

# **Ethnic Differences in Vaccine Hesitancy and Willingness to Provide Vaccination Services Among Danish Community Pharmacy Staff**

## **– A Questionnaire Survey**

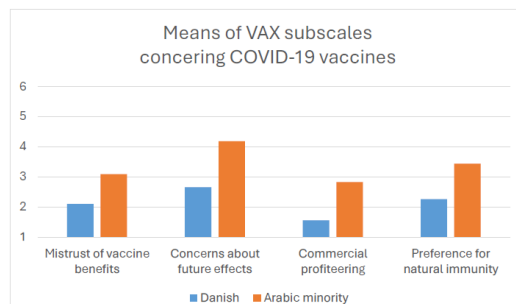
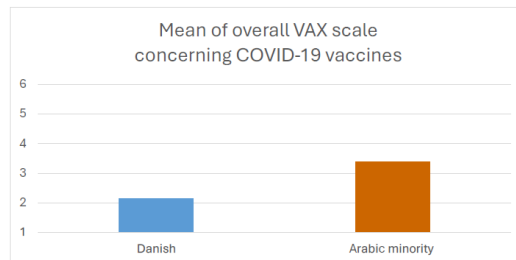
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# Background

- According to the World Health Organization (WHO), vaccine hesitancy is among 10 main threats of public health.
- Studies show that ethnic minority populations exhibit higher levels of vaccine hesitancy compared to the native Danish population.
- Many pharmacists in Denmark have ethnic minority backgrounds
- Community pharmacists/pharmacy technicians can vaccinate the public.
- **Vaccine hesitancy among pharmacy staff in Denmark has not yet been investigated,**



# Aims

The project will investigate:

- **vaccine hesitancy** among community pharmacy staff in Denmark and differences between pharmacy staff with non-Western and Danish ethnic backgrounds
- **willingness to provide vaccination services** among community pharmacy staff in Denmark and differences between pharmacy staff with non-Western and Danish ethnic backgrounds
- Importance of **vaccine hesitancy for willingness to provide vaccination services**, considering ethnicity the community pharmacy staff

# Methods: VAX-questionnaire

- Developed by Martin et al. in 2017
- Vaccination hesitancy as a continuum
- Translation from English and validated in more than 15 languages

<https://www.vax-scale.com/services/>

ORIGINAL ARTICLE

## Understanding the Dimensions of Anti-Vaccination Attitudes: the Vaccination Attitudes Examination (VAX) Scale

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**Abstract**

**Background** Anti-vaccination attitudes are important predictors of vaccination behavior. Existing measures of vaccination attitudes focus on specific age groups and/or particular vaccines; a more comprehensive measure would facilitate comparisons across studies.

**Purpose** The aim of this study was to develop a short measure of general vaccination attitudes and establish its reliability and validity.

**Methods** Two studies were conducted using the VAX scale. For Study 1, participants were 409 individuals (53% female), with a mean age of 34.5 years. For Study 2, participants were 92 individuals (67% female) with a mean age of 28.6. Participants answered paper-and-pencil questions about their attitudes toward vaccines, prior and expected-future vaccination behaviors, perceived sensitivity to medicines, online behavior, and basic demographic information. Exploratory and confirmatory factor analyses were conducted with correlations and *t* tests then used to assess the scale's reliability and validity.

**Results** Four distinct but correlated vaccine attitudes were

perceived sensitivity to medicines, and the tendency to obtain health information online.

**Conclusions** The VAX scale provides an efficient method for identifying those with vaccination resistance, and the four subscales enable a more nuanced understanding of the nature of those views. It should be noted, however, that the strong correlations amongst the four subscales suggest that interventions should target all four attitude areas, and it remains to be seen whether differential emphasis across the four areas is warranted.

