

# An Importance-Performance Analysis of Primary Health Care Services: Managers vs. Patients Perceptions

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## ABSTRACT

*Using importance-performance analysis (IPA), this paper examines the perceptions of patients and managers of health centres of several health care quality services attributes. IPA is an approach to the measurement of customer/user satisfaction which allows for a simple and functional identification of both the strong and the weak aspects, or improvement areas, of a given service. Taking both the importance assigned by users to all relevant aspects of a given service and the perceived performance of the establishment in providing the service, the result is an IPA grid with four quadrants. To the best of our knowledge, this is the first time this methodology has been used to compare the perceptions of health centre patients and managers. The results showed patients and managers to have very different perceptions of all the quality service attributes. Implications for researchers and health centre managers are discussed. The study illustrates the usefulness of the IPA model as a managerial tool in identifying areas to which marketing resources should be allocated in order to improve and enhance the quality of the health centre services provided.*

**Keywords:** Health Services, Importance-Performance Analysis, Patient Perception, Satisfaction, Service Quality

## 1. Introduction

Health care providers are increasingly using higher levels of service quality to satisfy patients. Indeed, satisfaction surveys have been used widely as a management tool to address the problems of access and performance. They have also been instrumental in helping government agencies identify target groups, clarify objectives, define measures of performance, and develop performance information systems. In addition, the emerging health care literature suggests that patient satisfaction is a dominant concern that is intertwined with strategic decisions in the health services [1].

The present work attempts to formulate a strategic vision to enable health care centres and the overall health care system to deliver higher levels of patient satisfaction. Although numerous studies have examined patients' assessments, many questions still remain unanswered. Patients' evaluations of quality remain unclear because, in the absence of medical training, they are less qualified than their providers to determine technical competence. Additionally, the number of distinct concepts upon which patients base their evaluations is questionable.

The relationship between the established variables and the models that deal with satisfaction and quality provides a unique research opportunity to enhance managerial understanding. This paper exploits this opportunity by identifying both the importance and the performance of service quality attributes in Spain's health care system using the importance-performance analysis (IPA) model. In particular, the perceptions of health centre patients and managers are compared in terms of the importance and performance of service quality attributes.

To the best of our knowledge, this is the first time that the IPA methodological approach has been used to compare the perceptions of health centre users and managers. Our research extends the existing literature in two directions. Firstly, unlike prior studies with similar objectives, we consider a wide range of attributes to reflect the most relevant dimensions in primary health service, and secondly, the method allows a direct comparison to be made between users' and managers' perceptions.

The rest of the paper is structured as follows. First, we analyze the IPA technique's advantages. Next, we describe the method used to measure the gap between the perceptions of users and managers of health care centres.

Then, we analyze the main results of our study, and finish with the conclusions and final reflections.

## 2. Methods

Importance-performance analysis conceptually underlies the multi-attribute models that date back to the late 1970s. Martilla and James [2] were the first to apply the IPA technique to analyze the performance of a car dealer's service department. They declared IPA to be a low-cost, easily understood technique for exploring different aspects of the marketing mix, and enabling managers to reallocate resources according to the four areas identified.

Originally devised with marketing uses in mind, the applications of IPA now extend to a wide range of fields, including health service provision [3-9].

The key objective of IPA is diagnostic in nature. It aims to facilitate identification of attributes for which, given their importance, the product or service underperforms or overperforms. To this end, the interpretation of the IPA is graphically presented on a grid divided into four quadrants. **Figure 1** illustrates the IPA grid. The Y-axis reports the customers' perceived importance of selected attributes, and the X-axis shows the product's (or service's) performance in relation to these attributes. The four identifiable quadrants are: Concentrate Here, Keep up the Good Work, Low Priority and Possible Overkill.

Therefore, IPA provides a useful and easily understandable guide to identifying the most crucial product or service attributes in terms of their need for managerial action, and hence to developing successful marketing programs to achieve competitive advantage.

Attribute importance is generally regarded as a person's general assessment of the significance of an attribute for a product. Many studies have attempted to analyse customer satisfaction in terms of both expectations

that relate to certain important attributes and judgements of the performance of those attributes [10,11]. However, there appears to have been some diversity in the conclusions drawn about how one should relate attribute importance and performance.

