Comparison of knowledge and attitudes about vaccination between Belgian and immigrant adolescents

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Vaccination; Adolescents; Immigrants; Prevention

**Summary** Immigrant adolescents have different beliefs and attitudes about health and disease compared to Belgian adolescents. The aim of this study was to compare the knowledge of Belgian and immigrant adolescents concerning vaccination. In March 2009, adolescents between the ages of 14 and 17 years from three schools with a mixed Belgian and immigrant population in Antwerp completed a written questionnaire concerning vaccination. In total, 186 adolescents (88 immigrants and 98 Belgians) completed the questionnaire. Knowledge about vaccinations was slightly lower among immigrant adolescents ($P < 0.001$). In both groups, the family physician and the school were the most important information sources for vaccination. Parents played a less important role among immigrant adolescents (50%) compared to Belgian adolescents (80%) ($P = 0.002$). The physician, the school and the parents played key roles in the vaccination of both immigrants and Belgian adolescents.

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**Introduction**

Approximately 1.7 million adolescents worldwide between the ages of 10 and 19 years die annually.

The most important causes of death for adolescents are traffic accidents, suicide, violence and complications of pregnancy [1]. Despite efforts in the field of childhood and adolescent health, many adolescents also die from preventable or treatable diseases. Adolescents are particularly vulnerable to infectious and other diseases.

Some important diseases among adults have their origin in childhood and adolescence. According to the World Health Organization (WHO), 70% of all premature deaths are related to changes in behavior during adolescence. Smoking, sedentary
lifestyle, poor diet and sexually transmitted diseases appear during adolescence and lead to premature morbidity or mortality in adulthood [1].

Adolescence is a period of life characterized by constant change and evolution. Adolescents’ changing behavior affects their health. These behavioral changes are influenced by several factors. Adolescents attempt to identify with the people around them. Their behavior and social values are primarily influenced by their peers. However, when health beliefs are involved, adolescents’ relationships with their parents and family members play a key role. The media and legal, political, social and religious values all affect the behavior of adolescents. Furthermore, their economic situation and the accessibility to school and health care also affect their development. Campaigns to promote the health and development of adolescents should be tailored to the adolescent population.

At the Independent European Vaccination Experts summit in 2003, the education of this target population was identified as being crucial to improve health in Europe through vaccination [2].

The promotion of the health and development of adolescents is one of the most important long-term objectives in our society and is supported by the WHO [1].

Vaccination of immigrants

The promotion of healthcare among adolescents is an important issue in developed countries, such as Belgium. Like many Western European countries, Belgium hosts numerous immigrants from South Europe and Northern Africa. Many Belgian and immigrant adolescents suffer from infectious diseases that are preventable by vaccination, such as meningococcal meningitis, pertussis, measles and mumps. National vaccination strategies should be adapted to the specific needs and characteristics of adolescents and should focus on three action points: routine vaccinations, booster vaccinations and catch-up vaccinations.

Vaccinating adolescents protects not only adolescents themselves but also the persons in their environment. For these reasons, the cost/benefit ratio of vaccinating adolescents is highly favorable.

Especially for immigrant adolescents, vaccination provides an opportunity to discover health care facilities that they can attend for problems such as smoking, family planning, contraception, diet and physical activity. This discovery can have beneficial effects on their future health [3].

Promoting vaccination

From a health care provider’s perspective, the most important determinants of adolescent immunization are reimbursement, professional organization recommendations, disease and vaccine characteristics, school requirements, perceptions of physicians’ recommendations, cost and insurance coverage, media reports and vaccine supply, ordering, timing and scheduling [4].

In any population, the degree of vaccination depends on several factors: accessibility to health care facilities, perceptions of vaccination, the timing of the vaccination and follow-up on vaccine safety and activity [5]. In addition, other factors, such as cost, recommendations, level of socioeconomic disadvantage and awareness, also influence the degree of vaccination. Especially for immigrant adolescents, the accessibility to health care facilities plays an important role in their vaccinations and their future health.

There is significant debate about the most effective strategies to promote vaccination among adolescents.

