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Health beliefs and attitudes toward Influenza and COVID-19 vaccination in Portugal

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1. Influenza Vaccine (IV) uptake determinants

- Multidimensional determinants
- Social Ecological Model and IV uptake
- Health Belief Model

2. Beliefs and attitudes of IV in the target group

- HBM and IV uptake: Data from the ECOS Portuguese household panel
- IV non-uptake for the target group
- *Why have you chosen not to receive the flu vaccine?*

3. Beliefs and attitudes of COVID-19

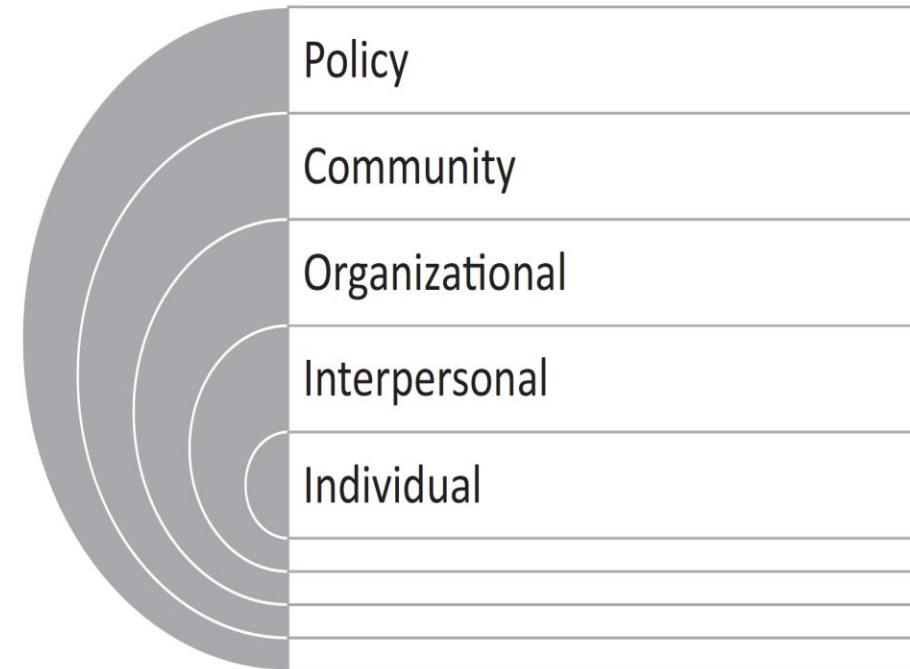
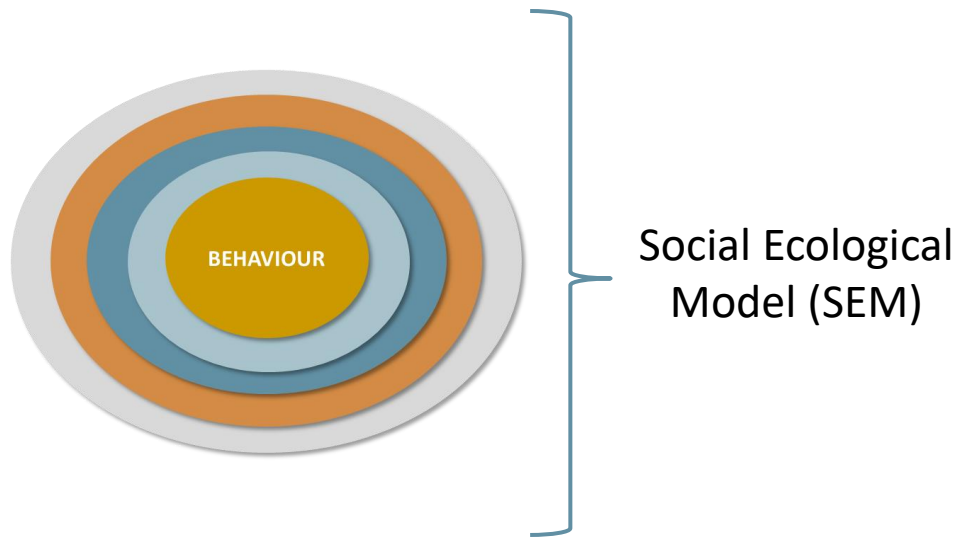
4. Concluding notes

