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JOURNAL OF INTERNATIONAL HEALTH SCIENCES AND MANAGEMENT

THE MINISTERS OF HEALTH IN TURKEY FROM PAST TO PRESENT*

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ABSTRACT

It can be said that the Minister of Health has a crucial role in shaping health policies, provision of healthcare services, and the management and administration of health institutions. The Minister of Health has a directing role as well as inspecting and standing in health service planning of the country with his administrative position. The Ministers of Health take part in the role sometimes as a physician, sometimes as a military man and sometimes as a political agent with regards to their administrative skills, in providing each and every of the citizen in the country with efficient and high-quality healthcare services. The purpose of this study was to reveal updated profiles of the Ministers of Health who served before and after the Republic of Turkey. In the study, an assessment was made based on the secondary data, and 3 Ministers of Health before the Republic and 49 Ministers of Health from the Republic to present were scrutinized. The first health minister of the era before the republic was Adnan Adıvar M.D. and the first health minister of the republic was Refik Saydam M.D..

1. Introduction

The development and organization of the Ministry of Health in Turkey go back to before the declaration of the Republic of Turkey. The Ottomans operated the hospitals that they took over from the Seljuk and attached the necessary importance to the health services and their administration. The head physician had various duties within and outside the palace in the

Ottoman Empire and dealt with the health of the Sultan and dynasty and at the same he was responsible for the management of the pharmacies and five hospitals in the palace and was in the equivalent position of today's the Minister of Health. The head physician conducted his activities under Head Lala and Babüssaade Aga as responsible from the Sultan and his relatives, and under the Grand Vizier directly as a physician responsible for the health of the country. The Sultan employed people with the suggestions of the Grand Vizier (Tengilimoğlu, et al. 2012: 53).

There are many different opinions regarding when the head physician was established in Ottoman Empire (Bayat, 2008: 57). It was abolished in 1849 and the Ministry of Medicine was established instead in 1850 to run the health affairs. In 1914, administration of health services were assigned to the General Directorship of Health Affairs under the Ministry of Internal Affairs by a code accepted in the same year (Tengilimoğlu, 2012: 49).In the 19th century, the Ottoman Empire was in a struggle to meet the needs of people in the health field. For this purpose, it announced the Regulations of General Medical Administration in 1871 and thus the establishment of the organizations was achieved including the Offices of "Health Supervisory" and "Country Physician" for the arrangement of health services of the civil society. The State, which had the right to send physicians to the required locations in the country, generated an establishment called "Country Physicians" and in addition, it generated the "Deputy Physician" position and paved the way for the country physicians to take an assistant. This arrangement was changed in 1912 by the announcement of the Regulations of the Provincial Medical Management. According to this, the "Country Physician" unit was abolished and a new unit was established in its place with the title "Government Physician" (Karabulut, 2007: 152).

The Ministry of Health and Social Assistance was established pursuant to the Code 3, dated May 2, 1920 accepted by the Grand National Assembly of Turkey which met for the first time after the World War One, and the first Minister assignment was given to Dr. Adnan Adıvar (Tengilimoğlu, 2012: 129).A new structure was established on May 11, 1920 with the central organization consisting of 15 people including the Minister Adnan Adıvar, who started his assignment in a room at Ankara Provincial Hall, and 1323 employees throughout the country (Yeginboy and Sayın, 2008: 3). During this period, there was no opportunity to determine the number of physicians and health workers in the

country and to register them regularly concerned with health; and an effort was put for healing the wounds of our veterans who were injured at battlefront and for their healing and for developing a combat with contagious diseases and developing a legislation (www.medimagazin.com.tr; Program on Health Transition in Turkey, 2008: 13).

The purpose of the Ministry of Health has been specified to determine the priorities in health services, improve health gains and distribute the resources according to the selected criteria (State Planning Organization, 2001: 3-11).

2. The Minister of Health as an Administrator

The Minister of Health is the person in the highest directorship of the Ministry institution responsible for running the Ministry services according to the legislation, general politics of the government, national security politics, progress plans, and annual programs. Furthermore, he ensures collaboration and coordination with other ministries on issues concerning the activity area of the Ministry (KHK/181, 2007). The Minister of Health is at the forefront with his administrator identity as he carries out these processes. It can be said that he carries out planning, implementation, supervision, and control activities at the high responsibility level.

3. Method

The purpose of this research was to reveal updated profiles of the Ministers of Health who served in Turkey from past to present. For this purpose, a systematic assessment of the information including age, gender, and place of birth of the Ministers of Health who served since the Republic Era till present based on the data obtained from the web sites such as www.saglik.gov.tr and http://tr.wikipedia.org.web. In the research, the assessment was shaped by secondary data and the information on 3 Ministers of Health who served in Turkey before the Republic and 49 Ministers of Health who served after the Republic.

4. Data Base

Table 1. Obtained General Information About Health Ministers Before The Republic

Name Surname	Place of Birth	Date of Birth and Date of Death	Gender	Occupation	Marital Status	Number of Children	Minister Term	Political Party	Term of Office (total)
1.Adnan Adıvar	Gelibolu	1881/1955	Male	Politician, historian, academician, physician	Married	No child	1	Independent	10 Month 7 Day
2.İbrahim Refik Saydam	İstanbul	1881/1942	Male	Physician, soldier	Married	No child	1	Independent	9 Month 10 Day
3.Rıza Nur	Sinop	1879/1942	Male	Physician	Married	-	1	Independent	1 Year 10 Month 3 Day

Source: www.saglik.gov.tr; http://tr.wikipedia.org.; Demirtola and Atilla (2015: 3-4).

Three persons undertook the Minister of Health duty during the period passed until the declaration of the Republic. There was no chance to keep regular registry about health during this era and it was focused generally on healing the war wounds and developing legislation (http://www.saglik.gov.tr). Dr. Rıza NUR served 1 year, 10 months and 3 days which was the longest period during the era before the Republic. The main profession of each of the three Ministers of Health was being a physician as shown in Table 1. There was no data found about the languages the Ministers spoke and their concurrent administrative duties.

Table 2. Obtained General Information About Health Ministers After The Republic

Name Surname	Place of Birth	Date of Birth and Date of Death	Gender	Occupation	Marital Status	Number of Children	Languages	Minister Term	Political Party	Term of Office (total)
1.İbrahim Refik Saydam	Gelibolu	1881/1955	Male	Physician, Soldier	Married	No child		7	CHP	13 Year 8 Month 12 Day
2. Mazhar Germen	Aydın	1884/1967	Male	Physician	Married	3		1	CHP	3 Month 11 Day
3. Ahmet Hulusi Alataş	Beyşehir Konya	1882/1964	Male	Physician	Married	2		6	CHP	7 Year 2 Month 23 Day
4.Mehmet Sadi Konuk	İstanbul	1894/1962	Male	Physician	Married	2		1	CHP	1 Year 6 Month 17 Day
5.Behçet Uz	Denizli	1893/1986	Male	Physician	Married	5		3	CHP/ DP	2 Year 16 Month 24 Day
6.Kemali Beyazıt	İstanbul	1903/1972	Male	Physician	Married	1		2	CHP	1 Year 11 Month 12 Day
7.Nihat Reşat Belger	İstanbul	1882/1961	Male	Physician				1	DP	3 Month 27 Day
8.Ekrem Hayri Üstündağ	Preveze	1886/1956	Male	Physician	Married	2		2	DP	3 Year 7 Month 27 Day
9.Nafiz Körez	Kula	1909/-	Male	Physician, Politician	Bachelor			1	DP	1 Year 11 Month 16 Day
10.Lütfi Kırdar	Kerkük	1887/1961	Male	Physician, Politician, Soldier	Married	2		1	DP	2 Year 6 Month 1 Day

11.Nusret Karasu	Erzurum	1902/1987	Male	Physician, Politician, Soldier, Academician	Married	5	French, German, English	1	Military	2 Month 28 Day
12.Nusret Fişek	Sivas	1914/1990	Male	Physician	Married	2	English, French		Military	10 Day
13.Salih Ragıp Üner	Nevşehir	1914/1994	Male	Physician	Married	3		2	Military	1 Year 2 Month 15 Day
14. Süleyman Suat Seren	Isparta	1910/1985	Male	Physician	Married	3		1	AP	7 Month 6 Day
15.Yusuf Azizoğlu	Silvan Diyarbakır	1917/1970	Male	Physician, Politician	Married			1	YTP	1 Year 4 Month
16. Fahrettin Kerim Gökay	Eskişehir	1900/1987	Male	Physician, Bürokrat, Politician	Married			1	YTP	1 Month 21 Day
17.Kemal Demir	Sürmene Trabzon	1921/2010	Male	Physician, Politician	Married	3		4	CHP	1 Year 1 Month 24 Day
18. Mehmet Faruk Sükan	Karaman	1921/2005	Male	Physician, Politician	Married	4	French	1	AP	8 Month 9 Day
19.Edip Somuncuoğlu	Erzurum	1904/1982	Male	Physician, Politician	Married	3		1	AP	1 Year 5 Month 4 Day
20.Vedat Ali Özkan	Devrek Zonguldak	1923/1977	Male	Physician, Politician	Married	4		2	AP	3 Year 11 Month 11 Day
21.Türkan Akyol	İstanbul	1928/1971	Female	Physician, Politician, Academician	Married	2		1	I Independent	8 Month 17 Day
22.Cevdet Aykan	Erbaa Tokat	1925/-	Male	Physician, Politician,	Married	3		1	CHP	5 Month 10 Day

				Academician						
23.Vefa Tanır	Ilgın Konya	1927/-	Male	Physician, Politician	Married	2		2	AP	11 Month 13 Day
24. Selahattin Cizrelioğlu	Diyarbakır	1924/-	Male	Avukat, Politician	Married	No child		1	CHP	9 Month 22 Day
25.Celal Ertuğ	Elazığ	1913/2001	Male	Physician, Politician, Academician	Married	2		1	CHP	1 Month
26.Cengiz Gökçek	Araban Gaziantep	1934/2013	Male	Avukat, Politician	Married	4		1	MHP	5 Month 14 Day
27.Mete Tan	Afyonkarahisar	1929/-	Male	Physician, Politician	Married	3	German, French	1	CHP	1 Year 10 Month 7 Day
28.Ali Münif İslamoğlu	Çine Aydın	1917/1998	Male	Physician, Politician	Married	2		1	AP	1 Year 9 Month 29 Day
29.Necmi Ayanoğlu	Türkiye		Male	Physician, Politician, Soldier				1	Military	1 Year 3 Month 1 Day
30.Kaya Kılıçturgay			Male	Physician, Politician	Married	1			Military	1 Year 11 Month 20 Day
31. Mehmet Aydın	Samsun	1928/1990	Male	Economist	Married	2		1	ANAP	2 Year 10 Month 4 Day
32. Mustafa Kalemli	Tavşanlı Kütahya	1943/-	Male	Physician, Politician,	Married	2	English		ANAP	1 Year 2 Month 4 Day
33.Bülent Akarcalı	İzmir	1943/-	Male	Economist	Married	2	French, English	1	ANAP	6 Month 5 Day
34.Cemil Çiçek	Yozgat	1946/-	Male	Attorney, Politician	Married	3	English French	1	ANAP	10 Day
35.Nihat Kitapçı	Erzurum	1928/2014	Male	Agricultural Engineer	Married	2		1	ANAP	8 Month 25 Day

36.Halil Şıvgın	Ankara	1950/-	Male	Attorney	Married	3		2	ANAP	2 Year 2 Month 22 Day
37.Yaşar Eryılmaz	Ağrı	1944/-	Male	Physician, Politician	Married	2	English	1	ANAP	4 Month 27 Day
38. Yıldırım Aktuna	İstanbul	1930/2007	Male	Physician, Politician	Married	1		3	DYP	2 Year 8 Month 24 Day
39. Rifat Serdaroğlu	Bergama İzmir	1948/-	Male	Phamacist	Married	2		1	DYP	5 Month 3 Day
40.Kazım Dinç	Kandıra		Male	Phamacist	Married	1		1	DYP	7 Month 17 Day
41.Doğan Baran	Niğde	1929/2004	Male	Physician, Politician	Married	2		3	DYP	1 Year 6 Month 19 Day
42.Nafiz Kurt	Bafra Samsun	1930/2011	Male	Merchant	Married	3		1	DYP	13 Day
43.İsmail Karakuyu	Simav Kütahya	1950/-	Male		Married	2		1	DYP	1 Month 17 Day
44.Halil İbrahim Özsoy	Bolvadin Afyonkarahisar	1938/-	Male	Physician, Politician	Married	3		1	ANAP	1 Year 6 Month 11Day
45. Mustafa Güven Karahan	Çatalzeytin Kastamonu	1943/2013	Male	Physician, Politician	Married	2		1	DSP	4 Month 18 Day
46.Osman Durmuş	Çankırı	1947/-	Male	Physician, Politician, Academician	Married	3	English French	1	MHP	3 Year 5 Month 19 Day
47. Mehmet Müezzinoğlu	Gümülcine Yunanistan	1955/-	Male	Physician, Politician	Married	2	Greek, English, Arabic	4	AKP	3 Year 4 Month
48.Recep Akdağ	İspir Erzurum	1960/-	Male	Physician, Politician	Married	6	English	5	AKP	11 Year 4 Month
49. Ahmet Demircan	Samsun	1954/-	Male	Physician, Politician	Married	6	English, Arabic	1	AKP	7 Month +

Source: www.saglik.gov.tr; http://tr.wikipedia.org.; Demirtola and Atilla (2015: 3-12).

Based on the data collected other than the ones in Table 2; it can be said that 49 persons served as the Minister of Health, 40 of whom were Medical Doctors (9 Prof. Dr. and 3 Assoc. Prof.), 1 Pharmacist (Kazım Dinç) and 1 high school graduate (Nafiz KURT). 9 of the medical doctors who served as the Minister had the Professor title (N. Reşat Belger, Nusret Karasu, Ragıp Üner, Kerim Gökay, Türkan Akyol, Celal Ertuğ, Necmi Ayanoğlu, Kaya Kılıçturgay,and Recep Akdağ,), and 3 of them were Associate Professors (Mustafa Kalemli, İsmail Karakuyu and Osman Durmuş).The first person who was appointed as the Minister of Health on July 21, 1977 from a profession other than the physician profession was Attorney Cengiz Gökçek (Demirtola and Atilla, 2015: 10-11).

The Ministry of Health changed hands 53 times throughout 62 cabinets established in the Republic of Turkey. 3 Ministers of Health who served before the declaration of the Republic and Türkan Akyol, who was among the Health Ministers of the Republic of Turkey, continued their appointment as members of the Independent Party. Among 49 Ministers of Health who served after the declaration of the Republic; 11 served as members of the Republican Public Party, 5 as the Democratic Party, 5 as the Military Party, 6 as the Justice Party, 2 as the New Turkey Party, 2 as the National Movement Party, 8 as the Main Land Party, 6 as the Right Way Party, 1 as the Democratic Leftist Party, and 2 as the Justice and Development Party. Behçet Uz, who was appointed as the Minister of Health twice, continued his first service as a member of the Republican Party and his second service as a member of the Democratic Party.

The first and only woman Minister of Health among the Ministers of Health in the Republic of Turkey was Türkan Akyol as shown in Table 2. Following the first "Woman Minister" title, Akyol was selected as the Ankara University Dean and received the title of the first "Woman Dean" in 1980, and she joined the founders of the Social Democratic Party in 1983 as the deputy chair, and was appointed as the State Minister (responsible for women's affairs) in 1992 from outside (http://www.ankara.edu.tr).

