

Measuring the quality of health services in Algeria

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Received: 22/10/2021

Accepted: 14/11/2021

Published:09/01/2022

Abstract:

Through this research paper, we will seek to measure the quality of health services in Algeria, taking into consideration seven dimensions: efficiency, effectiveness, Acceptability, optimization, equity and equality, Legitimacy, and cost. The questionnaire was relied upon as a statistical tool that enabled us to reach the strengths and weaknesses in the health services provided in Algeria.

Keywords: Health services, quality, Algeria.

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1. Introduction

How to judge the performance of different health systems? One rarely makes a unequivocal judgment. Opinions differ depending on the observer and the point of view from which they are carried by administrations, the population including the sick, or even unions. (MAJNONI D'INTIGNANO, 2001, p. 119)

WHO has identified five strategic objectives that can guide the assessment of a health system. These objectives are: effectiveness, equity, prevention and primary care, Responsibility and efficiency.

The assessment is made through different tools: internal audit, collection of adverse events, self-assessment and satisfaction surveys. As it can be carried out (evaluation) by different parties: internal or external auditors in the case of audit, patients in the case of satisfaction surveys or the performer himself in the case of self-evaluation .

Satisfaction surveys are one of the main tools for measuring the quality perceived by the client that is why we have chosen it to conduct our study which aims to assess the Algerian health system. Algeria like any other country in the world needs a continuous assessment of its health system in order to detect its strengths and weaknesses in order to continuously improve. Respondents are affiliates of the National Social Insurance Fund for Salaried Workers (CNAS) for a simple reason that affiliates enjoy significant coverage and therefore are expected to benefit most from the benefits of the health care system. The problematic was as follows:

What is the level of performance of the Algerian health system? And what is the level of quality of the care services practiced within this system from the point of view of affiliates to the national social insurance fund for salaried workers?

From this problematic we can draw the following questions:

- What are the dimensions of quality assessment in terms of health?
- How can we assess quality?
- What is the situation of the health system in Algeria?

We answer to the problematic by using the descriptive analytical methodology and the experimental methodology based on the case study and relying on statistical techniques. The research paper was divided into three main parts:

- The dimensions of quality assessment in terms of health;
- Assessment of quality in health sector;
- The econometric study.

2. The dimensions of quality assessment in terms of health

The quality of care is assessed according to seven dimensions: Efficacy & effectiveness, Efficiency, Acceptability, Optimization, Equity, Legitimacy and the cost (DONABEDIAN, 1980).

Donabedian distinguishes three types of quality: structural quality (a threshold of activity for example), the quality of the processes or actions carried out (a good practice) and the quality of the results (customer satisfaction).

The structure concerns the processes (respect for good professional practices), the methods of organizing care (example: the rate of cancellation of scheduled surgical procedures), information systems (example: keeping the patient's file) and access to care

(waiting times, accessibility depending on the patient's physical mobility).(ALLEMAND & PRIEUR, 2009, p. 307)

The results relate to clinical efficacy (mortality / morbidity), the point of view of patients (satisfaction, patient experience), and safety.

2.1.Efficacy & effectiveness

The word "efficacy" corresponds to the best care delivered under optimal conditions (this is the maximum that we can do), the term "effectiveness" corresponds to the care provided and received under the daily conditions of practice.

2.2.Efficiency

It is providing the best care, with the best results at the best cost.Appreciate efficiency consists of evaluating the effect of the health system on macroeconomic indicators of population health. We can have a positive conception which is the absence of illnesses and we are interested in life expectancy in good health. According to the WHO, "health is a complete state of physical, mental and social well-being, not just the absence of disease or disability"(OMS, 2000).

As we can have a negative conception; we will talk about the health care system and assess health based on the factors that contribute to its deterioration.

2.3.Acceptability

It is the appreciation of the experience of care by those who receive it, taking into consideration the preferences and expectations of patients, patient-caregiver relationships, empathy but also the costs of care (financial acceptability).

2.4.Optimization

Optimized care takes into consideration the balance between costs and benefits of care.For the economist, performance refers to a notion of efficiency that is both technical and allocative.

