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Vaccine hesitancy among health-care providers in Western countries

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DÉCLARATION DE LIENS D'INTÉRÊT AVEC LA PRÉSENTATION

Intervenant : Pierre Verger

☑ Je n’ai aucun lien d’intérêt

Introduction - Vaccine hesitancy

- Vaccine hesitancy (VH): "*Motivational state of being conflicted about, or opposed to, getting vaccinated*" [Shapiro, 2021]
- The middle ground along a spectrum of attitudes ranging from strong support of vaccination to strident opposition [McDonald, 2015]
- Major public health threat [WHO, 2021]
- Present also in health-care providers (HCPs) [First review: Paterson, 2016; Brownlie 2006]

HCPs play a pivotal role in vaccination

- Cornerstone of mass vaccination:
  - HCPs monitor, discuss, recommend, and administer vaccines
- People trust them strongly
- Interactions between them and patients are key
- HCPs are role models: Their vaccine recommendations matter -- for or against vaccination [Pietro-Campo 2024]

How does HCPs' vaccine hesitancy impact their vaccination behaviors?

- Their propensity to vaccinate themselves
- Their propensity to recommend vaccines to patients
- Their ability and manner to conduct vaccine conversations
- **How is vaccine hesitancy measured in HCPs?**

EXPERT REVIEW OF VACCINES
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REVIEW

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Vaccine hesitancy in health-care providers in Western countries: a narrative review

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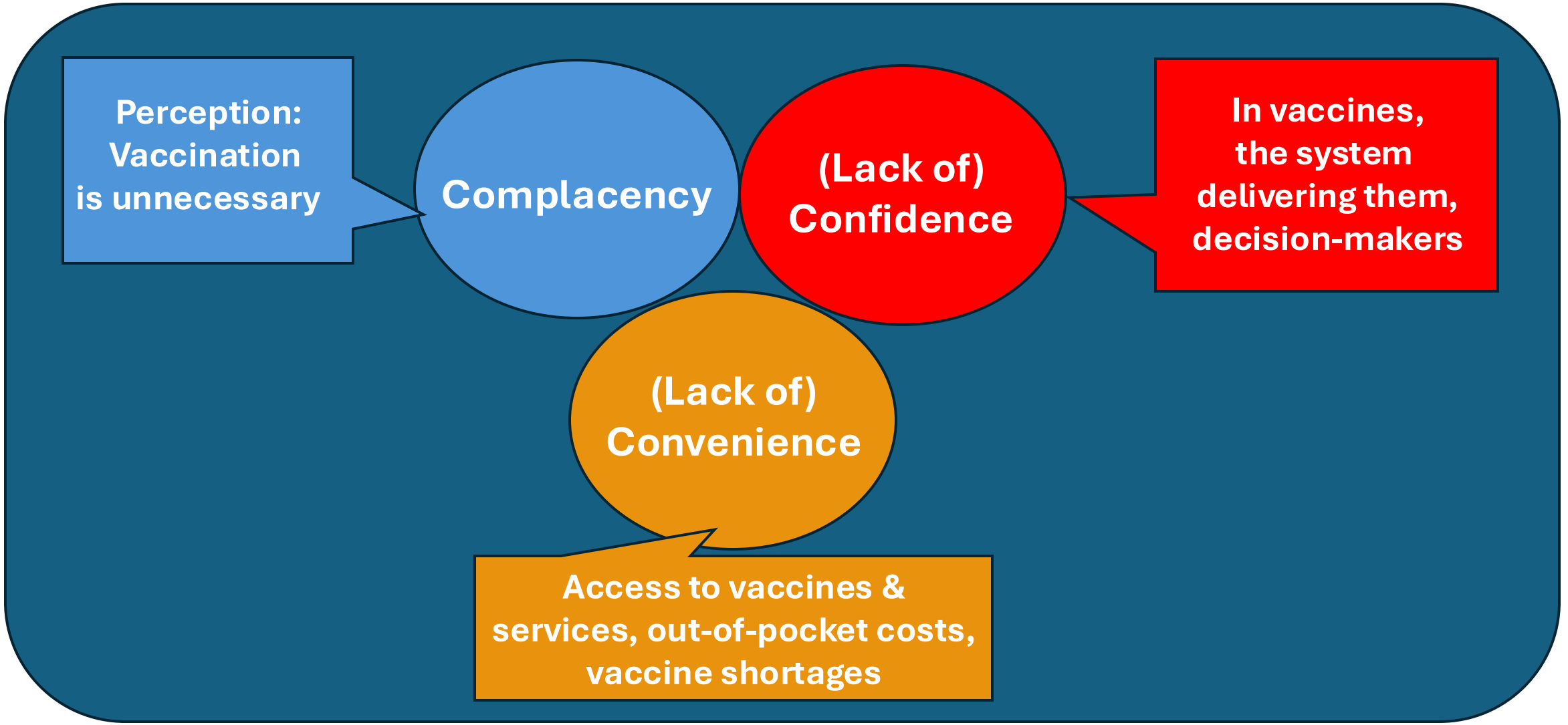
- **Articles published between Jan 2015 and May 2021**
- Focusing on general VH (covering several vaccines) & assessing the psychosocial determinants of vaccine acceptance & recommendations
- Questioning HCPs or medical trainees about their willingness to be vaccinated and to recommend vaccines for their families and patients
- Studies: quantitative or qualitative, in one or more Western countries, peer-reviewed
- **We used the WHO 3C model to appraise VH in the articles**

