



Corso di Dottorato di Ricerca in Scienze della Vita e dell'Ambiente - Ciclo XXXVI

COVID-19 outbreak: informing and harmonizing pandemic preparedness and response

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INTRODUCTION

On 31 December 2019, Chinese scientists communicated to the World Health Organization the appearance of a new Coronavirus. On 30 January 2020, the WHO declared Sars-CoV-2 a Public Health Emergency of International Concern (PHEIC). Eventually, on 11 March 2020, COVID-19 was declared a pandemic (WHO, 2020). Italy was among the first European Countries to be severely impacted by COVID-19 with its first reported cases at the end of January (Kamps and Hoffman, 2021). This PhD research project focuses on the emergency response and Health System Resilience in Italy.



31 December 2019
outbreak of pneumonia cases of unknown aetiology in the city of Wuhan - China

30 January 2020
First positive case of COVID-19 in Italy

11 March 2020
Declaration of global COVID-19 pandemic and Italian national lockdown

The overall objective of this Ph.D. project is to gain insight into the most important aspects of pandemic emergency planning and provide a list of guidelines in order to assess local and national Health Systems Resilience to a biological hazard such as a Coronavirus.

METHODOLOGY

Four main steps have been carried out for this study: (i) state-of-the-art of pandemic management, (ii) health system components, (iii) selection of indicators to assess health system resilience and (iv) available methodologies to analyse resilience. Eventually, a multi-criteria analysis method (AHP, TOPSIS and PROMETHEE) (Ishizaka and Nemery, 2013) will be chosen to evaluate the selected indicators. Aspects of health, politics, economics, sociality, demography and emergency have been covered by these indicators.

Each indicator contributes with a different weight in the health system resilience.

The next step was the collection of quantitative and qualitative data from official databases and interviews to First Aid Hospital Directors.

FUTURE PERSPECTIVE

In order to deepen the qualitative and quantitative data analysis, questionnaires will be provided to healthcare workers. Through the Multi-Criteria Decision Analysis, qualitative and quantitative data referring to indicators will be managed in order to evaluate the Health System Resilience in the Marche region. After this, the same qualitative and quantitative analysis is aimed to be provided also for New Zealand health system. At the end, data could be compared.

The guidelines will come from this comparison, highlighting the best pandemic Emergency management practices.



RESULTS

Five macro areas have been chosen to represent the principal extents of resilience in pandemic emergency conditions (Haldane et al., 2021). Health & safety, including the component of the local health system (hospitals, healthcare workers, communication tools). Political & economic, referring to the Institution and stakeholders involved as well as the administration chain from national to local level. Socio-psychological, including the component of psychological support. Demographic, referring to the population and territorial characteristics. Pandemic, including indicators referring to the specific needs created by the emergency (e.g., healthcare device, medical support).



References

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