

Measuring psychosocial determinants of vaccine confidence and behavior in healthcare professionals: validating the Pro-VC-Be short-form

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Introduction

- ▶ Healthcare professionals' (HCPs) confidence in vaccines impacts their likelihood to recommend vaccinations to their patients and their self vaccination^{1,2}
- ▶ The Pro-VC-Be (Professionals Vaccine Confidence and Behaviors) questionnaire was developed in French-speaking countries to measure this vaccine confidence (VC) in HCPs³
- ▶ A 10-item short-form version of the Pro-VC-Be was previously validated in French-speaking countries⁴

Main Objective:

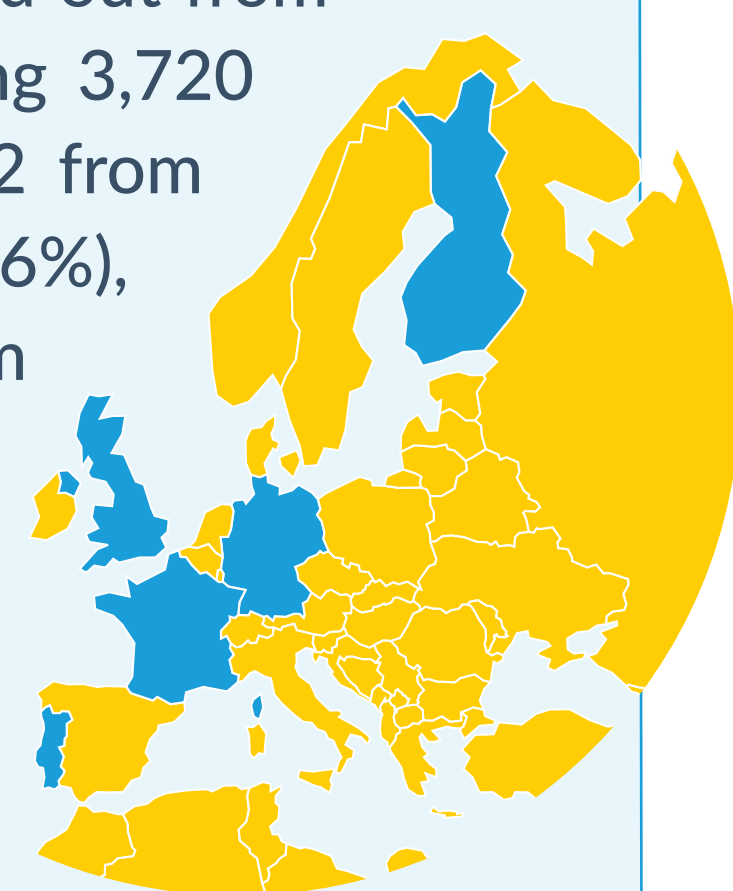
To adapt and validate an international, 10-item short-form tool to measure vaccine confidence in healthcare professionals in Europe within the JITSUVAX project⁵

Methods

- ▶ JITSUVAX experts adapted an international version of the original French-version Pro-VC-Be to disseminate among HCPs in all five participating countries (France, UK, Germany, Portugal, and Finland)
- ▶ It comprises 10 dimensions of psychosocial determinants of VC in HCPs, including:
 - Perceived safety of vaccines
 - Complacency = perceived lack of usefulness of vaccines
 - Perceived benefit risk balance
 - Collective responsibility = importance of contributing to community immunity
 - Trust in authorities
 - Professional norms
 - Reluctant trust = the 'leap of faith' to trust vaccines and policies even if they have doubts
 - Perceived constraints
 - Commitment to vaccination
 - Self-efficacy = feeling of preparedness
- ▶ The survey consisted of 50 items on the psychosocial determinants of VC, general and vaccine-specific recommendation behaviors, and vaccination status for influenza and COVID-19

Results

- ▶ The cross-sectional survey was carried out from December 2021 to April 2022 among 3,720 HCPs: 1,213 from France (33%), 972 from the UK (26%), 603 from Germany (16%), 557 from Portugal (15%) and 375 from Finland (10%)
- ▶ Countries were weighted by age and gender for each profession to give the same weight to each country

