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Approaches to Health Efficiency across the European Space through the Lens of the Health Budget Effort

Valentin Marian Antohi ^{1,2,*} , Romeo Victor Ionescu ³, Monica Laura Zlati ^{1,4}, Cristian Mirica ¹ and Nicoleta Cristache ¹

¹ Department of Business Administration, Dunarea de Jos University, 800008 Galati, Romania; sorici.monica@usm.ro or monica.zlati@ugal.ro (M.L.Z.); cristian.mirica@ugal.ro (C.M.); cristache.nicoleta@yahoo.de (N.C.)

² Department of Finance, Accounting and Economic Theory, Transylvania University, 500036 Brasov, Romania

³ Department of Administrative Sciences and Regional Studies, Dunarea de Jos University, 800201 Galati, Romania; ionescu_v_romeo@yahoo.com

⁴ Department of Accounting, Audit and Finance, Stefan cel Mare University, 720229 Suceava, Romania

* Correspondence: valentin_antohi@yahoo.com

Abstract: In the context of the COVID-19 pandemic, financial resources allocated to the health system have been refocused according to priority 0: fighting the pandemic. The main objective of this research is to identify the vulnerabilities affecting the health budget effort in the EU and in the Member States during the health crisis period. The analysis takes into account relevant statistical indicators both in terms of financial allocation to health and expenditure on health protection of the population in the Member States, with the effect being tracked even during the pandemic period. The novelty of the study is the identification of viable directions of intervention based on the structural determination of expenditures related to measures to combat the pandemic and making proposals for changes in public policies based on the determination of the effectiveness of budget allocations in health in relation to the proposed purpose. The main outcome of the study is the identification of the vulnerabilities and the projection of measures to mitigate them in the medium and long term.

Keywords: efficiency of budget allocation; health; pandemic; sanitary vulnerability; social protection



Citation: Antohi, V.M.; Ionescu, R.V.; Zlati, M.L.; Mirica, C.; Cristache, N. Approaches to Health Efficiency across the European Space through the Lens of the Health Budget Effort. *Int. J. Environ. Res. Public Health* **2022**, *19*, 3063. <https://doi.org/10.3390/ijerph19053063>

Academic Editors: Paul B. Tchounwou and Lucian-Ionel Cioca

Received: 26 January 2022

Accepted: 2 March 2022

Published: 5 March 2022

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1. Introduction

Efficient financing of health services in the European area is a priority from the perspective of sustainable development objectives as well as from the perspective of the European social protection and health policies. From the financial distribution point of view, in line with the European policies, there is more monitoring of the financial indicators especially in terms of improving the health of the population in the long term in relation to increasing the quality of the health services, attracting specialists in the medical system or improving the quality of life in relation to new treatments and medical protocols in the field.

Thus, according to the ISQua (International Society for Quality in Health Care) guidelines on quality in public health services, the main objectives pursued in terms of ensuring the health of the population are aimed at forming centres of performance, ensuring patient safety, continuously improving the quality of health services, implementing new technologies in health and ensuring quality and safety through the sustainable use of resources [1].

These issues have led to the creation of international service quality standards, which are implemented differently at the EU level (for example, in Romania the second edition of the revised quality assurance standards for health services is implemented at this moment) [2]. This brings with it disparities in resource consumption and population health insurance; all the more, in the context of COVID, vulnerabilities have generated crisis

situations in countries that have faced certain risk factors triggering health events during the pandemic (Italy, Spain, France, Sweden, Romania).

In view of the above, the aim of the present research is to identify the vulnerabilities affecting the health budget effort during the health crisis.

Thus, we define the following research objectives:

O1: Identify the pre-pandemic context of the health of the European population in relation to the financial allocations for health and the level of social protection offered by the Member State governments to their citizens.

O2: Quantify the level of damage to the health profile of the population following the outbreak of the pandemic.

O3: Determination of the existence of a regression correlation between annual health status and morbidity and mortality rates induced by the COVID-19 pandemic.

O4: Identify measures to address vulnerabilities arising from the misallocation of funds in health, based on observations made during the study.

Results of the study have led to relevant and useful conclusions for the financial and governmental decision-makers in order to improve the efficiency of the budget allocations, with a direct effect on improving the long-term health status of the population.

Further research covers the following sections: Literature Review, Methodology, Results and Discussion and Conclusions. The literature review provides a conceptual framework for defining our proposed model. The methodology highlights the manner of scientific research capable of supporting the definition and implementation of the proposed model, while Results and Discussion provides the necessary framework for national and supranational decision-makers in the context of a new approach to health financing. The conclusions are the quintessence of the present research, highlighting the novelty of the study, its limits, its usefulness and possible further developments.

2. Literature Review

The present study covers an area of interest regarding financing of the health services, which was widely debated in the literature even before the outbreak of the pandemic [3]. Between 2000 and 2018, more than 70,000 articles on public health financing were written by international authors. Compared to the period 2000–2018, in the period after the outbreak of the pandemic, there has been an intensification of the research effort; in only 3 years, more than 45,000 articles have been published on this topic (Google Academics, 2021).

Using the VOSviewer software (version 1.6.18, developed by Centre for Science and Technology Studies, Leiden University, The Netherlands), a total of 74 articles published in 2020 and 2021 on the research topic were reviewed (see Figure 1 and the Appendix A). A clustering of research interest has been identified in 3 clusters, linking the health system financing issues under pandemic crisis (green cluster), public health policies and the main social effects of the pandemic (blue cluster) and repercussions on economic life (depression, anxiety and mental status of the population—red cluster). This has led to deepening unemployment, economic recession and deterioration of the health status of the population with an impact on the health system.

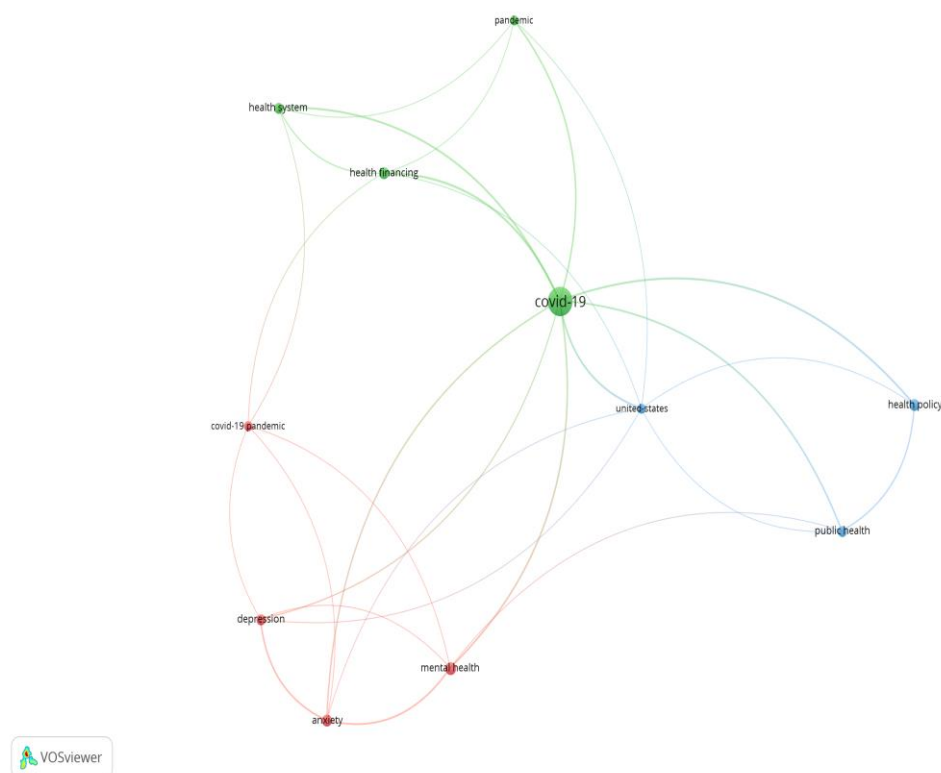


Figure 1. Cluster research publications regarding financing health services.

The main themes addressed by the specialists focused on the challenges of the pandemic in relation to the public health system, the financial crisis induced by the pandemic and systemic difficulties faced by some countries in dealing with the pandemic, as well as the vulnerabilities of the public expenditure financing system following the restructuring of the expenditure in line with the immediate measures required to combat the pandemic (Figure 2).

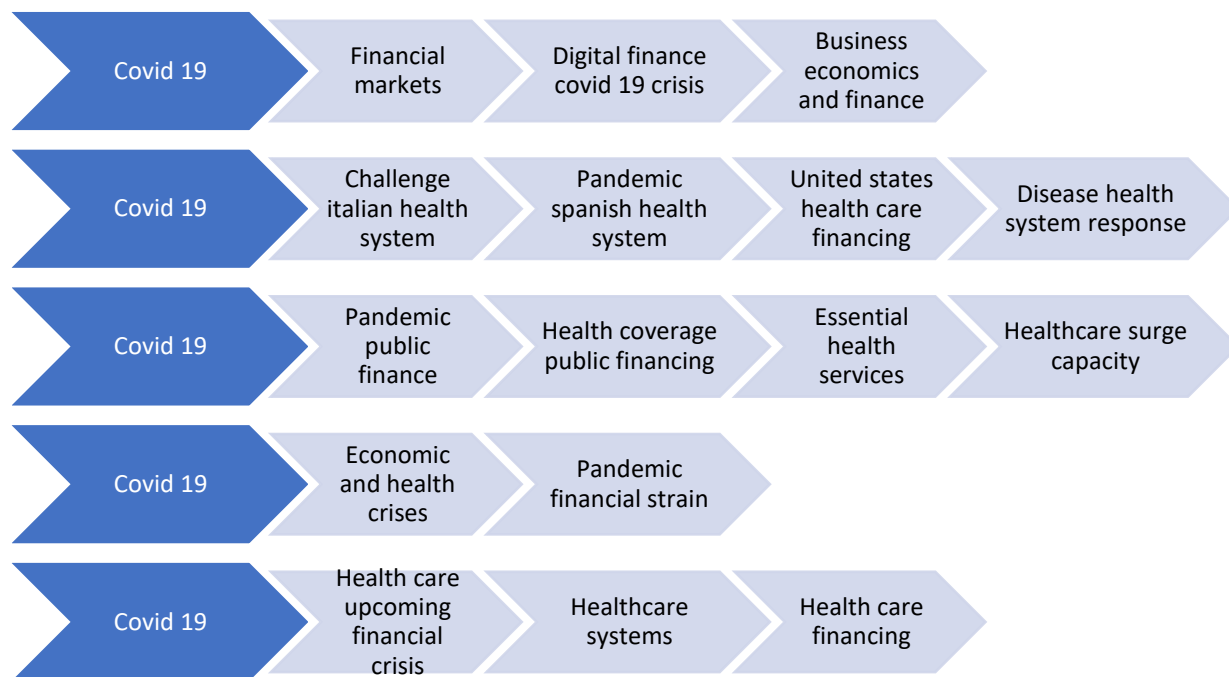


Figure 2. Research areas on health financing vs. pandemic.

