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INTRODUCTION

The novel coronavirus, first identified in December 2019, was declared a pandemic by the WHO on March 11, 2020, triggering an unprecedented global crisis. As of 19th February 2024, more than 703 million cases and nearly 7 million deaths have highlighted the immense toll of COVID-19.

Early responses centered on non-pharmaceutical interventions like lockdowns, travel restrictions, and quarantines, to prevent the healthcare system from collapsing. With the development and approval of vaccines in December 2020, the path toward herd immunity sparked both hope and a complex policy shift.

Countries worldwide employed a variety of mandates to accelerate vaccine uptake and safeguard public health. Some, like Australia and Canada, relied on strict incentives and penalties, while many European nations introduced vaccine passports that boosted uptake and ignited fierce public debate. Meanwhile, mixed approaches in the USA and notable resistance in regions such as Oman and Cyprus highlighted how trust in government and nuanced socio-demographic factors shape public attitudes.

OBJECTIVES

To explore the impacts (social, economic and behavioural), effectiveness and challenges associated with the COVID-19 vaccine mandates using a scoping review of the literature.

METHODS

Study Design: Conducted systematically following PRISMA-ScR guidelines to map the literature on COVID-19 vaccine mandates, focusing on their social, economic, and behavioural impacts, as well as their effectiveness and challenges.

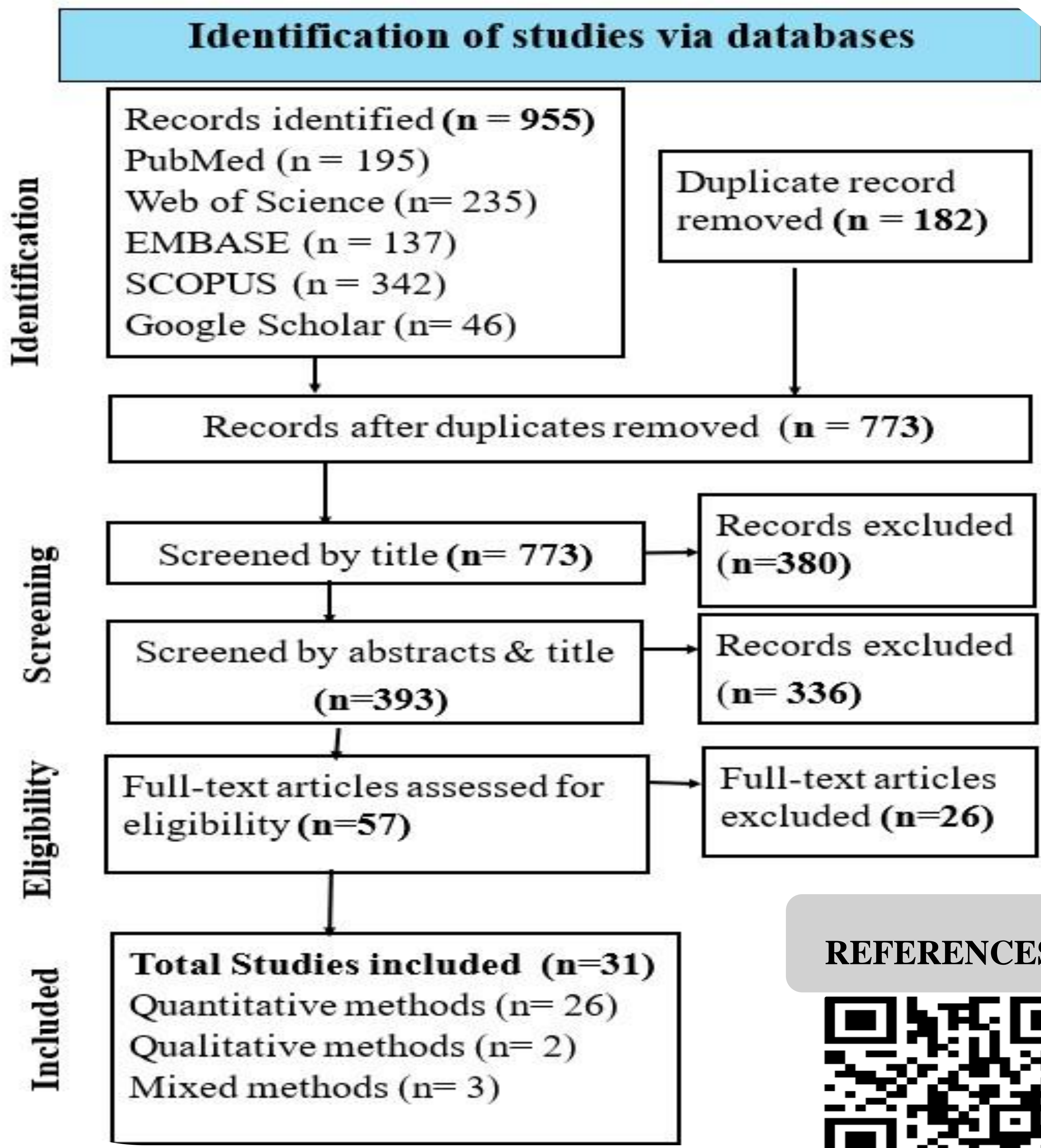
Search Strategy: (i) **Databases:** PubMed, Web of Science, Embase, Scopus and Google Scholar, (ii) **Framework:** Employed the SPIDER framework to inform the search strategy, (iii) studies are identified using the combination of Boolean operators.

