

The Covid vaccine and mental health

Research evaluates mental health benefits by examining variation in vaccine rollout



Research has consistently shown that the Covid pandemic was linked to a rise in psychological distress and that this was closely associated with the social distancing restrictions. Declines in mental health were particularly high among 18-34-year-olds, those faced with financial insecurity, women and ethnic minorities. Those more at risk of serious disease were also likely to see a decline, linked to the anxiety of contracting the disease itself – which would be expected to diminish as people received the vaccine.

Research using Understanding Society's monthly COVID-19 survey tracked the mental health benefit associated with receiving the first dose of the vaccine ahead of others, due to logistical variations in the Covid vaccine's rollout. The survey's design allowed the researchers to control for the potential bias associated with differing vaccine prioritisation and levels of vaccine hesitancy by making sure these characteristics matched in the treated and control groups.

The results suggest that vaccination led to a significant and substantive improvement in the mental health of those vaccinated who were most at risk of hospitalisation and death from COVID-19 but did not materially impact the mental health of those least at risk from Covid, namely younger adults.

Why was the policy considered necessary?

The vaccination programme's aim was *'the reduction of severe disease (hospitalisation and mortality) across the population, while protecting the NHS' (JCVI)*. Estimates suggest that people have 90% or more reduction in the probability of hospitalisation and death once vaccinated. Vaccination therefore represented a substantial reduction in the threat that the disease posed to the lives of those more vulnerable to Covid, namely the over 55s and those with underlying health conditions. The completion of the vaccination programme eventually permitted the lifting of social distancing restrictions. In the interim, the vaccine programme permitted those vaccinated early, and who had been following more stringent precautions than the regulations required, to begin to loosen some of these self-imposed behaviours and engage in social activities again.

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How was the evaluation carried out?

The study captured changes in the mental health of individuals who had received the Covid vaccine between Waves 7 and 8 of Understanding Society's monthly COVID-19 survey, as measured using the General Health Questionnaire (GHQ-12). To avoid the risk that other factors might have caused changes in mental health, the research identified a control group who had not received the vaccine when interviewed for Wave 7. To do this, the research took advantage of the staged and spatially varied rollout of the first doses of COVID-19 vaccine, combined with the random timing of when people were interviewed. By Wave 7 of Understanding Society's COVID-19 survey, about 43% of the sample population reported having received at least one dose of the vaccine. This left an appropriately sized group who would go on to be vaccinated but who had not actually received a vaccine at the point of interview.

The research acknowledged the risk of bias in this approach to identifying a counterfactual control group, including that vaccines were distributed on the basis of clinical need, with clinical need being principally determined by age and the presence of underlying health conditions. The approach to dealing with this potential bias was to employ various matching techniques, to make sure the treatment and control group have similar distributions of characteristics so the treatment variable becomes closer to being independent of background characteristics. The observed characteristics used in the matching included age and health status and whether they were prioritised for vaccination due to being clinically vulnerable or key workers.

What were the strengths of using Understanding Society data?

Understanding Society ran a dedicated, and at first monthly, COVID-19 survey which could be matched with the richer source of demographic information available in the main annual survey.

In particular, the COVID-19 survey asked the same questions on mental health in each wave, which is required when studying the impact of the fast-moving early phases of the vaccine programme. It also asked about any hesitancy towards taking the vaccine and respondents' level of vulnerability to Covid.

This allowed the researchers to match not only people's individual characteristics, which predict the likelihood of them being offered a vaccine, but also their willingness to take one.



Findings

The results suggest that initial doses of the vaccine led to a significant and substantive improvement in the mental health of those most at risk of hospitalisation and death from COVID-19. The researchers found the level of estimated gain in mental health comparable to major life events. However, the findings suggest that vaccination did not materially impact the mental health of those least at risk from Covid, namely younger adults.



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While the research was able to control for non-vaccine factors in the observed changes in mental health, it was not able to isolate the mechanism for the reported improvement. Clearly, the intrinsic knowledge that a vaccine reduces the risk of death or severe disease can improve mental health. In addition, this knowledge will likely lead to a relaxation of social distancing measures which had been self-imposed by those who were most wary of catching Covid. The greater social interactions that this lifting would have offered will also likely have improved mental health.

Whatever the precise mechanism, this research was able to measure the mental health benefit of vaccination using survey data taken from a real-world population in a pandemic situation, responding to a vaccine programme which was designed to prioritise the most vulnerable rather than generate scientific trial results.



Source: Kausik Chaudhuri and Peter Howley, *The impact of COVID-19 vaccination for mental health*, SSRN, 2021: <http://dx.doi.org/10.2139/ssrn.3906235>