Application of the Parent Attitudes about Childhood Vaccines (PACV) survey in three national languages in Switzerland: exploratory factor analysis and mokken scale analysis

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Vaccine hesitancy (VH) is a complex and context-specific phenomenon that is linked to under-immunization and poses challenges to immunization programs. The Parent Attitudes about Childhood Vaccines (PACV) is an instrument developed to measure VH. We translated the PACV into three languages (German, French and Italian) and administered it to 1388 Swiss parents. We used exploratory factor analysis (EFA) to confirm the scale sub-domains, Cronbach's alpha to assess internal consistency reliability, and Mokken scale analysis (MSA), to explore unidimensionality of each language version. We determined to construct validity by linking parental PACV score to children's immunization status for the first dose of measles vaccine. For the 15-item PACV, EFA extracted three sub-domains in German and French and four sub-domains in Italian. Cronbach's alpha was >0.8 across the three languages, and MSA produced a 13-item German, 14-item French, and 11-item Italian PACV. EFA and MSA of the short version PACV extracted a single factor and scale with Cronbach's alpha >0.7 in all three language versions. VH was significantly associated with non-timely receipt of the first dose of measles in all languages (odds ratio of 20.7, 21.3, and 8.3 for German, French, and Italian languages, respectively). The translated and revised PACV-15 versions are valid and reliable instruments for VH measurement. The structure and reliability of the short version of the PACV was as good as the long version. Our results suggest that the PACV can be used to measure parental VH outside the US in the validated languages.
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