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Human papillomavirus knowledge, beliefs, and behaviors: A questionnaire adaptation

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ABSTRACT

Objective: This study aims to adapt a questionnaire about the knowledge, beliefs and behaviors regarding HPV and related subjects into Brazilian Portuguese.
Study Design: National Survey.
Methods: The instrument was translated into Portuguese and retranslated into English separately. Experts assessed the validity of the content and cross-cultural adaptation of the instrument. The instrument was administered to 8580 male and female Brazilian adolescents and young adults (aged between 16 and 25 years) who participated in the National Survey of Human Papillomavirus Prevalence (POP-Brazil). This large-scale survey enrolled participants from 26 Brazilian capitals and the Federal District.
Results: The full questionnaire is composed of 30 questions, with a good absolute agreement between its two halves (61.16 ± 9.97). The preventive behavior section showed the lowest agreement. Men and women showed a difference concerning their knowledge about HPV (score for men 0.48 (± 8.93) vs. women 0.55 (± 4.51), $p < 0.001$).
Conclusion: The proposed questionnaire is the first instrument able to describe the knowledge, beliefs and behaviors regarding HPV and related subjects in Brazilian women and men. This questionnaire appears to be adequate for use in future studies that may produce evidence and knowledge on these specific topics.

Background

The vaccine against human papillomavirus (HPV) is an effective and safe method to prevent HPV infections and consequent HPV-related cancers [1–3]. Persistent infection with high-risk HPV types is the primary cause of cervical cancer, one of the most common cancer in women around the world [4]. Furthermore, high-risk HPV infections are also linked with anogenital (vulvar, vaginal, penile and anal) and head and neck cancers [4–7]. HPV infections are the most common sexually transmitted disease in the United States, with approximately 14 million new genital infections related to HPV each year [8]. There is no nationwide data on HPV prevalence in Brazil, but some regional data and a systematic review shows a prevalence varying from 10.4 to 24.5 in women [9] and around 60% in men [10].

Clinical trial results show that the vaccine against HPV is safe and very effective at preventing infections, in the first years vaccine introduction, more than 40 countries have implemented national vaccination programs against HPV [11]. Nowadays, although vaccination is implemented in more than 80 countries [12], many places continue to report relatively low coverage [3,13–15] and was not yet implemented in many lower income countries, who have populations with the higher cervical cancer incidence rates [12]. Brazil began providing a quadrivalent HPV vaccine (HPV types 6, 11, 16 and 18) at schools in 2014 through the National Public Health System, with coverage near 93% in 2014; however, there was a marked decline in coverage in the following year (only 41.1% for the first dose) [16,17].

Stokley et al showed that the most common cause of no vaccination among female adolescents in the United States of America was a lack of knowledge about the HPV vaccine [18]. This lack of information can also be seen with parents and guardians and is negatively associated with compliance with vaccination. The lack of recommendation and lack of HPV awareness and knowledge is recognized the different stakeholders as parents,

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leaders involved in HPV vaccination policies and practices and even so the adolescents as the mains causes of HPV vaccine refuses [19–21]. Adolescents also reported concerns related to the cost, potential side effects, vaccination age, perceived needs and fear of injections [22,23]. Therefore, describing adolescents' attitudes and knowledge about the risks associated with HPV infection and acquisition should be a priority, since sexual activity is an important determinant of sexual infections [17], especially during the transition to adulthood.

For this reason, developing an instrument that accurately measures the young person's knowledge about HPV is fundamental to better understand behavior and to provide information to develop effective prevention programs and campaigns to encourage HPV vaccination. Thus, the objective of this study is to adapt a questionnaire that evaluates the knowledge, beliefs and behaviors regarding HPV, HPV vaccinations and Pap tests of Brazilian adolescents and young adults.

Material and methods

We conducted a multicenter, national survey of Brazilian sexually active adolescents and young adults, aged 16–25 years, who used the public health system in 26 Brazilian capitals and the Federal District. The data were collected by trained health professionals, in primary care units, between 2016–2017. Briefly, the participants were recruited using different approaches such as list of patients, clinic visits, domiciliary visits, and school-based educational health programs. The sampling was distributed equally in all Brazilian regions to allow a greater variability and were weighted during analysis. More details about the study protocol were previous published [24].