Technical efficiency can be understood as optimizing a result with constant resources or, conversely, optimizing the use of resources with a constant medical or health result. From a producer, health facility or group of doctors. Allocative efficiency concerns the healthcare system as a whole, including questions of coordination between hospitals, as well as the information system. In both cases, performance rejoins the notion of efficiency. This approach goes beyond simple questions of resource use (for example, the rate of use of generic drugs). In addition, it makes the link between quality, efficiency and performance.

If we consider that the result of the optimization corresponds to the quality of the service provided, efficiency or performance can therefore be understood as the optimization of the quality according to the resources allocated, or as the optimization resources allocated at constant quality.

2.5.Equity

It is the fair and impartial distribution of care among all. It does not necessarily mean equality of care.WHO report on health systems performance places equity with quality as the main goal "the goal of good health is actually twofold and breaks down as follows: quality which is the best average level achievable, and equity which is the smallest possible difference between individuals and between groups" (OMS, 2000).

Equity can also be defined in terms of health status, we will focus on the inequalities observed in terms of health status between population groups. This is the outcome measure(MORMICHE, 1997, p. 84).

Health equality can be measured in three different ways:

- By focusing on the financial contribution, which leads to the principle of vertical equity "with unequal contributory capacity, unequal contribution", the richest financing for the poorest. We are talking about vertical redistribution.
- By observing the expenditure incurred for each according to the principle of horizontal equity "with equal need, equal treatment". This is called horizontal redistribution, from the healthy to the sickest.
- By focusing on equal access to care and the equality of health states, more difficult to assess. These inequalities can be assessed at the individual level, at the level of social groups or even of regions.(MAJNONI D'INTIGNANO, *Economie de la santé* , 2001, p. 136)

2.6.Legitimacy

It takes the notion of acceptability considered at the collective level of society and no longer that of the individual taken in isolation.

2.7.The cost

It was therefore necessary to build measurement indicators which will reflect these seven dimensions. But the idea that we have of medical practice will influence the quality of care, but also the choice of quality indicators and methods of measurement.(VILCOT & LECLET, 2006, p. 4)

The "absolutist" approach has a traditional view of the health system that doctors and other health professionals are the most qualified to make medical decisions. She favors efficiency.

The customer approach involves patients and take counts their views. Their needs, expectations and requirements are taken into account in decisions. It favors acceptability.

The "societal" approach seeks to improve the health status of a population rather than that of an individual. She reasons in terms of "disease management". It favors optimization, equity and legitimacy.

3. Assessment of quality in health sector

There are many important tools that provide insight and a complementary response to the situation that we want to improve.

3.1.Internal audit

According to ISO 9000:2005 audit is a methodical, independent and documented process allowing to obtain audit evidence and to evaluate it objectively to determine to what extent the audit criteria are satisfied.(HERMEL, 2001, p. 5)

The quality audit is a rigorous and independent evaluation method, based on the use of a benchmark or predetermined criteria (described for example in a procedure), which makes it possible to describe, compare, measure and analyze a practice, a process, an organization, a care technique (clinical audit), a product or a service. The purpose of the

audit is to verify that the requirements of the standard and the pre-established provisions are actually respected. In other words, internal audit assesses a deviation from a given situation.

Internal audits are carried out by auditors, usually health professionals belonging to the establishment who have been trained in the practice of auditing. The role of the internal auditors is essential they bring the teams to reflect on the problems of quality and efficiency at work, they also create the conditions for the implementation and sustainability of continuous quality improvement.

Internal audits (also called first party audits) must be distinguished from second party audits and third party audits. The second part audits are carried out by auditors who are not part of the establishment and who are often mandated by the management of the establishment. Third party audits are carried out by an independent and officially recognized body capable of delivering recognition or a certificate (for example a certification of conformity to ISO 9001: 2000).(VILCOT & LECLET, 2006, p. 7)

Depending on the content of the audit, there are:

- The technical (or clinical) audit which verifies that the pre-established rules and therapeutic requirements are implemented effectively;
- The system audit which examines the tools implemented to ensure quality control.