Following the literature review, we noted the concern of some authors [4] regarding the financial allocation for health services in relation to the minimum set of social services to support an adequate state of health of all citizens. Through contributory mechanisms, the authors identify the main categories of contributors in the public and private sector in order to establish sufficient financial sources to ensure a minimum necessary universal protection against the low health status of the population at risk of poverty and to promote an equitable system of access to health services. Given the characteristics, benefits and advantage/disadvantage system of publicly and privately funded services, the authors conclude that the future will see mixed models of health financing support in EU Member States different from the current ones.

In the same context of transparent and sustainable financing of health systems, some authors [5–10] address the financial structure of public health expenditure in a dynamic way through studies addressed to European countries. In Eastern European countries [6], a higher need for health system financing is observed based on the dynamic analysis carried out in the period 2000–2017, which reveals that public expenditure has been decreasing in most countries (the maximum reduction being reached by Bulgaria and the Czech Republic), while government taxation for social insurance had an increasing trend in most countries. The Bulgarian system is surprising, whose financing structure seems to have shifted toward social health insurance at the expense of public spending or income taxation with a percentage contribution to the health insurance.

According to some authors [11], the pandemic has combined two different types of crisis—health and economic—which together have affected national health systems, and budgetary rebalancing measures are recommended, corroborated by an increase in the degree of collection and an increase in the capacity of the system to generate tax payments, which is the measure of sustainable development of an economic system. The same problem-solution approach is found in their research [12], which emphasizes the need for fiscal decentralization, reforming the system so that the interaction between economic agents and control bodies involves a novel approach to the taxpayer-state representative relationship.

During the pandemic, economies of the political powers were affected, in particular due to the restriction of economic trade, so that the governments of these countries had to act in terms of health protection but also to stimulate the affected domestic business environment in the global trade segment in order to recover. The authors [13] propose a system based on PPML (Poisson Pseudo-Maximum Likelihood) estimators, so that the financial development mechanism strengthens public health care by promoting financial flows through state-owned firms. While this may be negative in the long term, in the short term, the proposed solution may achieve its goal.

In another approach, [14] consider the pandemic crisis as a challenge to identify measures with maximum efficiency and effectiveness, and some innovation solutions in health through public subsidies are proposed, identifying 23 opportunities that could constitute solutions in the segment of public policies, telemedicine, testing and diagnostics, social science, etc.

Iizuka [15] provides a brief analysis of the impact of the pandemic on the health of the population and the economy as a whole. Based on the existing disparities between national health systems, countries around the world faced a wide range of problems during the pandemic, and the author concludes that there is a need for ex-ante monitoring and a concomitant mobilization of the private and public sector for the sustainability of the implementation of measures to combat effects of the pandemic crisis.

The challenge of making health systems resilient to shocks and crises can be taken up in their view [16] through a sustainable transformation of system financing to ensure sufficient resources for prevention and control, surveillance and effective information through digitization. The contribution of telemedicine and the mobilization of the private sector are not ignored; they contribute to the implementation of viable solutions, multisectoral cooperation being the basis for the sustainable resilience of the system.

Another approach that points out critical aspects of some health systems, such as the American one, brings to the fore the fragmentation of the health care system and inadequate social protection, which in pandemics can be major obstacles and threats to the health of the population [17].

An analysis by [18] highlights the major impact of COVID-19 on the financial system as a whole, considering that two factors are disruptive in any forecast: the decrease in wage, tax and VAT receipts by 9%, correlated with the historical progression of expenditure (€23.3bn) in the French health system. This development will favour the social security deficit assessed for the 2023 horizon, which includes health and risk insurance.

Ref. [19] points out that the pandemic has induced a global state of vulnerability to the medical phenomenon, with the countries of the world unprepared for what followed. The management of the pandemic resulted in lockdowns in most countries, which led to restrictions and halts in social and economic activities. The solutions proposed by the authors are pertinent and refer to improving the performance of the hospital superstructure, setting up a disease monitoring interface, access to advanced health technologies and health education of the population. These measures need to be financed in a quasi-unitary way by the countries of the world, which will lead to changes in health financing policies.

An analysis of health system financing in Nigeria in response to the outbreak of the pandemic is by [20], which shows that for developing countries, the financial strain was and is burdensome and required the establishment of stringent fiscal policies and health insurance packages that contributed to fiscal pressure.

The authors [21] show that the pandemic created financial market disruptions due to underestimation of health risk and slow response to financial stress during the period. These elements can be combined in the future for the creation of behavioural profiles during the crisis, the analysis being carried out on the 23 largest countries in the world with the exception of Russia and China.

Other authors consider that the health system response in Arab countries is more efficient than in other countries [22], arguing for a 3-step algorithm containing detection, prevention and containment and treatment. In this sense, public health policy in Arab countries has been based on testing, social distancing and monitoring of infected people to a greater extent than in other countries. In addition, the population showed a better understanding of social distancing measures and travel restrictions. Third, economic support measures contributed to the efficiency of the Arab health-care system during the pandemic.

An X-ray of the EU health system in a pandemic context by [23] shows that there is a big difference in the impact of the pandemic in the Member States, both in the severity of the impact (number of deaths due to the pandemic) and in the financial pressure on public health systems. The only countries where public pressure on the health system is not of a financial nature are Sweden, Germany and Luxembourg, the rest being affected by the health security measures that have been implemented.

In a dynamic approach, [24] compared the structure of health systems and the financial effects of the pandemic in countries with mixed (public-private) health insurance systems such as the US, UK, Germany and Israel. The negative effects on health have been most severe in the US, where the prevalence of activity-based payment system and direct government control has been manifested to a limited extent. The authors show that during the pandemic period the pressure fell on the public health system to which low-income people turned.

The public health system is considered the basis of a competitive and sustainable health system because it solves community problems and promotes social equity in health in their opinion [25]. The authors show that global cooperation has contributed to better planning and urgency in the implementation of solutions, as well as to the development of viable strategies to combat viruses based on the principle of accumulation of experience. From a financial point of view, the financing capacity of health systems must ensure greater

flexibility to respond to exceptional emergencies. Telemedicine and remote triage are brought into discussion.

A systematic review of the literature by [26] reflects the fact that, in the case of Eastern European countries (Romania), the main threats affecting the national health system are the inadequate health risk factor behavior of the population and the decrease in the number of specialists working in the health care, on the one hand, and on the other, the high incidence of contagious and chronic diseases and the poor living conditions of the majority of the population, especially in rural areas.

A model of health system differentiation based on the identification of the economic inequalities has been addressed in several studies [27–29]. In the paper *Differentiation in Healthcare Financing in EU Countries* [27], the model for assessing economic inequality is presented by referring to the degree of concentration of the distributions which shows that there are major inequalities between the financing of health services over the period 2013–2017, a period in which Romania ranked last in terms of the share of health expenditure in GDP. The disproportionalities identified by the disturbance indicator show that each Member State needs to bring its health policies closer to the economic condition and to correlate the health expenditure per individual with the objectives for the level of affordable health.

A prospective study on the dynamics of the health services in Eastern European countries shows that, in terms of health expenditure per capita, Romania ranks last, but ahead of Croatia and Slovenia [30]. Thus, the authors opine that constant monitoring of economic trends and the health status of the population is required, and the absence of such health screening may constitute a source of substantial public expenditure on health (by deteriorating the health status of the population).

According to other authors [31,32] there are several clusters in the EU formed on the basis of stratification of the level of health security of the population, European inhomogeneity being a problem in terms of unitary implementation of public health policies, health management and technological uniformity at the European level. Thus, there is a need for rebalancing of the cyclical assessments at a national level.

During the pandemic period, it was found that there was an impairment of the economic and medical performance indicators [33], mainly due to the impairment of fixed expenses on the background of the reduction in the number of patients and the partial relocation of hospital activities to the COVID-19 area. The disease control measures have also affected the health budget balance. In the study conducted by the authors [33], it is shown that through the DEA-BCC model (Data Envelopment Analysis-Banker, Charnes and Cooper Model) in Romania a number of 18 COVID-19 support hospitals were evaluated in the period 2019–2020, of which only 5 were identified as efficient units. The other 13 ranked below the efficiency indicators in terms of quality indicators, sufficient nursing staff, sufficient number of beds and health outputs delivered by hospital units.

According to the report for Romania [34], it is socio-economically and demographically below the European indicators, with a poverty rate of 23.6% (compared to the EU average of 16.9%) and a GDP/capita of 18,800 Euro PPP (Purchasing power parity), (compared to the EU average of 30,000 Euro PPP). In terms of health status, in line with the general European trend, Romania has been on a positive trend during 2007–2013, with an increase in life expectancy from 71.2 years in 2000 to 75.3 years in 2017, which is below the European limit for the EU (80.9 years). The main factors behind this development are educational attainment, incidence of heart disease and cancer mortality. The OECD report shows that the health system in Romania is the poorest among the European countries in terms of expenditure per capita (Romania spends 1030 euros compared to 2884 euros in the EU), but also in terms of size of allocation of GDP (5% compared to 9.8% in the EU).

In terms of ways to combat the pandemic, researchers [35] have focused on studying the most effective method (vaccination), conducting a study of the effects of vaccination and the general framework for implementing security measures, a framework that resides in 3 distinct elements; namely, security of the vaccination solution (limiting adverse effects

and uncertainties of the process), funding to ensure equal opportunity for vaccination and ensuring adequate ethics of the process both in terms of the vaccination action and in terms of recognition of vaccination and use of information during the monitoring period for continuous improvement of the vaccination solution.

In his opinion [36], the COVID-19 experience brings to the attention of global decision-makers the improvement of the health framework, the strengthening of national public health systems, the identification of health risks and the increase of awareness of these risks, so that events of pandemic magnitude can be better addressed and more efficiently managed.

These results published in the literature lead to the conclusion that there is a need to reposition funding in relation to the actual need for funding, especially in light of the pandemic that has influenced and continues to influence the health of the population and the effects of funding health services during the pandemic.