A systematic review described how the effectiveness, applicability, economic impact and barriers of selected population-based interventions improve vaccination coverage in the United States [6,7]. The role of routine and mass vaccination campaigns in the immunization status of adolescents in Europe was described by Dinelli et al. [8].

Previous studies have considered efforts to stimulate knowledge about vaccination. Cassidy et al. designed an immunization program to educate parents and students about hepatitis B virus infection and vaccination using science class presentations [9]. A study by Vallette investigated the acceptability of a film on human papillomavirus (HPV) vaccination among parents and school children [10].

A study on adolescents’ perceptions and knowledge of vaccination was conducted in 2006 in five European countries (France, Italy, Spain, Germany and the United Kingdom (UK)) [11].

A thorough understanding of adolescents’ specific needs and their knowledge of disease and prevention is necessary to adapt vaccination strategies, which may differ according to adolescents’ specific needs.

The aim of this study was to describe the perceptions and knowledge of vaccination among Belgian and immigrant adolescents. Furthermore, this study attempted to compare information sources and the motives for and barriers to vaccination in both groups. The results may enable health care workers to adapt future vaccination strategies according to the target population.
Methods

Study population

A group of adolescents between the ages of 14 and 17 years was selected from three schools run by the three different educational networks in Antwerp, Belgium. Students in the last 4 years of secondary school and in technical classes were recruited during March 2009.

The city of Antwerp was selected because of its great diversity in students, which allowed us to include adolescents from all social classes, including immigrants.

Immigrants were defined as persons who were not born in Belgium or whose parents were not born in Belgium. These immigrants form an interesting subpopulation for our study because this group has a lower degree of vaccination than the Belgian population [12].

The sample size was calculated by accounting for the total student population of 20,104 students between the ages of 14 and 17 years. A sample size of 194 participants was needed for a 95% confidence level and 7% confidence interval.

Questionnaire

For this study, a validated questionnaire was used that was adapted from the previously mentioned European study (see Appendix) [11]. The questionnaire was translated from English to Dutch using the backward-forward method and double checked by the authors and a translator. The questionnaire consisted of 17 questions on adolescents’ general interest, knowledge and perceptions of vaccination. The adolescents were also asked about their information on vaccinations and their drivers and barriers to opting for vaccination. Additionally, the type and importance of information channels were examined. Six questions regarding the demographic characteristics of the participants were included: sex, age, place of residence, country of origin of the student and the parents, branch of studies and time residing in Belgium. Finally, participation in thematic school courses about vaccinations was examined among students and teachers.

For five questions, the respondents provided their degree of agreement with a position on a Likert scale ranging from one to ten. A score below five corresponded to disagreement and a score of five or more corresponded to agreement.

The students completed the written questionnaire at the beginning of a class session that focused on an interactive course about vaccination, sexually transmittable diseases and contraception. One of the investigators was available in the classroom to clarify unclear questions and solve linguistic problems.

The data from the questionnaire were entered into an Excel sheet. The databases were stored with a central data manager at the Department of Family Medicine of the University of Brussels. Several control measures ensured data quality and limited missing data. Data cleaning and data analyses for this study were performed using Statistical Package for Social Sciences (SPSS) 17.0 (SPSS Inc., Chicago, IL).

Data analysis

An independent-sample t-test was used to detect possible significant differences between continuous variables. Univariate association was tested with chi-square tests with 95% confidence intervals. The Fisher exact test was used when less than five observations were involved.

Our results are based on the answers to a written questionnaire. From similar studies, we know that the results can be hampered by intentionally misleading answers and misunderstanding questions. The first problem was reduced by checking the answers and omitting questionnaires that showed systematic repetitive answers. However, none of the questionnaires was eliminated for this reason. Misunderstanding the questions was limited by the fact that one of the investigators was available to help the participants with unclear questions during the completion of the questionnaire.