ORS Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur

Pillars of vaccine hesitancy: the WHO's 3C model (SAGE Group 2015)



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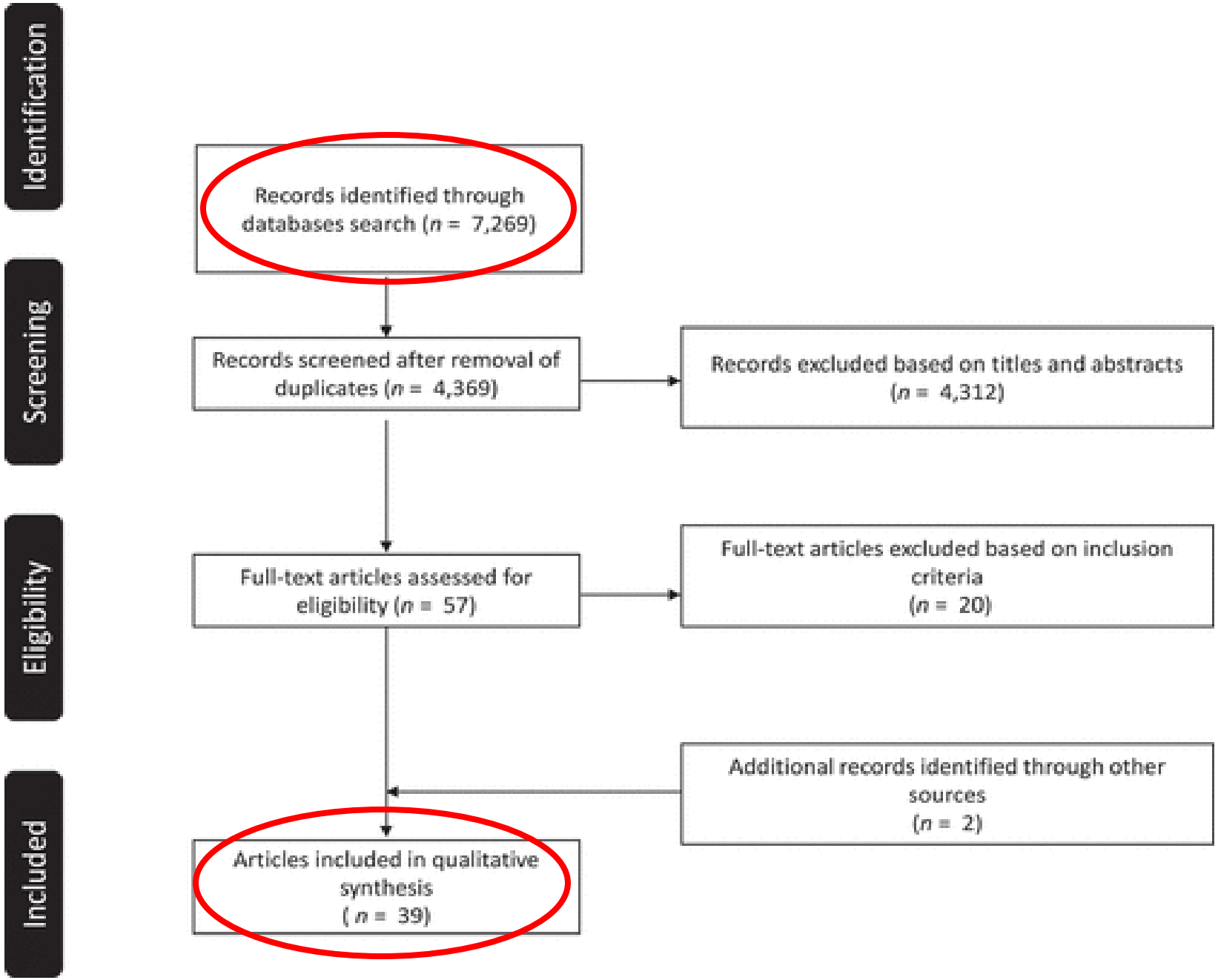
Steps to select the articles



Description of studies (N=39)

- 80% from European countries
- 18% in North America and Oceania
- 60% among GPs/physicians, either exclusively or with other HCPs
- 36% included nurses, 18% medical students,13% midwives
- 5 % among GPs providing complementary and alternative medicine (CAM) services

Methods: theoretical models

- 70% of the studies did not refer to existing theoretical models as a basis for the measurement tools used
- The other articles referred to previously used or validated tools:
  - WHO definition of VH [McDonald, 2015]: 1 study
  - Toolkit from the Promotion of Immunization for Health Professionals in Europe [http://www.hproimmune.eu/(open in a new window]: 2 studies
  - Questionnaires from the WHO Strategic Advisory Group of Experts (SAGE) on Immunization designed to assess VH determinants [Shapiro, 2018]: 2 studies
  - 5C model [Betsch 2018]: 2 studies

Methods: VH indicators

- Only 6/33 quantitative studies measured VH prevalence among HCPs
- 3 constructed VH scores and analyzed determinants related to these scores

