BOOK REVIEW SECTION

Laituri, M., Richardson, R.B. and Kim, J. (eds.): The Geographies of COVID-19: Geospatial Stories of a Global Pandemic. Cham, Springer, 2023. 300 p.
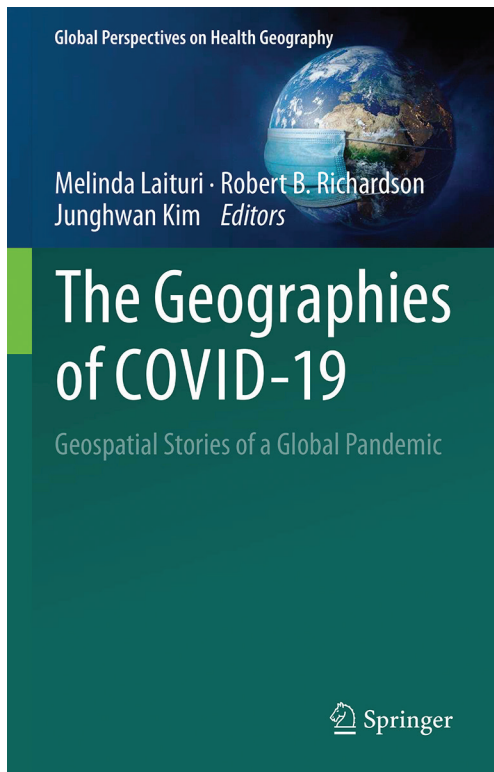
Although the World Health Organization ended the pandemic preparedness regarding COVID-19 diseases in May 2023, the novel coronavirus is still with us, it continues to cause new infections and deaths, even if in smaller numbers than previous variants. We can count on its presence in the coming years as well, but it is unlikely that a new global spread will occur. However, it is a fact that even several years after the outbreak of the pandemic, information and knowledge is coming to light that helps us understand why SARS-CoV-2 coronavirus was able to appear in all countries of the world, and why it was able to cause new and new epidemic waves for more than two years and why it was associated with mass, large-scale deaths. The task of scientific research is to examine recent events from multiple perspectives and using different methods,

analyse the mutual effects, and learn more about the characteristics of the epidemic, which can help in more effective preparation for a similar epidemic situation in the future. One outcome in this learning process is this book, which analyses the relationship between health and place from a global perspective through the geographic features of the pandemic. That is why the current book plays an important role in the literature on place-based approaches to the COVID-19 pandemic and constitutes a basic reading for those interested in geospatial analyses.

The book of *The Geographies of COVID-19: Geospatial Stories of a Global Pandemic* was published by Springer in 2022, edited by Melinda Laituri, Robert B. Richardson, and Junghwan Kim, but a revised edition was out in 2023. Despite the fact that it was published at the last stage of the pandemic, it still provides relevant information about the territorial and geographic aspects of the epidemic nowadays.

The book is part of the 'Global Perspectives on Health Geography' series, the ultimate goal of which is to show the complex ways in which places influence and directly impact human health. The series publishes a comprehensive portfolio of monographs and edited volumes that document the latest research results in the discipline of health geography. This book is a proof of the integration of approaches to examining spatial and place-based aspects of health and health care across different territorial scales from the global to the local. However, this volume also presents a connection between health geography and social science disciplines (e.g. spatial science), and in doing so highlights the importance of spatial thinking.

Although the book as a whole is intended to help the reader discover the complexity of geographies of COVID-19, all authors devote a short preface at the beginning of their chapter for 'storytelling' of personal experiences to make pandemic understandable. These personal stories show how this pandemic could manifest over space and time, but many of them reveal geographic factors and patterns that are examined by geospatial analyses in the chapters of this book. Countless authors, including geographers, have examined the geographies of COVID-19 in recent years, so collecting, analysing, and summarising the essence of their results is not an easy task. The book does not even undertake this, but instead presents case studies at different territorial scales and mainly using quantitative (mathematical and statistical as well as model-

ling) methods, and ultimately develops a geospatial concept on health inequalities and their geographic formations regarding the novel coronavirus epidemic.

All three book editors come from different fields of environmental science, which guarantees multidisciplinary research on socioeconomic inequalities. Melinda Laituri is a professor of geography focusing on geospatial research and has many research activities on using GIS. Robert B. Richardson is an ecological economist with interests in the study of environment and development, particularly the contribution of ecosystem services to socioeconomic well-being. Junghwan Kim received his PhD in geography and his specialties are e.g. human mobility, travel behaviour, environmental health, and geospatial data science and applications. They invited researchers, lecturers, students, and practitioners from around the world to adopt a geographic focus on presenting and explaining the triggers and consequences of the pandemic across space and time. Their efforts are to be appreciated, but they were partially unsuccessful, because the authors do not cover all the large geographical regions of the world. The coverage of Europe is rather incomplete and Eastern Europe is completely missing from the case studies. Only one author is from South-eastern Europe, from Serbia (Alexandar Valjarević). Most of the authors are Anglo-Americans, but many of the others also represent US universities with their scholarships or as guest lecturers. They make it possible to present in the book some interesting and remote regions and countries during the pandemic, e.g. see Bangladesh, Ecuador, Kenya, Mongolia, New Zealand, Uganda, etc.

