



Impact of risk perception on vaccination of calves against bovine respiratory disease: A configurational approach

Charlotte Doidge ^a, Jade Bokma ^b, Noëlle ten Brinke ^b, Inge Santman-Berends ^c, Anouk Veldhuis ^c, Virginia Sherwin ^a, Gerdien van Schaik ^{c,d}, Jasmeet Kaler ^a

^a School of Veterinary Medicine and Science, University of Nottingham, Sutton Bonington, LE12 5RD, UK, ^b Department of Internal Medicine, Reproduction, and Population Medicine, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium, ^c Royal GD, P.O. 9, 7400 AA, Deventer, the Netherlands, ^d Department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, 3584 CL Utrecht, the Netherlands

Introduction

- Bovine respiratory disease (BRD) is one of the most common causes of morbidity and mortality in dairy calves worldwide
- BRD vaccine uptake remains low in Europe.
- Based on psychological models of vaccine uptake, we evaluated the following hypotheses:

H1: high perceived likelihood, high perceived severity, and high perceived susceptibility of BRD, low perceived harm of the vaccine, and high trust in veterinarians are causal conditions for farmers' intention to vaccinate calves against BRD.

H2: low perceived likelihood, low perceived severity, and low perceived susceptibility of BRD, high perceived harm of the vaccine, and low trust in veterinarians are causal conditions for farmers' intention to not vaccinate calves against BRD.

Methods

- An online survey was completed by 113 dairy farmers from Belgium and the Netherlands.

Farmers rate 2 vaccine confidence and 3 BRD risk perception measurement scales in a survey.

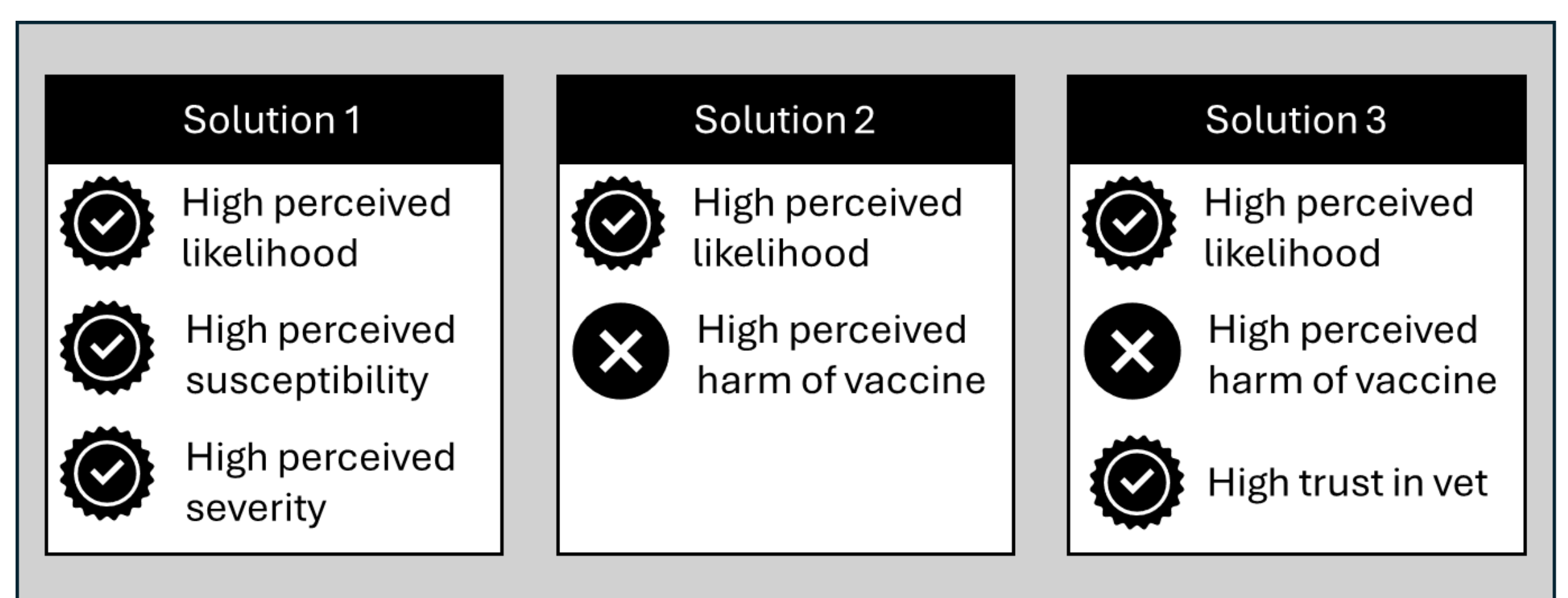
Risk perception and vaccine confidence scales evaluated using PLS-SEM.
Latent construct scores for each scale generated.

