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FARKLI SAĞLIK SİSTEMLERİNİN COVID-19 KRİZİ DÖNEMİNDE KARŞILAŞTIRMA ÇALIŞMASI

A COMPARISON STUDY ON HEALTHCARE SYSTEMS FOR DIFFERENT COUNTRIES DURING COVID-19 CRISIS

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ÖZET

Covid-19 sorunu tüm dünya genelinde Mart 2020'den itibaren 5 Milyon enfekte olan hastayla başlayıp Mayıs 2021 dönemine kadar 162 Milyon enfekte olan insana kadar ulaşmıştır. Amerika Birleşik Devletleri ve Hindistan'da 25 Milyondan fazla, Brezilya, Fransa, Türkiye, Rusya, İngiltere ve İtalya'da 4 milyondan fazla insan Mayıs 2021 dönemine kadar enfekte olmuştur. Karşılaştırmalı çalışmamızda, farklı ülkelerin Sağlık finansal sistemleri, insani gelişim indeksleri, Gayri Safi milli Hasıladaki Sağlık Harcamalarının oranı, covid 19 döneminde alınan koruyucu Sağlık hizmetleri, covid-19 testleri ve aşılama gibi önlem ve aksiyonlar gözden geçirilmiştir. Ölüm hızı %2 ve fazla olan ülkeler incelendiğinde Brezilya, İngiltere, Rusya, Almanya, İtalya ve ispanya gelmektedir. Ölüm hızı %1,4 ve aşağısında olan ülkeler incelendiğinde Singapur, Güney Kore, İsrail ve Türkiye verileri çalışmamızda her ülkenin Covid-19 test sayısı ve aşı yönetim politkalarıyla birlikte başarılı olarak değerlendirilmiştir. Amerika Birleşik Devletleri, Çin, Hindistan, Brazilya, İngiltere ve Almanya aşılama sayısında ilk ülke arasında yer almıştır. İleri çalışma verileri, aşı politikaları, Sağlık hizmetleri sistemleri, koruyucu Sağlık hizmetleri sistemleri, ülkelerin normalleşme süreci geçişleriyle ilgili detaylı karşılaştırma çalışmalarının her ülke özelinde yapılması gerekmektedir.

Anahtar Kelimeler: Covid-19, Sağlık Finansal Sistemleri, Ölüm Hızı, Aşılama, Koruyucu Sağlık Hizmetleri

ABSTRACT

Covid-19 issue has been affected all over the world and the overall number of infected people has started with 5M at the first pandemic start in March 2020 to reach over 162M in May 2021. USA and India had more than 25M infected people, and Brazil, France, Turkey, Russia, UK and Italy had more than 4M infected people till May 2021. In our comparison study, it has been reviewed the different countries health financial systems, the human development index (HDI), current health expenditure percentage per gross domestic product %(GDP), and the actions during covid-19 precautions such as tests and vaccination activities. The death rate over 2% countries have been observed such as Brazil, United Kingdom, Russia, Germany, Italy and Spain. The countries who had less than 1,4% death rate such as Singapore, South Korea, Israel, and Turkey have been analyzed in our work study with each country Covid-19 testing and vaccination management policies as a successful outcome. USA, China, India, Brazil, United Kingdom and Germany are in top 6 countries for the vaccination list, and further studies are definitely needed to evaluate with the vaccination policy, health care system, precaution healthcare services and transition of each countries normalization process perspectives.

Keywords: Covid-19, health financial systems, death rate, vaccination, precaution healthcare service

1. INTRODUCTION

First identified in Wuhan province of China in December 2019, Coronavirus (COVID-19) turned into a pandemic and most initial cases were related to source infection from a seafood wholesale market (1). World Health Organization (WHO) declared “pandemic” for the COVID-19 virus outbreak and many countries were prompted to take various measures as the virus spread quickly all around the world. Some of these measures brought the daily life to a standstill while some countries failed to switch from prevention of the transmission to the stage of delaying the spread.

Until September 2020, the Covid-19 has spread to all over the world which has infected around 27 million people and has killed around 900 thousand people. USA, Brazil, and Russia are top 4 countries with the highest number of infected total cases. United Kingdom, France, Turkey and, Italy are in the Top 20 countries list, Germany and Canada in the Top 30 countries list, Singapore is in the Top 50 countries list and South Korea is in the Top 100 countries list instead of evaluating highest number of infected total cases and until May 2021, Top 5 countries who had most infected cases such as; USA, India, Brazil, France and Turkey (2).

Some countries that are assumed to be well developed in the field of healthcare failed the fight against pandemic while other countries with more limited economic potential in comparison to former ones succeeded substantially. The success or failure in the fight against Covid-19 is closely related to healthcare systems of countries (3). A healthcare system consists of delivery, financing and management of healthcare services and it has been observed that the healthcare systems of countries suffered problems originating from those three main components. Overcrowded intensive care units, problems in supplying drugs, protective materials and other medical products and shortage of healthcare personnel in some countries all originate from troublesome healthcare systems (4).