3.2. The collection of adverse events

The collection of adverse events (also called dysfunctions) is a fundamental act which is part of the overall risk management policy of the healthcare establishment. Risks constitute all of the factors which can lead to more or less serious physical or psychological damage for the patient or the staff due to unwanted and unforeseen intercurrent events.(LECLET & VILCOT, 1999)

The repetition or sustainability of the collection of undesirable events is a real management tool which also allows the appreciation and evaluation of the results of the actions undertaken. Indeed, when a dysfunction has been identified and has been the subject of an effective treatment and corrective action, the collections of undesirable events must logically reveal a significant regression of this type of event. In this sense, the collection of adverse events can be included in the quality measurement tools.

3.3. Self-assessment

Self-assessment is an assessment by the performer himself of the work he has performed according to specified rules. The results of the self-assessment are often used for process control.

The self-assessment grid often takes the form of a checklist made up of the critical points of the process concerned. This synthetic form makes its implementation quick and easy. Carried out regularly, self-assessment constitutes an element of measurement and evaluation of the achievement of requirements either by an individual or by a group whose proactive principle is certainly one of the major interests.

3.4. Satisfaction surveys

Satisfaction surveys are one of the main tools for measuring the quality perceived by the customer. Each healthcare establishment must organize to assess the satisfaction or non-

satisfaction of its customers in order to ensure that it provides the expected service in accordance with the needs, expectations and requirements expressed by them.(MILLOT, 2001, p. 3)

There are several ways to assess patient satisfaction:

- Questionnaires;
- Interviews;
- Patient groups (focus group);
- Patient or former patient associations;
- Internal or external investigations.

When implementing the measure of customer satisfaction and the performance of the service rendered, a distinction must be made between the categories of customers considered with different assessment criteria:

- For the patient, the chain of care and medico-technical acts is complex and opaque. He misjudges the quality of the procedure and the medical "added value" from which he benefits. He is certainly more sensitive to human factors (quality of reception, waiting times, consideration of his pain, respect for his intimacy, the information received, etc.).
- The doctor who has entrusted the patient to the establishment for hospitalization, opinion or carrying out an examination has the professional knowledge necessary to assess the quality of care and of the finished product. He will judge the services on medical and technical grounds, on the competence and skill of the professionals and on the medical added value from which the patient has benefited.
- Payers have little objective information on the quality of care and technical acts that they finance, and no more on the impact they have in the care of the patient and on his state of health. The supervisors only know the establishments by their quantitative and accounting activities.

3.5. The management review

The management review is one of the ISO 9001 standards. It is applicable to all continuous quality improvement initiatives, but is not a quality measurement tool. However, it contributes by assessing the effectiveness and efficiency of the quality management system and by verifying that the quality policy and objectives are met.

The input data for the management review are:

- Audit results (internal audit, customer audits, third party audits);
- Process performance;
- Measuring the satisfaction of corrective needs and preventive actions;
- The measurement of indicators;
- The state and results of improvement activities;
- The impact of changes to applicable legal and regulatory requirements;
- Any elements or data relating to quality.

The management review is an internal management and piloting tool which makes possible assess the functioning of the quality system over a defined period. It makes possible become aware of the results obtained, possible deviations, to decide on corrective

or preventive measures, to redirect policy and quality objectives while ensuring their feasibility.

4. Econometric study

This study aims to evaluate the Algerian health system from the point of view of the affiliates of the National Social Insurance Fund for Salaried Workers (CNAS), as well as identify the most important factors that must be focused on in order to increase the performance of this system. This is in addition to highlighting the weaknesses that must be addressed.

Accordingly, this study used the technique of principal component analysis (PCA), which is the most appropriate method enables to better understand the problematic by finding its basic compounds and thus providing solutions and suggestions to improve the current state of the Algerian health system.

