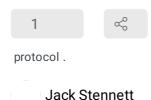Nov 05, 2021

⊕ Lessons learned from the resilience of Chinese public health systems, hospitals and personnel to the COVID-19 pandemic: a scoping review protocol.

Lessons learned from the resilience of public health systems, hospitals and their personnel to the COVID-19 pandemic: a scoping review protocol.

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protocol .

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Background: The SARS-CoV-2 pandemic has brought huge strain on hospitals worldwide; however, while the success of China's COVID-19 strategy has been attributed to achievements of the government, public health officials, and the attitudes of the general public, the resilience shown by China's hospitals appears to have been a critical factor in their successful response to the pandemic.

Objectives: This paper aims to determine the key findings, recommendations and lessons learned in terms of hospital resilience during the pandemic, analyse the quality and limitations of research in this field at present and contribute to the evaluation of the Chinese response to the COVID-19 outbreak, building on a growing literature on the role of hospital resilience in crisis situations.

Methods: We conduct a scoping review of evidence on the resilience of hospitals in China during the COVID-19 crisis in the first half of 2020. Two online databases (the CNKI and WHO databases) were used to identify papers meeting the eligibility criteria. After extracting the data, we present an information synthesis using a resilience framework. Articles were included in the review if they were peer-reviewed studies published between December 2019 and July 2020 in English or Chinese and included empirical results pertaining to the resilience of Chinese hospitals in the COVID-19 pandemic.

Lessons learned from the resilience of public health systems, hospitals and their personnel to the COVID-19 pandemic: a scoping review protocol., Lola Traverson

Resilience, Hospitals, Healthcare, Crisis Management, COVID-19, Sars-Cov-2, China

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1 Lessons learned from the resilience of Chinese hospitals to the COVID-19 pandemic: a scoping review of empirical literature.

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Rationale

2 Beyond essential biomedical research, it is imperative that the COVID-19 pandemic be studied in terms of its impact on public health, health care systems, and individual health workers. As China was the first country to be affected by the pandemic, and managed to deal effectively with the crisis in a distinctive manner during the period from January to April 2020, it is essential to understand questions of resilience with regards to health systems, hospitals and hospital personnel in the People's Republic of China. Understanding the resilience of health care systems is central to this study and to the HoSPiCOVID research project[1] within which this study is being conducted. The notion of resilience refers to the capacity to adapt and transform in order to maintain functioning and (public health and health systems) services for all in the context of such a crisis[2,3].

Review objective

3   The purpose of this scoping review is to study and compare the resilience of Chinese public health systems, hospitals and their staff to the COVID-19 pandemic, and to draw lessons from China's particular experiences with a view to improve responses to the current pandemic and potential future health crises.

Search strategy

4   Search strategy

4.1   Data selection:

1- In order to obtain data from English- and Chinese- language databases, we will use two different strategies to select appropriate academic literature from each context.

For the English-language literature, we will base our research on a collection of articles related to the COVID-19 pandemic published on the Stephen B. Thacker CDC Library of the Center for Disease Control (CDC) of the the United States website. These articles were collected on the following databases : Medline (Ovid and PubMed), PubMed Central, Embase, CAB Abstracts, Global Health, PsycInfo, Cochrane Library, Scopus, Academic Search Complete, Africa Wide Information, CINAHL, ProQuest Central, SciFinder, the Virtual Health Library, LitCovid, WHO COVID-19 website, CDC COVID-19 website, China CDC Weekly, Eurosurveillance, Homeland Security Digital Library, ClinicalTrials.gov, bioRxiv (preprints), medRxiv (preprints), chemRxiv (preprints), and SSRN (preprints). The search strategy used to select the data is updated daily (on working days) and available on the same website. The search terms will include the following keywords, comprising the three concepts: 1) China; 2) Healthcare systems, Hospitals and personnel; 3) Resilience.

	A	B	C	D
Concept	China	Hospitals and professionnals	Resilience
Keywords	China; Chinese; PRC; People's Republic of China ; Wuhan ; Hubei.	healthcare ; health care ; health system ; hospital ; health facilit ; health center ; medical center ; health service ; worker ; staff ; clinician ; personnel ; human resource ; professional ; volunteer ; physician ; nurse ; paramedic ; doctor_ ; doctors ; workforce ; trainee	resilienc ; shock ; crisis ; crise ; challenge ; emergenc ; disturbance ; capacit ; respons ; strength ; adapt ; strateg ; prepar ; readiness ; sustain ; effectiv ; stress ; impact ; effect ; surge ; extraordinary ; organization ; organisation ; optimi ; restructur ; communicat ; collaborat ; coordinat ; partner ; essential function ; basic function ; logistic ; service ; structural measure ; access ; resource ; equipment ; supply ; supplies ; medication ; drug ; policy ; policies ; governance ; leader ; manag ; financ ; funds ; funding ; training ; recruit ; innovat ; regulation ; triage ; evaluat ; support ; hopeless ; helpless ; efficien ; opportunit ; solution ; frontline ; engagement ; coping ; priorit

Table 1: English-language Keywords

For the Chinese-language literature, we will search for relevant articles on three databases: CNKI, CNKI Covid-19 pre-print server and the WHO global research database.

2- As the global research database only permits English-language searches, we will use the English language keywords to identify relevant papers (Table 1). The Chinese data will be sorted using a request in Chinese (Table 2). The search terms will include the following keywords, comprising the three concepts: 1) China; 2) Healthcare systems, Hospitals and personnel; 3) Resilience. The keywords referring to COVID-19 will be omitted in the search on the exclusive CNKI COVID-19 Preprint server.

The request in English has been designed in consultation with two librarians from the University of Montreal for a linked scoping review, while the request in Chinese has been designed in consultation with a librarian from BULAC in Paris.