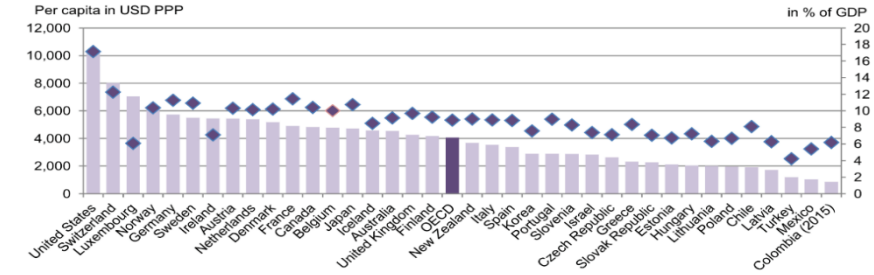
Countries followed different approaches to fight against the Covid-19 pandemic. Such differences cover a wide spectrum, ranging from medical treatments and disease management processes to economic measures, social restrictions and crisis management. Those processes are influenced by a wide range of factors including economic, social, demographic and cultural structures as well as healthcare service delivery infrastructures of countries. Characteristics of countries and the means they preferred for Covid-19 outbreak caused variations in the pandemic experience and outcomes for each country. In many countries, healthcare system has come to a deadlock, healthcare service delivery infrastructures have fallen short, high-risk groups could not be protected, mortality rates have been higher than expected and healthcare professionals who should provide treatment and services have faced ethical dilemmas (5).

Science world endeavors to fight this traumatic and chaotic problem in numerous fields with multidisciplinary methods, ranging from biomedicine to virology, infectious diseases to psychology, pedagogy to sociology, production to consumption patterns, common standards of judgment to historical management habits (6).

When inefficient and insufficient roles of supranational organizations, primarily including World Health Organization and the EU, in the pandemic are taken into consideration, the connection between concepts of self-sustained and strong state will strengthen. What pandemic taught is the necessity to consider certain criteria, such as healthcare system, supply chain and capacity to cope with emergencies, as independent or secondary items along with the criteria, such as armament, economic power and population, which are frequently used for a realistic approach to power analysis (7).

Percentage of healthcare expenses in the gross domestic product of countries for Year 2017 is with the Graphic below.

Graphic 1. GNP rates of OECD Countries



Note: Data for 2017 was estimated by the Secretariat for those countries that were not able to provide this information. PPP stands for Purchasing Power Parities and adjusts health expenditure for differences in price levels between countries.

Source: OECD Health Statistics 2018.

According to the table, the U.S. has the highest rate by 17.2% and it is followed by Switzerland (12.3%) and France (11.5%). On the other end of scale, Turkey and Mexico are below the expected rate of 6% by 4.2% and 5.4%, respectively.

Bismarck and National Health Insurance models have better efficiency scores. When the U.S. is compared regarding efficiency, the healthcare system is found inefficient, advocating all previous studies. High share of healthcare expenses in GNP has a positive influence; however, when this indicator is eliminated, efficiency values are at much negative levels especially in the field of public health (8).

In a comprehensive data set (covering the Years 2000 to 2010) to analyze performance of healthcare systems in OECD countries. 59% of 32 OECD countries (more than half) appeared inefficient. Six countries, namely Israel, Japan, Korea, Mexico, Sweden and Turkey corresponding to 18.75% of 32 countries, have the healthcare systems with relatively best performance (9)

The data cover 5-year periods, namely the years 2000, 2005, 2010 and 2015. Out of 36 OECD countries, 12 countries have Beveridge type healthcare system, while 21 countries adopted Welfare-driven (Bismarck Model) healthcare system, 2 countries have Private Enterprise/Free Market type healthcare system and Turkey has mixed healthcare system. Health indicators are positive in some OECD countries, such as Germany, Australia, France, Finland, Switzerland, Norway and Japan. Based on type of health financing, countries with Beveridge-type healthcare systems have better scores for health expenditure per capita, satisfaction of citizens regarding healthcare services and life expectancy at birth. Number of physicians and nurses as well as hospital bed usage rate is higher in countries using Bismarck model. Health expenditure share in gross domestic product, out-of-pocket health expenditure and maternal and infant mortality rate are higher in countries using free-market type system. Using a mixed-type healthcare system, Turkey has recently decreasing maternal and infant mortality rates. (10).

The efficiency of healthcare systems of 35 OECD countries with Data Envelopment Analysis according to pre-determined health indicators. It is observed that these countries are borderline efficient, but their health outcomes are below OECD averages. Estonia, Mexico, Chile and Turkey are advised to develop policies to improve their health results by maintaining their current efficiency levels (11).

A study conducted by Önder et.al. demonstrated that healthcare systems were ranked based on five variables and Japan had the highest performance. Japan is followed by Germany, South Korea, the U.S. and Switzerland. The last five countries (bottom to top) are Mexico, Chile, Turkey, Israel and the United Kingdom (12).

2. GENERAL INFORMATION

2.1 COUNTRIES AND THEIR HEALTHCARE SYSTEMS

Healthcare System is the total sum of all organizations and resources, whose main goal is to improve health. Human resources, financing, knowledge, transportation, communication are required to establish a healthcare system and governance is necessary for all those components. World Health Organization has stated that healthcare systems of countries have been influenced by dominant fundamental norms and values. As is the case with other service systems, healthcare systems reflect social, cultural and traditional expectations as well as life styles and political systems of populations. Therefore, health systems vary at global scale. Countries mostly do not adopt a single financing model and a fixed healthcare service provider and they alter the policies in time. Many divergent dynamics should be taken into consideration when healthcare system financing model of a country is determined. It is probable to reveal different outcomes for each model. One should always remember that there is no unique model, which delivers perfect outcomes for both society and financing system, each model is accompanied by unique advantages and disadvantages and a model, generating substantially good outcomes in a country, may not produce same outcomes in another country totally due to factors originating from this second country (13).

Healthcare systems are often defined based on the financing methods. Today, countries vary substantially in terms of the health financing system. Financing methods for these systems are determined according to socio-economic status and political preferences of each country. Although making a general classification is difficult, there are four models that are globally recognized (14).

