



Flu Vaccination: Survey Results

DATA ANALYTICS FINAL PROJECT

LUDOVICA DI SILVESTRE & THOMAS CHENU - 2021-01

Data Analysis

Dataset: Survey on Flu Vaccination

Respondents:

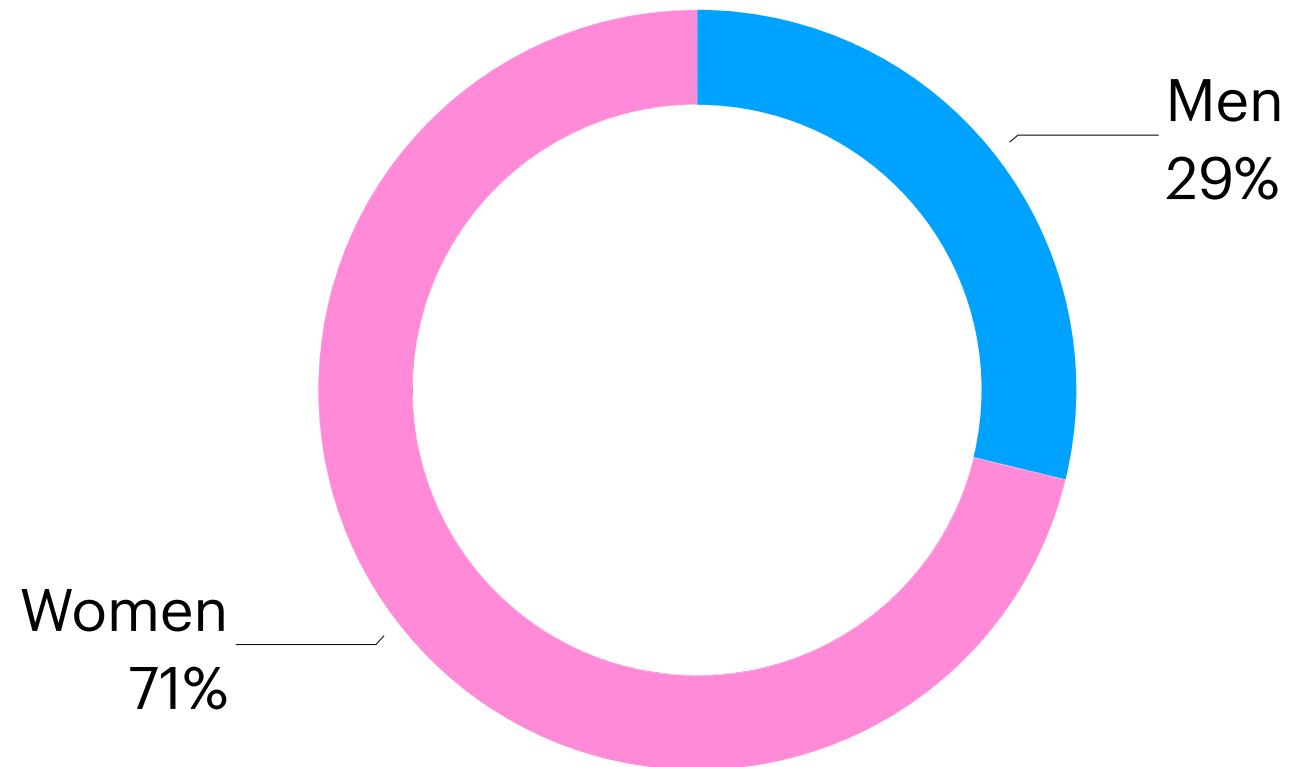
- 3000 health professionals
- Regions: Bretagne and Ile de France

Statistical Analysis:

- Does Behaviour influence Willingness to be Vaccinated?
- Witte Theory Verification