Using case studies and examples of geospatial analysis, this book examines several places around the world that have experienced the effects of the pandemic in different ways to discover inequalities and vulnerabilities. These case studies vary across space and time and focus on both the first- and second-order impacts of the COVID-19 pandemic. First-order impacts are generally direct and immediate responses to the pandemic in the short- and medium-terms, and are related to health care and its functioning. They include, for example, tracking the number of infections and deaths, testing, access to hospitals, impacts on essential workers, searching for the origins of the virus and preventive treatments such as vaccines. Second-order impacts might be direct and indirect, but all of them are essentially policy responses of decision-makers to the consequences of the pandemic. These actions, practices, interventions can vary in time, even in the short-, medium-, and long-term, but they primarily reflect on the socioeconomic, environmental, cultural, etc. effects of the pandemic. For instance, in the short-term, different policies are in response to the spread of the virus, in the medium-term, interventions regulate everyday life (access to public services), or in the long-term, actions are addressed to food security. Overall, these effects, responses, and interactions can be excessively diverse spatially, and this book itself demonstrates their complexity using geospatial tools at different territorial scales. This volume provides a synopsis of how geography and geospatial approaches are used to understand the pandemic itself and its multi-dimensional consequences.

The book consists of three major parts, which are fundamentally overviews of the following main topics: Part I Geographies of a Pandemic – A Place-Based Approach; Part II Global Impacts, Local Responses; Part III Lessons Learned and New Horizons. In addition, there is an introductory chapter on the theme of how COVID changed our daily life (Marie Price).

Part I with six chapters provides an overview of the role of geography in the COVID-19 pandemic. Its five chapters mainly show those quantitative methods, such as geospatial tools and technologies, that were applied in measure of the COVID-19 pandemic, but this part is also used to define the first- and the second-order impacts. I would like to highlight three main interesting points among the many valuable and informative results in this part. First, Chapter 4 (Junghwan Kim, Kevin Wang, and Sampath Rapuri) provides a comprehensive review based on 331 papers that have adopted quantitative geospatial approaches and presents three main research topics: 1) investigating geographical disparities in COVID-19 cases and deaths as well as the accessibility to COVID-19-relevant facilities such as testing and vaccination sites; 2) examining various factors that affect COVID-19 cases and deaths and building a model to predict those in the future; 3) other sub-topics include studies that have developed and proposed new algorithms and methods to control the pandemic. Second, mapping has become a privileged part of defining and measuring the first- and the second-order impacts of the pandemic, e.g. there is a map of 72 countries depicting the share of respondents to a high-frequency phone survey that stopped working since the COVID-19 outbreak (Chapter 3 by Robert B. Richardson). Third, it is useful to mention the Cities' COVID Mitigation Mapping (C2M2) programme, led by the US Department of State between summer 2020 and autumn 2021, illustrating the scope of participatory mapping partnerships for second-order impacts of the pandemic, especially in developing regions such as Latin America, Sub-Saharan Africa, and East Asia (Chapter 6 by Laura Cline and Melinda Laituri).

Part II with ten chapters as case studies presents ten places around the world that have experienced the effects of the pandemic in different ways. Each case study demonstrates different geospatial methods, models, and analyses, emphasising the differences and commonalities across space and time where fundamental inequalities exist and which may be the result of the pandemic. These case studies ultimately present a global view of the COVID-19 pandemic from local perspectives through diverse

