

COVID-19 and Influenza Vaccine Acceptance in the Adult Population in Hungary

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Understanding Adult Vaccine Hesitancy in Europe: Insights from National Surveys in Malta, Hungary, and Italy

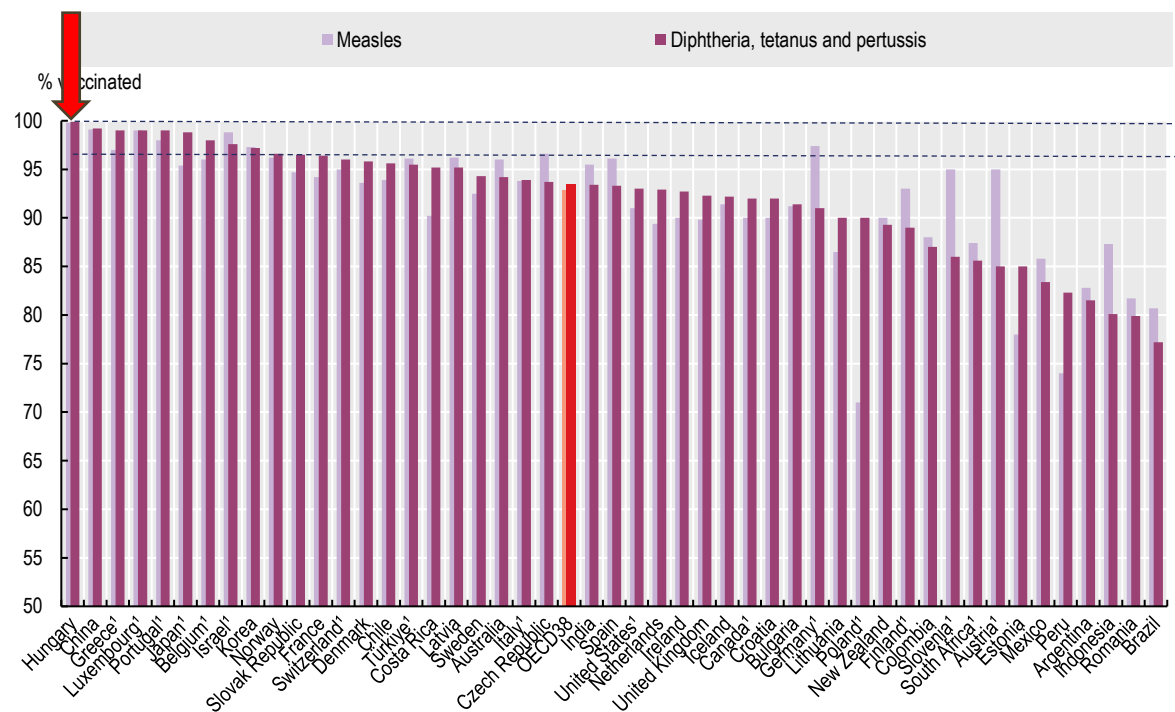
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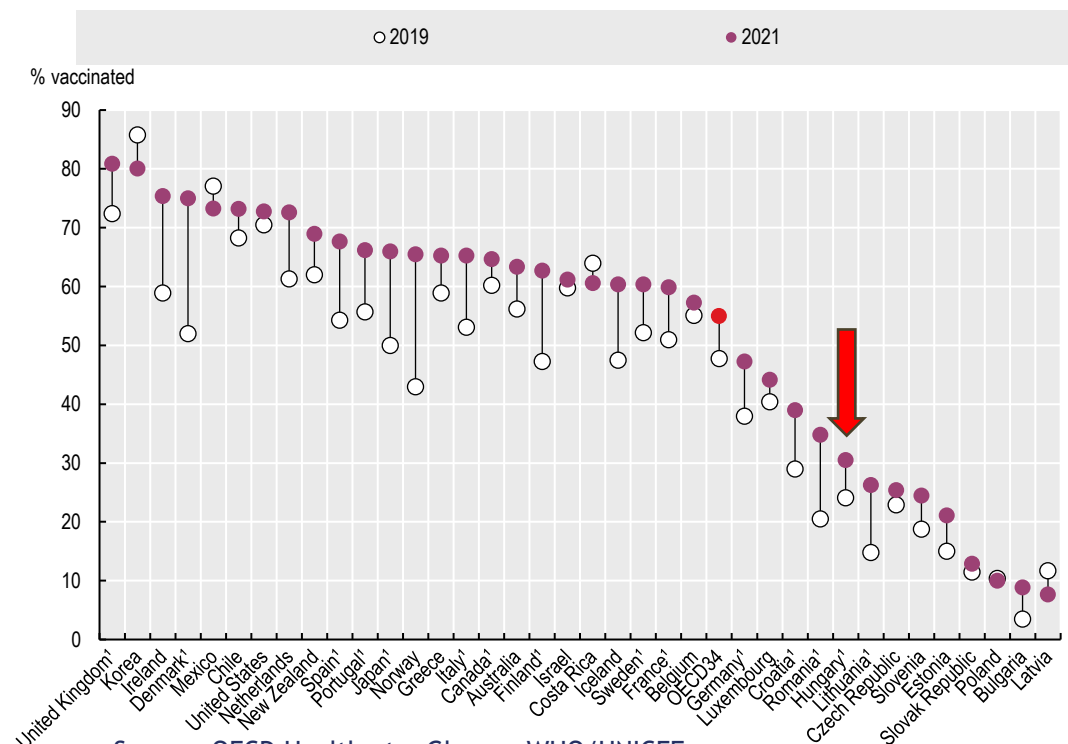
Hungary has high coverage with age-related mandatory vaccines and low coverage with recommended adult vaccines