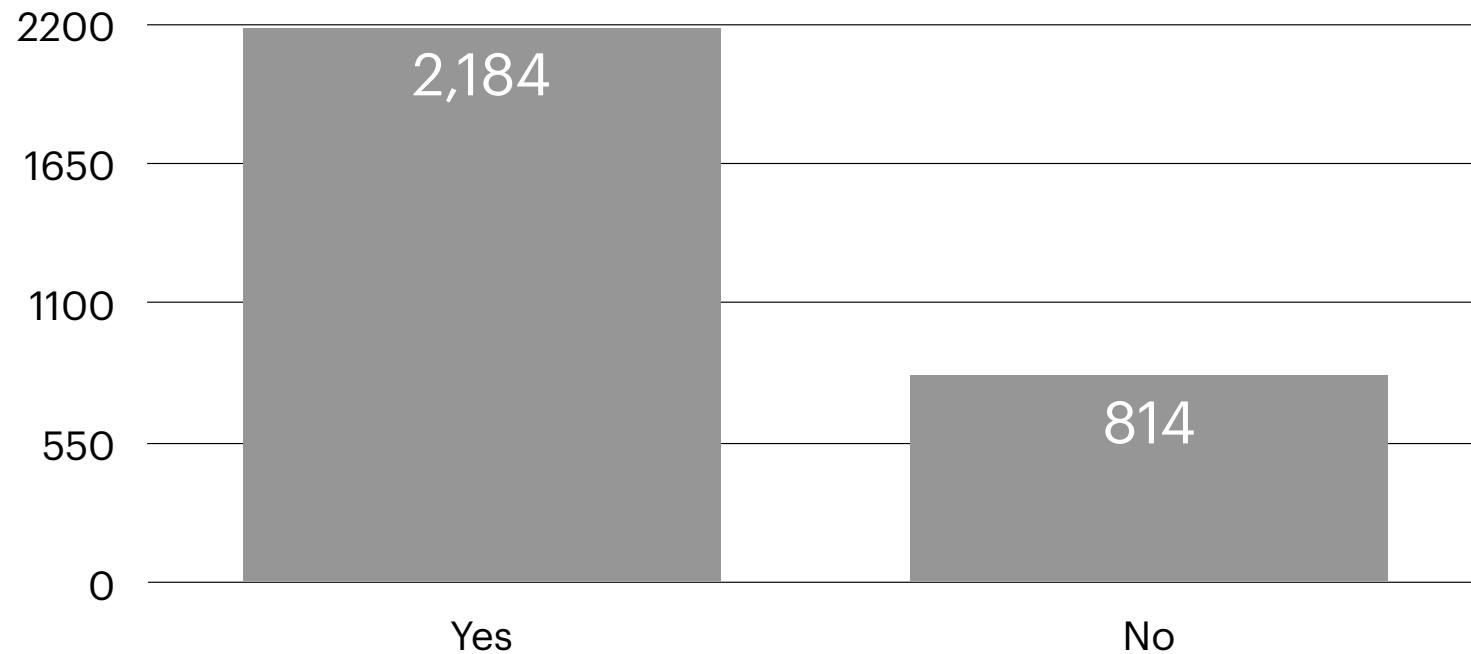


Survey: 71% of Respondents are Women



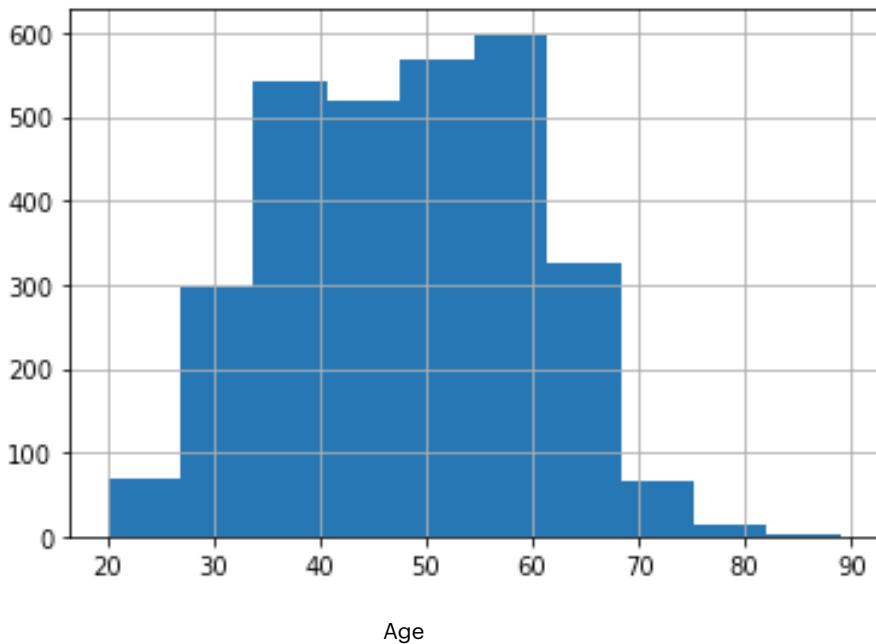
Last flu vaccine: 73% Respondents vaccinated

Have you been vaccinated against the flu?

