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An Investigation on Innovative Application in Hospitals Affiliated with Public Health Sector of Metropolitan City of Istanbul[1]

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Abstract

Objective: With this study we aimed to investigate whether some variables (number of levels, departments, and horizontal communication etc.) in organizational structure of the hospitals operating within the frame of public health sector of the Metropolitan City of Istanbul have an impact on innovation, to determine the way these variables effect innovation, and evaluate innovative performance of our hospital within the frame of organizational innovative culture.

Material and Method: For this investigation literature screening was made, and a questionnaire consisting of three parts was prepared. First part of the questionnaire contained institutional information, the second part comprised organizational information, and the third part consisted of questions aimed to determine the innovational value of the applications. The questionnaire forms were sent to 190 healthcare professionals. A total of 137 forms were completed by the participants, and returned to us. However only 112 questionnaire forms were taken into consideration for evaluation. The data obtained were analyzed using SPSS.

Results: Hypothesis 1: Any correlation does not exist between the age of the hospital, and innovativeness (r=-0.276 p=0.004). Hypothesis 2: Any correlation does not exist between innovativeness, and formality in horizontal communication between hospital professionals of the same level (r=0.111 p=0.249 Kendall's Tau_b=0.062). Hypothesis 3: A significant correlation does not exist between the communication between hospital employers, and their superiors, and innovativeness (r= 0,220 p=0.022). Hypothesis 4: A correlation does not exist between the horizontal communication prevalent among hospital employees at the same level, and innovativenes (r=0.159 p=0.099 Kendall's Tau_b=0.145). Hypothesis 5: A difference does not exist between the general level of communication in the hospital, and innovativeness (r=0.305 p=0001). Hypothesis 6: A correlation does not exist between the number of departments in the hospital, and innovativeness (r=-0.141 p= 0.152 Kendall's Tau_b=-0.119) Hypothesis 7: A correlation does not exist between the number of vertical levels in the hierarchy of hospital organization, and innovativeness (r=0117 p=0.234 Kendall's Tau_b= 0.90).

Conclusion: The outcomes of our study can be interpreted as follows: a) Newly established hospitals participating in our study were more innovative, b) Increased communicative relationship between employees, and their superiors, and also between workers at the same level, consequently among all hospital professionals reinforce innovativeness, c) as the number of departments increase, rapport, and communication weaken which decrease innovativeness, d) in hospitals with higher number of vertical levels, innovativeness is promoted in that the presence of more participative management, and effective communication channels facilitate implementation of innovative applications.

Keywords

Innovation, organizational structure, communication, health, hospital

About Article

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[1] Bu makale "İstanbul İli Sağlık Sektöründe Faaliyet Gösteren Hastanelerde Yenilik (İnovasyon) Uygulamalarının Tespitine Yönelik Bir Araştırma" başlığı ile 6. Uluslararası Sağlık ve Hastane Yönetimi Kongresi'nde poster bildiri olarak sunulmuştur.

İstanbul İli Kamu Sağlık Sektöründe Faaliyet Gösteren Hastanelerde Yenilik Uygulamalarının Tespitine Yönelik Bir Araştırma

Öz

Amaç: Bu çalışma ile İstanbul ili sağlık sektöründe faaliyet gösteren hastanelerin örgüt yapısındaki bazı değişkenlerin (kademe sayısı, departman sayısı, yatay iletişim vb.) yenilikçiliği etkileyip etkilemediği; etkiliyorsa ne yönde etkilediğinin tespiti ile örgütsel yenilik kültürü çerçevesinde hastanemizin yenilik performansının değerlendirmesinin yapılması amaçlanmıştır.

