Sağlık ve Sosyal Refah Araştırmaları Dergisi

Verimlilik ve Etkililik Açısından Maliyet Performans Analizi

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Öz

Sağlık sektöründeki rekabetin artması ve hastanelerdeki giderlerin artması, kamu hastanelerinin var olan temel kaynaklarını daha verimli kullanmalarını zorunlu kılmaktadır. Bu nedenle, devlet hastanelerinin faaliyet seviyelerine karar vermeleri, belirsizlik durumunda başvuracakları ve aktif olarak kullanacakları stratejileri belirlemeleri ve bu konuda net bir karar almaları zorunluluk haline gelmiş durumdadır.

Bu çalışmada, Türkiye Cumhuriyeti Sağlık Bakanlığı Türk Kamu Hastaneleri İstanbul Bakırköy ilçesi devlet hastaneleri genel sekreteri üyesi olan sağlık kuruluşlarının etkinlik ve verimliliğinin değerlendirilmesi ile performans ve maliyet analizi yapılmıştır. Veri zarflama analizi yöntemi ile İstanbul Bakırköy ilçe devlet hastaneleri birliği genel sekreteri olan sağlık kurumlarının yüzde 80'inin tamamen aktif ve üretken oldukları, ancak yüzde 20'sinin kaynaklarını aktif olarak kullanamayacağı anlaşılmaktadır. Tüm eğitim ve araştırma hastanelerinin üretken ve aktif oldukları, kaynaklarını daha rasyonel kullanarak en üst düzeyde hizmet ettikleri tespit edilmiştir.

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Cost Performance Analysis in Terms of Efficiency and Effectiveness

Abstract

The increasing of competition in the health sector and rising of the expenses force the public hospitals being the keystone of enterprises in the sector to use their resources more efficiently. So the public hospitals are required to decide their activity levels, to take reference in case of inactivity and to decide which strategy they will use to be active.

In this study, the performance and cost anaysis are performed by practising the evaluation of activity and productivity of health institutions which are the members of Turkish Republic Ministry of Health Turkish Public Hospitals İstanbul Bakırköy district public hospitals general secretary. With the method of data enveloping analysis, it is understood that relatively 80 percent of health instituions which are the parts of İstanbul Bakırköy district public hospitals union generel secretary, are entirely active and productive but 20 percent of those can not use their resources actively. It is understood that all of the training and research hospitals are productive and active, they serve at maximum level by using their resources more rationally.

Introduction

The technological developments and much work in health sector have caused the increasing of the cost of service and expensive health services. Hospitals are health institutions that give healthcare and being active in a changing technology, increasing cost and competition circumstance. The health sector for which quite a lot fund is used gives importance to increase their performance by using their resources actively and productively. As a result of globalisation, to supply the increasing competition the health sector has to use their resources more productively. The approaches questioning the use of public hospitals fund and the results of use have became more important with the rapid increase of health expenses. To create a healthy community and to use the resources better, like in many countries, in Turkey the attempts to evaluate and develop the performance of health system have increased and this study is important because it is the first research to evaluate the effectiveness and productivity of Public Hospitals Union locally within the Tranformation Programme in Health.

The Transformation Programme in Health and Public Hospital Union

The Health Ministry established instantly after the opening of Turkish Grand National Assembly in 1920 made a lot of efforts to heal the injuries of war of liberation and it also tried to further legislation. Dr. Refik Saydam who was the first health minister of Turkish republic (1923 – 1937), introduced the basic health laws. With the help of these laws, the authority, mission and function of Health Ministry in planning, organising and applying the health programmes in country were determined clearly. During 1938 – 1960, the number of health centers that give population based healthcare increased and the management of hospitals was transfered from local managements to Health Ministry. Furthermore, non – governmental organizations and legal base of some medical jobs were constituted. Between 1961 – 1980 the law of socialization of health services was accepted. This process aimed to give healthcare widely, continuously, entegrated and according to the needs of society. The first five years development plan (1963) included the health, the goals relating to the sector were decided as to develop, generalize the protective health services and present these through Health Ministry, to ensure the equal distribution of health staff, to apply the currency capital system in public hospitals, to strengthen the local drug industry and to support the establishment of private hospital (Sülkü, 2011:3).