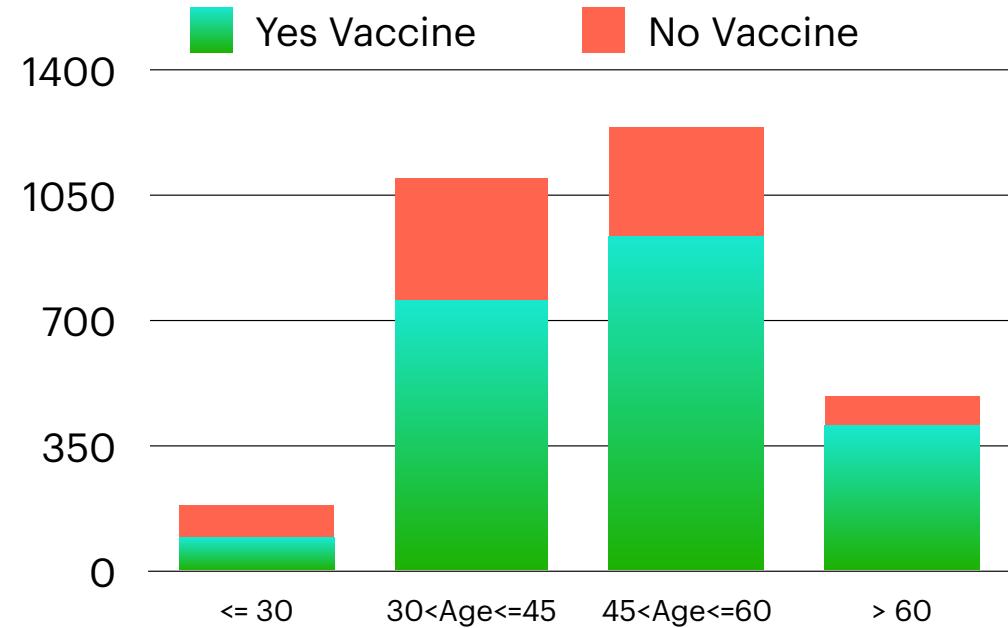


Age category: 45 - 60 years

Age distribution

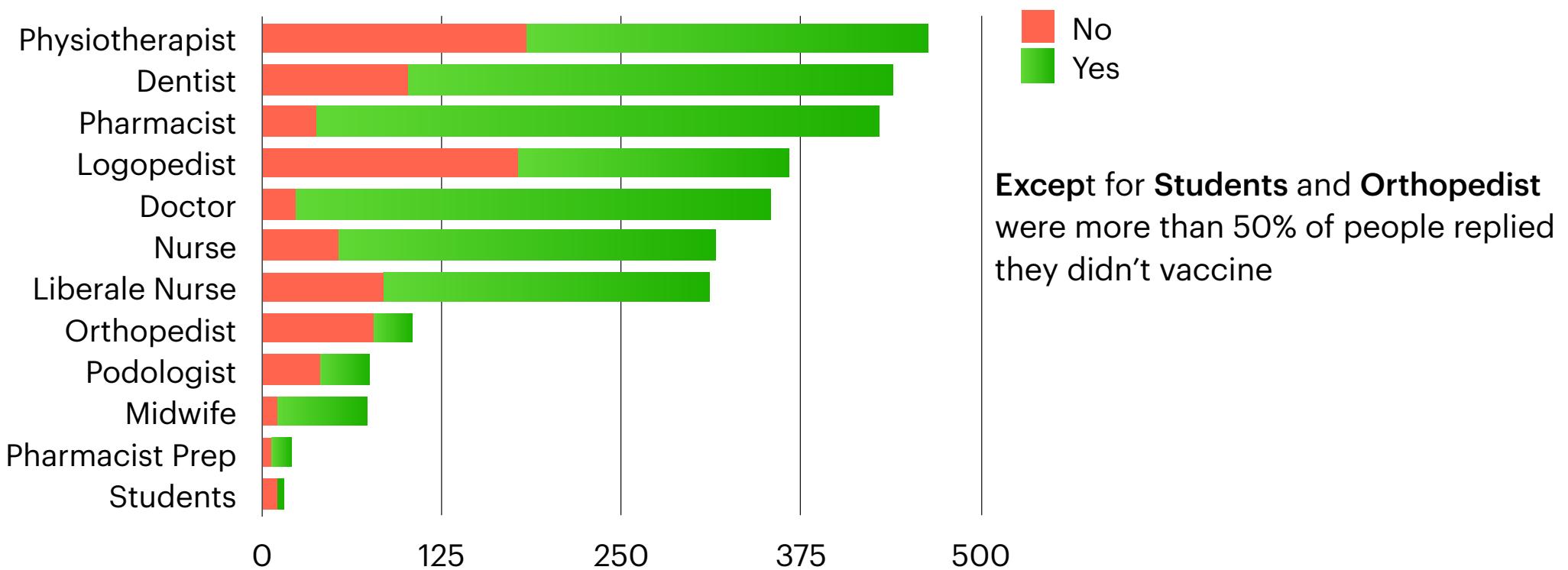


Answers by Age Category



In almost all the professions, the **majority** of respondents **did last flu vaccine**

Have you been vaccinated against the flu?