Gereç ve Yöntem: Araştırma için literatür taraması yapılmış ve üç bölümden oluşan anket hazırlanmıştır. Anketin birinci bölümünde kurumsal bilgiler; ikinci bölümde örgüt yapısına ait bilgiler, üçüncü bölümde hastanelerdeki uygulamaların ne kadar yenilikçi olduklarının tespitine ait sorular hazırlanmıştır. Anketler 190 sağlık çalışanına mail ortamında gönderilmiş ve 137 adet anketin geri dönüşü sağlanmış, ancak 112 adeti değerlendirmeye alınmıştır. Elde edilen veriler SPSS ile analiz edilmiştir.

Bulgular: Hipotez 1: Hastanelerin yaşı ile yenilikçilik arasında ilişki yoktur (r=-0,276 p=0,004). Hipotez 2: Aynı seviye hastane çalışanlarının yatay ilişkilerindeki resmiyet ile yenilikçilik arasında ilişki yoktur (r=0,111 p=0,249 Kendall's Tau_b=0,062). Hipotez 3: Hastanede çalışan astlar ve üstler arasındaki iletişim ile yenilikçilik arasında anlamlı bir ilişki yoktur(r= 0,220 p=0,022). Hipotez 4: Hastanede aynı seviyede çalışanlar arasındaki yatay iletişim ile yenilikçilik arasında ilişki yoktur (r=0,159 p=0,099 Kendall's Tau_b=0,145). Hipotez 5: Hastane bütününde örgüt içi genel iletişim seviyesi ile yenilikçilik arasında fark yoktur (r=0,305 p=0,001). Hipotez 6: Hastanedeki departman sayısı ile yenilikçilik arasında ilişki yoktur (r=-0,141 p= 0,152 Kendall's Tau_b=-0,119) Hipotez 7: Hastane organizasyonun hiyerarşisinde dikey kademe sayısı ile yenilikçilik arasında ilişki yoktur (r=0,117 p=0,234 Kendall's Tau_b= 0,90)

Sonuç: Çalışmamıza katılan hastanelerin daha genç olması sebebiyle daha yenilikçi olduğu, astlarla üstler arasında ve aynı seviye çalışanlar arasında ve hastane bütününde iletişimin artmasının yenilikçiliği artırdığı, departman sayısı arttıkça departmanlar arası ilişki ve iletişimin zayıflaması nedeniyle yenilikçiliğin azaldığı, dikey kademe sayısının yüksek olan hastanelerde yenilikçiliğin arttığı bu durumunda daha katılımcı bir yönetim ve etkin iletişim kanallarının varlığı nedeniyle yenilik uygulamalarını kolaylaştığı şeklinde yorumlanmıştır.

Anahtar Kelimeler

İnovasyon, örgüt yapısı, iletişim, hastane, sağlık

Makale Hakkında

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Introduction

Nowadays, three important developments involving fields of management, and organization have been spoken. The first one of them is developments experienced in the fields of communication, and information processing technologies. The second one involves increasing trends in internationalization, and global competition. The third one is developments in human rights, and humanitarian values (1). These developments force the managements to change in many aspects in order to outlast in their fields of activity, and maintain sustainable profitable growth. These changes have been achieved by making new discoveries or innovations.

The concept of discovery can be defined briefly as "An idea, design, draft or model involving newly developed products, production processes, and systems" (2). In its widest sense discovery is creation of a new idea, method or device. Discovery refers to more often to technical characteristics related to innovation, while the concept of innovation is predominantly a term of economics which denotes active, and dynamic ideas open for improvement with various fields of applicability.

Let's cite an example which will reveal the difference between discovery, and innovation; Isaac Singer is not the inventor of sewing machine, and was not named after him. The patent of the first sewing machine was taken out by Thomas Saint in London, in the year 1790, but this invention had not been used then. In the year 1846, a Bostonian inventor Elias Howe invented sewing machine with rollers. However Howe could not convert this garment into an innovative product, and lost the chance of naming his invention after him, and gaining lots of money from his invention. Isaac Singer who revolutionized this sewing machine by using the patent obtained by Elias Howe made the utmost profit.

Isaac Singer customized the sewing machine which was originally designed for tailors, for use at home, and created an enormous market. Since then Singer has been the first name, and brand for sewing machines throughout the world. (3).