The Ministers of Health spoke French, English and German generally. Mehmet Müezzinoğlu spoke Greek and Arabic in addition to English. The youngest person appointed as the Minister during the period before the Republic was Adnan Adıvar (39 years old), and the oldest person was Rıza Nur (42 years old). The youngest person who served as the Minister among the Ministers of Health after the Republic was Halil Şıvgın (39 years old), and the

oldest person who continued his assignment was Lütfi Kırdar (70 years old).

Among the married Ministers of Health, Recep Akdağ and Ahmet Demircan had the most number of children with 6 children. Behçet Uz and Nusre tKarasu follow Recep Akdağ and Ahmet Demircan with 5 children. Considering the birth places of the Ministers of Health, Istanbul is the most common city. The Ministers born in Erzurum are the majority.

It is seen that some Ministers of Health were appointed as different Ministers before or after the Minister of Health duty. Kemal Demir served as the Energy and Natural Resources Minister; Mehmet Faruk Sükan as the Minister of Internal Affairs; Türkan Akyol as the Minister of State; Bülent Akarcalı as the Minister of Tourism; Cemil Çiçek as the Minister of State Responsible from Family and the Minister of Justice; Nihat Kitapçı as the Minister of State; Vefa Tanır as the Minister of Public Works, Minister of Forestry and Minister of National Defense; and Mustafa Kalemli as the Minister of Labor and Social Security, the Minister of Internal Affairs and the Minister of Forestry. Vefa Tanır and Mutafa Kalemli are our Ministers who served the most various Minister duties (3 different Ministries) other than being the Minister of Health and Social Assistance. Ibrahim Refik Saydam, who was the first Minister of Health in the Republic, was appointed as the Minister of Internal Affairs and the Minister of National Education on Commission and the Minister of Finance in addition to being the Minister of Health and Social Assistance, and at the same time, he served as the Minister of the Republic of Turkey during 1939-1942.

Some of the persons who served as the Minister of Health were mentioned frequently. Saydam, who was appointed as the Minister in 1921 after Adnan Adıvar and served as the Minister of Health for approximately 16 years since the first years of the Republic, laid the foundations of today's health organization and services in Turkey. Refik Saydam started work by determining the health needs of the country and in addition to developing health organizations of the State he determined training of health personnel and opening of health organizations (Aydın, 2002: 188).During Refik Saydam era, Health Departments were founded in cities and the Departments of Government Doctors were founded in counties and the primary step and protective services were cared and prioritized, and the services were spread in the entire country. As an example of the foundation of hospitals by local administrations, "Numune Hospitals" directly under the Ministry were founded in large cities including Ankara, Istanbul,

Sivas, Erzurum, and Diyarbakır. The appointment and promotion of the health personnel was put under the command of the Ministry of Health, and the administration of the health personnel was centralized, and the education, appointment and promotion of the personnel was organized and disciplined under a certain system. The number of personnel was increased by founding dormitories for medical students and boarding schools for health personnel. By implementing a higher wage policy to the personnel working in the public and particularly rural areas and protective health services, they were encouraged to work in the departments of government physician and protective service units. The supervision of health services and personnel and the authority to appoint health personnel were gathered in the Ministry of Health and the services were centralized (Akdur, 2016). During Saydam Era (1923-1937), the constitutive laws on the health sector were passed. The Bacteriology and Chemical Laboratories Law no.: 992 (1927), Law no.: 1219 concerning the Mode of Execution of Medicine and Medical Sciences (1928), Pharmaceuticals and Medical Preparations Law No.: 1962 (1928), Public Healthcare Law no.: 1593 (1930), Ministry, Department and Servants of Public Health and Welfare Law no.: 3017 (1936), Law no.: 3017 concerning Radiology, Radium, Electrotherapy and Other Physiotherapy Institutions (1937) were legislated on this period, while protecting their places within today's governing laws, despite being subjected to certain amendments (Sülkü, 2011: 3).

"The First Ten-Year National Health Plan", which could be called the first written health plan in the Republic era, was approved by the Supreme Council of Health in 1946. This plan was explained by the Minister of Health Dr. Behçet Uz on December 12, 1946. The purpose of Behçet Uz's plan, proposing in general terms the provision of protective health services along with the therapeutic medicine by establishing a 10-15-bed health centers for each of 40 villages; was to ensure that everyone, poor or rich, town- or village-dweller, benefited the best from the national health services (Dirican, 2001: 466; Karatepe, 2006: 185). However, Dr. Behçet Uz had to leave the Ministry of Health before this plan, which was prepared by an intense study, became a law (http://www.saglik.gov.tr/).

Dr. Nusret Hasan Fişek was appointed as the Minister of Health for a short period in 1960. Steps were taken to the transition to a planned period after 1960, and the Socialization Code, prepared by Prof. Dr. Nusret Fişek who was serving as the Undersecretary of the Ministry of

Health in 1961, was accepted by the general assembly on January 5, 1961. The accepted "Code on Socialization of Health Services" was announced in the Official Gazette on January 12, and it was planned that health services in Turkey was to be socialized in entire Turkey within 15 years (until 1978). Improvement of the health level of the public in the entire country was aimed by the socialization and for this purpose development of public health (protective medicine) services was prioritized. The therapeutic medicine services were dealt as a component completing the protective medicine studies and in this term. Instead of providing hospital services as benefited by a low number of population and are expensive, foundation of a health organization providing treatment at home and outpatient care and spreading to even the small communities was prioritized in patient care services (Kurt and Şaşmaz, 2011: 23).Socialization of health services means dismissing this service to be a personal gain source for individuals, benefiting from the existing opportunities equally, not restricting benefiting of the persons from health services monetarily, and foundation of a system ensuring running and development of the service by the state according to a particular program. Since the success of each established system depends on many factors when it is framed and implemented by other rules and orders, significant matters related with this must be indicated when socialization of health services is discussed (http://www.ttb.org.tr).

During the period between 1980 – 2002, crucial constitutional laws were established with regards to the citizens accessing the social insurance and healthcare services, and reformative works were carried out on health sector. However, these reforms could not be carried into effect as deemed required (Sülkü, 2011: 5). With 1982 Constitution Act regulated during this period, the social security rights of the citizens were emphasized, as well as stating the responsibilities of the government with regards to granting this right. Becoming a part of our lives with 1961 Constitution Act, the social state mentality started to be built on more solid basis with 1982 Constitution Act (İleri et al., 2016:180).

The health reform works carried out in 1990s include the following majör topics:

- Establishing the general health insurance and gathering the social security institutions under a single roof,
- Separating the functions of serving services and obtaining finance from each other,
- Going for reconstruction in the Ministry of Health in order for the

planning and auditing duties of healthcare services effectively,

- Granting autonomy for the hospitals, prioritizing the protective healthcare services, as well as developing the primary care services within the framework of Family Practice (Sülkü, 2011: 5).

The reconstruction process was initiated by gathering 1st National Congress in 1992, in line with the master plan projected by the respective State Planning Organization concerning the health sector again in 1990. Nevertheless, the national health policies were designated with the 2nd National Health Congress held in 1993, and a number of regulations were stipulated surviving until today, as providing Green Card for pool individuals, which is not covered by the social security, being in the first place (Armağan, 2008: 169).

However, the Health Transformation Program, which was introduced in 2003 during the Recep Akdağ era as the Minister of Health in the respective period, is recognized to be the the most extensive one within these reform works (Lamba et al., 2014: 54). The fundamental changes made since 2003, when the Health Transformation Program was carried into effect are as follows with the main lines:

The Performance-based Salary System started to be applied in April 2003.

The public officers were provided with the opportunity to apply to private hospitals, without being subjected to referring process in September 2003.

The Ministry of Health – SII (Social Insurance Institution) healthcare facilities were brought into common use in January 2004.

VAT rate was reduced to 8% from 18% for prescription medicines in March 2004.

SII healthcare organizations were transferred to the Ministry of Health in February 2005.

The pilot scheme for family practice was initiated in May 2005.

SSI (Social Security Institution) was established in May 2006, gathering SII (Social Insurance Institution) SSOAS (Social Security Organization for Artisans and the Self-employed) and State Retirement Fund under the roof of SSI.

"Notice of Health Practices" (This is the notice of legislation enabling the social policies of the government concerning the healthcare services to be put into practice, providing guidance, pricing, regulating, as well as involving all other details for these practices. The payment principles are regulated for any transaction

of the healthcare centers) were published in June 2007.

"General Health Insurance" system was started to be used in September 2007.

The global budge practice was started to be used in the hospitals of Ministry of Health in Jnuary 2009.

The state employees was included in the coverage of General Health Insurance in Jnuary 2010.

"Public Hospital Associations Law" (Transforming the secondary and tertiary health facilities affiliated to the Ministry of Health into association in line with the respective incorporation status of the ministry) was published in October 2012 (www.esam.org.tr).

In recent years, another attention-grabbing topic within the healthcare services is the city hospitals. First of all, the city hospitals established in Isparta, Yozgat and Mersin provinces, and operated with the "build-lease-transfer" business model, are making an indelible impression with the quality of services. There are certain studies and works that are still in Project and construction phases for the city hospitals established corresponding to the eras of Recep Akdağ, Mehmet Müezzinoğlu and Ahmet Demircan.

5. Conclusion

As a result of this study, the data on 51 Ministers of Health who served in Turkey before and after the Republic including their birth places, birth and death dates, profession, languages, how many terms they served as a Minister and the Party membership when they served as a Minister, and service term were revealed under four categories namely, personal, familial, professional and political. There are persons who served as a medical doctor among the Ministers of Health the most in terms of profession. In addition to being a physician, there were military men, politicians, academicians, attorneys and economists respectively. There is only one woman Minister of Health among the Ministers of Health. It was found that the Ministers of Health, who served with their politician and academician identities in addition to the physician profession, spoke more foreign languages and even this number increased based on being only a physician. The "administration process" is a crucial element carried out to ensure stability in health administration like in all typea of administration. According to the results of the study, it is seen that the Ministers of Health served as a Minister for a very short term generally. It is known that Ibrahim Refik Saydam stayed in his appointment the longest among the

Ministers of Health by serving as a Minister for 7 terms and this period was 13 years, 8 months and 12 days; as the second, Recep Akdağ remained in his duty for more than 11 years. Considering the studies carried out during the said periods and existence of the policies, improvement of the stability achieved in health services can be explained by a long Ministry term.

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EVALUATION OF EFFECTIVENESS OF LEAN HOSPITAL TRAINING (Example of Health Sciences University Dışkapı Yıldırım Beyazıt TRH)

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ABSTRACT

Purpose: The purpose of this study is; to be able to measure the efficacy of Lean Hospital Training given to all employees in Dışkapı Yıldırım Beyazıt Training and Research Hospital Radiology Clinic through pre-test and post-test, to provide understanding of squandering and value concepts, and to gain a new perspective.

Material and Method: The universe of work; all the employees has been determined in Dışkapı Yıldırım Beyazıt Training and Research Hospital. The sample group is composed of specialist physicians, assistants, technicians, paramedics, nurses, secretaries and servants who work as permanent staff and through service procurement in the radiology clinic of the hospital. There are 173 employees in the sample group. In the study, 162 persons were pre-tested between 02.05.2017-31-05-2017, "Lean Hospital Practice Training" was given and the post-test was applied between 01.06.2017-30.06.2017.

Findings: As a result of the trainings it is possible to talk about a general increase in the level of awareness and the level of knowledge on Lean Hospital Practices. In the pre-test, 30 of the 162 respondents answered yes to the question "Are you familiar with the lean practices?", 24 of these 30 respondents said the level of knowledge is low. In the post-test, 148 of the 162 respondents answered yes to this question, and 148 of the respondents answered yes to 119 moderate level of knowledge. When the relationship between the demographic data and the areas where they think it is squandering was examined, it was found that there was a significant relationship between the labor force over 20 years and the waste of labor force , and a significant relationship between the waste of time and those over 46 years of age ($p < 0.05$).

Introduction

Health systems are under increasing pressure to increase performance,

productivity and patient satisfaction while providing more individual health care service processes (Trebble and Hydes, 2011). These include costs that exceed the budget, faults that affect patient safety, time spent by patients and general bureaucratic inefficiencies. However, from a lean point of view, these costs can be removed from health services, especially from hospitals. In addition, the application of lean thinking principles will ensure that patients wait less time between processes and start treating patients more quickly, deliver laboratory analysis results to doctors much faster, and treat more patients within a day and reduce costs (Yıldız and Salman, 2015) .

Lean; can be expressed as a series of systematic techniques to shorten the total operation time by removing the non-value-added activities in the customer value chain with continuous improvement activities (Apilioğulları, 2010).

Lean, is the name given the purpose of thought and regime with all the systems and techniques applied; in the process of producing products and services, focusing on the concept of value from the beginning (raw material) to the end (product/service delivery), destroying squandering (wasted resources, loss) and maintaining the value with minimum interruption during this process, delivering to the final customer in a fast way, (Solak, 2015).Lean is removal of goods or services that do not provide value for production, unnecessary material and labor movements, stocks, mistakes and long preparation time. (Kavrakoğlu, 1998). The lean management system is better, faster and cheaper; It is a system that removes wasteful applications, which require fewer spaces, inventions, working hours. (Morgan and Liker, 2007).The Toyota Production System that Toyota has put into practice is the foundation of the lean production system. The revolution, Sakichi Toyoda started in hand weaving looms, was developed and transformed into automation to increase productivity, reduce wastage, increase respect for human beings and finally improve quality by Kiichro. (Solak, 2015) Problem solving in Toyota culture is indispensable concept between human and product value flow. Likert described the product and human value stream as an organizational DNA, problem solving as connective code of the two in the book. (Liker, 2011) If we talk about lean hospital; A lean hospital does not see employees as a cost to be reduced; they are real sources of value in terms of patients and hospital. Senior leaders guarantee that lean improvements will not lead to dismissal. A lean hospital helps its employees to understand that all activities do not add value. Instead of defining squandering as "our work", everybody will be able to eliminate squandering and focus more time on the patients. A lean hospital includes every employees to the efforts of improvement of the work, supports the desire to provide excellent care to patients. Leaders help employees to understand their works' place in the value stream and collaborate on kaizen. A lean hospital does not force employees to do more work than can be done with high quality and does not push employees to work harder or be more cautious as a way of quality, safety or productivity. (Graban, 2011). when minimizing the squandering in the system and directing the resources to create more value with lean thinking applications, not only the profitability of the companies increase but also the customers can find more appropriate, cheap, quality products and services. (Nick, 2004).

Acceptance of all employees that such an approach is necessary on the road to the future is key to creating self-sustainable lean businesses (Womack and Jones 2012)

Removing the squandering reduce costs, provide more services, improve quality and improve employee satisfaction and this is a

good thing for all our hospital stakeholders. (Marchwinski, 2011). The creation of a long-term philosophy and the unification of employees around this philosophy are the most important and essential steps to be taken in the transition to lean governance (Liker, 2015). For this reason, it is necessary and important to provide lean hospital trainings to employees.

MATERIAL METHOD

Purpose of the research

The purpose of this study is; To be able to measure the efficacy of Lean Hospital Training given to all the employees serving in Radiology Clinic of Dışkapı Yıldırım Beyazıt Training and Research Hospital of Health Sciences University through pre-test and post-test, to provide understanding of squandering and value concepts and to gain a new perspective.

The Universe of Research and Sampling

The universe of work; all the employees has been determined in Dışkapı Yıldırım Beyazıt Training and Research Hospital. The sample group is composed of specialist physicians, assistants, technicians, paramedics, nurses, secretaries and servants who work as permanent staff and through service procurement in the radiology clinic of the hospital. There are 173 employees in the sample group.162 people were included in the study. In this way, 93.6% of the sample group is reached.