Dimensions used to measure VH in the studies estimating VH prevalence

First country, author, year	Dimensions used to measure VH	VH prevalence
France, Verger, 2016, GPs	Perceived vaccine utility & safety, vaccine-related behaviors, by cluster analysis	Moderate VH: 11% High VH: 3%
USA, Bonville, 2017, GPs	Perception that pediatric vaccines are not safe or effective (2 items)	3%
Finland, Karlsson, 2019, hospital staff	Hesitated in a vaccination decision, or postponed or rejected a vaccination for their child	18%
France, Baldolli, 2020, various HCPs	1 item of VH (0 = no VH; 10 = maximal VH) 1 item of perceived safety (0: unsafe; 10: safe)	20% (Score ≥3) 9% (Score < 7)
Croatia, Tomljenovic, 2021, physicians & nurses	25 items on attitudes, beliefs and behaviors relative to vaccination, to create a vaccine confidence score (25-125)	17% (Score < 81)
France, Wison, 2020, nurses	WHO definition (refusal, delay, or acceptance with doubts about at least one vaccine)	44%

VH proxy indicators

- Most quantitative studies (70%) used one or more proxies to measure VH:
  - HCPs' self-vaccination status (35%)
  - Frequency of HCPs' vaccine recommendations to patients (26%)
  - Acceptance of vaccine mandates (9%)
  - Delay/refusal of vaccination for themselves or their children (13%) [Karlsson et al. in Finland 2019]
  - Discrepancy between recommendations to patients and self-vaccination [Vezzosi, Italy, 2019]

Proportions of HCPs vaccinated

Vaccine	Article [Ref]	Proportion covered (%)	Proportion by HCP group	
Influenza			**Physicians/GPs/Other[§]**	**Nurses/Other***
	Karlsson, 2019 [31], Finland	86.2[1]	94.7	69.4*
	La Torre, 2017 [32], Italy	28.5	–	–
	Stefanoff, 2020 [37], Poland	62[2]	–	–
	Di Martino, 2020 [38], Italy	37.5[3]	58.2	20.7/11.5*
	Massot, 2018 [39], France	16.6[2]	32.6	16.3
	Tomljenovic, 2021 [41], Croatia	23.5[2]	–	–
	Karnaki, 2019 [49], Europe[4]	56.2[5]	37.9[§]	22.6*
	Wilson, 2020 [48], France	27[1]		
Diphtheritis-tetanus-pertussis (DTP)				
	Di Martino, 2020 [38], Italy	42.7[3]	36.1	30.7/38.5*
	Massot, 2018 [39], France	89.3	–	–
	Baldolli, 2020 [54], France	93.5	95.4	94.2
	Wilson, 2020 [48], France	57.5	52.5[§]	59.3*
Hepatitis B				
	La Torre, 2017 [32], Italy	82	–	–
	Baldolli, 2020 [54], France	88.2	96.5	95.3
	Wilson, 2020 [48], France	61[6]	49.1[§]	65.8*
Varicella				
	La Torre, 2017 [32], Italy	40	–	–
	Wilson, 2020 [48], France	39	50.8[§]	36.5*
Measles-mumps-rubella (MMR)				
	Di Martino, 2020 [38], Italy	49.9[3]	45.1	43.3/76.9*
	Baldolli, 2020 [54], France	94.8	95.8	94.2
	Wilson, 2020 [48], France	64	60.5[§]	64.6*

* Practical nurses (Karlsson, 2019), midwives (Di Martino, 2020), hospital nurses (Wilson, 2020)

VH proxy indicators: recommendation behavior

- 5 articles included HCP vaccine recommendation behaviors as a proxy for measuring VH
- Among them, the proportion of HCPs who never recommended specific vaccines to targeted patients ranged from:
  - 5% (USA, pediatric HCPs, childhood vaccines, Suryadevara, 2015]) to
  - 19% (France, healthcare students (50% medical), various vaccines for various population groups [Baldolli, 2020]

