Patient Education and Counseling xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

Patient Education and Counseling

journal homepage: www.elsevier.com/locate/pateducou

Adequacy of information provided by healthcare professionals on vaccines: Results of a population survey in Spain

María D. Esteban-Vasallo[a,*], Ana López de Andrés[b], Marianela Bayón[c], José Luis Aréjula[c], Rodrigo Jiménez-García[b]

[a] Madrid Regional Health Authority, Public Health Directorate, Madrid, Spain
[b] Preventive Medicine and Public Health Teaching and Research Unit, Health Sciences Faculty, King Juan Carlos University, Alcorcón, Madrid, Spain
[c] Primary Care, Madrid Regional Health Affairs Authority, Madrid, Spain

ARTICLE INFO

Article history:
Received 7 June 2017
Received in revised form 18 October 2017
Accepted 2 February 2018

Keywords:
Communication
Health personnel
Patient satisfaction
Predictors
Vaccines

ABSTRACT

Objective: To describe the population who self-reported perceiving information on vaccines provided by health professionals as inadequate, and to analyze factors associated.
Methods: A Spanish nationwide representative health survey conducted in individuals ≥18 in 2015 (N = 7 800) was used. Respondents were classified according to the question: '*Do you think that health professionals inform adequately to patients about the advantages and risks of vaccines prior to their administration?* (yes/no/non-responders). The association with socio-demographic and health-related characteristics and with opinions/attitudes regarding vaccines were analyzed.
Results: 33.7% of respondents felt not adequately informed. These individuals had lower influenza vaccination coverage (16.0% vs. 24.1%), and were more distrustful of vaccines in general (8.4% vs. 3.3%) as well as regarding on the influenza vaccine (11.9% vs. 7.6%). Inadequate information was associated with female gender (aOR:1.21,95%CI:1.08–1.35), autochthonous origin (aOR:1.54,95%CI:1.27-–1.87), household income ≤600€/month (aOR:1.45,95%CI:1.10–1.91), poor self-perceived health (aOR:3.17,95% CI:1.36–7.39), and a lower satisfaction with the National Health Service and nurses (aOR:0.92,95% CI:0.89–0.95 and aOR:0.85,95%CI:0.82–0.88).
Conclusion: A large proportion of the population considers that the information provided regarding vaccines is inadequate. This perception is associated with negative attitudes towards vaccination.
Practice implications: Further studies are required to deepen our understanding of the problem and to enhance communication provided by healthcare professionals.

1. Introduction

Vaccination is one of the safest and most effective public health intervention for maintaining the health of the population [1]. Although routine vaccinations, both in child and adulthood are a major asset for the primary prevention of some infectious diseases, a proportion of the population are still reluctant to receive vaccines; a fact which has affected the vaccination coverage in some countries [2]. Despite the high rate of childhood vaccination coverage in most developed countries, (which indicates that vaccination remains a widely accepted public health measure), recent outbreaks of vaccine-preventable diseases have been linked to sub-optimal coverage rates in some areas and the resulting immunity gaps in the population [3]. Moreover, a small decrease in seasonal influenza vaccination coverage has been detected in most European countries after the pandemic season [4]. Similarly, in Spain 45 measles outbreaks were recorded across 17 autonomous regions in 2011, reaching a total of 3647 cases [5,6]. In addition, isolated cases of whooping cough have recently emerged, with fatal consequences due to non-compliance with the vaccination schedule. Furthermore, seasonal influenza vaccine uptake rates in the recommended target groups seem to be decreasing [7].

The Strategic Advisory Group of Experts (SAGE) Working Group on Vaccine Hesitancy, established in 2012, concluded that vaccine hesitancy refers to the delay in the acceptance or refusal of vaccination despite the availability of the same [8]. They concluded that, while communication is not a specific factor, like confidence, complacency and convenience, it can negatively influence vaccination uptake and contribute to vaccine hesitancy when it is poor or inadequate [9]. This behavioral phenomenon is apparently increasing in the developed world [10]. Trust in vaccines and in the health system are key elements of public

* Corresponding author at: San Martín de Porres, 6, 28035, Madrid, Spain.
E-mail address: maria.estebanv@salud.madrid.org (M.D. Esteban-Vasallo).

https://doi.org/10.1016/j.pec.2018.02.002
0738-3991/

health programs, and understanding the contributors and threats to trust is essential in explaining vaccine acceptance [1]. In studies of vaccination decision-making, risk perception is often closely linked with ideas of trust in health professionals, in the government or in public health institutions as well as the interplay between the same [10]. A recent review on attitudes to vaccination reported "distrust of doctors", 'distrust of government sources', and 'distrust of pharmaceutical companies' as being reasons for hesitancy [11]. Furthermore, controversial public discussions regarding pandemic influenza vaccinations seem to have contributed to both a very low uptake of pandemic vaccines and a decreased uptake of seasonal influenza vaccines in post-pandemic seasons [12].