There exists a variety of approaches to defining measures of importance. In particular, two quite different kinds of measure are common in IPA applications: 1) direct measures based on Likert scale, k-point scale, or metric ratings obtained in the same way as for performance, and 2) indirect measures obtained from the performance scores, either by multivariate regression of an overall product or service rating on the ratings given to the individual attributes [4,12-15] or by means of conjoint analysis techniques [12,16,17].

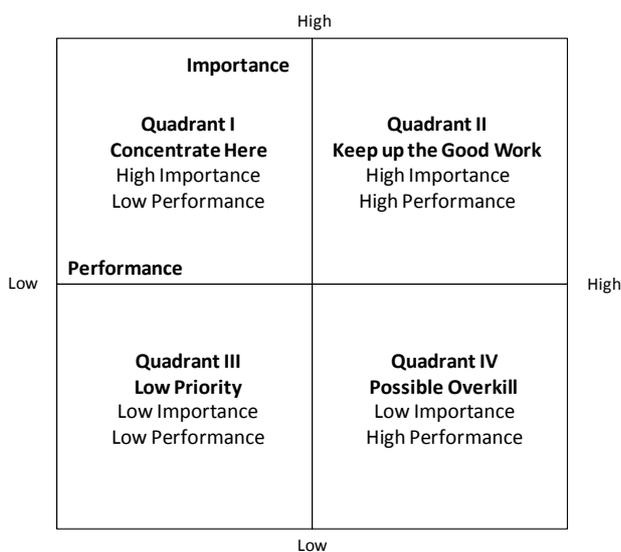
A recent review of these methods [18] supports earlier studies [19] in finding that direct measures capture the importance of attributes better than indirect measures. We therefore used a Likert scale to measure importance.

## 3. Data and Results

The first step in implementing the IPA analysis was to define a suitable questionnaire. The questionnaire for this study included two main sections. The first section consisted of 25 health care centre attributes, for which patients were asked to indicate the perceived importance of each attribute and their perceptions of actual health care centre. These 25 attributes were identified based on a review of the relevant literature [1,5,9]. The questionnaire was structured so that each health care centre attribute was scored on a 7-point Likert scale, ranging from 1 (least important) to 7 (most important) in the Importance part, and from 1 (strongly disagree) to 7 (strongly agree) in the Performance part.

The second section was designed to elicit socio-demographic information about the respondents. Prior to the main survey, a pilot study was conducted comprising 10 patients, 10 health professionals, and 10 health management experts. This led to several items being re-worded to improve their comprehensibility and the overall clarity of the instrument. In particular, this pre-test revealed that respondents perceived some of the items included in the scale to be redundant. Because this redundancy led to frustration and low response rates, the researchers agreed to further reduce the number of items.

The final scale consisted of 25 perception items representing all five dimensions of service quality (see Appendix A for the list of items). The preliminary test also indicated that the mixture of negatively and positively worded statements created confusion and frustration on the part of respondents. For this particular population, it was believed that the confusion and inaccurate responses resulting from the use of negatively worded statements would adversely affect the quantity and the quality of the data. Therefore, the negatively worded statements con-



**Figure 1. Importance-Performance analysis grid**

tained in the research instrument were converted to positive connotations.

In September 2008, questionnaires were mailed to 20000 patients who had used the health care services of Extremadura (a Region in southwest Spain) within the previous month. Due to its extensive area (41634 km<sup>2</sup>) and low population density (26.18 inhab/km<sup>2</sup>), Extremadura has structured its health care system around two territorial administrative levels of aggregation: Health Areas and Basic Health Zones. There are 8 Health Areas, each consisting of a number of Basic Health Zones. The total population covered is 1081845 inhabitants, and in 2008 the number of operating Basic Health Zones was 105, each organized around a Health Care Centre as the main provider of primary health care services in the zone. There were 2556 returns, for a 12.78% response rate. Questionnaires were also mailed to the 105 Extremadura health centre managers. There were 88 returns, yielding a 4.2 sample error. The study's technical record is presented in **Table 1**.

