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A Decomposition Approach for the Global Minimization of Biconcave Functions over Polytopes

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Kurzfassung

Aim: The introduction of the human papillomavirus (HPV) vaccine enables for the first time in the history of cancer prevention the possibility of combating the major cause of a cancer even before its onset. The secondary prevention measure of cervical cancer screening has thus been complemented by a primary prevention measure. The aim of this study is to analyse the determinants of uptake of preventive measures against cervical cancer as a basis for comparing the determinants of screening attendance with those of HPV vaccination attendance. **Subject and methods:** A population-based representative survey comprising 760 randomly selected women aged 14 to 65 was performed in the German federal state of Mecklenburg-Western Pomerania. Prevention behaviour, attitudes towards cervical cancer screening and HPV vaccination, and knowledge about cervical cancer and HPV were investigated by means of a structured questionnaire. Descriptive analyses and multivariate logistic regression analyses were conducted to identify the determinants of screening and HPV vaccine uptake. **Results:** Attendance both at screening and at HPV vaccination was best predicted by attitudinal factors. Positive connotations of cancer prevention measures and utility expectations, fear of cancer and high subjective risk perception were conducive to attendance at screening and HPV vaccination. Screening attendance was less regular among women of lower socioeconomic status. In contrast, HPV vaccination uptake was higher for young women with lower educational attainment and lower social class. Knowledge did not impact prevention behaviour significantly. There is no trade-off between screening and vaccination attendance; the vast majority of respondents was aware of the necessity of regular screening attendance even when vaccinated against HPV. **Conclusions:** Uptake rates for existing primary and secondary prevention measures against cervical cancer can be enhanced by fostering perceptions of utility and positive connotations of regular screening and becoming vaccinated against HPV. Elderly women in particular should be encouraged to attend screening by means of a recall system. Given the low overall level of knowledge about cervical cancer and its risk factors, there is a need for education about the necessity and utility of prevention to reach women of all social classes.