In order to achieve the purpose of the research (to identify the influencing factors on the efficiency of budget allocation in health), we defined the following working hypotheses:

H1: *The health status of the population varies in direct proportion to the health budget allocations, and changes in the government policies are likely to have a direct proportional influence on the medium and long-term health balance.*

H2: *In the case of financial policy stability for health, the main deflator of the allocation efficiency is the social protection expenditure as a percentage of GDP.*

H3: *In the case of health financial policy stability, the pandemic morbidity rate tends to increase in magnitude, with the policy update level being a maximum of 10 years.*

H4: *Under conditions of the health promotion through financial allocations for social protection or for strengthening the health security of the population, the vaccination rate tends to decrease if the funded level of the social security is not sustained over time.*

3. Methodology

We collected over a statistical period of 11 years information on the dynamics of economic and financial indicators representative for health system financing (EUROSTAT, 2020), correlated with the influence of morbidity and mortality indicators due to the COVID-19 pandemic. These data were then concatenated into a consolidated database on which statistical procedures were applied to obtain regression and prediction equations using IBM SPSS 25 statistical software.

Thus, we used the Eurostat database [37], from which we collected information on the evolution of the following indicators at Member State level for the period 2009–2020. In addition to the Eurostat indicators, we analysed the information provided by Google News [38] on morbidity and mortality rates related to the COVID-19 pandemic for each EU27 Member State at the beginning of November 2021 (see Table 1).

Collected information allowed for the creation of an integrated database which was modeled using the multiple linear regression process by the mathematical method of least squares. Annual models of the correlation between total health care expenditure by EU27 average expenditure dependent variable and the regressors COVID_VACC, COVID_ILL, SPR_ADM_{year} , $SPR_REC_SUMT_ESC_{year}$, SPR_OTHER_{year} , $SPR_REC_SUMT_GOV_{year}$, $HLTH_SHA11_LT_{year-1}$, $HLTH_SHA11_HC_{year-1}$, $SPR_EXP_SUM_{year}$, $HLTH_SHA11_LT_{year}$ were obtained.

Table 1. Table of analysed indicators.

Indicators' Names	Symbol	Unit of Measurement	Source
Expenditure on social protection	SPR_EXP_SUM	Percentage of GDP	[37]
Social benefits, in cash or in kind, to households and individuals	SPR_EXP_BNF	Percentage of GDP	[37]
Administration costs to the scheme for health management and administration	SPR_ADM	Percentage of GDP	[37]
Other expenditure by social protection schemes (payment of property income and other)	SPR_OTHER	Percentage of GDP	[37]
Receipts of social protection schemes (social contributions, general government contributions and other receipts)	SPR_REC_SUMT_GOV	Percentage of GDP	[37]
Employers' social contributions	SPR_REC_SUMT_ESC-	Percentage of GDP	[37]
Total health care expenditure by EU27 average expenditure (Country average/EU27 average)	HLTH_SHA11_HC	Percentage of EU27 average expenditure	[37]
Long-term care (health) expenditure by EU27 average long-term expenditure (Country average/EU27 average)	HLTH_SHA11_LT	Percentage of EU27 average expenditure	[37]
The rate of illness	COVID_ILL	Cases per 1 M people	[38]
The rate of vaccinations	COVID_VACC	% of population fully vaccinated	[38]

The general model is presented as the following regression equation:

$$\begin{aligned}
 HLTH_{SHA11_{HC}_{year}} &= \alpha_1 * SPR_{ADM}_{year} \\
 &+ \alpha_2 * SPR_{REC_{SUMT}_{ESC}_{year}} \\
 &+ \alpha_3 * SPR_{OTHER}_{year} + \alpha_4 * SPR_{REC_{SUMT}_{GOV}_{year}} \\
 &+ \alpha_5 * HLTH_{SHA11_{LT}_{year-1}} + \alpha_6 * HLTH_{SHA11_{HC}_{year-1}} \\
 &+ \alpha_7 * SPR_{EXP_{SUM}_{year}} + \alpha_8 * HLTH_{SHA11_{LT}_{year}} \\
 &+ \alpha_9 * COVID_{VACC} + \alpha_{10} * COVID_{ILL}
 \end{aligned} \tag{1}$$

where: $HLTH_{SHA11_{HC}_{year}}$ —dependent variable of the model in year n ; $n \in [2009, 2020]$; α_i —coefficients of the regression variables, $i \in [1, 10]$; $COVID_{VACC}$, $COVID_{ILL}$, SPR_{ADM}_{year} , $SPR_{REC_{SUMT}_{ESC}_{year}}$, SPR_{OTHER}_{year} , $SPR_{REC_{SUMT}_{GOV}_{year}}$, $HLTH_{SHA11_{LT}_{year-1}}$, $HLTH_{SHA11_{HC}_{year-1}}$, $SPR_{EXP_{SUM}_{year}}$, $HLTH_{SHA11_{LT}_{year}}$ —regressors of the model in year n .

4. Results and Discussion

We developed annual models based on the general model for which we obtained the following tests of statistical significance (see Table 2):

Table 2. Annual model summary.

Model Year	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
2009	0.999	0.998	0.996	2.365	0.998	734.070	10	16	0.000	2.059
2010	0.998	0.996	0.994	2.928	0.996	452.810	10	16	0.000	2.061
2011	0.998	0.996	0.994	3.013	0.996	443.429	10	16	0.000	2.131
2012	0.999	0.998	0.996	2.468	0.998	645.618	10	16	0.000	2.146
2013	0.999	0.998	0.997	2.075	0.998	863.058	10	16	0.000	2.303
2014	0.999	0.998	0.997	2.049	0.998	889.853	10	16	0.000	2.028
2015	1.000	0.999	0.999	1.253	0.999	2266.115	10	16	0.000	2.339
2016	0.999	0.999	0.998	1.569	0.999	1352.670	10	16	0.000	1.452
2017	0.999	0.999	0.998	1.454	0.999	1523.163	10	16	0.000	2.453
2018	1.000	0.999	0.998	1.365	0.999	1662.286	10	16	0.000	1.495
2019	0.999	0.999	0.998	1.423	0.999	1498.636	10	16	0.000	1.959
2020	0.998	0.996	0.994	2.649	0.996	443.106	10	16	0.000	1.910

It is observed that the statistical significance of the overall model is above 99%, which means that the variables are homogeneous and allow for quantifying the efficiency function of the financial allocation in health in relation to the proposed regressors.

In terms of change statistics, the F-test shows a maximum value in 2015, a year in which we can state that the efficiency of the financial allocations in relation to the objectives of quality, security and social resilience was maximum. The statistical representation function is maximal. This was also the case in 2018, when the F-test value was the second highest in the annual series.

It is noted that the year 2020 showed major disturbances in the F-test, with the F-test decreasing more than 5 times compared to 2015 and more than 4 times compared to 2018. As a result, the efficiency of the health allocations during the pandemic period was affected by the social protection measures and the disease control measures, which affects the health balance of the system.

From the Durbin–Watson function point of view, the results are of high homogeneity and statistical representativeness, the value of the test being close to 2, which allows validating the data series as homogeneous and representative for the studied phenomenon.

The results of the ANOVA test reflect that the residual quantity of the regression function is insignificant relative to the sum of the regression squares, with a representation of 10 degrees of freedom out of a total of 26 possible. The regression function F shows a value of up to 2266 points in 2015 and 443 in 2020 and a Sig coefficient tending to 0 (see Table 3).

In Table 3, it can be seen that the sum of the residual squares of the annual patterns decreases during the period under analysis, both in terms of quantity and as a share of the total sum of squares. This aspect demonstrates that the decadal policy update period in the health sector shows reflexivity in relation to the predicted output of the dependent variable *HLTH_SHA11_HC_{year}*. The test results confirm hypothesis H3; namely, in the case of health financial policy stability, the pandemic morbidity rate tends to increase in magnitude, with the policy update level being a maximum of 10 years. Our approach is also supported by [28,34].

Table 3. ANOVA test.

Model Year	Sum of Squares Regression	Sum of Squares Residual	Sum of Squares Total	df Rg.	df Res	df Tot	Mean Square Regression	Mean Square Residual	F	Sig.
2009	41,072.167	89.522	41,161.689	10	16	26	4107.217	5.595	734.070	0.000
2010	38,825.678	137.190	38,962.868	10	16	26	3882.568	8.574	452.810	0.000
2011	40,249.734	145.231	40,394.965	10	16	26	4024.973	9.077	443.429	0.000
2012	39,328.383	97.465	39,425.848	10	16	26	3932.838	6.092	645.618	0.000
2013	37,149.809	68.871	37,218.680	10	16	26	3714.981	4.304	863.058	0.000
2014	37,373.159	67.199	37,440.357	10	16	26	3737.316	4.200	889.853	0.000
2015	35,586.873	25.126	35,611.999	10	16	26	3558.687	1.570	2266.115	0.000
2016	33,294.597	39.382	33,333.980	10	16	26	3329.460	2.461	1352.670	0.000
2017	32,190.421	33.814	32,224.236	10	16	26	3219.042	2.113	1523.163	0.000
2018	30,952.398	29.793	30,982.191	10	16	26	3095.240	1.862	1662.286	0.000
2019	30,344.785	32.397	30,377.182	10	16	26	3034.479	2.025	1498.636	0.000
2020	31,092.351	112.271	31,204.621	10	16	26	3109.235	7.017	443.106	0.000

Pearson correlation coefficients for the dependent variable in relation to the change in the dependent variable from the previous year and the analyzed regressors for the current year reflect the following:

- There is a direct correlation between the health expenditure in the budget year (HLTH_SHA11_HC (year)) and the social protection expenditure (SPR_REC_SUMT_ESC). This has been the case since 2010, when European policy underwent a paradigm shift from a conservative to a forward-looking orientation, focusing on disease prevention rather than treatment. This validates hypothesis H2: In the case of financial policy stability for health, the main deflator of the allocation efficiency is the social protection expenditure as a percentage of GDP (see Table 4). The approach is congruent with other papers [4,5,34].
- There is a direct correlation between the expenditure allocated to health in the budget year (HLTH_SHA11_HC (year)) and the social protection scheme approved at government level through national strategies and at European level through Community strategies (SPR_REC_SUMT_GOV (year)). This validates hypothesis H1: The health status of the population varies in direct proportion to the health budget allocations, and changes in the government policies are likely to have a direct proportional influence on the medium and long-term health balance (see Table 4). The same approach was used by [26,34].
- There is a direct correlation between the expenditure allocated to health in the budget year (HLTH_SHA11_HC (year)) and the strategy to protect the health of the population in the long term (HLTH_SHA11_LT (year)), i.e., to populate health units with specialists and technical equipment to ensure the sustainability of the health services and the continuous increase in the level of health of the population.
- The fluctuating dynamics of the Pearson correlation of the dependent variable in relation to social protection and health security expenditure suggests that the trend is polynomial, with the forecast line being affected (with an inflection point) during the pandemic period.
- The dynamics of the social protection expenditure represented by administrative costs has a polynomial evolution on the Pearson correlation coefficients with the dependent variable defined by the equation:

$$y = -0.0771x + 1.3205 \quad (2)$$

Table 4. Pearson Correlation Table between HLTH_SHA11_HC (year) and the other variables.