Another example is the steam engine which was developed, and patented by James Watt in the year 1776. However Watt designed steam engine to pump water out of the coal mines, and sold it only to coal mining industry. The actual founder of industrial revolution is the partner of James Watt, namely Matthew Boulton. Boulton recognized that the steam machine could be used to spin, and weave cotton in textile industry which was the leading industrial sector in the UK, and sold the first steam machine to a cotton factory. Within the subsequent 10-15 years the price of cotton woven fabric dropped at a rate of 70 percent. This phenomenon created the first mass market, and factory together with the birth of modern capitalism, and economy (4).

Within this frame, it will not be erroneous evaluation to specify the concept of discovery as a triggering factor for innovation. However the concept of innovation has not any significance as long as it signifies only discovery. Innovation has been evaluated as production of a new technology, and distinctive improvements in the fields of product, service, and many processes.

Innovation is defined as "The implementation of new, and significantly changed product, service, process, a new marketing method or a new organizational method in business practices, workplace organization or external relationships" (5).

Innovation is application of new inventions, concepts or re-implementation of preexisting products or methods after their improvement. Commercial benefit is a priority in these applications (2).

From the scientific perspective, the concept of innovation was mentioned firstly in the economic literature in the book by Schumpeter entitled Theory of Economic Development and published in the year 1912 (6). According to Schumpeter innovative activities were defined as development of new products or realization of qualitative changes in the preexisting product, development of new processes for the sector, opening new markets, finding new sources of procurement for other inputs, and realization of changes in industrial organization (7).

The first study cited in the literature of business administration concerning the concept of innovation was performed by Muse, and Kegerreis in the year 1969 about development of new products. In their study they analyzed the effects of research, and development, and new products on the marketing activities of business enterprises, and in this study the concept of innovation was evaluated as "development of new product(s)" (8).

According to Drucker the innovation is "Prosperity produced by the entrepreneur by creating new resources or by increasing usage potential of available resources" (9).

Oslo Guideline prepared in collaboration between OECD, and European Council is an internationally accepted main source concerning definition of innovation. According to 2006 edition of the Oslo Guideline innovation is defined as "The implementation of new, and significantly improved product, service or process, a new marketing method or a new organizational method in business practices, workplace organization or external relationships" (10).

The innovative process consists of different steps. At first, with a scrutinising perspective, new ideas should be developed. For the revival of new ideas, inspiration, and power of imagination are important but they do not suffice per se.

As a prerequisite of utmost importance, inspiration, and power of imagination should be reinforced by effort, and endeavor. In an investigation performed, the authors indicated that only 10% of the innovative process is influenced by inspiration, and power of imagination, while 90% of the innovative process is influenced by efforts, and endeavor (11). Within this context, the concept of innovation can be defined as "The product of inspiration, and power of imagination reinforced by efforts" or "Novelty produced by creativity in any subject" (14).

Innovation is classified in different categories based on its scope, changes it created, its fields of use or technological content. Although sharp boundaries among the types of innovation do not exist, generally 5 different types can be mentioned:

- Product innovation (13)
- Service innovation (14)
- Market innovation (15)
- Process innovation (15)
- Organisational innovation (16)

The reasons for innovative implementations are divided as internal and external causes (17). Internal causes may include recognition as an innovative firm, and maintenance of this reputation, possession of a large spectrum of products which offer various selection opportunities, having the hope, and desire to increase the profits, keeping the spirits of the employees at a high level, cretaing a convenient organizational environment, to draw workers with skill, and enthusiasm into the business, and keep them in the business, to provide opportunities to all employees for enjoying, and adding meaning to their work, to request their help in solving the problems of the enterprise, and motivate them for work.

External causes are divided into 2 categories related to marketing, and social reasons. Causes related to marketing depend on concerns such as to be a pioneer firm in its field, and maintenance of this position, achievement of technical superiority over its competitors, and to be the only seller of a product. Social causes include to satisfy consumers' requests who anticipate changes, prove the social utility of the firm against public organs, and to make a favourable impression on the public which entertain suspicions againts large business enterprises (18).