1-Bismark Model: In this system, 90% of a country's residents are covered by a mandatory healthcare insurance. All funds are collected by various social security organizations to finance healthcare expenses, salaries of the insured and health investments. Insurance systems are very strong in many European countries, where healthcare expenses are mostly financed by those funds. Substantial portion of investments made on Health Insurance Fund are deducted from salaries of employees. Moreover, these funds are supported through additional taxes levied on casinos, tobacco products, soda and harmful substances that lead to obesity. Current Health Insurance often does not cover dental prosthesis, optical procedures and aesthetic surgeries. There are complementary private health insurances in addition to mandatory health coverage. Bismarck Model is first introduced by Bismarck in Germany in 1883 and it is put into force in many countries over time. Although it is also identified with German Healthcare system due to its origin, it is currently used by many developed and developing countries, including Austria, Belgium, France, the Netherlands, Switzerland, Slovenia and Portuguese. It is the most commonly used healthcare financing method due to World Bank's healthcare reform on health policies especially after '90 (15).

2-Beveridge Model: Healthcare expenses are financed by a dedicated portion of the general budget in this system. Healthcare services are financed through taxes and delivered to the public by the government. Citizens do not pay premiums for coverage. Other features are as follows; government controls healthcare system financing through the budget; all citizens have free-of-charge access to healthcare services, excluding contribution shares; physicians are paid a salary or a fee per patient in return for services; organizations use budgets which are determined by central administrative body (16). Since Beveridge model emerged in the U.K. following the Second World War, it is generally identified with National Health Service (NHS) of the United Kingdom. It is currently implemented in Denmark, Finland, Ireland, Spain, Sweden, Italy, Norway, Portugal, Cyprus, Greece and majority of Scandinavian countries.

3-Marche System: This model is used in the U.S. and called "Market" system; it does not allow fair and easy access to healthcare services and it is, therefore, is not perceived as a very good system. The system is based on private insurance policies in the U.S.A., while 15% of the population

is out of the coverage. There is no conformity in healthcare practices and each state has its own practice. This system is commonly implemented by certain countries, such as U.S.A. (17)

4-National Health Insurance model: Private healthcare service providers are utilized, but the system is managed by the government, while citizens finance the system through taxes and premium payments. Countries such as Canada, South Korea and Taiwan prefer this model. (18)

Milton I. Roemer's Healthcare Systems Classification is another widely accepted method that is commonly used to classify healthcare systems. In "National Health Systems of the World" of Roemer, health systems are addressed in 4 main titles under "Types of National Healthcare System Classified by Economic level and Health System Policies";

Entrepreneur and Free Health System
Welfare-oriented health system
General and Comprehensive Health System
Socialist and Central Planned Health System Policies Group

One or more than one features of those four main health systems can be observed in a country or it is also possible to see very special applications. A country should be considered in a particular group, if typical features of a system are dominantly or widely used or most part of society takes healthcare services in this way. (19)

Inclusive Type Healthcare System is also known as Beveridge Model. This system fundamentally adopts the principle of producing all healthcare services for the entire population and delivering those services free-of-charge by the state. There is always a strong public administration in this system. Private sector gains a small share in the service delivery. Although public sector is the principal factor in the delivery of services, private sector may also play a limited role. All negative outcomes arising out of service delivery by private sector are minimized by a well-regulated inspection system.

For Free Market Type Health System, private sector is the principal factor for both service supply and demand. Healthcare service demand is funded by out-of-pocket payments and private insurances. The wealthy one will have health coverage. Private sector regulates the service supply in this system.

Welfare-oriented Health Systems are also called Bismarck Model. This social security-based model is funded by premium income. Healthcare supply covers both public and private sectors. The principle of this system is covering all citizens under mandatory health insurance, which is funded by semi-direct personal premium payments.

Socialist Type Health System is characterized by offering preventive and therapeutic healthcare services free-of-charge to all citizens. Private sector plays no role in healthcare service delivery. Healthcare service delivery is completely managed by public authorities. U.S.S.R. and Cuba are examples of this system.

3. MATERIAL & METHOD

In our comparison study, we have been reviewed the different countries health financial system with the scope of the human development index (HDI), current health expenditure percentage of gross domestic product with provided health financial system data, and the actions during covid-19 precautions such as tests and vaccination activities.

4. FINDINGS

The death rate until the data in May 2021 have been evaluated. According to the outcomes Table 4 has been occurred for each country in terms of number of infected cases, number of deaths, death rate, vaccination ratio, health financial systems, the rank of Human Development Index(HDI), current health expenditure percentage of gross domestic product (GDP).

Table 1: Comparison of the countries Covid-19 actions and health care systems

Country Name	Number of infected cases M	Number of deaths M	Death Rate	Full Dosage Vaccination Ratio	Health Financial System	The Rank of HDI	Current Health Expenditure % of GDP
United State of America	33,6	0,59	1,76%	34,50%	Marche Model	16	17,00%
India	24,3	0,266	1,09%	2,60%	Bismarck Model	131	3,50%
Brazil	15,5	0,432	2,79%	7,20%	Bismarck Model	84	9,50%
France	5,8	0,107	1,84%	11,60%	Bismarck Model	26	11,30%
Turkey	5,09	0,044	0,86%	12,30%	Bismarck Model	59	4,20%
Russia	4,9	0,115	2,35%	5,00%	Bismarck Model	52	5,30%
United Kingdom	4,4	0,127	2,89%	26,30%	Beveridge Model	13	9,60%
Italy	4,1	0,123	3,00%	13,50%	Beveridge Model	29	8,80%
Spain	3,6	0,079	2,19%	13,80%	Beveridge Model	25	8,90%
Germany	3,58	0,086	2,40%	9,30%	Bismarck Model	6	11,20%
Israel	0,839	0,006	0,72%	58,70%	Bismarck Model	19	7,40%
South Korea	0,131	0,001	0,76%	4,50%	National Health Care Insurance Model	23	7,60%
Singapore	0,061	0,00000031	0,00%	9,30%	Bismarck - Beveridge mixed model	11	4,40%