Percentage of children at 1 year vaccinated for measles and diphtheria, tetanus and pertussis, 2022 (or nearest year)



Note: Data are estimated and refer to 2021. Lines indicate WHO minimum targets of 95% for measles and 90% for DTP.

Percentage of population aged 65 and over vaccinated for influenza, 2019 and 2021

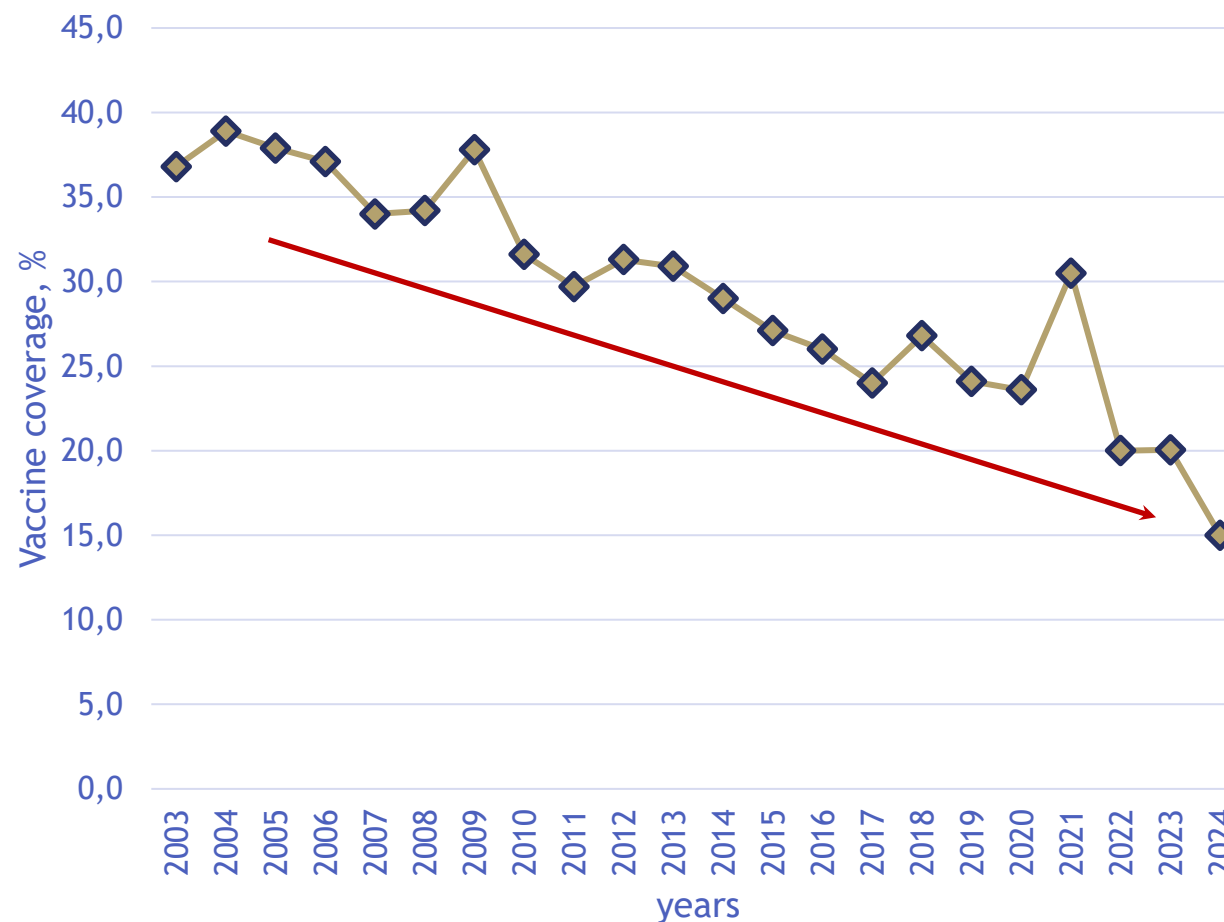


Source: OECD Health at a Glance, WHO/UNICEF

Declining public trust in vaccination in Hungary

- Influenza vaccination coverage is the lowest in 20 years;
- SARS-CoV-2 vaccination coverage among the 65+ decreased from 80% (2022) to less than 1% (2024);
- Trust in childhood vaccination was among the highest in the EU before the pandemic, but has since fallen almost the most;
- A growing number of parents who are against vaccinations are taking legal action against mandatory vaccinations.

Percentage of population aged 65 years or over vaccinated against influenza in Hungary



Data source: OECD Health Data, WHO/UNICEF Joint Reporting Form on Immunization (JRF), WHO Data Dashboard

AIM:

To examine **attitudes, opinions, and knowledge** related to **respiratory vaccines**, particularly **COVID-19 and influenza vaccines**, in Hungary during the **2024-2025 respiratory virus season**.

This survey forms part of a broader research programme that encompasses also the evaluation of the acceptance of childhood vaccinations, the adoption of preventative measures against respiratory epidemics, and the public's readiness for a pandemic.

