INPLASY PROTOCOL

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The influencing factors of the influenza vaccination rates among healthcare workers: a systematic review and meta-analysis

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Review question / Objective: This systematic review aims to examine the factors influenced the influenza vaccination rates among healthcare workers to put forward relevant suggestions and measures for promoting the influenza vaccination of medical personnel. At the same time, it will provide experience for promoting the vaccination of other influenza vaccine priority groups.

Condition being studied: The flu is an acute respiratory infectious disease caused by the influenza virus that spreads in the respiratory tract. Due to its high transmissibility and rapid spread, as well as its tendency to mu-tate, the flu is highly contagious and affects a large number of people, with a high incidence rate. It often causes seasonal epidemics every year. According to the World Health Organization (WHO), the flu causes about 3 to 5 million severe cases and 290,000 to 650,000 deaths related to respiratory diseases worldwide each year. The severity of the flu varies from mild to severe, even leading to death. Hospitalization and death primarily occur in high-risk groups.Healthcare workers are at great risk of exposure to the flu virus in their daily work and are a high-risk group for flu infections. The WHO recommends that healthcare workers be given priority for flu vaccination, which has been adapted by more than 40 countries and/or regions worldwide.This is also supported by Chinese authority by the China's flu vaccine prevention and control guidelines against the flu.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 May 2023 and was last updated on 13 May 2023 (registration number INPLASY202350051).

INTRODUCTION

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METHODS

Search strategy: The search strategy used a combination of subject terms and free-text terms. The Chinese search terms included "influenza vaccine,""vaccine coverage rate,""vaccine coverage," etc. The English search terms included "Influenza Vaccine*,""Flu Vaccine*,""Influenza Virus Vaccine*,""Universal Influenza Vaccine*,""Universal Flu Vaccine*,""Immunization Coverage*,""Vaccina-tion Coverage*,".

Participant or population: Healthcare workers and healthcare professionals directly involved in providing health services globally.

Intervention: None.

Comparator: None.

Study designs to be included: Cross-sectional study.

Eligibility criteria: Inclusion Criteria: (1) Studies reporting the seasonal influenza vaccination rate and/or its influ-encing factors, (2) Healthcare workers and healthcare professionals directly involved in providing health services globally, (3) Studies reporting specific sample size, vaccination rates, and number of vaccinated individuals within a year, (4) Studies published in Chinese or English, (5) Cross-sectional study design.Exclusion Criteria: (1) Studies reporting on other types of influenza vaccines, (2) Studies that did not report key data such as sample size, vaccination rates, and number of vaccinated individu-als or did not specify the vaccination year or only reported the combined vaccination rate for mul-tiple years, (3) Studies that focused on healthcare institutions or the overall population of a coun-try, (4) Duplicate publications, (5) Studies with logical errors in the data.

Information sources: Computer-based searches were conducted in databases such as PubMed, EMBASE, CNKI, CBM, Wanfang, and VIP to collect cross-sectional studies reporting the seasonal influenza vaccination rate among healthcare workers. The search time frame was from database inception to January 6,2023.

Main outcome(s): The data extraction mainly included basic information such as the first author, publication year, survey region, sampling location, study population, vaccination time, sample size, number of vac-cinated individuals, and multiple logistic regression analysis data such as OR, OR95%CI, refer-ence object, etc.

Quality assessment / Risk of bias analysis: A checklist was developed based on the cross-sectional study quality evaluation tool recommend-ed by the Agency for Healthcare Research and Quality (AHRQ) and the JBI Analytic Cross-Sectional Study Quality Evaluation Scale to evaluate the methodological quality of the cross-sectional studies. The checklist included nine items, including (1) whether the source of the data was clearly stated (survey,

literature review), (2) whether the inclusion criteria for the study population were clearly defined, (3) whether the study population and study site were described in de-tail, (4) whether an explanation was provided for the exclusion of some study subjects from the analysis, (5) whether the patient response rate and data collection completeness were summarized, and if the research data was incomplete or had missing values, an explanation was provided for how the missing data was handled during the analysis.

Strategy of data synthesis: STATA12.0 software was used for data analysis,we extracted influenza vaccination rate and multiple logistic regression analysis data such as OR, OR95%CI, using random-effects meta-analysis to analysis study results, I2 test to evaluate heterogeneity, sensitivity analysis to evaluate the robustness and reliability of the overall merger rate, and subgroup analysis was used to explore the sources of heterogeneity.

Subgroup analysis: Subgroup analysis of influenza vaccination rate was performed based on the country's level of development, geographic region, and time of vaccination.Subgroup analyses of factors influencing influenza vaccination were conducted on the basis of extracted raw data.

Sensitivity analysis: Sensitivity analysis was conducted by eliminating individual studies one by one.

Country(ies) involved: China.

Keywords: Influenza vaccine; Vaccination rate; Healthcare workers; Influencing factors; Meta-analysis.

Contributions of each author:
Author 1 - Jingchun Fan - The author provided conceptualisation, data accessed and verified, data interpretation, writing—review and editing, the decision to submit and supervision.
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