

The Efficacy of COVID-19 Vaccines in People with Obesity: A Systematic Review and Meta-analysis

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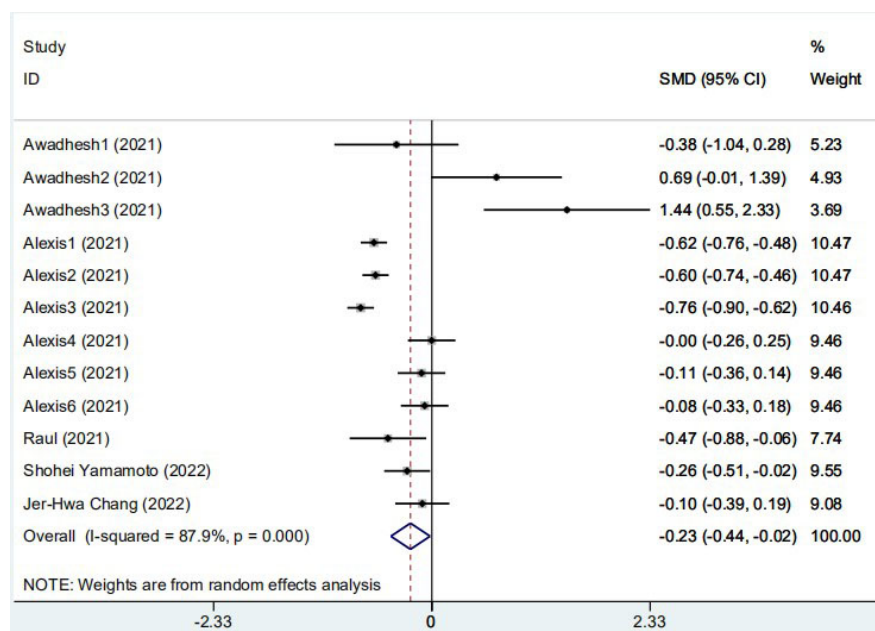
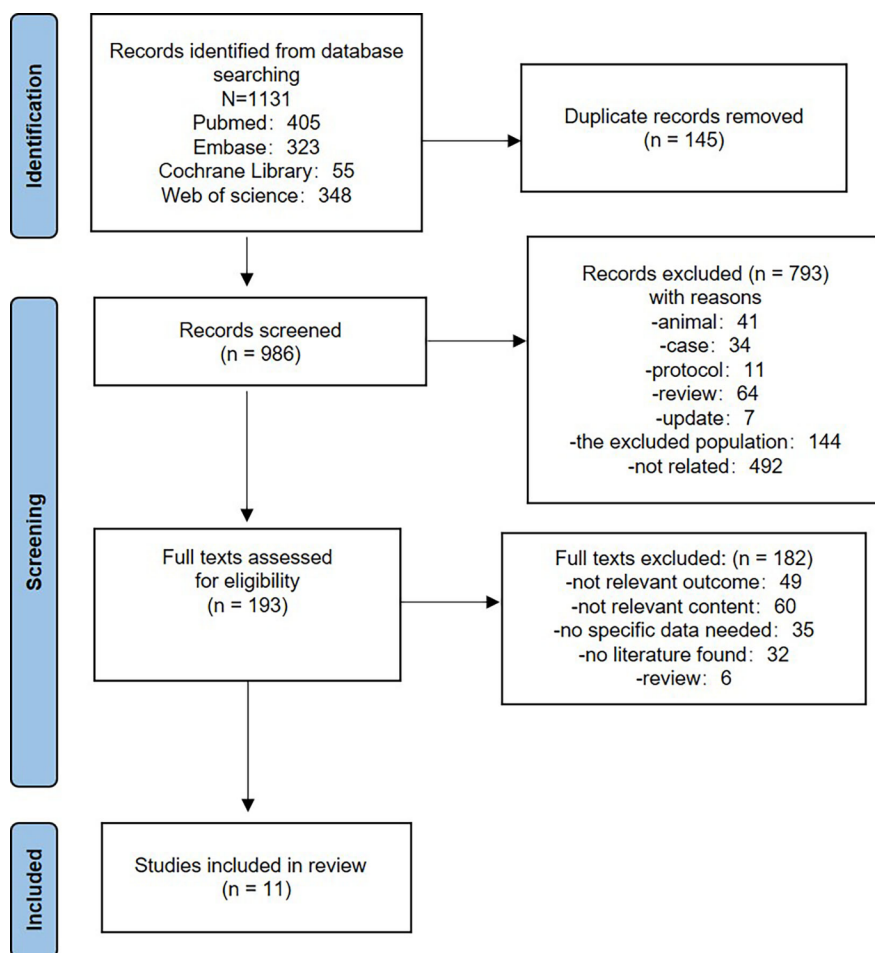
November 10, 2022

