

Applying Importance-Performance Analysis to the Management of Health Care Services

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Importance-performance analysis (IPA) is a strategic approach to measure users' satisfaction and simply and functionally identify the strengths and the areas of improvement in a particular service. By first ascertaining the importance that users assign to the most relevant attributes of a service and subsequently evaluating the performance of each service, we can obtain a (Cartesian) graph with four quadrants. This graph allows an intuitive assessment of its operation and the implementation of appropriate recommendations for brand management. Therefore, IPA is widely used nowadays, especially in the health services. The present work is a part of a larger study that analyzes satisfaction among the professionals in the health services of Feira-Arouca, Portugal. In this sense, our main objective is to illustrate the considerable potential of IPA in health management in order to enable professionals and managers to identify some of the weaknesses of the health services and management of the Group Health Centers of Feira-Arouca. In this way, the study was based on 189 professionals working in the health sector. The results show that although financial accounting and the provisioning service are the two most important attributes, their performance is very low as compared to their importance. Simultaneously, representing the results on the basis of the classic model of IPA does not allow a clear and strategic interpretation and development of strategies. Thus, by applying a form of representation that was proposed more recently, we can reflect more deeply and improve the efficiency of service management. Consequently, the latter representation clarifies that financial accounting and the provisioning service have the highest priority in terms of management.

Keywords: health services management, strategic analysis, importance-performance analysis

Introduction

The U.S.A.'s public investment in the health sector represents 14% of the country's gross domestic product (GDP). The proportion of Portugal's national GDP that was spent on health increased to 5.6% in 1990 and to

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10.2% in 2005 (Silva & Simões, 2009). Evidently, these figures are already above the averages of the EU-15 (8.9%). In this regard, concerted efforts are needed to not only maximize the utility of available resources but also optimize their use. The clinical, management, and health-related policies and practices of National Health Service should be based on scientific evidence. In this sense, the Portuguese Health Regulation, specifically Base XXX, particularly mentions the quality of care, efficient use of resources, users' satisfaction, and professional satisfaction. Consequently, the NHS needs to periodically evaluate or measure these four criteria. Thus, the analysis of the satisfaction of health professionals was established as an indicator of organizational climate and, ultimately, a critical success factor (CSF) for the performance of the elements of the NHS. In this context, several studies mention the importance of professional satisfaction in the perceived quality of service (Hespanhol, 2008) and particularly the causes of extremely high levels of stress (Lipp, 2000). Hence, we aim to illustrate the importance of applying an R+D+I policy, that is, market research and development of innovative strategies and methods, in order to improve the performance of services.

Conceptual Framework

Importance-performance analysis (IPA) is based on a set of theoretical contributions, particularly the multi-attribute and expectancy-value models (Fishbein & Ajzen, 1975; Rosenberg, 1956; Wilkie & Pessemier, 1973). From a cognitive perspective wherein human beings are information processors, the above models assume that each service is equipped with a set of attributes and attitudes of its consumers or users, and this set is configured by aggregating the weighted ratings for each of these attributes. In this context, all the elements of a service should be analyzed in detail (Varela, Braña, & Picón, 2004; Varela, Prat, Voces, & Rial, 2006). Therefore, we can estimate the general evaluation of consumers by combining the importance or relevance of the attributes perceived by the consumers have in mind and the performance of each of these attributes by the entity that provides the service. In this context, several studies show that not all attributes occupy the same proportion in explaining overall consumers' satisfaction toward a particular service. Consumers tend to evaluate the performance of a service by using only a limited number of characteristics (Edwards & Newman, 1983; Myers & Alpert, 1968; Wilkie & Pessemier, 1973). Thus, the importance of each attribute should be measured in order to calculate the weight of its performance, by which we can identify an indirect measure of consumer satisfaction on which a graphical representation can be based. Further, the analysis of this representation will help formulate an action plan aimed at providing a better and uninterrupted service by optimizing the use of available resources in the areas of improvement that have been identified. Ultimately, the strategies implemented on the basis of the results thus obtained become a competitive advantage. Figure 1 shows the classic representation of the IPA (Martilla & James, 1977).