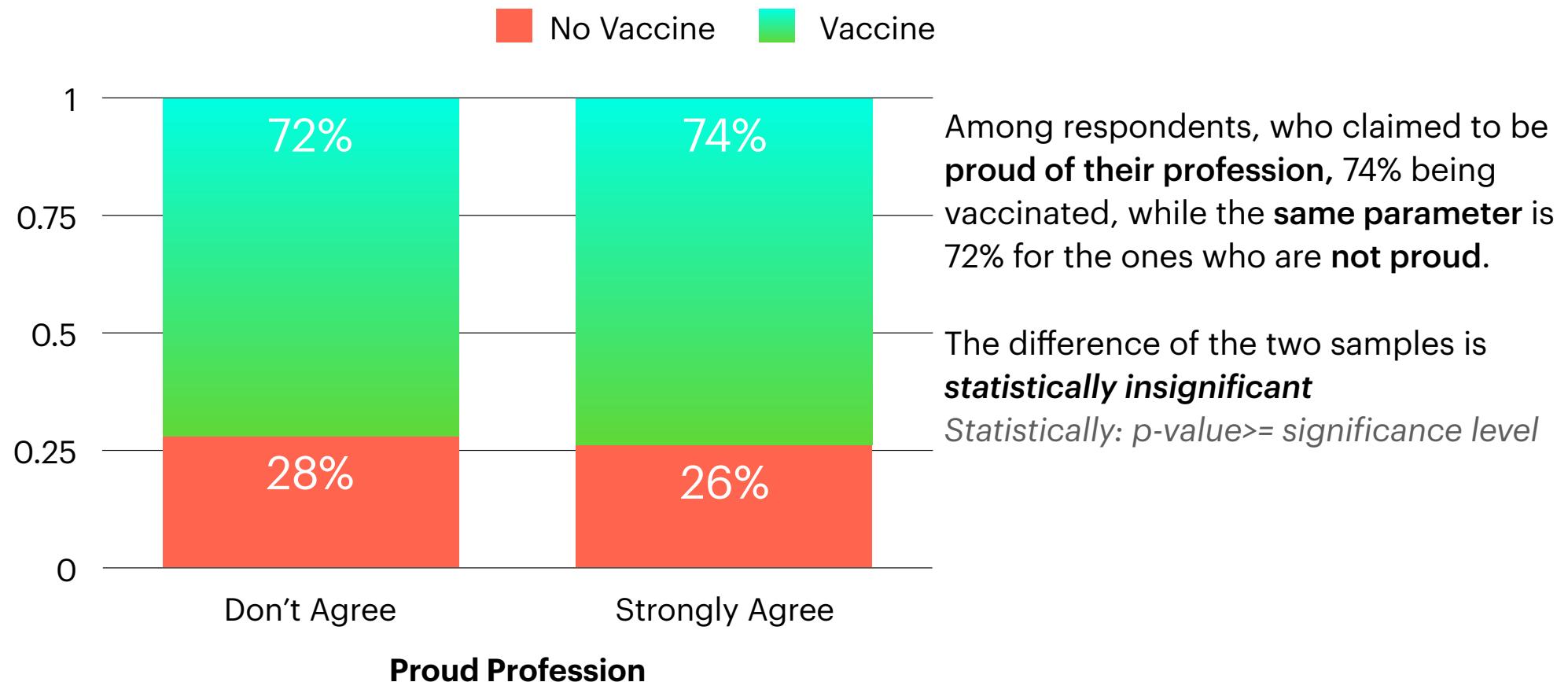
Behaviour of vaccinated

Why respondents did last flu vaccine?

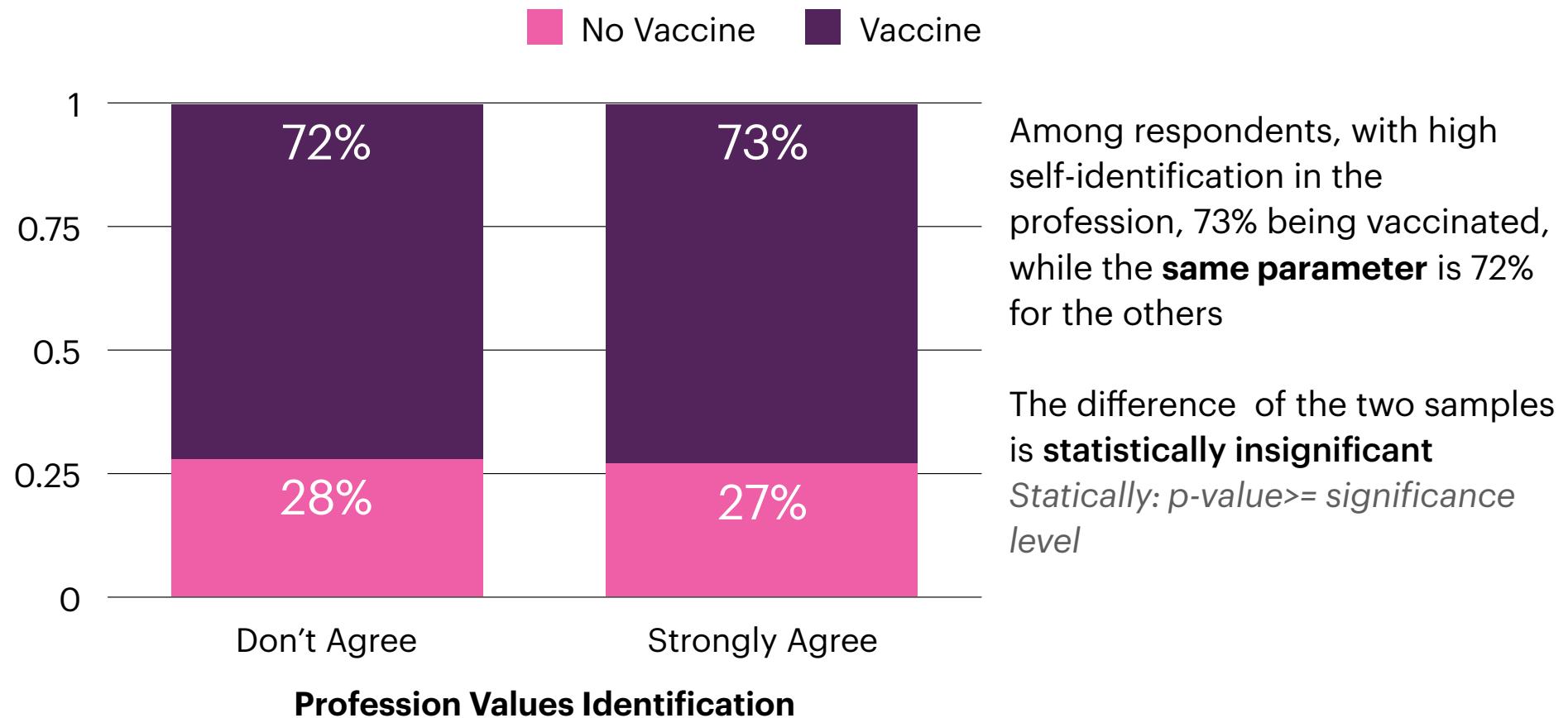
Can **behaviour** explain their choice?