Innovation is an ability of organizations to learn, and implement by revealing differences in product or service production processes so as to enable the organizations to make changes. Because of its this, characteristic innovative implementations are closely related to organizational culture. Some researchers have stated that

organizational culture is effective on innovative implementations (19,20) or even it is placed in the focus of innovation (21).

Schein, defined organizational culture as any social unit of shared pattern of basic assumptions with group members who solved external, and internal compliance problems which will be taught to new members as a perception, thinking, and feeling method (22). From this perspective organizational culture does not only exert an enormous impact on innovative ability of an organization, it also determines the method of innovative interventions, specifies the focus of innovation, and abilities to be used to overcome potential threats (23).

According to Reilly, and DiAngelo organizational culture paves the way for maintenance of organizational tradition, and stabilization, leadership, innovation, and many themes, and processes related to organization. The guidance of organizational culture starts as a reality, and a process concurrently with organizational communication (24).

Organizational communication is the most important tool which enables the organization to attain its targets. Healthy communication established within the organization increases productivity, and success rates. Within an organizational structure it is possible to talk about formal (vertical, horizontal, and cross communication), and informal communication (25).

According to Berry, and Laudon&Laudon (2006) as for the impact of organizational communication on innovativeness, organizational communication process is realized effectively, employees will understand the roles, and tasks anticipated from them, and also comprehend the goal of the organization. Nowadays new communication tools, and techniques as synchronized communication supported by computerized systems, virtual communication networks as whatsup, e-conference, interactive news network, internet phone systems have replaced face-to-face communication. These developments have facilitated teamwork, reinforcement of decision processes, removal of the obstacles. Thus the role of organizational communication in organizational success have increased (26). A satisfactory communication within an organization is expected to facilitate, and reinforce correct comprehension of the aims of the organization, realization of common goal of the members of the organization through a collaborative, and coordinative approach (24).

Innovation is the key factor for the successful achievements of the organization, and innovative culture of the organization has an important role in any change made in the name of innovation. If organizational culture is convenient, then this business enterprise will react to the changes performed in a short time, thus this period of change will be passed with success. On the contrary, the utility, and problem-solving potential of the innovative process will fail, and inability to react timely will cause waste of source. In the creation of an innovative culture effective participation of all employees in accordance with the management will allow perception of the beneficial effects of the innovation all over the organization. Instead of concealing the problems of the organization, analysis,and description of the problem will so much ease adaptation to the innovation (27).

In the literature the effects of industrial structure on innovation have been debated. Factors such as changes in the industrial sector, activities of other business enterprises, and barriers confronted during market penetration effect innovative processes. It is obvious that innovative implementatione will exert a positive effect on businesses which want to sustain a competitive environment. As is understood from literature reviews, size of the enterprise effects the innovative process, and big business enterprises have a more innovative structure, and market share of these enterprises is greater, their power of new product development is higher when compared with those with smaller market share, and finally firms with a wide range of products are more innovative which have a positive impact on innovative trials. It is clear that, innovative processes are adversely effected in enterprises where discrimination between blue-, and white-collar workers is at a high level. Literature reviews reveal that older enterprises with a bureaucratic structure are less attentive towards innovative applications when compared with the newly established ones (27).

Objectıve

With this study we aimed to investigate whether some variables (number of levels, departments, and horizontal communication) in organizational structure of the hospitals operating within the frame of public health sector of the Metropolitan City of Istanbul have an impact on innovation, to determine the way these variables effect innovation, and evaluate innovative performance of our hospital within the frame of organizational innovative culture.

Method

For this investigation literature screening was made, and a questionnaire form consisting of three parts was prepared. The survey form contained questions about institution in the first, organizational structure in the second, the innovativeness of the hospital performance in the third part. The questionnaire forms were sent to 190 healthcare professionals, and 137 forms returned to us, however only 112 of them were taken into evaluation.