In particular, professionals should focus more on attributes and their priorities in order to optimize the use of existing resources within their organizations in order to increase customers' satisfaction. Ultimately, the analysis of customers' satisfaction also becomes a key element in predicting consumer loyalty (Cronin, Brady, & Hult, 2000; Marzo, Martínez-Tur, Peiró, & Ramos, 2002).

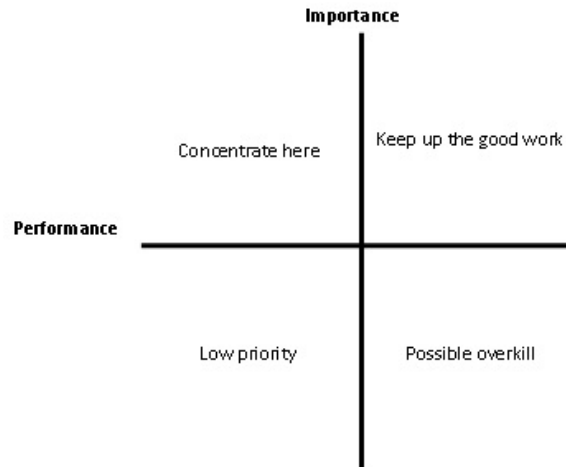


Figure 1. Classic representation of IPA. Source: Martilla and James (1977).

Fields of Application of IPA

IPA has been applied in various fields (Eskildsen & Kristensen, 2006) especially, in studying the performance of IT services (Ainin & Hisham, 2008), assessment of consumers (Sampson & Showalter, 1999), marketing management (Ford, Joseph, & Joseph, 1999), health (Hawes & Rao, 1985; Dolinsky & Caputo, 1991; Skok, Kophamel, & Richardson, 2001; Yavas & Shemwell, 2001; Ábalo, Varela, & Rial, 2006), banking (Yeo, 2003; Joseph, Allbrighth, Stone, Seknon, & Tinson, 2005), hospitality (Weber, 2000), industrial marketing management (Hansen & Bush, 1999; Matzler, Bailom, Hinterhuber, Renzl, & Pichler, 2004), marketing (Novatorov, 1997), tourism (Evans & Chon, 1989; Hollenhorst, Olson, & Fortney, 1992; Duke & Mont, 1996; Zhang & Chow, 2004; Dominique-Ferreira & Silva, 2011), and service quality (Ennew, Reed, & Binks, 1993; Matzler, Sauerwein, & Heischmidt, 2003). However, the final location of the axes of the quadrants is one of the main difficulties in IPA. This location will influence the interpretation of the results and the strategic management of the entire organization. In this sense, our main objective is to illustrate the advantages of the application of simple methods in services management and quality improvement and thereby showing that bivariate and/or multivariate techniques need not always be applied in an R+D+I policy. Therefore, this work specifically aims to analyze the importance and performance of the different attributes that characterize quality health services and simultaneously provide some specific advice to health care managers in order to improve the perceived quality and efficiency of their services.

Methodology

Sample

This work is part of a larger research with study regarding the satisfaction of health professionals. Therefore, the universe studied was from the Group Health Centers of Feira-Arouca of the Northern Regional Administration of Health. The sample comprised 189 health professionals (33 men and 143 women), with an average age of 42.99 years (standard deviation = 10.677). From this sample, 25% were doctors, 37.5% were nurses, 27.8% were administrative officers, 8% were auxiliary personnel, and 1.7% were other professionals. The confidence level was 95% ($Z = 1.96$; $p = q = 50$) with a sample error of $\pm 4.87\%$.

Data Analysis

Data were collected in March and April 2011 through an ad hoc survey, that is, using a questionnaire developed specifically for the present study. However, the questionnaire has some good psychometric properties as the analyses were carried out using another measurement (Cronbach’s alpha).

Results and Discussion

Classic Representation of the Results

On the one hand, the results seem to indicate that investment in medical, nursing, may be an overkill because in these services, the level of performance is higher than the importance.

On the other hand, the classic representation of the results show that the other five services (see Figure 2)—the administrative service, financial accounting, provisioning service, service support at home, administrative services and cleaning service—appear in the “keep up the good work” quadrant.