Abstract

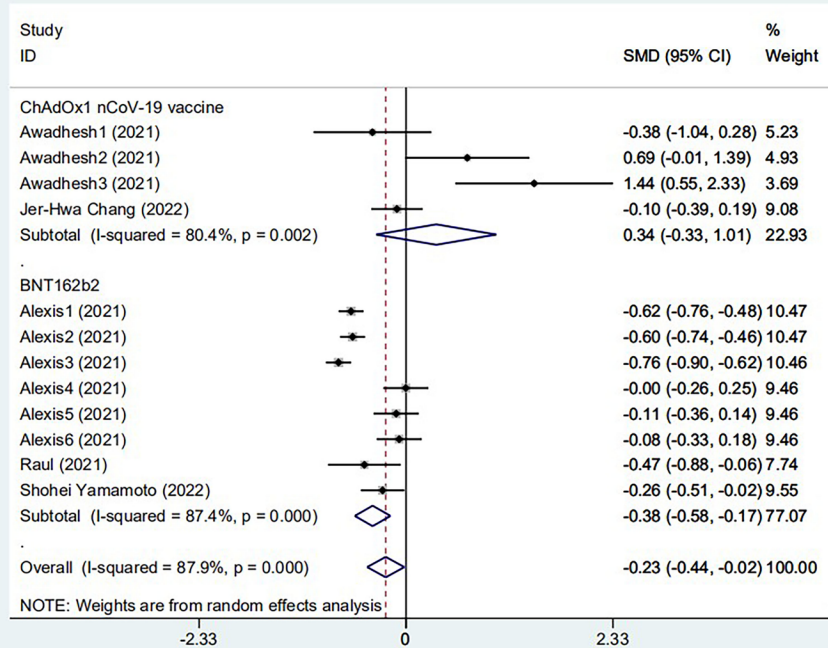
Background: COVID-19 vaccine is critical in preventing SARS-CoV-2 infection and transmission. However, obesity's effect on immune responses to COVID-19 vaccines is still unknown. Methods: We performed a meta-analysis of the literature and compared immune responses to COVID-19 vaccines among persons with and without obesity. We used Pubmed, Embase, Web of Science, and Cochrane Library to identify all related studies up to April 2022. The Stata.14 software was used to analyze the selected data. Results: Totally, 11 studies were included in the present meta-analysis. Five of them provided absolute values of antibody titers in the obese group and non-obese group. Overall, we found that the obese population was significantly associated with lower antibody titers (SMD = -0.228, 95% CI (-0.437, -0.019), $P < 0.001$) after COVID-19 vaccination. Significant heterogeneity was present in most pooled analyses but was reduced after subgroup analyses. No publication bias was observed in the present analysis. The Trim and Fill method did not change the results in the primary analysis. Conclusion: The present meta-analysis suggested that obesity was significantly associated with decreased responses to SARS-CoV-2 vaccines. Future studies should be performed to unravel this relationship to prevent COVID-19 infection and transmission.

