ARTÍCULO DE REVISIÓN

Gac Méd Caracas 2020;128(4):474-479
DOI: 10.47307/GMC.2020.128.4.4

Analysis of out-of-pocket health expenditure using the WHO Global Health Expenditure Database (GHED): A systematic review

Dr. Marino J González R[1]

SUMMARY

Introduction: *Tracking out-of-pocket (OOP) health expenditure is a very useful reference for knowing the progress of countries in the goal of universal health coverage (UHC) in 2030. The World Health Organization (WHO) has developed the Global Health Expenditure Database (GHED) to facilitate analysis of health financing in countries or regions. The paper explores the use of GHED in the analysis of OOP health expenditure in the specialized literature.* **Objective**: *To perform a systematic review of the studies in which GHED is used to analyze OOP health expenditure in countries or groups of countries.* **Methods**: *The systematic review followed the guidelines of the Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA). The database used was PubMed. All publications that were available on PubMed by July 30, 2020, were identified.* **Results:** *Twenty-five papers were identified. The use of the GHED to analyze OOP health expenditure was reported in five studies, one country study, and four studies with regional comparisons. The included studies cover the period 1995-2016.* **Discussion**: *The use of the GHED for the analysis of the evolution of OOP health expenditure in countries or regions is not very widespread in the specialized literature. The GHED has proven to be a very useful instrument for international comparison, although the fact that there are differences with national reports (public expenditure reviews) makes it advisable to combine both sources of information in the analysis of country-specific health policies.* **Conclusion**: *The systematic use of the GHED can be useful to improve the quality of information and estimates, such as country-specific expenditure analyses. To this end, it is particularly important to characterize the levels of OOP health expenditure and to incorporate policy monitoring into the analyses.*

Key words: *Out-of-pocket health expenditure, OOP, Global Health Expenditure Database (GHED), health financing, a systematic review*

RESUMEN

Introducción: *El seguimiento del gasto de bolsillo (OOP) en salud es una referencia muy útil para conocer el progreso de los países en el objetivo de la cobertura universal de salud (CSU) en 2030. La Organización Mundial de la Salud (OMS) ha desarrollado la Base de Datos de Gasto en Salud Global (GHED) para facilitar el análisis del financiamiento de la salud en países o regiones. El artículo explora el uso de GHED en el análisis del gasto en salud OOP en la literatura especializada.* **Objetivo:** *Realizar una revisión sistemática de los estudios en los que se utiliza GHED para analizar el gasto en salud OOP en países o grupos de países.* **Métodos**: *La revisión sistemática siguió las pautas de los elementos reportados como preferidos para una Revisión Sistemática y Metanálisis (PRISMA). La base de datos utilizada fue PubMed. Se identificaron todas las publicaciones que estaban disponibles en PubMed antes del 30 de julio de 2020.*

DOI: https://doi.org/10.47307/GMC.2020.128.4.4

ORCID: 0000-0002-6204-272X

[1]Professor, Simon Bolivar University (USB), Venezuela. National Corresponding Member No. 39 of the National Academy of Medicine. Member of the Latin American Academy of Sciences (ACAL). Associate Researcher, University of La Rioja, Spain. E-mail: marinojgonzalez@gmail.com

Recibido: 06 de agosto de 2020
Aceptado: 07 de septiembre de 2020

Resultados: *Se identificaron veinticinco artículos. El uso del GHED para analizar el gasto en salud POO se reportó en cinco estudios, en un estudio de país y en cuatro estudios con comparaciones regionales. Los estudios incluidos cubren el período 1995-2016.* **Discusión***: El uso del GHED para el análisis de la evolución del gasto en salud POO en países o regiones no está muy extendido en la literatura especializada. El GHED ha demostrado ser un instrumento muy útil para la comparación internacional, aunque el hecho que existan diferencias con los informes nacionales (revisiones del gasto público) hace recomendable combinar ambas fuentes de información en el análisis de las políticas de salud específicas de cada país.* **Conclusión***: El uso sistemático del GHED puede ser útil para mejorar la calidad de la información y las estimaciones, como los análisis de gastos específicos de cada país. Con este fin, es particularmente importante caracterizar los niveles de gasto en salud OOP e incorporar el monitoreo de políticas en los análisis.*

Palabras clave: *Gasto de bolsillo en salud, OOP, base de datos de gasto mundial en salud (GHED), financiamiento de la salud, una revisión sistemática.*

INTRODUCTION

The latest United Nations report on the follow-up to the Sustainable Development Goals (SDG) towards 2030 (1), warns of the worrying prospects for health financial protection coverage. According to the SDG, by 2030, 100 % of the population should have financial health coverage (2). The accepted criterion to date for establishing universal financial coverage is that out-of-pocket (OOP) expenditure allocated to health should not exceed 10 % of income in all households (1). When this happens, it is called catastrophic health expenditure.