Influenza Vaccine (IV) uptake determinants



Multidimensional determinants

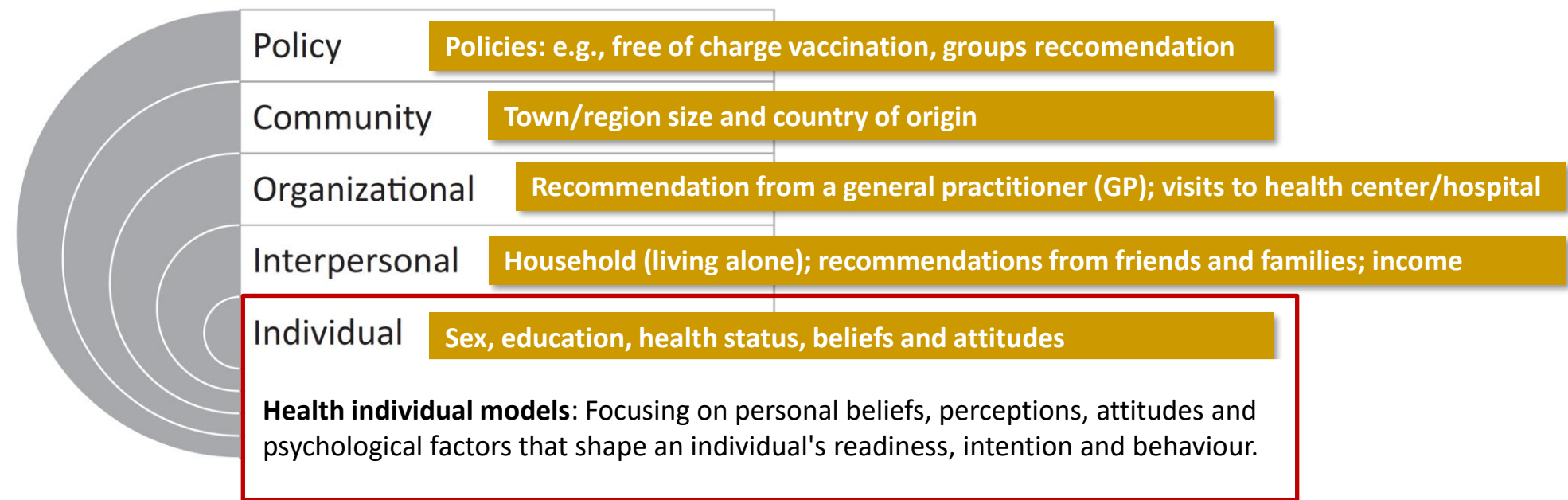
- Behaviour affects and is affected by multiple levels of influence
- Individual behaviour shapes and is shaped by the social environment



