

**A FUTURISTIC STUDY ABOUT THE FUTURE OF HEALTH SECTOR***Ramazan ERDEM¹Dilruba UĞURLUOĞLU²**ABSTRACT**

Numerous innovations have occurred in the health sector from past to present. With the technological benefits of globalization and the era we are in, a great progress has been made in many subjects such as new treatment methods, robotic surgery, artificial organ production, genome research and so on. This development and change in the sector continues with an increasing momentum and there is a curiosity about what may happen in the years to come. In this context, it is aimed to examine the predictions about the future of health sector with a futurist approach in this study. The participants of the study consisted of 36 students studying at the 4th grade of the Department of Health Management at Süleyman Demirel University where they are taking “New Directions in Health Management” course. In the research, the students were given a form to explain 10 different titles about what kind of changes would be different from the present in the health sector in the years of 2050. Content analysis, which is one of the qualitative data analysis methods, was used in the analysis of the data formed as a result of deciphering the answer given. According to the answers received from the students, it is understood that technology is the basis of the changes and transformations that will occur in the health sector in the following years. In the answers given by the students, the predictions that the need for manpower will decrease in the health sector, the supply of remote health services and robotic surgery acting with artificial intelligence will widespread step forward.

Keywords: futurism, health sector, health management, technology, content analysis

ARTICLE INFO

* This paper is an extended version of the abstract presented at the 4th International Health Sciences and Management Conference between 20-22 June 2019.

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Received: 11.07.2019

Accepted: 11.09.2019

Cite This Paper: Erdem, R., Uğurluoğlu, D. (2019). A Futuristic Study About the Future of Health Sector. Journal of International Health Sciences and Management, 5(9): 54-61.

1. INTRODUCTION

In our age, health institutions are obliged to make innovations with the internal and external effects of many factors. Increasing competition with globalization is an external factor that provides the condition of innovation in health institutions besides the innovations of organizational culture are among the internal factors. The factors such as organizational culture, technological developments, increasing competition environment, global marketing conditions and so on are among the components which provide the environment for innovator ideas (Thakur et al., 2012: 564). Health sector is a sector where labor is heavily involved, health expenditures are high and is in development and change day by day. With the increasing costs and the number of patients and inadequate health personnel and health institutions, many progresses occur in the health sector with the purposes of providing more effective control of treatment processes and so on (Kaçmaz, 2015: 116-123). On issues such as eliminating extreme poverty and hunger, reducing child mortality and improving maternal health, fighting HIV/AIDS/malaria-like diseases, ensuring environmental sustainability, drug supply, access to health which are also mentioned in the WHO report in 2003, developing international partnerships in countries is among the millennium targets in the field of health (WHO, 2003: 28). In the line with these objectives mentioned in the WHO report, studies have been carried out for global health programs where Access to health has become more widespread, and beyond these, global competitive environments have been created.

At the same time, with the rapid dissemination of information that is increasing with globalization, it becomes more difficult and important to provide competitive advantage and to meet the needs of patients and staff (Boutros, 2007: 37). In this context, organizations in the health sector are making efforts to sign innovations that may be pioneers in the field.

Innovation in health services is to use proven applications to provide better outcomes to patients and also to improve organizational performance. Together with the innovations in health services, healthcare are enabled to work faster, more efficiently, thus focusing more on the patient and creating effective outputs. Innovations in the health sector occur with effective use of technology (Thakur et al., 2012: 563). Since stethoscope is considered the most advanced health technology in early 19th century, numerous technological developments have taken place (Porsche Consulting, 11). With the effects of factors such as developing technology, global marketing conditions and so on, developing new drugs and therapies and producing new medical devices will continue in the health sector (Thimbleby, 2013: 160). Innovations like mobile health, portable technologies in the health sector, remote access to services, and development of health behaviors through mobile applications take place in the sector (Kaçmaz, 2015). The innovations (digital hospitals, mobile health, telemedicine and robotic applications, big data) that emerge as a result of information and communication technologies appearing in the health sector show themselves under the concept of e-health. As a result of the active use of technology in the health sector, telemedicine applications become widespread, which means that the provision of health services is possible remotely and patient follow-up can be performed remotely, and robotic applications can be effectively used in health service delivery to reduce the burden of health personnel. In addition, as a reflection of information technologies in the health sector, patient records are kept in electronic environment and the information and data sets produced here constitute big data. These data sets can be easily transferred with mobile health devices (Kılıç, 2016: 34-40). It is possible to talk about digital hospitals as a result of using these innovations in the health sector in the hospital and integrating all information