Data Collection Method

The data collection tool is a survey form prepared to be applied to the radiology clinic employees.

Pre-Test & Post Test questions consist of; demographic data on employees' awareness of lean hospital practices, lean hospital knowledge levels and 22 questions measuring squandering perceptions.

The questionnaire forms were filled with face-to-face interview techniques. In the study, 162 persons were pre-tested between 02.05.2017-31-05-2017, "Lean Hospital Practice Training" was given and the post-test was applied between 01.06.2017-30.06.2017. The study was conducted with the consent and support of the hospital management.

Statistical Analysis

The level of significancy was determined as 0.05 in statistical analyses. Analyses were performed using SPSS 24.0 statistical package program.

Training Subjects

Trainings given to radiology clinic employees include the following topics.

- What is Lean?
- Lean in the world and Turkey
- What is squandering?
- What are the 7 basic squandering?
- What are the causes of squandering?
- Lean Application Tools
    - -Standardization
    - Value Stream Mapping (VSM)
    - -Kanban
    - Single minute Exchange of Die (SMED)
    - -JIT
    - -Pok-Yoke
    - -Kaizen
    - -Total Efficient Maintenance (TPM)
    - -Jidoka

FINDINGS

When the survey was applied, questions were asked to the radiology staff about demographic data that questioning the occupation, age, sex, educational status, year of study at the institution. The data for the responses are shown in table 1 below.

Table 1: Demographic Data

VARIABLES		**Frequency**	**Percentage %**
Working status at the institution	Permanent Employees	109	67
	Service Procurement Staff	53	33
Age	18-25	21	13
	26-35	51	31
	36-45	43	27
	46-55	35	22
	56+	12	7
Gender	Women	87	54
	Men	75	46
Educational Status	Secondary	1	0,6
	High School	37	23
	Associate Degree	59	36,4
	Undergraduate	36	22
	Post graduate	7	4
	Phd	22	14
Year of Study at the Institution	0-5	63	39
	6-10	25	15
	11-15	12	8
	16-20	17	10
	21+	45	28
Occupation	Doctor	34	21
	Technician	36	22
	Paramedic	34	21

	Nurse	13	8
	Secretary	20	12
	Other	25	16

When the above table is examined, it is seen that 67% (109) of the radiology clinic employees are permanent staff, 51 of them are in the age range of 26-35, 54% (87) of the employees are female, 36% (59) are associate degree graduates, 39% have been working in the institution since 0-5 years, and 22% of the employees are serving as radiology technicians.

Table 2: Lean Hospital Awareness Pre-Test-Post Test (Yes responders were tabulated) N = 162

Questions	**Pre-Test**		**Post-Test**		**Post- Test - Pre-Test Difference (%)**
	n	**%**	**n**	**%**	
Are You familiar with Lean Manufacturing?	30	18.5	137	84,5	66
Do you think that is there any squandering in your working area?	37	22,8	106	65,4	42,6
Do you think that is there any waste of time in the unit you work on?	38	23,4	94	58	34,6
Do you think that is there any waste of medical device in the unit you work on?	7	4,3	38	23,4	19,1
Do you think that is there any waste of consumable material in the unit you work on?	10	6,1	39	24	17,9
Do you think that is there any waste of unnecessary test in the unit you work on?	32	19,7	126	77,7	58
Do you think that is there any waste of workforce in the unit you work on?	24	14,8	84	51,8	37

When the pre-test and post-test questionnaires are compared with the answers given to the questions of lean hospital awareness level; to the question "Are you familiar with lean production?" 30 employees answered yes in the pre-test and 137 employees answered yes in the post-test. To the question "Do you think that is there any squandering in your working area?", 37 people answered yes in the pre-test and 106 people answered yes in the post-test. To the question "Do you think that is there any waste of time in the unit you work on?" 38 people answered yes in the pre-test and 94 people answered yes in the post-test. To the question "Do you think that is there any waste of medical device in the unit you work on?" 7 people answered yes in the pre-test and 38 people answered yes in the post-test. To the question "Do you think that is there any waste of consumable materials in the unit you work on?" 39 people answered yes in the pre-test and 10 people answered yes in the post-test. To the question "Do you think that is there any waste of unnecessary test in the unit you work on?" 32 employees answered yes in the pre-test and 126 employees answered yes in the post-test. To the question "Do you think that is there any waste of workforce in the unit you work on?" 24 people answered yes in the pre-test and 84 people answered yes in the post-test. Mentioning waste of electricity and water as squandering in the pre-test while mentioning the waste of time and workforce in the post-test shows that training reaches its purpose. When the

relationship between the demographic data and the areas where they think it is squandering was examined, it was found that there was a significant relationship between the employees work over 20 years and the waste of workforce, and a significant relationship between the waste of time and people over 46 years of age ($p < 0.05$).

DISCUSSION AND CONCLUSION

Lean applications are used with the purpose of preventing or reducing errors that may develop in service delivery and eliminating activities that do not add value.

There are many improved studies using lean hospital practices. Lean initiatives in health care can affect employees and the working environment. For this reason, employees can increase their productive attitudes to solve their problems and attention to the syllabus (Poksinska, 2010). In addition, employees can increase their morale and reduce their stress by implementing lean health services (Rexhepi and Shrestha, 2011). Some of the gains from lean work done at the Virgina Mason Medical Center are as follows. Efficiency has increased by 36%, moving distances of people have been reduced by 44%. (Yuksel 2012) "Lean studies at the same hospital also significantly reduced the walking distance of nurse and nursing staff. Nursing steps have been reduced from 5818 to 846 and patient care officers from 2664 to 1258. (2012) In comparison with the stocking which was left by Solak (2015), and the new working systems which resulted from the lean practices resulting from the personnel work load (time direction) related to this, the walking distance was reduced to the most frequently used materials and thus the unnecessary movement time of the personnel was shortened. From all these studies, working in the radiology department; that lean hospital practices have a positive effect on the working environment and that movement distances can be significantly

reduced. These studies have been shown as examples to employees.

“Thanks to e-prescribing, previous activities that resulted in waste of time, paper, in the need
for excessive storage which slowed the workforce have been replaced with improvements in
all of these areas. In hospitals, the employee satisfaction among pharmacists has increased and the process has gained speed due to e-prescribing” (Kılıç et al., 2014). During the lean hospital trainings, other than the radiology clinic, the patients were provided with a good understanding of the subjects in their work with examples of successful practice in other units of the hospital.
The health sector is a service sector with complex structure. It is very difficult but necessary to increase the satisfaction of patients and employees while avoiding the squandering in this sector where cost, input and expectancy are quite high. In this context, studies were started in the radiology clinic of the hospital, it is aimed to evaluate the knowledge levels of the employees before and after the training and the perspectives of the patients on the squandering have been evaluated.
As a result of the trainings it is possible to talk about a general increase in the level of awareness and knowledge on Lean Hospital Practices. When paying attention to the questions that are questioning the level of lean hospital awareness, it is clear that there is an increase in the number of questions answered yes in the post-test and the yes response given to the issues they mentioned squandering in the pre-test. With this increase it is possible to deduce that there has been change in employees' perception of squandering and perspective.

When the amount of increase between pre-test and post-test are examined, it has been seen that it has increased 66% in the question " Are you familiar with lean production?", 42.6% in the question " Do you think that is there any squandering in your working area?", 34.6% in the question "Do you think that is there any waste of time in the unit you work on?" % 17,9% in the question "Do you think that is there any waste of unnecessary test in the unit you work on?" 58% in the question " Do you think that is there any waste of medical device in the unit you work on?" % 19,1 in the question " Do you think that is there any waste of consumable materials in the unit you work on?” 37% in the question “Do you think that is there any waste of workforce in the unit you work on?" There are serious differences in the answers given to open-ended questions as pre-test and post-test.

As a result, it is necessary to say that the purpose of the trainings on lean hospital applications given to radiology clinic staff is reached and radiology employees are aware of lean hospital practices .With the training provided, there is a difference in the perspectives on squandering of the employees. After the training, many suggestions were made from the staff of the radiology clinic about the amendments that can be made in their study areas. These proposals, aimed at increasing the activities that removed the squandering and add value, revealed that trainings reached their goals.

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INVESTIGATING HEALTHCARE MANAGEMENT SYSTEM AND ITS STAKEHOLDERS: A CASE STUDY OF KOREA'S MERS OUTBREAK

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ABSTRACT

Recently, there is a worldwide increase in the epidemic disease outbreaks. Whenever these emergencies happen, they challenge the health systems and their procedures. Many of the established systems fail in the process and precious time is lost while trying to contain the diseases. In 2015, it took more than two months to contain Middle East Respiratory Syndrome outbreak in Korea. Considering the fact that Korea's geographical location allows travel abroad only by air or sea, control of a Middle East origin disease outbreak should have been easier. However, examination during the outbreak period shows that the country was not prepared for emergency management especially in terms of healthcare management culture. In this study, we present problems and difficulties Korean healthcare organizations confronted during the outbreak and critically review management of Korean healthcare organizations from stakeholder theory's point of view. By taking one of the biggest hospitals in Korea as a representative case, it can be seen that Korean healthcare organizations do not fulfill accountabilities toward their stakeholders and it led the whole country into chaos both socially and economically. Analysis of the case shows that Korean healthcare organizations' great focus on financial profit and their corporate structures caused a failure in protecting the hospitals' main ethical priority: patients' welfare. Failures of the system show that evaluations of healthcare organization should be solely based on healthcare quality provided by the organization, not by the name value of any related corporations.

1. Introduction

In the last three decades humanity faced an exponential growth in the number of infectious diseases. Majority of these cases can be classified as zoonoses which are transmitted from animals to humans (Smith et. al., 2014). Many of these zoonoses such as bird and swine flu have cost many human lives and also gave serious economic damage. Zoonoses are not limited to flu variants, there are also unique diseases such as Ebola, Zika and MERS. Ebola outbreak in West Africa which is believed to be transmitted from infected animal was very fatal, having a fatality rate as high as 50%. The symptoms begin with fever, headache, and sore throat, and further develop to diarrhea, organ damages and bleeding. 28,646 people were confirmed and 11,323 people lost their lives from the virus (World Health Organization, 2016a). Latest Zika virus epidemic began with mosquito bites from *Aedes* mosquitoes. The virus is threatening not only because it causes skin rashes, conjunctivitis, and neurological disorders but also microcephaly for newborn babies (World Health Organization, 2016b). The risk of disease infection grows as contacts and exchanges among people increases. Since air transportation provide long distance travel, it is very likely that virus outbreak occurred in one area can spread to not only in nearby regions but also remote countries. For example, the first laboratory-confirmed case of Ebola in the United States was from a man who visited Liberia (Centers for Disease Control and Prevention, 2014). Zika virus was also transmitted through the globe as people who visited virus reported areas contact with other people. It is very likely that virus outbreak will occur more as population grows, and spread of the virus will be accelerated through frequent human exchanges. Therefore, it is critical to effectively manage virus outbreak once it is detected.

Lately, Middle East Respiratory Syndrome coronavirus (hereafter MERS) outbreak in Korea resulted in a health crisis as alarming as Ebola and Zika outbreaks. The virus is originally transmitted from camels and can spread to human-to-human through close contacts. As the virus name implies, the virus is first identified in Saudi Arabia and mostly occurs in Middle East regions. Korea is the only place where reported greatest number of confirmed cases other than Middle East regions (World Health Organization, 2015). The outbreak began with a man who travelled Middle East regions on May 20, 2015. The number of confirmed cases had been increasing for the next two weeks and it reached its peak on June 6 and 7 as 22 patients and 23 patients were newly confirmed respectively. Deaths among the infected patients were reported for every two or three days (Korea Centers for Disease Control and Prevention, 2015b). Fortunately the number of confirmed cases turned decreasing and the government announced on July 28, that the most difficult time of outbreak has passed. However, it took for a while to officially announce the end of the outbreak. The last patient who was released from hospital on October 2 was again confirmed positive of the virus ten days later. On November 25, the patient died and there was no MERS infected patients left in Korea. Following the World Health Organization's standard, Korea Centers for Disease Control and Prevention (hereafter KCDC) announced official end to MERS outbreak on December 23, 2015. The country was negatively influenced by the outbreak socially and economically. During the outbreak 186 people were confirmed, 38 were dead, and the number of people who experienced quarantine was approximately 17,000.

Korea's distinct location and characteristics make this a very unique case to study. Korea is geographically far from Middle East. As S. Ahn (2015) reported, the country has only 47

camels, and except for camels imported from Australia most of them were born in Korea. These camels are mainly for exhibitions in zoos. If we look at the human interaction, we see Korea's interaction with Middle East population is very low and mostly business related. Considering all these facts, Korea is not expected to be highly threatened by MERS. Then why the country has suffered from MERS outbreak? In order to answer this question, there is a need to closely examine management and governance of Korean hospitals. Because one of the biggest hospitals in Korea was the spreading center for the virus. Healthcare organizations which have responsibility to protect the public health showed serious deficiencies in controlling the epidemic. However, it seems that majority of studies published regarding MERS outbreak focus on epidemiological research, public healthcare system, governance structure of Korean government, or Korean culture of healthcare shopping and visiting the sick (Jun, 2015; K. M. Kim et al., 2015; Y. Kim, 2015b; E. C. Park, 2015; Y. S. Park et al., 2015). Since the outbreak is strongly related with medical institutions in healthcare business, we believe that perceiving the outbreak from healthcare management's point of view will provide a deeper insight into reviewing the outbreak that will help in understanding the event better and preventing similar failures from happening.

We aim to examine MERS outbreak and explain the outbreak period concerning characteristics of Korean healthcare organizations and critically review problems and issues revealed during the outbreak in order to give insights for possible disease outbreak in the future. During the illustration, stakeholder theory which emphasizes organization's obligation toward stakeholders will be helpful to take account management of healthcare sector in Korea. The next section reviews previous studies of stakeholder theory and stakeholder theory approach in healthcare organizations. Stakeholder accountability map of healthcare organizations (E. J. Emanuel and Emanuel, 1996; Werhane, 2000) as framework of this study will be illustrated. The whole period of MERS outbreak such as how the MERS virus has entered the country, how it spread widely in short period and how the hospitals responded to the outbreak will be described in the following sections. By analyzing accountability domains of healthcare organizations toward stakeholders, we will present how and why MERS virus could bring the significant damage to Korean society. Management system of Korean healthcare organizations and their attitude during the outbreak will be closely examined. Finally influence of MERS outbreak in social and economic aspects and ethical evaluations of healthcare organizations in Korea will be discussed, together with future implications for management of healthcare sector in Korea.

2. Stakeholder Theory

Stakeholder concept was first introduced in management in 1963 and it was defined as "those groups without whose support the organization would cease to exist" (Freeman et al., 2010). Ever since, stakeholder discussion in management literature has been accelerated and researchers define stakeholders as individuals or groups who bear significant influence on organizations' performance and survival (Donaldson and Preston, 1995; Freeman, 2004; Garvare and Johansson, 2010).

When it is associated with various ideas and notions that consider business and ethics together, stakeholder concept can be called as stakeholder theory (Freeman, 1994). Stakeholder theory is a genre that combines value-creation business and moral activities together. Following stakeholder theory framework Freeman recommended to

consider three principles in organization legislation process; organizations should operate for the interest of stakeholders (the stakeholder enabling principle), managers have responsibility in business operation for stakeholders (the principles of director responsibility), and stakeholders can take action in case managers fall behind their responsibility (the principle of stakeholder recourse). Freeman et al., (2004) also stated that stakeholder theory asks two questions to an organization: *'what is the purpose of the firm'*, and *'what responsibility does management have to stakeholders'*. By answering these questions, organizations integrate values they pursue, aware the importance of stakeholders in pursuing their values, and consider how to perceive and manage the relationship between stakeholders and organization. In other words application of stakeholder theory in business context emphasizes morality which is necessary in business operation.