**Keywords** Vaccination behavior · Vaccination attitudes · Scale development · Vaccine · Intentions

Despite the demonstrated effectiveness of vaccines for reducing the mortality and morbidity of communicable diseases, vaccination rates are on the decline in many areas of the world

### VACCINE HESITANCY CONTINUUM

#### VACCINE HESITANCY

The delay in acceptance or refusal of vaccination despite the availability of vaccination services

#### VACCINE ACCEPTANCE

The acceptance of a vaccine or series of vaccines

The Range of Vaccination Behavior

REFUSE ALL



ACCEPT ALL

Refuse Some

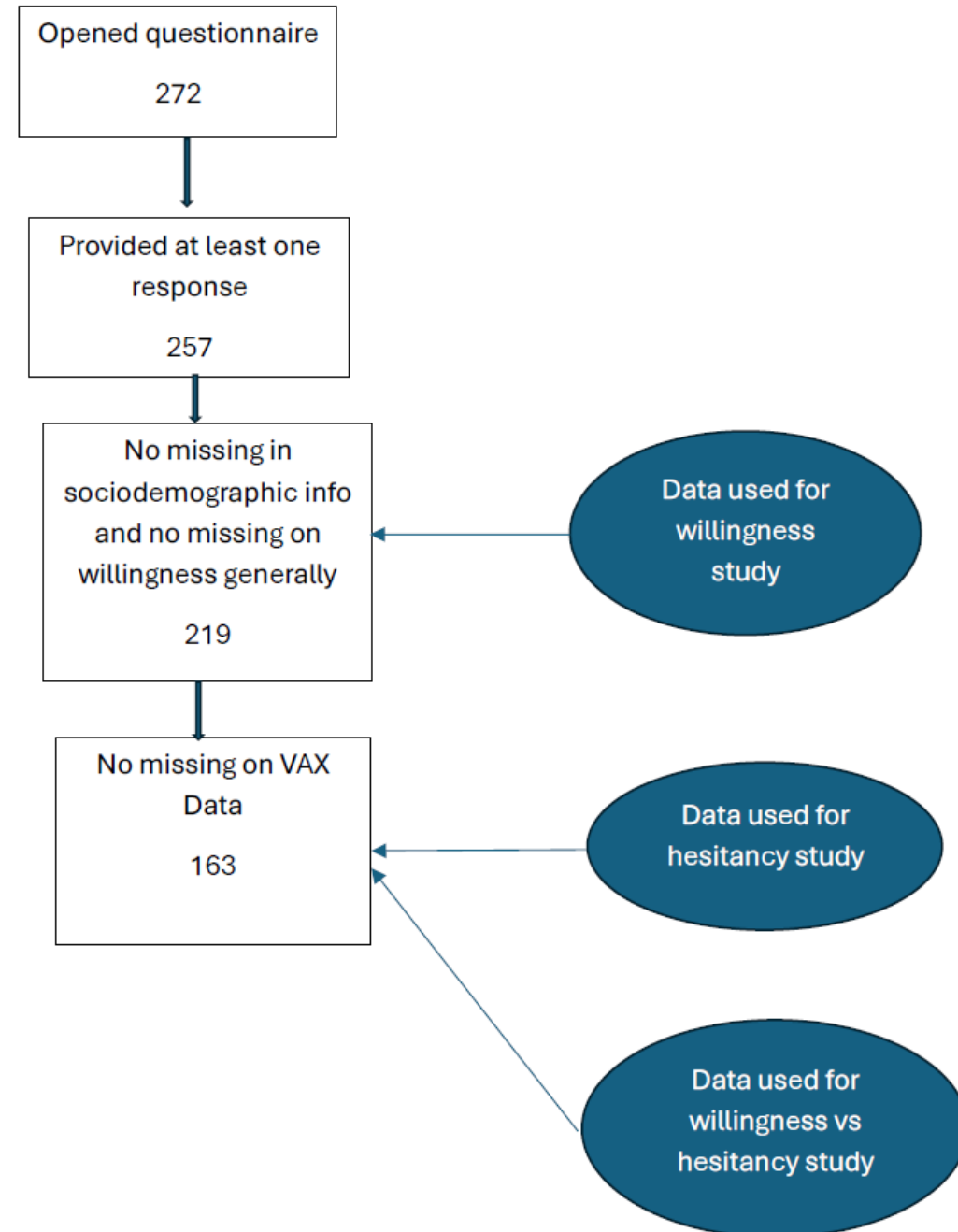
Delay

Accept Some

# Sample

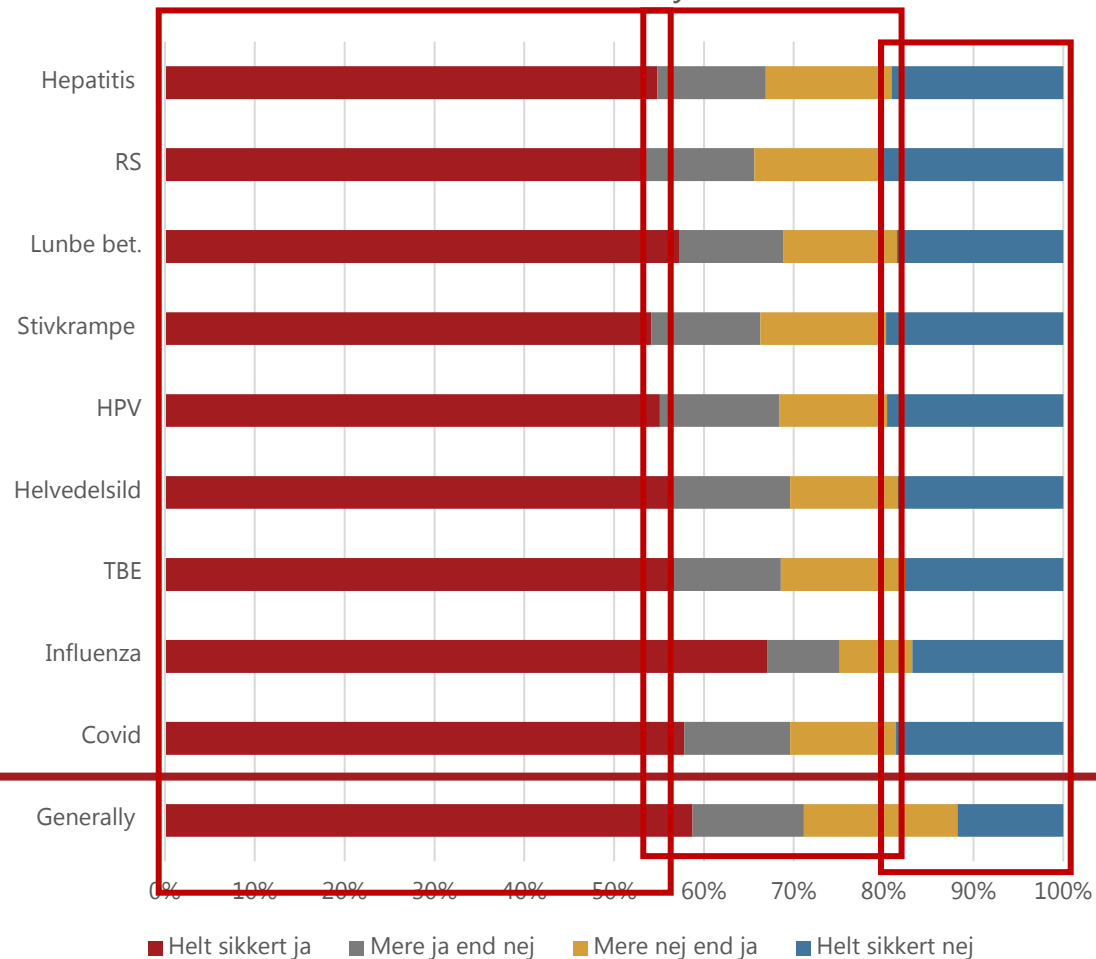
**Non-western ethnic minority respondents (appr. 20%) compared to Danish ethnicity respondents:**