Results

Study population

In total, 186 adolescents (88 immigrants and 98 Belgians) completed the questionnaire. The distribution of Belgians and immigrants corresponded with their distribution in the schools. None of the students refused to participate in the study. The immigrants originated from 23 different countries. Most of the immigrants (84%; 74/88) came from countries outside of the European Union and more than half (51%; 45/88) originated in Morocco. Most (71%; 62/88) were born in Belgium and only 2% (2/88) of them had lived in Belgium for less than 5 years.

General perceptions of vaccination

In our sample, 93% of respondents knew that vaccination is a method to prevent disease. The three
most common thoughts upon hearing the word "vaccination" were a syringe (76%; 141/186), a disease (43%; 80/186) and a specific type of vaccine (43%; 80/186). There were no significant differences between immigrant and Belgian adolescents in the words that came to mind when the respondents heard the word "vaccination".

Most of the participants considered vaccination an efficient (93%; 173/186) and safe (87%; 162/186) way to prevent disease. Most of them were interested in being vaccinated (63%; 117/186). In particular, they were interested in vaccines for hepatitis C (96%; 179/186), meningitis (96%; 178/186), genital herpes (91%; 170/186) and Human Immunodeficiency Virus (HIV) (91%; 169/186), and 95% (96/101) of the girls wanted the HPV vaccination. There was no significant difference in the perceptions of vaccination between immigrant and Belgian adolescents.

Knowledge about vaccination

Belgian adolescents provided more correct answers to the ten knowledge questions than immigrant adolescents (8 and 7, respectively; \( P < 0.001 \)). Most adolescents knew about the existence of vaccines against tetanus, hepatitis B, HPV, meningitis and influenza (Table 1). However, only 55% (103/186) knew about the existence of the measles vaccine and 42% (78/186) knew about the polio vaccine. Some adolescents thought that vaccines existed for diabetes (32%; 59/186), HIV (23%; 42/186) and obesity (14%; 26/186). These misconceptions occurred significantly more often among immigrant adolescents. In the self-evaluation of their knowledge, both immigrant adolescents and Belgian adolescents scored five points on a scale of ten.

Information needs and sources

More than three-quarters of the adolescents (78%; 145/186) were interested in obtaining more information about vaccination. They were interested in information about the successful consequences of vaccination (70%; 130/186), the consequences of not being vaccinated (69%; 128/186) and new vaccines (58%; 108/186).

Immigrant adolescents and Belgian adolescents used the same information sources. For both groups, family physicians played the most important role. However, school (\( P = 0.003 \)) and the internet (\( P = 0.04 \)) played significantly more important roles for immigrant adolescents. The role of parents and relatives was less important for immigrant adolescents compared to Belgian adolescents (\( P < 0.001 \)). Radio also played a less important role among immigrant adolescents (\( P = 0.04 \)).

Family physicians played a key role for 83% (154/186) of the adolescents in providing information about vaccinations (Table 2). This score was significantly higher than the score for specialists (26%; 48/186) and other health care workers (22%; 41/186) (\( P < 0.001 \)). Schools (79%; 147/186) and parents and relatives (70%; 130/186) also played important roles. The role of television (50%; 93/186) and the internet (38%; 70/186) was less important.

Motives for and barriers to vaccination

In this study, adolescents’ decision to get vaccinated was mainly influenced by advice from physicians, parents and schools. Both groups indicated that individual protection was the most important advantage of vaccination, followed by the protection of relatives and friends.

Table 1 For which of the following diseases are vaccines available?

<table>
<thead>
<tr>
<th></th>
<th>Total (N = 186)</th>
<th>Belgians (N = 98)</th>
<th>Immigrants (N = 88)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Tetanus</td>
<td>175</td>
<td>94</td>
<td>93</td>
<td>95</td>
</tr>
<tr>
<td>Influenza</td>
<td>136</td>
<td>73</td>
<td>75</td>
<td>77</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>169</td>
<td>91</td>
<td>90</td>
<td>92</td>
</tr>
<tr>
<td>Meningitis</td>
<td>142</td>
<td>76</td>
<td>71</td>
<td>72</td>
</tr>
<tr>
<td>Cervical cancer</td>
<td>162</td>
<td>87</td>
<td>83</td>
<td>85</td>
</tr>
<tr>
<td>Measles</td>
<td>103</td>
<td>55</td>
<td>56</td>
<td>57</td>
</tr>
<tr>
<td>Polio</td>
<td>78</td>
<td>42</td>
<td>38</td>
<td>39</td>
</tr>
<tr>
<td>HIV/AIDS(^a)</td>
<td>42</td>
<td>23</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Diabetes(^a)</td>
<td>59</td>
<td>32</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Obesity(^a)</td>
<td>26</td>
<td>14</td>
<td>4</td>
<td>4.1</td>
</tr>
</tbody>
</table>