Data design and sampling

Study design

- Cross sectional Computer Assisted Telephone Interview (CATI) survey

Data collection

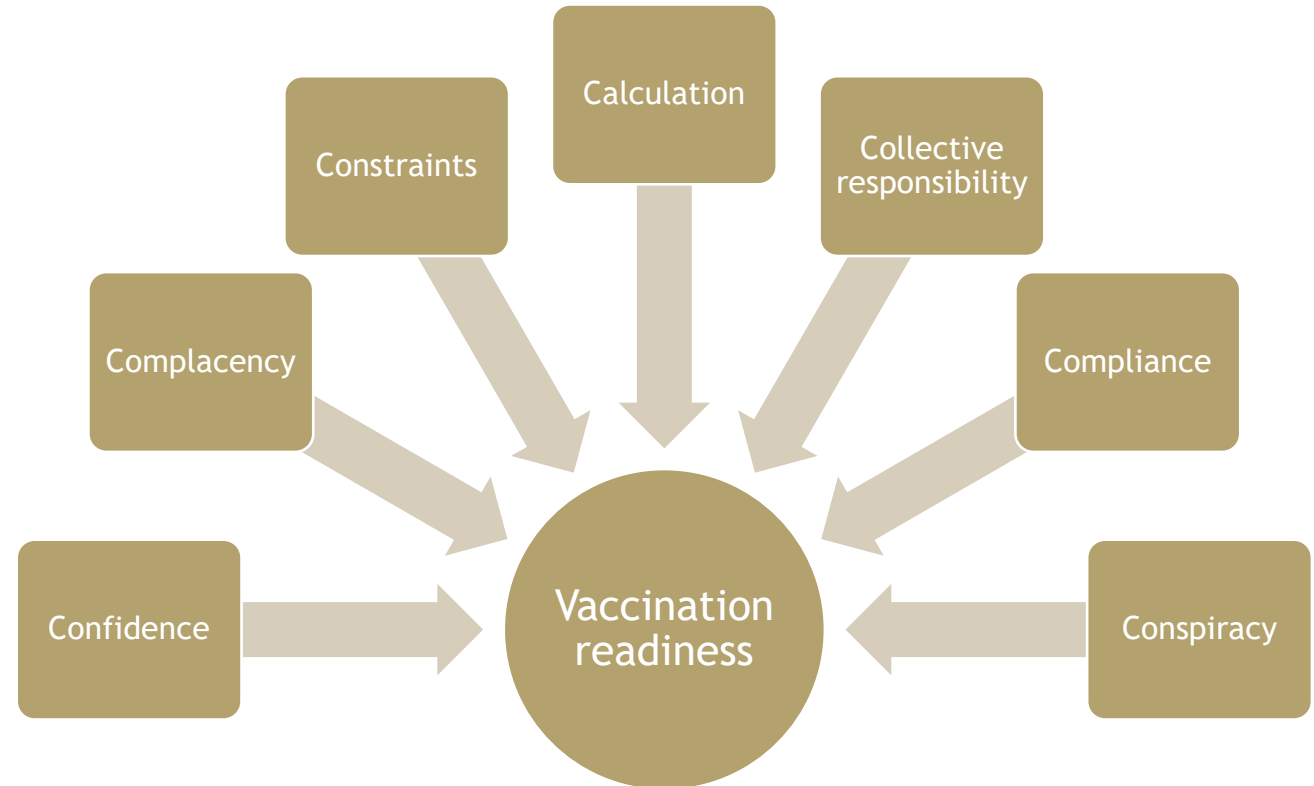
- 28 May - 22 June 2025

Sampling

- Nationally representative sample of adults selected through random-digit dialling
- 200,000 phone numbers contacted (approx. 90% mobile, 10% landline)
- Sample size: 1,500
- Quota sampling applied for gender, age group, education level, region, and settlement type to ensure representativeness

Questionnaire development

- Based partly on the **validated 7C tool** of vaccination readiness;
- Additional items: **attitude, sociodemographic, COVID-19 and influenza vaccination status, and future vaccination intentions;**
- **Likert-scale (1-5) and multiple-choice questions.**