Links between HCPs' VH and proxies of VH

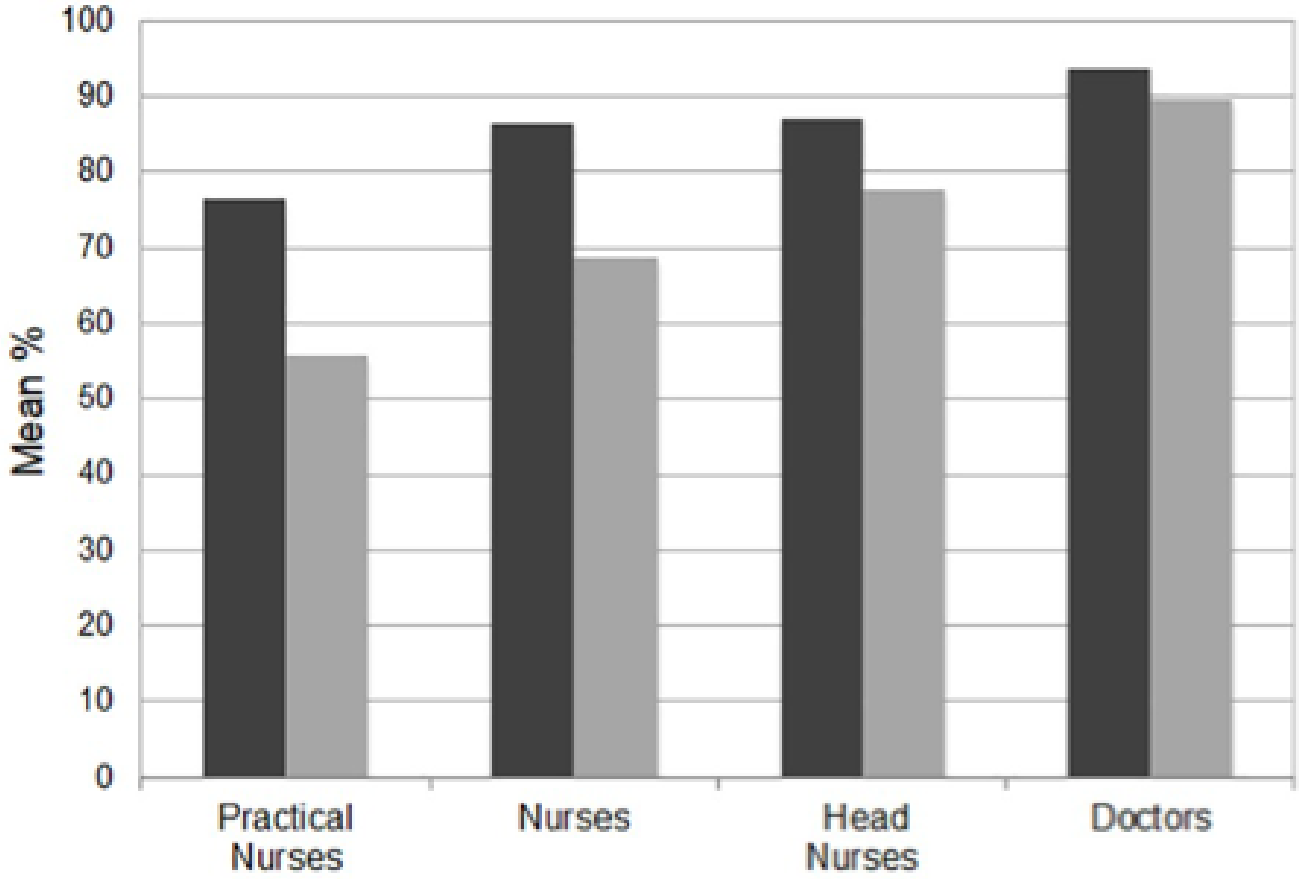
GPs' typology according to their vaccine recommendation behavior, France, April to July 2014 (n = 1,575)*

Vaccine/targeted group	None- slight VH (86%) often-always	Moderate VH (11%) often-always	High VH (3%) often- always
MMR/non-immune adolescents and young adults	87	56	53
Meningococcal meningitis C/12-month-old infants	71	53	31
Meningococcal meningitis C/ages 2–24 y (catch-up)	61	36	21
Human papillomavirus vaccine/girls aged 11–14 y	78	47	25
Hepatitis B/adolescents (catch-up)	67	42	30
Seasonal influenza/adults <65 y with diabetes	87	70	48

Cluster analysis, weighted data [Verger et al. 2016]

Main factors related to VH and its proxies - 1

- Type of profession [Karlsson, 2019]



General statement, e.g., childhood vaccines are effective in protecting against disease

Specific statement, e.g., vaccines cannot cause autism.

Proportion of HCWs by profession agreeing with general and specific statements (% of positive answers)