Reliability Analysis

Results of the questionnaire survey were analysed using statistical analysis program SPSS within 95% confidence interval. C-alpha value was found to be 0.665 for the second part of the questionnaire where concepts of relationships, and communication were inquired. Since it was greater than 0.60, it was accepted. Still C. alpha value of the third part of the questionnaire where innovativeness was inquired was 0.895. These values indicate reliability of our scale. In the evaluation of hypotheses Pearson chi-square testi, Kendall Tau b ve Spearman test were used wherever needed, and the type of tests used was specified.

Hypotheses of the Reseach

Hypothesis 1: Any correlation does not exist between the age of the hospital, and innovativeness.

Hypothesis 2: Any correlation does not exist between innovativeness, and formality in horizontal communication between hospital professionals of the same level.

Hypothesis 3: A significant correlation does not exist between the communication between hospital employers, their superiors, and innovativeness.

Hypothesis 4: A correlation does not exist between horizontal communication prevalent among hospital employees at the same level, and innovativenes.

Hypothesis 5: A difference does not exist between general level of communication in the hospital, and innovativeness.

Hypothesis 6: A correlation does not exist between the number of departments in the hospital, and innovativeness.

Hypothesis 7: A correlation does not exist between the number of vertical levels in the structure of hospital organization, and innovativeness.

Limitation of the study

The most important limitation of the study was restricted duration of the study period. Besides return of the completed survey forms forwarded through e-mail created problems. On the other hand, demands of explanation by the participants related to questionnaire items suggest that the subject was not known completely. This study was restricted with Metropolitan City of Istanbul, and public sector. In studies planned to be performed on this subject, various factors, and their effects on innovativeness of the hospital structure can be analyzed, and their application in a larger group in diverse healthcare facilities can be recommended.

Results

Table 1. Number of responses grouped according to the age of the hospitals.

Age of the organization	n	Valid responses (%)
0-10 yıl	63	56,8
11-20 yıl	5	4,5
21-30 yıl	27	24,3
≥ 31	16	14,4
Total	110	100

Employees participating in our survey were working in hospitals founded ≤10 years or 21-30 years ago (56.8%, and 24.3%, of the participants, respectively).

Table 2. Number of departments in hospitals based on the responses to the questionnaire

Number of departments	n	Valid responses (%)
0-5	6	5,6
6-10	21	19,6
11-15	14	13,1
≥ 16	66	61,7
Total	107	100

The hospitals possess many departments because of miscellaneous health care services they provide. In our study 61.7% of the participants were working in hospitals with ≥16 departments which is an indicator of the great capacity of the hospitals participated in our survey.

Table 3. Number of employees based on the responses to the questionnaires.

Number of employments	n	Valid responses (%)
0-200	24	21,6
201-400	5	4,5
401-600	7	6,3
≥ 601	75	67,6
Total	111	100

Most (67.6%) of our study participants were working in hospitals which employed ≥600 workers. This finding indicates labour-intensive characteristic of the hospitals.

Table 4: Number of vertical levels based on the responses to the questionnaires.

Number of departments	n	Valid responses (%)
0-2	1	9
3-5	66	60,6
6-8	33	30,3
≥ 9	9	8,3
Total	109	100

Hospitals have various numbers of vertical levels, most (60.6%) of the employees are working in hospitals with 3-5 vertical levels followed by those working (30.3%) in hospitals with 6-8 vertical levels.

Table 5. Number of hospitals with an organizational scheme based on the responses to the questionnaires.

Number of hospitals with an organizational scheme	n	Valid responses (%)
Presence	100	89,3
Abscence	12	10,7
Total	112	100

As is seen great majority (89.3%) of our hospitals have an organizational scheme.

Table 6. Number of hospitals in which job descriptions were made according to the responses to the questionnaires.