Although there are some controversies of stakeholder theory such as the theory is vaguely defined and hinders free market exchange (Stieb, 2009), it is without doubt that stakeholder theory is one of the most influential theories in contemporary management literature especially when moral behavior and ethical obligations of mangers are highly required as nowadays.

Stakeholder Theory in Healthcare Organizations

Stakeholder theory has been applied in diverse disciplines and studies of healthcare organizations were not exceptional. Stakeholder theory played a role as a framework to perceive accountability and ethical obligations in both macro and micro perspective of healthcare organization management.

L. L. Emanuel (2000) presented accountability and moral obligation of healthcare structure. According to the author, structure is referred as a term which includes organization, system, or institution. Healthcare organization, system, or institutions have their own purposes which require morality. Therefore, it is possible to evaluate whether the structure of healthcare organization and healthcare system is ethical or not by concerning purpose of organizations and system. There are three models that can explain purpose of healthcare organizations; professional model, economic model, and political model (E. J. Emanuel and Emanuel, 1996; L. L. Emanuel, 2000). Professional model believes that healthcare is a service provided to patients and top priority of healthcare professionals is to improve well-being of patients. Economic model on the other hand, perceives healthcare sector as a business market. Patients are consumers and healthcare professionals provide commodity to consumers. Purpose of healthcare organizations is achieving financial benefit. In political model both patients and healthcare professionals are citizen-members of a society and patients can raise their voice to receive equal healthcare treatment opportunity with others. Among these models, when professional purpose is concerned as top priority by healthcare organizations and healthcare professionals, it is possible to say that structure of healthcare organization is ethical. Specifically, E. J. Emanuel and Emanuel (1996) recommended professional model for patient-physician relationship, political model for healthcare organization governance, and economic model for relationships among healthcare organizations.

Considering stakeholders of healthcare management, E. J. Emanuel and Emanuel (1996) presented accountability map of healthcare professionals. Werhane (2000:176) adapted this map and presented accountability map of healthcare organizations. Table 1 shows comparison of the two maps.

	E. J. Emanuel and Emanuel (1996:231)	Werhane (2000:176)
Focus	Physician	Healthcare Organization
Stakeholders	Government Private payers Employers Investors Managed care plans Hospitals Professional associations Lawyers and courts Patient	Government Payers Managers & Nonprofessional employees Investors Managed care plans Community Healthcare professionals Professional associations Lawyers & Courts Patients: Primary stakeholders
Accountability	Professional competence Legal and ethical conduct Financial performance Adequacy of access Public health promotion Community benefit	Professional competence Legal and ethical conduct Adequacy of access Public health promotion Public health/access Financial performance Community benefit
Relationship	One way	Reciprocal

Table 1. Comparison of Accountability Maps Presented by E. J. Emanuel and Emanuel (1996) and Werhane (2000)

The map of E. J. Emanuel and Emanuel (1996) includes nine stakeholders and six accountability domains which are defined as "activity, practice, or issue for which a party can legitimately be held responsible and called on to justify or change its action" (1996:230). Among the domains of stakeholder accountability, professional competence can be summarized as six core competencies required for physicians (Holmboe et al., 2016); patient care, medical knowledge, professionalism, interpersonal and communication skills, practice-based learning and improvement, and systems-based practice. Access in healthcare is defined as "the opportunity to identify healthcare needs, to seek healthcare services, to reach, to obtain or use healthcare services and to actually have the need for services fulfilled" (Levesque et al., 2013). Therefore, adequacy of access refers that healthcare organizations and professionals should attempt for the public to receive appropriate healthcare as much as possible. Legal and ethical conduct refers any medical performance or business operation conducted by healthcare organizations and professionals should comply with legal regulations and ethical principles. Financial performance refers overall finance-related aspects of healthcare organization such as cost of the healthcare service, efficiency of the service provided, insurance fee from healthcare insurance payers, and profitability of the organization. Public health promotion regards well-being of the public, ultimately pursuing community benefit such as low mortality rate or low disease rate (E. J. Emanuel and Emanuel, 1996).

Reforming the accountability map of healthcare professionals by E. J. Emanuel and Emanuel, Werhane (2000:176) illustrated accountability map of healthcare organizations. Werhane added public health/access in accountability domain, but this domain appears overlapped with adequacy of access and public health promotion. Therefore, we maintain six accountability domains. Werhane also included reciprocity in the accountability map. Since stakeholder relationships are reciprocal in that stakeholders not only influence on organization but also are influenced by organization, Werhane represents bilateral accountability by drawing bi-directional arrows between healthcare organization and stakeholders.

According to Werhane healthcare organizations are unique from ordinary business organizations since their mission, values, and purpose concern patients' health, not maximizing profit; payer of the service (insurance agency) and recipient of the service (patient) are different; healthcare professionals are employed by organizations but at the same time they are independent professionals; activity is not limited as individual patients but promoting health of the public and community is also required; there are information asymmetry between management of organization and professionals and between patient and professionals; and there are supply/demand asymmetry because not all the patients can receive desirable medical service depending on their financial condition. As healthcare organizations have distinct characteristics from ordinary business organizations, it is noteworthy that purpose of healthcare organizations should not be profit-seeking. Although financial performance is important, it is not the primary purpose for healthcare organizations. The fundamental goal of healthcare organizations must be well-being of patients.

Application of stakeholder theory in studies of healthcare ethics has several advantages. Stakeholder approach helps policy making of healthcare organizations. By identifying key stakeholders and drawing stakeholder map to

evaluate the relationship among the stakeholders and healthcare organization, the analysis can be used for healthcare organizations' decision making process and strategic management (Brugha and Varvasovszky, 2000). Also healthcare organizations can distinguish importance among numerous stakeholders, and the theory performs as ethical guideline to assess performance of healthcare organizations in terms of moral obligations (Werhane, 2000).

By looking into stakeholder management of Korean healthcare organizations during the MERS outbreak, we expect to figure out crucial stakeholders and management structure of healthcare organizations, and evaluate whether the structure of the organizations meets ethical requirements.
Before analyzing MERS outbreak according to accountability map of healthcare organizations, the progress of MERS will be presented in the following section.

3. MERS Outbreak

a. Beginning of MERS virus

A man in his sixties traveled three Middle East countries Bahrain, Saudi Arabia, and United Arab Emirates for 11 days and returned Korea via Qatar on May 4. On May 11, he had fever and coughing. Before he was diagnosed with the MERS virus on May 20 in hospital D, he visited three hospitals A, B, and C. The names of the hospitals are referred as alphabet according to the order of patient 1's visit. This study followed this method as used in original article published by Korea Centers for Disease Control and Prevention (2015a). Korean government numbered patients according to the order of confirmation, thus he is referred as patient 1.

b. Transmission of MERS virus

From May 11 to May 20, patient 1 has closely contacted more than 700 people including his colleagues, family members, and medical staffs and people who stayed in the same hospitals.———Also, epidemiological investigation found that 26 people who had contact with the patient 1 in hospital B were infected. However, the initial surveillance failed to confine all the possible virus carriers; 8 people who were not included in the surveillance left or were discharged from the hospital and moved to other medical institutions (KCDC, 2015a). A man who had visited his father in hospital B on May 16 flew to Hong Kong on May 26 and moved to China via public transportation. Although his father was confirmed as MERS on May 20, the surveillance was not effective to prevent his travel, and he was confirmed and isolated by Chinese authorities (H. W. Jeon, 2015). Visiting different hospitals, people who were not detected from the initial surveillance transmitted the virus to people in other medical institutions. According to KCDC (2015a), patient 14, 15, 16 who were infected from patient 1 transmitted the virus to 85 people, 6 people, and 23 people respectively. Also, patient 76 who was infected by patient 14 transmitted the virus to 11 people. KCDC defined MERS patient who transmitted the virus more than 4 people as superspreader and stated that the 5 patients; patient 1, 14, 15, 16, and 76 infected more than 80% of the whole MERS patients. The number of newly confirmed cases decreased after one month of the first diagnosis and there were no more newly confirmed cases after July 5. After 28 days passing without any infected case, Korean government announced on December 23 that MERS outbreak has ended, 7 months after the first diagnosis (KCDC, 2015b).

4. MERS and Stakeholder Accountability Map of Healthcare Organizations

On June 12 merely 20 days after first diagnosis 126 cases were confirmed, 11

people were dead, and more than 3,500 people were under surveillance (Korea Centers for Disease Control and Prevention, 2015b). Searching for the reasons of the fast spread of the virus, it is necessary to examine hospitals where virus transmission among patients, healthcare workers, and visitors occurred. Especially, examining management of hospital D during the outbreak is important because it was the center of virus spread. Hospital D belongs to 'Big 5 hospitals' which means the five biggest hospitals in Korea. These tertiary hospitals feature themselves with high medical technology and high medical service quality. Therefore, if there are problems and difficulties faced in hospital D, these are likely to occur in other healthcare organizations in Korea. Considering hospital D as a representative case of Korean tertiary hospitals, we adapted stakeholder accountability map of healthcare organizations suggested by E. J. Emanuel and Emanuel (1996) and Werhane (2000), and analyzed activities of hospital D and other healthcare organizations and their attitude toward stakeholders during the outbreak.

a. Map of Stakeholder Accountability

From the accountability map of Werhane (2000:176), we made a few changes adjusting to Korean context. As seen on the Figure 1 below, the accountability map represents related stakeholders and accountabilities of a healthcare organization in Korea; patients, healthcare professionals, outsourcing company, non-regular employees, government and legal authorities, community, other healthcare organizations, health insurance payers, and investors. Non-regular employees are employed by outsourcing company of the hospital, so they are connected with healthcare organization through outsourcing company in the map. These employees include security workers, administrative workers, care-takers, and cleaners. Government and lawyers & courts are combined as government and legal authorities. Managed care plans and payers are combined as healthcare insurance payers. In addition to six aspects of accountability suggested by E. J. Emanuel and Emanuel (1996), we added hospital competence which refers required abilities and obligations for hospitals. E. J. Emanuel and Emanuel initially presented professional competence as accountability of physician. While adapting the initial map, Werhane illustrated accountability map of healthcare organization maintaining accountability domains similar with the initial version. As a result, both physician and healthcare organizations have the same accountability named as professional competence. However it is preferred to distinguish them since accountability of individual and that of organization are not same. Therefore, we distinguished professional competence and hospital competence. Professional competence refers physician's competence such as patient care, medical knowledge, professionalism, interpersonal and communication skills, practice-based learning and improvement, and systems-based practice (Holmboe et al., 2016). As for hospital competence, The Joint Commission (2010) presented as hospital's environment of care for patients; effective emergency management; employing qualified workforce; leadership to manage the organization; provision of care, treatment, and services; rights and responsibilities for patient's personal values and beliefs; and transplant services for donating organs and tissues. Therefore, while professional competence regards qualifications required for healthcare professional individuals, hospital competence is related with facilities, cultures, and management structure of healthcare organizations. Also, since financial performance includes not only monetary aspect of healthcare organization

but also efficiency of medical service, we changed the term as financial requirements.

Although Werhane improved the original map by adding reciprocal relationship of stakeholders, the map did not clarify whether the responsibility is required for each relationship. For example, public health promotion, adequacy of access, and community benefit are healthcare organization's responsibility toward community, not community's responsibility toward healthcare organization. Yet Werhane's map says healthcare organization and community bear the same accountability between each other. Considering these details, we specified direction of accountability and accountability domains according to each relationship. Lastly, among the stakeholders of healthcare organizations the relationship between patients and healthcare professionals is as equally important as that of patients and healthcare organizations. Therefore we additionally included accountability direction and domains between patients and healthcare professionals.

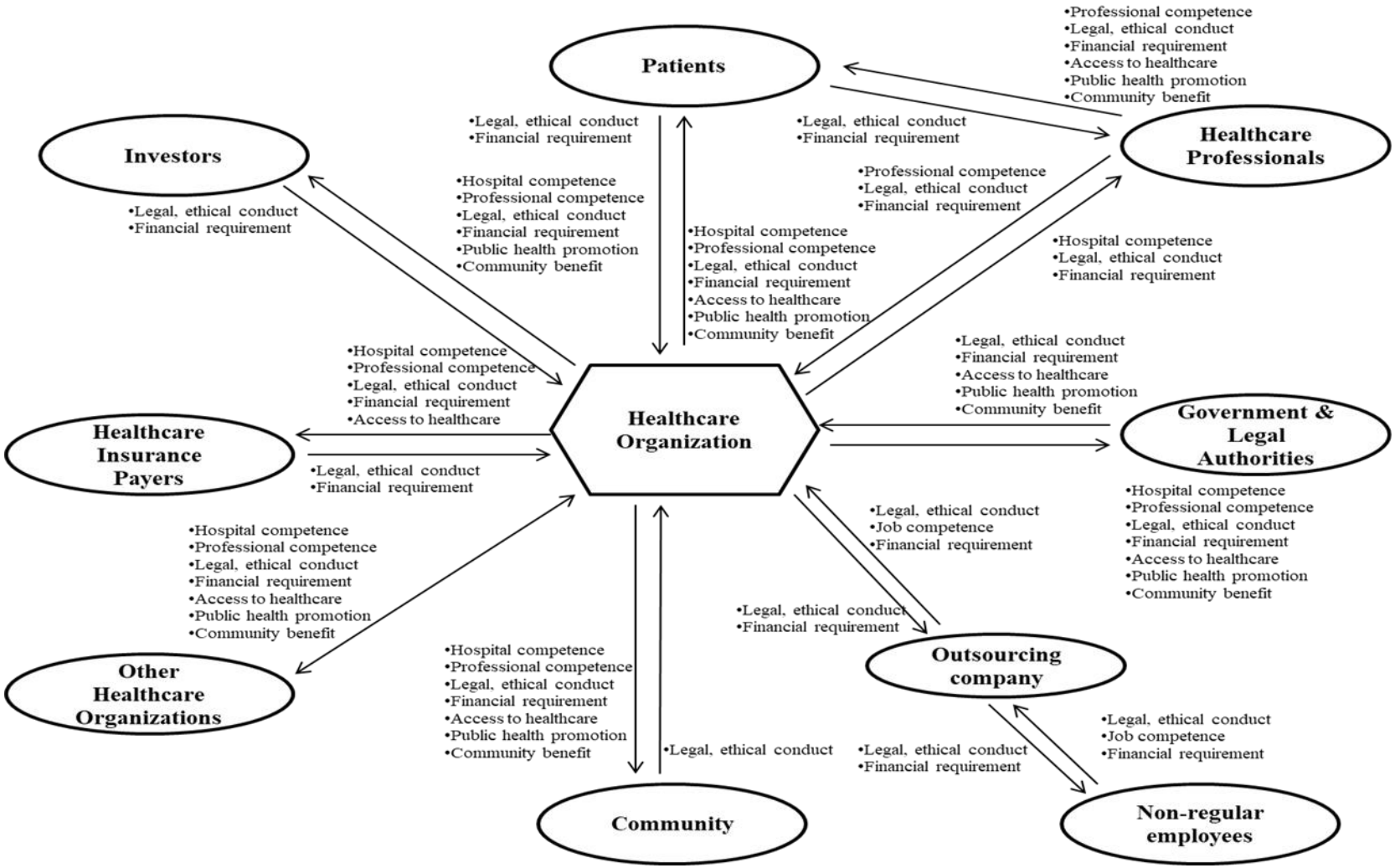

Figure 1.Stakeholder Accountability Map of Healthcare Organization adjusted to Korean Context (Adapted from E. J. Emanuel and Emanuel (1996) and Werhane (2000)).