Original questionnaire description

The original questionnaire [25] was developed to Italian population and included 24 items in three sections: 1) knowledge about HPV, diseases related to HPV infections and vaccination; 2) Pap tests and the gynecologist-patient relationship; and 3) sociodemographic data. The Cronbach's alpha value of this instrument was 0.774.

Cross-cultural adaptation

For cross-cultural adaptation, two bilingual recognized doctors with expertise in this subject initially translated the instrument into Portuguese. A bilingual professional, blind to the original version, performed a back-translation to English, independently. To reach the final version, the expert team assessed the content validity.

We performed a pretest and a pilot. The pretest was conducted with a small group of students (n = 30) and provided data about the grammar and difficulty of the questions; this process helped identify problematic items and the understanding of questions. The pilot evaluation (n = 200) provided information about vocabulary and allowed the cross-cultural adaptation for all regions of Brazil (southern, southeastern, central-west, northeastern, and northern). Primary health care professionals of all regions also give feedback about the content and vocabulary.

Content adaptation

We evaluated the operational equivalence, the format of the questions and the application form. Recognized doctors with expertise in this subject conducted this step. We also analyzed the clarity of the language, practical relevance and theoretical relevance; in addition, we included questions considered relevant to a Brazilian population. Finally, we analyzed the whole questionnaire using a methodology similar to previous questionnaire-adaptation studies [26,27].

Statistical analysis

Data entered into an online database were analyzed using SAS software (Statistical Analysis System, SAS Institute Inc., Cary, N.C.), version 9.4, and statistical significance was defined as $p < 0.05$. We adjusted the sample size of the study by the distribution of the population size in each capital and by sexual gender.

Descriptive analyses were performed using percentages and frequencies, and we created a score (range 0–14 for men and 0–16 for women) that recategorized the variables as dichotomic measures (adequate and not adequate answers). The difference between men's and women's scores was because men did not answer questions related to Pap smears. In this scoring system, questions about sexual behaviors, attitudes or beliefs, and sociodemographic factors were not included, creating a total of 16 questions.

To evaluate the construct validity, instead of analyze differences in two relevant groups [28], we split the total sample in two random halves [29], assuming that the standard deviations between two halves were equal and highly correlated [30]. The median age between two halves was equal ($p = 0.8423$, independent t-test), and we used this variable to assure the groups were comparable. To analyze the absolute agreement by gender, we first categorized the sample by gender and then split the full sample randomly in two halves. The interpretation of the magnitude of the concordance estimators is normally agreed to be as follows: 0 (absence), 0–19% (poor), 20%–39% (weak), 30–59% (moderate), 60–79% (substantial/good), and $\geq$ 80% (strong) [31,32].

The study protocols were approved by the Research Ethics Committee of the Hospital Moinhos de Vento of Porto Alegre and followed the standards of Resolution 466/12 of the National Council for research involving humans. All individuals were informed about the research objectives and confidentiality of the data and provided written consent.

Results

Content adaptation

The full version of the questionnaire consists of four sections. The first section includes items about HPV, the second is composed of questions about sexual behavior, the third is composed of questions about Pap tests and was exclusively used for women, and the last is a social demographic profile; the comparative among original questionnaire and the POP-Brazil questionnaire is at Appendix 1. An important goal in designing a questionnaire is maintaining the respondent's compliance and interest [33]. Therefore, highly relevant questions were placed at the beginning of the questionnaire, and embarrassing or sensitive questions were placed at the end (Appendix 1).

In content adaptation, we had removed six questions. The question "Who should provide the vaccine against HPV?", because at Brazil the vaccine was already provided by the Brazilian Public Health System. The question "How often do you have sexual intercourse?" was replaced by "How many people did you have sex with in the last 12 months?". The question "During pap test, are you satisfied with the communicative aspects with your gynecologist?" was excluded because at Brazil, general physician or nurse can also do the test. Some socio demographics factors, as Father's and mother's profession and religion were replaced for questions usually used in Brazilian questionnaires to evaluate income and social class [34].