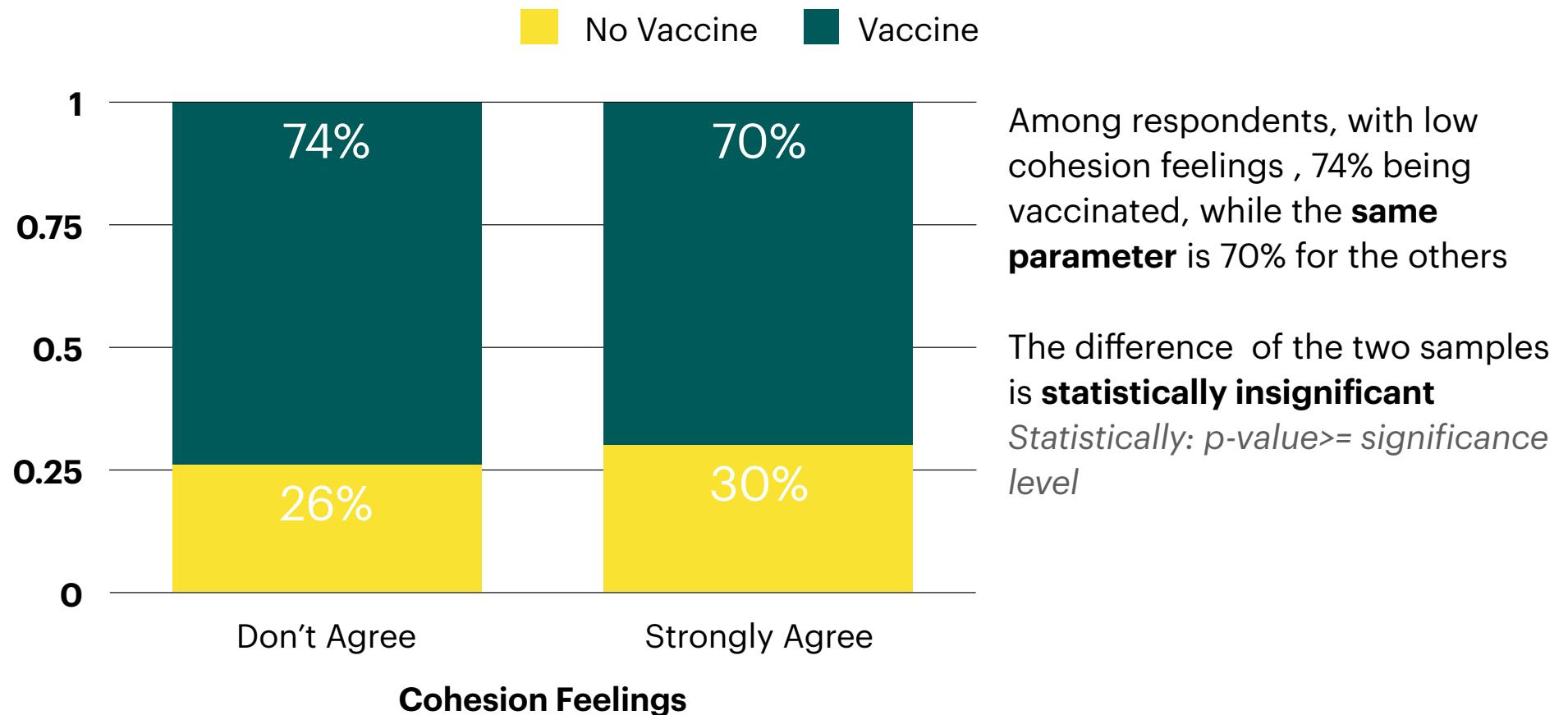
Proud of Profession: insignificant



Profession Values Identification: insignificant



Cohesion Feelings: insignificant



Why People change their mind?

Among respondents who
didn't do the first vaccine,
**why they change
their mind (or not) for the
next flu vaccination
campaign?**



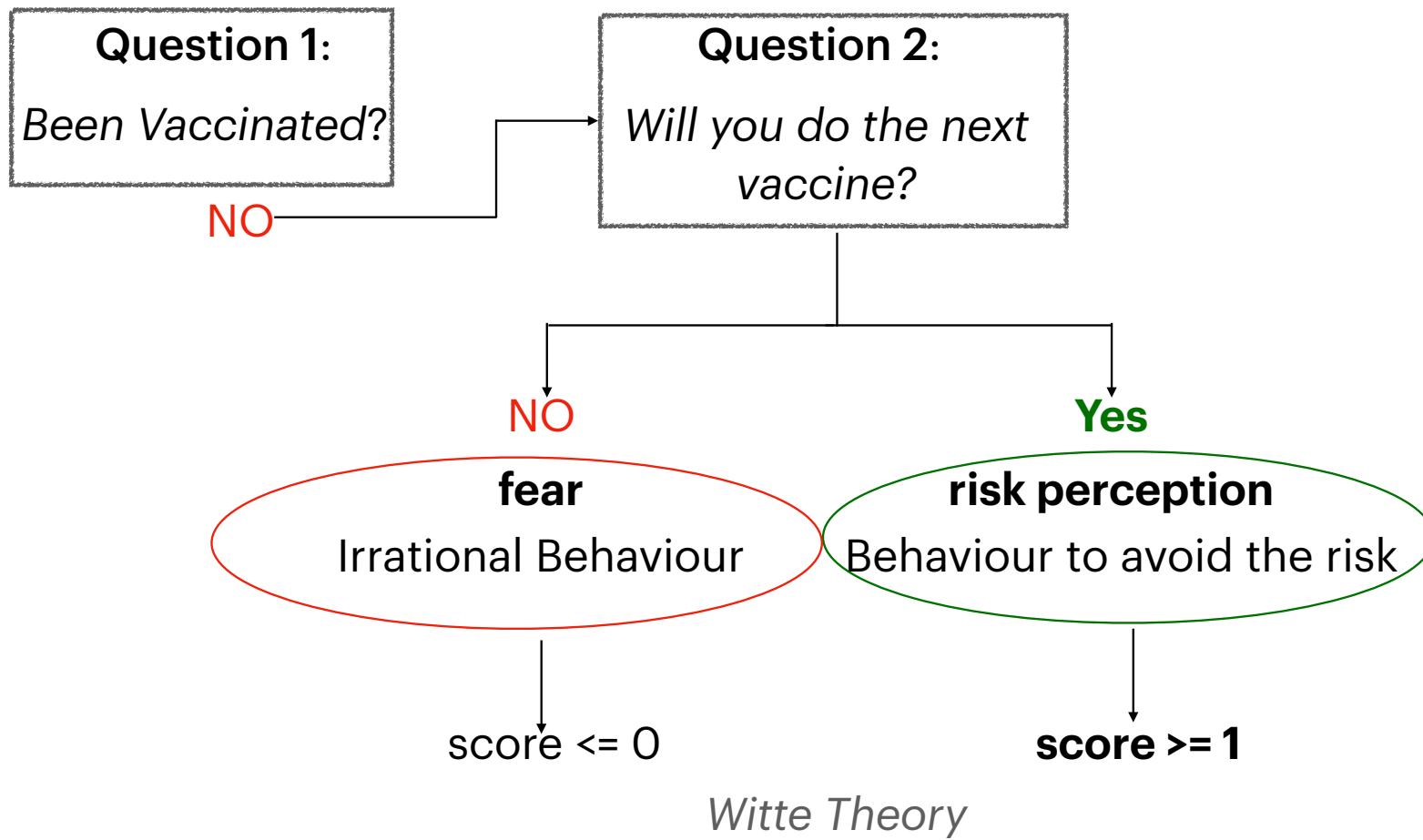
Willingness to participate to the next vaccination campaign