In all the relationships, there are legal and moral obligations. For example, healthcare organizations are always expected to operate legally and ethically not only in their medical service but also in their management. Patients' giving honest answers for doctor's questions and following treatment direction provided are their moral obligations. Non-regular employees should perform their job in legal and ethical boundary. Community's legal and ethical obligation refers to maintaining their health by complying with directions provided by healthcare organizations or government for improving public health. Healthcare organization and other healthcare organizations share the same accountability between each other. Among the total seven accountabilities including hospital competence, healthcare organizations hold all the accountability for patients, government and legal authorities, community, and other healthcare organizations. Finally, job competence domain was added only for outsourcing company and non-regular employees, and required competencies may differ according to the job type of employees. The following part illustrates the reasons of rapid virus spread connecting activities of healthcare organizations with accountability domains presented in Figure 1.

b. Reasons for Rapid Spread

MERS virus spread rapidly due to the failure of stakeholder management of Korean healthcare organizations. While visiting 4 different healthcare organizations for over a week, patient 1 transmitted the virus to numerous people and they also transmitted the virus to the public. If any doctors had noticed that the patient 1 might be infected to MERS virus, the outbreak could have been under control earlier. This beginning of virus spread is strongly related with healthcare organizations' profit-seeking attitude. The larger the healthcare organization, the more the organization emphasizes on generating profit. In Korea, tertiary hospitals are assigned by the Ministry of Health and Welfare according to standards such as having more than 20 divisions, having more than 1 doctor per 10 inpatients and 1 nurse per 2.3 inpatients, functioning as educational institution, and so on (Ministry of Government Legislation, 2015). There are 43 tertiary hospitals in Korea (Health Insurance Review and Assessment Service, 2015). Kim (2013) found the reasons of large healthcare organization's overemphasis on profit from intensified competition in the medical market. As Kim (2013) reported two of the *Chaebol*s in Korea began their hospital businesses in 1989 and 1994. *Chaebol* is a unique terminology to refer Korean conglomerates. *Chaebols* are born and grown after Korean War with government's support to boost the economy. They have governance structure owned by family members and operate in diverse areas (Yoo and Lee, 1987). One of them was hospital D, and it advertised itself as '3 No Management' which means no caretaker from family required, no waiting, and no bribery. After a decade with support of their capital, these *Chaebol*-based hospitals became competitors of several big hospitals which have long history of over 100 years. The two hospitals are soon included in the category of 'Big 5' which means the 5 biggest hospitals. Competition among big 5 was intensified after 2000 as they build new facilities and purchase new medical equipments. This increased competition in the overall healthcare market. Hospitals demand return on investment from doctors by implementing performance-based payment and incentive system. According to a doctor interviewed by Kim (2013), hospitals require from doctors to set a goal for sales increase every year, which has to be more than 10%. Also promotion and evaluation of the doctors depend on their sales gain from patients.

In order to increase profit from highly competitive medical market, tertiary hospitals also accept mild case patients who can be treated in local clinics. K. H. Kim et al. (2015) criticized that although 15% of outpatients who visit tertiary hospitals have mild case which can be treated in a clinic, tertiary hospitals are reluctant to return the patients; only 1.6 patients out of 1,000 patients are sent back to clinic. This is because hospitals can gain profit from outpatients. Comparison of the cost of health insurance benefit among hospitals showed that the portion of clinics has decreased about 18% in recent ten years, whereas that of tertiary hospitals has increased about 10% during the same period. S. W. Lee (2015) reported that number of doctors working in tertiary hospitals have 43.2% increased in 10 years. Considering the fact that rate of increase in doctor is 8 times higher than rate of increase in population, this is a significant change. S. W. Lee stated that these doctors are mainly working for treating outpatients. Outpatients who visit, counsel with doctor, and leave are more profitable than inpatients who are hospitalized for several days. Hiring more doctors, tertiary hospitals accept growing number of outpatients and increase their profit. Profit of tertiary hospitals from outpatient treatment has increased to 161% from 2005 to 2014 (J. J. Ahn and Kim, 2015). However, as reported by H. W. Jeon (2015) doctors usually treat a patient merely about three minutes in order to accept as many outpatients as possible. If any doctors had talked with patient 1 at least about 10 minutes, the patient's MERS infection would have been found earlier.

Since hospitals are mostly focused on accepting more outpatients, there is a problem of lack of bed and caretaker for inpatients. Thus, a standard patient room for 6 people is always crowded with not only patients but also their family members who care for the patients (Jun, 2015). Emergency rooms are in similar condition. Choi (2015) reported that emergency departments of 10 hospitals are highly overcrowded; the most crowded emergency room was in one of the tertiary hospitals, as full as 175%. Also, number of hospitals where patients have to stay at least 10 hours to move to other department or patient room was as many as 20. Emergency rooms are always crowded with not only patients who came for emergency treatment, but also who want to be admitted but could not find a patient room, who came for outpatient treatment referred from previous treatment, and their family members (Y. Kim, 2015a). Considering these facts, it was natural that more than half of the whole confirmed cases were infected from emergency rooms of healthcare organizations.

Among the tertiary hospitals the five biggest institutions are so called 'Big 5', and hospital D is one of them. As reported by Choe (2015), hospital D is perceived as one of the medical institutions that provide highest quality of medical service. The fact that the chairman of the biggest conglomerate in Korea is hospitalized after his heart attack also reinforced the reputation of hospital D. The hospital has nationwide patients with as many as 1,800 beds and 8,500 outpatients every day. Relative survival rate of stomach cancer of the hospital is as high as 67.5% which plays as catalyst to attract more patients (J. S. Lee, 2015) However, MERS outbreak showed that hospital D give priority to financial benefit than patients' well-being and their stakeholders. As similar with other tertiary hospitals, hospital D focus more on accepting outpatients and have problem of lack of beds. Overcrowded emergency room was center for virus spread; when patient 14 who was infected by patient 1 in hospital B stayed for three days in emergency room of hospital D due to lack of bed, the virus was already transmitted to more than 80 people.

Among the three models of healthcare organization's purpose, professional model which gives priority to patients' well-being represents ethical structure of healthcare organization (E. J. Emanuel and Emanuel, 1996; L. L. Emanuel, 2000). However, Korean healthcare organizations emphasize profit over patients' health and their structure is not ethical. As for hospital D based on the stakeholder accountability map, it harmed effective treatment of patients, lacked hospital competence and professional competence toward patients, further threatening public health and community benefit.

As Jung (2015) reported when patient 14 transmitted the virus to more than 80 people in hospital D's emergency room, the representative of hospital D excused that they were not aware of the fact that patient 14 had visited hospital B. The representative blamed government for not sharing the information of hospitals where MERS virus was confirmed. The representative stated that *'it is not our hospital but the nation whose line of defense was penetrated'*. However, according to the report of state auditors (The Board of Audit and Inspection of Korea, 2016), management level of hospital D was aware that patient 14 had visited hospital B, but they did not share the information with medical staffs and it resulted mass infection in the emergency room. The organization failed to provide hospital competence and legal and ethical conduct toward their healthcare professionals, which deterred efficient medical performance of healthcare professionals. Also, hospital D was reluctant to cooperate with the authorities. The Board of Audit and Inspection of Korea (2016) reported that even though hospital D was requested from the authorities to submit the list of people who had contact with patient 14 on May 30, they submitted the list of only 117 people on May 31, whereas the total number of people who had contact with patient 14 was 678. The list of left 561 people was reported to the authorities on June 2, delaying efficient surveillance. Hospital D's blaming government instead of accepting their fault was unethical. When government and legal authorities need support of healthcare organizations in such emergency situation, hospital D could not present required hospital competence, professional competence, and financial requirements, harming public health promotion and community benefit.

Also, the follow-up quarantine conducted by hospital D was not done tightly. It was revealed that three healthcare workers who had contact with patient 14 but were missed in the surveillance continued working in the hospital for several days contacting more than 200 people. Patient 137, a staff in emergency room working for transferring patients showed MERS symptoms yet continued working for over a week, and two doctors, patient 35 and 138, were also isolated too late (J. Jeon and Im, 2015). Patient 137 was one of the victims of cost-cut policy of the hospital. The hospital employs non-regular workers through outsourcing company to reduce the cost such as workers for transferring patients or security workers or cleaners. Although they are as many as 30% of the whole employees, when the virus was spreading non-regular workers were not considered as hospital's employees. They were neither included in the surveillance, nor proper information of virus infection was provided. This is why patient 137 was still working for over a week when he was confirmed as MERS (Kang, 2015). The organization did not fulfill their legal and ethical obligation toward non-regular employees who were employed by outsourcing company of the organization.

After receiving strong request from MERS Task Force to take necessary actions, hospital D opened a press meeting and apologized for their mistakes. They announced to partly shutdown the hospital to prevent further virus

transmission (J. Jeon and Im, 2015). This harmed patients' right of access to healthcare. Similarly, the organization could not fulfill their duty toward government to guarantee the public's access to healthcare.

Under the unethical structure of healthcare organization whose primary purpose was pursuing financial benefit, healthcare professionals could not provide high quality medical service to patients. Being not informed by management level, they not only exposed patients but also themselves to the threat of MERS virus. As a result, efficiency of medical performance was decreased and partial closure of the organization made healthcare professionals unable to guarantee access to healthcare to patients, further damaging public health and community benefit. Therefore, it can be said that healthcare organizations failed to fulfill their obligations both toward healthcare professionals and patients, and healthcare professionals failed their obligations toward patients.

Examining the outbreak brings the discussion into professional resources and facilities in healthcare organizations as well. According to Organization for Economic Co-operation and Development (2013; 2015), number of doctors per 1,000 population in Korea was 2.0 which is lower than OECD average of 3.2 and number of nurses per 1,000 population in Korea was 5.2, which is much lower than OECD average of 9.1. During the outbreak, the problem of lack of epidemiologist was magnified. H. W. Jeon (2015) reported that since the division of infectious disease is not very lucrative, there are only 200 infectious disease specialists in Korea and they tend to be hired in big hospitals. Therefore, there is imbalance of distribution of professionals. For example, hospital D which is one of the biggest hospitals in Korea owns 10 infectious disease specialists and the number is the most among all the healthcare organizations. Also the president of hospital D during the outbreak was a professional in infectious disease. However, their professional resources were not enough to handle the emergency situation. The facility was not ready for the national disaster either. Kang (2015) reported that the hospital did not have negative air pressure room which is necessary for preventing cross-contamination of airborne contagious disease. Instead, the hospital modified air of patient rooms into negative using air-conditioning system while treating MERS patients. Since negative air pressure room requires certain amount of space, cost, and professional resources for management, the room is not profitable. This is the same reason for the hospital's crowded emergency room and lack of patient rooms. As one of the biggest hospitals in Korea accredited by government and highly trusted by the public, hospital D naturally bear obligation not only toward the public and government, but also toward other healthcare organizations to promote well-being of society. Having the most number of specialist in infectious disease additionally emphasize their responsibility in disease prevention and control. However, their overemphasis on capital budget prevented from performing hospital competence and professional competence expected from other healthcare organizations, damaging public's access to healthcare and public and community's welfare.

The expectation of healthcare insurance payers from hospital D was not fulfilled either. When the payers expect the organization to carry out medical service in terms of required hospital competence and professional competence following legal and ethical guidelines, hospital D was not successful in this. Also, temporary closure of the organization deterred access to healthcare and recorded loss in hospital operation.

Similarly, investors' trust to hospital D returned to them as lack of hospital

competence, and professional competence of the organization. Also, the overall loss of hospital D during the outbreak is claimed to be approximately 160 billion won ($140 million) (M. S. Kim, 2015). Hospital D's original image as privileged medical institution which provides high quality of medical care for public and community was damaged.

As a result, hospital D drove the whole community into chaos. Although it was a professional in hospital D who found that the patient 1 might have been infected to MERS, the follow-up quarantine and emergency management was a complete failure. Hospital D is to be blamed for accelerating virus transmission in emergency room and in the end they had no other choice but to partly close the institution making the public in confusion and panic.

When all the problematic internal factors such as unethical structure of healthcare organization, uncooperative attitude toward government, poor management of human resources and lack of facilities, and problem of communication between management and healthcare workers are confronted with external factor such as MERS outbreak, management of hospital D collapsed. Since hospital D takes large part in Korean medical sector, the whole country had to suffer from the damage. The failure of effective management of MERS outbreak in hospital D was criticized as due to 'hubris' (Jung, 2015), and 'carelessness and profit-seeking management' (Kang, 2015) of the conglomerate.

5. Results of MERS Outbreak in Social and Economic Aspects

Due to the MERS virus 38 people were dead, 186 people were confirmed, and approximately 17,000 people were quarantined in their houses. Patients who stayed in hospital D had to be moved to other healthcare organizations which have less possibility of MERS virus infection. Potential patients could not benefit from medical service because of partial closure.

The public had difficult time. Song (2015) collected internet documents such as online news, bulletin board, and social media related with MERS from May 20 to June 18. The analysis showed that more than 80% of the documents included negative words such as problem, danger, worry, and doubt, implying that the public was in fear of MERS virus. Feared from MERS infection, people refrained from going outside, not to mention visiting healthcare organizations. This influenced economic aspects badly and government and authorities strived to minimize the hit. Salmon (2015) reported that usually crowded places such as shopping malls, amusement parts, movie theaters, and restaurants showed drop in their sales. As many as 2,000 educational institutions such as kindergarten, elementary schools, middle schools and high schools are temporarily closed. International events such as briefings for World Military Games 2015, and Japan-Korea Goodwill Noodle Banquet were cancelled. Tourism sector also suffered from loss. According to Korea Tourism Organization, more than 20,000 foreign tourists cancelled their trip by June 7, two weeks after MERS outbreak. For tourists from China, Taiwan and Hong Kong who take large portion of Korean tourism, more than 80 percent of them cancelled their program giving harsh damage on tourism industry ("More foreigners," 2015). The total loss from MERS in foreign tourism sector from June to September is estimated as 2.23 trillion won ($1.95 billion). When the loss was combined with fall of domestic tourism, Korea Culture & Tourism Institute assumed that the financial damage in economy from MERS outbreak will be as much as 3.4 trillion won (more than 3 billion dollars) ("Tourism industry," 2015). The Ministry of

Culture, Sports, and Tourism (2015) announced that they provide special emergency loan to 17 types of tourism businesses which suffered from fall of tourists due to MERS outbreak. Prime interest rate was given to the loan, and a company could receive maximum 1 billion won. The Bank of Korea (2015) also reduced the standard interest rate from 1.75% to 1.5% hoping to recover domestic consumption.

6. Discussions on Ethical Evaluation and Practical Implications for Management of Korean Healthcare Organizations

Considering the fact that healthcare organizations hold the most number of accountability toward stakeholders such as patients, community, government & legal authorities, and other healthcare organizations, and hospital D violated all of these accountabilities imply that these stakeholders are the worst affected parties during the outbreak.

According to Winkler and Gruen (2005) healthcare organizations should follow four ethical principles which includes caring patients with competence and trust, guaranteeing employees' dignity and workplace safety, having responsibility to protect public's benefit, and managing resources efficiently. Competence of hospital D for managing MERS virus during the outbreak was far behind expectation which disappointed all of their stakeholders. Especially patients who trusted that the organization provides the highest quality of medical service had to suffer the most. Some of them were infected to the virus, some of them were exposed to danger of virus infection, and some of them had to move to other healthcare organizations due to the organization's temporary closure. Employees were discriminated as their position, and information about virus spread was not shared from management level which threatened safety of workplace. Public's health was not well protected by the organization. Capron (2007) pointed that implementation of quarantine and isolation threatens social justice and individual liberties such as freedom of movement and privacy. Although it was Korean government who decided to quarantine possible virus carriers, it should not be overlooked that failure of stakeholder management in hospital D left government with no other choice. When the violation of the three principles are combined with fourth principle, as the organization had problem of managing resources such as ill-prepared workforce, overcrowded patient rooms and emergency rooms, and lack of negative air pressure room, the government had to infringe individual freedom and privacy by implementing quarantine. As a result about 17,000 people were confined in their houses for two weeks only with foods and daily supplies provided from the authorities.