The World Health Organization has recently discussed the importance of evaluating the level of public trust in immunization, measured by surveys on knowledge, attitudes, beliefs and practices [13]. In Spain, there is a general lack of public information on this subject. The 'Health Barometer' is a cross-sectional survey that amasses information on health-related behaviors, attitudes and opinions among the general population aged 18 years and older which has been performed annually in Spain since 1993 by the Ministry of Health, Social Services and Equality. In 2015, for the first time, several questions related to vaccination were included [14]. In the present study, data from this survey were used to describe the characteristics of the Spanish adult population who self-reported feeling inadequately informed on vaccines by health professionals and to identify factors associated with this perception.

2. Methods

2.1. Study design

The 'Health Barometer' is an annually performed cross-sectional survey. The study population consists of people of both sexes aged 18 years and over residing in Spain for more than twelve months. A structured questionnaire in Spanish was administered via a personal face-to-face interview in the respondent's home, conducted by interviewers who had received specific training for this survey. A total of 7800 interviews were performed in three waves between March and October of 2015. The sampling process was multi-stage, stratified by clusters, with the primary (municipalities) and secondary units (census sections) selected in a random, proportional way. The last units (individuals) were selected by random routes and by quotas of sex and age. This procedure guarantees the representativeness of the sample at the national level. The sampling error was ± 1.1% for a confidence level of 95% and P = Q in the case of simple random sampling. Details on the methodology can be found elsewhere [14].

2.2. Study variables

The main study outcome was the answer to the question "*Do you think that health professionals inform adequately to patients (or parents in the case of children) about the advantages and risks of vaccines prior to their administration?*'. According to this answer, respondents were classified into 'adequately informed' and 'inadequately informed'. Those who left the question unanswered or answered "don't know" were categorized as "non-responders".

The survey data used in this study included participants' i) socio-demographic characteristics: sex; age; origin (born in Spain –autochthonous- or in other countries – immigrant-); educational level (no studies-primary/secondary/university/others); monthly household income (≤600€/601-1200€/1201-2400€/>2400€/don't know-no answer) and the size of the municipality of residence (<2000/2000-10,000/10,001-100,000/100,001-1,000,000/>1,000,000 inhabitants); ii) information on issues related with health and healthcare such as: self-perceived health status (very good/good/regular/poor/very poor); type of health insurance (public/private/mixed/none); attendance to public and/or private primary care consultation the previous year; level of satisfaction (in a scale from 0 to 10) with the: a) National Health Service (NHS); b), assistance provided by family physicians; c) assistance provided by nursing professionals; and the level of agreement (always/usually/rarely/never) with the statement '*health authorities provide enough information on the prevention of disease*', iii) also the following specific questions on vaccines: '*Were you vaccinated against influenza in the last campaign?*'; '*What was the main reason for getting/not getting vaccinated?*'. Finally, participants were asked to show their agreement (high/enough/low/disagreement) with the following statement:"*The influenza vaccine prevents the disease and its complications among the elderly or those with higher risk*'; and with regards child vaccines: a) *'They are effective in preventing diseases'*, b) *'They carry more risks than benefits'*, c) *'It is important to receive all doses of each vaccine to be protected*', d) *'Natural childhood's disease is preferable to vaccination*'

2.3. Statistical analysis

A descriptive analysis was performed. Comparisons were made using Chi-square, Z, ANOVA and Mann–Whitney tests. Bivariate and multivariate logistic regression analyses were performed to assess those factors associated with the perception of inadequate information on vaccines provided by health professionals. All factors that *a priori,* according to the reviewed literature, could be associated with the dependent variable and those variables in which the bivariate test was significant (p-value < 0.05) were included into the saturated multivariate model. Following the fit of the multivariate model, the importance of each variable included in the model was verified. This included the examination of the Wald statistic for each variable and the comparison of each estimated coefficient. The variables that did not contribute to the model were eliminated one by one, following a 'backward' strategy and a new model was fitted. The new model was compared to the old model using the likelihood-ratio test. This process of deleting, refitting and verifying continued until all the important variables (predictors) were included in the model. The results were expressed as odds ratios (ORs) with 95% confidence intervals (CI). The analysis was conducted using SPSS v.22.

2.4. Ethical aspects

This study was conducted using an anonymous public access dataset and confidentiality was maintained at all times. Confidentiality was ensured because the surveys were anonymous and no identifiable participant data was collected. Furthermore, the professionals performing the interviews were different to those recording and analyzing the data. In accordance with Spanish legislation, ethics committee approval was deemed unnecessary for this research.

3. Results

A total of 7 746 surveys were analyzed (51.2% women, mean age: 48.4, SD: 17.8). Our analysis revealed that 33.7% of respondents considered that health professionals do not adequately inform patients about the advantages and disadvantages of vaccines before they are administrated, 48.0% felt they were adequately informed and the remaining 18.3% were non-responders (Table 1). When comparing these three groups, we observed that, among those who felt they were inadequately informed, there was a significantly higher proportion of women (54.7% vs. 50.3% among

Please cite this article in press as: M.D. Esteban-Vasallo, et al., Adequacy of information provided by healthcare professionals on vaccines: Results of a population survey in Spain, Patient Educ Couns (2018), https://doi.org/10.1016/j.pec.2018.02.002