Between 2000 and 2015, the proportion of households using more than 10 % of income for health expenditure increased from 9.4 % to 12.7 in the global context (1). It has been estimated that 90 million people in 2015 will fall into extreme poverty due to increased OOP health expenditures (1). It has also been predicted that by 2020, at least 1 billion people will be living in households with OOP health expenditures of more than 10 % of income (1), with the majority of these people in low- and middle-income countries. The loss of income associated with the COVID-19 pandemic will exacerbate these projections.

Measuring OOP health expenditures of households then becomes a fundamental guide for monitoring health policies that contribute to achieving the SDG. The most reliable way to obtain estimates of OOP health expenditure, especially catastrophic expenditure, is through household surveys. Recent studies have used these surveys to obtain global and regional estimates of catastrophic health expenditures (3,4).

The periodicity and methodology of household surveys influence the comparability of information. In many countries, these surveys are conducted very infrequently. In other countries, databases are often not available. In recent years, the World Bank has made a large number of surveys available on the Internet to support comparative country studies (5). Unfortunately, in regions such as Latin America, the low frequency of these surveys does not allow a regular analysis of the evolution of OOP health expenditure (6).

To enable the analysis of health financing in a global context, the World Health Organization (WHO) has developed the Global Health Expenditure Database (GHED). This database allows a comparison of health financing indicators for nearly 190 countries since 2000 (7). The GHED is based on the System of National Health Accounts (SHA 2011) and is updated annually with a two-year lag (the latest version available is 2017). Analysis of the information available in the database allows WHO to produce annual reports on the evolution of health financing (8-10). The review of the information available in this database (11) has made it possible to identify improvements that can be made to facilitate decision-making and research related to health financing. The use of this database has also made it possible to analyze the evolution of OOP health expenditure in Latin America (6).

A review of the studies in which GHED is used provides insight into two relevant aspects. The first involves knowing the findings in the evolution of health financing. The second aspect is the identification of advantages and limitations of the GHED that will allow the required changes to be made. The objective of this study is to perform a systematic review of the studies in which GHED is used to analyze OOP health

expenditure in countries or groups of countries.

METHODS

The systematic review was conducted following the Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA) guidelines (12), without developing a review protocol. It was carried out as research by the Unit of Public Policy of the Simon Bolivar University of Venezuela.

Eligibility criteria

The selection focused on studies in which the use of the GHED is reported as a basis for analyzing OOP health expenditures without geographic area restrictions.

Information sources and search strategy

The database used was PubMed. All publications that were available on PubMed by July 30, 2020, were identified. The following descriptors were used: "global health expenditure", and "GHED", in any of the search fields, without date restriction. All languages were considered in the search. No cross-reference search was performed. All papers that met these criteria were considered for analysis.

RESULTS

Study selection

As shown in Figure 1, 25 papers were identified. Only one paper was found to be duplicated. Through the review of titles and