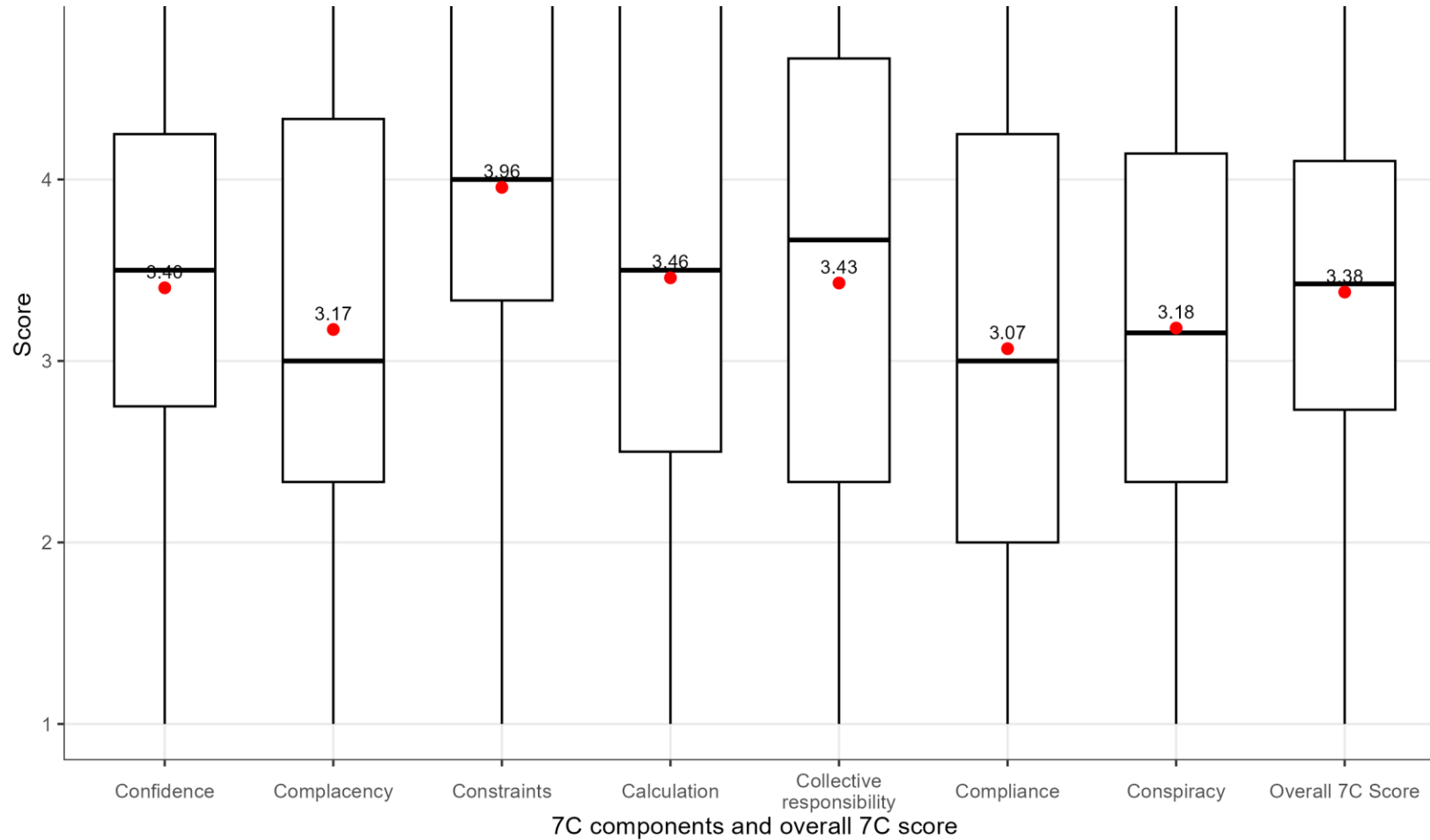


Source: Geiger et al, 2022.

Statistical methods

- **Composite variables:** by calculating the mean of items within each **7C component** and the **overall vaccination readiness score**;
- 3 different 7C models:
 - Overall (generic + COVID-19 + influenza specific items);
 - COVID-19 (generic + COVID-19 specific items);
 - Influenza (generic + influenza specific items);
- Complacency and conspiracy components were reverse-coded;
- **Internal consistency** of 7C components assessed using **Cronbach's α** , distribution skewness was assessed;
- **Linear regression** to examine associations between **sociodemographic variables** and the **overall 7C score**;
- **Logistic regression** to assess associations between **7C components** and **COVID-19/influenza vaccination intention** adjusted for sociodemographic variables;
- **Separate models** estimated for **COVID-19** and **influenza vaccination intentions**.