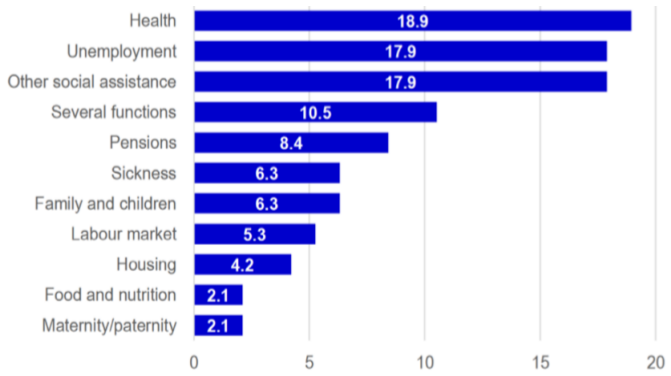
5. COUNTRIES HEALTH FINANCIAL SYSTEMS DURING COVID-19 FIGHTS

5.1 SOCIAL PROTECTION MEASURES FOR COVID-19 CRISIS

ILO Social Protection Monitor has announced minimum 97 measures on social security taken by 46 countries and regions within scope of Covid-19 health crisis from February 1st to March 22nd, 2020. Total rate of announcing precautions was 21.5% on global scale (Among 214 countries and regions). Measures were announced by thirteen countries in Asia and Pacific region, where the pandemic originated (28.9% of the countries in the region); followed by 11 European and Middle Asian countries (36.2%), 11 countries in the Americas (24.4%) and 1 Arabian country (8.3%). Majority of measures entailed modification of social expenditures and social programmes through extra allowances or modification of current programs (57.9% of the total). Other measures cover development of new programmes or aids (22.1%), improvement of management (10.5%) or subsidies (7.4%) or taxation reforms (2.1%) (20).

Measures announced within scope of COVID-19 crisis encompass all functions of the social protection. Approximately one fifth (18.9%) of measures taken in this period are related to health, followed closely by unemployment benefits. New or enhanced fund transfers to low income families, at times to all residents (17.9%), have been widely used; which is followed by modifications in pension salaries (8.4%), sick leave and benefits (6.3%), family aid (6.3%), labor market measures (5.3%), sheltering subsidies (4.2%), food tickets (2.1%) and aid for families with children (2.1%).

Graphic 2. Percentage of announced measures, by social protection function



Source: ilo.org/Ankara

More than half of all those measures aimed to increase content of aid in existing social protection programs (23.2%), widen the scope (22.1%) or expand criteria for eligibility (5.3%); other measures include facilitating access to aids (11.6%) and improvement of services (3.2%). New, temporary or one-time programmes have also been introduced (8.4%). Approximately one fifth of the measures aim to lighten the financial burden by postponing, decreasing or cancelling social insurance premiums to be paid by employers or the insured (7.4%), subsidizing aids (4.2%) or subsidizing social premiums (3.2%) and increasing credit and budget allocations (2.1%) (20).

5.2. HUMAN DEVELOPMENT INDEX OF COUNTRIES

According to list of countries by human development index determined with regards to certain indicators, such as life expectancy at birth, mean years of schooling and health capacity identified in Human Development Reports issued by UNDP (United Nations Development Programme) in 2019, there is a positive consistency between the index and the success ranking of countries fighting Covid-19.

Health performance of countries can be calculated and measured based on various indicators. Capacity use rate is the primary one of general performance indicators. From the perspective of healthcare sector, capacity is defined using many variables such as number of hospital beds, number of healthcare personnel and technology level, while the most common measurement unit is number of beds.

Health employment is also one of the most important performance indicators. WHO (World Health Organization) classified the health human power under 29 items in the human power statistics. Physicians and nurses have critical role in the list. Health manpower planning can be identified as having the right number of people with suitable skills at the right location and right time. The most common planning method is the workforce-to-population ratio. In addition to bed capacity and number of health professionals, technology level is also a critical performance indicator in healthcare. Health technology enables meeting the social and ethical principles and ensures clinical efficiency and cost-effectiveness for healthcare system and patients' lives.

Table 2. Human Development Index Ranking

-	Rank ▼	Country	Human Development Index (HDI) (value)	Life expectancy at birth (years) SDG3	Expected years of schooling (years) SDG 4.3	Mean years of schooling (years) SDG 4.6	Gross national income (GNI) per capita (PPP $) SDG 8.5
	1	Norway	0.954	82.3	18.1	12.6	68,059
	2	Switzerland	0.946	83.6	16.2	13.4	59,375
	3	Ireland	0.942	82.1	18.8	12.5	55,660
	4	Germany	0.939	81.2	17.1	14.1	46,946
	4	Hong Kong, China (SAR)	0.939	84.7	16.5	12.0	60,221
	6	Australia	0.938	83.3	22.1	12.7	44,097
	6	Iceland	0.938	82.9	19.2	12.5	47,566
	8	Sweden	0.937	82.7	18.8	12.4	47,955
	9	Singapore	0.935	83.5	16.3	11.5	83,793
	10	Netherlands	0.933	82.1	18.0	12.2	50,013

Source: Human Development Report Office 2019.

