RESEARCH ARTICLE

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The Increase in the Social Utility of the Geriatric Population Gained From the Human Health Workers during the Pandemic

ABSTRACT

Objective: It was intended to analyze the change in social utility loss in 2020 when the pandemic showed its first shock, caused by the inter-provincial distribution of health personnel of the elderly compared to 2019 and other indicators based on this (rate of social utility, SHW, IHW, SHW/IHW per thousand elderly people).

Methods: The method used in the study is the Atkinson inequality index. The data used in the application are for 2019 and 2020 at the NUTS-3 level. Health personnel data were compiled from SSI and data for the elderly population were compiled from TSI.

Results: The Atkinson inequality index varied between 0.414 and 0.302 in 2019. The index value fell between 0.292 and 0.206 in 2020. Depending on the index values, while the rate of social utility varied between 69.8% to 58.6% in 2019, it increased to vary between 79.4% to 70.8% in 2020. The rate of social utility loss, on the other hand, while being varied from 41.4% to 30.2% in 2019, decreased to being varied between 20.6% to 29.2% in 2020.

Conclusions: The findings show that there is a significant improvement in the social utility of the elderly from the human health workers. This serves as evidence to the situation which shows that the health policies implemented during the pandemic period, unlike many other countries, supported the access of the elderly to health services.

Keywords: Pandemic, Turkish Health Politics, Geriatrics, Public Health, Social Politics, Interregional Inequality.

Pandemide Geriatrik Nüfusun Sağlık Çalışanlarından Sağladığı Sosyal Faydada Yaşanan Artış

ÖZET

Amaç: Pandeminin ilk şok etkisini gösterdiği 2020 yılında, yaşlıların sağlık personelinin iller arası dağılımından kaynaklanan sosyal fayda kayıplarında 2019'a göre yaşanan değişimi ve buna dayalı olan diğer göstergeleri (sosyal fayda oranı, SHW, IHW, bin yaşlı başına düşen , SHW ve IHW) analiz etmek amaçlandı.

Gereç ve Yöntem: Çalışmada kullanılan yöntem, Atkinson eşitsizlik endeksidir. Uygulamada kullanılan verileri İBBS-3 düzeyinde 2019 ve 2020 yılları içindir. Sağlık personeli verileri SGK'dan, yaşlı yaş gruplarındaki nüfus için veriler TÜİK'ten derlenmiştir.

Bulgular: Atkinson eşitsizlik endeksi 2019'da 0,414 ile 0,302 arasında gerçekleşti. Endeks değeri 2020'deyse 0,292 ile 0,206 arasına geriledi. Endeks değerlerine bağlı olarak 2019'da sosyal fayda oranı 69,8% ile 58,6% arasındayken, 2020'de 79,4% ile 70,8% arasına yükseldi. Bu değişim rate of socail utility için yaklaşık ¼'lük artışa işaret eder. Sosyal fayda kaybıysa 2019'da 41,4% ile 30,2% arasındayken, 2020'de 20,6% ile 29,2% arasına geriledi. Bu değişim sosyal fayda kaybı oranında yaklaşık ortalama 1/3'lük gerilemeye işaret eder.

Sonuç: Elde edilen bulgular, insan sağlığı hizmetlerinde çalışanlardan yaşlıların sağladığı sosyal faydada ciddi iyileşmenin olduğunu gösteriyor. Bu durum pandemi sürecinde uygulanan sağlık politikalarının, diğer pek çok ülkenin aksine yaşlıların sağlık hizmet erişimini destekleyici yönde olduğuna bir kanıt özelliğindedir.

Anahtar Kelimeler: Pandemi, Türk sağlık politikası, geriatri, kamu sağlığı, sosyal politika, bölgelerarası eşitsizlik.

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INTRODUCTION

On March 11, 2020, WHO declared entrance to a global pandemic period caused by the Covid-19 virus. With the declaration of the global pandemic, long-term quarantines, still ongoing social isolation and social distance measures were taken almost all over the world faster and more simultaneously than ever before. The population segment most devastatingly affected by this difficult process is undoubtedly the elderly population. The main reason why the elderly people are affected is that they are the age group most severely and fatally affected by Covid-19.