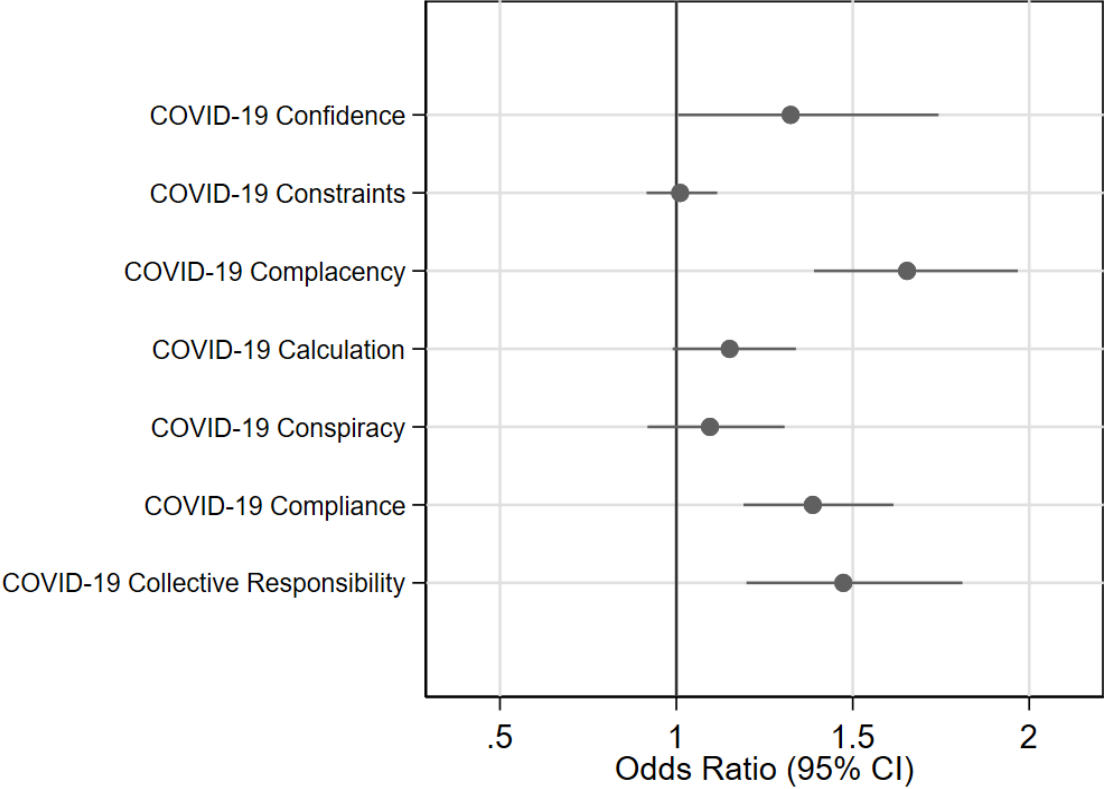
Boxplot and the mean scores of the 7C psychological antecedents of vaccination readiness among Hungarian adults



