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STRATEGIES TO ADDRESS VACCINE HESITANCY IN ADULTS: A SYSTEMATIC REVIEW

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Background

To combat the COVID-19 pandemic, vaccination of the population is essential. However, attitudes regarding vaccination can range from full acceptance to absolute refusal. The World Health Organization defined "vaccine hesitancy" as a "delay in acceptance of the vaccine despite the availability of vaccination services". Vaccine hesitancy is complex and context-specific varying across pandemic phases, country, sociodemographic characteristics, and vaccines. Evidence-based strategies to address vaccine hesitancy behavior are needed. The **aim** of this systematic review is to identify and assess the effectiveness of strategies in addressing vaccine hesitancy in adults.

Methods

A systematic literature review to identify studies evaluating interventions targeting vaccine hesitancy in adults was conducted in PubMed, Embase, and PsycInfo (2016-2021) building up on Jarret´s (2015) review. Two rounds of snowball sampling were performed by checking the references of the studies included in the final selection. For the data analysis, **interventions** were categorized into:

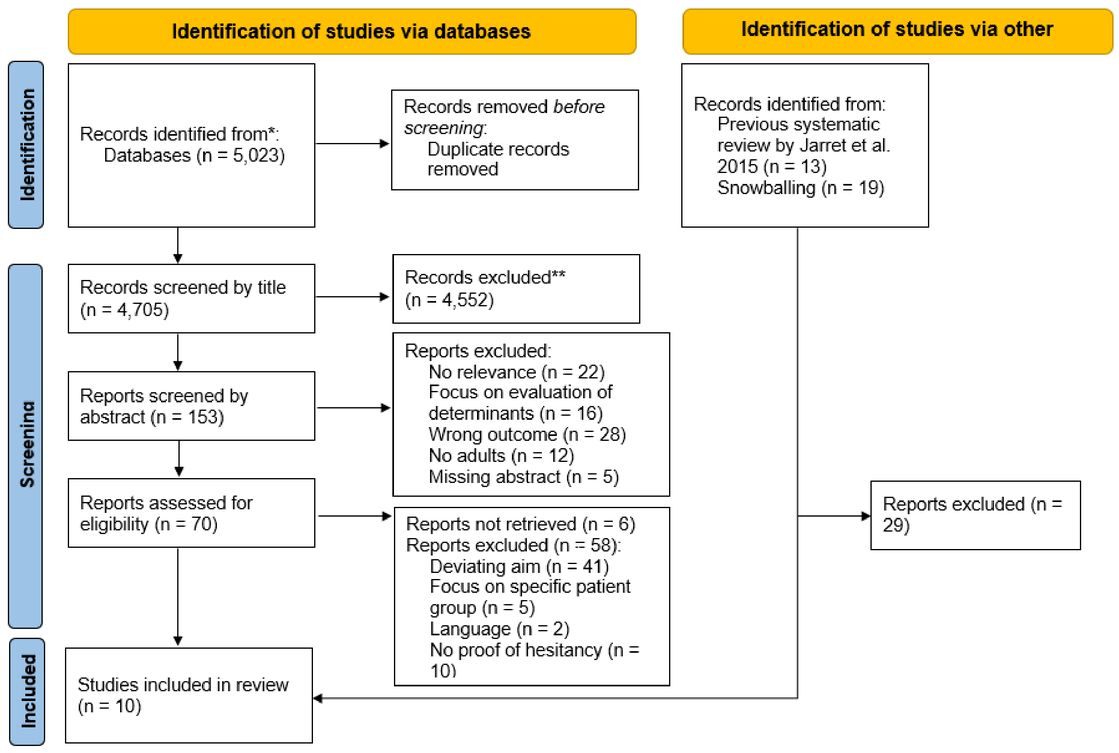
1) dialogue-based;
2) educational;
3) incentive-based;
4) recall-based; and
5) multi-component interventions.

We extracted relevant study characteristics, study outcomes and effectiveness of the included interventions, and synthesized the information in **evidence tables**. **Study outcomes** were categorized into vaccination coverage rate and behavioral outcomes (subdivided into increased knowledge, increased awareness, changes in attitudes towards vaccination and willingness to vaccinate). The review adheres to PRISMA guidelines using the Cochrane Risk of Bias Assessment Tool.