According to the calculation of Diderichsen (1), mortality rates in those aged 65+ increased by 2.9% in Sweden between January and June 2020, compared to the 2015-2019 average, while it increased by 7.3% in England and Spain. Haklai et al (2) presented evidence from Israel that the excess mortality between March and November 2020 compared to the 2017-2019 average differed significantly only in the elderly, while the excess mortality rate in the elderly aged 65-74 and 74-75 was 7.5% more and, in the elderly, aged 85 and over this rate was 8% more. According to the Centers for Disease Control and Prevention's statistics (3), the death rate from Covid-19 in the USA by November 2021 is 65 times higher in the 65-74 age group, 150 times higher in the 75-84 age group and 340 times higher in the 85+ age group compared to the 18-29 age group. In India, 76.7% of deaths due to Covid-19 were in the age group of 50 years and older (4).

Barnett-Howell et al (5) pointed out that the pandemic affects developed countries and underdeveloped countries differently, social distance measures increase welfare in developed countries where the elderly population is dense, while it decreases welfare in underdeveloped countries where the young population is dense. In addition, in the simulation study, he found that more than 1.5% of the population would die in developed countries such as the UK and the USA if social distancing was not practiced, while in underdeveloped countries there would be little change.

The pandemic did not only lead to an increase in the death rate of the elderly due to Covid-19. At the same time, there was a significant increase in deaths due to causes other than Covid-19. In a survey conducted by Heid et al (6) between March and May 2020 in the USA with subjects that had an average age of 70.3, more than half of the elderly subjects reported that they canceled their doctor appointments, and almost half reported that they canceled at least 1 medical operation. The increase in deaths due to reasons other than Covid-19 in the elderly, whose medical care service decreased, is also a natural result of this. Li et al (7) compared the Corona pandemic with the 2009 influenza pandemic and showed a significant increase in comorbidities in cardiovascular diseases/hypertension and diabetes, which mostly affect the elderly. Shiels et al (8) find out that, between March and August 2020, Diabetes, Alzheimer's and heart diseases rank first in additional deaths besides the Covid-19 related deaths. Banerjee et al (9), in their analysis based on hospital data in England, Italy and China, found that Covid-19 causes an increase in excess deaths from cardiovascular diseases. He attributed the excessive mortality increases to the delay of service delivery for cardiovascular diseases. While Burlacu et al (10) points out that the dilemma of Covid-19 or comorbidity in elderly deaths will be very much questioned in the future, he argues that the majority of patients may have died due to lack of access to medical facilities. There are many studies that even now provide evidence for the dominance of deaths caused by comorbidity accompanying Covid-19 (11-16).

Seligman et al (17) found that deaths from Covid-19 increased among the poor, those with low education, and disadvantaged groups in the USA. He attributed this disproportionate increase to the inadequacy of public health measures. He pointed out that the access of health services to disadvantaged groups should be eased. The fact that the death rate due to Covid-19 in the USA is 2 times higher for Latino seniors than for White seniors over the age of 65, and 3 times higher for African-American seniors supports this result (18). Since the elderly are at the highest risk of death, the most disadvantaged group in Covid-19 was elderly people.

Coccia (19), in his study comparing 155 countries, found that as per capita health expenditures and public health expenditures increased, the death rate of the elderly due to Covid-19 decreased. There is also evidence from Turkey showing that the increase in health expenditures and the number of health personnel leads to a decrease in deaths and a prolongation of life expectancy (20-23). It has also been determined that the increase in the number of health personnel in Turkey has an increasing effect on the elderly life expectancy and population share (24). What this means is that healthcare delivery on a global scale reduces the risk of death. However, Grund et al (25) pointed out that the geriatric rehabilitation capacities of the elderly infected with Covid-19 are shrinking despite the increase in the need for rehabilitation after the illness. In other words, the curative effect on the transfer of health expenditures to the elderly remains limited.

