

# OPP: APPLICATION FIELDS & INNOVATIVE TECHNOLOGIES

**Internet access, COVID-19 and psychosocial health changes: A longitudinal cohort study on oldest-old**  
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**Purpose** The accelerated digitalisation of society may pose major challenges for those lacking digital skills. During the COVID-19 pandemic, information and communication technology (ICT) became crucial for staying connected with loved ones and accessing health services (Rolandi et al., 2020; Valla et al., 2024). In this scenario, disparities in ICT use may have exacerbated other forms of inequality, especially among older adults who were less familiar with technology and more vulnerable to severe COVID-19 health consequences. The aim of the present study was to investigate how Internet use affects changes in social capital, physical and psychological health before and after the pandemic among the oldest old population (aged 80 years or older after the pandemic). **Method** We leveraged data from the InveCe.Ab study, a population-based longitudinal cohort of people born between 1935 and 1939 and living in Abbiategrasso, a municipality on the outskirts of Milan, Italy. Participants underwent multidimensional assessment at baseline (2010) and after 2, 4, 8 and 12 years. We restricted our analysis to cohort members who participated in the last wave (i.e., 2022) and who did not have a diagnosis of dementia (N=391). We used linear mixed models to assess the impact of COVID-19 and time on changes in social capital, physical and psychological health, and ICT use in a discontinuity regression design while controlling for age, sex, education and income satisfaction. Then, we assessed the influence of internet use and its interaction with COVID-19 on these changes. **Results** COVID-19 had a significant impact on social relationships ( $\beta=-4.35$ , 95% CI 6.38 – -2.32,  $P= <0.001$ ), cultural activities ( $\beta=-0.55$ , 95% CI -0.75 – -0.35,  $P= <0.001$ ), cognitive functioning ( $\beta=-1.00$ , 95% CI -1.28 – -0.72,  $P= <0.001$ ), depressive symptoms ( $\beta= 0.42$ , 95% CI 0.10 – 0.74,  $P =0.009$ ), physical health ( $\beta= 0.07$ , 95% CI 0.04 – 0.10,  $P= <0.001$ ) and ICT use ( $\beta= -0.11$ , 95% CI -0.18 – -0.03,  $P =0.008$ ). Internet use predicts reduced depressive symptoms ( $\beta=-0.56$ , 95% CI -1.07 – -0.06,  $P =0.030$ ) over time. The interaction term of internet use \* COVID-19 was significant for cultural activities ( $\beta=-0.73$ , 95% CI -1.22 – -0.24,  $P =0.003$ ) and cognitive functioning ( $\beta=1.36$ , 95% CI 0.67 – 2.05,  $P = <0.001$ ). **Conclusions** The pandemic had adverse effects on older adults' health and social capital. Contrary to expectations, even ICT use dropped significantly after the pandemic. Internet users maintained higher psychological health regardless of time and COVID-19 status. However, COVID-19 was associated with a steeper decline in cognitive functioning among internet nonusers. Policymakers may develop initiatives to encourage ICT adoption among older adults or strengthen their digital skills.

## References

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*Figure 1. Changes in psychosocial outcomes according to internet use (blue line) and nonuse (red line). Time are measured in years from baseline.*

