Understanding the determinants of acceptance of COVID-19 vaccines: a challenge in a fast-moving situation

Pierre Verger, Patrick Peretti-Watel

Understanding the determinants of acceptance of COVID-19 vaccines: a challenge in a fast-moving situation

Michaël Schwarzinger and colleagues' study[1] on the determinants of COVID-19 vaccine acceptance or refusal, published in *The Lancet Public Health*, provides an interesting novel perspective that differs from those of the many general population surveys thus far reported.[2] The authors' experiment, conducted in July, 2020, assessed the effects of various scenarios on participants' intentions to be vaccinated against COVID-19. These scenarios were constructed by varying the characteristics of hypothetical COVID-19 vaccines (efficacy, risk of severe side-effects, and country of manufacturer) and vaccination strategies (herd immunity target and place of vaccine administration). This design enabled them to distinguish between systematic outright rejection of future COVID-19 vaccines (regardless of their characteristics) and vaccine hesitancy, which was sensitive to these characteristics. Their results might therefore be important in terms of vaccination strategy.

One of the most notable results of this study is that, assuming a campaign of vaccination administered at mass vaccination centres and with communication about the benefits of herd immunity, the investigators' behavioural model predicted that 29·4% (95% CI 28·6–30·2) of the French working-age population were likely to refuse COVID-19 vaccination outright, while vaccine hesitancy ranged from 9·3% to 43·2% depending on vaccine characteristics.

Schwarzinger and colleagues show that the margin of variation of vaccine hesitancy depends on the potential vaccine characteristics and point out that obtaining sufficient COVID-19 vaccine coverage in working-age adults will be key if the goal is herd immunity—a question still under debate.[3] Comparison of the results of their study with the efficacy and safety of the marketed mRNA vaccines[4] suggests the features of these vaccines will favourably affect vaccine hesitancy. Nonetheless, the authors showed that this effect might partly be offset by access constraints. The results regarding the location of a vaccine's manufacturer (the EU, the USA, or China) are also topical given the current shortage of vaccine doses, but also more difficult to use to anticipate population behaviour in view of the rapidly changing situation. For example, the agreement signed with Sanofi in late January, 2021, to make its factories in Europe available for bottling the Pfizer vaccine could reassure some individuals who are hesitant about vaccination.

Another important result about vaccination strategy is that the study shows a high a priori acceptance of COVID-19 vaccines among the youngest individuals (aged 18–24 years), even though they are likely to be the least affected by the health consequences of COVID-19. Evidence from the international literature regarding this finding is conflicting.[2] This high acceptability in young people, although perhaps counterintuitive from the perspective of a somatic benefit–risk analysis, is understandable from the vantage point of social factors and mental health—consequences that are likely to be most pronounced in this age group, whose lives have been drastically disrupted by the pandemic.[5,6] Vaccination could be an unexpected source of hope for them, evoking the possibility of a return to normal life. Because vaccination of young people might be an effective path to herd immunity, it is essential to understand this group's attitudes towards vaccination against COVID-19.

Importantly, the study provides evidence to suggest that messages highlighting the benefits in terms of herd immunity might reduce hesitation about COVID-19 vaccines. This is an important finding that could guide communication to promote the vaccination campaign (provided that vaccination is shown to reduce transmission). This type of communication strategy should, nonetheless, be tested in the field first because adhering to collective objectives in theoretical exercises might not translate into real-life behaviour. Moreover, this line of communication should be done concurrently with other strategies, particularly those—which appear promising—aimed at tackling and debunking the false information that thrives in these times of crisis.[7,8]

Finally, this study shows that most people are probably not absolutely for or against COVID-19 vaccines. Depending on their own profile and preferences, and on the characteristics of the vaccines available, vaccine-hesitant individuals might consider taking the vaccine or delay it to get another vaccine. Health authorities must anticipate these behaviours, especially since the characteristics that influence them could change over time

(eg, from efficacy, technology used, and availability date early on in campaigns, to effectiveness against variants and post-vaccination transmission as more evidence emerges). To understand what will influence behaviours in the months to come, quasi-experimental designs are likely to remain useful, but additional tools are required. Longitudinal approaches based on cohort follow-up would be more powerful than cross-sectional surveys to analyse the drivers of people's decisions to accept or reject COVID-19 vaccines. It is also essential to include health professionals among those whose opinions and attitudes are monitored, given their influence on patients' decisions, because they are also subject to uncertainty about COVID-19 vaccines.[9]

We declare no competing interests.

*Pierre Verger, Patrick Peretti-Watel
pierre.verger@inserm.fr

Faculté des sciences médicales et paramédicales, Observatoire régional de la santé Provence-Alpes-Côte d'Azur, Marseille 13 385, France (PV, PP-W); UMR Vitrome, Mediterrannean Infection Institute, Aix-Marseille University, IRD (PP-W)

1   Schwarzinger M, Watson V, Arwidson P, Alla F, Luchini S. COVID-19 vaccine hesitancy in a representative working-age population in France: a survey experiment based on vaccine characteristics. *Lancet Public Health* 2021; published online Feb 5. https://doi.org/10.1016/S2468-2667(21)00012-8.

2   Lin C, Tu P, Beitsch LM. Confidence and Receptivity for COVID-19 Vaccines: A Rapid Systematic Review. *Vaccines (Basel)* 2020; **9:** e16.

3   Science Media Centre. Expert reaction to a preprint on vaccines and heard immunity. Jan 21, 2021. https://www.sciencemediacentre.org/expert-reaction-to-a-preprint-on-vaccines-and-herd-immunity (accessed Jan 30, 2021).

4   Polack FP, Thomas SJ, Kitchin N, et al. Safety and efficacy of the BNT162b2 mRNA COVID-19 vaccine. *N Engl J Med* 2020; **383:** 2603–15.

5   Peretti-Watel P, Alleaume C, Léger D, Beck F, Verger P. Anxiety, depression and sleep problems: a second wave of COVID-19. *Gen Psychiatr* 2020; **33:** e100299.

6   Beck F, Léger D, Fressard L, Peretti-Watel P, Verger P. COVID-19 health crisis and lockdown associated with high level of sleep complaints and hypnotic uptake at the population level. *J Sleep Res* 2021; **30:** e13119.

7   Freeman D, Waite F, Rosebrock L, et al. Coronavirus conspiracy beliefs, mistrust, and compliance with government guidelines in England. *Psychol Med* 2020; **21:** 1–13.

8   Lewandowsky S, Cook J, Schmid P, et al. The COVID-19 vaccine communication handbook: a practical guide for improving vaccine communication and fighting misinformation. Jan 7, 2021. https://rri-tools.eu/-/the-covid-19-vaccine-communication-handbook-a-practical-guide-for-improving-vaccine-communication-and-fighting-misinformation (accessed Jan 30, 2021).

9   Verger P, Scronias D, Dauby N, et al. Attitudes of healthcare workers towards COVID-19 vaccination: a survey in France and French-speaking parts of Belgium and Canada, 2020. *Euro Surveill* 2021; **26:** 2002047.