systems within the institution with technological infrastructure. Together with digital hospitals, a paperless hospital model can be made and all operations will be carried out through automation systems to manage health services. In digital hospitals, it will be possible for individuals to access patient data securely from anywhere, and personnel will be able to save time, increase efficiency and provide better quality services (Ak, 2010: 2; Avaner ve Avaner, 2018: 5).

This development and change in the health sector is going on with increasing momentum and what is going to happen in the coming years is a matter of curiosity. In this context, the ideas about the future design of the health sector will be examined in a work in a futuristic approach. Futurism is an innovative art movement of opposing traditional methods and accepted norms (Altay, 2011: 19; Yenidoğan, 2013: 2). Futurism is a concept that emerged as the emergence of the art movement which has the meaning of ‘futura’ as a result of the Italians’ entering the age of technology and searching for progressive art (Kaplanoğlu, 2008: 177). Futurist studies are also carried out to foresee the future and predict. As Aksungur and Koca (2018: 194) stated in their study, the origin of the word comes from the word ‘future’ and the word ‘futurism’ means futurity, future design. In this context, in this study, it is provided to tackle the future design of the health sector from the perspective of health management students with the futuristic approach. Futurist approaches are important for the health sector as a whole and the institutions within the sector to provide clues to develop policies and strategies against the changes that will occur in the external environment. With the forecasts, the actors will have to prepare themselves for the future and develop their weaknesses that are threatened by changes.

2. MATERIALS AND METHODS

The aim of this study is to predict what kind of developments can be experienced in the 2050s in the health sector which has been changing and developing from past to present within the framework of the opinions of the students who are receiving undergraduate education in health management with a futuristic approach.

The participants of the study consisted of 36 students studying at the 4th grade of the Department of Health Management at Süleyman Demirel University where they are taking “New Directions in Health Management” course.

In the research, as a data collection tool, the students were given a paper which includes a statement “*In the 2050s identify the 10 different headlines of what kind of changes will occur in the health sector different from now and explain them with justification.*” Content analysis, which is one of the qualitative data analysis methods, was used in the analysis of the data formed as a result of deciphering the answer given.

Lewis-Back (1990: 5) defined content analysis as the process of classifying texts in itself into more relevant, analyzable data groups. Kızıltepe (2017: 253-254), on the other hand, stated content analysis as a method used to determine the existence of sentences, words, concepts, etc. in the texts and to put them into numbers. The aim of content analysis is to systematically examine the contents of a particular form (Mayring, 2004: 266). It is understood that the findings obtained by grouping the data contained in the text into certain themes and concepts through content analysis will be presented to the reader in an understandable way (Çiçek et al., 2010: 197). Within the scope of the study, the data consisting of the answers obtained within

the framework of the questions directed to the students about the future of health sector were analyzed by grouping in certain themes and the results were presented to the reader.

3. FINDINGS

Table 1 shows the results obtained by analyzing the estimates of the research group about the changes in the health sector in the 2050s.