Comparison of the respondents' gender and age distributions with those of the target population showed no significant differences between the two groups.

The demographic profile of the respondents is presented in **Table 2**. The largest group of respondents (60.15%) was aged > 65 years. The next largest group (28.2%) was aged 30-45 years. Female respondents represented a little more than 60% of the survey population.

**Table 1. The study's technical sheet**

	USERS		MANAGERS
TARGET POPULATION	Users of Extremadura Health Services		Managers of Extremadura Health Services
GEOGRAPHICAL AREA	Extremadura (Spain)		
SAMPLE DIMENSION	2566 questionnaires		88 questionnaires
SAMPLE ERROR	1.9%		4.2%
CONFIDENCE LEVEL	95%	$z = 1.96$	$p = q = 0.5$
SAMPLE DESIGN	Stratified random sampling (in proportion to the users of each health care centre)		Entire population
PERIOD OF DATA COLLECTION	10 September 2008 to 15 January 2009		

**Table 2. Profile of surveyed users**

Gender	Male: 39.85%	Female: 60.15%
Age	< 30 years: 9.6%	30-45 years: 28.23%
	45-64 years: 24.98%	> 65 years: 60.15%

Descriptive statistics including simple frequencies and mean scores were computed for the respondents' demographics and for the 25 attributes. IPA was then used to compare the patients' and managers' perceptions of these attributes. Each attribute was plotted according to the mean score of its perceived importance and performance, with the importance of attributes on the vertical axis from low (bottom) to high (top), and the performance of attributes on the horizontal axis from low (left) to high (right). The four quadrants are constructed with cross-hairs set at the average scores of the Importance and Performance scores [2,3,8]. For patients (**Figure 2**), these averages for the pooled data were: importance 4.94, and performance 5.77. For health centre managers (**Figure 3**), they were: importance 6.26, and performance 5.45.

These figures show that patients and managers have different perceptions of the 25 factors. The following paragraphs describe some of the meaningful insights gathered from this "quadrant" presentation.

**Table 3** lists the aggregate importance and performance values of each attribute together with the difference between the two for patients and managers. That all the importance scores are higher than the performance scores implies that there is room for improvement in all the areas. To decide, however, which attributes most merit improvement; one can analyze the discrepancies between the performance and importance scores, so that attributes with greater differences will be given higher priority [20]. In this regard, in order to maintain as far as possible the original structure of the IPA, information from the IPA grid was combined with the differences between the performance and importance scores (see **Table 3**).

The first interesting conclusion to be drawn from **Figure 2** is that the data show a clear trend of the most important attributes for the patient also being scored as the best performing, showing that the Region's health care system appears to have clearly identified the user's needs and concentrated its effort on the most relevant variables.

The Concentrate Here quadrant captured a single attribute for patients: health centre's timetable (Efic7). This attribute also presents a major discrepancy between importance and performance (see **Table 3**), so that it calls for especial attention. In **Figure 3**, the managers include four attributes in this quadrant: cleanliness of facilities (Fac1), equipment at the health centre (Fac2), level of bureaucracy (Efic2), and time to focus on each patient (Efic6).

Patients identified 13 attributes in The Keep up the Good Work quadrant which thus could be considered satisfactory in meeting their needs. In view of the information in **Table 3**, managers should focus on improving the "equipment at the health centre" (Fac2), "health staff understands patients' problems" (HS9), and "health staff's interest in solving the patients' problems" (HS8). From the managers' point of view, 14 attributes are included in