Year	HLTH_SHA11_HC (Year-1)	SPR_EXP_SUM (Year)	SPR_EXP_BNF (Year)	SPR_ADM (Year)	SPR_OTHER (Year)	SPR_REC_SUMT_ESC (Year)	SPR_REC_SUMT_GOV (Year)	HLTH_SHA11_LT (Year)	HLTH_SHA11_LT (Year-1)
2009	0.999	0.840	−0.546	0.581	0.272	0.306	0.580	0.854	0.850
2010	0.828	−0.497	0.572	0.180	0.308	0.566	0.998	0.864	0.868
2011	0.800	−0.397	0.558	0.038	0.376	0.574	0.987	0.856	0.896
2012	0.810	−0.405	0.610	−0.001	0.379	0.593	0.995	0.897	0.899
2013	0.797	−0.233	0.573	−0.090	0.410	0.558	0.998	0.895	0.899
2014	0.785	−0.428	0.578	0.054	0.403	0.559	0.998	0.898	0.903
2015	0.735	−0.439	0.546	0.097	0.346	0.568	0.999	0.902	0.907
2016	0.722	−0.461	0.587	0.100	0.288	0.582	0.999	0.900	0.905
2017	0.718	−0.493	0.576	0.158	0.277	0.598	0.999	0.904	0.911
2018	0.710	−0.632	0.576	0.318	0.334	0.597	0.999	0.912	0.917
2019	0.658	−0.551	0.570	0.187	0.334	0.574	0.999	0.915	0.918
2020	0.645	−0.527	0.569	0.149	0.314	0.560	0.996	0.919	0.905

Over the period 2013–2020, the Pearson coefficients of the financial indicator of social protection translated into administrative costs were aligned on a decreasing trend according to the regression equation:

$$y = -0.0291x + 0.7958 \quad (3)$$

This shows that there is a 3% margin of reduction in financial allocations for social protection or for strengthening the health security of the population, which, in the context of the pandemic, has meant a pessimism expressed by the entire European population regarding vaccination. The intensity level of the pessimism is directly proportional to the level of allocations in each Member State for this type of expenditure (HLTH_SHA11_HC (year)). This development demonstrates hypothesis H4: Under the conditions of the health promotion through financial allocations for social protection or for strengthening the health security of the population, the vaccination rate tends to decrease if the funded level of the social security is not sustained over time. Our approach is also supported by [26,34].

All of the above aspects are highlighted in the Pearson correlation table of the dependent variable in relation to the regressors (see Table 4).

The results of this research reflect the fact that measures are needed to rebalance allocations in relation to health and social security policies, the recommended period of validity being 10 years, and that the pivots of expenditure should be refocused (in countries more affected by the pandemic, e.g., Romania) towards prevention measures and increasing health literacy among the population.

5. Conclusions

The present research aimed to assess the effectiveness of the health financial allocations from public funds within the EU.

As a result of the research, we found horizontal shortcomings (deviations among Member States from the public health policies promoted by the EU), but also vertical shortcomings, namely the destabilization of the allocation strategy during the COVID-19 pandemic.

We found that the change in the financial allocation paradigm from conservative to proactive had beneficial effects over the 10 years of implementation (2009–2018). Instead, the presence of the pandemic has captured underlying vulnerabilities in terms of the health culture of the population, the administrative capacity in the public health system of some Member States and the health status of the vulnerable pre-pandemic population in the face of these deficiencies.

Under these conditions, the measures adopted by the Member States during the pandemic have had as an effect the peaks of medical crisis (2020–2021), peaks in which

morbidity and mortality related to SARS-CoV reached record levels in some Member States such as Italy, Spain, Sweden or Romania.

Post-marketing efforts to combat the disease have been slowed by a lack of health literacy among the population, amid insufficient financial support for this objective, which has reduced the impact of vaccination activities.

As measures, we have identified doing the following:

- Rebalancing financial allocations for health in relation to strategic objectives at national and European levels;
- Refocusing health police on prevention and health screening;
- Linking short-term and long-term health policies;
- Ensuring sustainability of the health sector through the sustainability of the resources used.

The novelty of this study lies in the retrospective and prospective approach to health financial projections in relation to health performance indicators and pandemic-related morbidity and mortality indicators. Moreover, the strategic directions for improvement correlated with the pattern of evolution of the efficiency of budget allocations in health can be a useful working tool for supranational decision-makers in order to readjust the optics of financing the sector and increasing the quality of health services.

The limitations of the study are the short time period considered for the analysis of SARS-CoV morbidity and mortality and the small number of indicators. The authors aim to address these shortcomings in future research.

Author Contributions: Conceptualization, V.M.A. and R.V.I.; methodology, R.V.I., M.L.Z. and V.M.A.; validation, C.M. and M.L.Z.; formal analysis, C.M. and N.C.; investigation, R.V.I., N.C. and C.M.; resources, V.M.A.; data curation, N.C.; writing—original draft preparation, R.V.I., N.C. and M.L.Z.; writing—review and editing, M.L.Z., C.M. and N.C.; visualization, V.M.A.; supervision, R.V.I. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Abbreviations

ANMCS	National Authority of Quality Management in Health
ANOVA	Analysis of variance is a collection of statistical models and their associated estimation procedures used to analyze the differences among means
COVID-19	Coronavirus disease 2019
DEA-BCC model	Data Envelopment Analysis-Banker, Charnes and Cooper Model
EU	European Union
EUROSTAT	is the statistical office of the European Union
GDP	Gross Domestic Product
IBM SPSS	software platform offers advanced statistical analysis, a vast library of machine learning algorithms, text analysis, open source extensibility, integration with big data and seamless deployment into applications
ISQua	International Society for Quality in Health Care
PPP	Purchasing power parity
OECD	Organisation for Economic Co-operation and Development
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
VOSviewer	software tool for constructing and visualizing bibliometric networks

Appendix A

Table A1. Cluster research publications regarding financing health services.

Publication Type	Authors	Article Title	Source Title	ISSN	eISSN	ISBN	DOI	UT (Unique WOS ID)
J	Abor, P.A.; Abor, J.Y.	Implications of COVID-19 Pandemic for Health Financing System in Ghana	JOURNAL OF HEALTH MANAGEMENT	0972-0634	0973-0729		10.1177/0972063420983096	WOS:000618494100001
J	Beland, D.; Marchildon, G.P.; Medrano, A.; Rocco, P.	COVID-19, Federalism, and Health Care Financing in Canada, the United States, and Mexico	JOURNAL OF COMPARATIVE POLICY ANALYSIS	1387-6988	1572-5448		10.1080/13876988.2020.1848353	WOS:000605381000001
J	Liu, X.; Guo, S.Q.	Inclusive Finance, Environmental Regulation, and Public Health in China: Lessons for the COVID-19 Pandemic	FRONTIERS IN PUBLIC HEALTH		2296-2565		10.3389/fpubh.2021.662166	WOS:000643687100001
J	da Silva, R.M.; Caetano, R.; Silva, A.B.; Guedes, A.C.C.M.; Ribeiro, G.D.; Santos, D.L.; Nepomuceno, C.C.	Profile and funding of health research triggered by the COVID-19 pandemic in Brazil	VIGILANCIA SANITARIA EM DEBATE-SOCIEDADE CIENCIA & TECNOLOGIA	2317-269X			10.22239/2317-269x.01579	WOS:000537730600004
J	Oliveira, P.F.	CHALLENGES OF INTERNATIONAL HEALTH LAW DURING THE COVID-19 PANDEMIC: NORMATIVE POWER, WITHDRAWAL AND FINANCING OF THE WORLD HEALTH ORGANIZATION	REVISTA ESTUDOS INSTITUCIONAIS-JOURNAL OF INSTITUTIONAL STUDIES		2447-5467		10.21783/revi.v7i1.605	WOS:000647193300006
J	Cuervo, R.H.; Lopez, M.V.	Health public expenditure for CoVid 19 pandemic in Mexico	REVISTA MEXICANA DE ANALISIS POLITICO Y ADMINISTRACION PUBLICA	2007-4425	2007-4638			WOS:000629147400005
J	Tandon, A.; Ivatts, S.; Cowley, P.; Roubal, T.; Dodd, R.; Pepperall, J.; Mikkelsen-Lopez, L.; Irava, W.J.; Palu, T.	Economic Contraction from COVID-19 in the Pacific: Implications for Health Financing	HEALTH SYSTEMS & REFORM	2328-8604	2328-8620		10.1080/23288604.2020.1847991	WOS:000599989000001
J	Werner, R.M.; Glied, S.A.	Covid-Induced Changes in Health Care Delivery - Can They Last?	NEW ENGLAND JOURNAL OF MEDICINE	0028-4793	1533-4406		10.1056/NEJMp2110679	WOS:000691647500001
J	Iizuka, T.	Comment on Sustainable Health Financing for COVID-19 Preparedness and Response in Asia and the Pacific	ASIAN ECONOMIC POLICY REVIEW	1832-8105	1748-3131		10.1111/aepr.12373	WOS:000700797200001
J	Ellis, R.P.	Comment on Sustainable Health Financing for COVID-19 Preparedness and Response in Asia and the Pacific	ASIAN ECONOMIC POLICY REVIEW	1832-8105	1748-3131		10.1111/aepr.12366	WOS:000687869700001
J	Mikolajczyk, B.; Draganich, C.; Philippus, A.; Goldstein, R.; Andrews, E.; Pilarski, C.; Wudlick, R.; Morse, L.R.; Monden, K.R.	Resilience and mental health in individuals with spinal cord injury during the COVID-19 pandemic	SPINAL CORD	1362-4393	1476-5624		10.1038/s41393-021-00708-3	WOS:000698531700003
J	Kwon, S.; Kim, E.	Sustainable Health Financing for COVID-19 Preparedness and Response in Asia and the Pacific	ASIAN ECONOMIC POLICY REVIEW	1832-8105	1748-3131		10.1111/aepr.12360	WOS:000678555100001
J	Gaffney, A.; Himmelstein, D.U.; Woolhandler, S.	COVID-19 and US Health Financing: Perils and Possibilities	INTERNATIONAL JOURNAL OF HEALTH SERVICES	0020-7314	1541-4469		10.1177/0020731420931431	WOS:000544393600001
J	Durrleman, A.	Impact of COVID-19 on the health insurance in the Social Security Financing Law Project (PLFSS) for 2021	BULLETIN DE L ACADEMIE NATIONALE DE MEDECINE	0001-4079	2271-4820		10.1016/j.banm.2021.01.008	WOS:000635547900003
J	Sundaraman, T.	Health Systems Preparedness for COVID-19 Pandemic	INDIAN JOURNAL OF PUBLIC HEALTH	0019-557X	2229-7693		10.4103/ijph.IJPH_507_20	WOS:000617766700005
J	Goldman, M.L.; Druss, B.G.; Horvitz-Lennon, M.; Norquist, G.S.; Ptakowski, K.K.; Brinkley, A.; Greiner, M.; Hayes, H.; Hepburn, B.; Jorgensen, S.; Swartz, M.S.; Dixon, L.B.	Mental Health Policy in the Era of COVID-19	PSYCHIATRIC SERVICES	1075-2730	1557-9700		10.1176/appi.ps.202000219	WOS:000584395500011
J	Allen, H.L.; Sommers, B.D.	Medicaid and COVID-19 At the Center of Both Health and Economic Crises	JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION	0098-7484	1538-3598		10.1001/jama.2020.10553	WOS:000553161000010
J	Aregbeshola, B.S.; Folan, M.O.	Nigeria's financing of health care during the COVID-19 pandemic: Challenges and recommendations	WORLD MEDICAL & HEALTH POLICY	1948-4682			10.1002/wmh3.484	WOS:000714985500001

Table A1. Cont.

