurement of satisfaction allows not only the degree of satisfaction of patients and prescribers but also of laboratory staff to be assessed. The aim of these surveys is to identify areas of dissatisfaction that need to be improved subsequently [8], and to form part of a process of continuous improvement of the quality of services and hospital performance [9]. The ISO 9001 standard considers the quality management system as a process, with customer requirements as inputs and satisfaction of these requirements as outputs. For example, ISO 15189 requires in the paragraph on complaints handling that "laboratories are encouraged to obtain feedback, both positive and negative, from users of their services, preferably in a systematic way (e.g. through surveys).

This measure can be influenced by several factors (socio-demographic, health, care structure characteristics...) [10, 11].

4.1 PATIENT SATISFACTION

The results of our study enabled us first of all to determine the socio-demographic characteristics of our study population, which covered several aspects (age, sex, level of education, mutualist or not, etc.).

Socio-demographic characteristics of the patients

The study population shows some disparity in terms of age, with an average age of 53.2 years and a range from 28 to 84 years. In addition, it is important to note that the male to female ratio is 0.61, indicating a slight male predominance. The most represented age group in our study is the 40-60 age group, which accounts for 63% of the study population.

Regarding the educational level of the patients, only 8% of the respondents had a higher education level, while 28% were illiterate and 34% had a primary education level. This had a negative impact on the patients' ability to read and understand the objectives of the questionnaire. As a result, assistance was needed to answer the questions asked.

Regarding the insurance scheme for medical care, the vast majority of patients (70%) were, at the time of the study, beneficiaries of the RAMED medical assistance scheme. This highlights the vulnerability of the majority of patients and their difficulties in accessing medical care. However, with the inclusion of these patients in the compulsory medical insurance scheme, measures will be taken to ensure access to public and private health care for all, regardless of their financial situation.

Level of patient satisfaction

In the literature, several studies have shown the positive influence that a good reception can have on patient satisfaction. The arrival of a patient in a hospital department is a special moment. It is a very important time for them, a moment of immersion when they are sensitive and vulnerable and need to hold on to someone [12, 13, 14]. The results of our study show that 67% of the patients are satisfied with the reception and only 53% of the respondents were satisfied with the waiting time at the service. Several authors have found that waiting time is an important factor of dissatisfaction [14, 15]. Therefore, improvement measures such as a comfortable waiting room with assigned receptionists are needed.

The study also revealed that only 34% of patients were satisfied with the response time of the results. To improve this situation, corrective actions are expected to reduce this delay.

The study also revealed that only 34% of patients were satisfied with the response time of the results.

The response to the information requested is satisfied in 70% of the responses, further efforts are expected to improve this score among the dissatisfied, by designating a dedicated person to this task.

Regarding the overall opinion of the patients on the laboratory's services, 68% of the cases are satisfied, expressing an overall positive opinion on the functioning of the laboratory, nevertheless measures are expected to further improve the quality of all services provided.

Various variables concerning the laboratory were collected and analysed. The overall satisfaction rate is 66%, probably reflecting the specific causes of each item. These data provide opportunities to implement improvement measures and try to achieve a higher level of satisfaction. Although it is difficult to transpose the results of foreign studies to the Moroccan context, the overall satisfaction score recorded in our study (66%) is relatively close to what has been found elsewhere, where user satisfaction scores in Europe and the United States varied between 68% and 98% [16, 17, 18, 19, 20]. In African countries, there are fewer studies. Tunisia reported a satisfaction rate of 51% [21]. At the national level, studies carried out in university hospitals show that the satisfaction rate is almost the same as our results, which are respectively 66% [22], and 67% [23].

Despite these challenges, one of the strengths found was that the majority of patients expressed satisfaction with the confidentiality and reliability of the results delivered by the laboratory.

4.2 SATISFACTION OF PRESCRIBING PHYSICIANS

The survey of prescribing physicians collected 48 questionnaires out of the 60 distributed, which represents a response rate of 80%. The results reveal that the population studied is predominantly female, with a proportion of 62% among all participants and a sex ratio of 0.61 men to women. Respondents aged between 25 and 40 years represent more than 90% of the participants, so our study population is young, which explains their motivation to participate in improving the management of their samples.

Concerning intercommunication between the laboratory and prescribers, 68% of the doctors questioned were satisfied, so improvements in intercommunication between the departments and the laboratory should be reviewed. On the other hand, the communication of urgent results (frozen sections) is satisfactory in 92% of cases. Communication must be ensured permanently and in real time between the laboratory and the clinical services, this will guarantee an adequate management of the samples. In addition, section 7 or in the support chapter of ISO 9001: 2015, states that communication is of great importance, processes, rules and details are properly explained and understood.

In 72.5% of cases, physicians do not have information on the pre-analytical procedures for transporting and storing samples, and therefore awareness-raising and training on the measures to be taken during the pre-analytical phase. Chapter III.2.1 of the French Good practices guide on biological analysis specifies that "the biologist shall provide the prescribing physicians with all the useful details concerning the conditions of implementation of medical analyses" [24].