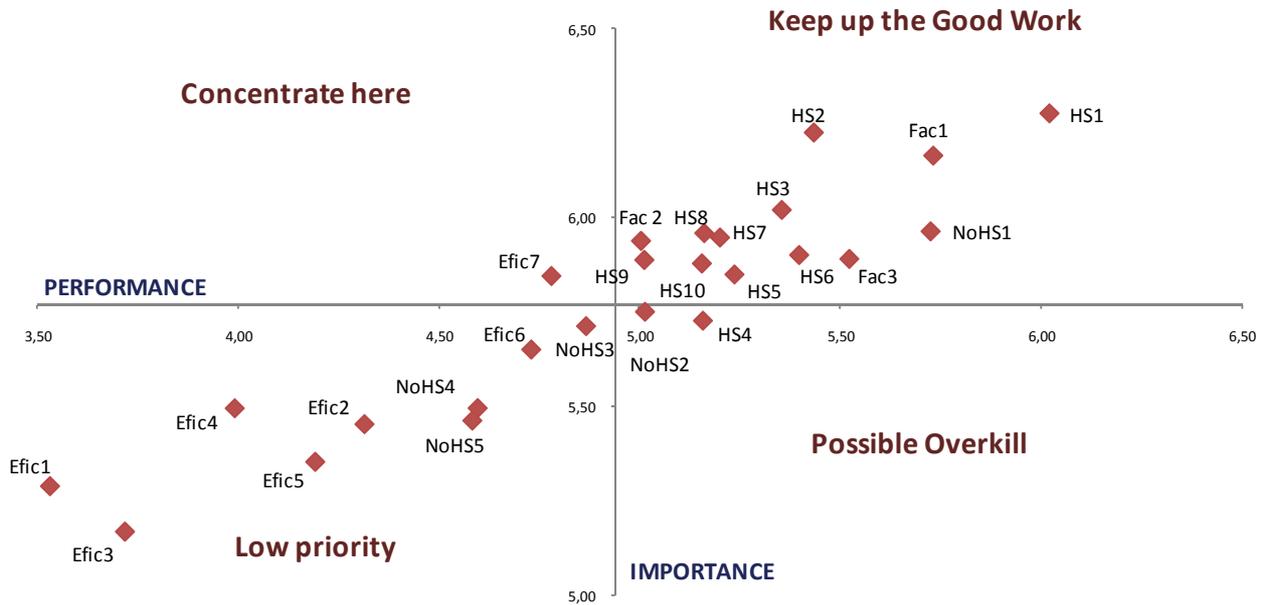


Figure 2. IPA grid of primary health care service (patients)