Eligibility Criteria: (i) **Inclusions:** English language publications, full-text availability, publication dates between July 2020 and August 2024, and focus on COVID-19 vaccine mandates, public attitudes, and their multidimensional impacts, (ii) **Exclusions:** Studies published before July 2020, articles not in English, and publications without full-text access.

Screening & Data Extraction: (i) **Screening Process:** Imported search results into EndNote 21, removed duplicates, initially screened titles and then abstracts, eligible studies conducted full-text reviews based on inclusion criteria; (ii) **Data Extraction:** Used a standardised charting form to capture characteristics (author, country, aim of the study, population or sample size, study design, data collection methods and data collection period).

Data Synthesis: Narrative synthesis of findings presented in two tables, (i) key themes related to public attitudes towards vaccine mandates and factors affecting them, (ii) key themes related to the impact of vaccine mandates.

PRISMA-ScR DIAGRAM



RESULTS

Factors Influencing Public Attitudes: (i) **Sociodemographic Factors:** Older age, male gender, higher education, & professional status were positively associated with support, (ii) **Individual Factors:** Higher vaccine knowledge and risk perception increased support, trust in government and health authorities was a strong predictor of positive attitudes, and opposition was linked to conspiracy beliefs, misinformation, safety concerns, and cultural factors.

Main Findings: Most studies reported public support for COVID-19 vaccine mandates associated with increased vaccine uptake and pandemic control. However, opposition was also documented, citing concerns about freedom, discrimination, and human rights.

Key Themes Identified

| Perceived Benefits | Perceived Harms |
|--|---|
| ❖ Public health protection by reducing virus transmission | ❖ Concerns about discrimination and human rights violations |
| ❖ Resumption of pre-pandemic activities (travel, work, events with less risk) | ❖ Operational challenges (e.g., staff shortages, enforcement issues) |
| ❖ Economic recovery and mitigation of job insecurity | ❖ Restrictions on freedom of movement, especially for medically or religiously exempt individuals |
| ❖ Incentive-based strategies (e.g., lotteries) as a tool to enhance vaccine uptake | |

DISCUSSION

Social Impacts

Positive Effects: Strengthened social responsibility and public health, boosted psychological reassurance for travellers.

Negative Effects: Triggered distrust, widened social divisions, increased inequalities and discrimination against vulnerable groups

Economic Impacts

Benefits: Lowered healthcare costs, sustained business operations, reduced intensive care costs (Ohio lottery saved \$66M).

Challenges: Workforce shortages (especially in the healthcare sector), operational disruptions & added business costs.

Behavioural Impacts

Increased Uptake: Mandates, passports, and incentives effectively increase vaccination rates.

Resistance: Opposition where trust in authorities was low.

Effectiveness: Consistent rise in vaccination rates where voluntary uptake was low, notable decline in COVID-19 cases post-mandates.

Challenges: Ethical dilemmas balancing freedom and public health, intensifying distrust and triggering psychological reactance, and the risk of widening health inequalities.

CONCLUSION

COVID-19 vaccine mandates have increased vaccine uptake and played a significant role in reducing transmission, hospitalisations, and mortality. Despite their benefits, mandates have generated public resistance, raised ethical concerns, and introduced operational hurdles. Some groups exhibit heightened distrust in government and scientific institutions.

Mandates fostered social cohesion in some groups; they also intensified distrust in others, especially where access and communication gaps existed. Public attitudes varied based on trust in authorities, age, education, and socio-economic status.

A balanced, collaborative approach is essential. Transparent communication, equitable vaccine access, and targeted interventions can address hesitancy and ensure the long-term success of vaccination programs.

Future Direction: Future health policies must balance public health needs with ethical considerations and social equity. Longitudinal and comparative research is needed to guide future pandemic preparedness and responses.

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