Table 1. Estimates of Changes in the Health Sector in the 2050s

Top themes		Sub-themes	Sample quotations		
1	Technology (137)	Reducing the number of employees (35)	robots will replace manpower physicians will not be needed number of health personnel will decrease		
		Distance healthcare delivery (25)	remote diagnosis and treatment facilities it will be able to examine in virtual environment online physician service will be possible		
			Artificial intelligence/Robotic surgery (22)	robotic surgery will spread surgery will make artificial intelligence	
				Medical advances (19)	Genome researches (12) it will develop genome and genetics it will be intervened in the zygote
		Remedy of death (5) death and diseases will cure with the advancement of technology			
		Hibernation (1) people can be frozen until diseases are cured			
		Clinical diagnostic systems (1) develop clinical diagnostic systems			
		Technological developments (10)	there will be technological advances technology to be used very intensely		
		Artificial organs (9)	3D organ production will be made artificial organs in the body will multiply		
		Digitalization (7)	archive system will be digitalized digital hospitals will increase		
		Microchips (6)	chips will be inserted into the human body		
		Telemedicine (3)	telemedicine will become widespread		
		2	Diseases (34)	New diseases will emerge (14)	diseases will change new diseases will emerge
Increase in Diseases (11)	Mental illnesses (9) the importance given to mental illnesses will increase mental health centers will become widespread				
	Cancer (1) cancer cases and treatment centers will increase				
	Obesity (1) increasing obesity efforts will increase				
Diseases will be cured (9)	it will find cures for incurable ailments it will cure cancer				
3	Pharmaceuticals (23)	Pharmaceuticals (23)	developments in the pharmaceutical sector drug addiction will increase pharmacies will take the medicine home		
			4	Healthcare services (17)	gaining importance of preventive health services aesthetic surgery applications will increase there will be changes in diagnosis and treatment
					5

			patient profile will change
6	Sectoral (14)	Sectoral (14)	private sector's share in health will increase
			hospitals will be like trading
			health services will be privatized
7	Hospitals (14)	Hospitals (14)	hospitals will like hotels and recreational facilities
			new hospitals will emerge
			hospital buildings will be destroyed
8	Access and treatment time (13)	Waiting times (9)	waiting times will be reduced
			loss of time will decrease
			procedures will be reduced
		Ambulance services (4)	ambulances will arrive immediately
			ambulance system will develop
9	Management (13)	Management (13)	management understanding will change
			the number of managers will decrease
			the importance of health management will increase
10	Problems (11)	Problems (11)	the importance of health management will increase
			health violence will decrease
			ethical dimension will gain importance
11	Life expectancy (10)	Aging (3)	elderly health will be important
		Elder tourism (3)	geriatric hospitals will increase
		Long life (4)	elderly tourism will advance
12	Health tourism (7)	Health tourism (7)	human life will prolong
			health tourism will develop
13	Society (7)	Society (7)	social inequality will increase
			organ donation will become widespread
14	Specialization (6)	Specialization (6)	new areas of expertise in medicine will emerge
			there will be extreme specializations
15	Financial (5)	Financial (5)	health expenditures will increase
			financial problems will arise
16	Personnel (5)	Personnel (5)	employee quality will increase
			the importance of engineers and technicians will increase
			new job descriptions in health will emerge
17	Euthanasia (5)	Euthanasia (5)	euthanasia will become widespread
18	Physicians (5)	Physicians (5)	medical profession will lose importance
19	Natural methods (4)	Natural methods (4)	the trend towards natural treatment methods will increase
			orientation to alternative medicine will increase

Within the scope of the study, the answers of 36 students in 10 titles and consisting of 360 items in total were subjected to coding by content analysis and 19 top themes were obtained from the determined codes. The top themes obtained from the answers examined and the examples cited together with the themes under these themes are shown in Table 1.

When the findings were examined in detail; the top theme of “technology” (137) having the highest frequency distribution has 9 sub-themes; “reducing the number of employees” (35), “distance health service delivery” (25), “artificial intelligence/robotic surgery” (22), “medical advances” (19), “technological developments” (10), “artificial organs” (9), “digitalization” (7), “microchips” (6), “telemedicine” (3). The sub-theme of medical advances is subdivided into “genome researches” (12), “remedy for death” (5), “hibernation” (1) and “clinical diagnostic systems” (1). In the answers received from students regarding the future of health sector; with

the development and diffusion of technology in health institutions, manpower will be replaced by robots, health employees will not be needed, robotic surgery applications will be developed, microchips can be placed in human body in this way or treatment can be provided without any need for health services and treatment and digitalization will be seen in all areas of health institutions. In addition, it was stated that 3-dimensional organ production will become widespread, artificial organs that will take place in human body will increase, genome and genetic developments will be experienced, diseases can be treated in the womb and sex-like zygote interventions can be performed.