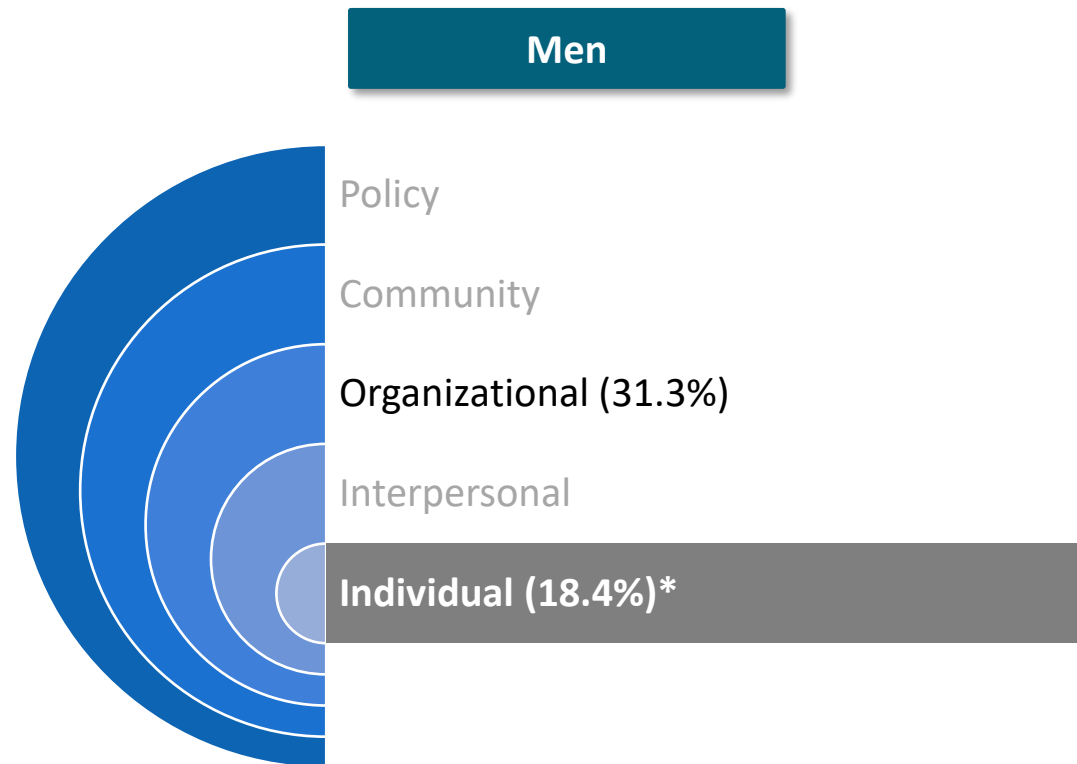
Social Ecological Model and IV uptake

Multidimensional approaches have a higher impact on IV coverage, particular for older people¹

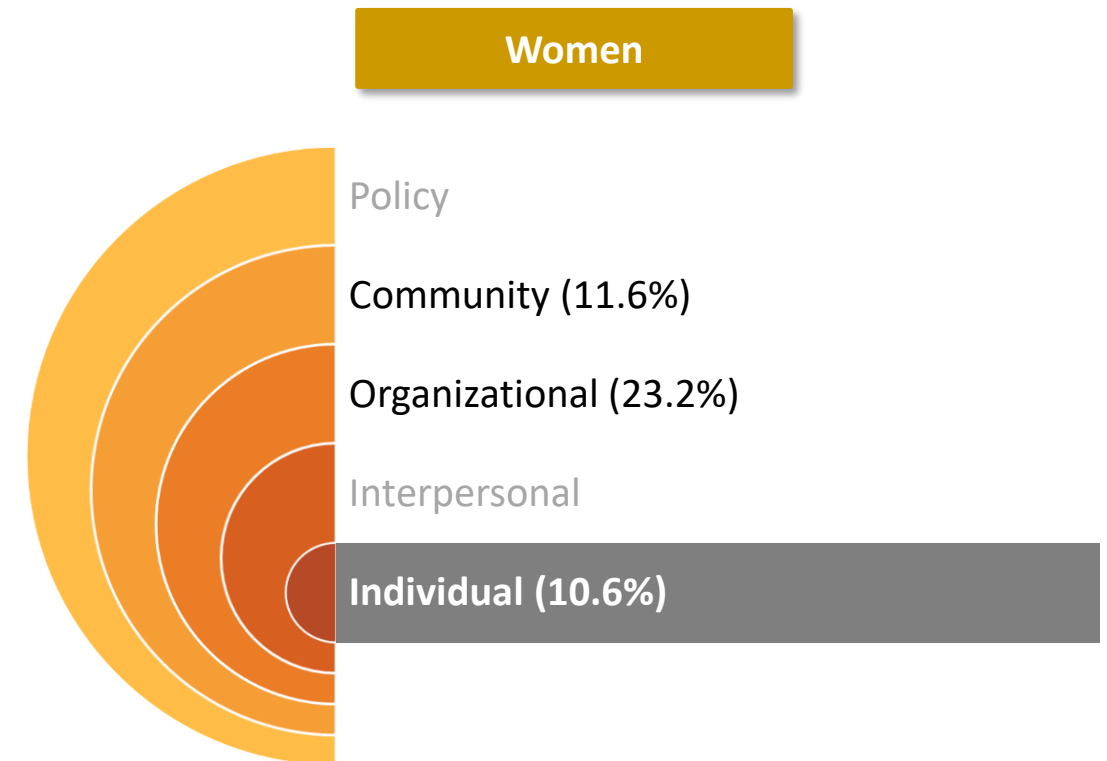
Factors at different level association with IV coverage²