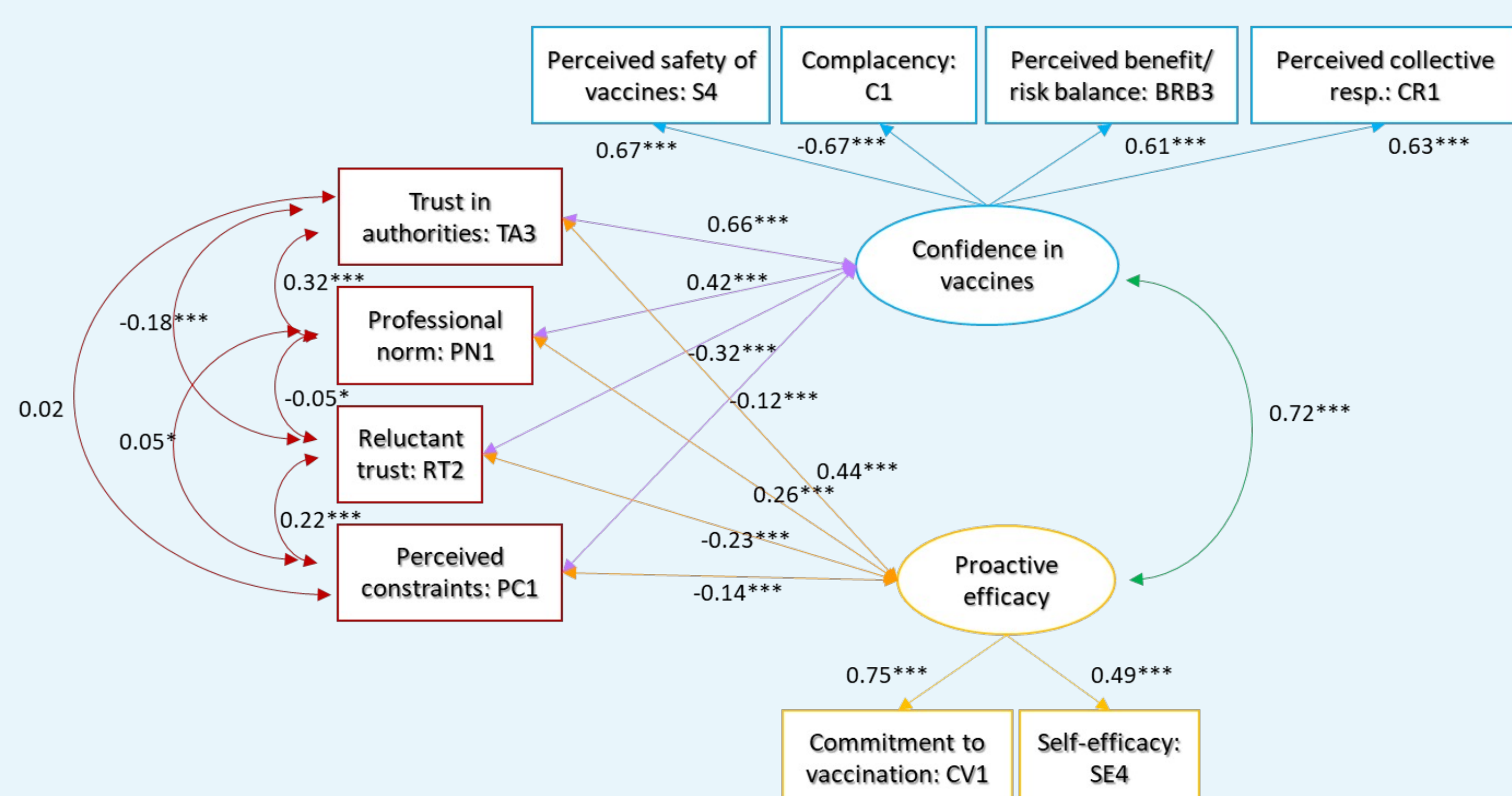


Statistical Analysis Steps

1. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) on a randomly-selected test sample (n= 1,860 HCPs) and validation sample (n=1,860), respectively, to verify construct validity
2. CFA on the entire sample to test the fit of the French 10-item short-form tool to the international data, after adaptations
3. CFA parameter estimates and Pearson correlations used to assess convergent and discriminant validity between items
4. Weighted multiple modified Poisson regressions with robust error variances to assess criterion validity of selected 10-items with vaccination behaviors