- **More men**
- **Younger**
- **Less technicians, more pharmacy students**
- **More from pharmacies in the Capital Region**

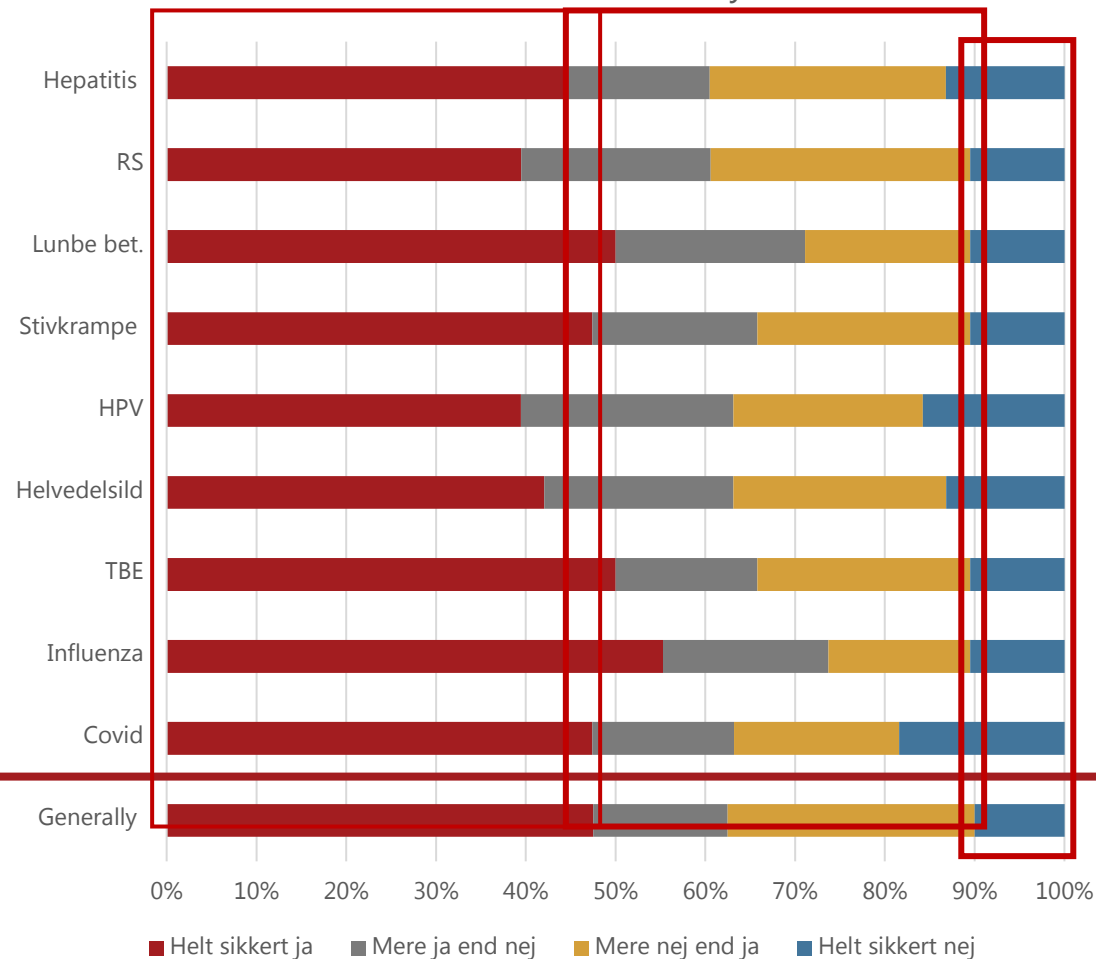