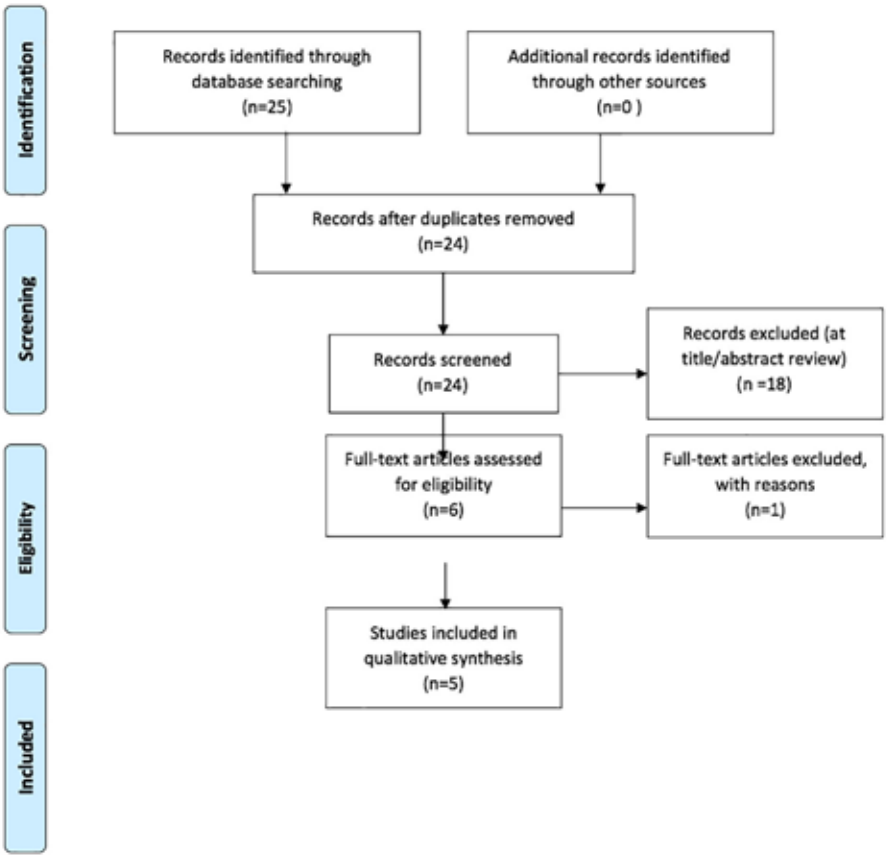

Figure 1. PRISMA Flow Diagram (12). Literature search and selection process for studies included.

abstracts, 18 papers were excluded. None of them mentioned the use of the GHED. For the 6 resulting papers, the full-text file was obtained. Only one of the papers was excluded because the analysis referred to the quality of the information available on the GHED, not to the analysis of OOP health expenditures.

Comparison of the studies

The five selected studies are presented in Table 1. Only in one of the studies (15) is OOP health expenditure not used in the comparative analysis of the countries of East and Southern Africa. However, this paper compares the GHED information with country-specific reports, which is very useful for analyzing the advantages and restrictions of the database.

The four studies in which OOP health expenditures are used can be divided into two groups: (1) country analyses, and (2) country group analyses.

In the first group of studies, there is only one paper (16) that analyses the evolution of health financing in Serbia in the period 2000-2016. The GHED was used as the central source of information, although the databases of the OECD, Eurostat, World Bank were also taken into account. The authors conclude that the evolution of OOP health expenditure follows the same pattern as private household expenditure, from which it can be inferred that there has been no variation in expenditure related to insurance or prepaid modalities.

In the second group of studies, there are three comparative analyses. The comparison of OOP health expenditure between the G7 countries (Canada, USA, Germany, Japan, UK, France, and Italy) and the BRICS countries (Brazil, Russia, India, China, South Africa) is made for the period 1995-2013 (13). This study shows the increase in OOP health expenditure in the period in all the countries in both groups, and also when the average for both groups is compared.

The comparative analysis of various groups of countries in the WHO European Region was carried out for the period 1995-2014 (17). The WHO European Region consists of 53 countries. Within it, five groups are distinguished: 1) EU15 (countries that were members of the European Union before 2004, characterized by market economies since the Cold War), 2) EU post-2004 (countries that joined the EU

Table 1

Characteristics of included studies

First autor	Year	Countries	Period of analysis	Indicator	Main findings
Jakovijevic (13)	2015	BRICS,G7	1995-2013	Per capita out-of-pocket health expenditure	Increase in per capita out-of-pocket health expenditure in each country and in the average for both groups of countries
Pettigrew (14)	2016	Low and middle-income countries	1995-2012	Out-of-pocket expenditure as percentage of total health expendidure	Increases in voluntary health insurance are not linked to reductions in out-of-pocket health expendidure
Pratti (15)	2018	East and Southern Africa	2000-2015	None	Not applicable
Krstic (16)	2019	Serbia	2000-2016	Out-of-pocket expenditure as percentage of total health expenditure	Out-of-pocket health expenditure replicate the trends demonstrate by the domestic private expenditure
Jakovijevic (17)	2019	Europe (WHO)	1995-2014	Out-of-pocket expenditure as percentage of total health expenditure	Higher out-of-pocket health expenditure in the CARINFONET group of countries