Also, numerous healthcare organizations had to close the institution temporarily in order to stop further transmission. This is the case of violation of distributive justice (Capron, 2007). Any healthcare institutions where reported confirmed patients or confirmed patients visited were recommended to close. Although they reopened when the risk of infection was gone, the number of visitors plummeted and it was not easy to recover operation. Korean Medical Association (2015) researched 70 healthcare organizations which had damage from MERS outbreak. The research was conducted for a month from July 28 when the government announced de factor end of outbreak. The report showed that these organizations closed for average 7.9 days and experienced decrease in number of visitors. When the number of visitors was compared with that of before closure, the result showed that in average one healthcare organization experienced 48.6% of outpatients and 64.3% of inpatients decrease in a day. And profit of

the organizations fell to 54.7% compared with that of previous year. In terms of non-financial damage from MERS outbreak, healthcare professionals reported high degree of stress and expressed concern for reputation of their organizations. Also from the anxious public more than 80% of healthcare professionals reported that they experienced disadvantage in community and 42.5% of them felt uneasy look on themselves.

As Freeman et al. (2004) suggested two questions posed for organization from stakeholder theory present directions and implications for organization's ethical operations. For the first question *'what is the purpose of the firm'*, the answer for healthcare organizations is to promote health of patients and community. However close examination on MERS outbreak showed that purpose of Korean healthcare organizations is to maximize profit, not to support well-being of the public. Among the three models of purpose of healthcare organizations, Korean healthcare organizations belong to economic model. Economic model emphasizes financial benefit and structure of healthcare organization with economic purpose is not morally acceptable (E. J. Emanuel and Emanuel, 1996; L. L. Emanuel, 2000). Considering unique characteristics of healthcare organizations such as engagement of public's health in management of organizations, dependant on the organization yet independent healthcare professional, information asymmetry, supply/demand asymmetry between organization and patients (Werhane, 2000), healthcare organization's having ethical purpose bears more importance.

For the second question *'what responsibility management have to stakeholders'*, the answer is discussed from stakeholder accountability map of healthcare organization. Korean healthcare organizations have 9 stakeholders and organizations bear as many as 7 healthcare accountabilities according to stakeholders. Those were hospital competence, professional competence, legal, ethical conduct, financial requirement, access to healthcare, public health promotion, and community benefit. Majority of these responsibilities however were not fulfilled during the MERS outbreak. The hospital was not ready for emergency management with lack of human resources and facilities. They also showed defects in communication inside the organization threatening employees' workplace safety. Overemphasis on financial profit made the hospital crowded without proper alternatives for emergency situation and it accelerated chaos of the community.

Therefore, considering ethical duties of healthcare organizations and their responsibilities toward stakeholders, managers of healthcare organizations must reexamine their stakeholder management in order to prevent similar disease outbreaks. Patients' welfare must be top priority for the organization, and structure and system of hospital management should adhere to this priority. Organizations must try to meet the legal requirements and provide the public high quality service in terms of organizations' culture, resource management, and medical treatment.

7. Conclusion

In the increasing threat of human infectious disease outbreak such as Ebola, Zika, and MERS virus, effective emergency management during the outbreak is getting more critical. MERS virus, which is believed to be prevalent in Middle East region occurred in Korea in 2015 and gave serious damage to the country. As Korea is in a peninsula and only land connection is blocked by North Korea, the transportation is limited to air and sea. Lack of direct land transportation should have made it easier for

Korea to provide disease control, but the MERS incident has proved it otherwise.

In this paper, role of healthcare organizations during the outbreak was closely studied under the frame of stakeholder management theory. According to the stakeholder accountability map of Korean healthcare organizations, the most important stakeholders of Korean healthcare organizations are patients, community, government & legal authorities, and other healthcare organizations. Obligations required from the healthcare organizations were discussed. The research showed that unethical purpose of Korean healthcare organizations and immorality of healthcare organizations' management are liable for MERS outbreak disaster. This paper is expected to be helpful in understanding reasons of MERS outbreak from alternative point of view and providing insights for preventing further similar disease outbreak. We recommend for future studies of organizations to integrate researches in hospital management to further investigate management structures of healthcare organizations. Especially when healthcare organizations are operating with the name of large corporations such as in case of hospital D in this study, evaluation of healthcare service and management should be solely based on those of healthcare organization, not confused with image of the corporation. As examined in this study, the name value of the largest conglomerate in Korea made the hospital D overestimated in their healthcare quality and emergency management system, which were actually behind the public's expectation. This process should be incorporated with government's initiatives. Chaos during the outbreak was not irrelevant with previous corrupted regime. One of numerous charges of recently impeached president Park Geun-hye was to give unjust favor and support to the largest conglomerate (Choe, 2017). Government's blatant support or providing unfair advantage to certain corporations must be avoided since it breaks balance of competition in market and is very likely to hinder public's objective evaluation on corporations. As virus outbreaks are increasing in number and in effect we hope that this study will be helpful in perceiving managerial context of virus outbreaks and their challenges.

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WASTES IN HEALTH CARE: IS IT A BIG PROBLEM?

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Abstract
The Health sector faces an increasing wastes problem worldwide; unfortunately the problem has attracted much attention only in the United States of America and lesser to other countries. A significant amount of resources (such as financial, human) have been lost due to this problem. The aims of the study are to determine the causes of the hospital waste, evaluate its consequences, present measures to reduce them also arise awareness and attention to this issues. In this way, it can be ensured that the waste of health care services comes to the agenda in other countries, including Turkey.

INTRODUCTION

Throughout the world, health care costs are getting higher (Bentley et al., 2008:629). There is great and immediate chance to reduce healthcare costs through the elimination of waste. Currently, studies shows that wastes account for one-third of healthcare expenditures (Berwick and Hackbarth, 2012:1513-15). Spending on services that lack evidence of producing better health outcomes compared to less-expensive alternatives; inefficiencies in the provision of health care goods and services; and costs incurred while treating avoidable medical injuries, such as preventable infections in hospitals, fraud and abuse consist of wastes (Lallemand, 2012). The aims of the study are to determine causes of the hospital waste, evaluate its consequences, present measures to reduce them also arise awareness and attention to this issues. According to the aim, first part of study we discuss and define wastes in healthcare systems, the second part focuses on causes and consequences of waste in hospitals, third part highlight the issues to put into consideration and the last part focuses on the measures applied to combat wastes.

WASTES IN THE HEALTHCARE SYSTEM

Waste in healthcare system can be defined as healthcare services that do not add value or advance patient outcomes. Ethically, health professionals are obligated to deliver the best care possible to patients along with their needy families. Simultaneously, they must be good stewards of limited resources for future health needs (Martin, 2014). Wastes comprises of a range of definitions for hospitals and health systems, including wasted time, finances, steps and human potential, to name a few. In the process of

performing their activities healthcare workers deal with many issues in hospitals and healthcare institutions. Below, the eight types of waste in healthcare are defined the Beckers Hospital Review (Gamble, 2013);

Defects; these include all time spent doing something incorrectly and inspecting or fixing errors. One example of defect waste is the time spent looking for an item missing from a surgical case cart.

Over-production waste; includes doing more than what is needed by the patient or doing it sooner than needed. A broad example of this is the performance of unnecessary diagnostic procedures.

Human potential wastes; waste is caused when employees are not engaged, heard or supported. Employees may feel burnt out and cease sharing ideas for improvement.

Transportation wastes; unnecessarily moving patients, specimens or materials throughout a system are wasteful. This is evident when the hospital has a poor layout, for example when a catheter laboratory is located a long distance from the emergency department.

*Waiting wastes; w*aiting for the next event to occur or the next work activity can eat up time and resources. Making patients wait for appointments is a sign of waste, as it is to making employees wait when their workloads are not at level to each other.

Inventory wastes; hospitals create waste when they incur excess inventory costs, storage and movement costs, spoilage and waste. Letting supplies expire and then disposing of them, create wastes.

Motion wastes; when employees move from room to room, floor to floor and building to building more than necessary; it accounts to waste. For instance, laboratory employees may walk miles per day due to a poor hospital layout.

Over-processing wastes; consider a work is performed and is valued to be of below quality when it's aligned with patient needs. One example is putting useless extra data stamps onto forms.

The following list in Table 1 highlights some of the issues that healthcare workers face every day (MDA Solutions, 2017).

Table 1. Wastes in terms of issues that healthcare workers face daily

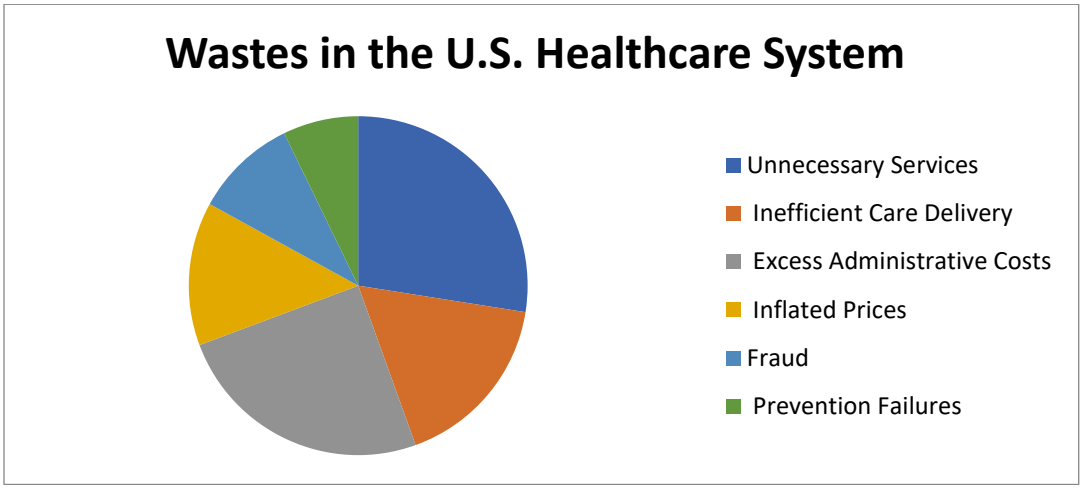
Wastes	Examples from Manufacturing	Examples from Experience in Healthcare
Overproduction	Producing more products than are required to meet current customer demand.	The worst waste in healthcare in our minds. Inpatient remains longer in an acute medical bed than is necessary. Few weekend discharges often add 3 additional days to length of stay. Lack of discharge planning catches nurses off guard when physician discharges patient. Weekly instead of daily rounds by physician builds up patient discharge queue.
Waiting	When goods are not moving through the plant often because of batch-and-queue practices between machine centers. Looking for tools.	Emergency patient waiting for initial treatment. Patient waiting for tests and then results from tests. Inpatient waiting to be discharged. Inpatient waiting on Emergency stretcher for bed on ward. Staff waiting for callback by consulting physician.
Transportation	Excessive product travel and handling.	Perhaps the most affected departments are lab and pharmacy that require timely deliveries to meet patient care requirements.

Inappropriate Processing	Over-designed product ultimately diminishing its value in the eyes of the customer.	Relocating emergency patient to another bed stall because of monitoring requirements necessitating a second or third move of other patients. Retesting due to misplaced results. Use of expensive drugs or consumables when cheaper alternatives are available. Misallocation of valuable and scarce resources, i.e. not spending the money where it's needed.
Unnecessary Inventory	Excessive Work in Progress (WIP) and Finished Goods inventories.	Batching of blood draws as well as lab tests. Oversupply of point-of-use stock leads to great excesses throughout the system.
Unnecessary/ Excess Motion	Poor ergonomics at the workstation. Searching for tools, help, variation in process steps, sharing of tools and equipment, etc.	Looking for meds, consumables, charts, equipment, staff and patients. Variation to standard methods and procedures. Sharing of equipment. Inconvenient locations for point-of-use storage.
Defects	Product that needs to be scrapped, reworked, or reconditioned.	Medication errors. Incorrect patient information. Wrong attending physician entered into emergency patient computer record upon discharge. Poor clinical outcome.

Causes and Consequences of Waste in Hospitals: Case of USA

Various authors brainstorm why wastes is still a problem in USA, with one stating ''*other countries are become highly advanced in research, procedures and healthcare technology, we still has no answer for the simple inefficiencies, that seem to hold our country's system far behind other developed nations unlike the USA. So where is all of this waste going*?'' (Palmer, 2017). It was further pointed out that wasteful practices in healthcare spending, incur approximately 30% of healthcare costs. The causes of wastes in hospital range from inefficient administrative practices to blatant abuse, and furthermore. The amount of wasted dollars is high as $750 billion. Wastes in the USA Health-Care System are shown Figure 1 (Fung, 2012) and explained below.

Figure 1. Wastes in the USA Health-Care System



Administrative Waste

In medical facilities, duties should be streamlined in the manner in which administrative duties are provided to help save cost in healthcare spending. Unnecessary complexity and sheer fragmentation of health operations accounts for a loss of amounts of money. For

instance, USA wastes about $190 billion dollars every year from this category. Additionally, the USA spends twice the amount other industrial countries with single-payer system spend on healthcare administrative (Palmer, 2017).

Unnecessary Services and Procedures

Every year under the pretense of necessity a lot of money is wasted on services ordered. The services and procedures are listed and explained below.

- **Unnecessary tests or test overload**

Occurs when loads of procedures are ordered by a doctor, only to show due diligence in diagnosing the patient. USA alone loses over $200 billion dollars in this category leading to unnecessary charges and cost to be incurred by the patient. This results to more procedures, medication, hospital and doctor visits than it is required to do (Kavilanz, 2009).

- **Over treatment**

This involves use of services or procedures that have very little, if any, benefit over the generic, less costly alternative procedure. Various studies have pointed out that different treatment options may provide equal results, but one may cost more than the other. Often, healthcare money is on the more expensive option, even when there is no satisfying explanation for this. The Government's approved generic drugs such as the USA's Food and Drug Authority (FDA) offer the same benefit as the name brand at a mere fraction of the price. Nevertheless, it is a usual tendency by doctors to prescribe name-brand drug without considering their higher cost (Palmer, 2017).

- **Imaging services**

During diagnosis and follow-up of patients' recovery, patient imagery is compulsory. Sadly, a large number of these procedures are done on low-risk patients; ones with less costly diagnostics. The Patients' exposure to a high level of radiation from many imaging services, eventually results to cancer. The rise in cancer due to this factor has been projected by some studies. Considering that a single MRI ranges from a few hundred to a few thousand dollars, and large sums of patients money are tied up in this way too i.e an X-ray can cost $300 on its own (Palmer, 2017; Kavilanz, 2009).

Inflated Prices

Businesses have to make money to continue to operate; thus, medical bills should reflect the actual cost of services plus a sensible fine profit. Contributing factors include lack of cost transparency, a scarcity of competitive options for patients and strict rules regarding facilities and providers that are covered by health insurance companies (Fung, 2012). Inflated prices account for over $105 billion in wastes (Quinn, 2012). Some claim that higher healthcare prices, are with justifications, but some inflation have no explanations. For instance, in USA, A study found that hospitals charge $50 upwards for each pair of gloves used by a doctor. Of course, in a single operation using many gloves is inevitable and the likely cost could be several hundred dollars. If patients would be given a choice and understand the cost, they would opt out of scenarios like this (Palmer, 2017).