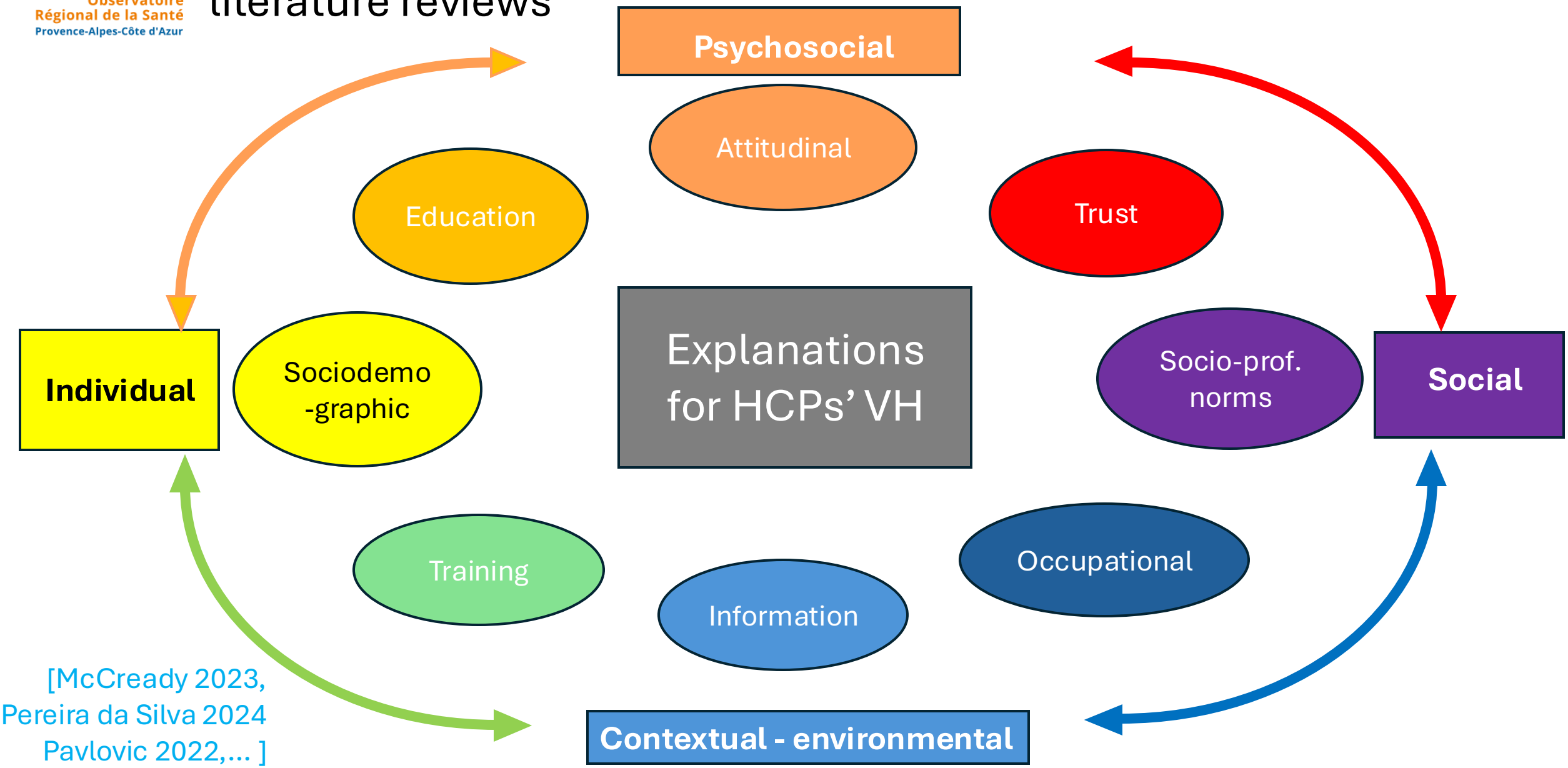
Main factors related to VH and its proxies - 2

- Lack of trust in institutions, experts, or pharmaceutical industry
- Commitment to the vaccination of the population [Wilson 2020]
- Gender: influenza vaccine uptake higher in men than women HCPs (European study, Rostkowska, 2021)
- Vaccine attitudes:
  - Complacency, vaccine confidence in their safety & efficacy, collective responsibility…
- Complementary and alternative medical practices
- Contextual factors
  - Access to free-of-charge vaccines in the workplace (Convenience)
  - Strong regional variations in GPs recommendation practices [Collange 2020]

Main findings of qualitative studies (n=6)

- Most HCPs felt they lack vaccination expertise [Manca 2018]
  - their vaccine ‘anxieties’ were aligned with those of the public
- Considering that mass vaccination is not justified [Wilson 2020, Deml 2019]
  - preferring personalized approaches based on individual characteristics
- Insufficient support from the authorities in their vaccination responsibilities (lack of information)
- Among CAM GPs, importance of respect, empathy, and patient involvement in vaccination decisions [Deml 2019]