Interregional distribution inequality of health workers is accepted as a matter of access to health in the literature. The more balanced the distribution between regions, the more equitable the access to health services. Equality of interregional distribution is measured with inequality indices

such as Atkinson, Gini and Theil. Studies based on inequality indices support the lack of global harmony over time in improvement or worsening between countries. It is impossible to talk about a global improvement or deterioration, as the studies have reached fluxional findings according to the countries.

Gravelle and Sutton (26) found that there was stability in the regional distribution of General Practitioners in England between 1974-1995. Hann and Gravelle (27), again in England, showed deterioration from the mid-1980s to 2003. In the UK, which could not pass the test, especially for the elderly, in the Covid-19 pandemic, it was observed that the interregional balance of health service provision deteriorated as it came to the present day. There is a process of deterioration in Japan, as in England. Toyabe (28) found that there was a deterioration in the interregional distribution of health workers, which examined the years between 1996 and 2006, in Japan after 2004. Matsumoto et al (29) found that inequality in the interregional distribution of obstetrics/gynecology increased between 1996 and 2016 in Japan.

There are also examples of inequitable development in underdeveloped countries. Goudarzi et al (30) found that the interregional distribution of health personnel became unequal between 2006 and 2011 in Iran. Sotodeh Manesh (31) found that the distribution of nurses and specialists in eastern Iran changed evenly between 2013 and 2018, while there was an inequality among general practitioners. Khammarnia et al (32) calculated that the most unequal distribution of health workers in Iran in 2020 is in urban health workers and nurses, and the most balanced distribution is in midwives. Woldemichel et al (33) found that the inequality between districts according to the population of health personnel in Ethiopia is high, except for one province. Zehnati (34) concluded that there was a deterioration in the interregional distribution of physicians in Algeria between 1998 and 2017.

There are also fewer studies where the calculated inequality coefficients show that interregional inequality is decreasing. Çalışkan (35) determined that there was a significant improvement in the distribution of health personnel between provinces in Turkey between the years 1965 and 2007. Theodorakis et al (36) showed an equitable development in the distribution of general practitioners by population among 36 regions in Albania between 2000 and 2004. Russo (37) concluded that there was an egalitarian change in the distribution of primary care physicians between regions in Brazil between 2012 and 2016. Roj (38) detected an equitable trend in most specialties between 2010 and 2017 in the interregional distribution of physicians by specialty in Poland.

In the literature focusing on determining the interregional balance in access to health services, there is almost no study focusing on the elderly. The two preliminary studies are the two studies of Çiftçi (39-40). However, neither of these studies focus on temporal trend or comparing two time sections. So, this study aims to make a unique contribution to the literature by presenting a comparison of the interregional distribution balance in accessing health services, which stand out with the pandemic, especially among the elderly before and during the pandemic. The social utility of elderly people from two different groups of health workers in 2019 and 2020 was calculated and compared using the Atkinson interregional inequality index based on the "NUTS3" in 81 provinces of Turkey.

MATERIAL AND METHODS

Data: The application carried out within the scope of the study was carried out with secondary data. Geriatric population data by age and gender were compiled from TSI, and data on health personnel under 4-1/a were compiled from SSI. Data are based on NUTS 3 for 2019 and 2020. The Human Health Workers consists of employees in three sub-activity lines: 1) Hospital services employees, 2) Practice activities related to medicine and dentistry, 3) General application activities of physicians. The majority of the employees are contracted civil servants and permanent public workers from the public sector. It also includes the majority of the additional staff increase in 2020.

Contracted civil servants constitute a significant part of the newly hired public workers. In recent years, most of the assistant health personnel such as nurses working in various public institutions such as university hospitals are commenced to work in this status. The number of these workers increased from 550 thousand to 812 thousand between 2019-2020. Financing problems experienced by private sector health institutions led to serious sectoral problems in 2020. Some institutions among private sector organizations even made requests to temporarily transfer their institutions to the public. In summary, this increase was due to the recruitment of health personnel other than newly recruited doctors to the sector.

Limitation: The most up-to-date health personnel data is available for 2019 in NUTS-3. It is currently impossible to compare the pre-pandemic period with the pandemic period using the data of the Ministry of Health.