Considering the human development indices of countries that are at top ranks in the table, but struggling and experiencing difficulties in their fight against Covid-19, Italy is ranked 29th, Spain is ranked 25th, France is ranked 26th, Turkey is ranked 59th, Iran is ranked 65th, England is ranked 15th and the U.S. is ranked 16th on the list. These figures indicate that countries with high ranks in human development index can more easily cope with this difficult process regarding their healthcare system, while the countries with relatively low ranks in human development index face more difficulties. According to the dashboard in Human Development Reports issued by UNDP (United Nations Development Programme) in 2019, when health indicators of countries are compared to their human development indices, it is noted that countries with high rank in human development index have better health indicators (21).

5.3 COUNTRIES' PREPAREDNESS AND VULNERABILITY IN THE FIGHT AGAINST COVID-19

United Nations Development Programme (UNDP) issued the new dashboard that shows countries' capacity to cope with and recover from Covid-19 crisis on April 29th, 2020. The main indicators such as poverty level, healthcare service capacity, access to internet and social security show how severe the effects of COVID-19 crisis in each one of the 189 countries and give clues in capacity of fighting against Covid-19. (22).

Evaluation is highlighted with color tones in dashboards. Countries are classified as the least and highest preparedness levels with color tones.

Table 3. Indicator Tables for Preparedness and Vulnerability of Countries in Fight against Covid-19

	Human Development				Health system				Connectivity	
Human Development Groups	Human development index (HDI) (value), 2018	Inequality-adjusted HDI (IHDI) (value), 2018	Inequality in HDI (percent), 2018	Physicians (per 10,000 people), 2010-17	Nurses and midwifes (per 10,000 people), 2010-18	Hospital beds (per 10,000 people), 2010-18	Current health expenditure (% of GDP), 2016	Mobile phone subscription (per 100 people), 2017-18	Fixed broadband subscriptions (per 100 people), 2017-18
Netherlands	0.933	0.870	6.8	35.1	111	47	10.4	120.6	43.4
Singapore	0.935	0.810	13.3	23.1	72	24	4.5	145.7	28
Sweden	0.937	0.874	6.7	54	115	26	10.9	125.1	39.8
Iceland	0.938	0.885	5.7	39.7	157	32	8.3	126.1	40.6
Australia	0.938	0.862	8.1	35.9	127	38	9.3	113.6	30.7
Hong Kong, China (SAR)	0.939	0.815	13.1	-	-	-	-	259.4	36.8
Germany	0.939	0.861	8.3	42.1	132	83	11.1	129.3	41.1
Ireland	0.942	0.872	7.5	30.9	143	28	7.4	103.2	29.7
Switzerland	0.946	0.881	6.8	42.4	173	47	12.2	129.6	46.4
Norway	0.954	0.889	6.8	46.3	181	39	10.5	107.2	41.3
Turkey	0.806	0.676	16.2	17.6	26	27	4.3	97.3	16.3

Source: UNDP Covid-19 Report 2020

It is noted that the top 10 countries with highest success scores in dashboards are the countries, which are successful in crisis management during the Covid-19 pandemic. Only a few indicators related to healthcare system demonstrate partial deficiency in indicators of Singapore, Sweden and Ireland. Turkey ranks 37th in this table and it can be speculated that although it is successful in terms of the fight against the Covid-19 pandemic, it is at quiet lower places in the ranking regarding the capacity of healthcare indicators. For example, the most developed countries, or in other words, the countries in the highest human development category have 55 patient beds, more than 30 physicians and 81 nurses per 10.000 people on average while these figures are 7 patient beds, 2.5 physicians and 6 nurses in the least developed countries (22).

According to the report, the people who were already poor before the crisis are now particularly under higher risk. Despite the recent progress in declining the poverty, one out of every four people is suffering from multi-dimensional poverty or vulnerable to this danger and more than 40% of world's population has no social protection. The color-coded tables in dashboards show preparedness of countries to fight Covid-19 and their vulnerability to crisis. The five-color coding enables visualize the partial grouping of countries and help differentiating a country's performance regarding a group of specific indicators (22).

5.4 COUNTRIES AND FIGHT AGAINST COVID-19

It is very difficult to evaluate the success of global healthcare systems through the absolute systemic approach. Although healthcare systems of the U.S. and the U.K. are completely dissimilar, these two countries have failed in fighting the Coronavirus outbreak. For the U.S., the cause of failure is total dependence to the private sector. Thus, uninsured or poor people could not access to the service. In the U.K., the system is almost completely controlled by the State and the sources are, therefore, limited. The Coronavirus pandemic has lent credence to German and Turkish Models with high capacity sustained by collaboration of private sector and the state. Turkey has adopted a very substantially successful strategy by declaring the private hospitals as pandemic hospital, as majority of general ICU beds are available in Turkish private sector.

It is noted that one of the key factors, which influenced the fight of countries against Coronavirus outbreak, is to emphasize a process management based on both epidemiologic and clinical scientific thought. Precious time is lost and the fight against the outbreak weakens, when politicians get ahead of the science and the political leaders play a scientific role, as experienced in the U.S., Brazil and Mexico. The same applies to the U.K. at initial phases of the pandemic, but correct decisions were quickly made, after management of the problem was referred to the science. Certain countries, including Turkey, not only gained time, but they also obtained successful outcomes, as they modified policies according to decisions of the scientific committee since the onset of the pandemic. This pandemic has strongly emphasized the fact that coordination and collaboration of state authorities with the private sector and the academic community is so crucial.

COVID-19 also paved the way for discussion of governance models in some countries. For instance, the Federal Government of Germany has expanded its authority for pandemic, but states have perceived it as a threat to their freedom; besides, mobile Apps created to monitor the course of Covid-19 in Germany have brought problems regarding the protection of personal data. In Turkey, donation and aid campaigns started for Covid-19 caused dispute between the government (Presidential System) and the opposition (major municipalities). Moreover, state governors have conflicted with the U.S. President regarding dissimilar policies in this period.