Discussion : Frequent explanations for HCPs' VH in the other literature reviews

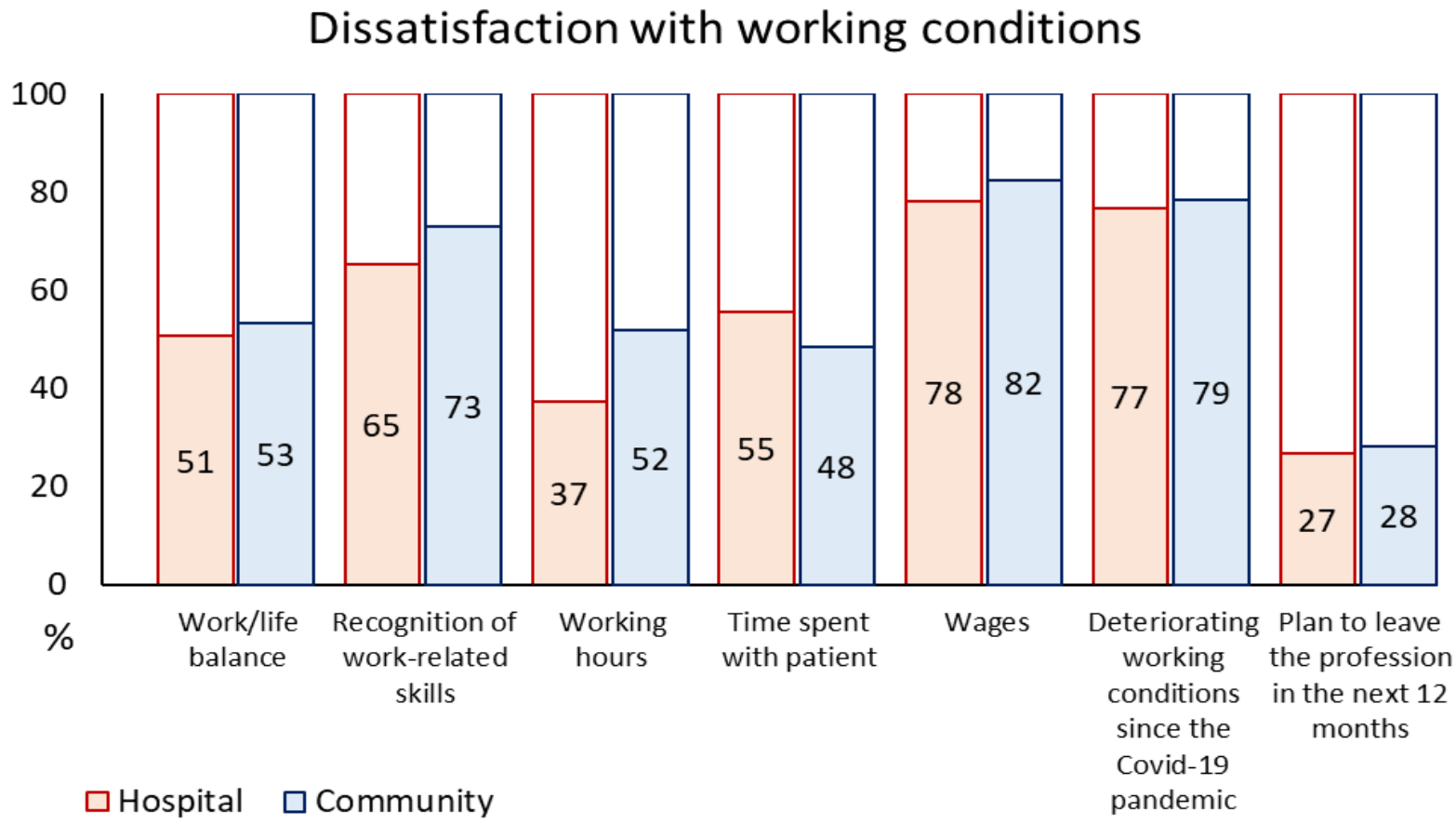


[McCready 2023,
Pereira da Silva 2024
Pavlovic 2022,...]

Important role of trust/distrust in authorities

- Distrust fuelled by multiple factors:
  - Lack of support by health authorities for HCPs' vaccination duties: inaccurate, inconsistent vaccine information [Ahmad, 2022]
  - Perception of poor management of health crises (e.g., A/H1N1)
  - Perception of conflicts of interest between health authorities and the pharmaceutical industry
  - Critical views of established health systems and guideline development [Deml 2019]
  - Under-addressed factors: Deterioration of HCPs' working conditions [Le Breton, 2025], doctor shortage, and burnout [Dumesnil 2024]

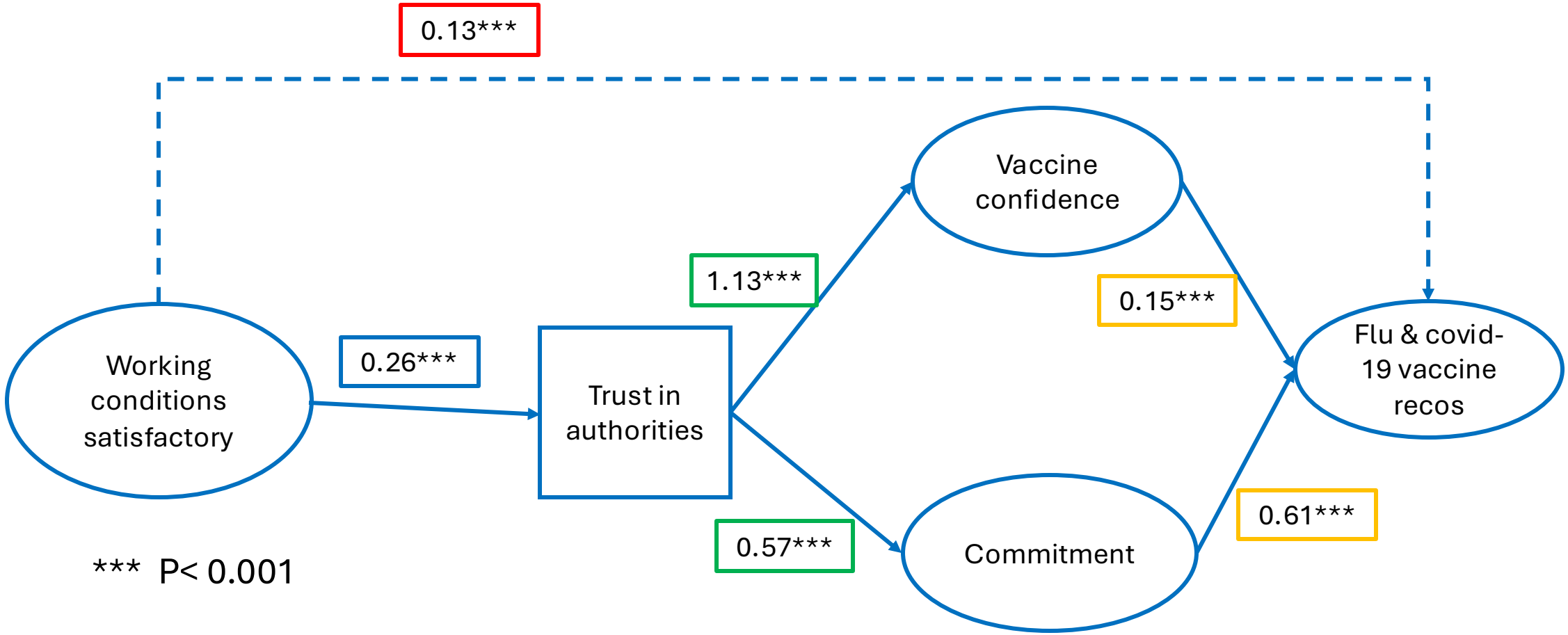
Deterioration in nurses' working conditions since the pandemic