PROFESSION	+ Response Rate	Sample Size (ppl)
Midwife	70%	10
Podologist	30%	41
Pharmacy Prep	28%	7
Pharmacist	50%	38
Doctor	52%	23
Physiotherapist	31%	183
Logopedist	41%	178
Ortopedist	51%	77

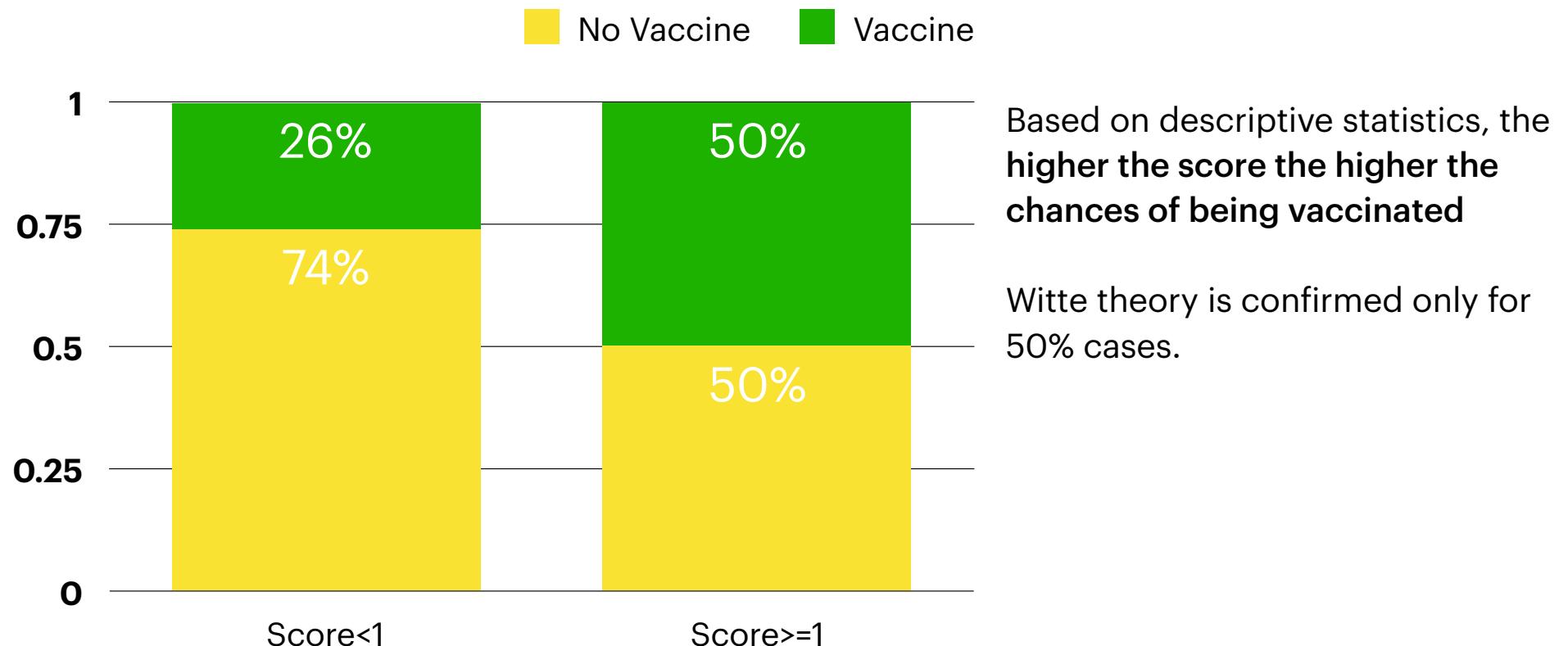
Based on statistics:

- Among respondents who didn't do the first vaccine (sample size)
- **Midwife:**
has the higher Positive Response Rate for the next flu vaccine (**70%**)