Associations between sociodemographic characteristics and overall 7C score

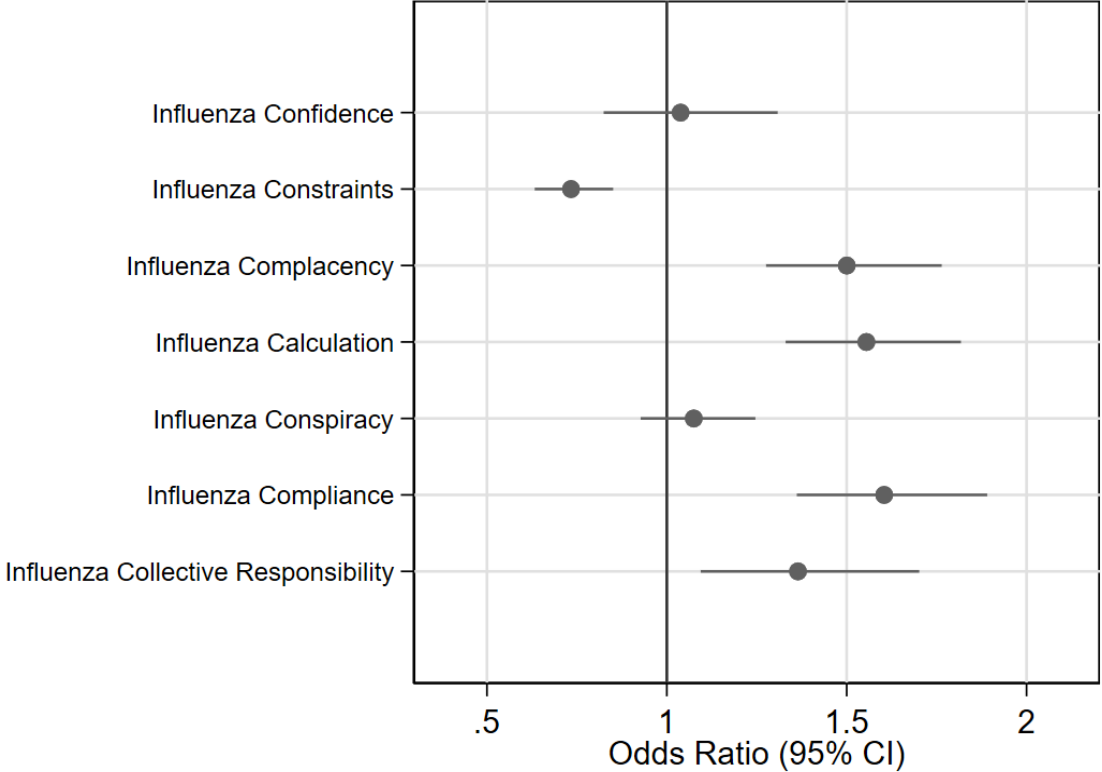
Characteristic	Category	N	Mean	B (95% CI)
Sex	Male	709	3.44	Reference
	Female	791	3.33	-0.07 (-0.12, -0.02)
Age (years)	< 60	1000	3.23	Reference
	≥ 60	500	3.68	0.20 (0.14, 0.27)
Education	Primary school	242	3.43	Reference
	Secondary (no exam)	390	3.20	-0.04 (-0.11, 0.03)
	Secondary (with exam)	512	3.33	0.04 (-0.04, 0.11)
	University diploma	356	3.61	0.18 (0.10, 0.25)
Settlement type	Capital	271	3.61	Reference
	County seat	313	3.32	-0.12 (-0.19, -0.06)
	Other towns	479	3.32	-0.12 (-0.19, -0.06)
	Rural	437	3.34	-0.11 (-0.17, -0.04)
Any chronic condition	Yes	783	3.50	Reference
	No	712	3.25	-0.09 (-0.15, -0.04)

Association between 7C components and the intention to receive COVID-19 vaccination



Whole study population, adjusted for sex, age, education, settlement type, chronic condition, work status and health status