National survey of 19 000 nurses in France, Feb 2023 (Le Breton, 2025)

Effect of dissatisfaction on commitment to and confidence in vaccination: hospital nurses

[Le Breton, 2025]



Validated instrument: I-PRO-VC-Be (International-Professional-Vaccine Confidence & Behaviors)

Consequences of VH on interactions with patients

- Patient-HCP relationships might be affected when HCPs are hesitant
  - They might be less likely to have conversations with patients about vaccination [Karlson 2019, Wilson 2020]
  - Some HCPs may feel less comfortable providing explanations about some alleged side effects [Verger 2015, Brosset 2025]
  - They are therefore less likely to motivate vaccine hesitant patients

Implications for practice: training

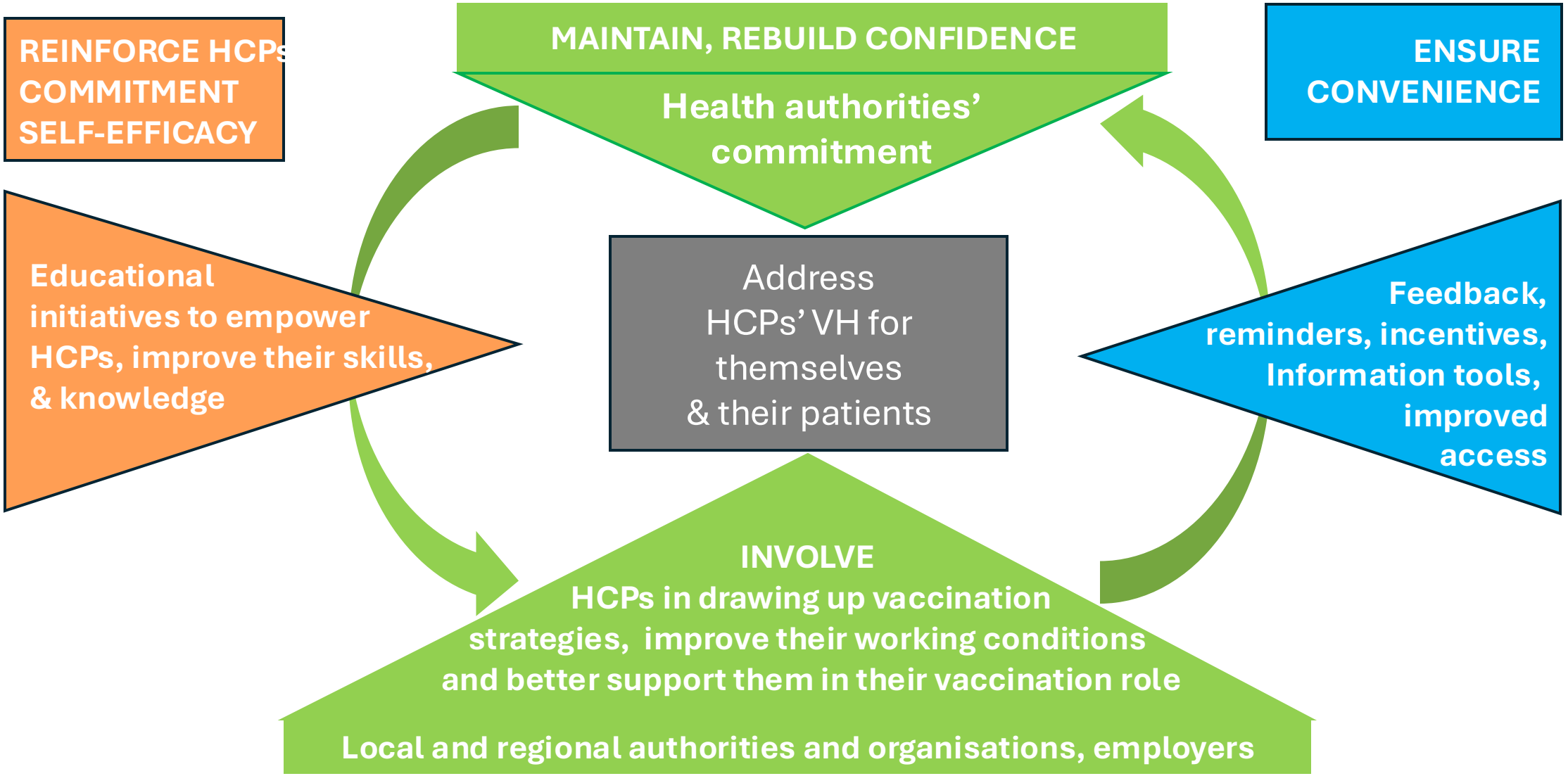
- Need to review instruction on vaccination in all HCP training programs
  - Improve time devoted to and content of immunization instruction in each HCP's initial training program & their continuing education
  - Address gaps [Lip 2023]:
    - Limited accessibility and generalizability of interventions;
    - Nursing and pharmacy disciplines not sufficiently covered
    - Need to recognize & manage emotions during difficult conversations
  - Empathetic counseling strategies adapted to vaccination to bridge the divide between HCPs and vaccine-hesitant patients [Purcell 2024]
  - Ensure the acquisition of skills to decipher false information and address patient VH without eliciting resistance