Regarding the response time for results, 54% of cases are dissatisfied. In the interview with the laboratory staff, they stated that this is generally due to the heavy workload, as a single pathology laboratory for the entire university hospital plus outpatients and requests for second opinions do not allow the laboratory to handle all the examinations within the correct timeframe, and it can sometimes be linked to technical problems (breakdowns of the equipment) or organisational problems (shortage of stock of products and reagents). Moreover, the department is understaffed in terms of senior pathologists (only 6 pathologists to handle around 40.000-42.000 reports per year). Corrective actions such as the recruitment of additional staff, the enlargement of the structure and the creation of annexes to cover the very high demand and to reduce the workload, as well as the reinforcement of preventive and curative maintenance and the products and reagents to reduce stock-outs supply chain could constitute solutions to reduce the delay in response to results, as this delay has a negative impact on the care of the patients

Moreover, 62% of prescribers expressed satisfaction with the content and clarity of the examination request form, while 38% of cases were moderately satisfied.

According to the results of the present study, we have recorded that 67% of the doctors participating in the survey are globally satisfied with the services provided by the laboratory, while 33% are moderately satisfied.

With regard to the communication of information to patients concerning the purpose of the sampling, the ISO 15189 standard, in its chapter 5.4 [6], requires the laboratory to train users (doctors and samplers) and to provide them with a document, the sampling manual, which provides them with the information required to guarantee the quality of the pre-analytical process and, by the same token, the quality of the final result. Similarly, Law No. 131-13 of 12 March 2015 on the practice of medicine [25], specifies that patients must receive information on the diagnostic procedures they are about to undergo.

4.3 PATHOLOGISTS' EXPECTATIONS OF PRESCRIBING PHYSICIANS

All in all, the laboratory is a service provider for its patient and prescriber clients. Acceptance of the specimens request a commitment from the laboratory to carry out the examinations in accordance with the expectations of the patient and prescriber and the regulatory and normative requirements of good practice in order to ensure an accurate, complete and rapid diagnosis.

In return, the prescribing physician must respect the laboratory's requirements and meet the expectations of the pathologists in terms of respecting pre-analytical conditions, which implies that he or she has been informed and made aware of the sampling protocol, packaging and the method of transporting the samples. Other information is also very useful to transmit to the laboratory, such as the orientation of the specimens, clinical, biological and radiological information, which can have an impact on the quality of the pathological diagnosis.

5 MEASURES FOR IMPROVEMENT

This quality tool makes it possible not only to assess the degree of satisfaction of patients and prescribers, but also to identify the points of dissatisfaction that need to be improved subsequently [8].

The objective analysis of the causes of these shortcomings allowed for corrective actions to be taken. New objectives have been set by the management and the effectiveness of these measures will be evaluated by a future satisfaction survey.

Based on the results and findings of the satisfaction survey, recommendations and solutions were proposed **(Table 2).**

Concerning the patients

These recommendations concern the important items affecting patient satisfaction. These include the time taken to deliver the results, the waiting time at the reception desk and the response to the information requested.

Regarding prescriber

The recommendations focus on the following proposed solutions: Time limit for the delivery of results; multidisciplinary consultation meetings, and the pre-analytical conditions for anatomical pathological examinations.

As for the expectations of the *pathologists,* they are focused on the following dimensions: Filling in clinical information; Referrals of parts; Intercommunication with prescribing physicians.

According to ISO 9001, the laboratory must plan, implement corrective actions and control the processes necessary to meet the requirements for the services provided.

Table 2. Summary of proposed solutions

	Dimension of satisfaction	Proposed solutions
PATIENTS	• Delivery time of the results • Waiting time at the reception desk • Response to information requested	• Creation of annexes of the Anatomical Pathology laboratory at the level of the Ibn Rochd University Hospital and at the level of the peripheral public hospitals to take care of all the examinations in the good time. • Set up a waiting room with a receptionist. • Designate a person from the laboratory to be contacted directly in case of need (information on the realization of the sampling; information concerning a particular examination, delay of answer…)
PRESCRIBERS	• Delivery time of the results. • Multidisciplinary consultation meeting • Pre-analytical conditions	• Same proposed solution as above • Increase the number of multidisciplinary board meetings to ensure optimal therapeutic management of patients • Provide clinical services with documents, procedures or guides for sample collection and routing to ensure that staff are adequately informed about the pre-analytical conditions to be respected.
PATHOLOGIST	• Filling out the clinical information • Orientation of anatomical parts • Intercommunication with prescribing physicians.	• Respect the filling in of all information and findings that help to make a correct diagnosis • Orient the parts with wires as soon as possible to determine orientation and identification and marking of margins. The surgeon should remain available to discuss the case • Ensure continuous, real-time communication between the laboratory and clinical services.

6 CONCLUSION

Measuring user satisfaction is a source of information for improving and optimising the quality of the services provided by the laboratory. The results obtained in our survey on the satisfaction of the laboratory's clients are encouraging. On the other hand, several aspects of dissatisfaction were identified. These aspects can be significantly improved if corrective measures are taken.

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