# Willingness to provide vaccination services

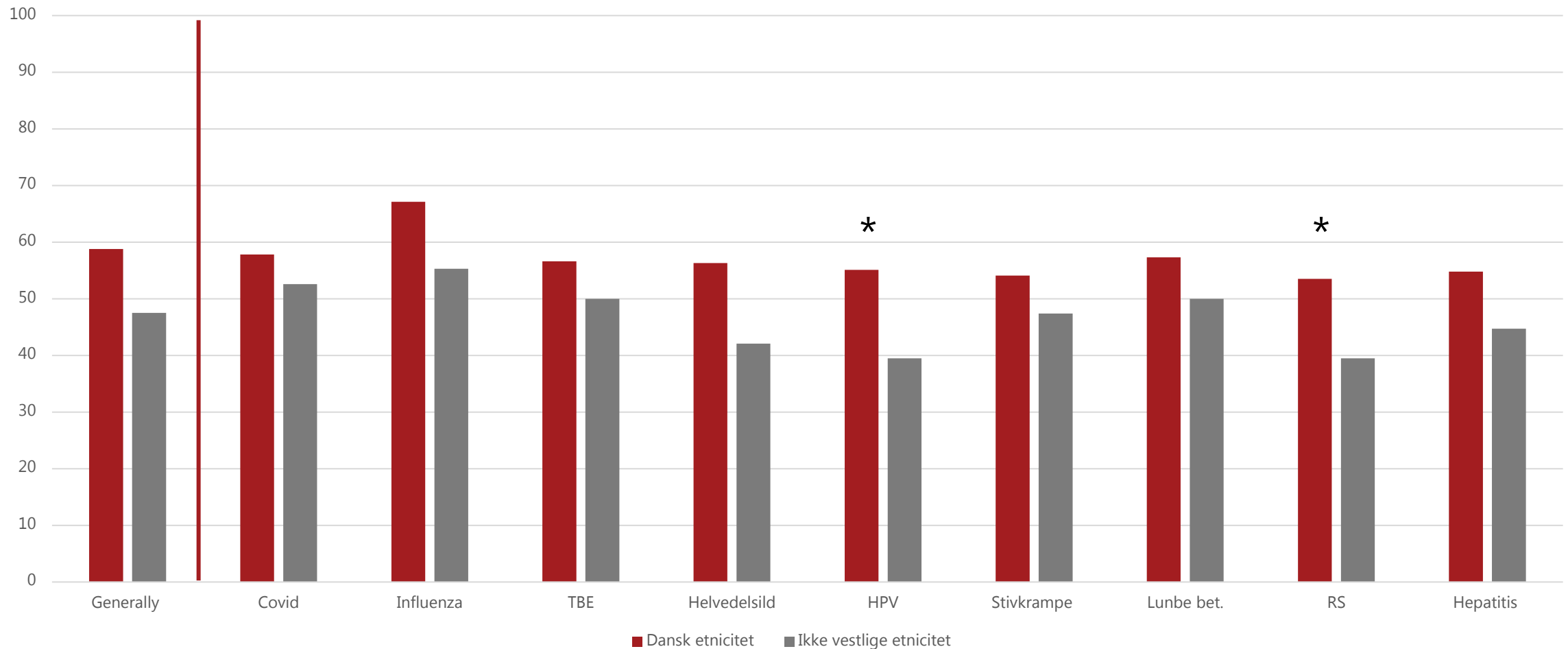
Danish ethnicity



Non-Western ethnicity



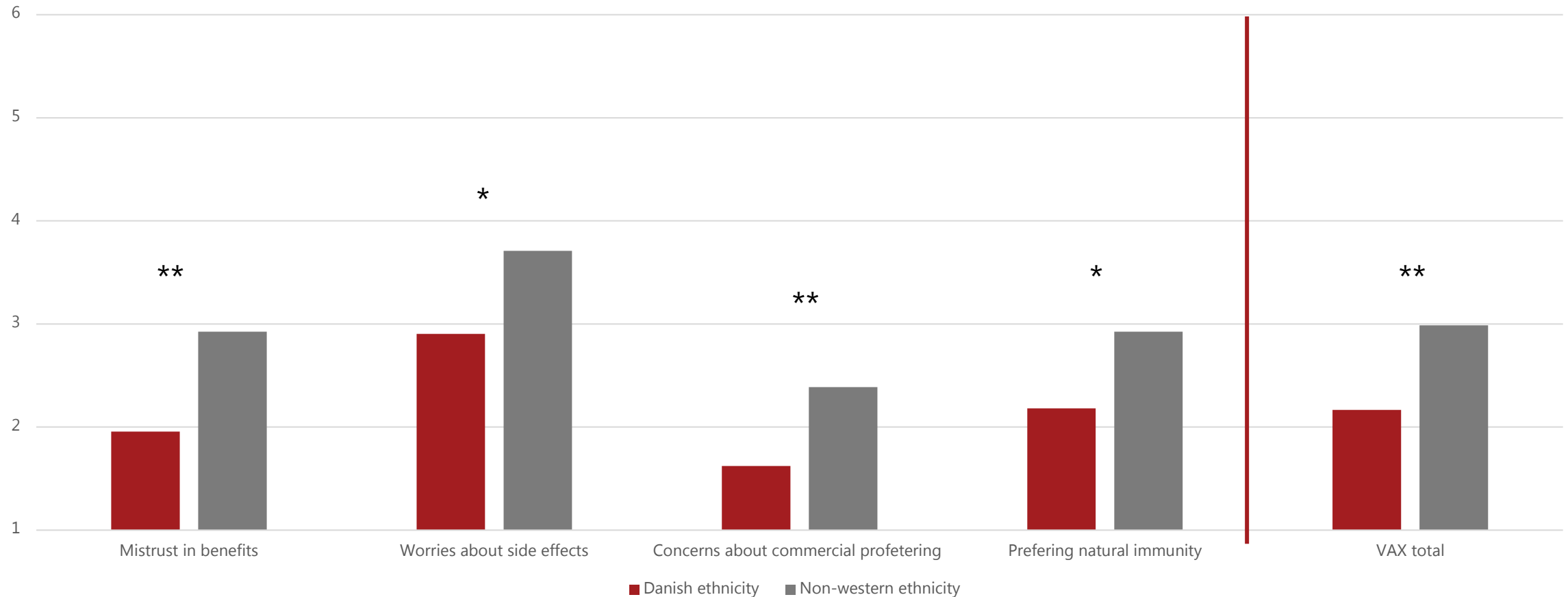
# Willingness to provide vaccination, absolutely yes



\*  $p < 0.05$ , adjusted for gender, age, profession, region of pharmacy in logistic regression models