Method: The Atkinson regional inequality index method was used. The index derived from Gini, different from and superior to Gini and other indexes, provides the opportunity to measure the loss of social utility for society according to the deviation from the state of full equality. Hereunder, according to the loss of social utility caused by the inequality in the inter-regional distribution, it is possible to measure the intangible existence numerically.

The Atkinson inequality index is one of the inequality indices that has been widely used since 1970. The inequality index takes a value between 0 and 1. If the index is 0, there is absolute balanced distribution, if the index is 1, there is absolute inequality. Many studies are showing that the Atkinson index, which is derived from Gini, is superior to and more sensitive than Gini (41-43). The most important advantage of the Atkinson index is that it gives the social utility and the loss of social utility ratios according to the index value. For example, if the Atkinson index is 0.2, the loss of social utility is 20% because it deviates 20% from the absolute utility. In that case, the distributed mass gains 80% utility from the distributed.

The original calculation method created by Atkinson (44) for the index is like this:

$$I = 1 - \left[\sum_i \left(\frac{y_i}{\mu}\right)^{1-\varepsilon} \quad f(y_i)\right]^{\frac{1}{1-\varepsilon}} \qquad [1]$$

In Equation 1, y represents income, μ represents average income and ε represents the level of sensitivity to income transfers in different income brackets. The computational transformation to measure interregional inequality is like this:

$$A_{(\Omega)} = 1 - \left[\frac{G_i}{G} \times \sum_{i=1}^{n} \frac{W_i/G_i}{\bar{W}/\bar{G}}\right]^{\frac{1}{1-\Omega}} \; eğer\ \Omega \neq 1 \qquad [2]$$

In Equation 2; The $A_{(\Omega)}$ represents Atkinson interregional inequality index, Ω represents the sensitivity coefficient; W_i, represents the number of the human health workers in the province of I and G_i, represents the number of the elderly population in province I. $\bar{W}$ is the unweighted provincial average found by dividing the total number of human health workers in Turkey by 81. $\bar{G}$ is the unweighted provincial average found by dividing the number of all elderly people in Turkey by 81.

After the Atkinson index is calculated, the rates of social utility and loss of social utility are calculated as in Equations 3 and 4.

$$rate\ of\ social\ utility = \%\left[(1 - A_{(\Omega)}) \times 100\right] \qquad [3]$$

$$rate\ of\ loosing\ for\ social\ utility = \%\ (A_{(\Omega)} \times 100) \qquad [4]$$

In addition, the amount of sensible (SHW) or the amount of insensible human health workers (IHW) can also be calculated with the Atkinson index as in Equations 5 and 6.

$$SHW = \sum \mathrm{W} \times A_{(\Omega)} \qquad [5]$$

$$IHW = \sum \mathrm{W} \times\ (A_{(\Omega)} \times 100) \qquad [6]$$

Even SHW or IHW per thousand elderly people can be calculated as in Equations 7 and 8.

$$SHW\ per\ thousand\ elderly\ people = \left(SHW/\sum \mathrm{G}\right) \times 1000 \qquad [7]$$

$$IHW\ per\ thousand\ elderly\ people = \left(IHW/\sum \mathrm{G}\right) \times 1000 \qquad [8]$$

RESULT

The findings are reported collectively in three tables. In the first table, Atkinson inequality indexes, rate of social utility and rate of social utility loss were calculated, as 2019 and 2020, according to the total population of women, men, and seven different elderly age groups. In the second table, the number of (in) sensible human health workers by the elderly age groups were calculated. In the last table, the number of (in) sensible human health workers per thousand elderly people were calculated for each of the elderly age groups.