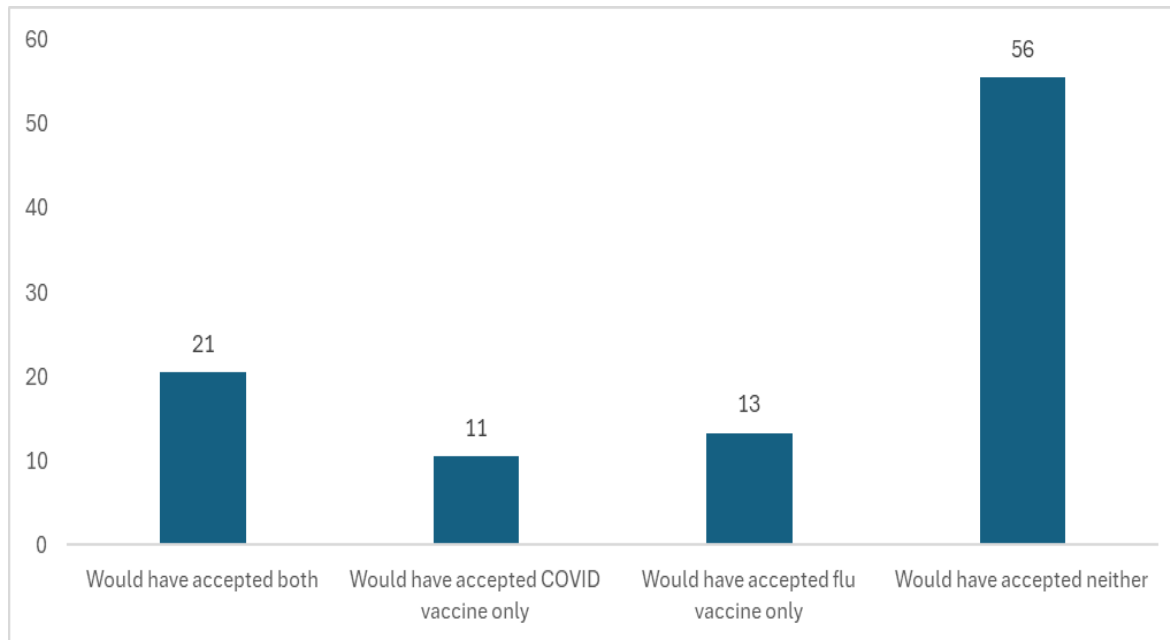
Association between 7C components and the intention to receive influenza vaccination



Whole study population, adjusted for sex, age, education, settlement type, chronic condition, works status and health status

Missed opportunities for vaccination in older age groups may contribute to the low vaccine coverage

If it were offered to you and it was free, would you accept an influenza/COVID-19 vaccine in 2024/2025, % n=1470 - all adults



Among ≥ 60 years old with a GP visit in the last 12 months (2024-2025 respiratory season)

Influenza vaccine

44% would have accepted the vaccine (166/366)

- 28% were vaccinated (102/366)
- 16% were not offered but would have accepted (60/366).

COVID-19 vaccine

41% would have accepted the vaccine (149/359)

- 6% were vaccinated (23/359)
- 35% were not offered but would have accepted (126/359).

Summary

- Mean scores of the 7C components indicated few perceived constraints but **low compliance** with official guidelines and **low resilience to conspiracy theories**. The overall mean 7C score was close to the mid-value, suggesting **suboptimal level of vaccination readiness**;
- Higher vaccine's acceptance was associated with being male, older age, higher education, residence in the capital, but not other urban area, and having chronic conditions;
- Intention to receive **COVID-19 vaccine** was mostly driven by **lower complacency, higher collective responsibility and higher compliance**;
- Intention to receive **influenza vaccine** was mostly driven by **higher compliance, higher calculation and lower complacency**;
- Many at-risk individuals (elderly, healthcare workers, pregnant women, chronically ill) missed vaccination opportunities in the 2024/25 respiratory season;
- There is a substantial **gap between vaccination willingness and actual uptake**, highlighting system-level barriers and declining public trust in public health institution/guidelines;
- Strengthening **confidence, access, and communication** are critical to improve adult vaccination coverage.

Key public health messages

- **Trust rebuilding is essential:** Declining confidence in vaccines undermines public health gains; transparent communication and engagement with healthcare professionals are vital.
- **Access matters:** A significant proportion of unvaccinated individuals would accept vaccines if offered—improving access and outreach can substantially increase coverage.
- **Targeted communication:** Addressing complacency and misinformation through evidence-based, culturally tailored messaging is crucial.
- **Focus on at-risk groups:** Elderly individuals, healthcare workers, and those with chronic diseases should remain priority targets for influenza and COVID-19 vaccination.
- **Integrated prevention strategy:** Strengthening adult immunization programs should be part of Hungary's long-term respiratory epidemic preparedness.



Thank you for your attention!

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