Italy among the countries that started the fight against the pandemic early and suffered from highest mortality rates and the country faced with the pandemic when people paid not too much attention to social distancing or strict hygiene measures. It is already known that Italy's community-based healthcare system, recently, suffers from insufficient source of financing and integration of the healthcare system is problematic as well. Outstanding regional variations had emerged in Italy, where primary and secondary care is poorly integrated, despite a sound tertiary care – namely hospital-level healthcare. In other words, a divided healthcare system stands out rather than an integrated one. In Italy, one out of every four people tested positive, although number of tests is very low. One out of every three infected persons was hospitalized. This situation caused problem in medicine and medical material supply.

One of the main criticisms for The United Kingdom's healthcare system is long waiting times. The cause is quite obvious; insufficient number of doctors, as is the case with many other countries. However, the situation is a little bit different in the U.K. Number of physicians is low, but preference of family medicine by medical practitioners rather than a medical specialty may create a deadlock in the healthcare system. Almost 60% of medical doctors work in primary healthcare service in the U.K. This figure is usually far lower in the industrialized countries. This ratio is around 35% in the U.S., although it is still high. The underlying cause of such high figures is very clear: To earn more money.

The U.K. is a conservative country from many aspects and adheres to its traditions strictly. The Royal Family is the paramount symbol of this fact. A famous English proverb says "If it ain't broke, don't fix it", which means that if something works smoothly, it is not necessary to meddle; this proverb refers to a brief summary of the United Kingdom's healthcare system. The United Kingdom has a famous healthcare system, namely National Health Service (NHS). This 80-year structure is the oldest healthcare system which experienced no major change. Approximately 1.5 million people work in NHS. This figure makes NHS the supreme employer in the Europe. (23)

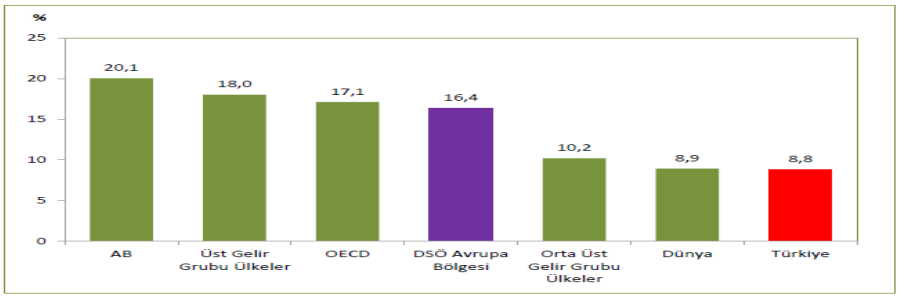
Although Germany is among the countries with highest number of cases compared to the European Countries, it fought against the Coronavirus outbreak successfully. Considering rates of cases and mortality, Germany stands out as a country with lowest rates on global scale. The factors that underlie this success are not clearly known, but Germany's aggressive approach to the tests is an important factor. The cases emerged late in Germany and it is deemed among other reasons. Germany was successful in another dimension; the spread could be restricted through early diagnosis by testing the people who are 35 to 59 years old and thus, the elderly could be relatively protected. This success arises out of strong integration of the systems in terms of outpatient treatment, inpatient treatment and delivery of services at different care settings. Large-scale testing was achieved and one infected case was identified per every 14 tests. Here, referral of only one out of every five infected person is another interesting point. Other four infected persons were followed up at primary healthcare facilities, such as family medicine centers, community health facilities or public health organizations. One of every three hospitalized persons was transferred to intensive care units; thus, hospitals or intensive care units were not overloaded. In this way, no problem was faced in medicine or medical material supply.

Turkey is one of the countries that took measures against Covid-19 at earliest. In this sense, in Turkey: Measures have been and are still taken for Resources (allocation of resource, disease notification, final diagnosis, treatment of patients, isolation, carrier screening, surveillance of suspected subjects, health training), Mode of Transmission (Improving environmental conditions, supervision of foods and drinks, health training, personal hygiene and use of protective equipment, restricting the population movements) and Healthy People (quarantine, monitoring) (24).

Turkey has successfully managed the initial phase of the outbreak by performing beyond expectations in terms of mortality rate, intensive care and inpatient services and recovery rates. Relevant international analyses also show that Turkey's performance is at top ranks. For example, according to Pandemic Efficiency Index (PEI) developed by Salihu et. al. (2020) to measure the efficiency of precautions taken to prevent COVID-19-related deaths, Turkey is among the countries with highest efficiency following Germany, Austria and Canada. Here, it is pivotally important to remember that the index takes only the mortality rate into consideration (25)

As depicted by numerical data and tables below, Turkey has qualified bed capacity and hospital along with qualified distribution of healthcare personnel. Those data show that there is sufficient capacity regarding sector-based distribution and qualified manpower to manage this fight in a healthy and safe manner in pandemics. Moreover, another advantage rises out of the smaller share of people older than 65 in the general population regarding the fight against the pandemic (26).

