

Review of: "Side effects of COVID-19 vaccination in Pakistani population: A cross sectional study"

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Potential competing interests: No potential competing interests to declare.

Sample Size and Selection Bias: While the study claims to have a larger cohort, it's still relatively small given the population of Pakistan. The use of a convenient sampling approach could introduce selection bias and compromise the representativeness of the study population. This limits the generalizability of the findings to the entire Pakistani population.

Study Design and Methodology: The cross-sectional design used in the study might not be suitable for drawing causal relationships between vaccination and observed effects. The reliance on self-reported data for both vaccination side effects and COVID-19 history introduces potential recall bias and inaccuracies in reporting.

Questionnaire Adaptation and Context The article mentions adapting the questionnaire from a previous study, but it's unclear how well the adapted questionnaire addresses the specific cultural and contextual factors relevant to the Pakistani population, potentially affecting the validity of the collected data.

Data Collection and Analysis: The use of an online questionnaire and interview-based technique could introduce reporting bias and subjectivity in responses. The data analysis methods are described but might not fully address potential confounding factors or interactions among variables.

Comparative Analysis and Interpretation: The study aims to compare side effects and severity of COVID-19 before and after vaccination, but the methodology for establishing a causal link between vaccination and reduced severity is not robustly addressed. The article needs a more nuanced discussion on the impact of vaccination on COVID-19 outcomes.

Data Presentation: Some of the data presented in tables and figures could be difficult to interpret without sufficient explanation. The article should include clearer explanations of the data and the significance of findings.

Ethical Considerations: The study was approved by an Institutional Review Board & Ethics Committee (IRB&EC), but the article lacks details on the ethical aspects of data collection, informed consent, and participant confidentiality.

Discussion of Limitations: While the article acknowledges limitations, such as gender imbalance, age distribution, and self-reported data, a more comprehensive discussion of these limitations and their potential impact on the study's conclusions is needed.

Conclusions: The article's conclusions are somewhat overstated, particularly in claiming that the study clears perceptions

and speculations related to COVID-19 vaccination. The limitations of the study should be more explicitly acknowledged, and the conclusions should be more cautiously framed.

Recommendations for Further Research: While the article mentions recommendations for larger studies, it would be beneficial to expand on the specific research gaps that need to be addressed in future studies and the potential implications for policy and public health decisions.