Number of hospitals in which job descriptions were made	n	Valid responses (%)
Yes	99	90
No	11	10
Total	110	100

Ninety percent of the study participants stated that job descriptions were made in their hospitals. As a result of quality management procedures applied, our hospitals have realized organizational schemes, and job descriptions.

Evaluation of the hypotheses

Hypothesis 1 (H1): Any correlation does not exist between the age of the hospital, and innovativeness.

A statistically significantly negative correlation was observed between the age of the hospital, and evaluation scores of innovativeness (r= -0.276** p= 0.004). Younger hospitals have displayed higher levels of innovativeness. Therefore H1 is rejected. This phenomenon also demonstrated that these hospitals have also overcome their institutionalization problems.

Hypothesis 2 (H2): Any correlation does not exist between innovativeness, and formality in horizontal communication between hospital professionals of the same level.

Since p value for chi-square test (0. 249) is higher than >0.05, the test result is not reliable. Therefore Kendall's tau-b test is performed. Since correlation value is 0.062, a linear correlation exists between formality, and innovativeness in attitudes of managers against their employees. Therefore H2 is rejected. This result has been interpreted as formal structure of the hospitals has a favourable impact on innovative behaviour of the individuals who do not demonstrate formal characteristics (25).

Hypothesis 3 (H3): A significant correlation does not exist between the communication between hospital employers, their superiors, and innovativeness.

A significant, and a linear correlation exists between communication between hospital workers, and their superiors, and innovativeness (r= 0.220* p= 0.022). Therefore H3 is rejected. This condition has been interpreted in that as communication between workers, and their superiors strengthens, newly emerging opinions are shared which enable working as a team in synergy with resultant reinforcement of innovativeness (25).

Hypothesis 4 (H4): A correlation does not exist between horizontal communication prevalent among hospital employees at the same level, and innovativenes. Since p value for chi-square test (0. 099) is higher than

>0.05, the test result is not reliable. Therefore Kendall's tau-b test is performed. Since correlation value is 0.145, a linear correlation exists between horizontal communication between workers of the same level , and innovativeness. Therefore H4 is rejected. This phenomenon has been interpreted as new ideas about occupations are more easily shared among workers at the same level which also facilitates implementation of required arrangements (synergy).

Hypothesis 5 (H5): A difference does not exist between the general level of communication in the hospital, and innovativeness.

A significant, and a linear correlation exists between overall inhospital communication, and innovativeness (r=0.305** p=0.001) Therefore H5 is rejected. Maintenance of effective communication (gathering of committees, council meetings, in-service training) throughout the hospital, and reinforcement, and interpretation of diverse opinions substantiated innovativeness which was found to be in compliance with the literature findings (29).

Hypothesis 6 (H6): A correlation does not exist between the number of departments in a hospital, and innovativeness.

Since p value of the chi-square test (0.134) is higher than 0.05, the test result is not reliable. Therefore Kendall's tau-b test is performed. Since correlation value is -0.119, an inverse correlation exists between the number of departments in a hospital, and innovativeness. Therefore H6 is rejected. Increase in the number of departments in our hospitals means that healthcare services are provided in different branches. This result which does not comply with the fact that specialization, and functional variations have a positive effect on innovation as mentioned in the literature (29). Can be explained by heavy workload of the hospitals, and weaker communication between branches. This obstacle can be predictably overcome with efforts which increase exchange of opinions between different departments (patient consultation, inhospital training programs).

Hypothesis 7 (H7): A correlation does not exist between the number of vertical levels in the structure of hospital organization, and innovativeness.

Since p value of the chi-square test (0.234) is higher than 0.05, the test result is not reliable. Therefore Kendall's tau-b test is performed. Since correlation value is 0.117 a linear correlation exists between the number of vertical levels in organizational structure of the hospital, and innovativeness. As the number of levels increase, relationships, and communications between levels increase. Therefore H7 is rejected. As mentioned in literature studies, the fact that vertical differentiation has a negative effect on innovation does not comply with this outcome (29); which suggests that the presence of a more participative management of our hospitals, and effective communication channels facilitate realization of innovative activities.