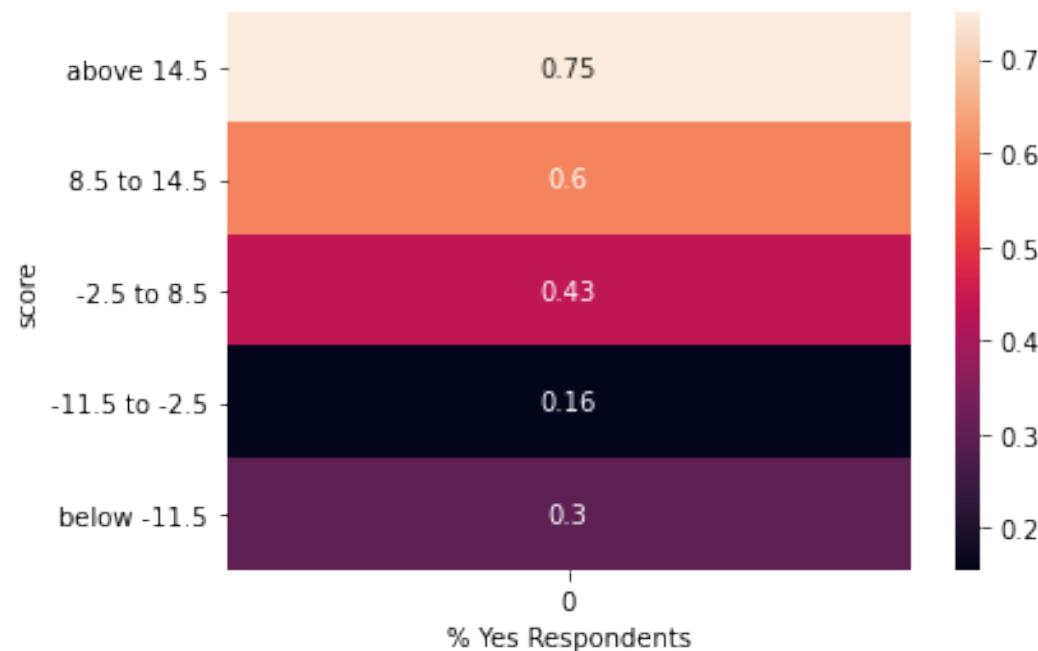
Witte theory explained:



If respondent score ≥ 1 (**risk perception**),
probability one will vaccine: 50%



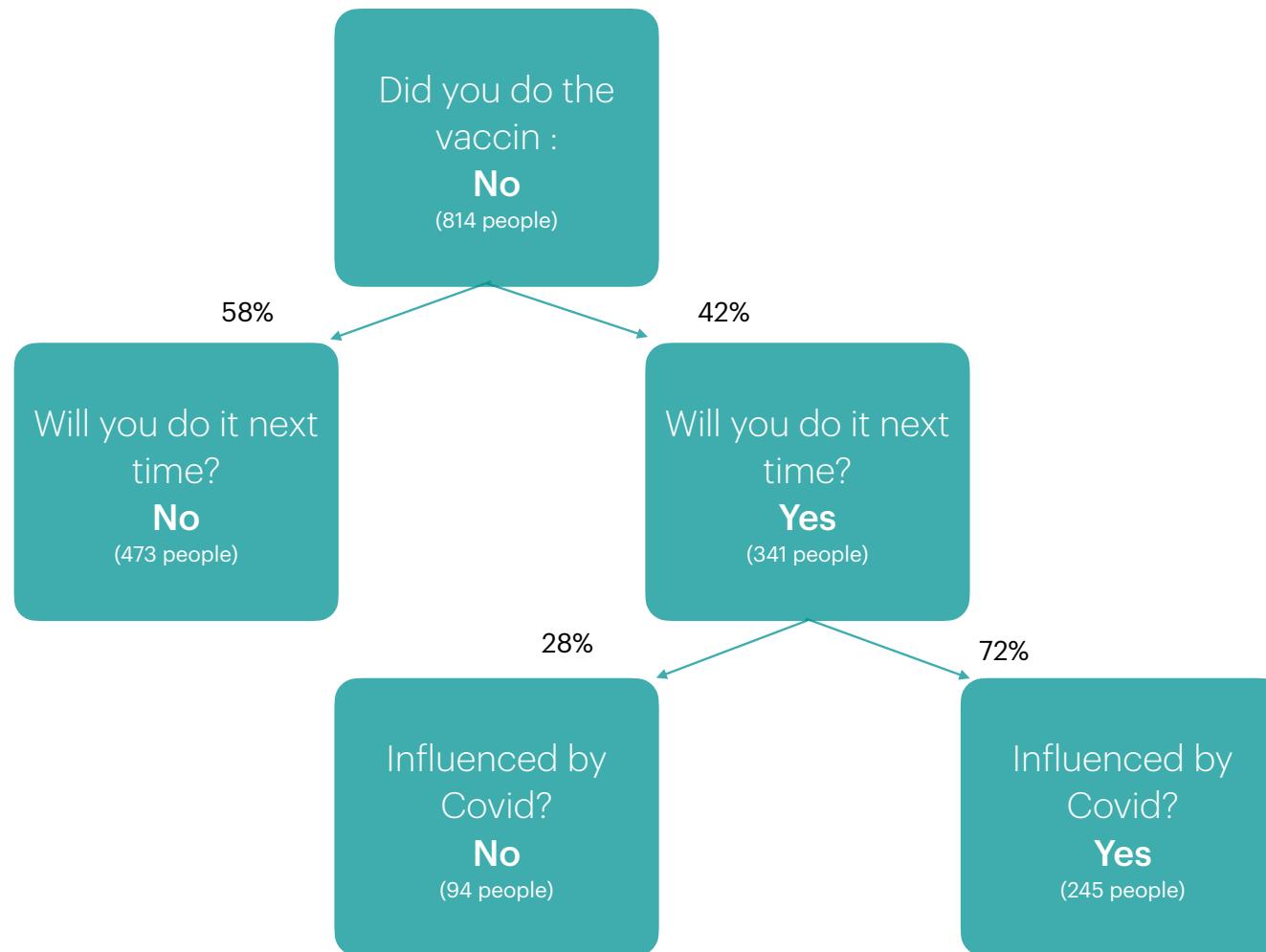
When score above 14.5, more than 75% of respondents will vaccin



Decision Tree Predicting Model:

- From level **score= 8.5** the **majority** of respondents **will vaccine**

Does Covid context influence decision on the next vaccination?