The study used a sample consisting of 90 employees affiliated to the National Fund for Social Insurance of Salaried Workers distributed across the various states of the country, most of them with a high educational level (university professors), which makes them at a high level of knowledge of the various services provided by the Fund and its performance. Opinions were explored at the beginning of the year 2020.

4.1. Variables of the study

Nine variables were used that reflects the questions asked in the questionnaire:

SPE: Services provided by Public health Establishments (question 1).

EQA: Equipment Availability in public health establishments (question 2).

SPR: Services of Private health establishments (question 3).

PCP: Prices Charged by Private clinics (question 4).

CBK: CNAS Benefits in Kind (question 5).

CCB: CNAS Cash Benefits (question 6).

MTP: Modernization of the Third-party Payment system (question 7).

ELS: Extension of the Local Structures networks of the CNAS (question 8).

DRA: Drugs Availability (question 9).

4.2. Statistical tests

Before analyzing and interpreting the factor structure, it is necessary to read the main tests (STAFFORD & BODSON, 2011, p. 82).

- The determinant of the correlation matrix is equal to (0.002) which is acceptable and means that there is no perfect correlation between some variables (table 1).

Table 1: Correlation Matrix^a

Correlation Matrix ^a										
		<i>SPE</i>	<i>EQA</i>	<i>SPR</i>	<i>PCP</i>	<i>CBK</i>	<i>CCB</i>	<i>MTP</i>	<i>ELS</i>	<i>DRA</i>
Correlatio n	<i>SPE</i>	1,000	,829	,553	,626	,565	,626	,532	,527	,540
	<i>EQA</i>	,829	1,000	,565	,689	,537	,541	,430	,382	,495
	<i>SPR</i>	,553	,565	1,000	,476	,417	,475	,402	,511	,530

	<i>PCP</i>	,626	,689	,476	1,000	,495	,477	,367	,341	,409
	<i>CBK</i>	,565	,537	,417	,495	1,000	,756	,613	,565	,553
	<i>CCB</i>	,626	,541	,475	,477	,756	1,000	,726	,680	,632
	<i>MTP</i>	,532	,430	,402	,367	,613	,726	1,000	,744	,655
	<i>ELS</i>	,527	,382	,511	,341	,565	,680	,744	1,000	,659
	<i>DRA</i>	,540	,495	,530	,409	,553	,632	,655	,659	1,000
Sig. (1-tailed)	<i>SPE</i>		,000	,000	,000	,000	,000	,000	,000	,000
	<i>EQA</i>	,000		,000	,000	,000	,000	,000	,000	,000
	<i>SPR</i>	,000	,000		,000	,000	,000	,000	,000	,000
	<i>PCP</i>	,000	,000	,000		,000	,000	,000	,001	,000
	<i>CBK</i>	,000	,000	,000	,000		,000	,000	,000	,000
	<i>CCB</i>	,000	,000	,000	,000	,000		,000	,000	,000
	<i>MTP</i>	,000	,000	,000	,000	,000	,000		,000	,000
	<i>ELS</i>	,000	,000	,000	,001	,000	,000	,000		,000
	<i>DRA</i>	,000	,000	,000	,000	,000	,000	,000	,000	
a. Determinant = ,002										

Source: done by the researchers using outputs of SPSS

- The Kaiser-Meyer-Olkin test, which is a generalized measure of the partial correlation between the study variables. In the factor analysis of our study, the validity of the test (KMO) is high (0.890) (Table 2).

Table 2: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,890
Bartlett's Test of Sphericity	Approx. Chi-Square	545,235
	df	36
	Sig.	,000

Source: done by the researchers using outputs of SPSS

- Bartlett's test, which measures the significant absence of sphericity of the model. In our study, the significance of the test is (0.000) so we can continue studying the main components.

4.3. Analysis of results

Table (3) gives the final assessment of the main component analysis of our study. We can see from the table that the model explains to (73.29%) the satisfaction of care seekers and (26.71%) remains unexplained by the chosen variables.

The first column of the table groups together the components and variables classified according to their importance. In the second column, we have the coefficients placed in order of magnitudes. And in the third column is presented the variance explained by the factor model. Component (1) represents (60.53) and component (2) represents (12.76).