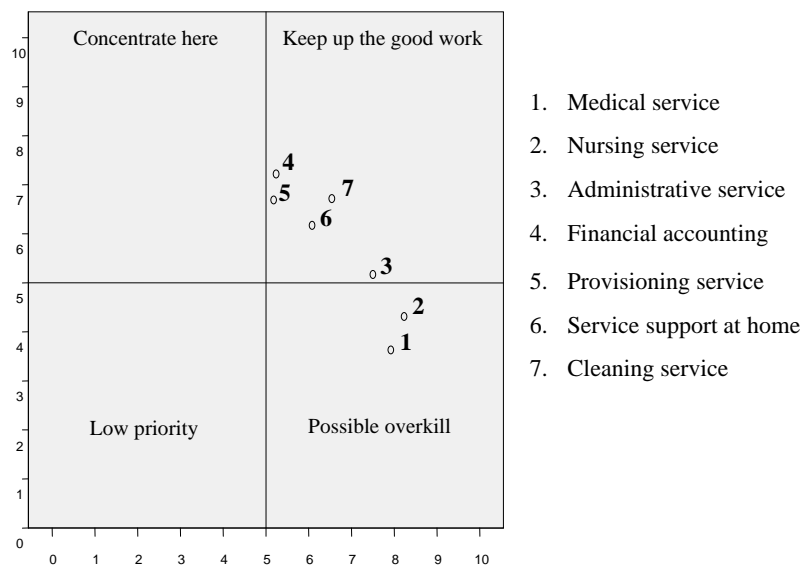


Figure 2. Classic representation of results of IPA.

However, these results and their consequent interpretation show some natural limitations of the classic representation of IPA. A more detailed analysis of the discrepancy values (see Table 1) shows that financial accounting, the provisioning service, service support at home, and the cleaning service are far from efficient, even though these services are listed in the “keep up the good work” quadrant. This disadvantage is clearer if we observe financial accounting and provisioning service with their discrepancy values of -1.98 and -1.51 respectively. The level of performance of these two particular services becomes even more negative when we observe that financial accounting is the most important service and that the provisioning service is the third most important service.

Representation of the Results With the Diagonal Model

Two main services need particular attention—financial accounting and the provisioning service—because

their importance is higher than their performance. Particularly, financial accounting is the most important service and its performance is one of the worst; therefore, some measures should be implemented in order to counter this trend. Nevertheless, the identification of these results (see Figure 2) with the proposed classic representation (Cronin, Brady, & Hult, 2000) of Martilla and James (1977) would suggest that the management of both services (administrative service and financial accounting) should remain the same.

Table 1

Results of IPA

Attributes	Performance mean	Importance mean	Discrepancy (performance-importance)
1. Medical service	7.92	3.63	4.29
2. Nursing service	8.23	4.31	3.92
3. Administrative service	7.50	5.17	2.33
4. Financial accounting	5.24	7.22	-1.98
5. Provisioning service	5.18	6.69	-1.51
6. Service support at home	6.08	6.17	-0.09
7. Cleaning service	6.54	6.72	-0.18
Mean	6.67	5.70	

However, we doubt the appropriateness of this approach in improving both the effectiveness and the efficiency of the entire institution. Nevertheless, in order to solve the problem of representation and the limitations of the interpretation of the results, some authors suggested that the axes should be located in the middle of the scale, that is, 7.5 for both performance and importance (Hollenhorst, Olson, & Fortney, 1992; Havitz, Twynam, & Lorenzo, 1991; Richardson, 1987; Williams & Neal, 1993); Unfortunately, the problem frequently persists. Consequently, other authors suggested that the axes should be located in the mean of each dimension, that is, performance and importance (Alberly & Mihalik, 1989; Guadagnolo, 1985; Hollenhorst, Olson, & Fortney, 1992). Accordingly, the axes would be 6.67 for performance and 5.70 for importance. Thus, the lower the value, the greater the priority that each attribute will have at the time of using human resources, materials and/or economic means (Sethna, 1982). Moreover, some works suggested representing the results differently, whereby all the points represented above the diagonal (45°) are attributes with a higher importance than performance, that is, the attributes whose management requires top priority. In this sense Bacon (2003) studied some works that used this representation and found that the diagonal models better represent the priorities expressed by the study subjects. Hence, the results are presented on the basis of a diagonal model (see Figure 3) in order to improve the interpretation of the results. Therefore, the main problem regarding the interpretation of the results with the classic representation can be solved since financial accounting and the provisioning service are located in the quadrant marked “concentrate here”, that is, an area that suggests priority in investments. Consequently, both financial accounting and the provisioning service are the top priorities for improving efficiency in the resource management.