Publication Type	Authors	Article Title	Source Title	ISSN	eISSN	ISBN	DOI	UT (Unique WOS ID)
J	Halliburton, A.E.; Hill, M.B.; Dawson, B.L.; Hightower, J.M.; Rueden, H.	Increased Stress, Declining Mental Health: Emerging Adults' Experiences in College During COVID-19	EMERGING ADULTHOOD	2167-6968	2167-6984		10.1177/21676968211025348	WOS:000667899400001
J	Gloster, A.T.; Lamnisos, D.; Lubenko, J.; Presti, G.; Squatrito, V.; Constantinou, M.; Nicolaou, C.; Papacostas, S.; Aydin, G.; Chong, Y.Y.; Chien, W.T.; Cheng, H.Y.; Ruiz, F.J.; Garcia-Martin, M.B.; Obando-Posada, D.P.; Segura-Vargas, M.A.; Vasilioi, V.S.; McHugh, L.; Hofer, S.; Baban, A.; Neto, D.D.; da Silva, A.N.; Monestes, J.L.; Alvarez-Galvez, J.; Paez-Blarrina, M.; Montesinos, F.; Valdivia-Salas, S.; Ori, D.; Kleszcz, B.; Lappalainen, R.; Ivanovic, I.; Gosar, D.; Dionne, F.; Merwin, R.M.; Kassianos, A.P.; Karekla, M.	Impact of COVID-19 pandemic on mental health: An international study	PLOS ONE	1932-6203			10.1371/journal.pone.0244809	WOS:000605651900147
J	Bustreo, F.; Merialdi, M.; Hinton, R.; Gaddle, R.	Why COVID-19 strengthens the case for a dedicated financing mechanism to scale up innovation in women's, children's, and adolescents' health	LANCET GLOBAL HEALTH	2214-109X			10.1016/S2214-109X(20)30507-6	WOS:000621377000012
J	Vasileiou, E.; Samitas, A.; Karagiannaki, M.; Dandu, J.	Health risk and the efficient market hypothesis in the time of COVID-19	INTERNATIONAL REVIEW OF APPLIED ECONOMICS	0269-2171	1465-3486		10.1080/02692171.2020.1864299	WOS:000603782700001
J	Hasan, H.F.	Legal and Health Response to COVID-19 in the Arab Countries	RISK MANAGEMENT AND HEALTHCARE POLICY		1179-1594		10.2147/RMHP.S297565	WOS:000632269000001
J	Lal, A.; Erondu, N.A.; Heymann, D.L.; Gitahi, G.; Yates, R.	Fragmented health systems in COVID-19: rectifying the misalignment between global health security and universal health coverage	LANCET	0140-6736	1474-547X		10.1016/S0140-6736(20)32228-5	WOS:000607268300027
J	Behzadifar, M.; Ghanbari, M.K.; Bakhtiari, A.; Behzadifar, M.; Bragazzi, N.L.	Ensuring adequate health financing to prevent and control the COVID-19 in Iran	INTERNATIONAL JOURNAL FOR EQUITY IN HEALTH		1475-9276		10.1186/s12939-020-01181-9	WOS:000533409000001
C	Cibik, L.; Melus, M.	FUNDING OF PUBLIC HEALTH CARE IN EU COUNTRIES IN 2010-2018: PREPARATION FOR THE COVID 19 PANDEMIC?	PUBLIC ADMINISTRATION 2020: THREE DECADES OF CHALLENGES, REFORMS, AND UNCERTAIN RESULTS			978-80-7560-338-8		WOS:000632733100001
J	Friedman, E.A.; Gostin, L.O.; Maleche, A.; Nilo, A.; Foguito, F.; Rugege, U.; Stevenson, S.; Gitahi, G.; Ruano, A.L.; Barry, M.; Hossain, S.; Lucien, F.; Rusike, I.; Hevia, M.; Alwan, A.; Cameron, E.; Farmer, P.; Flores, W.; Hassim, A.; Mburu, R.; Mukherjee, J.; Mulumba, M.; Puras, D.; Perriago, M.R.	Global Health in the Age of COVID-19: Responsive Health Systems Through a Right to Health Fund	HEALTH AND HUMAN RIGHTS	1079-0969	2150-4113			WOS:000543379300018
J	Haldane, V.; Foo, C.D.; Abdalla, S.M.; Jung, A.S.; Tan, M.; Wu, S.S.; Chua, A.; Verma, M.; Shrestha, P.; Singh, S.; Perez, T.; Tan, S.M.; Bartos, M.; Mabuchi, S.; Bonk, M.; McNab, C.; Werner, G.K.; Panjabi, R.; Nordstrom, A.; Legido-Quigley, H.	Health systems resilience in managing the COVID-19 pandemic: lessons from 28 countries	NATURE MEDICINE	1078-8956	1546-170X		10.1038/s41591-021-01381-y	WOS:000651469300001
J	Rokhmah, D.; Ridzkyanto, R.P.; Khoiron	Analysis of Government Budgeting for Health: Case Study of COVID-19 in East Java Province, Indonesia	KESMAS-NATIONAL PUBLIC HEALTH JOURNAL	1907-7505	2460-0601		10.21109/kesmas.v15i2.3986	WOS:000557024200011
J	Waitzberg, R.; Quentin, W.; Webb, E.; Glied, S.	The Structure and Financing of Health Care Systems Affected How Providers Coped With COVID-19	MILBANK QUARTERLY	0887-378X	1468-0009		10.1111/1468-0009.12530	WOS:000664665000001
J	Fernandes, G.A.D.L.; Pereira, B.L.S.	The challenges of funding the Brazilian health system in fighting the COVID-19 pandemic in the context of the federative pact	REVISTA DE ADMINISTRACAO PUBLICA	0034-7612	1982-3134		10.1590/0034-761220200290x	WOS:000565842100008
J	Peiro, A.I.	The Spanish Government informative activity during the health emergency induced by coronaviruses, COVID-19	REVISTA ESPANOLA DE COMUNICACION EN SALUD		1989-9882		10.20318/recs.2020.5441	WOS:000551629600025
J	Prado, N.M.D.L.; Rossi, T.R.A.; Chaves, S.C.L.; de Barros, S.G.; Magno, L.; dos Santos, H.L.P.C.; dos Santos, A.M.	The international response of primary health care to COVID-19: document analysis in selected countries	CADERNOS DE SAUDE PUBLICA	0102-311X	1678-4464		10.1590/0102-311 x 00183820	WOS:000595534800001
J	Chua, A.Q.; Tan, M.M.J.; Verma, M.; Han, E.K.L.; Hsu, L.Y.; Cook, A.R.; Teo, Y.Y.; Lee, V.J.; Legido-Quigley, H.	Health system resilience in managing the COVID-19 pandemic: lessons from Singapore	BMJ GLOBAL HEALTH	2059-7908			10.1136/bmjgh-2020-003317	WOS:000573870000004

Table A1. Cont.