Component (1) called "Modernization of the service" includes five variables classified according to their importance: MTP, ELS, CCB, DRA, CBK. Component (2) called «Performance in public and private health institutions" includes four variables: EQA, PCP, SPE, SPR.

The analysis of the principle components concluded that the evaluation of the health system from the point of view of the affiliates of the National Fund for salaried workers (CNAS) was based on an important aspect: the modernization of the services provided, so that everyone valued the step of modernizing the payment system for others (the Chifa card), and Everyone appreciated expanding the network of proximity structures who makes easy for seekers receiving treatment. This is in addition to the interest that affiliates give to CNAS Benefits in Kind and in cash.

There is a hierarchy between the components and a hierarchy between the variables of the same component.

Whereas the second component, "Performance in public and private health institutions", did not obtain the same acceptance, as the services provided in hospital institutions were judged to be weak so that we noticed the dissatisfaction of the fund's affiliates with regard to the availability of medicines and the level of prices applied in private clinics.

Consequently, it can be concluded that the evaluation of associates of the CNAS Fund was positive in relation to the modernization of services and the performance provided by the fund, but the evaluation was negative in relation to services provided in health institutions, whether public or private. There was also dissatisfaction with the level of prices applied in private clinics, as well as the lack of medicines.

Therefore, we recommend improving the Algerian health system by introducing more modernization and focusing on controlling the activity of hospital institutions, in terms of quality and in terms of applied prices.

So that it is necessary to set standards for assessing quality in health institutions based on accurate scientific indicators that provide the most important aspects of strength and weakness and develop a charter to be followed by various health institutions to achieve the required levels of quality.

This is in addition to the generalization of the use of the Chifa card to touch all groups of society and spreading the culture of social insurance among individuals so that everyone should be involved in the health system for everyone to benefit from it.

As for the problem of the shortage in medicines, a set of measures must be put in place to control the pharmaceutical market in order to avoid scarcity, and the solution may be to encourage local production of more used drugs, which has a positive impact not only on the health system but on the national economy in general.

Table 3: The main components analysis of evaluation of the Algerian health system by the Varimax rotation method

Components and variables	Coefficients	Variance %	
		real	internal
Component 1: Modernization of the service		60.53	82.59
1. MTP	0.872		
2. ELS	0.865		
3. CCB	0.790		
4. DRA	0.748		
5. CBK	0.677		
Component 2:Performance in public and private health institutions		12.76	17.41
6. EQA	0.895		
7. PCP	0.835		
8. SPE	0.796		
9. SPR	0.609		
Total		73.29	100

Source: done by the researcher using outputs of SPSS

5. Conclusion

Improving the quality of care is a fully-fledged objective of the care system. Unfortunately, there is no single judgment criterion on the performance of a health system that allows one country to be compared to the others. (MAJNONI D'INTIGNANO, 1993) To appreciate it, you need to conduct a multi-criteria analysis and weight these criteria according to the importance attached by the actors to each objective (LAMBERT, 2000).

In our study, we chose to have evaluation by health service recipients (customer approach) and specifically affiliates of the National Social Insurance Fund for Salaried Workers (CNAS), because they are supposed to be the most beneficiaries of the Algerian health system in view of what this fund offers from Services to its affiliates.

The evaluation relied on a set of factors that we consider very important in the eyes of the affiliates. It was limited to nine factors: the quality of services provided in public health institutions, the availability of devices and medical equipment and analyzes, the quality of services provided by private clinics, prices applied in private clinics, performance in-kind of the National Social Insurance Fund for Salaried Workers (CNAS), the fund's financial performance, modernizing the services provided, expanding the network of proximity structures and the availability of medicines.

These factors included the various components of the health system: service providers (including public and private institutions), the payer of the service (the National Social Insurance Fund) and the beneficiaries of the service (affiliated with the fund).