As the CNKI database is not limited to quality academic journals, we have chosen to limit the search on CNKI to five sub-categories of article: those included in the 'Science Citation Index', the 'Engineering Index', The Beidahexin

(Beijing University Core Journal Database) 北大核心, CSSCI (The Chinese Social Science Citation Index) and CSCD (Chinese Social Science Database).

A	B	C	D
Concept	COVID-19	Hospitals and Professionals	Resilience
Keywords	SARS; SARS-CoV-2; Sarscov2; sarscov 2; sarscov 2; COVID19 ;COVID 19; COVID-19; 2019-nCoV; nCOV; Cov2; Cov 2; β-冠状病; 流行病毒; 大流行病毒; 流行性; 传染病; 爆发; 暴发; 抗疫; 抗击; 阻击; 抗击;疫情; 武汉; 湖北; 华南; 冠状; 冠状病毒; 新冠; 新冠病毒; 新冠肺炎; 新型…; 新型冠状病毒肺炎; 武汉; 湖北; 华南市场	医疗系统; 医疗体系; 医院; 医疗设计; 卫生设施 ; 卫生保健设施; 卫生机构; 医疗机构;医疗中心; 健康服务;保健服务; 医疗服务;护理人员; 医护人员;专业人员; 人力资源;员工; 临床医师; 志愿者; 医师; 护士 ; 医生 ; 一线医护人员	弹性；复原力；韧性;弹力；团队复原力；反应性；复杂适应系统;冲击；灾难；危机管理 ;激增; 医疗物资；策略; 强化; 战略；应对策略；可持续；应对措施；突发公共卫生事件；挑战；紧急情况;容量；负责人 ;异化;重塑;实力;适应；准备;支持；效果 ;影响；非同寻常；组织 ;优化 ;最佳；重组；沟通 ;合作；坐标; 基本功能；物流；服务 ;资源；设备；药物 ;药品 健康政策；健康中国 ;领导；管理；金融业;资金；训练；招聘；创新；排序；评估；控制;指控;调配 ;配合；措施；举措，防控，灵活性，加强，强化，增加，提高，提升，保障，应急，脆弱性，能动性

Table 2: Chinese keywords

3 - For the papers on the WHO database with a verified English-language abstract, the selected data will then be classified by the ATCER tool[5,6]. In view of the large number of data, we have decided to only retain data with an empirical degree greater than or equal to 70, which will then be followed by a manual search. As the ATCER tool is incompatible with the Chinese language, the process for the Chinese language papers will be completed manually over two stages, using first the title and abstract, then secondly using the full article. Two reviewers will be used throughout this process to ensure consistency and lack of bias.

4.2 Inclusion and exclusion criteria:

Articles were included in the review if they:
- have been published between December 2019 and June 2020;
- have been published in English or Chinese;

- focus on the resilience of public health systems, hospitals and professionals to the COVID-19 pandemic;
- are determined to be empirical, based a blind review process involving 2 reviewers and a third adjudicator;
- use quantitative, qualitative data or mixed methods (This includes modelling papers only if they use empirical data to base their models on).

Articles were excluded of the review if they:
- are not considered empirical by the reviewers (e.g. are purely theoretical)
- are grey literature (i.e. press articles, letters, editorials...)
- do not focus on resilience of public health systems, hospitals or professionals to the COVID-19 pandemic;
- are not accessible or available in full PDF version.

4.3 Main outcomes:

- Study of the resilience of Chinese public health and health care systems to the COVID-19 pandemic.
- Comparison of the processes/measures/actions that have been and are still implemented across China and at different levels (public health systems, hospitals, professionals) to face the crisis.
- Understanding of the effects of these processes on people's use of care.
- Understanding and study of the determinants of resilience.

5 Data Extraction:

In accordance with PRISMA protocol, once a number of articles have been identified as fitting the criteria through the CNKI and WHO searches, a manual selection process will be applied through the platform Rayyan, whereby two reviewers will separately determine whether an article corresponds to the aforementioned criteria. This will be followed by a discussion between the reviewers to determine the relevance of any contested articles and confirm a degree of consistency between the articles. If necessary, a third reviewer will be invited to make the final decisions.

The selected articles will be then imported into Rayyan[7] for the title, abstract and full text screening of the articles. Rayyan will automatically remove all the duplicates. Four reviewers will independently proceed to the title and abstract screening. Irrelevant articles will be excluded. The four reviewers will then independently proceed to the full text screening. They will also extract data from the included articles, assess the quality of studies, and undertake the evidence synthesis.

Data extracted will include:
- study characteristics: title, author(s), year of publication, country of publication;
- study design;
- main results of the study according to our conceptual framework about health system resilience.

Risk of bias (quality) assessment

6   The quality of the studies will be assessed using the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al.[8].

Strategy for data synthesis

7   The synthesis of the articles will follow the recommendations of the PRISMA method[9]. The criteria for the data synthesis will be based on the number of studies that have reported the outcomes of interests, i.e. resilience of public health systems, hospitals, and professionals to the COVID-19 pandemic in China. According to the number of studies retained, the team will decide to write one or several scoping reviews. The outcomes will be reported in a descriptive manner and will also be subject to thematic analysis. As part of the HoSPiCOVID research project, workshops in each of the five countries and a final international workshop in the summer/ autumn of 2021 will bring together policy and decision makers, hospital and public health professionals, researchers, and civil society organizations to collectively produce operational recommendations based on the lessons learned between countries. This knowledge transfer strategy, based on the project's evidence and the expertise of the participants, will enable the sharing of lessons about resilience at an operational level.

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Acknowledgements

9   We would like to thank .....