Publication Type	Authors	Article Title	Source Title	ISSN	eISSN	ISBN	DOI	UT (Unique WOS ID)
J	Simoes, J.; Magalhaes, J.P.M.; Biscaia, A.; Pereira, A.D.; Augusto, G.F.; Fronteira, I.	Organisation of the State, model of health system and COVID-19 health outcomes in six European countries, during the first months of the COVID-19 epidemic in 2020	INTERNATIONAL JOURNAL OF HEALTH PLANNING AND MANAGEMENT	0749-6753	1099-1751		10.1002/hpm.3271	WOS:000668139700001
J	Geyman, J.	COVID-19 Has Revealed America's Broken Health Care System: What Can We Learn?	INTERNATIONAL JOURNAL OF HEALTH SERVICES	0020-7314	1541-4469		10.1177/0020731420985640	WOS:000610305200001
J	Zuo, F.; Zhai, S.G.	The Influence of China's COVID-19 Treatment Policy on the Sustainability of Its Social Health Insurance System	RISK MANAGEMENT AND HEALTHCARE POLICY		1179-1594		10.2147/RMHP.S322040	WOS:000707417600001
J	Leach, C.R.; Kirkland, E.G.; Masters, M.; Sloan, K.; Rees-Punia, E.; Patel, A.V.; Watson, L.	Cancer survivor worries about treatment disruption and detrimental health outcomes due to the COVID-19 pandemic	JOURNAL OF PSYCHOSOCIAL ONCOLOGY	0734-7332	1540-7586		10.1080/07347332.2021.1888184	WOS:000621650400001
J	Hammarberg, K.; Tran, T.; Kirkman, M.; Rowe, H.; Fisher, J.	Preferred policy options to assist post-COVID-19 mental health recovery: A population study	AUSTRALIAN JOURNAL OF PUBLIC ADMINISTRATION	0313-6647	1467-8500		10.1111/1467-8500.12507	WOS:000687708200001
J	Pappan, N.; Austin, S.; Venkat, D.; Thakkar, P.	Identifying Social Determinants of Health and Allocating Resources During the COVID-19 Pandemic	INFECTIOUS DISEASES IN CLINICAL PRACTICE	1056-9103	1536-9943		10.1097/IPC.0000000000001003	WOS:000674879200006
J	Boateng, G.O.; Phipps, L.M.; Smith, L.E.; Armah, F.A.	Household Energy Insecurity and COVID-19 Have Independent and Synergistic Health Effects on Vulnerable Populations	FRONTIERS IN PUBLIC HEALTH		2296-2565		10.3389/fpubh.2020.609608	WOS:000614394700001
J	Marshall, J.; Scott, B.; Delva, J.; Ade, C.; Hernandez, S.; Patel, J.; Moreno-Cheek, M.; Rojas, D.; Tanner, J.P.; Kirby, R.S.	An Evaluation of Florida's Zika Response Using the WHO Health Systems Framework: Can We Apply These Lessons to COVID-19?	MATERNAL AND CHILD HEALTH JOURNAL	1092-7875	1573-6628		10.1007/s10995-020-02969-5	WOS:000543018000001
J	Edelman, A.; Marten, R.; Montenegro, H.; Sheikh, K.; Barkley, S.; Ghaffar, A.; Dalil, S.; Topp, S.M.	Modified scoping review of the enablers and barriers to implementing primary health care in the COVID-19 context	HEALTH POLICY AND PLANNING	0268-1080	1460-2237		10.1093/heapoliczab075	WOS:000693257400015
J	Shaikh, B.T.	Strengthening health system building blocks: configuring post-COVID-19 scenario in Pakistan	PRIMARY HEALTH CARE RESEARCH AND DEVELOPMENT	1463-4236	1477-1128		10.1017/S1463423621000128	WOS:000632233000001
J	Dawson, W.D.; Boucher, N.A.; Stone, R.; Van Houtven, C.H.	COVID-19: The Time for Collaboration Between Long-Term Services and Supports, Health Care Systems, and Public Health Is Now	MILBANK QUARTERLY	0887-378X	1468-0009		10.1111/1468-0009.12500	WOS:000618271400001
J	Buzelli, M.L.; Boyce, T.	The Privatization of the Italian National Health System and its Impact on Health Emergency Preparedness and Response: The COVID-19 Case	INTERNATIONAL JOURNAL OF HEALTH SERVICES	0020-7314	1541-4469		10.1177/00207314211024900	WOS:000664270000001
J	Tiirinki, H.; Tynkkynen, L.K.; Sovala, M.; Atkins, S.; Koivusalo, M.; Rautiainen, P.; Jormanainen, V.; Keskimaki, I.	COVID-19 pandemic in Finland - Preliminary analysis on health system response and economic consequences	HEALTH POLICY AND TECHNOLOGY	2211-8837			10.1016/j.hlpt.2020.08.005	WOS:000593763800020
J	Gignac, M.A.M.; Shahidi, F.V.; Jetha, A.; Kristman, V.; Bowring, J.; Cameron, J.I.; Tonima, S.; Ibrahim, S.	Impacts of the COVID-19 pandemic on health, financial worries, and perceived organizational support among people living with disabilities in Canada	DISABILITY AND HEALTH JOURNAL	1936-6574	1876-7583		10.1016/j.dhjo.2021.101161	WOS:000696982000019
J	Barasa, E.; Kazungu, J.; Orangi, S.; Kabia, E.; Ogero, M.; Kasera, K.	Indirect health effects of the COVID-19 pandemic in Kenya: A mixed methods assessment	BMC HEALTH SERVICES RESEARCH		1472-6963		10.1186/s12913-021-06726-4	WOS:000678609300002
J	Ciciurkaite, G.; Marquez-Velarde, G.; Brown, R.L.	Stressors associated with the COVID-19 pandemic, disability, and mental health: Considerations from the Intermountain West	STRESS AND HEALTH	1532-3005	1532-2998		10.1002/smi.3091	WOS:000685707200001
J	Shaikh, B.T.; Ali, N.	COVID-19 and fiscal space for health system in Pakistan: It is time for a policy decision	INTERNATIONAL JOURNAL OF HEALTH PLANNING AND MANAGEMENT	0749-6753	1099-1751		10.1002/hpm.2986	WOS:000536494100001
J	Pettinicchio, D.; Maroto, M.; Chai, L.; Lukk, M.	Findings from an online survey on the mental health effects of COVID-19 on Canadians with disabilities and chronic health conditions	DISABILITY AND HEALTH JOURNAL	1936-6574	1876-7583		10.1016/j.dhjo.2021.101085	WOS:000679288800017
J	Hrevtsova, R.Y.	INSTITUTIONAL AND LEGAL ASPECTS OF HEALTH CARE IN TIMES OF COVID-19: LEARNING FROM THE UKRAINIAN EXPERIENCE	MEDICINE AND LAW	0723-1393	2471-836X			WOS:000572461900017

Table A1. Cont.

Publication Type	Authors	Article Title	Source Title	ISSN	eISSN	ISBN	DOI	UT (Unique WOS ID)	
	Micah, A.E.; Cogswell, I.E.; Cunningham, B.; Ezoe, S.; Harle, A.C.; Maddison, E.R.; McCracken, D.; Nomura, S.; Simpson, K.E.; Stutzman, H.N.; Tsakalos, G.; Wallace, L.E.; Zhao, Y.X.; Zende, R.R.; Abbafati, C.; Abdelmasseh, M.; Abedi, A.; Abegaz, K.H.; Abhilash, E.S.; Abolhassani, H.; Abrigo, M.R.M.; Adhikari, T.B.; Afzal, S.; Ahinkorah, B.O.; Ahmadi, S.; Ahmed, H.; Ahmed, M.B.; Rashid, T.A.; Ajami, M.; Aji, B.; Akalu, Y.; Akunna, C.J.; Al Hamad, H.; Alam, K.; Alanezi, F.M.; Alanzi, T.M.; Alemayehu, Y.; Alhassan, R.K.; Alinia, C.; Aljunid, S.M.; Almustanyir, S.A.; Alvis-Guzman, N.; Alvis-Zakzuk, N.J.; Amini, S.; Amini-Rarani, M.; Amu, H.; Ancuceanu, R.; Andrei, C.L.; Andrei, T.; Angell, B.; Anjomshoa, M.; Antonio, C.A.T.; Antony, C.M.; Aqeel, M.; Arabloo, J.; Arab-Zozani, M.; Aripov, T.; Arrigo, A.; Ashraf, T.; Atnafu, D.D.; Ausloos, M.; Avila-Burgos, L.; Awan, A.T.; Ayano, G.; Ayanore, M.A.; Azari, S.; Azhar, G.S.; Babalola, T.K.; Bahrami, M.A.; Baig, A.A.; Banach, M.; Barati, N.; Barnighausen, T.W.; Barrow, A.; Basu, S.; Baune, B.T.; Bayati, M.; Benzian, H.; Berman, A.E.; Bhagavathula, A.S.; Bhardwaj, N.; Bhardwaj, P.; Bhaskar, S.; Bibi, S.; Bijani, A.; Bodolica, V.; Bragazzi, N.L.; Braithwaite, D.; Breitborde, N.J.K.; Breusov, A.V.; Briko, N.I.; Busse, R.; Cahuana-Hurtado, L.; Callander, E.J.; Camera, L.A.; Castaneda-Orjuela, C.A.; Catala-Lopez, F.; Charan, J.; Chatterjee, S.; Chattu, S.K.; Chattu, V.K.; Chen, S.; Cicero, A.F.G.; Dadras, O.; Dahlawi, S.M.A.; Dai, X.C.; Dalal, K.; Dandona, L.; Dandona, R.; Davitoiu, D.V.; De Neve, J.W.; de Sa, A.R.; Denova-Gutierrez, E.; Dhamnetiya, D.; Dharmaratne, S.D.; Doshmangir, L.; Dube, J.; Ehsani-Chimeh, E.; Zaki, M.E.; El Tantawi, M.; Eskandarieh, S.; Farzadfar, F.; Ferede, T.Y.; Fischer, E.; Foigt, N.A.; Freitas, A.; Friedman, S.D.; Fukumoto, T.; Fullman, N.; Gaal, P.A.; Gad, M.M.; Garcia-Gordillo, M.A.; Garg, T.; Ghafourifard, M.; Ghoshghaee, A.; Gholamian, A.; Gholamrezanezhad, A.; Ghozali, G.; Gilani, S.A.; Glavan, I.R.; Glushkova, E.V.; Goharinezhad, S.; Golechha, M.; Goli, S.; Guha, A.; Gupta, V.B.; Gupta, V.K.; Haakenstad, A.; Haider, M.R.; Hailu, A.; Hamidi, S.; Hanif, A.; Harapan, H.; Hartono, R.K.; Hasaballah, A.I.; Hassan, S.; Hassanein, M.H.; Hayat, K.; Hegazy, M.I.; Heidari, G.; Hendrie, D.; Heredia-Pi, I.; Herteliu, C.; Hezam, K.; Holla, R.; Hossain, S.J.; Hosseinzadeh, M.; Hostiuc, S.; Huda, T.M.; Hwang, B.F.; Iavicoli, I.; Idrisov, B.; Ilesanmi, O.S.; Irvani, S.S.N.; Islam, S.M.S.; Ismail, N.E.; Isola, G.; Jahani, M.A.; Jahanmeh, N.; Jakovljevic, M.; Janodia, M.D.; Javaheri, T.; Jayapal, S.K.; Jayawardena, R.; Jazayeri, S.B.; Jha, R.P.; Jonas, J.B.; Joo, T.; Joukar, F.; Jurisson, M.; Kaambwa, B.; Kalthor, R.; Kanchan, T.; Kandel, H.; Matin, B.K.; Karimi, S.E.; Kassahun, G.; Kayode, G.A.; Karyani, A.K.; Keikavoosi-Arani, L.; Khader, Y.S.; Khajuria, H.; Khalilov, R.; Khammaria, M.; Khan, J.; Khubchandani, J.; Kianiipour, N.; Kim, G.R.; Kim, Y.J.; Kisa, A.; Kisa, S.; Kohler, S.; Kosen, S.; Kotesvaran, R.; Laxminarayana, S.L.K.; Koyanagi, A.; Krishan, K.; Kumar, G.A.; Kusuma, D.; Lamnisos, D.; Lansingh, V.; Larsson, A.O.; Lasrado, S.; Le, L.K.D.; Lee, S.W.H.; Lee, Y.Y.; Lim, S.S.; Lobo, S.W.; Lozano, R.; Abd El Razeq, H.M.; Abd El Razeq, M.M.; Mahdavi, M.M.; Majeed, A.; Makki, A.; Maleki, A.; Malekzadeh, R.; Manda, A.L.; Mansour-Ghanaei, F.; Mansournia, M.A.; Arnedo, C.A.M.; Martinez-Valle, A.; Masoumi, S.Z.; Maude, R.J.; Mckee, M.; Medina-Solis, C.E.; Menezes, R.G.; Meretoja, A.; Meretoja, T.J.; Mesregah, M.K.; Mestrovic, T.; Kostova, N.M.; Miller, T.R.; Mini, G.K.; Mirica, A.; Mirrakhimov, E.M.; Mohajer, B.; Mohamed, T.A.; Mohammadi, M.; Mohammadian-Hafshejani, A.; Mohammed, S.; Moitra, M.; Mokdad, A.H.; Molokhia, M.; Moni, M.A.; Moradi, Y.; Morze, J.; Mousavi, S.M.; Mpundu-Kaambwa, C.; Muriithi, M.K.; Muthupandian, S.; Nagarajan, A.J.; Naimzada, M.D.; Nangia, V.; Naqvi, A.A.; Narayana, A.I.; Nascimento, B.R.; Naveed, M.; Nayak, B.P.; Nazari, J.; Ndejo, R.; Negoi, I.; Kandel, S.N.; Nguyen, T.H.; Nonvignon, J.; Noubiap, J.J.; Nwatah, V.E.; Oancea, B.; Ojelabi, F.A.O.; Olagunju, A.T.; Olakunde, B.O.; Olgiafi, S.; Olusanya, J.O.; Onwujekwe, O.E.; Otoiu, A.; Ostavnov, N.; Ostavnov, S.S.; Owolabi, M.O.; Padubidri, J.R.; Palladino, R.; Panda-Jonas, S.; Park, E.C.; Kan, F.P.; Pawar, S.; Toroudi, H.P.; Pereira, D.M.; Perianayagam, A.; Pesudovs, K.; Piccinelli, C.; Postma, M.J.; Prada, S.I.; Rabiee, M.; Rabiee, N.; Rahim, F.; Rahimi-Movaghar, V.; Rahman, M.H.U.; Rahman, M.; Rahmani, A.M.; Ram, U.; Ranabhat, C.L.; Ranasinghe, P.; Rao, C.R.; Rathi, P.; Rawaf, D.L.; Rawaf, S.; Rawal, L.; Rawassizadeh, R.; Reiner, R.C.; Renzaho, A.M.N.; Reshmi, B.; Riaz, M.A.; Ripon, R.K.; Saad, A.M.; Sahraian, M.A.; Sahu, M.; Salama, J.S.; Salehi, S.; Samy, A.M.; Sanabria, J.; Sanmarchi, F.; Santos, J.V.; Santric-Milicevic, M.M.; Sathian, B.; Savic, M.; Saxena, D.; Sayyah, M.; Schwendicke, F.; Senthilkumaran, S.; Sepanlou, S.G.; Seylani, A.; Shahabi, S.; Shaikh, M.A.; Sheikh, A.; Shetty, A.; Shetty, P.H.; Shibuya, K.; Shrimme, M.G.; Shuja, K.H.; Singh, J.A.; Skryabin, V.Y.; Skryabina, A.A.; Soltani, S.; Soofi, M.; Spurlock, E.E.; Stefan, S.C.; Szerencses, V.; Szocska, M.; Tabares-Seisdedos, R.; Taddele, B.W.; Tefera, Y.G.; Thavamani, A.; Tobe-Gai, R.; Topor-Madry, R.; Tovani-Palome, M.R.; Tran, B.X.; Car, L.T.; Ullah, A.; Ullah, S.; Umar, N.; Undurraga, E.A.; Valdez, P.R.; Vasankari, T.J.; Villafane, J.H.; Violante, F.S.; Vlassov, V.; Vo, B.; Vollmer, S.; Vos, T.; Yu, G.T.; Yu, L.G.; Wamai, R.G.; Werdecker, A.; Woldekidan, M.A.; Wubishet, B.L.; Xu, G.L.; Yaya, S.; Yazdi-Feyzabadi, V.; Yigit, V.; Yip, P.; Yirdaw, B.W.; Yonemoto, N.; Younis, M.Z.; Yu, C.H.; Yunusa, I.; Moghadam, T.Z.; Zandian, H.; Zastrozhin, M.S.; Zastrozhina, A.; Zhang, Z.J.; Ziapour, A.; Zuniga, Y.M.H.; Hay, S.I.; Murray, C.J.L.; Dieleman, J.L.								
J		Tracking development assistance for health and for COVID-19: A review of development assistance, government, out-of-pocket, and other private spending on health for 204 countries and territories, 1990-2050	LANCET	0140-6736	1474-547X		10.1016/S0140-6736(21)01258-7	WOS:000705490300019	