Conclusıon

According to the results of the survey study performed on public hospitals of Metropolitan city of Istanbul, it has been concluded that:

• Recently established hospitals participated in our survey were found to be more innovative. This means that these hospitals have overcome institutionalization problems in a short time.

• Formal structure of the hospitals effected favourably innovative behaviour of individuals without formal characteristics.

• Increased communication between employers, and their superiors allows emergence, and allocation of new ideas among individuals, and enables synergistic working of individuals as a team which consequently promote innovativeness (25).

• Reinforcement of communication among workers of the same level, facilitates implementation, and allocation of new opiniona, and required adjustments (synergy).

• Establishment of effectiveness of communication in the hospital as a whole, and supporting different opinions, and their interpretations urged innovative activities.

• As the number of departments in our hospitals increased, communication, and relationships among departments weakened with resultant adverse effects on innovative procedures.

• Although our hospitals have higher number of vertical levels, and display bureaucratic characteristics, because of more participative management,and presence of effective communication channels, realization of innovative applications was facilitated.

Dıscussıon And Recommendatıons

In our country, within the last 10 years, many innovative regulatory applications have been implemented in the healthcare field. These novelties or technologic innovations include applications which change delivery of health care services (e-pulse, telemedicine applications, mobile health care services, home care services) or regulatory/legal innovations (implementations of family medicine, Association of Public Hospitals, national drug policies).

Especially Association of Public Hospitals has a special importance. Association of Public Hospitals allocated hospitals into various regions, and within the frame of patients', and workers' rights, and safety, it aims to manage hospitals appropriately, effectively, and efficiently in accordance with performence targets of the hospitals without causing waste of resources, and unutilized capacity.

Hospitals are labour-intensive institutions which use advanced technology, and qualified labour force to provide multidisciplinary health service. Hospitals which are the greatest healthcare providers in our country. In the operating regulations for inpatient health care facilities hospitals are define as "Institutes where patients, and injured people, those suspecting of being sick, and individuals who want medical check-up are observed, examined, diagnosed, treated, and rehabilitated either on an ambulatory or in-patient basis, and also babies are delivered (28). In addition to healthcare services, the hospitals fulfill several functions as training, research, and development. As is seen in other sectors, our hospitals should increase their performances, decrease their expenditures, and enhance their productivities in order to continue their existance for a long time, and achieve sustainable success rates in the environment of merciless competition.

When sources of increased healthcare expenditures cited in the literature are reviewed, 95 % of this expenditures belong to healthcare services, and average cost for each hospital admission is the most important factor effecting healthcare services. Highest average increase in costs for each hospital admission have been observed in secondary care (8%) followed by tertiary care public, and private hospitals (7%) (30). In our country, 60% of the hospital beds are in hospitals affiliated with Minsitry of Health, and in the year 2013, 73% of hospital admissions were made to hospitals affiliated with Ministyry of Health (31). Nearly half (49%) of healthcare expenditures are related to hospitals. In our country health care expenses per capita amount to 1.232 Turkish Liras and per capita admission rate to the hospitals affiliated with Ministry of Health is 3.6 percent (31). According to the literature as an accepted viewpoint, innovative applications play an important role in increasing productivity, and economic efficiency, and decreasing costs, and enhancing innovative applications in our hospitals which presumably exerts customer-friendly effects on healthcare expenditures.

For example Baxter which is one of the leadering business enterprises in the sector of medical products, obtained 37% of its endorsemnt in the year 2002 from its products developed within the previous 5 years. In enterprises as 3M in recent years this rate amounted to 45 percent. (32). According to Von Hippel, in the USA 22% of the surgeons are developing of differentiating their instruments (33).