In 2003, the trasformation programme in health started to be applied by combining the many Health Ministry projects and patient satisfaction based health services goals controlling quality and costs.

The essential goal of this programme is to create a system that will advance the health level

of society, decrease the expenses and make people who get healthcare in case of need, contribute to health fund as much as they can and the basic principals of this programme are anthropocentrism, maintability, constant quality development, participation, settlement and voluntarism (Elbek, 2009: 35).

A Type Of Governance: Public Hospital Union

The governance emphasizes the constitution that shows the types of management whose difference between public and private institution are difficult and that aims to manage the type of management belonging to these institutions better (Stoker, 1998: 17 -18).ın our country studies related to the decentralization aren't applied, but in most of the Europe it is seen as an effective method because of promotes in performing the service, allocation of the resources according to the demands, ensuring the participation of society in taking decision (Saltman and Figueras, 1998: 43).It is understood that the constant productivity in public services, performances of service, slight economic improvements, constant competition, social development strengthen the governance approach (Wills, 1995: 376).

The public hospital union of which basic goal is the institutional perfection and which is a new field in our country is a public field that enables our country's entegration with global World and that affects the membership process and european union.

The term of "governance" and "govern" are similar to each other but they are different in some aspects. The term of " govern" adopt a sense of rule that depends on a hierarchical bureaucratic constitution but the term of "governance" adopt a sense of rule that give importance to the interaction between the actors who take a role in management process and organisations and also to the participation of informal people, groups and instutitions. The term of " governance" mean that both the hierarchical bureaucratic constitution and the non governmental actors take role actively in management (Yüksel, 2000:145). The term of governance contain of non governmental organizations, private contractors and non profit organizations other than the centralized management and local government (Eryılmaz, 2000: 28).

Public Hospitals Union

Because of the delay in public services both in our country and in the World, inappropriate for the local needs, increasing of the service capacity of centralized management and because democratic values and taking part in management is not possible with it, the sense of rule " local government" has been adopted instead of the centralized management (Eryılmaz, 2007: 72 -73).

The role of the government in health services has changed lately because of the globalisation. The traditional role of government in the field of health is related with the

performing of the health services and the fund of it. In the traditional approach the government that governs the health services in one hand or give the service directly has changed its role in health services and while it has given more importantance to the specification of the basic principles, the government should continue to give preservative health services and the treatment and rehabilitation services should be involved in market economy (Aktan and Işık, 2007: 8 -9).

In paralel with the developments in the World about the localisation of the health services, this issue has been disscussed in Turkey for many years. The performing of the health services by local goverments and especially the issue of making the hospitals autonomous in terms of administrative and economic have always taken part in first of all the development plans and the reports of different foundations. ıt is also mentioned in the 9th development plan that it is necessary to be autonomous of the hospitals in terms of administrative and economic (DPT, 2007: 49).The external organisations of the hospitals that are connected to the Health Ministry have been arranged acording to the legislative decree about the the Health Ministry and the subsidiary organizations' missions. According to this decree, the public hospital unions that are connected to Turkish Public Hospital Foundation shall govern the hospitals connected to the Health Ministry (Tengilimoğlu, Işık and Akbolat, 2012: 189).

The Public Hospital Unions working with Turkish Public Hospitals Foundation, aim to use their resources productively and effectively, manage the health staff in one hand and reduce the the health expenses. They have been established at provincial level and according to the vast of the service given, more than one union can be established. If more than one public unions are established in a province, one of them is charged as a coordinator (Akdal, 2013: 27).

The Objective of Research

The aim of the research is to make performance evaluation by designating the effectiveness, productivity at public hospitals and to evaluate the performance level, effectiveness and productivity level of training - research and oral centers of Public Hospital Union Bakırköy General Secretary. Accordingly, another aims are to enable the evaluation of the effectiveness level of the hospitals that use multiple input and multiple output production model and to make them active, to identify the data that makes the hospitals which aren't productive active and productive.

The Universe of the Research

The universe of the research consists of five public hospitals of Turkish public hospitals Foundation İstanbul Province Bakırköy District Public Hospitals Union.