Poor Prevention Tactics

For centuries it's known that, prevention is better than cure. For instance, every year $55 billion is wasted in this category due to poor prevention tactics. When it comes to preventative measures, putting onwards reasonable effort ahead of time always wins in the end (Quinn, 2012). This type of waste can be due to a doctor playing down patient's risk factor, proper prevention tactics can involve making efforts to properly prevent illness with diet (Palmer, 2017). Figure 2 is shown annual USA health care waste by category (Lallemand, 2012).

Figure 2. Estimates of Annual USA Health Care Waste by Category, 2011

	$ in Billions					
	Annual Cost to Medicare and Medicaid in 2011				Annual Cost to US Health Care System in 2011	
	Low	Midpoint	High	Low	Midpoint	High
Failures of care delivery	26	36	45	102	128	154
Failures of care coordination	21	30	39	25	35	45
Administrative complexity	16	36	56	107	248	389
Pricing failures	36	56	77	84	131	178
Fraud and abuse	30	64	98	82	177	272
Total	197	300	402	558	910	1263

Abuse

Abuse can be inform of scams, fake medical bills, billing for procedures that were not performed or appointments that were not made, double billing. When put up together, $75 billion dollar goes into waste. The money spent to follow up, inspect, and prosecute those who commit such acts, goes into waste. Ten percent of the total cost of Medicare is reportedly from abuse. Despite the efforts made to decrease the abuse that insurance companies, Medicaid and Medicare have to endure, new ways to scam the system invented frequently. It would be encouraging, if this money is saved up and directed toward something positive rather than waste it (Palmer, 2017).

Inefficient Care Execution

Running the business at peak efficiently means more profit. Healthcare business differs from the rest business. When healthcare is inefficiently run, much more money is spent on operations. Thus, the cost of inefficiency falls directly on the patient or insurance company. In one scenario, a study cited that 27 percent of Medicare patients experienced some type of life and non-life threatening injuries due to inefficient care execution during a hospital stay. The costs may add up to a massive $130 billion dollars in waste. Furthermore, these situations may result in hospital readmissions of up to a fifth of the discharged patients (Kavilanz, 2009; Classen et al., 2001: 582-83).

ISSUES FOR CONSIDERATION AND THEIR IMPACTS

Wastes impends the ability to pay for new treatments and technologies due to non-compulsory expenditures. While maintaining national fiscal health, the existing and future health care spending obligations prevent the federal government from achieving certain health care system goals such as universal insurance coverage (Orszag, 2008). When the consideration of the root causes of each key finding was done, five systemic issues requiring further consideration were yielded:

- Lack of compliance with clinical guidelines, raising issues of potential shortcomings in physician decision making;
- Variation in the intensity of clinical care, suggesting a lack of evidence based decisions;
- Limited adoption of information technology in areas such as decision support and care coordination;
- Underuse of cost effective diagnostic tests; and
- Failure of the primary care system to meet access need (Delaune and Everett, 2008).

MEASURES TO REDUCE HOSPITALS WASTE

In order to reduce hospitals waste; policy alternatives, strategies and other methods are being implemented. Developing a series of policy alternatives decreases waste where feasible.

- Investigating barriers to physician guideline compliance, understanding how physicians make decisions and considering what can be done to decrease variation in evidence-based practice;
- Examining the causes of emergency department's medical resources overuse for non-urgent conditions and the adequacy of the primary care system to offer alternatives;
- Researching ways to improve current care practices through innovation, such as limiting antibiotic use in acute respiratory infections through point of service testing;
- Considering ways to advance the adoption of information technology to decrease medical errors, including decision support systems and e-prescribing in the outpatient setting;
- Investigating suspected and not well documented examples of waste, including the overuse of advanced imaging technologies and chemotherapy;
- Examining the causes of geographic variation in clinical care; and
- Building a countrywide coalition to identify waste and illuminating best practices to eliminate it (Delaune and Everett, 2008).

The two primary ways to reduce costs and improve quality suggested to USA were:

- Comprehensive demand-side strategy and reforms. Here consumers are given incentives and information to be better purchasers of health care. *How*; Accelerate the growth of consumer-directed health plans paired with other reforms to encourage consumers to be more sensitive to prices. *What should be included*? These reforms should include increased regulations to promote price and quality transparency and payer innovations to introduce insurance plans with reference prices. *Wastes saved*; with this strategy, an incremental $110 billion in savings is projected further than the $140 billion on the path of being achieved, representing an additional 3% of health care spending. *Point to note*; however, this approach would not be totally positive: Evidence suggests that some portion of the reduction in costs would result from the patients not seeking necessary care due to increased sensitivity to prices. *Anticipated solutions;* Innovation in insurance products, such as value-based-insurance designs that reduce cost sharing for highly effective clinical services, can help address these concerns (Sahni et al., 2015).

Other ways to reduce costs and improve quality suggested to USA were:-

- Aggressive supply-side strategy and reforms. It changes the way providers are paid so their profit margins are tightly linked to outcomes and efficiency rather than the volume of services delivered. Thus, specifically, policymakers could adopt the following reforms that have been proven to work. *How*? Accelerate the migration from the fee-for-service payment system to alternative payment methods such as bundled payments or capitated budgets for individuals. *Impacts*; providers will be driven to reorganize their care-delivery models. *Point to note*; this strategy would save a similar amount to the demand-side strategy, and evidence from early

implementations suggests it will result in no reductions in quality or the use of "necessary" care (Sahni et al., 2015).

- All together can be pursued, when the choice between demand-side and supply-side reforms is artificial. That would generate an incremental extra $170 billion in savings to the $220 billion total. By also pursuing other concrete opportunities like reducing administrative complexity to the levels in other service industries a massive $130 billion would be yield. Thus, a total of $440 billion per year equivalent to 14% of total spending on health care could be saved. Over five years of successful achievement, the projected growth in health care spending would be halved, reducing the average annual growth rate from 5.5% to 2.4% (Sahni et al., 2015).
- New ways to reduce cost include healthcare quality process improvement techniques such as Six sigma and Lean management. These methods are effective at dealing with administrative costs; a much greater return can be gained by concentrating on the clinical or patient care costs. Nevertheless, obstacles never cease to exist especially when financial executives are reluctant to embrace the elimination of patient care costs due to the predominant fee-for-service based systems. The reimbursement changes are taking place since moving towards a managed care platform is a priority addressing wastes associated with current healthcare delivery models is vital (Sahni et al., 2015).

CONCLUSION

Currently, wastes consists of a consistent, continued, substantial increase of Healthcare spending, with this being the case much of the scarce resources get tied up and deliver nothing of concrete to address the patients and health care issues. Wastes in the healthcare system could be inform of defects, over-production, human potential, transportation, waiting, inventory, motion and over-processing. Generally, wastes if not dealt with tend to have grave consequences not only to the patients' outcomes but also to the Health care system. Over the course of time, firstly in the Industries and now in Healthcare scholars discovered and improved wastes curbing methods for example the use of Lean Management. However, Lean Management does not cover every aspect of wastes in the healthcare system. More innovative ways should be developed since it is more challenging to get a ''one fits all'' solution to all the consequences resulted by the presence of wastes in Hospitals and health systems. As it has been discussed the problem is evident throughout the world but other than the USA, the subject has generated less attention in other countries. Some few studies have been conducted in Turkey (Simsir et al., 2013; Sayistay Baskanligi, 2005) but they have not addressed this problem to the extent of losses which it contributes to the health sector of the country's health sector.

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A STUDY ON THE EMPLOYEES' OSH AWARENESS AND ATTITUDE LEVEL*

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ABSTRACT

A wide variety of emergencies adversely affect workplaces and employee health. Besides, large-scale disasters cause material damage in large proportions and most importantly threaten working life too. This study was carried out by conducting a survey in the workplaces which are situated in Gümüşhane and Trabzon province in order to evaluate knowledge level and attitude of the employees about institutional applications related to Occupational Health and Safety (OSH) and "Regulation on Emergencies in Workplaces" that was published in 2013 in Turkey. The study was planned as a quantitative research. A Total of 31 public and private enterprises, 20 from Gümüşhane and 11 from Trabzon, participated in the study. A total of 563 questionnaires were validated and analyzed. 563 employees participated in the study. 325 of them were workers, 16 were chief-foremen, 129 were technical staff, 46 were administrative staff, and 30 were managers. As a result, while the knowledge level of the employees about legal issues was found sufficient, a deficiency of the attributed significance about the subject and also a deficiency about implementation was found. It is believed that providing training for the employees by related enterprises will have a positive impact on the employees' opinion about OSH.

Introduction

Major incidents that may negatively affect employee health include workplace accidents, occupational diseases and all kinds of emergencies and disasters that occur while working. Apart from these, sabotages and terrorist attacks are likely to occur in the workplace as a man-made disaster. When these incidents occur in the workplace, it is necessary to take some preventive measures in order to protect employees' health. In terms of emergencies, one of the preventive measures that are necessary to take for all workplaces is preparing an emergency action plan according to the hazard level of the workplace. Emergency Action Plans and

necessary measures are explained in detail in the law of Occupational Health and Safety (OSH) and in the regulations in Turkey. The law is of great importance in terms of bringing forward the adoption of preventive measures with a risk management approach that at first aims the prevention of incidents instead of crisis management approach dealing with just the material elements after the occurrence of any incident in the workplace (Korkmaz and Avsallı, 2012: 153). This approach of the law foresees the implementation of a risk management approach that prevents accidents and unexpected situations in the workplace. At the same time, this approach brings many innovations such as preparing emergency action plans to workplaces, warning signs and conducting health examination of the employees periodically.

Occupational Health and Safety (OSH) covers a set of studies that comprise of laws, regulations and application-oriented parts of these regulations in order to rescue employees without damage with the involvement of employers, employees and everyone in the workplace when an incident occurs (Özkılıç, 2005). Also, OSH offers a new scientific study field for the researchers.

In the workplace, emergencies may be due to exposure to adverse conditions, as well as accidents or disasters. As for the work accidents, according to Social Security Institution (SSI), they are events that cause physical and mental disorders to employees due to the work carried out for the employer. Also work accidents are the events that happen while the employees are in the workplace, when a worker assigned to an outside job by the employer and doesn't do his/her main job, when a woman go to feed her baby or while the employees are taken by a vehicle provided by the employer (isgum.gov.tr, 2016). Disasters are events that occur more extensively in terms of influence and harm to people at workplaces. Disasters are the consequences of events that include disaster risk and these events cause economic, social and environmental problems for the society, disrupts or stops normal life order and the society becomes dependent on outside help to deal with (Kadıoğlu and Özdamar, 2008: 302). It should be emphasized that "disasters are the consequences of events" in this definition. For example, an earthquake is a natural phenomenon but if it affects a society then it becomes a "Disaster". If there is an earthquake in a place where no one lives this phenomenon can't be named as a disaster.

There are two approaches which can be used by the employees to deal with negative situations. One of them is waiting and trying to solve the problem when it happens, namely crisis management, the other is anticipating the adverse conditions that may arise in workplace and taking precautionary measures, namely risk management approach. The determination of potential adverse conditions, accidents or some events that can result from disasters and the consequences of these events and the measures to be taken against them, are evaluated within the scope of risk analysis. Risk is a probability of life, property, economic and environmental loses (www.afad.gov.tr/, 2015).

The purpose of this study is to assess the awareness and attitudes of employees, who works in the public and private enterprises, related to occupational health and safety law and regulations. Therefore, it aims to determine what is reflected in public and private enterprises from occupational safety and health studies carried out recently in Turkey and thus, to bring forward proposals about sector practices according to the state which has been emerged in the study.

1. Literature

There are large numbers of studies in the international literature on emergencies that may arise in the workplace, but in the national literature, this issue has only recently come to the forefront. As an example of these studies, a master thesis study was carried out in Gümüşhane by Said (2015) by selecting samples from industrial establishments where emergency risks might be high; he wanted to determine the employees' awareness level related to OSH and first aid. It was investigated by the study whether there is a relation between the demographic findings of industrial and mining employees and the sub-dimensions of security perceptions (Said, 2015).

Evan D. Duff (2007) studied the training practices and crisis management of people working in a private college. The study aimed to prepare an effective emergency preparedness training program based on a current crisis management plan for the subject college. He found out that only less than 40% of the participants saw the crisis management plan of the college and all of the participants needed more crisis management training. He also recommended collaboration with the local emergency response institutions, the preparation of an elaborate training program for the employees, implementation of a crisis communication plan and preparation of crisis stress counseling components. He determined that the persons working in the college can't be proactive and effective during a crisis (Duff, 2007).

In a study by Bonafade et al. (2016) on workers at companies in Italy, It was assessed whether the employers' perceptions of OSH management differed according to firm size. The study was conducted with a total of 1010 employees and the data was obtained by telephone interview. As a result, it was found out that the employees of the small sized enterprises were less satisfied about OSH practices. Moreover, the employees of the small sized enterprises think of OSH practices as a legal obligation instead of an added value. More than 70% of the participants stated that the investment in the OSH was sustainable (Bonafade et al., 2016).

A study conducted by Ollé-Espluga et al. (2015) in Spain, wanted to determine what impact would have on OSH when the employees knew that there was a safety representative in their workplace, when they didn't know and in situations that there was no safety representative. Employees who knew there was a security representative said that they were better protected and it was not found out statistically significant difference between the employees who didn't have a safety representative and who weren't aware of it (Ollé-Espluga, et al, 2015).

Tozkoparan and Taşoğlu published a study in which they evaluated the employees' attitude related to OSH practices in 2011. They conducted a survey about OSH-related applications to 400 employees from 6 medium and large-scale enterprises in İzmir. The employees who participated in the study indicated that their responsibility was high and the employers' responsibility was low in terms of safety (Tozkoparan and Taşoğlu, 2011).

A cross-sectional study on accidents and safety climate was conducted by Ajslev and his colleagues (2017) with 15,000 employees selected from the general population in Denmark. The data from a total of 15,144 employees was assessed with logistic regression analysis and they found that there was statistically significant difference between safety problems and the probability of progressive occupational accident. Apart from this, they determined

that the risk of young employees' occupational accident was high (Ajslev et al, 2017).

Battaglia and colleagues (2015) conducted a study titled "Occupational Health and Safety Management in Municipal Waste Companies: A Note on the Italian Sector" with the aim to assess the level of OSH management in the waste companies in Italy. A questionnaire was conducted to employees of 60 firms with different sizes. It was found that the OSH management of the firms was sufficient (Battaglia et al., 2015).

2. Material and Method

This study was planned as a quantitative research. During the year 2016, survey data was collected from the employees of public and private enterprises in Gümüşhane and Trabzon provinces. A total of 31 public and private enterprises from Gümüşhane and 11 from Trabzon participated in the study. A total of 563 questionnaires were validated and analyzed. To collect data, the researchers developed the awareness and attitude scale for employees about OSH-related applications. The scale was validated by factor analysis and reliability was tested by Cronbach's Alpha coefficient. The questionnaire form which included the scale consists of a text indicating the purpose of the study to the employees, questions for demographic information and then 20 questions with 5 point likert scale.

The data was analyzed in SPSS 23 packet program. In the factor analysis for validity, the expressions were collected under two factors and cumulatively described 40.538% of the variance. The value of KMO (Kaiser-Meyer-Olkin sampling proficiency test) value was found to be greater than 70% (87%) and it was understood that the validity level of the study was very good (İslamoğlu and Alnıaçık, 2014: 403). The reliability level of the scale was measured by Cronbach's Alpha method, the value was found to be 0.76 and according to this, the developed scale was reliable (Can, 2014: 369).

