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Covid-19: Herd immunity is “unethical and unachievable,” say experts after report of 5% seroprevalence in Spain

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The results of the first nationwide population based epidemiological study of SARS-Cov-2 seroprevalence, conducted across Spain, reveal a national prevalence of only 5%, making global efforts to deliver herd immunity through natural infection both “unethical and unachievable,” according to experts.

In a survey carried out between 27 April and 11 May and involving more than 61 000 participants in nearly 36 000 households, Marina Pollán, professor at Spain’s National Centre for Epidemiology in Madrid, with colleagues from the ENE-COVID study group, used two methods to detect anti-covid-19 antibodies: a point of care test and a laboratory immunoassay.¹

Although they targeted IgG antibodies against different viral proteins, both tests yielded similar findings, with the point of care test detecting a 5.0% (95% confidence interval 4.7-5.4) nationwide seroprevalence and the immunoassay a 4.6% seroprevalence (95% CI 4.3-5.0).

“Despite the high impact of covid-19 in Spain, prevalence estimates remain low and are clearly insufficient to provide herd immunity,” the paper’s authors said. “This cannot be achieved without accepting the collateral damage of many deaths in the susceptible population and overburdening health systems. In this situation, social distance measures and efforts to identify and isolate new cases and their contacts are imperative for future epidemic control.”

Isabella Eckerle, professor at the Geneva Centre for Emerging Viral Diseases, and Benjamin Meyer from the Centre for Vaccinology at the University of Geneva, said in an accompanying commentary that a similarly low seroprevalence in countries without strict lockdown measures, such as 7.3% in Sweden in late April, meant that “any proposed approach to achieve herd immunity through natural infection is not only highly unethical, but also unachievable.”²

Antibodies in asymptomatic people

Around a third of people with asymptomatic infection were also found by the survey to have anti-SARS-Cov-2 antibodies. Both test methods revealed no difference in seroprevalence between men and women, while seroprevalence was higher in healthcare workers than those with other occupations, according to the report. The point of care test provided comparable information, “while having a greater uptake, lower cost, and easier implementation.”

The sampling also revealed significant regional variations. In Madrid and several other provinces in central Spain seroprevalence was more than 10%, while coastal regions had low seroprevalence, with the exception of Barcelona (5%). The study excluded residents in institutions such as care homes, although the authors noted that most Spanish elders often reside in households.

In their commentary, Eckerle and Meyer noted that such seroprevalence studies provide information about exposure but not immunity. “By analogy to common cold coronaviruses, immunity after SARS-CoV-2 infection is thought to be incomplete and temporary, lasting only several months to a few years,” they said, adding that it is still unknown whether patients are protected by other immune functions such as cellular immunity.

1 Pollán M, Pérez-Gómez B, Pastor-Barriuso R, et al. Prevalence of SARS-CoV-2 in Spain (ENE-COVID): a nationwide, population-based seroepidemiological study. *Lancet* July 2020. doi: 10.1016/S0140-6736(20)31483-5.

2 Eckerle I, Meyer B. SARS-CoV-2 seroprevalence in covid-19 hotspots. *Lancet* July 2020. doi: 10.1016/S0140-6736(20)31482-3.

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