# Vaccine hesitancy

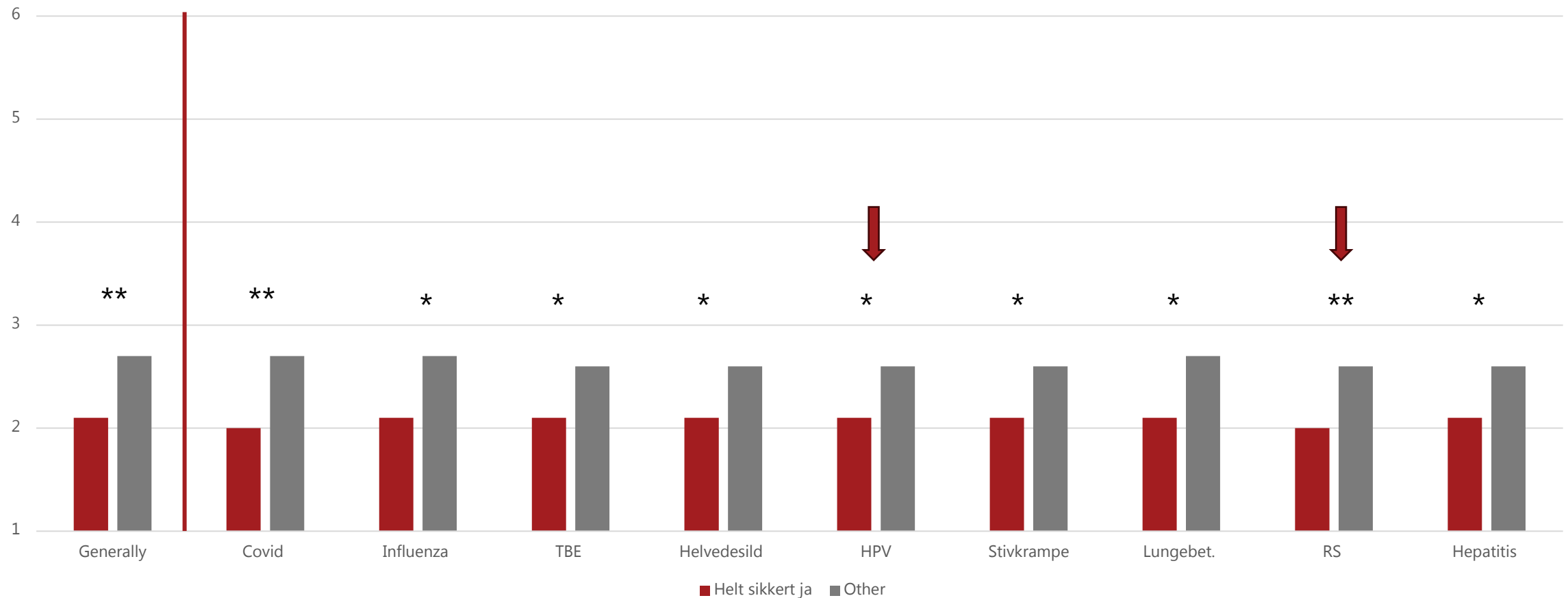
Means for VAX subscales and scale



\*  $p < 0.05$ , \*\*  $p < 0.001$  adjusted for gender, age, profession, region of pharmacy in linear regression models

# Willingness vs. vaccine hesitancy, considering ethnicity

VAX total means in willingness to vaccinate groups



\* p<0.05, \*\*p<0.001 adjusted for **ethnicity** gender, age, profession, region of pharmacy in linear regression models

# Willingness vs. vaccine hesitancy, considering ethnicity, differentiated analyses

Willingness to provide vaccination services,	P value for relationship with VAX total in ethnic Danes	P value for relationship with VAX total in non-Western minorities
<b>General</b>	0.007	0.104
<b>Covid-19</b>	<0.001	0.123
<b>Influenza</b>	0.046	0.243
<b>TBE</b>	0.057	0.576
<b>Helvedesild</b>	0.075	0.761
<b>HPV</b>	0.098	0.452
<b>Stivkrampe</b>	0.036	0.762
<b>Lungebetændelse</b>	0.009	0.515
<b>RS</b>	0.028	0.357
<b>Hepatitis</b>	0.059	0.590

# Conclusions

- Vaccine hesitancy is higher among pharmacy staff with non-Western minority backgrounds
- Ethnicity modifies association between willingness to provide vaccination services and vaccine hesitancy:
  - Vaccine hesitancy **is related** with willingness to provide vaccination services in pharmacy staff with **Danish** ethnic background
  - Vaccine hesitancy **is not related** with willingness to provide vaccination services in pharmacy staff with non-Western ethnic background, except of:
    - HPV vaccines
    - RS vaccines

## Future research

**Qualitative analysis** of why vaccine hesitancy is not related with willingness to provide vaccination services among pharmacy staff with non-Western ethnic minority backgrounds.

Possibility for a **theory-based** analysis.

Social identity theory:

- How personal and professional identities interact

Role theory

- How expectations for professional role shape professional behavior, despite personal beliefs

# Acknowledgement

Danish Pharmacy Practice Development Network