The Method Of The Research And Data Collection Tools

Because the sector is so complex and input – output variables are too many, after the determination of the decision – making units, both CCR and BCC models shall be used to determine the values of scale effectiveness. 2013 current datas of the research are obtained from information technology and statistic departments of Bakırkoy Public Hospitals Union. 8 variables have been included for the evaluation of the performance and the effectiveness. These are identified as inputs and outputs.

The Restrictions Of The Research And Ethic

The research contains of general training and research hospitals of Bakırköy Public Hospitals union and oral centers. The number of the doctors and nurses, the inputs of the research, has been counted in all institutions monthly and has been taken the average of it at the end of the year. The number of operations and other procedures, the outputs of the research, small, medium, large surgery operations (A, B, C, D, E groups all of the surgery operations) at training – research hospitals are involved in the research. The numbers of tooth extraction and other small oral surgery operations at oral centers have been used in the research.

The Variables of the Research

The determination of the input and output variables that will be used in the performance evaluation with VZA at hospitals of Bakırköy Public Hospitals Union is an important stage.

As input variables, doctor, nurse, bed number, total expense; as output variables, policlinic patient number, the number of surgery and other operations, current capital have been used in the research. Because they do the same work, the number of doctors, experts, practicians and asistants as input parameters all have been used in the research as "the number of doctors". The number of beds and inpatients, Bahçelievler oral center and Güngören oral center which are the outpatients centers of Bakırköy Public Hospitals Union will be excluded.

Table 1. The Numbers Of The Variables Used İn Health Units Participating İn The Research

The Health Units Participating İn The Research	The İnput Variables And Numbers Of The Research			
	The Number Of Doctos	The Number Of Nurses	The Number Of Beds	Total Expense(TL)
İstanbul Bağcılar Training And Research Hospital	426	369	498	150,298,150.08
İstanbul Bakırköy Dr. Sadi Konuk Training And Research Hospital	572	442	377	179,420,296.07

İstanbul Physical Medicine And Rehabilitation Training And Research Hospital	42	103	264	21,916,610.70
İstanbul Bahçelievler Oral Center	34	10	0	25,246,989.76
İstanbul Güngören Oral Center	33	7.4	0	10,963,575.05

Table 2. The Numbers Of The Output Variables İn Health Units Participating İn The Research.

The Health Units Participating İn The Research	The Output Variables And Numbers İn The Research			
	The Number Of Policlinic Patients	The Number Of İnpatients	The Number Of Surgery And Other Operations	The Circulating Capital (TL)
İstanbul Bağcılar Training And Research Hospital	1,971.252	47.529	56.877	155,058,351.16
İstanbul Bakırköy Dr. Sadi Konuk Training And Research Hospital	1,903.100	33.115	87.738	183,708,070.33
İstanbul Physical Medicine And Rehabilitation Training And Research Hospital	216.516	4.442	1.321	24,527,369.68
İstanbul Bahçelievler Oral Center	202.595	0	3.743	24,915,930.82
İstanbul Güngören Oral Center	230.943	0	42.284	11,997,027.93

Findings, Analysis of the Data and Discussion

In this study the effectiveness analysis has been made and productivity of the 5 hospitals of Bakırköy Public Hospitals Union has been evaluated by using ınput – output variables and data envelopment analysis model.

During the evaluation of the 5 hospitals of Bakırköy Public Hospitals Union, they have been studied as two groups. Group 1 refers to training and research hospitals, group 2 refers to oral centers. In this study the productivity analysis of the groups will be analysed seperately and the total effectiveness and productivity of Bakırköy Public Hospitals Union will be tested, evaluated in the discussion part and given suggestions.

