

COVID-19 vaccination readiness: use of digital technologies for data-driven decision making

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Background:

Digital technology can help scientists and governments to inform large auditoriums about COVID-19 and vaccination. Existing technological solutions for assessment of risk of COVID-19 are foreseen for individual use but not for use in scientific research. We aimed to develop a digital platform for communication between scientists and the general population and to use this digital platform for a pilot study on factors associated with the vaccination readiness.

Methods:

We developed a digital platform, ensuring researchers an ability to create and manage study projects and to stratify participant cohorts in real-time. Platform provides an interface for participants to be engaged in the studies and receive personalized reports. We assessed demographic (9 items), COVID-19-related behavioral factors that increase a risk of infection (15 items) and a risk of severe disease (10 items), and a readiness for vaccination (10 items). Multiple logistic regression models adjusted for personal covariates, factors affecting the motivation to vaccinate, and risk of infection/severe disease were built to investigate their association with a vaccination readiness.

Results:

The newly developed digital platform was equipped with a dynamic consent management, allowing participants to opt-out or/and receive invitations for follow-up studies. Data collection was performed between 2021.02.01 and 2021.03.10, and 467 participants were enrolled during this period. In fully adjusted multiple logistic regression models, factors associated with the vaccination readiness were anxiety (odds ratio, OR = 3.09 [95% confidence interval 1.88; 5.09]), trust in pharmaceutical companies (OR = 1.53 [1.03; 2.27]), and social responsibility (OR = 1.61 [1.16; 2.22]).

Conclusions:

The major factor that affects the vaccination readiness was anxiety. Lack of association with the risk of infection/severe disease indicates that people do not understand how the vaccine can help them to avoid the infection.

Key messages:

- Assessment of a large number of participants in a short time confirms the fact that people are motivated to collaborate using digital platforms.
- Applying a digital platform can help to create a data-driven dialogue on vaccination readiness, opening an evidence-based scientific discussion between state authorities and the population.