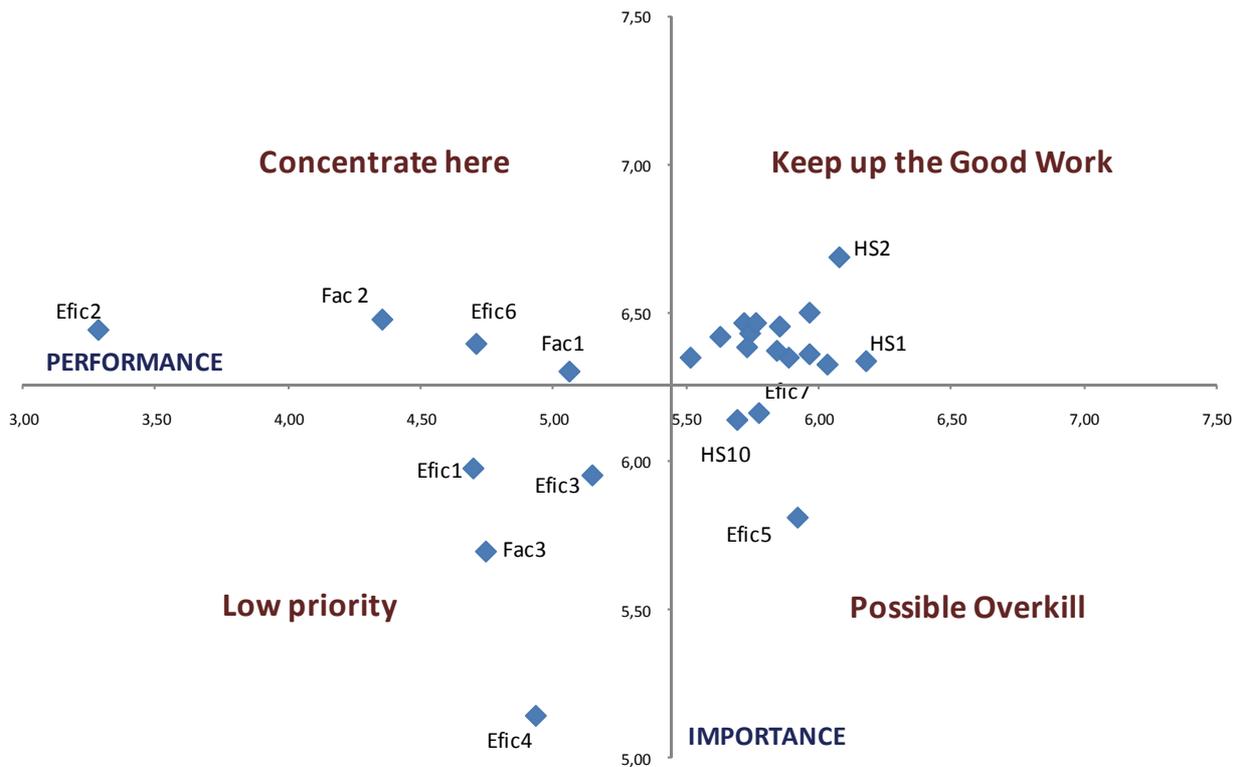


Figure 3. IPA grid of primary health care service (managers)

this quadrant. According to **Table 3**, the administration should focus on improving the “non-health staff interest in solving the patients’ problems” (NoHS5) as it presents the greatest potential for improvement (0.79). This sends a meaningful message to health centre managers in that

they should concentrate on these aspects from their patients’ point of views. Resources should be directed to improving and maintaining the quality of equipment and the health staff’s motivation to understand and solve patients’ problems.

The Low Priority quadrant identifies those items where health centres are performing adequately but patients perceive them as less important when compared with other attributes. Nine attributes are perceived as of low importance by the patients, but some of them present the greatest improvement potential (see **Table 3**). This is the case for some of the efficiency attributes (ease of making an appointment, bureaucracy, waiting times in the health centre before entering the consulting room, speed of complementary tests, and time to focus on each patient). While these attributes are perceived as of lower importance than others, their great improvement potential must be taken into account. Thus, those patients did not perceive these attributes as being important does not mean that managers should reduce their effort to improve these services. On the contrary, these service categories are often considered to be the basic attributes for patients who might simply be regarding them as necessary ser-

vice provisions without being aware of their importance. The managers include 4 attributes in this quadrant, but some of them have the highest improvement potential. This is the case for two efficiency attributes—ease of making an appointment (1.28) and speed of complementary tests (0.81)—and for the location for accessibility of the health centre (0.95). While their importance is less than that of other attributes, again their great improvement potential must be taken into account in defining policies to improve health centre service quality.

Finally in the Possible Overkill quadrant, our analysis identifies only two attributes (trust in health staff, HS4, and non-health staff professionalism, NoHS2) by patients and three by managers (complaints resolution, Efic5; health centre's timetable, Efic7; and health staff's prestige, HS10) as being of low importance with relatively high performance. In all of them the improvement potential is also low, so that they should be given only low priority.