Results

Out of 5,023 retrieved studies, six were included in the review in addition to one study from an earlier review (Jarret et al., 2015) and three studies from snowballing (Fig.1). A wide variety of adult populations were targeted in the interventions (Fig. 2), which were implemented mostly in the USA (Fig. 3). All studies focused on influenza vaccine except one which focused on Hepatitis B. Five studies evaluated educational interventions, two dialogue-based interventions, and three multi-component interventions. Multi-component interventions showed a statistically significant increase in the vaccination rate within the intervention group compared to baseline. Educational interventions had a statistically significant effect in behavioral outcomes compared to the control group in three studies, one did not test for significance and one evaluated the vaccination rate, which did not lead to any changes. One dialogue-based intervention showed a significant improvement in behavioral outcomes and a second one reported a significant effect in vaccination rates. However, comparability of studies was limited due to the heterogeneity in study outcome(s), study designs and target populations.

Figure 1. PRISMA flow diagram of the search strategy



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).
**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

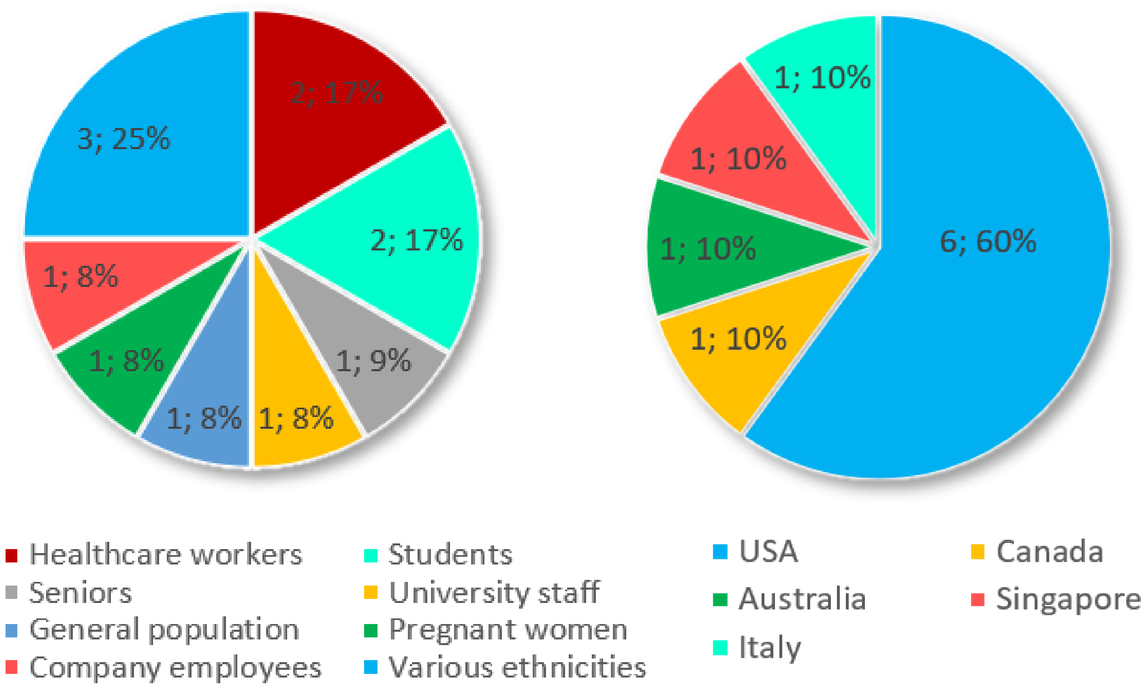


Figure 2. Populations targeted in the studies. Some studies included more than one population group

Figure 3. Countries of implementation

Discussion

Of the ten studies reviewed, all except one demonstrated some improvement or increase on vaccination coverage and/or behavioral outcome(s). There was not a single type of intervention that was clearly more effective than others, but comparability of studies was limited because each study was conducted using their own widely ranging study outcome(s), varying populations and methods. Despite some interventions showing positive effects on behavioral outcomes, it remains uncertain how this would ultimately transfer to vaccine uptake.

Conclusion

This review has shown statistically significant results of different strategies in increasing the knowledge and vaccination rates in adults. In a next step, our findings will be contrasted with interventions to increase vaccination rates that have been implemented during the COVID-19 pandemic. In addition, further research is needed to better understand the determinants of vaccine hesitant behavior, which might involve trust in the healthcare system or governmental institutions and their capability to design adequate interventions.

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Conflicts of interest: We have no conflicts of interest to declare.

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