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ACCEPTED MANUSCRIPT

The State of Vaccine Confidence 2016: Global insights through a 67-country survey

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Background: Public trust in immunization is an increasingly important global health issue. Losses in confidence in vaccines and immunization programmes can lead to vaccine reluctance and refusal, risking disease outbreaks and challenging immunization goals in high- and low- income settings. National and international immunization stakeholders have called for better monitoring of vaccine confidence to identify emerging concerns before they evolve into vaccine confidence crises.

Methods: We perform a large-scale, data-driven study on worldwide attitudes to immunizations. This survey – which we believe represents the largest survey on confidence in immunization to date – examines perceptions of vaccine importance, safety, effectiveness, and religious compatibility among 65,819 individuals across 67 countries. Hierarchical models are employed to probe relationships between individual- and country-level socio-economic factors and vaccine attitudes obtained through the four-question, Likert-scale survey.

Findings: Overall sentiment towards vaccinations is positive across all 67 countries, however there is wide variability between countries and across world regions. Vaccine-safety related sentiment is particularly negative in the European region, which has seven of the ten least confident countries, with 41% of respondents in France and 36% of respondents in Bosnia & Herzegovina reporting that they disagree that vaccines are safe (compared to a global average of 13%). The oldest age group (65+) and Roman Catholics (amongst all faiths surveyed) are associated with positive views on vaccine sentiment, while the Western Pacific region reported the highest level of religious incompatibility with vaccines. Countries with high levels of schooling and good access to health services are associated with lower rates of positive sentiment, pointing to an emerging inverse relationship between vaccine sentiments and socio-economic status.

Conclusions: Regular monitoring of vaccine attitudes – coupled with monitoring of local immunization rates – at the national and sub-national levels can identify populations with declining confidence and acceptance. These populations should be prioritized to further investigate the drivers of negative sentiment and to inform appropriate interventions to prevent adverse public health outcomes.

Keywords: Vaccine confidence, vaccine safety, attitudes, global immunization, hierarchical regression.

Highlights

- Overall vaccine confidence is positive, though responses differ between countries
- The European region has the lowest confidence in vaccine safety with France the least confident globally
- Bangladesh, Ecuador, and Iran reported highest agreement that vaccines are important
- Azerbaijan, Russia, and Italy reported most skepticism around vaccine importance
- Education increases confidence in vaccine importance and effectiveness but not safety

Research in context

This global survey builds on previous studies of vaccines' perceived importance, safety, effectiveness, and religious compatibility. The worldwide survey investigates attitudes towards vaccines on an unprecedented scale, interviewing 65,819 respondents across 67 countries. This can help inform public health agendas by highlighting national and regional variations in attitudes towards vaccines; for example, that the European region is the least confident region towards vaccine safety. One pattern shared by diverse countries worldwide is a worrying gap between high confidence in vaccine importance yet lower confidence in safety, identifying at-risk countries whose vaccine acceptance may be more precarious than previously thought. Meanwhile, factors such as religion, which past research shows to be crucial in some sub-populations, display no consistent pattern

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