The factor loadings of the items are given below (Table1).

Table 1. Distribution of the Factors of the Questions

The Items	The Factors.	
	Awareness	Attitude
Q1.There is an emergency action plan for work accidents and disasters that may occur at the workplace I work for.	0.705	
Q2. Regular training on occupational health and safety is carried out in our workplace.	0.782	
Q3. Drills are conducted against the accidents that may occur in our workplace.	0.708	
Q4.There are warning signs and signs about work safety in our workplace.	0.666	
Q5. Our medical examination and checks are periodically performed by our occupational physician.	0.667	
Q6. It is a legal obligation to make an emergency action plan at workplaces.	0.487	
Q7. It is a voluntary job for the employer to carry out the OSH trainings of the employees.	0.377	
Q8. It is a legal obligation to drill against accidents in the workplace.	0.406	

Q9. In my workplace, teams to intervene in case of work accidents and disasters have been established and it is known who is responsible.	0.664	
Q10. The general cleaning rules are strictly obeyed in my workplace.	0.493	
Q11. Our attention is pointed to risky and dangerous jobs.	0.686	
Q12. Work-clothes are provided at the workplace, the employees are strictly supervised to wear work clothes and comply with work safety rules.	0.683	
Q13. Our workplace has a specialist in occupational health and safety and is doing his/her job well.	0.650	
Q14. Risk analysis studies are carried out in order to determine risky jobs in our workplace.	0.738	
Q15. In fact, what are said to be related to occupational health and safety are not on paper.		0.499
Q16. For our conditions, OSH practices are not unnecessary and meaningless.		0.445
Q17. My co-workers give importance to OSH.		0.662
Q18. I do believe that OSH practices will work.		0.475
Q19. I wish these practicies were really done and we worked safely.		0.622
Q20. The imposition of an emergency action plan and implementation of the requirements for workplaces is an important step for safety.		0.345

The frequency analysis of the distribution has been made according to the arithmetic mean of the expressions and is interpreted according to the following numerical value ranges;

1. 1.0-2.3: Low level
2. 2.4-3.7: Medium level
3. 3.8-5.0: High level

The analyses of data were done with the analysis of frequency and significance. The significance status of the independent variables on dependent variables was determined by independent T test and ANOVA and Tukey tests.

4. Results

The Table 2 shows the sample and demographic findings of the research.

Table 2. Demographic Findings of the Participants

Demographic finding	**Number**	**Percentage (%)**	**Demographic finding**	**Number**	**Percentage(%)**
Occupation			**Education**		
1. Worker	325	57.7	1. Primary school	73	13
2. Chief-foremen	16	2.8	2. High school	143	25.4
3.Technical Staff	129	22.9	3. Vocational High	52	9.2
4. Administrative			School	99	17.6
Staff	46	8.2	4. Associate Degree	166	29.5
5. Manager	30	5.3	5. Graduate	24	4.3
6. Missing	17	3.0	6. Postgraduate	6	1.1
Total	563	100.0	7. Missing	563	100.0
			Total		
Age			**Working year in the**		
1. < 25	90	16	**workplace**		
2. 26-35	203	36.1	1. 0-4 (Year)	276	49

3. 36-45	131	23.3	2. 5-9	109	19.4
4. >46	119	21.1	3. 10-14	53	9.4
5. Missing	20	3.5	4. 15-19	29	5.2
Total	563	100.0	5. 20+	82	14.5
			6. Missing	14	2.5
			Total	563	100.0
Gender			**Working year in the occupation**		
1. Male	419	74.4			
2. Female	136	24.2	1. 0-4 (Year)	190	33.74
3. Missing	8	1.4	2. 5-9	107	19
Total	563	100.0	3. 10-14	66	11.72
			4. 15-19	44	7.81
			5. 20+	128	22.73
			6. Missing	28	4.97
			Total	563	100.0
Marital Status			**Number of OSH training programs attended in the last 1 year**		
1. Single	200	35.5			
2. Married	351	62.3			
3. Missing	12	2.1			
Total	563	100.0	1. 0	45	8
			2. 1	201	35.7
Province			3. 2	144	25.6
Gümüşhane	251	44.6	4. 3	69	12.3
Trabzon	312	55.4	5. 4	33	5.9
Total	563	100.0	6. 5+	59	10.5
			7. Missing	12	2.1
			Total	563	100.0

Totally, 563 employees participated in the study. 74.4% of them were male, 24.2% were female. When employees were asked about the number of training programs they attended on OSH in the last 1 year, it was found that 8% of the employees never attended, 35.7% attended only once, 25.6% attended twice, 12.3% attended 3 times, 5.9% attended 4 times, 10.5% attended 5 times and above (Table 2).

Table 3. Awareness and Attitudes of the Employees Towards Workplace OSH Practices

Items	X	SD
Workplace Applications and Awareness Level of the Employees	**3.55**	**1.169**
There is an emergency action plan for work accidents and disasters that may occur at the workplace I work for.	3.61	1.141
Regular training on occupational health and safety is carried out in our workplace.	3.69	1.145
Drills are conducted against the accidents that may occur in our workplace.	**3.28**	1.212
There are warning signs and signs about work safety in our workplace.	3.88	1.100
Our medical examination and checks are periodically performed by our occupational physician.	**3.26**	1.422
It is a legal obligation to make an emergency action plan at workplaces.	**4.11**	0.995
It is a voluntary job for the employer to carry out the OSH trainings of the employees.	3.16	1.352
It is a legal obligation to drill against accidents in the workplace.	**4.09**	1.002

In my workplace, teams to intervene in case of work accidents and disasters have been established and it is known who is responsible.	3.46	1.270
The general cleaning rules are strictly obeyed in my workplace.	3.52	1.197
Our attention is pointed to risky and dangerous jobs.	3.64	2.029
Work-clothes are provided at the workplace, employees are strictly iş güvenliği kurallarına uyması sıkı şekilde denetlenmektedir.	3.54	1.268
Our workplace has a specialist in occupational health and safety and is doing his/her job well.	3.38	1.327
Risk analysis studies are carried out in order to determine risky jobs in our workplace.	**3.19**	1.281
Employees' Attitudes about the Workplace Applications	**3.77**	**1.175**
In fact, In fact, what are said to be related to occupational health and safety are not on paper.	**3.38**	1.236
For our conditions, OSH practices are not unnecessary and meaningless.	**4.06**	1.131
My co-workers give importance to OSH.	**3.37**	1.207
I do believe that OSH practices will work.	3.84	1.269
I wish these practicies were really done and we worked safely.	3.65	1.336
The imposition of an emergency action plan and implementation of the requirements for workplaces is an important step for safety.	**4.32**	0.872
General average	**3.66**	**1.234**

The average of the first 14 questions, which measure the awareness level of the employees and corporate applications related to OSH, was calculated as 3.55. According to the criterion given in the material and method section, employees' awareness level and workplace applications related to OSH was determined at moderate level. In particular, it was noticed that the employees had a high level of awareness in the question of "making emergency action plan is a legal obligation (4.11)" and "drills against accidents that may occur is a legal obligation (4.09)". However, it was found that the employees had a moderate awareness level in the question of "Drills are conducted against the accidents that may occur in our workplace (3.28)" and "Our medical examination and checks are periodically performed by our occupational physician (3.26)" and "Risk analysis studies are carried out in order to determine risky jobs in our workplace (3.19)" (Table 3).

It was found that the attitudes of the employees towards appreciation of the regulations and institutional OSH practices as important and being implemented appropriately, were on the verge of high level with 3.77. The employees expressed their wishes at high level for the items "The imposition of an emergency action plan and implementation of the requirements for workplaces is an important step for safety (4.32)" and "For our conditions, OSH practices are not unnecessary and meaningless (4.06)". Also the respondents stated at high level (3.84) that "I do believe that the OSH practices will work. It was understood that the employees were moderately engaged in the opinion "In fact, what are said to be related to occupational health and safety are not on paper (3.38)" and "My co-workers give importance to OSH (3.37)" Table 3).

Table 4. The Items with Statistically Significant Difference between Demographic Characteristics and the Awareness and Attitudes of the Employees

Items	Province	Gender	Marital status	Occupational groups	Age	Education	Working year in the workplace	Working year in the occupation	OSH training in the last 1 year
Workplace Applications and Awareness Level of the Employees	0.000	0.000	0.000		0.000		0.001	0.000	0.000
There is an emergency action plan for work accidents and disasters that may occur at the workplace I work for.	0.000	0.001	0.000		0.008		0.009	0.009	0.000
Regular training on occupational health and safety is carried out in our workplace.	0.000	0.000	0.000	0.016	0.000	0.037	0.000	0.000	0.000
Drills are conducted against the accidents that may occur in our workplace.	0.000	0.000	0.000		0.026	0.042	0.011	0.017	0.000
There are warning signs and signs about work safety in our workplace.	0.000	0.002	0.021	0.047	0.038	0.016		0.010	0.000
Our medical examination and checks are periodically performed by our occupational physician.	0.000	0.000	0.004		0.000	0.000		0.017	0.000
It is a legal obligation to make an emergency action plan at workplaces.	0.000			0.042	0.038	0.023	0.001	0.000	0.006
It is a voluntary job for the employer to carry out the OSH trainings of the employees.				0.003		0.001			0.007
It is a legal obligation to drill against accidents in the workplace.	0.004					0.034	0.001	0.000	
In my workplace, teams to intervene in case of work accidents and disasters have been established and it is known who is responsible.	0.000	0.000	0.001		0.000	0.004	0.002	0.000	0.000
The general cleaning rules are strictly							0.001		0.014

obeyed in my workplace.									
Our attention is pointed to risky and dangerous jobs.							0.039		
Work-clothes are provided at the workplace, employees are strictly iş güvenliği kurallarına uyması sıkı şekilde denetlenmektedir.	0.000	0.032				0.026			0.000
Our workplace has a specialist in occupational health and safety and is doing him/her job well.	0.000	0.000			0.003		0.014	0.017	0.000
Risk analysis studies are carried out in order to determine risky jobs in our workplace.	0.026	0.000			0.008			0.012	0.000
Employees' Attitudes about the Workplace Applications	0.007								0.001
In fact, what are said to be related to occupational health and safety are not on paper.	0.004								0.000
For our conditions, OSH practices are not unnecessary and meaningless.	0.025								
My co-workers give importance to OSH.	0.019								
I do believe that the OSH practices will work.						0.002			
I wish these practices were really done and we worked safely.									
The imposition of an emergency action plan and implementation of the requirements for workplaces is an important step for safety.		0.023							

* The values in the table shows statistically significant difference (P<0.05)

The significant difference status between the scale questions which constituted the characteristics of the dependent variables and the independent variables which constituted the demographic and the workplace characteristics of the employees was evaluated (Table 4). The variable with the most significant difference among the nine independent variables was the province in which the employees worked. It was determined that the employees working in Trabzon metropolis had more awareness and positive opinion about OSH practices than the employees working in Gümüşhane. Likewise, the employees trained on OSH had more positive opinion than those not trained.

It was found that among the independent variables, gender, education and working years in the occupation (11), working years in the workplace and age (10), marital status (7) and occupational groups (4) thought differently. When the items which showed statistically significant difference were examined, it was found that, the technical staff, the workers who trained at least once or more, the married workers, the employees who worked 10-14 years, the older workers, the employees who worked 10-14 and over years, the employees who graduated from high and vocational high schools and the males expressed more positive opinions about OSH regulations and their workplace practices.

5. Discussion

In this section, the results of the studies mentioned in the literature section and the results of this study were compared.

When it comes to awareness level of the employees which was determined in the study, it is seen that there is consensus in two items. These are "It is a legal obligation to make an emergency action plan at workplaces (4.11) and "It is a legal obligation to drill against accidents in the workplace (4.09). when we look at the attitude level, it is seen a similar consensus in the items "For our conditions, OSH practices are not unnecessary and meaningless (4.06)" and "The imposition of an emergency action plan and implementation of the requirements for workplaces is an important step for safety (4.32)" (Table 3).

When it comes to the items with statistically significant difference (Table 4), one of them attracts the attention. In the item "Regular training on occupational health and safety is carried out in our workplace", there is statistically significant difference with all demographic characteristic.

Said (2014) tried to determine the awareness level of the workers towards first aid and security measurement related to OSH in Gümüşhane. He stated in the study that the workers who were trained on OSH differed significantly compared to those who were not. A similar result was found in this study determining that the employees who were trained on OSH at least once in the last year expressed more positive opinions compared those who were not. With these results, it could be said that OSH trainings are important.

In the study done by Tozkoparan and Taşoğlu (2011), the employees stated that their responsibility was high but the employers' responsibility was low in terms of safety. In this study, it was found that the employees' attitude in terms of attached importance to the practices of OSH is at moderate level but their belief that OSH practices would work, is at high level. It is understood that while the employees have awareness at high level towards OSH practices, it is at moderate level when it comes to applying this practices.

Evan D. Duff (2007) determined in his study that the employees would not be able to be active and effective during a work-related accident or exception. He also found in the study that all the respondents were in need of more crisis management training and only less than 40% saw the crisis management plan of the college. He recommended the preparation of elaborate training program for the employees, the implementation of a communication plan, formation of crisis counseling components and collaboration of agencies related to emergency response with the college. As for our study, it was found that even though the employees have a high awareness level towards OSH plans, training and drilling, they had moderate awareness level towards implementation of these. It can be said that more drilling, planning for crisis and training were highlighted in the both studies.

Ollé-Espluga and his colleagues (2015) examined whether the employees knew they had a safety representative in their workplace in Spain. In this study it was found that the employees participated at moderate level (3.54) when asked "Our workplace has a specialist in occupational health and safety and is doing his/her job well".

Ajslev and his colleagues (2017) determined that the 5.7% of the participants didn't go to work because of illnesses in that year. It was found that the number of safety climate problems is associated with increased probability of work-related accidents. They also found that the work-related accident probability of younger workers (18-24) is higher. It was determined in our study that the employees who worked in their occupation 10-14 years and over, who worked in their workplace 10-14 years and the older ones (46+) expressed more positive opinions. It was understood by examining both studies that the younger and inexperienced workers had less awareness and less positive attitude towards OSH practices and importance in terms of age and experience. It can be said that both studies support each other in this respect.

Battaglia and colleagues (2015) conducted a study in which they evaluated the maturity level of OSH management in waste management activities and the factors that affect this level. The firms which participated in the study stated that OSH management level was sufficient. They determined that sufficient budget, worker and labor unions' pressure, having obtained the OHSAS 18001 (Occupational Health and Safety Assessment Series) certificate increased this maturity level. It can be interpreted that the moderate awareness level of planning, training and drilling which needed to be prepared and conducted by the enterprises points to the shortcomings in this subject. These circumstances have shown that there are things to be done about OSH by the enterprises in Turkey.

Conclusion and Recommendations

According to the findings, it can be said that the awareness level of the employees regarding legal issues is generally sufficient. But the importance they give to the practice is not sufficient. At the same time, the enterprises should do more things at least in the subject of informing the employees about preparing emergency action plans, risk analysis, health examinations and drills related to OSH practices. Thus, it can be said that the opinions "regarding the things that must be done for OSH is on paper" will pass from moderate level to high.

When the legal regulations and practices for OSH including sanctions in Turkey are considered to be new on the

agenda, it can be said that there are a lot of things to do. The first of these is to increase the level of awareness and practice in employees by increasing OSH trainings at workplaces and raising employee participation. It is needed for the employers to prevent the opinion expressed by the employees as “this OSH issue is on paper”. For achieving this, the employers should involve the employees in processes related to preparing emergency action plans, risk analysis, health examinations and drills.

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