The Atkinson inequality index reached a maximum of 0.414, a minimum of 0.302 and an arithmetic mean of 0.352 in 2019. The index value decreased to a maximum of 0.292, a minimum of 0.206 and an average of 0.253 in 2020. Depending on the index values, while in 2019 the rate of social utility was a maximum of 69.8%, a minimum of 58.6% and an arithmetic average of 64.8%, in 2020 it increased to a maximum of 79.4%, a minimum of 70.8% and an average of 74.7%. This change represents an increase of approximately ¼ for the rate of social utility. While the rate of social utility loss was a maximum of 41.4%, a minimum of 30.2% and an arithmetic average of 35.2% in 2019, it declined to a maximum of 20.6%, a minimum of 29.2% and an average of 25.3% in 2020. Loss of

social utility decreased between the years of 2019 and 2020 for a maximum of 10.7%, a minimum of 8.6%, and the average decline was 9.9%. This change indicates an average of 1/3 regression in the loss of social utility (See. Table 1).

Table 1. Social Utility for Geriatrics Population from the Human Health Workers and Province [Under Article 4-1/a of Act 5510] 2019, 2020

Age, sex		Atkinson Index		Social Utility, %		Loss of Social Utility, %	
		2019	2020	2019	2020	2019	2020
65-69	Total	0,308	0,213	69,2	78,7	30,8	21,3
	Male	0,315	0,220	68,5	78,0	31,5	22,0
	Female	0,302	0,206	69,8	79,4	30,2	20,6
70-74	Total	0,329	0,232	67,1	76,8	32,9	23,2
	Male	0,336	0,239	66,4	76,1	33,6	23,9
	Female	0,325	0,226	67,5	77,4	32,5	22,6
75-79	Total	0,354	0,254	64,6	74,6	35,4	25,4
	Male	0,361	0,261	63,9	73,9	36,1	26,1
	Female	0,350	0,249	65,0	75,1	35,0	24,9
80-84	Total	0,372	0,268	62,8	73,2	37,2	26,8
	Male	0,388	0,285	61,2	71,5	38,8	28,5
	Female	0,363	0,260	63,7	74,0	36,3	26,0
85-89	Total	0,389	0,281	61,1	71,9	38,9	28,1
	Male	0,414	0,307	58,6	69,3	41,4	30,7
	Female	0,376	0,269	62,4	73,1	37,6	26,9
90+	Total	0,358	0,272	64,2	72,8	35,8	27,2
	Male	0,381	0,292	61,9	70,8	38,1	29,2
	Female	0,360	0,274	64,0	72,6	36,0	27,4
65+	Total	0,333	0,234	66,7	76,6	33,3	23,4
	Male	0,340	0,241	66,0	75,9	34,0	24,1
	Female	0,328	0,228	67,2	77,2	32,8	22,8

While the number of sensible people of the human health workers [Under Article 4-1/a of Act 5510] by elderly population (SHW) increased very sharply between 2019-20, the increase in the non-sensible part (IHW) was very limited. According to elderly age groups, the proportional increase in SHW in 2020 compared to 2019 ranged between a maximum of 74.8% and a minimum of 67.5%. However, this proportional range is stuck between a maximum of 13.4% and a minimum of 0.8% for IHW. This finding supports that the egalitarian distribution in 2020 compared to 2019 has been realized to a very serious extent.

The employment of additional personnel was made according to the provinces' missing personnel locations, thus reducing the imbalance between the provinces in this regard. By elderly age groups, SHW stood at a maximum of 383,682 and a minimum of 322,110 people in 2019, compared to a maximum of 644,758 and a minimum of 562,910 people in 2020. IHW, on the other hand, was between a maximum of 227,751 and a minimum of 166,180 people in 2019, while it was between a maximum of 249,360 and a minimum of 167,512 people in 2020 (See Table 2).

Table 2. (In)sensible People of the Human Health Workers and Province [Under Article 4-1/a of Act 5510] by Geriatrics Population