governmental responses. They are suitable to emphasise the vulnerable populations regarding the pandemic that are found throughout the world, e.g. Latine communities or racial/ethnic minorities in US cities, people living in peripheral, informal settlements in Ulaanbaatar (Mongolia), victims of domestic violence in Quito (Ecuador), indigenous groups in Australia, etc. These examples can even be considered good practices that provide lessons for the future, either from the point of view of sustainability or resilience. Among these valuable and useful case studies, I would like to highlight one in Uganda that describes the impact of government policies on the Boda-Boda drivers and its multiple consequences on local society (Chapter 16 by Harriet Kebirungi and Hadijah Mwenyango). Boda-Boda motorists transport passengers and goods with a high physical interface, which creates a conducive environment for spreading COVID-19 in East African countries. This was the main reason why this transport sector was primarily affected by lockdown. The authors of the chapter applied quantitative methods to collect data on the geographical characteristics of Boda-Boda motorists, e.g. using GPS to measure distance between Boda-Boda stages and social services. Secondary data analyses represented the characteristics of the research population, who should be between 25 and 34 years of age, be married, had only primary educational level, and be with 2–4 years of experience in the Boda-Boda transport industry. In addition, most of them bought Boda-Boda motorcycles on loan and were engaged in Boda-Boda as their sole source of income. The study shows that Boda-Boda motorists averagely operated in a distance of between 0–2.291 km and 8.932–11.926 km. The used qualitative methods such as focus groups reported that Boda-Boda motorists lost their jobs and could not provide basic needs to their families. The impact of the COVID-19 lockdown also contributed to food insecurity and domestic violence due to lost daily income. The results of this examination underline that policy reforms and awareness are needed to understand the different forms and interactions of social vulnerability, and there is also a need to plan for protective systems to manage income problems among vulnerable populations (Harriet Kebirungi and Hadijah Mwenyango).

Part III with six chapters explores how the lessons learned from the COVID-19 pandemic set the stage for next steps as the world prepares to adapt to a post-pandemic reality. This part includes examples of mitigation strategies and adaptation pathways that illustrate how they can be used to inform decisions and policies in response to ongoing and evolving challenges. The most important findings of these chapters can be interpreted at various scales ranging from local to national to global and can help to understand the role of geospatial approaches in data-driven decision-making. Here are some examples to help

prepare for future outbreaks. For example, Valentina Albanese and Giorgio S. Senesi (Chapter 18) provide an overview of the 'Italian Immuni App', developed as a protocol for citizens who have tested positive for COVID-19 and their contacts, but it considers the protection of personal data and does not allow the identification of patients. In Chapter 21, Maya Mishra describes the framework of 'One Health' based on Earth observations data for predicting and preventing disease incidence in the future, taking an interdisciplinary perspective that recognises the overlapping priorities of human, animal, and environmental health. Ashley Pierce and Amanda Shores (Chapter 22) offer lessons learned from 'RAPID' as Rapid Response Research, which is a response by the US National Science Foundation to COVID-19, reinforcing the need for interdisciplinary research and integration across the diversity of researchers to solve interwoven challenges in times of rapid change and urgent need.

At the end of this book review, I would like to highlight three things that subjectively reflect my opinion about this publication. The book combines masterfully the various theoretical and methodological frameworks of different disciplines and academic backgrounds, but always with a geographic perspective grounded on different scales of COVID-19 analysis. The common goal is to develop a place-based approach that reveals the multidisciplinary context of inequalities and vulnerabilities which exist and may increase in the world in connection with the pandemic (Chapter 2 by Melinda Laituri). In this regard, many relevant results and definite statements can be found in the pages of this book, one of which is here in the interpretation of Xiao Huang and his co-authors (Chapter 8): "Vulnerable populations are less likely to follow the order to stay at home, pointing to the extensive gaps in the effectiveness of social distancing measures between vulnerable populations and others" (Xiao Huang, Siqin Wang, and Xiao Li; p. 90).

All chapters of the book well represent how editors and authors explore the COVID-19 pandemic's effects and consequences from global, regional, and local perspectives, but in addition to all this, they also clearly illustrate how the geospatial approach appears in the support of data-based decision-making. Namely, data-driven decision-making is needed as geospatial analyses and resulting maps navigate in the pandemic and its first- and second-order impacts and determine ways to address future such events. At the same time, they also provide a lesson on how the new tech tools and smart devices that became widespread at the beginning of the 21st century can represent a new alternative for geographical research.

Finally, in addition to my words of appreciation, I should give space to my critical comments as a researcher from Central and Eastern Europe. As I wrote earlier, I miss more European case studies,

although it is welcome that the global overview is very broad, covering several large regions of the world. However, it would have been important to present some Eastern European regions or countries, because one of the highest COVID-19 mortality rates was registered here. Moreover, in these countries, the health care inherited from the socialist past faces serious challenges more than 30 years after the regime change. There are marked health inequalities in these societies that have contributed greatly to the high number and rate of COVID-19 cases and deaths. I should also mention that the main findings of the book are relevant to Central and Eastern Europe, however, it would also be important for this region to know how the geospatial approach can be used to measure existing health inequalities and how GIS can be applied in health promotion. For my other critical comment, although the book presents the possible scientific application of geospatial tools, the maps in the book are of medium rather than better quality.

Overall, I recommend this book not only to health geographers, but also to professionals, researchers, university lecturers, and students who are open to a place-based approach in the investigation of the long-term effects of the COVID-19 pandemic, as well as to those who deal with GIS and want to learn more about geographical studies and their possibilities.

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