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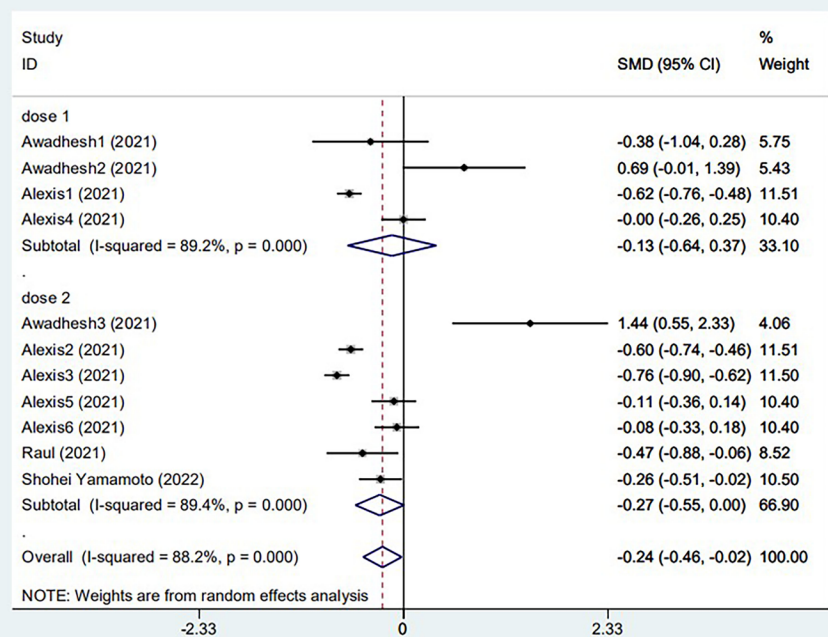
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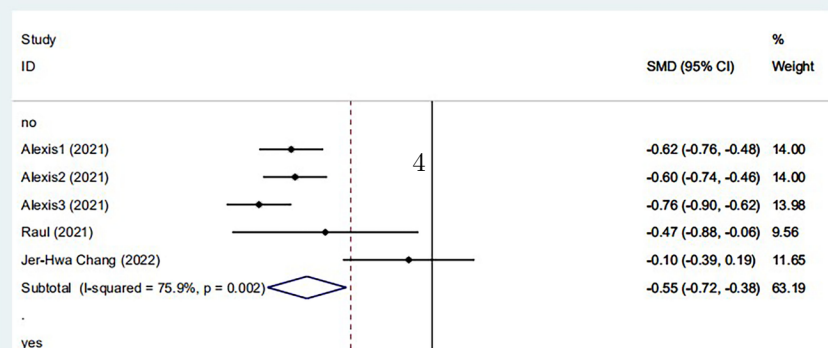
a

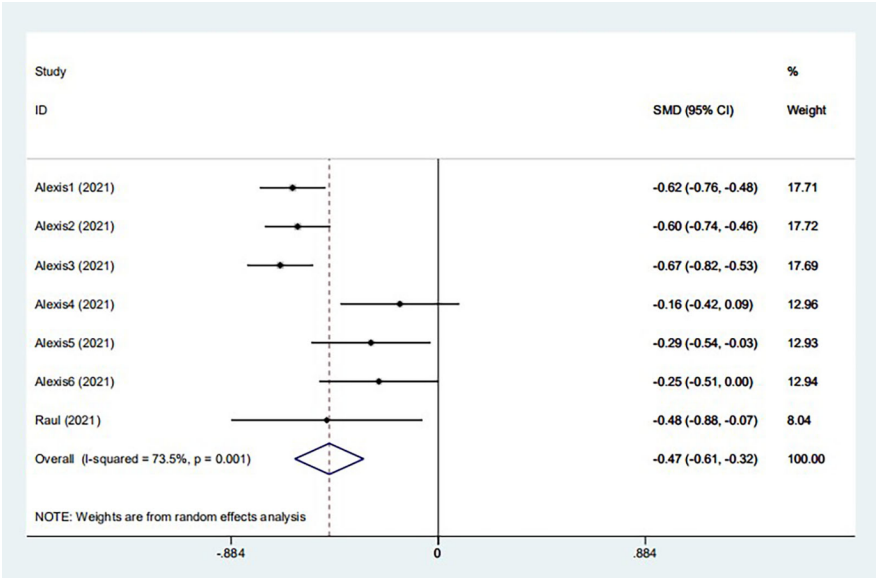


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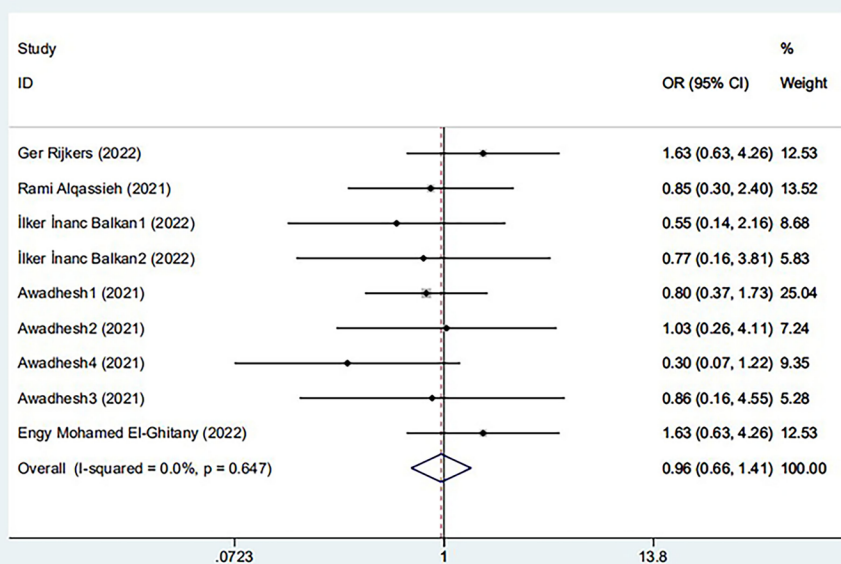