Table 3. İnput Centered CCR Analysis And BBC Analysis With The Productivity Analysis Results

Hospitals		CCR Technique Effectiveness Level	BCC Technique Effectiveness Level
Group 1	İstanbul Bağcılar Training And Research Hospital	1.00	1.00
	İstanbul Bakırköy Dr. Sadi Konuk Training And Research Hospital	1.00	1.00
	İstanbul Physical Medicine And Rehabilitation Training And Research Hospital	1.00	1.00
Group 2	İstanbul Bahçelievler Oral Center	0.8514	0.8679
	İstanbul Güngören Oral Center	1.00	1.00

According to the analysis results in table 3, the effectiveness level of the hospitals obtained by input centered BBC technique, is higher. When we look at group 1 hospitals, "İstanbul Güngören Oral Center in group 2 is efficient while all of the hospitals are efficient. According to the input centered CCR model results, the whole of the Group 1 of which productivity percentage 1.00 and İstanbul Güngören oral center are productive. We can say that these hospitals are active productively in terms of inputs they have and outputs.

It can be said that the inputs of the training and research hospitals in group 1 are higher. The number of doctors, bed, surgery and other operations are more than the health unit in other group. The reasons of this can be thought that the society are pleased with the training and research hospitals, they prefer them and they are accessible in their area. It can be concluded that they use their opportunities fort he benefit of the society. It is the sign of being used of excess inputs effectively and so the hospitals in groups have been productive hospitals.

The effectiveness level of İstanbul Güngören Oral Center is higher and more effective than İstanbul Bahçelievler Oral Center. The main reason of it is that there is a big and qualified difference between surgeries and other operations although there is not a big difference in terms of policlinic numbers. From the two Oral Centers having equal input, İstanbul Güngören Oral Center has managed their inputs better and so has gained the title of "productive health center". The reasons why group 2 is not totaly effective are that society gets health service late in these centers and they can get the same service with charming price in private sector.

Table 4. Total Effective And İneffective Health Units (Technical And Scale Efficient)

Hospıtals		Technical Efficient	Scale Efficient
Group 1	İstanbul Bağcılar Training and research Hospital	1.0	1.0
	İstanbul Bakırköy Dr. Sadi Konuk Training and research Hospital	1.0	1.0
	İstanbul Physical Medicine and Rehabilitation Training and research Hospital	1.0	1.0
Group 2	İstanbul Bahçelievler Oral Center	0.8679	0.980988593
	İstanbul Güngören Oral Center	1.0	1.0

As we can see in table 4, in this research the effectiveness level of 5 health units of Turkish Public Hospitals Institution Bakırköy District Public Hospitals Union has been tested. While four of these hospitals has reached the level of total effectiveness in terms of technical and scale effectiveness, one of them doesn't work effectively. We can say that all of the hospitals in group 1 have to act rationally and their minimising costs, cost effectiveness, cost – benefit and cost – usableness are at maximum level. We can also say that the elements of performance control like productivity, thriftiness, profitability are practiced ideally. Obviously these hospitals are the most effective decision making unit and have the highest performance.

Because the rate of scale effectiveness and technical effectiveness of group 2 İstanbul Bahçelievler Oral Center is below 1, the performance observed is lower than the potential performance. In this respect, it can be concluded that as a result of inefficient produce or excessive use of sources it is below the effectiveness level and it serves with low technical effectiveness and scale effectiveness.

Table 5. The Productivity Analysis Of The Health Units Participating İn The Research, Super Effectiveness Scores

Hospitals		Süper Etkinlik Skoru (%)
Group 1	İstanbul Bağcılar Training and research Hospital	100,77
	İstanbul Bakırköy Dr. Sadi Konuk Training and research Hospital	101,63
	İstanbul Physical Medicine and Rehabilitation Training and research Hospital	109,08
Group 2	İstanbul Bahçelievler Oral Center	85,14
	İstanbul Güngören Oral Center	117,45

After the analysis of inputs and outputs accepted, the super effectiveness values of the hospitals have been put forward. It can be concluded that among these hospitals the most

productive health service has been given by İstanbul Güngören Oral Center (% 117,45). Although the group having the highest performance is group 1 when the hospitals have been examined in terms of total effectiveness and productivity, İstanbul Güngören Oral Center in group 2 is the hospital of which performance is the best when the super effectiveness scores have been examined. According to these results, the hospitals shouldn't do with their productivity, they should aim to be the most productive hospital by using their sources and inputs more effectively.