after 2004, constituted, except for Malta and Cyprus, by centrally planned economies), 3) CIS (Commonwealth of Independent States) with countries with Semashko type State health systems (18), 4) EU candidate countries (republics of former Yugoslavia and Western Balkans, and Turkey), and 5) CARINFONET (Central Asian Republics Information Network) including Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan. According to the results of this study, the group of countries with the highest OOP health expenditure between 1995 and 2014 was CARINFONET, with averages above 50 % between 1998 and 2009.

The third study in this group compared the evolution of voluntary health insurance (VHI) in low- and middle-income countries over the period 1995-2012 (14). The study showed, in an analysis of 74 countries, which increases in the proportions of VHI do not necessarily mean reductions in the proportions of OOP health expenditures. Indeed, in 17 countries, increases in VHI were found to coincide with increases in OOP health expenditure and reductions in the proportion of government health expenditure. Application of the WHO classification by geographical area (Africa, Eastern Mediterranean, Europe, Americas, Western Pacific, and South-East Asia) made it possible to compare the evolution of OOP health expenditure among countries in each area.

DISCUSSION

The use of the Global Health Expenditure Database (GHED) for the analysis of the evolution of OOP health expenditure in countries or regions is not very widespread in the specialized literature. Most of the analyses available are from the periodic reports of the specialized agencies, in particular WHO. The GHED has proven to be a very useful instrument for international comparison, although the fact that there are differences with national reports (public expenditure reviews) makes it advisable to combine both sources of information in the analysis of country-specific health policies (15). It is essential to improve both the estimation made in the GHED and the quality of the country analyses, especially to distinguish budgeted from actual expenditures, the different sources of financing, among other aspects (19).

The studies included in this systematic review express the variations in OOP health expenditure, both in the countries and in the regional aggregates. Such differences may be conditioned by the starting point of the level of OOP health expenditure. That is, different proportions of OOP health expenditures must be taken into account when comparing the performance of health systems. Hence, it may be useful to develop a gradient of the OOP health expenditure ratio that allows countries with similar characteristics to be grouped. This aspect may also be of special relevance when evaluating the historical evolution of OOP health expenditure.

One aspect that requires further research, according to the studies reviewed, is the importance of associating health policies with variations in OOP health expenditures. This means, in practice, developing capacities to anticipate changes in the levels of OOP health expenditure depending on the characteristics of the policies to be implemented. In other words, more than the evolutions of OOP health expenditure, what should be explored are the effects of current policies or alternative policies. This implies, therefore, relating the characteristics of the policies, on the one hand, and monitoring them to identify the net effects on OOP health expenditure.

CONCLUSION

The availability of information contained in the GHED makes it possible to monitor OOP health expenditure in the international context. The systematic use of the GHED can be useful to improve the quality of information and estimates, such as country-specific expenditure analyses. To this end, it is particularly important to characterize the levels of OOP health expenditure and to incorporate policy monitoring into the analyses. Together with the information generated through the sample surveys, these analyses form the basis for monitoring the SDG related to universal health coverage (UHC), both in financial protection and health services.

Conflict of interest: There is no conflict of interest.