Age, sex		2019		2020		Difference	
		SHW	IHW	SHW	IHW	SHW	IHW
65-69	Total	380.317	169.544	639.446	172.824	259.130	3.279
	Male	376.472	173.389	633.315	178.955	256.844	5.565
	Female	383.681	166.180	644.758	167.512	261.077	1.332
70-74	Total	368.889	180.972	624.202	188.068	255.313	7.096
	Male	365.355	184.506	617.767	194.503	252.412	9.997
	Female	371.390	178.471	628.855	183.415	257.465	4.944
75-79	Total	354.990	194.871	606.133	206.137	251.142	11.267
	Male	351.336	198.525	599.897	212.373	248.561	13.848
	Female	357.252	192.609	610.039	202.231	252.787	9.622
80-84	Total	345.283	204.578	594.178	218.092	248.895	13.514
	Male	336.547	213.314	580.792	231.478	244.244	18.165
	Female	350.166	199.695	601.417	210.853	251.251	11.158
85-89	Total	336.077	213.784	583.695	228.575	247.618	14.791
	Male	322.110	227.751	562.910	249.360	240.800	21.609
	Female	342.930	206.931	593.404	218.866	250.474	11.935
90+	Total	352.776	197.085	591.692	220.578	238.916	23.493
	Male	340.491	209.370	574.759	237.511	234.269	28.140
	Female	351.908	197.953	589.456	222.814	237.548	24.861
65+	Total	366.772	183.089	622.570	189.700	255.798	6.611
	Male	363.039	186.822	616.302	195.968	253.263	9.146
	Female	369.477	180.384	627.092	185.178	257.615	4.794

For SHW per thousand elderly people, the change of increase between 2019 and 2020 has reached dramatic levels. As the increase in the number of human health workers was too high to be compared with the increase in the number of the elderly population. In addition, a significant improvement was observed in the distribution of the human health workers among 81 provinces in 2020 compared to 2019. Thus, SHW increased surprisingly between 2019-2020. At this point, SHW per thousand elderly people increased rapidly in all elderly age groups. However, since the amount of population in elderly age groups differs from each other, it is necessary to focus on the change between 2019-2020 for each elderly age group. Thus, a healthier analysis can be conducted. For IHW per thousand elderly people, there was an overall decline in 2020 compared to 2019. The source of this decrease is the decrease experienced in the 65-74 age group, which constitutes the majority of the elderly population. There was a limited increase in the elderly population aged 75 and over. However, this increase has become insignificant considering the serious increase in the number of human health workers (See Table 3).

Table 3. (In)sensible People of the Human Health Workers per thousand elderly people and Province [Under Article 4-1/a of Act 5510] by Geriatrics Population

Age, sex		2019		2020		Differences	
		SHW	IHW	SHW	IHW	SHW	IHW
65-69	Total	139.7	62.3	217.6	58.8	77.9	-3.5
	Male	289.3	133.2	452.7	127.9	163.4	-5.3
	Female	270.0	116.9	418.8	108.8	148.8	-8.1
70-74	Total	182.9	89.7	292.8	88.2	109.9	-1.5
	Male	402.4	203.2	643.0	202.5	240.6	-0.8
	Female	334.9	160.9	537.0	156.6	202.2	-4.3
75-79	Total	271.3	148.9	447.2	152.1	175.9	3.1
	Male	626.6	354.1	1027.8	363.9	401.2	9.8
	Female	477.9	257.6	790.5	262.1	312.7	4.4
80-84	Total	422.2	250.2	689.9	253.2	267.7	3.1
	Male	1039.6	658.9	1709.4	681.3	669.8	22.4
	Female	708.8	404.2	1153.4	404.4	444.6	0.1
85-89	Total	675.7	429.8	1250.6	489.7	574.9	59.9
	Male	1669.5	1180.4	3170.8	1404.6	1501.3	224.2
	Female	1126.3	679.6	2051.8	756.8	925.5	77.1
90+	Total	1879.4	1050.0	2960.8	1103.8	1081.4	53.8
	Male	6719.2	4131.7	10818.4	4470.5	4099.2	338.8
	Female	2568.1	1444.6	4017.7	1518.7	1449.6	74.1
65+	Total	48.6	24.2	78.3	23.9	29.7	-0.4
	Male	108.8	56.0	175.4	55.8	66.6	-0.2
	Female	87.7	42.8	141.2	41.7	53.6	-1.1