Within the theme of diseases (34), which is another top theme, it is seen that there are sub-themes such as “new diseases will emerge” (14), “increase in diseases” (11) and “diseases will be cured” (9). In the responses, it was seen that there will be remedies for diseases that are not yet treated, such as cancer, diseases will change, some diseases will disappear and new diseases will be replaced, and as a result of technological developments, people will get lonely and increase in mentally based diseases.

Other top themes derived from responses to the future of the health sector include “pharmaceuticals” (23), “health services” (17), “patient profile” (15), “sectoral” (14), “hospitals” (14), “Access and treatment time” (13), “management” (13), “problems” (11), “life expectancy” (10), “health tourism” (7), “society” (7), “specialization” (6), “financial”(5), “personnel” (5), “euthanasia” (5), “physicians” (5), “natural methods” (4). In addition, “life expectancy” from these top themes; “aging” (3), “elderly tourism” (3) and “long life” (4). Under the top theme of the pharmaceuticals, there are expressions that changes and transformations will occur in the pharmaceutical sector, addiction to the drug will increase and remote access to the drug will be possible. Considering other top themes; it is stated that there will be changes in the patient profile and the patients will be more conscious, as well as the changes in the demand for health services will increase the demand for aesthetic surgery applications and more importance will be given to preventive health services. It is believed that the share of the private sector in the health sector will increase further, that the hospitals will become commercial business logic and that the building structures will be in the comfort of a hotel-rest facility.

When future trends are considered, speed will become an indispensable part of life as a result of developing technology and it is thought that waiting times and procedural procedures will decrease in hospitals. It is foreseen that, as a reflection of technological developments and developing treatment methods, prolongation of life span will occur and the importance given to elderly care centers will increase. Technological infrastructure to be located in health institutions and the importance of engineers and engineers in the system will increase and the value attributed to physicians will decrease in the future. As a result of these additional implementations, it is expected that health expenditures will increase. Since the health institutions that need to keep up with the change will have to develop in managerial sense, the importance attributed to the management of health institutions will increase and the educated individuals will become preferable to the administrative levels are among the predictions of the students for the future.

4. CONCLUSION

Vogenberg and Snatilli's (2018) study of “Healthcare Trends for 2018” in the American healthcare market included new trends in the field of health, including increasing costs and increasing the strength of health insurance; to provide economic benefits at the point of cost with the innovations made in the field of health; In order to ensure the sustainability of rural health services with the increase of population, telemedicine, tele-health, wearable technology and so on the need to combine it with developments; improving accessibility of health care

through technological advances; private sector and public sector which will support innovations in health market will be seen to take roles in changing shares.

In the interview titled “*What will healthcare look like in 2030?*” similar to the basic question of our study; diagnostic tools will be developed and physicians will be used to develop the best patient-specific treatments, new methods such as creating personalized lifestyles and regular check-ups to prevent diseases before they occur, increase in non-communicable diseases and elderly population, although it does not increase life quality and duration much, it is stated that there are expectations that processes can increase costs (Goy, 2017).

According to the answers received from the students; “technology” is the basis of the changes and transformations that will occur in the health sector in the following years. When the frequency distribution of the answers received from the students is examined, it is seen that the technology has the highest distribution by far, and the technology has an indirect effect on the contents of the other top themes. According to the statements of the students; technology is the backbone of future expectations in the health sector and technology is expected to shape the future of the sector.