Social Ecological Model and IV uptake in older adults in Portugal

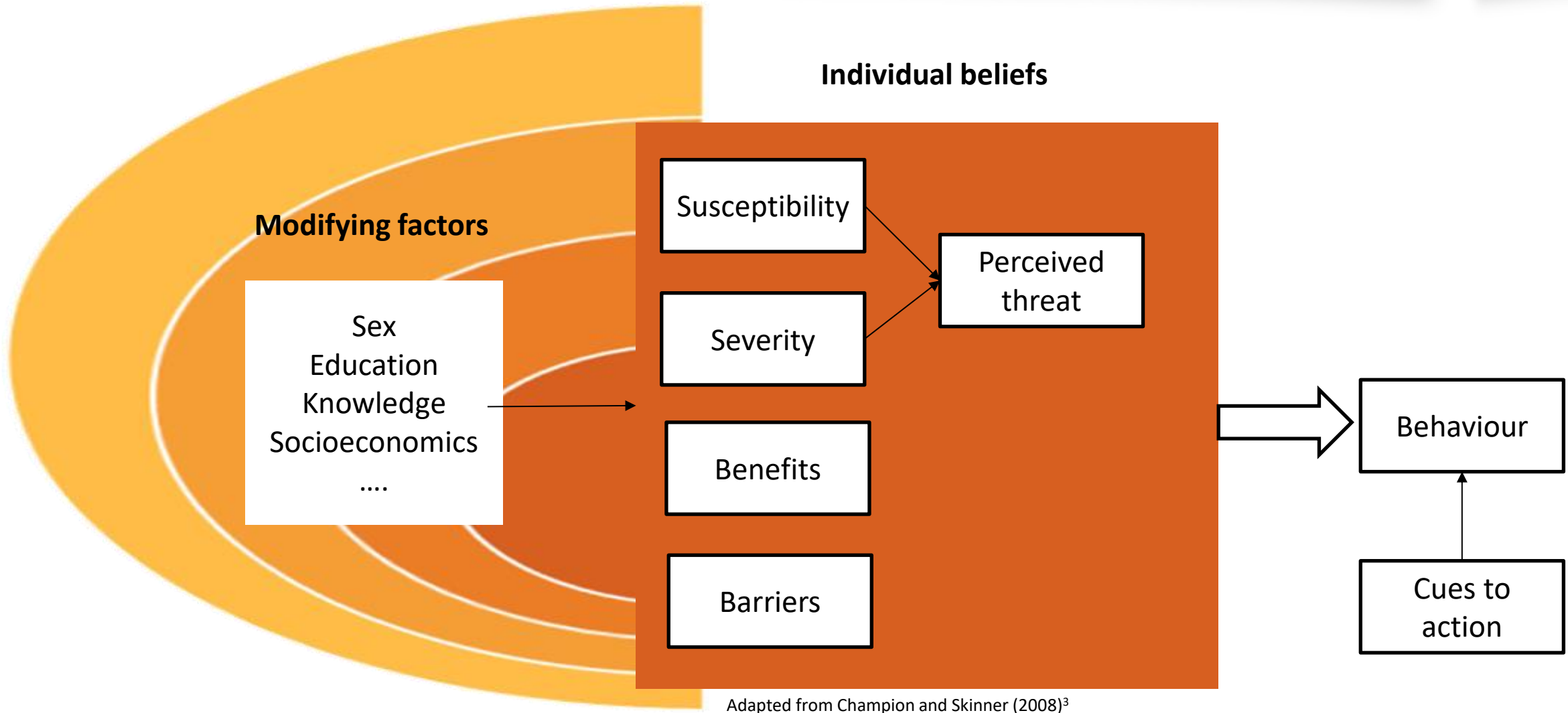


↑ Age, nº of chronic disease
↓ Tobacco consumption



↑ Age, nº of chronic disease, bad/very bad
self-rated health status

Health Belief Model



Beliefs and attitudes of IV in the target group

HBM and IV uptake: Data from the ECOS Portuguese household panel



Panel of Portuguese families - Em Casa Observamos Saúde (**ECOS**/At home, we observe health)

- Probabilistic household sample
- Developed by National Health Institute Doutor Ricardo Jorge (INSA) since 1998/99 (renewed every 3 to 4 years)

Objective

Beliefs and attitudes of IV and COVID-19 uptake of the target group recommended for IV

- IV uptake in 3 seasons (2013/2014; 2017/2018; 2020/2021) and
- COVID-19 vaccine uptake in 2020/21

Data collection

Questionnaire via telephone interview (CATI) or web interview (CAWI)

- Motivations of the non-vaccinated (open-ended questions)
- HBM instrument for COVID-19 vaccination

Analysis

- Thematic content analysis (open-ended questions) + descriptive analysis of HBM questionnaire
- Design-adjusted versions of the chi-square test and Student's t-test

⁴Santos, A. J., Kislaya, I., Machado, A., & Nunes, B. (2017). Beliefs and attitudes towards the influenza vaccine in high-risk individuals. *Epidemiology and infection*, 145(9), 1786–1796.