Table 4. Distribution of People Older than 65 by Group of Countries



Source: Turkish Statistical Institute, UNPD

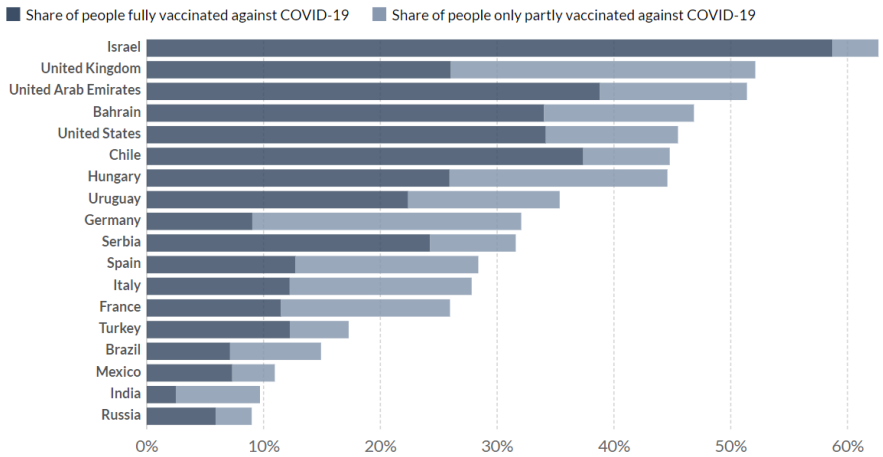
The major strategy was to determine the regions where the disease is most prevalent by testing as many people as possible free of charge. 50 mobile test centers were formed and people who reside in the region where individuals that tested positive were texted via their mobile phones. Extra medical materials were supplied and more healthcare professionals were assigned in the regions that were declared "special care region" as the disease was prevalent; also, special units were assigned to disinfect the streets. A new law was enacted by South Korea government to sentence people who violate quarantine orders and instructions of healthcare professionals to imprisonment and thus, the people were led to take the instructions seriously. South Korea followed an extraordinary method that has not been used by other countries yet; a GPS tracer was attached to everyone infected by the virus and started to broadcast the locations of people infected with Coronavirus live on an online map. The map provided the citizens with a chance to stay away from patients, while the state also targeted a three-stage check at airports for people who want to leave the country. The use of the most expensive and well-organized test program of the world was one of the major achievements of the country in the fight against the pandemic (27).

Some of the countries that took very strict quarantine measures through a collective, coordinated and extensive approach, which involved all components of the state mechanisms, could also stand out, such as China. Singapore is one of those countries and could successfully control spread of the disease. Considering the underlying reasons of this success, it is obvious that technological approach contributed to the process along with stringent measures. The adopted strategy was based on isolating people from each other, while violation of the rules was fined up to 10 thousand dollar or imprisonment for 6 months. A system was created through which people were called several times to check their compliance. People were asked, in such phone calls, to click a link to share their location by their mobile phone to prove that they were at home. In addition, 100 dollar incentive per day was paid to freelancers to make them stay at home while doors of public facilities were opened for people who could not stay alone at home. While low population density provided another advantage to control the pandemic, government of Singapore and some other countries showed the world that this process can be controlled. Taiwan is another country that exhibited its technologic solutions in the fight against Covid-19 in addition to the rigid measures. Government of Taiwan could finalize preparations for the COVID-19 pandemic, as it was warned by a health technology firm, Metabiota, at an early stage that the pandemic would involve the country within a week. Cutting-edge tracing systems, such as controlling the borders with state-of-the-art equipment and thermal imaging in airports, gained importance in early detection of symptoms; moreover, combining the national health insurance data bank with migration and customs data banks allowed better observation of the pandemic risks for travelers. Mobile phones of people who are in quarantine at their homes were traced through geographical tracing systems, while tight controls through official phones distributed to the risk groups helped compliance with quarantine rules. Real-time information shared with the public via artificial intelligence, data analytics and digital communication also played a role to reduce the risk of COVID-19 infection (28).

Coronavirus (COVID-19) Vaccinations

As a basic nature-science concept the vaccine is the main treatment such unknown virus-infections disease like Covid-19. On of the countries precaution healthcare service was vaccine distribution to the healthcare providers. The campaign comparison between countries to get rid of coronavirus pandemic, there were so many significant differences observed. Worldwide, more than 1.3 billion doses Covid-19 vaccine have applied and mainly in USA and Europe this numbers are growing rapidly.

Table 5: Share of people vaccinated against COVID-19, May 9, 2021

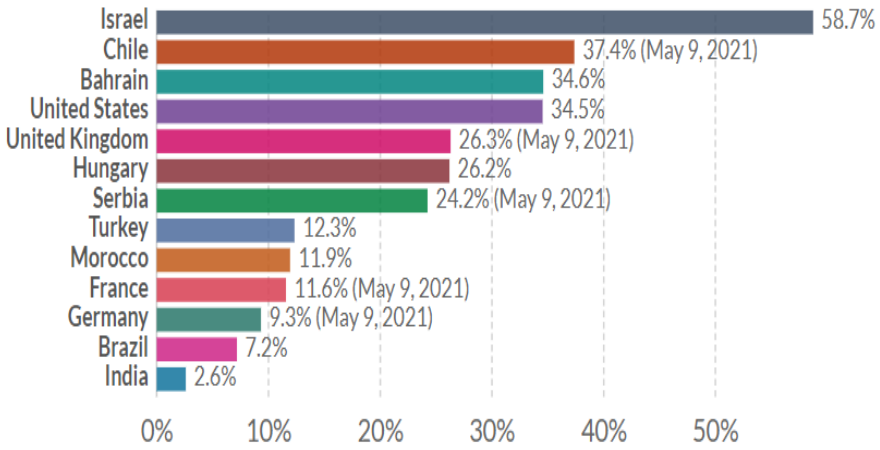


Source: Official Data Collated by Our World in Data

According to Table 5, population in Europe top countries who has started well vaccinacition campaign such as France, Germany and Italy. One of the most affected country with very high number

of infected case and death rate United Kingdom, vaccination has been performed around 52% rate of the population.