REFERENCES

1. United Nations. The Sustainable Development Goals Report 2020. https://unstats.un.org/sdgs/report/2020/The-Sustainable-Development-Goals-Report-2020.pdf.
2. United Nations. Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202020 %20review_Eng.pdf.
3. Wagstaff A, Flores G, Hsu J, Smitz MF, Chepynoga K, Buisman LR, et al. Progress on catastrophic health spending in 133 countries: a retrospective observational study. Lancet Glob Health. 2018;6(2):e169-e179. https://doi:10.1016/S2214-109X(17)30429-1
4. Wagstaff A, Neelsen S. A comprehensive assessment of universal health coverage in 111 countries: A retrospective observational study. Lancet Glob Health. 2020;8(1):e39-e49. https://doi:10.1016/S2214-109X(19)30463-2
5. Wagstaff A, Eozenou P, Neelsen S, Smitz MF. Introducing the World Bank's 2018 Health Equity and Financial Protection Indicators database. Lancet Glob Health. 2019;7(1):e22-e23. https://doi:10.1016/S2214-109X(18)30437-6
6. González R, Marino J. Gasto de bolsillo en salud en América Latina (1995-2013): evolución e implicaciones de políticas. En: Díaz Bruzual A, López Loyo E, editores. Colección Razetti. Volumen XIX. Caracas: Editorial Ateproca; 2017.p.135-170. https://www.researchgate.net/publication/318216570_Gasto_de_bolsillo_en_salud_en_America_Latina_1995-2013_evolucion_e_implicaciones_de_politicas
7. World Health Organization (WHO). Methodology for the update of the Global Health Expenditure Database, 2000-2017. Version December 2019. Working paper No. 15. Available from: http://apps.who.int/nha/database/DocumentationCentre/Index/en.
8. Ke X, Soucat A, Kutzin J, Brindley C, Dale E, Van de Maele N, et al. New Perspectives on Global Health Spending for Universal Health Coverage. Geneva: World Health Organization; 2017. WHO/HIS/HGF/HFWorkingPaper/17.10. Available from: http://apps.who.int/nha/database/DocumentationCentre/Index/en
9. Ke X, Soucat A, Kutzin J, Brindley C, Van de Maele N, Touré H, et al. Public Spending on Health: A Closer Look at Global Trends. Geneva: World Health Organization; 2018. WHO/HIS/HGF/HFWorkingPaper/18.3. Available from: http://apps.who.int/nha /database/DocumentationCentre/Index/en
10. World Health Organization (WHO). Global spending on health: A world in transition. Geneva: World Health Organization; 2019. WHO/HIS/HGF/HFWorking Paper/19.4. Available from: http://apps.who.int/nha/database/DocumentationCentre/Index/en
11. Bui AL, Lavado RF, Johnson EK, Brooks BPC, Freeman MK, Graves CM, et al. National health accounts data from 1996 to 2010: A systematic review. Bull World Health Organ. 2015;93(8):566-576D. https://doi:10.2471/BLT.14.145235
12. Moher D, Liberati A, Tetzlaff J, Altman DG; PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. BMJ. 2009;339:b2535. https://doi:10.1136/bmj.b2535
13. Jakovljevic MM. Comparison of historical medical spending patterns among the BRICS and G7. J Med Econ. 2016;19(1):70-76. https://doi:10.3111/13696998.2015.1093493
14. Pettigrew LM, Mathauer I. Voluntary Health Insurance expenditure in low- and middle-income countries: Exploring trends during 1995-2012 and policy implications for progress towards universal health coverage. Int J Equity Health. 2016;15:67. https://doi:10.1186/s12939-016-0353-5
15. Piatti-Fünfkirchen M, Lindelow M, Yoo K. What Are Governments Spending on Health in East and Southern Africa? Health Syst Reform. 2018;4(4):284-299. https://doi:10.1080/23288604.2018.1510287
16. Krstic K, Janicijevic K, Timofeyev Y, Arsentyev E, Rosic G, Bolevich S, et al. Dynamics of Health Care Financing and Spending in Serbia in the XXI Century. Front Public Health. 2019;7:381. https://doi:10.3389/fpubh.2019.00381
17. Jakovljevic M, Fernandes PO, Teixeira JP, Rancic N, Timofeyev Y, Reshetnikov V. Underlying Differences in Health Spending Within the World Health Organisation Europe Region-Comparing EU15, EU Post-2004, CIS, EU Candidate, and CARINFONET Countries. Int J Environ Res Public Health. 2019;16(17):3043. https://doi: 10.3390/ijerph16173043
18. Sheiman I, Shishkin S, Shevsky V. The evolving Semashko model of primary health care: The case of the Russian Federation. Risk Manag Healthc Policy. 2018;11:209-220. https://doi:10.2147/RMHP.S168399
19. Witter S, Jones A, Ensor T. How to (or not to) measure performance against the Abuja target for public health expenditure. Health Policy Plan. 2014;29(4):450-455. https://doi:10.1093/heapol/czt031