Construct validity

Figure 1. CFA model showing six-factor structure of determinants with 2 second-order dimensions of Vaccine Confidence and Proactive Efficacy



RMSEA = 0.028 [0.022; 0.034]; CFI = 0.98; TLI = 0.96 ; SRMR = 0.02

Model had good fit to data and factors had good to fair loadings (>0.49)

Criterion validity

Table 1. Associations between short-form and vaccine behaviors

Dimension > mean (reference)	Self-reported very frequent (>75%) vaccine recommendation or intent to recommend		Self-vaccination against Covid-19: fully vaccinated + booster (score=4/4)	
	Separately	Global	Separately	Global
	Adjusted RR [95% CI]		Adjusted RR [95% CI]	
Confidence in vaccines > mean	1.72 [1.55;1.91]	1.39 [1.25;1.53]	1.12 [1.08;1.16]	1.05 [1.02;1.08]
Proactive efficacy > mean	1.75 [1.60;1.90]	1.49 [1.37;1.62]	1.11 [1.07;1.14]	1.05 [1.02;1.09]
Trust in authorities > mean	1.56 [1.43;1.70]	1.23 [1.12;1.34]	1.15 [1.10;1.19]	1.10 [1.06;1.14]
Reluctant trust > mean	0.83 [0.77;0.88]	0.95 [0.89;1.01]	0.94 [0.91;0.97]	0.97 [0.94;1.00]
Perceived constraints > mean	0.87 [0.82;0.93]	0.94 [0.89;1.00]	0.96 [0.92;0.99]	0.98 [0.94;1.02]
Professional norm > mean	1.15 [1.07;1.24]	1.04 [0.97;1.11]	1.04 [1.00;1.08]	1.01 [0.97;1.05]

Confidence in vaccines, proactive efficacy, and trust in authorities were associated with more frequent vaccine recommendation and self-vaccination in separate and global models

Pro-VC-Be 10-item short form tool

- (S4) Vaccines are safe.
- (C1) Today, some vaccines recommended by authorities are not useful, because the diseases they prevent are not serious.
- (BRB3) The benefits of vaccines are much greater than their potential risks.
- (CR1) I recommend the vaccines on the vaccination schedule to my patients because it's essential to contribute to protection of the population (community immunity).
- (TA3) I trust the ministry of health to ensure that vaccines are safe.
- (PC1) The cost of some vaccines is a problem for some patients and can keep me from prescribing them.
- (CV1) I am actively involved in ensuring that my patients are vaccinated.
- (SE4) I feel sufficiently trained on how to approach the question of vaccines with hesitant patients.
- (RT2) I recommend the vaccines in the official schedule even though I feel that the objectives of the vaccination policy are not clear enough.
- (PN1) I think that most medical doctors in my country recommend that people get vaccinated.

Response scale:

Strongly disagree Somewhat disagree Undecided Somewhat agree Strongly agree

Discussion

- ▶ 10-item short-form tool showed good construct and criterion validity for measuring vaccine confidence in HCPs across participating European countries
- ▶ Important to have an international tool that encompasses general vaccination scenarios rather than country-specific scenarios
- ▶ Our tool provides a cost- and time-effective method for measuring vaccine confidence in HCPs that can be used to evaluate interventions
- ▶ Interviews with French and UK doctors are underway to identify what could help HCPs feel more confident when discussing vaccination with their patient, particularly with hesitant patients

References

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