**Table 3. Aggregate performance and importance scores of each attribute (patients and managers)**

	Managers			Patients		
	Importance	Performance	Difference	Importance	Performance	Difference
<b>Fac1</b>	6.30	5.06	1.24	5.90	5.40	0.50
<b>Fac2</b>	6.48	4.35	2.12	5.94	5.20	0.75
<b>Fac3</b>	5.70	4.74	0.95	5.96	5.16	0.80
<b>HS1</b>	6.34	6.18	0.16	6.27	5.01	1.26
<b>HS2</b>	6.69	6.08	0.61	6.22	5.43	0.79
<b>HS3</b>	6.45	5.85	0.60	6.02	5.35	0.67
<b>HS4</b>	6.35	5.89	0.46	5.72	5.16	0.56
<b>HS5</b>	6.36	5.97	0.39	5.85	5.23	0.62
<b>HS6</b>	6.37	5.84	0.53	5.9	5.4	0.50
<b>HS7</b>	6.47	5.72	0.75	5.94	5.2	0.74
<b>HS8</b>	6.50	5.97	0.53	5.96	5.16	0.80
<b>HS9</b>	6.35	5.52	0.83	5.89	5.01	0.88
<b>HS10</b>	6.14	5.69	0.45	5.88	5.15	0.73
<b>NoHS1</b>	6.33	6.03	0.29	5.96	5.72	0.24
<b>NoHS2</b>	6.43	5.74	0.69	5.75	5.01	0.74
<b>NoHS3</b>	6.47	5.76	0.70	5.71	4.87	0.84
<b>NoHS4</b>	6.38	5.73	0.65	5.49	4.6	0.89
<b>NoHS5</b>	6.42	5.63	0.79	5.46	4.58	0.88
<b>Efic1</b>	5.98	4.70	1.28	5.29	3.53	1.76
<b>Efic2</b>	6.44	3.28	3.16	5.45	4.31	1.14
<b>Efic3</b>	5.95	5.15	0.81	5.17	3.72	1.45
<b>Efic4</b>	5.15	4.93	0.21	5.49	3.99	1.50
<b>Efic5</b>	5.81	5.92	-0.11	5.35	4.19	1.16
<b>Efic6</b>	6.40	4.71	1.69	5.65	4.73	0.92
<b>Efic7</b>	6.16	5.78	0.39	5.84	4.78	1.06

In order to analyze the possible discrepancies between the perceptions of the health centre patients and managers about service quality, we performed a *t*-test with the following hypotheses:

$$H_0: \mu_{\text{Patients}} = \mu_{\text{Managers}}$$

$$H_a: \mu_{\text{Patients}} \neq \mu_{\text{Managers}}$$

**Table 4** presents the results for the difference between the patients' and the managers' perceptions. One observes that for 23 of the 25 items the null hypothesis of equal means can be rejected at a 95% confidence level.

Most of the gaps between the patients' and the managers' perceptions are negative and statistically significant, indicating that the managers are too optimistic about the service that they provide. The differences are particularly important for efficiency attributes, in particular, the ease of making an appointment (Efic1), waiting times in the health centre before entering the consulting room (Efic3), and complaints resolution (Efic5), for which the patients have a markedly lower perception of quality.

**Table 4. Health centres' perceived service quality (patients vs. managers)**

	Users	Managers	Gap
Efic5	4.19	5.92	-1.73**
Efic3	3.72	5.15	-1.43**
Efic1	3.53	4.70	-1.17**
NoHS4	4.6	5.73	-1.13**
NoHS5	4.58	5.63	-1.05**
Efic7	4.78	5.78	-1.00**
Efic4	3.99	4.93	-0.94**
NoHS3	4.87	5.76	-0.89**
HS8	5.16	5.97	-0.81**
HS5	5.23	5.97	-0.74**
NoHS2	5.01	5.74	-0.73**
HS4	5.16	5.89	-0.73**
HS2	5.43	6.08	-0.65**
HS10	5.15	5.69	-0.54**
HS7	5.2	5.72	-0.52**
HS9	5.01	5.52	-0.51*
HS3	5.35	5.85	-0.50**
HS6	5.4	5.84	-0.44*
NoHS1	5.72	6.03	-0.31*
HS1	6.02	6.18	-0.16
Efic6	4.73	4.71	0.02
Fac2	5.00	4.35	0.65**
Fac1	5.73	5.06	0.67**
Fac3	5.52	4.74	0.78**
Efic2	4.31	3.28	1.03**

\*\* 99% significance

\* 95% significance

There are also significant differences in several attributes related to attributes of the non-health staff: kindness and politeness (NoHS3), attention to patients' problems (NoHS4), and interest in solving patients' problems (NoHS5). The case is similar for some of the health staff attributes—personalized service (HS5) and interest in solving the patients' problems (HS8)—where again the managers are overestimating the patients' perceived quality of these attributes.

In contrast, the managers undervalue attributes relating to the facilities: cleanliness (+0.65), equipment (+0.68), and location for accessibility (+0.78). They also undervalue one efficiency attribute: the level of bureaucracy (Efic2).

In general therefore, one can say that the managers' perception of the service provided in their health centres is quite distant from the views of patients.