In this sense, the discrepancy values of these attributes, that is, the difference between performance and importance, are negative (see Table 1). This value reiterates that the level of importance of a service is higher than the level of performance this service achieves.

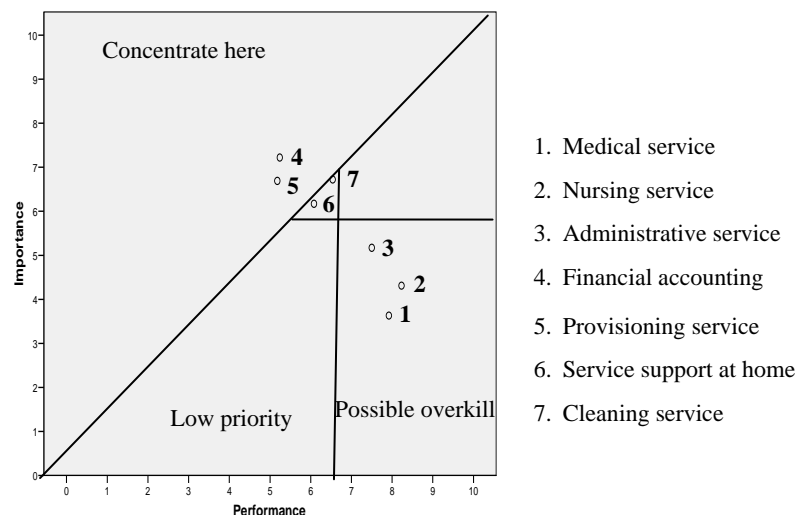


Figure 3. New representation of results on the basis of a diagonal model.

Conclusion

Currently, the recent international economical and financial crisis requires companies and public institutions to manage various existing resources such as human and economic resources more efficiently. Consequently, adopting an R+D+I strategy become increasingly relevant for a better understanding of how to improve efficiency. Therefore, multivariate methodologies are quite relevant when predicting the most relevant attributes for improving the efficiency of services. The methods most frequently identified in this context are regression models, structural equation modeling, factorial analysis, etc.. However, these are not always the only feasible methods of organizational research. In this sense, we aim the present work the authors want to illustrate the advantage of using univariate analysis as it is necessary in the application of IPA. The most important advantages of the application of IPA are its usability and the intuitive interpretation that results from the graphic representation. However, sometimes, the traditional way of representing IPA graphically has a considerable disadvantage: it does not clarify the top priorities of the management because some authors suggest fixing the axes with the value of the mean.

In this context, both types of representation were used in the present work, and the classic representation did not clarify the priorities in improving global service efficiency. However, the second type of representation of the results gave a better feedback, showing that financial accounting and the provisioning service were two of the most important services/attributes but also two of the worst services in terms of performance. These are the conclusions that can be drawn through direct calculation, but they are also based on the second representation, which indicates that both services lie in the area of concentration; that is, the services/attributes that are located in this area are indicated as top priorities in investment management. Thus, we recommend a careful analysis to determine whether the number of professionals in financial accounting is sufficient because a shortage in this regard could probably be the main cause of the poor performance of this particular service. Financial accounting is a fundamental and central service to the financial and human management of all Group Health Centers (reflected by its importance); therefore, concerted efforts must be made to improve its performance, which ultimately affects the efficiency of the Group Health Centers. Finally, IPA is very simple

to apply and allows researchers and managers to identify in a simple way, the top priorities of any company or institution.

Limitations

One of the main limitations of the present study may be the absence of a qualitative approach, which could have identified some specific strategies suggested by the professionals associated with the Group Health Centers studied. Thus, through a qualitative approach, we could identify some specific strategies that would solve the problem of poor performance of some services more efficiently.

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