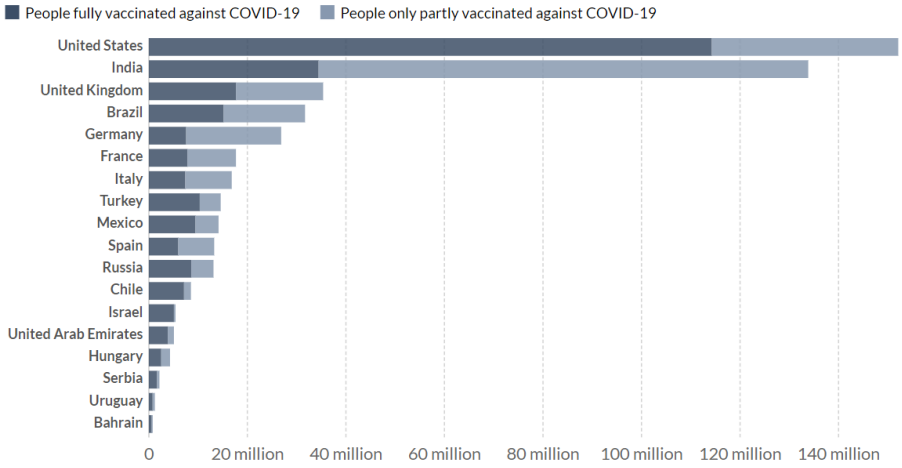
Table 6: Share of the population fully vaccinated against COVID-19, May 10, 2021



Source: Official Data Collated by Our World in Dat

According to Table 6, It could be observed that Israel is the top country for vaccination ratio with 58%,7.

Table 7: Number of people vaccinated against COVID-19, May 9, 2021



Source: Official Data Collated by Our World in Data

According to Table 7; USA has vaccinated more than 100 million citizens.

Table 8: The Brand Names of Vaccination Companies in which top countries have been used

Country Name	Vaccination Company Names
USA	Moderna, Pfizer/BionTech, Johnson & Johnson
China	Sinopharm/Beijing, Sinopharm/Wuhan, Sinovac
India	Covaxin, Oxford/AstraZeneca

United K.	Oxford/AstraZeneca, Pfizer /BionTech
Brazil	Oxford/AstraZeneca, Sinovac
Germany	Moderna, Oxford/AstraZeneca, Pfizer/BionTech
Turkey	Pfizer/BionTech, Sinovac
France	Moderna, Oxford/AstraZeneca, Pfizer/BionTech
Indonesia	Oxford/AstraZeneca, Sinovac
Italy	Moderna, Oxford/AstraZeneca, Pfizer/BionTech
Mexico	CanSino, Oxford/AstraZeneca, Pfizer/BionTech, Sinovac, Sputnik V
Chile	Pfizer/ BionTech, Sinovac
Spain	Moderna, Oxford/AstraZeneca, Pfizer/BionTech
Russia	EpiVacCorona, Sputnik V
Israel	Moderna, Pfizer / BionTech
Canada	Moderna, Oxford/AstraZeneca, Pfizer/BionTech
UAE	Oxford/AstraZeneca, Pfizer/BionTech, Sinopharm/Beijing,
Poland	Moderna, Oxford/AstraZeneca, Pfizer/BionTech
Morocco	Oxford/AstraZeneca, Sinopharm/Beijing
Saudi Arabia	Oxford/AstraZeneca, Pfizer/BionTech

According to Table 8; Altough there are so many countries have the vaccine distribution, China, Germany, Russia, USA and UK have already manufactured vaccine and distribute all over the world.

6. CONCLUSION

It is not easy to evaluate which country has the best healthcare system. The Covid-19 pandemic showed that many countries claiming to have a sound healthcare system found no way out when it comes to the patients with chronic diseases. Indeed, there is no country that would provide sustainable care along with a proper and efficient system for the patients with diabetes, hypertension, obesity, heart diseases and other chronic disorders. Chronic diseases will always be the major problem that should be managed well worldwide. Vulnerable people should always be managed, not only during pandemics.

In this sense, Covid-19 pandemic has further increased the pressure on the healthcare systems. This pressure is particularly more remarkable in societies with high share of the elderly in the general population. Therefore, the necessity of integrating social care into healthcare services gained priority to protect the vulnerable population. The pandemic has very critically emphasized the relationship between the health and the social care. Two thirds of deaths cover the people who are 70 or older in developed countries. Here, the cause is not only vulnerable population, but also the organization deficiencies between the health and the social care. This population should be protected well and followed-up frequently by relevant health authority.

Healthcare systems are financed either by insurance or the sources allocated from the state budget. The fact that the public authority should play a more important role in financing the healthcare system is a very basic rule for health financing. The more state participates in the system – directly proportional to inclusivity of the public -, the more people access to the healthcare services. The financial burden they will face will also be lower. It is necessary to create mechanisms to make decision more strongly, quickly and actively in the health system management at both local and international level, while transparency and accountability should be enhanced.

The death rate over 2% countries have been observed such as Brazil, United Kingdom, Russia, Germany, Italy and Spain. The countries who had less than 1,4% death rate such as Singapore, South Korea, Israel, and Turkey have been analyzed in our work study with each country Covid-19 Testing and Vaccination management policies as a successful outcome. The countries such as Italy, Spain and Germany had difficulties and very high death rate at the beginning of Covid-19 pandemic 2020 and after their all fight against to Covid-19 with quarantine and other strict precautions by health authorities, these countries have reached to the success. USA, China, India, Brazil, United Kingdom and Germany are in top 6 countries for the vaccination list, and further studies are definitely needed to evaluate with the vaccination policy, health financial systems, precaution healthcare services and transition of each countries normalization process perspectives.

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