The study concluded that the health system in Algeria, like the rest of the health systems in the world, has advantages and shortcomings, so that from the point of view of the affiliates of the National Fund for Social Insurance there are aspects that must be valorized like modernizing services and expanding the network of proximity structures and performances provided by the fund. These aspects have been greatly favored by affiliates.

While the affiliates expressed their dissatisfaction with the quality of services provided in public health institutions and the lack of equipment, devices and medical analyzes, as well as the quality of services provided in private clinics, which are considered weak compared to the prices applied.

Accordingly, we recommend the following:

- Encouraging more modernization in health services and total dependence on modern payment methods and tools;
- Providing more medical devices, equipment and analyses;
- Adjusting the level of prices applied in private clinics;
- Activating quality improvement systems in both public and private health institutions;
- Providing medicines and encouraging local production of the most used drugs as an alternative solution, so that the latter will contribute not only to improving the health system, but will also have a positive impact on the national economy as a whole.

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7. Appendices

Appendices 1: questionnaire for the evaluation of the Algerian health system

- Within the framework of a research work concerning the evaluation of the Algerian health system, we would be grateful if you complete this questionnaire.
- Note: Along the questionnaire, the answers will be provided in a scale format ranging from (1) to (5). (1) Means very dissatisfied, (2) dissatisfied, (3) somewhat satisfied, (4) satisfied, (5) very satisfied.
- Are you satisfied with the services provided at the public health establishments?
- Are you satisfied with the availability of medical equipment and analyzes in public health establishments?
- Are you satisfied with the services at the private health establishments?
- Are you satisfied with the prices charged in private clinics?
- Are you satisfied with the CNAS benefits in kind? (Taking care of preventive or curative care costs).
- Are you satisfied with the CNAS cash benefits? (Daily allowance in case of work interruption due to illness).
- Are you satisfied with the modernization of the third-party payment system (Chifa card).
- Are you satisfied with the extension of the network of local structures of the CNAS?
- Are you satisfied with the availability of drugs?

Appendices 2: results SPSS

Table 1: Descriptive Statistics

Descriptive Statistics				
	<i>Mean</i>	<i>Std. Deviation</i>	<i>Analysis N</i>	<i>Missing N</i>
SPE	1,87	1,062	90	0
EQA	1,81	1,004	90	0
SPR	2,36	1,248	90	0
PCP	1,69	1,002	90	0
CBK	2,12	1,188	90	0
CCB	2,23	1,281	90	0
MTP	2,74	1,370	90	0
ELS	2,81	1,340	90	0
DRA	2,46	1,282	90	0

Table 2: Communalities

Communalities	
Initial	Extraction
1,000	,798
1,000	,863
1,000	,522
1,000	,730
1,000	,642
1,000	,780
1,000	,802
1,000	,787

1,000	,674
Extraction Method: Principal Component Analysis.	

Table 3: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,448	60,537	60,537	5,448	60,537	60,537	3,560	39,558	39,558
2	1,148	12,759	73,296	1,148	12,759	73,296	3,036	33,738	73,296
3	,650	7,225	80,521						
4	,425	4,720	85,241						
5	,385	4,275	89,516						
6	,355	3,941	93,456						
7	,237	2,630	96,086						
8	,212	2,359	98,445						
9	,140	1,555	100,000						

Extraction Method: Principal Component Analysis.

Table 4: Component Matrix^a

Component Matrix ^a		
	Component	
	1	2
CCB	,853	-,228
SPE	,831	,328
CBK	,791	-,127
MTP	,788	-,425
DRA	,784	-,242
EQA	,779	,505
ELS	,777	-,428
SPR	,695	,198
PCP	,688	,506

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Table 5: Rotated Component Matrix^a

Rotated Component Matrix ^a		
	Component	
	1	2
MTP	,872	,204
ELS	,865	,195
CCB	,790	,394

DRA	,748	,339
CBK	,677	,429
EQA	,249	,895
PCP	,180	,835
SPE	,405	,796
SPR	,390	,609

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Table 6: Component Transformation Matrix

Component Transformation Matrix		
Component	1	2
1	,749	,663
2	-,663	,749

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Fig 1: scree Plot