As a result of the study it is understood that, in the year 2050, there will be a rapid increase in the technological developments in the health sector compared to today, as a result of which areas such as robotic surgery, genome projects, wearable technology will develop and thus the diseases which cannot be cured will be eliminated, as well as technological developments by increasing remote access opportunities to health services, such as waiting staff problems that will eliminate the problems. In addition, it is stated that as a result of developing technology, prolonged life span and expected increases in quality of life, healthcare expenditures will increase more than today and more private sector will have a say in health services and the need for health managers who have received training in the field to manage this change and transformation and the importance will increase.

RESOURCES

- Aksungur, S. ve Koca, T., (2018). Fütürizm akımı bağlamında makine mühendisliğinin geleceği. *Mesleki Bilimler Dergisi*, 7(2): 187-196.
- Altay, Ö., (2011). Fütürizm Sanat Akımının Seramik Sanatı Üzerindeki Etkileri. Yüksek Lisans Tezi. Marmara Üniversitesi, Güzel Sanatlar Enstitüsü, İstanbul.
- Ak, B., (2010). Tıp Bilişiminde Mobilite Uygulamaları. Akademik Bilişim'10, XII. Akademik Bilişim Konferansı Bildirileri, 1-7.
- Avaner, T. ve Avaner, E. B., (2018). Yazılım Teknolojileri ve Sağlık Yönetimi: HIMSS ya da Dijital Hastane Hizmetleri Üzerine Bir Değerlendirme. *Yasama Dergisi*, 37(6): 5-28.
- Boutros, A., (2007). How to make innovation happen--Part 1. *Physician Executive*, 33(2): 36-41.
- Çiçek, H., Demirel, M. ve Onat, O. K., (2010). İşletmelerin web sitelerinin değerlendirilmesine ilişkin bir araştırma: Burdur ili örneği. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 15(3): 187-206.
- Goy, A., (2017). "What will healthcare look like in 2030?", <https://www.weforum.org/agenda/2017/04/what-will-healthcare-look-like-in-2030/>, (accessed April 10, 2019).
- Kaçmaz, Ö., (2015). (Kitap Özeti) Mobil sağlık yeniliği: mobil öncüler için en iyi uygulamalar. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi*, 1(3): 115-126.
- Kılıç, T., (2016). e-Sağlık ve Tele-tıp. 1. Baskı, AZ Yayınları: İstanbul.
- Kızıltepe, Z., (2017). Nitel araştırma-yöntem, teknik, analiz ve yaklaşımları. (Edt. Fatma Nevra Seggie ve Yasemin Bayyurt), içinde *İçerik Analizi*, ss. 253-266.
- Lewis-Beck, M. S., (1990). Basic content analysis (No. 49). in series editor's introduction, Weber, R. P., pp.5-6. Sage Publition.
- Mayring, P., (2004). A companion to qualitative research. (Edt. Flick, U., von Kardoff, E., ve Steinke, I.), in *Qualitative content analysis. A companion to qualitative research*, pp. 266-275.Sage.
- Porsche Consulting, (t.y.), Position paper – healthcare of the future. The digital revolution of the healthcare sector, https://www.porsche-consulting.com/fileadmin/docs/Startseite/News/tt1162/Porsche_Consulting_Studie_Health_care_of_the_Future_EN.pdf, (Accessed Date: April 10, 2019).
- Thakur, R., Hsu, S. H. ve Fontenot, G., (2012). Innovation in healthcare: Issues and future trends. *Journal of Business Research*, 65(4): 562-569.
- Thimbleby, H., (2013). Technology and the future of healthcare. *Journal of public health research*, 2(3): 160-167.
- Vogenberg, F. R. ve Santilli, J., (2018). Healthcare trends for 2018. *American health & drug benefits*, 11(1): 48.
- World Health Organization (WHO), (2003). *The world health report 2003: shaping the future*.
- Yenidoğan, E. A., (2013). Kadın Giyim Tasarımının Fütürizm Sanat Akımı ile Olan İlişkisinin İncelenmesi. Yüksek Lisans Tezi. Marmara Üniversitesi, Güzel Sanatlar Enstitüsü. İstanbul.