<https://doi.org/10.1017/S0950268817000814>

⁵Santos AJ, Kislaya I, Matias-Dias C and Machado A (2024) Health beliefs and attitudes toward Influenza and COVID-19 vaccination in Portugal: a study using a mixed-method approach . *Front. Public Health* 11:1331136. doi: 10.3389/fpubh.2023.1331136

Why have you chosen not to receive the flu vaccine?

2013/2014

Susceptibility

Being healthy/taking self-care: **29.8%** (CI95%: 22.1, 38.7)
Never/rarely gets sick: **19.3%** (CI95%: 13.3, 27.1)
Not being part of high-risk group: **11.9%** (CI95%: 7.5, 18.3)

"I take a lot of C vitamin from the oranges"
"I'm not at risk, I'm not an elderly"
"I never have much flu"

Barriers

Previous own/others bad reaction: **17%** (CI95%: 10.8, 23.8)
Fear: **7.8%** (CI95%: 2.3, 23.2)
Vaccine shortage/expensiveness: **5.3%** (CI95%: 1.6, 15.9)
...

"Relatives who had the shot died shortly after"
"I am afraid"
"They ran out of vaccine in the pharmacy"

Cues to action

Doctor didn't advise it or advised against it: **5.5%**
(CI95%: 2.2, 13.0)

"My general practitioner did not said to take it"

Severity

Flu as something normal/something that one goes throw easily: **0.6%** (CI95%: 0.1, 3.5)

"I usually have light symptoms that go over after a few days"

Why have you chosen not to receive the flu vaccine?

2017/2018

Susceptibility

Not being part of high-risk group: **21.4%** (CI95%: 17.1, 26.5)
Never/rarely gets sick: **18.5%** (CI95%: 14.5, 23.2)
Being healthy/taking self-care: **2.4%** (CI95%: 1.4, 4.1)

"I am not 65 yet"
"I have never had the flu"
"Because I feel healthy"

Cues to action

Doctor didn't advise it or advised against it: **7%** (CI95%: 4.8, 10.1)

"I was never advise to it by my doctor"

Barriers

Previous own/others bad reaction: **5.6%** (CI95%: 3.7, 8.3)
Not effective/ better alternatives: **3.5%** (CI95%: 2.0, 5.9)
Vaccine shortage/expensiveness: **1%** (CI95%: 0.2, 4.3)
...

"Already took it and it didn't went well"
"Not confident in the vaccine"
"I couldn't get it"

Severity

Flu as something normal/something that one goes throw easily: **0.2%** (CI95%: 0.1, 0.7)

"Flus go away easily, there is no need"

Why have you chosen not to receive the flu vaccine?

2020/2021

Susceptibility

Never/rarely gets sick: **15%** (CI95%: 11, 20.3.2)
Age: **9.8%** (CI95%: 5.9, 1.8) + Not being part of high-risk group: **7.1%** (CI95%: 3.9, 12.5)
Being healthy: **2.7%** (CI95%: 1.1, 6.3)

"I do not get colds in the winter"
"Very careful with the weather, drafts, and I am very healthy"
"Not a high-risk patient"

Barriers

Adverse effects: **7.3%** (CI95%: 4.8, 11)
Vaccine shortage: **5.8%** (CI95%: 3.3, 10)
Logistic aspects: **3.1%** (CI95%: 1.6, 5.9)

"I felt worst after being vaccinated"
"I was never called to get the shot"
"I am afraid of vaccines"

Cues to action

Doctor didn't advise it or advised against it: **6%** (CI95%: 3.5, 10)

"I was never advised to by the doctor"

Severity

1.9% (CI95%: 0.7, 5.4)

"I usually have light symptoms that go away after a few days"
"I never get really sick"

HBM dimensions throughout seasons

➤ **Susceptibility** is the most prevailing

- The most common reason across all three periods, though it appears to have decreased over time

↔ No seeing Influenza as a sufficient personal health threat is a significant barrier for IV uptake⁶

➤ **Severity** is not the main driver for decision making

- Very few people cite severity reasons, which suggests that that people don't connect that to personal risk.

↔ Many adults do not perceive influenza as severe⁶

➤ **Barriers** are not constant

- Internal barriers more important than external: fear of adverse effects plays a significant role

↔ Data about fear of adverse events, low efficacy perceptions are major internal barriers that have strengthened post-COVID-19^{6,7}

➤ **Cues to action**

- Cues to action are infrequent, but healthcare professionals' recommendations remain influential.