Among respondents, who told that they didn't do the vaccin on the last campaign, **30%** admit the COVID is an important **parameter** in their decision.

It represents even more than 70% for peoples saying they will do the next campaign.

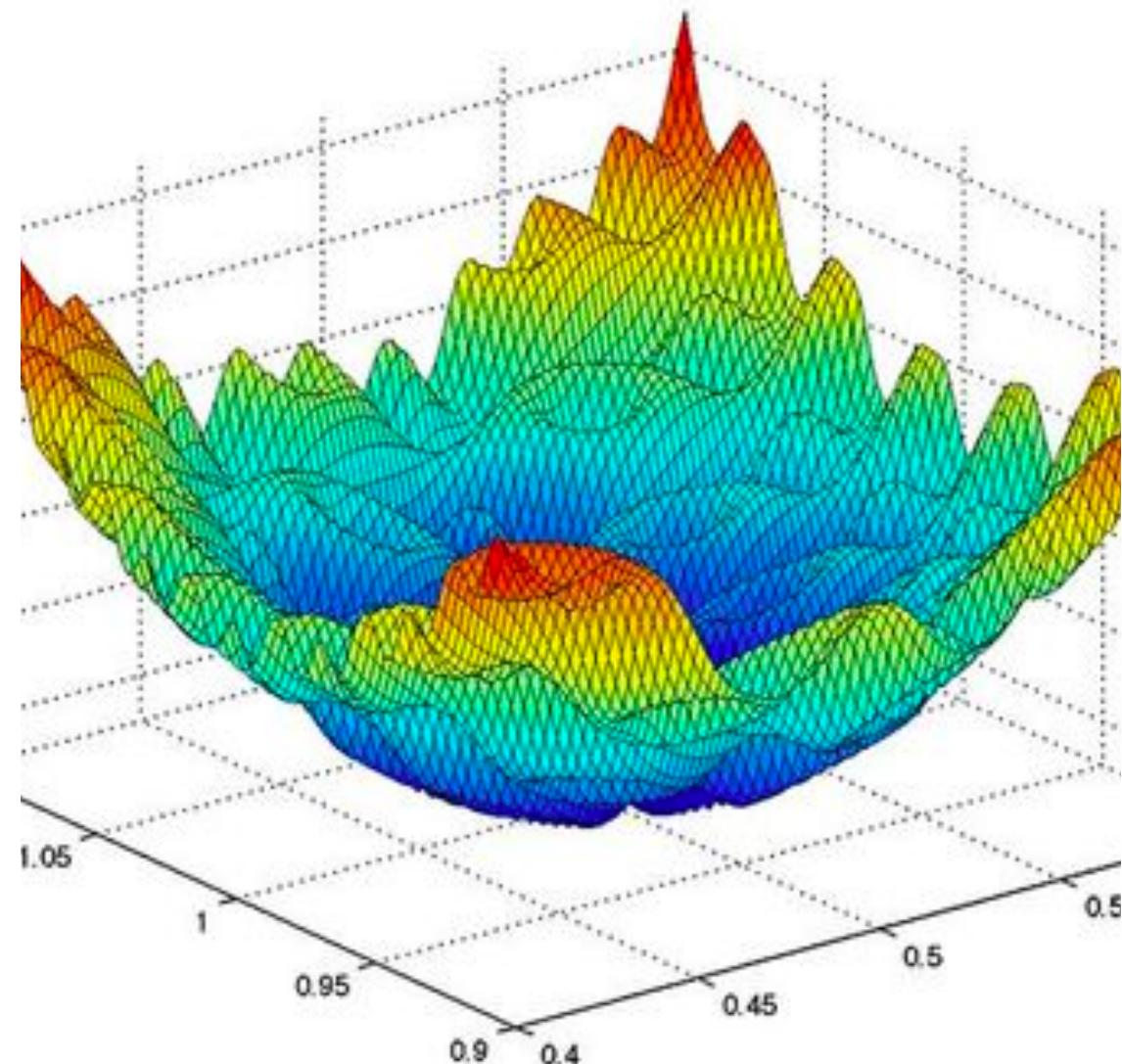
(30% on total)

Machine Learning on Survey

Logistic Regression

With a Machine Learning Model, we want to understand through the data we have, **what make people change** their mind about vaccination.

On which features based a campaign to **get more** vaccination at first !



Logistic Regression Model

Confusion Matrix

		ACTUAL	
		Will do it	Will not do it
PREDICTED	Will do it	True Positive 376 (79%)	False Positive 97 (21%)
	Will not do it	False Negative 95 (28%)	True Negative 246 (72%)

Important Features to predict if one will do the vaccination

- 6 parameters selected in the model:
 - Sex
 - The vaccination will stay a choice for Health professional
 - The capability to have vaccine
 - The easiness access to flu vaccine
 - Level of questions respondent still have.



Summary

Negative trend between age and vaccination

More than **50%** of **Students** and **Orthopedists** did not vaccine during the last flu campaign

Behaviours as Proud of Profession, Values Identification, Cohesion Feelings are **statistically insignificant** to state if one did the vaccine

Among respondents who didn't do the first vaccine:

- Higher **Positive Response Rate** to the next flu vaccine: Midwife, Doctor and Orthopedist

- **Witte Theory:**

Risk perception (**score>=1**): there are **50% of probabilities the one will vaccinate.**

Generally, higher the score, higher the probability of vaccination.