Latent construct scores used as conditions in the QCA and transformed into fuzzy sets.

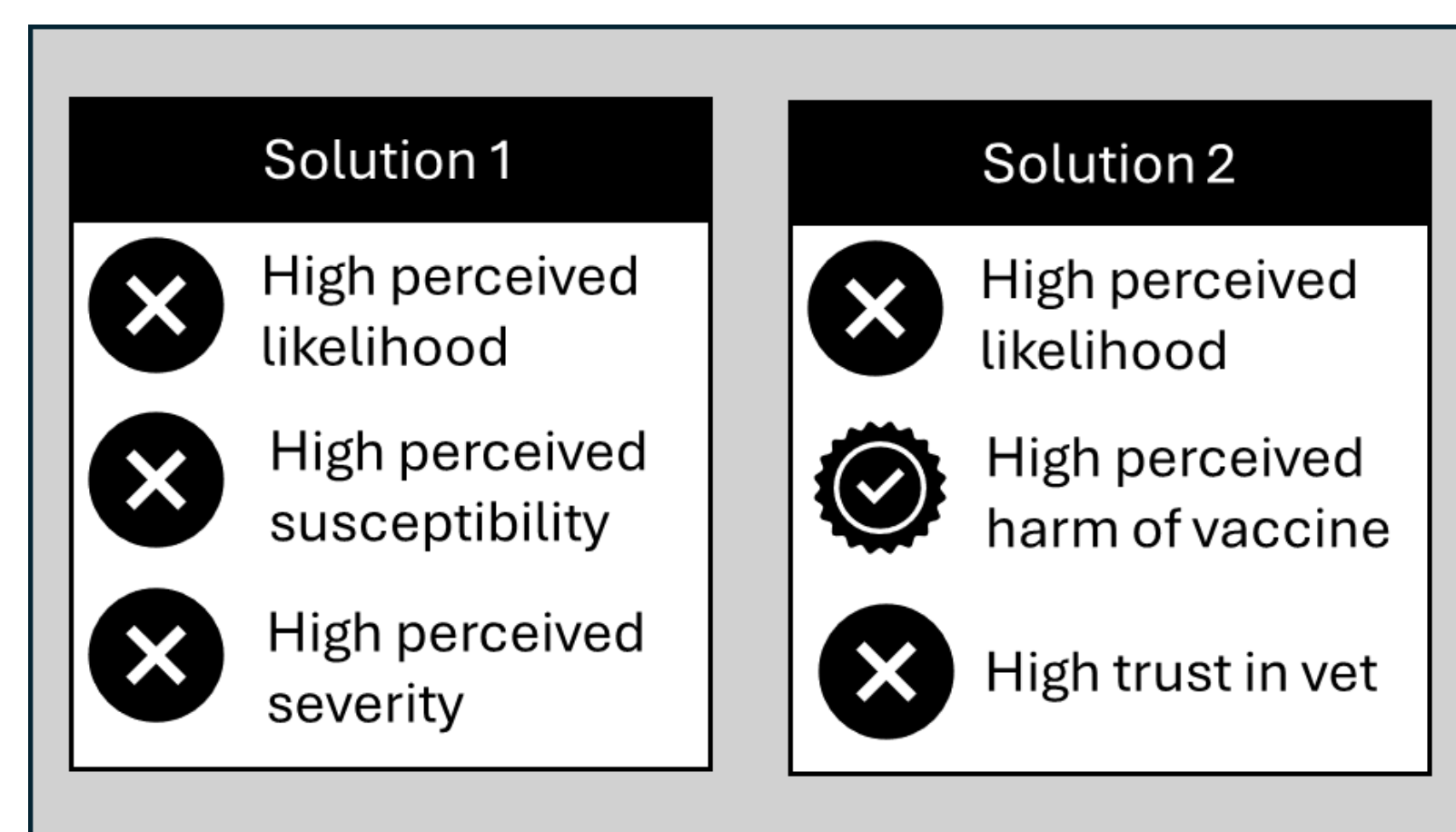
- A Qualitative Comparative Analysis (QCA) was conducted to understand which combinations of attitudes led to the intention to (not) vaccinate calves for BRD.

Results

- The vaccine risk perception and confidence scales had acceptable reliability and validity for use in further analysis.
- There were three different attitudinal combinations that could lead to farmers' intention to vaccinate calves for BRD:



- There were two different attitudinal combinations that could lead to farmers' intention to not vaccinate calves for BRD:



Discussion

- The study showed that **multiple attitudinal conditions** related to risk perception and vaccine confidence were required in **specific combinations**, and there were **multiple possible combinations** that could lead to the intention to (not) vaccinate calves.
- This suggests that increasing vaccine uptake on farms would require **complex interventions** which target multiple attitudes at once.

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