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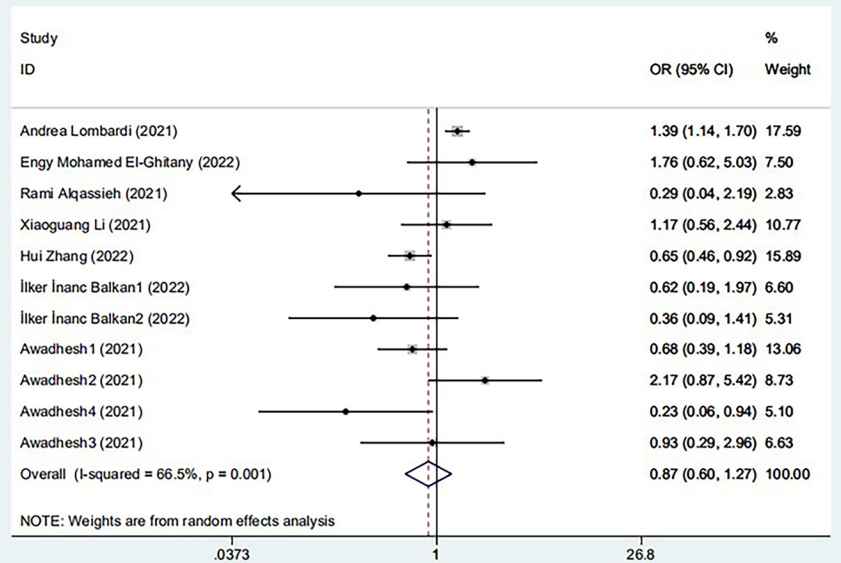




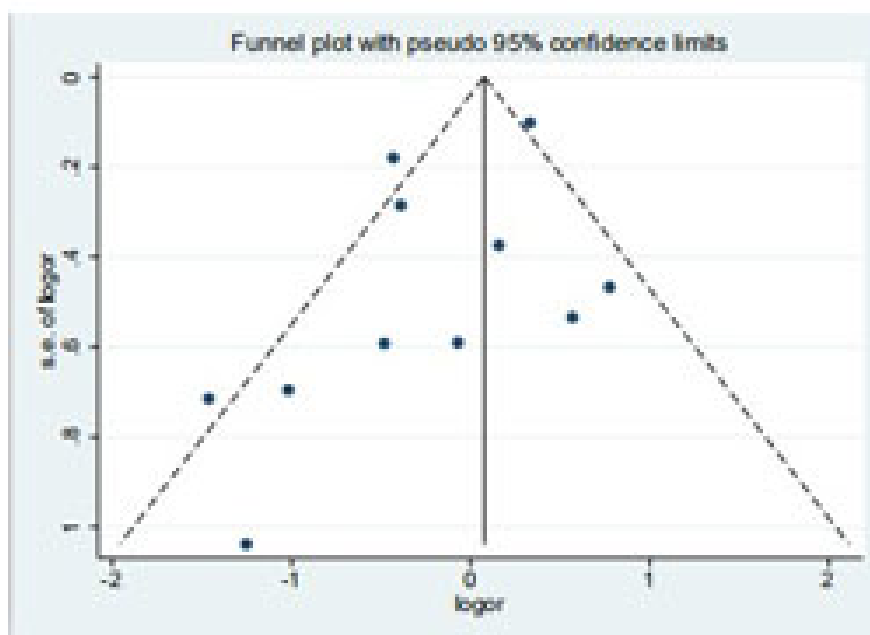
Obese VS control



Overweight VS control



a



b