Table A1. Cont.

Publication Type	Authors	Article Title	Source Title	ISSN	eISSN	ISBN	DOI	UT (Unique WOS ID)
J	Larson, A.; Skolnik, A.; Bhatti, A.; Mitrovich, R.	Addressing an urgent global public health need: Strategies to recover routine vaccination during the COVID-19 pandemic	HUMAN VACCINES & IMMUNOTHERAPEUTICS	2164-5515	2164-554X		10.1080/21645515.2021.1975453	WOS:000709701900001
J	Wang, M.M.; Flessa, S.	Overcoming COVID-19 in China despite shortcomings of the public health system: what can we learn?	HEALTH ECONOMICS REVIEW	2191-1991			10.1186/s13561-021-00319-x	WOS:000670273700003
J	Whatley, M.; Castiello-Gutierrez, S.	Balancing finances, politics, and public health: international student enrollment and reopening plans at US higher education institutions amid the COVID-19 pandemic	HIGHER EDUCATION	0018-1560	1573-174X		10.1007/s10734-021-00768-7	WOS:000705788300001
J	Mougharbel, F.; Sampasa-Kanyinga, H.; Heideringer, B.; Corace, K.; Hamilton, H.A.; Goldfield, G.S.	Psychological and Demographic Determinants of Substance Use and Mental Health During the COVID-19 Pandemic	FRONTIERS IN PUBLIC HEALTH		2296-2565		10.3389/fpubh.2021.680028	WOS:000671296000001
J	Giovanis, E.; Ozdamar, O.	Who is Left Behind? Altruism of Giving, Happiness and Mental Health during the Covid-19 Period in the UK	APPLIED RESEARCH IN QUALITY OF LIFE	1871-2584	1871-2576		10.1007/s11482-020-09900-8	WOS:000599808000001
J	Busemeyer, M.R.	Financing the welfare state in times of extreme crisis: public support for health care spending during the Covid-19 pandemic in Germany	JOURNAL OF EUROPEAN PUBLIC POLICY	1350-1763	1466-4429		10.1080/13501763.2021.1977375	WOS:000698923700001
J	Akinyemi, O.O.; Popoola, O.A.; Fowotade, A.; Adekanmbi, O.; Cadmus, E.O.; Adebayo, A.	Qualitative exploration of health system response to COVID-19 pandemic applying the WHO health systems framework: Case study of a Nigerian state	SCIENTIFIC AFRICAN	2468-2276			10.1016/j.sciaf.2021.e00945	WOS:000704946300018
J	Maulik, P.K.; Thornicroft, G.; Saxena, S.	Roadmap to strengthen global mental health systems to tackle the impact of the COVID-19 pandemic	INTERNATIONAL JOURNAL OF MENTAL HEALTH SYSTEMS	1752-4458			10.1186/s13033-020-00393-4	WOS:000557710700005
J	Paltiel, O.; Hochner, H.; Chinitz, D.; Clarfield, A.M.; Gileles-Hillel, A.; Lahad, A.; Manor, O.; Nir-Paz, R.; Paltiel, A.; Stein-Zamir, C.; Yazhensky, E.; Calderon-Margalit, R.	Academic activism on behalf of children during the COVID-19 pandemic in Israel; beyond public health advocacy	ISRAEL JOURNAL OF HEALTH POLICY RESEARCH	2045-4015			10.1186/s13584-021-00485-7	WOS:000686717500001
J	Negro-Calduch, E.; Azzopardi-Muscat, N.; Nitzan, D.; Pebody, R.; Jorgensen, P.; Novillo-Ortiz, D.	Health Information Systems in the COVID-19 Pandemic: A Short Survey of Experiences and Lessons Learned From the European Region	FRONTIERS IN PUBLIC HEALTH		2296-2565		10.3389/fpubh.2021.676838	WOS:000706443200001
J	Nemat, A.; Raufi, N.; Essar, M.Y.; Zeng, Q.C.	A Survey on the Health and Financial Status of Private Educational Institutions in Afghanistan During COVID-19 Pandemic	JOURNAL OF MULTIDISCIPLINARY HEALTHCARE	1178-2390			10.2147/JMDH.S319872	WOS:000669227400001
J	Varma, P.; Burge, M.; Meakim, H.; Junge, M.; Jackson, M.L.	Poor Sleep Quality and Its Relationship with Individual Characteristics, Personal Experiences and Mental Health during the COVID-19 Pandemic	INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH		1660-4601		10.3390/ijerph18116030	WOS:0006599272500001
J	Manouchehri, M.; Bhamra, S.K.; Fernandez-Alfonso, M.S.; Gil-Ortega, M.	The real impact of COVID-19 on community pharmacy professionals as part of the primary health care frontier workforce in Spain	JOURNAL OF PHARMACY & PHARMACOGNOSY RESEARCH	0719-4250				WOS:000678691600011
J	Holingue, C.; Badillo-Goicoechea, E.; Riehm, K.E.; Veldhuis, C.B.; Thrul, J.; Johnson, R.M.; Fallin, M.D.; Kreuter, F.; Stuart, E.A.; Kalb, L.G.	Mental distress during the COVID-19 pandemic among US adults without a pre-existing mental health condition: Findings from American trend panel survey	PREVENTIVE MEDICINE	0091-7435	1096-0260		10.1016/j.ypmed.2020.106231	WOS:000571877100012
J	Chen, Y.S.; Zhou, Z.N.; Glynn, S.M.; Frey, M.K.; Balogun, O.D.; Kanis, M.; Holcomb, K.; Gorelick, C.; Thomas, C.; Christos, P.J.; Chapman-Davis, E.	Financial toxicity, mental health, and gynecologic cancer treatment: The effect of the COVID-19 pandemic among low-income women in New York City	CANCER	0008-543X	1097-0142		10.1002/cnrc.33537	WOS:000668286200007
J	Bedrunka, K.; Mach, L.; Kuczuk, A.; Bohdan, A.	Identification and Analysis of Structural Fund Support Mitigating the Effects of the COVID-19 Pandemic in the EU-A Case Study of Health Unit Funding	ENERGIES		1996-1073		10.3390/en14164976	WOS:000690572300001
J	Szlamka, Z.; Kiss, M.; Bernath, S.; Kaman, P.; Lubani, A.; Karner, O.; Demetrovics, Z.	Mental Health Support in the Time of Crisis: Are We Prepared? Experiences With the COVID-19 Counselling Programme in Hungary	FRONTIERS IN PSYCHIATRY	1664-0640			10.3389/fpsyh.2021.655211	WOS:000661089000001
J	Chen, Y.S.; Zhou, Z.N.; Glynn, S.M.; Frey, M.K.; Balogun, O.D.; Kanis, M.; Holcomb, K.; Gorelick, C.; Thomas, C.; Christos, P.J.; Chapman-Davis, E.	Financial toxicity, mental health, and gynecologic cancer treatment: The effect of the coronavirus disease 2019 (COVID-19) pandemic among low-income women in New York City	CANCER	0008-543X	1097-0142		10.1002/cnrc.33537	WOS:000643680600001