Example of the Jitsuvax "Empathetic Refutational Interview"

- Communication framework to guide HCPs' conversations with vaccine-hesitant people
- Combines communication techniques drawn from:
  - Motivational interview (empathy, affirmation) to help create a safe, trusting environment for discussions, and
  - Psychological research on how to refute misconceptions
- Effective in reducing VH in hesitant patients and increasing their willingness to be vaccinated [Fasce 2025, in press]

https://jitsuvax.info

Implications for practice: need for a holistic approach



Implications for research: priorities - 1

- Better quantify VH prevalence and understand its determinants among different types of HCPs in Western & non-Western countries
- Use instruments solidly anchored in theoretical foundations in different settings and countries

HUMAN VACCINES & IMMUNOTHERAPEUTICS
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REVIEW ARTICLE

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A systematic review of measures of healthcare workers' vaccine confidence

Kofoworola O. Akinsola[a], Ayobami A. Bakare[b,c], Elisa Gobbo[c], Carina King[d], Claudia Hanson[d,e,f], Adegoke Falade[a,g], and Sibylle Herzig van Wees[d]

- Investigate contextual influences – an under-searched area

Implications for research: priorities - 2

- Better understand the dynamics of patient-provider interactions
  - Essential growing research topic, given the VH-associated behavioral, attitudinal, and communication issues in patient-HCP relationships [Vax-Trust project, Cardano, 2022]
  - HCPs' interaction styles: how the emotions of HCPs and patients affect their conversations

Qualitative Health Research
OnlineFirst

https://doi.org/10.1177/10497323251320921

Sage Journals

Research Article

Healthcare Professionals' Emotions of Distance and Connection When Dealing With Patients' Vaccine Hesitancy: Interaction Styles, Values, and Implications [Brosset et al. 2025]

Implications for research: priorities - 3

- Develop intervention & implementation research to address HCPs' VH
- Knowledge remains sparse about the effectiveness of the various approaches for overcoming VH
- How can interventions demonstrated to be effective be implemented and scaled up according to sustainable models?
  - And while taking into account the human resources available, the economic and time constraints, the various contexts?

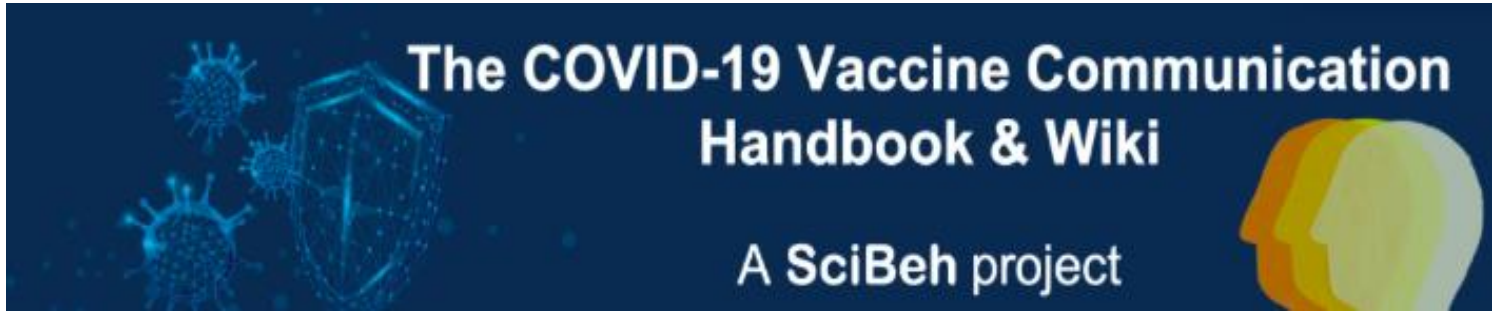
Conclusion
Addressing HCPs' VH: a public health priority

1. VH, defined by the WHO 3C model, indeed exists among HCPs to various degrees
2. VH is more prevalent in HCPs with shorter medical training
3. General determinant of HCPs' VH: lack of trust in health authorities
4. Consequences of HCPs' VH:
   - Lower vaccine uptake among HCPs themselves
   - Less likelihood they will recommend various vaccines to patients
   - Less self-efficacy or commitment to guiding hesitant patients toward vaccination

Thank you for your attention

Implications for practice: tools, context

- Facilitate HCPs' access to reliable information for use in consultations
  - e.g. COVID-19 Vaccine Communication Handbook (in 13 languages)



- Take the GP shortage in Europe into account in organizing mass vaccination (WHO, Regional office for Europe, 2022)