DISCUSSION

The number of human health workers increased from 584,372 in 2019 to 859,929 in 2020. The personnel increase experienced in 2020, when the first shock effect of the pandemic was experienced, reached 275,557 people. The proportional equivalent of this increase compared to 2019 is 47.2%. On the other hand, female elderly population increased from 4,213,467 people to 4,439,663 people, male elderly population increased from 3,337,260 people to 3,513,892 people and the total elderly population increased from 7,550,727 people to 7,953,555 people. The proportional equivalent of this increase compared to 2019 is 5.37% for women, 5.29% for men and 5.34% for the total elderly population. In the elderly population, there was a decrease of 30,662 people in 2020 compared to 2019, only for women and men in the 85-89 age group. The proportional meaning of this decrease is that there is a 6.2% decrease in 2020 compared to 2019. There was a proportional increase between 8.3% and 3.2% in all age groups except the 85-89 age group. As can be understood from this, the proportional increase in the human health workers that was achieved in 2020, was much higher than the proportional increase experienced in the elderly population (etc. 45-46).

The findings support that there is a serious egalitarian improvement in the interregional distribution according to every age group without exception. This improvement can be achieved either by removing the human health workers from regions with excess employment or by recruiting new workers to regions with a shortage of workers. It seems that the second option has been realized in Turkey, and new human health worker recruitments have been distributed among the regions in a way that ensures the balance, causing an egalitarian improvement. In the severe conditions of the pandemic, the egalitarian transformation points to a significant success in public health planning. Because an important part of the human health workers are public workers. Especially during the pandemic period, the creation of additional employment in private sector health institutions could not be realized. The additional source of employment belongs to the public, mostly consisting of nurses, health technicians and

operators and other assistant human health workers. This segment was also implementing personnel who were fighting at the forefront during the pandemic.

In 2020, when the first devastating effects of the pandemic were experienced, the world could not pass the test regarding the provision of health services for the elderly. The world public opinion was deeply shaken by the news of the elderly who were left to die in nursing homes from developed Western countries, especially England. The convergence in the interregional distribution of the human health workers, which defines the convenience of the elderly in accessing health services in such an environment, and also shows the power of the health personnel to intervene appropriately to the elderly, points to the existence of an important success. Comparable preliminary studies from different countries regarding the pandemic could not be reached to make a comparison. However, there are various studies conducted in the pre-pandemic period considering the general population. However, the number of studies and countries in which egalitarian development that supports interregional convergence can be identified is extremely limited (35-38). Studies showing that there is more interregional divergence and exacerbation of the imbalance are dominant (26-34). In addition, there is a serious gap in the literature on studies that include interregional distribution according to the elderly people. The fact that they are the main victims of the pandemic could possibly increase interest in expanding literature on the elderly in the future.

CONCLUSION

The global pandemic, which has affected the world for the last two years, has caused radical changes in every field. Naturally, many innovations were encountered in the field of health. However, it should be debated how much additional effort countries put forward during the pandemic process for the elderly population, to whom the virus had the deadliest effect. While efforts were made to reduce the risk of transmission of the virus to the elderly with social distance and isolation decisions, on the one hand, there were serious increases in the effects that led to an increase in comorbidity. The dramatic end of the elderly, who were left to die in developed Western countries, will probably remain in memory for many years to come. In this study, the focus was to compare the balance in the distribution of the human health workers according to the distribution of the elderly population between regions in 2020, when the pandemic showed its first shock effect, compared to the previous year. Thus, it was aimed to reveal a part of the success or failure of the health policy for the elderly in Turkey during the pandemic period. The findings showed that the public health policy for the elderly and the health service planning made within the scope of health policy are highly affirmative. Reaching such evidence, even as part of health policy and planning, from a country with limited economic opportunities is extremely promising because there are not many positive examples in the pandemic period regarding the health services offered to the elderly from the rest of the world. This situation can be shown as evidence of the success in Turkey in terms of health policy and interregional health planning. By carrying out similar studies for different countries, a different dimension will be added to the comparison of countries' public health policies for the elderly. Thus, the position of countries in elderly health can be better understood. When the detection of inadequacies becomes easier, it will be possible to contribute to both the development of the literature and the development of effective public health policies that will solve the problems.

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