Table A1. *Cont.*

Publication Type	Authors	Article Title	Source Title	ISSN	eISSN	ISBN	DOI	UT (Unique WOS ID)
J	Bell, C.; Williman, J.; Beaglehole, B.; Stanley, J.; Jenkins, M.; Gendall, P.; Rapsey, C.; Every-Palmer, S.	Challenges facing essential workers: a cross-sectional survey of the subjective mental health and well-being of New Zealand healthcare and 'other' essential workers during the COVID-19 lockdown	BMJ OPEN	2044-6055			10.1136/bmjopen-2020-048107	WOS:000691828800014
J	Amimo, F.; Lambert, B.; Magit, A.; Hashizume, M.	A review of prospective pathways and impacts of COVID-19 on the accessibility, safety, quality, and affordability of essential medicines and vaccines for universal health coverage in Africa	GLOBALIZATION AND HEALTH		1744-8603		10.1186/s12992-021-00666-8	WOS:000638235300002

References

- ISQua Accreditation International Accreditation Programme. Guidelines and Principles for the Development of Health and Social Care Standards 4th Edition Version 1.2. 2015. Available online: <https://www.coursehero.com/file/33423828/guidelines-and-principles-for-the-development-of-health-and-social-care-standards-4th-edition-v12/> (accessed on 15 November 2021).
- National Authority of Quality Management in Health (ANMCS). Second Edition of the Accreditation Standards for Hospitals. 2021. Available online: <https://anmcs.gov.ro/en/standards/> (accessed on 18 November 2021).
- Google Academics. Searching Academic Sources. 2021. Available online: https://scholar.google.ro/scholar?q=google+scholar&hl=ro&as_sdt=0&as_vis=1&oi=scholart (accessed on 19 November 2021).
- Racoare Apetroi, F.C.; Mihalache, I.-C.; Todosia, M. Economic Models of Financing Health Services in the European Union. *Eur. Financ. Regul. EUFIRE* **2018**, *211–224*.
- Bernd, R. Funding for public health in Europe in decline? *Health Policy* **2019**, *123*, 21–26. [[CrossRef](#)]
- Cacace, M. Case study C: Transforming healthcare financing in Central and Eastern European countries. In *Handbook on Social Protection Systems*; Edward Elgar Publishing: Cheltenham, UK, 2021.
- Racoare Apetroi, F.C.; Mihalache, I.-C.; Todosia, M. The Organization of Health Sector Financing in the Member States of the European Union and Health Policies. *In Traders Int. Trade Acad. J.* **2019**, *2*, 185–204.
- Wielechowski, M.; Grzęda, Ł. Health Care Financing in the European Union Countries—Structure and Changes. *Acta Sci. Polonorum. Oeconomia* **2020**, *19*, 71–80. [[CrossRef](#)]
- Tinica, G.; Bostan, I.; Grosu, V. Correlations regarding the economic growth and the direct and indirect costs incurred by chronic diseases. *Rom. J. Bioeth.* **2010**, *8*, 116–124.
- Tinica, G.; Bostan, I.; Grosu, V. The dynamics of public expenses in healthcare and demographic evolution in Italy and Romania. *Rom. J. Bioeth.* **2008**, *6*, 56–63.
- Abor, P.A.; Abor, J.Y. Implications of COVID-19 Pandemic for Health Financing System in Ghana. *J. Health Manag.* **2020**, *22*, 559–569. [[CrossRef](#)]
- Béland, D.; Marchildon, G.P.; Medrano, A.; Rocco, P. COVID-19, Federalism, and Health Care Financing in Canada, the United States, and Mexico. *J. Comp. Policy Anal. Res. Pract.* **2021**, *23*, 143–156. [[CrossRef](#)]
- Liu, X.; Guo, S. Inclusive Finance, Environmental Regulation, and Public Health in China: Lessons for the COVID-19 Pandemic. *Front. Public Health* **2021**, *9*, 204. [[CrossRef](#)]
- Da Silva, R.M.; Caetano, R.; Silva, A.B.; Guedes, A.C.C.M.; da Ribeiro, G.R.; Santos, D.L.; de Paiva, C.C.N. Profile and funding of health research triggered by the COVID-19 pandemic in Brazil. *Health Surveill. Debate Soc. Sci. Technol.* **2020**, *8*, 28–38. [[CrossRef](#)]
- Iizuka, T. Comment on “Sustainable Health Financing for COVID-19 Preparedness and Response in Asia and the Pacific”. *Asian Econ. Policy Rev.* **2022**, *17*, 159–160. [[CrossRef](#)]
- Kwon, S.; Kim, E. Sustainable Health Financing for COVID-19 Preparedness and Response in Asia and the Pacific. *Asian Econ. Policy Rev.* **2022**, *17*, 140–156. [[CrossRef](#)]
- Gaffney, A.; Himmelstein, D.U.; Woolhandler, S. COVID-19 and US Health Financing: Perils and Possibilities. *Int. J. Health Serv.* **2020**, *50*, 396–407. [[CrossRef](#)] [[PubMed](#)]
- Durrleman, A. Incidence de la COVID-19 sur l’Assurance maladie dans le projet de loi de financement de la Sécurité sociale (PLFSS) pour 2021. *Bull. L’académie Natl. Méd.* **2021**, *205*, 207–208. [[CrossRef](#)]
- Sundararaman, T. Health systems preparedness for COVID-19 pandemic. *Indian J. Public Health* **2020**, *64*, S91–S93. [[CrossRef](#)]
- Aregbeshola, B.S.; Folayan, M.O. Nigeria’s financing of health care during the COVID-19 pandemic: Challenges and recommendations. *World Med. Health Policy* **2021**, *1–10*. [[CrossRef](#)]
- Vasileiou, E.; Samitas, A.; Karagiannaki, M.; Dandou, J. Health risk and the efficient market hypothesis in the time of COVID-19. *Int. Rev. Appl. Econ.* **2021**, *35*, 210–223. [[CrossRef](#)]
- Hasan, H. Legal and Health Response to COVID-19 in the Arab Countries. *Risk Manag. Healthc. Policy* **2021**, *14*, 1141–1154. [[CrossRef](#)]
- Cibik, L.; Meluš, M. Funding of Public Health Care in EU Countries in 2010–2018: Preparation for the COVID 19 Pandemic? In Proceedings of the 13th International Scientific Conference, Osijek, Croatia, 7–8 September 2020.
- Waitzberg, R.; Quentin, W.; Webb, E.; Glied, S. The Structure and Financing of Health Care Systems Affected How Providers Coped with COVID-19. *Milbank Q.* **2021**, *99*, 542–564. [[CrossRef](#)]
- Prado, N.; Aranha Rossi, T.; Chaves, S.C.; Barros, S.; Magno, L.; Santos, H.; Santos, A. The international response of primary health care to COVID-19: Document analysis in selected countries. *Cad. Saúde Pública* **2020**, *36*. [[CrossRef](#)]
- Bulatnikov, V.; Constantin, C.P. Systematic Analysis of Literature on the Marketing of Healthcare Systems. Challenges for Russian and Romanian Healthcare Systems. *Healthcare* **2021**, *9*, 656. [[CrossRef](#)] [[PubMed](#)]
- Rokicki, T.; Perkowska, A.; Ratajczak, M. Differentiation in Healthcare Financing in EU Countries. *Sustainability* **2021**, *13*, 251. [[CrossRef](#)]
- Spasova, S.; Terry, W. *Social Protection Expenditure and its Financing in Europe. A study of National Policies 2019*; European Social Policy Network (ESPN): Brussels, Belgium, 2019. [[CrossRef](#)]
- Mance, D.; Vretenar, N.; Gojković, J. Comparison of European Union Public Health Systems. *Sel. Pap.* **2019**, *65–77*. [[CrossRef](#)]

30. Stepovic, M.; Rancic, N.; Vekic, B.; Dragojevic-Simic, V.; Vekic, S.; Ratkovic, N.; Jakovljevic, M. Gross Domestic Product and Health Expenditure Growth in Balkan and East European Countries-Three-Decade Horizon. *Front. Public Health* **2020**, *8*, 492. [[CrossRef](#)] [[PubMed](#)]
31. Balçık, P.; Demirci, Ş.; Konca, M. Comparison of European countries' health indicators and health expenditures by clustering analysis. *Ömer Halisdemir Üniversitesi İktisadi İdari Bilimler Fakültesi Derg.* **2021**, *14*, 365–377. [[CrossRef](#)]
32. Giammanco, M.D.; Gitto, L. Health expenditure and FDI in Europe. *Econ. Anal. Policy* **2019**, *62*, 255–267. [[CrossRef](#)]
33. Caunic, R.; Asandului, L. A data envelopment analysis of the response of healthcare facilities to coronavirus pandemic: Evidence from Romania. In *Assessing the EU's Actorness in the Eastern Neighbourhood-Eurint*; Centre for European Studies, UAIC: Iasi, Romania, 2021; pp. 23–40. Available online: www.cse.uaic.ro (accessed on 18 November 2021).
34. OECD. *Romania: Country Health Profile 2019, State of Health in the EU*; European Observatory on Health Systems and Policies, Ed.; State of H; OECD Publishing: Brussels, Belgium, 2019.
35. Forman, R.; Shah, S.; Jeurissen, P.; Jit, M.; Mossialos, E. COVID-19 vaccine challenges: What have we learned so far and what remains to be done? *Health Policy* **2021**, *125*, 553–567. [[CrossRef](#)]
36. Shaikh, B.T. Strengthening health system building blocks: Configuring post-COVID-19 scenario in Pakistan. *Prim. Health Care Res. Dev.* **2021**, *22*, e9. [[CrossRef](#)]
37. EUROSTAT, DATABASE. Available online: <https://ec.europa.eu/eurostat/data/database> (accessed on 15 November 2021).
38. Google News. Worldwide Coronavirus Statistics. 2021. Available online: <https://news.google.com/covid19/map?hl=en-US&gl=US&ceid=US%3Aen&mid=%2Fm%2F06c1y> (accessed on 18 November 2021).