↔ Trust in healthcare services and healthcare professional recommendation as the strongest promoters⁶

↔ Local physicians remain a trusted source⁷

Beliefs and attitudes of COVID-19



83.1% (n = 857, CI 95%: 13.6% to 20.9%) vaccine coverage (at least one dose) by the summer of 2021

- **95.2%** in those **≥65** (CI 95%: 91.1, 97.5)
- **70.5%** in those with at least **one chronic condition** (CI 95%: 65.1, 75.5)

HBM Items for COVID-19 Vaccination:

The instrument included 13 closed-ended items covering the five HBM dimensions:

- Severity
- Susceptibility
- Barriers
- Benefits
- Cues to action

Participants rated each item using a 5-point Likert scale (1 = totally disagree to 5 = completely agree).

The items measured participants' beliefs and perceptions related to COVID-19 vaccination.

**Susceptibility perceptions were (generally) agreed upon but inconsistent:**

- Strong belief that maintaining health/immune system helps avoid infection ($\mu = 4.57$, CI95%:4.49, 4.65).
- Yet many also felt that catching COVID-19 was inevitable ($\mu = 4.04$, CI95%:3.91, 4.16).

Susceptibility

Severity was perceived as high, with participants expressing fear of getting sick with COVID-19 ($\mu = 3.66$, CI95%: 3.51, 3.81).

Severity

Media played a strong role as a cue to action ($\mu = 4.24$ CI95%:4.13, 4.35), stronger than health professional or family influence.

Cues to action

Barriers were not a significant issue: scheduling the vaccine was not perceived as difficult ($\mu = 2.23$, CI96%: 2.09, 2.38).

Barriers

Benefits of vaccination were linked more to preventing severe illness than to stopping transmission:

- Low agreement that the vaccine prevents transmission ($\mu = 2.97$, CI95%: 2.82, 3.12).
- High agreement that it protects against severe complications ($\mu = 4.42$, CI95%:4.33, 4.5).

Benefits

IV uptake and beliefs and attitudes about COVID-19

Dimensions with significant items	No IV	Yes IV	P-values
Susceptibility			
I won't get COVID-19 because I am very careful with cleanliness and hygiene	2.99 (2.82–3.16)	3.34 (3.12–3.57)	<0.05
Severity			
I am afraid of getting very sick with COVID-19	3.53 (3.34–3.72)	3.97 (3.77–4.19)	<0.05
Cues to action			
We catch on to the importance of vaccination for the whole population from social communication and media	4.15 (4.01–4.29)	4.44 (4.29–4.59)	<0.05
My doctor's recommendation also influences my decision to take or not take the vaccine	3.06 (2.87–3.24)	3.55 (3.29–3.80)	<0.05
I feel more willing to take the vaccine if my family and friends suggest it to me	2.17 (1.99–2.35)	2.53 (2.27–2.78)	<0.05
Benefits			
The vaccine protects people from severe complications caused by the disease	2.85 (2.67–3.04)	3.22 (2.96–3.48)	<0.05

Concluding notes



Concluding notes

Influenza Vaccine

- Perceived **low susceptibility** is a major reason for IV non-uptake amongst the target group.
- **Internal barriers** (fear of side effects, distrust, preference for alternatives) are more influential than external/logistical barriers for non-vaccination, but remain low in Portuguese target group population

⇔ Many adults, including those with comorbidities, do not see influenza as a serious personal threat⁶, particularly young people⁷

⇔ Cost/access play a secondary role to knowledge, trust, attitudes, and psychological factors⁶

COVID-19 vaccine

Very high COVID-19 uptake (83%):

- High perceived benefits (especially for severe disease),
- Low perceived barriers,
- High perceived severity and susceptibility.

COVID-19 findings aligned with HBM model

Concluding notes

Media were a key cue to action for COVID-19 vaccination

- More influential than family or even HCPs.
- High trust in government/scientific authorities in Portugal likely made media messages more effective: specific national context?

Association Between IV and COVID-19 Vaccine Perceptions

Previous influenza vaccination is associated with:

- Higher perceived COVID-19 severity;
- Higher perceived benefits of the COVID-19 vaccine (especially disease severity and complications).

⇔ Past influenza vaccination behaviour and general trust in healthcare are important promoters of future influenza vaccination⁶

⇔ Trust in safety and importance of IV promote positive attitudes toward adult immunisation overall⁷

➤ Importance of vaccine habits and generalized trust

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Thank you for your attention

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