Table 6. The İnput Factors For Group 2 (Oral Centers) Real And Target Values

Hospitals	Number Of Doctors		Number Of Nurses		Total Expense(TL)	
	Real Value	Targetvalue	Real Value	Target Value	Real Value	Target Value
İstanbul Bahçelievler Oral Center	34	28,94	10	6,49	25,246,989.76	22,387,243.93
İstanbul Güngören Oral Center	33	33	7,40	7,40	10,963,575.05	10,963,575.05

As we see in table 6, İstanbul Güngören Oral Center is an effective hospital and it is not necessary to change the amount of inputs of it. But İstanbul Bahçelievler Oral Center should reduce the real value to the number of underlined target value parameters in order to be productive. Because good performance means more output with less input, the value of input should be reduced and the value of output should be increased.

Table 7. The Output Factors For Group 2 (Oral Centers) Real And Target Values

Hospitals	Number Of Policlinic Patients		Number Of Surgery And Other Operations		Circulating Capital (TL)	
	Real Value	Target Value	Real Value	Target Value	Real Value	Target Value
İstanbul Bahçelievler Oral Center	202.595	202.595	3.743	3.709,3	24,915,930.82	21,763,330.88
İstanbul Güngören Oral Center	230.943	230.943	42.284	42.284	11,997,027.93	11,997,027.93

When we look at the table 7 the output factors for group 2 (oral centers) real values and target values, İstanbul Güngören Oral Center is productive and has reached the target values. But Bahçelievler Oral Center should have the target value that is stated and take in consideration the recovery rates. So in order to say that this scale is productive, the real values of the output parameters "number of surgery and other operations" and " circulating capital" should be the target values.

Table 8. Reference Summary Of The Health İnstitutions Participating İn The Research

No	Hospitals Taking As Reference	Hospitals Taken Reference
1	İstanbul Bağcılar Training And Research Hospital	1
2	İstanbul Bakırköy Dr. Sadi Konuk Training And Research Hospital	2
3	İstanbul Physical Medicine And Rehabilitation Training And Research Hospital	3

| 4 | İstanbul Bahçelievler Oral Center | 5 |
| 5 | İstanbul Güngören Oral Center | 5 |

According to the table 8, the hospitals that are not technically effective decide to take which effective hospital as a reference in order to make themselves effective. The effective health units show themselves in reference groups. The effectiveness value of decision making units in reference group is "1". In this respect, the hospitals participating in the research and effective training – research hospitals Show themselves again in reference group. But İstanbul Bahçelievler Oral Center Hospital Show its reference group as İstanbul Güngören Oral Center because of using the similar input and output combinations and so it should evaluate its performance level according to this health unit's performance level.

Conclusion

Because input and output variables are a lot, the VZA technique that produces better results has been used in this study. The performance and cost analysis have been made by evaluating the effectiveness and productivity of Turkish Republic Health Ministry Turkish Public Hospitals İnstitution İstanbul Bakırköy District Public Hospitals Union General Secretary health units. Some units that can't manage the process productively and effectively have been determined. It is stated that the hospitals which are not productive and effective should take which hospitals as a reference and what they should do to be effective and productive. All of the training and research hospitals that are the keystone of İstanbul Bakırköy District Public Hospitals Union have had high performance by canalizing the macro input combination nicely. Additionally, it is stated that İstanbul Bahçelievler Oral Center of which control power is easier and which uses smaller input combination has had low performance.

One of the health units of Turkish Republic Health Ministry Turkish Public Hospitals İnstitution İstanbul Bakırköy District Public Hospitals Union has been stated as unproductive because it hasn't used its sources effectively. On the other hand, it is concluded that 4 health unions are productive because they have used their sources truely and effectively. One of the reasons of this is the radical changes made in the view of hospital management and the other reason is that the health policy of transformation programme in health handled in Turkey has affected the health ministry public hospitals union positively in terms of using their sources effectively.

As a conclusion it can be said that this study as a sample, has made necessary to use the sources carefully, to develop executive strategies and programmes for disposing the unnecessary expenses by idetifying the current statues of Turkish Republic Health Ministry Turkish Public Hospitals

İnstitution İstanbul Bakırköy District Public Hospitals Union General Secretary managers and getting information about inputs and inadequate outputs.

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