#### 4. Conclusions

Using IPA, this study has compared the importance and performance of 25 service quality attributes as perceived by health centre patients and managers. They were found to have quite different perceptions of the quality of those attributes.

The measurement of patient perceptions provides a valuable dimension of insight into the process by which the quality of health care service is evaluated. In order to identify and correct service quality problems quickly, managers need to understand patients' perceptions of the quality of service actually delivered. The present results have shown, however, that managers have a quite different perception of the service provided in their health centres from that of the patients. In particular, they are overestimating the perceived quality of almost all the service quality attributes that we studied.

The findings have implications for managing primary health care centres. In particular, the perceived quality of a health care centre depends mainly on dimensions that are closely linked to the health personnel who are in touch with the patient, as well as to certain measures of efficiency—the ease of making an appointment, level of bureaucracy, waiting times before entering the consulting room, speed of complementary tests, complaints resolution, time to focus on each patient, and the timetable of the health centre.

In practical terms, the IPA technique objectively categorized the health centre quality attributes into four identifiable quadrants, which will enable health centre managers better understand how patients perceive their services. There are two clear advantages for health centre managers in adding IPA to their tool-kit of management techniques. First, IPA is relatively inexpensive and easily understood. Using a straightforward two-dimensional presentation, the results can be plotted on a simple grid that explicitly displays the strengths and weaknesses of the

quality attributes being studied. Second, using the results provided by IPA, managers can tailor their marketing strategies to the patients' perception of importance and performance revealed in each quadrant. This is a useful and effective way to identify problems and the reasons behind them.

In determining patients' needs and expectations, health centre managers will be better able to prioritize tasks, allocate resources, and match their marketing strategies to their target segments. Once the patients' requirements have been clearly identified and understood, a manager will likely be in a better position to anticipate and cater to their desires and needs rather than merely react to their dissatisfaction [21]. Evaluating a health centre's performance from the patient's point of view would improve the manager's understanding of customer satisfaction. Patients who are satisfied with their health centre's service are more likely to spread favourable word-of-mouth publicity [22]. Knowing how patients perceive the quality of services and facilities is the means by which a health centre can achieve a competitive advantage, differentiate itself from competitors, foster customer loyalty, enhance its corporate image, increase business performance, and retain existing customers and attract new ones.

In an academic context, the use of IPA to investigate the differences between how patients perceive the importance of health centre attributes and the centre's actual performance in relation to those attributes could contribute to broadening the scope of research studies in the area of consumer decision-process theory. In particular, the potential applications of IPA in several areas need to be addressed, including the analysis of the perception of quality in terms of different segments which would help health centre managers formulate and develop marketing strategies to meet the needs of each of those segments.

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### Appendix A

<b>Fac1:</b> Cleanliness of facilities
<b>Fac2:</b> Equipment at the health centre
<b>Fac3:</b> Location for accessibility of the health centre
<b>HS1:</b> Health staff cleanliness
<b>HS2:</b> Health staff professionalism
<b>HS3:</b> Health staff kindness and politeness
<b>HS4:</b> Trust in health staff
<b>HS5:</b> Personalized service
<b>HS6:</b> Communication with health staff
<b>HS7:</b> Health staff's attention to patients' problems
<b>HS8:</b> Health staff's interest in solving the patients' problems
<b>HS9:</b> Health staff understand patients' problems
<b>HS10:</b> Medical staff's prestige
<b>NoHS1:</b> Non-health staff cleanliness
<b>NoHS2:</b> Non-health staff professionalism
<b>NoHS3:</b> Non-health staff kindness and politeness
<b>NoHS4:</b> Non-health staff attention to patients' problems
<b>NoHS5:</b> Non-health staff interest in solving the patients' problems
<b>Efic1:</b> Ease of making an appointment
<b>Efic2:</b> Level of bureaucracy
<b>Efic3:</b> Waiting times in the health centre before entering the consulting room
<b>Efic4:</b> Speed of complementary tests
<b>Efic5:</b> Resolution of complaints
<b>Efic6:</b> Time to focus on each patient
<b>Efic7:</b> Health centre's timetable