It is possible to mention many factors which effect the success rates of innovations performed within the frame of organizational structure of enterprises. These factors include organizational structure, environmental factors, structure of the organizational culture, innovative strategies, and leadership. In addition to these factors which effect innovativeness, comprehension of innovative potential by business enterprises,

construction of information, and data systems which establish the contact with agents related to innovative activities have crucial importance for getting maximum benefit from sources of innovation, and successful results from innovative endeavors (34). Gathering information from internal and external sources via information channels of high fluidity enables effective allocation of this information within the organization. An investigation performed in Masachusettes Institute of Technology has indicated that 95% of innovations are realized by the information/ knowledge shared with the customers (35). However literature reviews have shown that all firms are focused at selling their goods in collaboration with customers. However the target of gaining customers has not been converted to customer loyalty, the model of collaboration changes among sectors, and adaptation of the firms to current economy play a role in the selection of effective model of collaboration (36). Therefore it can be said that activities aiming at gaining patients' satisfaction support innovative interventions.

Another factor which has an impact on innovation is organizational structure which is classified as mechanistic, and organic organizations (37). As deduced from literature studies, because organic organizations have a more flexible structure than mechanistic organizations, and individual talents are more predominant, these organizations appear to be more innovative (32), owever diverse evaluations are available about the organizational structure which is more effective on innovations. For example it has been stated that innovative studies demonstrate different phases, and organizational structures which are effective on the start-up phase, and implementation phase should have different characteristics. It has been stated that at the start of the innovative process, production, and discussion of innovative ideas, and converting them to new solutions require more flexible organizational structure with predominant creativity, while during implementation phase more centralist organizational structure with formal relationships where description of tasks are more clearly defined will be more appropriate so as to weaken the resistance against innovative interventions. (32). Hospitals are mechanistic organizational structure because of their high level of specialization, miscellaneous departments, training and research function, and characteristic health care services they offer. Within this organizational structure, awareness of health professionals working in hospitals about innovative applications should be increased, and their participation in decision-making processes (committee, and council gatherings, opinion -comment boxes) may facilitate implementation of innovative projects. Committees, council meetings which are organized because of quality management activities in hospitals enable horizontal-vertical communication fluidity, and can facilitate implementation of innovative applications. Still during implementation of quality circles (cross functional structure) proper construction of teams, and their sound management play an important role in the success rate of the innovative process.

Kanter stated that organizations with an integrated structure which appreciate, and respect differences, believe in skills, and abilities of individuals, attach importance to collaboration, and teamwork have more sophisticated innovative skills when compared with other business enterprises (39). Literature data demonstrate that leaders with vision, and entrepreneurial spirit with higher technical as well as management skills who take care of the psychologies,and motivations, and also highly esteem participation and team spirit rather than command and control, and create cultural, and structural projects which substantiate innovation are more successful regarding innovative performance (40).

One of the other important factors which effect innovative structure of the organizations, is environmental factors. These factors include technological, socio-cultural economical factors, market, and legal environment. In in-hospital services, regulations stemming from sociocultural, economic, and legal environment lead a more or less steady course, while changes originating from technologic environment can be said to be under the pressure changes of higher level. Hospitals provide services by using products of sophisticated technology. Day by day improvements in technology force hospitals to give up preexisting products, and services, and will direct them to produce new products, and services, in other words they urge them to be more innovative, and flexible. As is understood from literature reviews, firms with a wide product range have a more innovative structure which effect innovative studies positively (27). Therefore

miscellaneous services offered in different departments of the hospitals are important with respect to innovative applications.

Doubtlessly, innovative organizations have a more flexible structure, and culture in developing new products, and types of services, and adopting new methods, and procedures when compared with other organzations with outmoded infrastructure. Within this frame the the characteristic features of innovative organizations can be listed as follows: (41).

• Innovative leadership, and vision,

• An innovative organizational structure,

• Innovative, and creative employees,

• Training, and development,

• Higher rates of participation by employees in innovative processes,

• Effective team work,

• Creative climate,

• Focusing on outer environment,

• Widespread communication,

• An inquiring organizational structure.

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