Commentary

Country level analysis of COVID-19 policies

Joost Hopman[a,*], Shaheen Mehtar[b]

[a] Radboudumc Center for Infectious Diseases, Department of Medical Microbiology and Department of Quality and safety, Radboud University Medical Center, Geert Grooteplein 10, Postbus 9101, 6500 HB, Nijmegen, the Netherlands
[b] Infection Control Africa Network, Cape Town, South Africa

A R T I C L E   I N F O

Chaudhry and colleagues present data on country level analysis of health outcomes and COVID-19 policies [1]. Since the start of the COVID-19 pandemic there have been over 12.500.000 confirmed COVID-19 cases, including 565.000 deaths reported to WHO [2]. In both high- and low-resource settings infection prevention and control (IPC) and public health measures were implemented to halt the transmission of SARS-CoV-2 [3]. These measures were mainly based on evidence of previous influenza outbreaks and pandemics [4]. Furthermore the COVID-19 pandemic highlighted the importance of the W.H.O. IPC Core components and minimal IPC requirements [5]. In March and April 2020 it became evident that countries had failed in pandemic preparedness. Global shortages of personal protective equipment (PPE) developed and economies had to (partially) shut down because of restrictive public health measures. Social distancing, universal masking, ventilation and the built environment became central topics when countries restarted in the discussions while the world is awaiting the development of an effective vaccine SARS-CoV-2. Now the question arises: how effective are these individual measures?

The enormous consequences of these measures urgently need to be evaluated as many countries are preparing for a second or third wave of COVID-19 cases while some countries are still struggling to manage the first wave of cases especially in vulnerable populations [6]. What can we learn from other countries' experiences? And what health, social and economic policies can mitigate the risk for future outbreaks with emerging pathogens? The country level exploratory analysis by Chaudhry and colleagues analyses COVID-19 policies and health outcomes to do just that. Data were collected from the top 50 countries ranked by the number of cases and factors associated with COVID-19 mortality and related outcomes were identified.

The authors identified a negative association between the number of days to any lockdown and the total reported cases per million, where a longer time prior to implementation of any lockdown was associated with a lower number of detected cases per million. Countries with a higher median population age, prevalence of obesity, and a longer number of days to any border closure had significantly higher caseloads with the total number of reported cases per million (i.e. full or partial lockdown). Strikingly socioeconomic factors like unemployment rate and per capita GDP were associated with increased number of critical cases per million. By contrast, lower income dispersion scores were associated with a reduction in the number of critical cases. Increased death rate per million population was identified for the prevalence of obesity and per capita GDP. Variables that were negatively associated with increased COVID-19 mortality were reduced income dispersion within the nation, smoking prevalence, and the number of nurses per million population. Full lockdowns, border closures, and high rate of COVID-19 testing were not associated with reduced number of critical cases or overall mortality.

Balancing public health measures between effectiveness and inflicting unintended consequences with major long-term health consequences with reduction of QALY's remains one of the biggest challenges in managing outbreaks and pandemics in particular [7]. The leaders of our countries need to further reflect as second and third waves of COVID-19 cases will hit our country borders shortly due to increased travel movements. The analysis of Chaudhry et al. provided us with some answers how to tackle future outbreaks but left us with unanswered questions as well. What are the outcomes of those countries that are not affected as much as the top 50 affected and included countries? Do those countries have a population with a young median age and perhaps recent immunizations? What is the influence of climate and 'living outdoors' on number of cases and mortality? What was the effect of universal masking?

The COVID-19 crisis illustrates we have to rethink our societies and health systems for our children and future generations or accept excess mortality in times of crisis and pandemics. SARS-CoV-2 affects those within our populations most that are vulnerable either by socio-economic or health status (access to care, older age, and

E-mail address: Joost.Hopman@Radboudumc.nl (J. Hopman).

obesity) and between populations (higher per capita GDP resulting in increased travel movements). The debate on the necessity to focus on health and the prevention of disease instead of curative care should become a central theme in the public domain [8]. Furthermore, country preparedness (e.g. scale of testing, available nurses, physicians, and resources) and long-term investments in IPC (e.g. IPC training programmes for nurses and physicians) in both high- and low-resource contexts should be facilitated globally by national governments to prevent future pandemics [9].

Declaration of Competing Interest

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