\(^a\) Vaccine does not exist for this disease.
Table 2  What/who are your sources of information about vaccination?

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Total (N = 186)</th>
<th>Belgians (N = 98)</th>
<th>Immigrants (N = 88)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>14 8</td>
<td>11 11</td>
<td>3 3.4</td>
<td>0.044</td>
</tr>
<tr>
<td>Newspapers, magazines</td>
<td>44 24</td>
<td>24 24</td>
<td>20 23</td>
<td>0.778</td>
</tr>
<tr>
<td>Internet</td>
<td>70 38</td>
<td>27 28</td>
<td>43 49</td>
<td>0.003</td>
</tr>
<tr>
<td>TV</td>
<td>93 50</td>
<td>47 48</td>
<td>46 52</td>
<td>0.557</td>
</tr>
<tr>
<td>Friends</td>
<td>51 27</td>
<td>26 27</td>
<td>25 28</td>
<td>0.774</td>
</tr>
<tr>
<td>Parents and family</td>
<td>130 70</td>
<td>80 82</td>
<td>50 57</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Other healthcare professionals</td>
<td>41 22</td>
<td>22 22</td>
<td>19 22</td>
<td>0.888</td>
</tr>
<tr>
<td>Specialists (pediatricians, etc.)</td>
<td>48 26</td>
<td>24 24</td>
<td>24 27</td>
<td>0.665</td>
</tr>
<tr>
<td>Leaflet in doctor’s office</td>
<td>50 27</td>
<td>27 28</td>
<td>23 26</td>
<td>0.828</td>
</tr>
<tr>
<td>Family physicians</td>
<td>154 83</td>
<td>79 81</td>
<td>75 89</td>
<td>0.066</td>
</tr>
<tr>
<td>School (doctor, nurse, course)</td>
<td>147 79</td>
<td>69 70</td>
<td>78 89</td>
<td>0.002</td>
</tr>
<tr>
<td>Other source of information</td>
<td>6 3</td>
<td>2 2.0</td>
<td>4 4.5</td>
<td>0.424</td>
</tr>
<tr>
<td>No specific source</td>
<td>8 4</td>
<td>3 3.0</td>
<td>5 5.7</td>
<td>0.379</td>
</tr>
</tbody>
</table>

For both groups, the three most important motives for vaccination were the seriousness of the disease, the advice of a physician and the protection of relatives and friends (Table 3). However, for immigrant adolescents, the protection of relatives and friends played a less important role (P = 0.046).

For immigrant adolescents and Belgian adolescents, a lack of information about the need for vaccination was the most important reason for refusing vaccination, followed by the undesirable side effects of vaccines and the favorable outcome after treatment of the concerned disease (Table 4). The fact that a vaccine was not recommended by a physician was a more important barrier to vaccination for immigrant adolescents than for Belgian adolescents (P = 0.019).

Table 3  What reason would have the highest impact on your decision to get vaccinated?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Total (N = 186)</th>
<th>Belgians (N = 98)</th>
<th>Immigrants (N = 88)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fact that the vaccination is mandatory</td>
<td>17 9</td>
<td>8 8</td>
<td>9 10</td>
<td>0.626</td>
</tr>
<tr>
<td>Recommendation by a physician</td>
<td>38 20</td>
<td>18 18</td>
<td>20 23</td>
<td>0.462</td>
</tr>
<tr>
<td>Recommendation by your parents</td>
<td>7 4</td>
<td>4 4</td>
<td>3 3</td>
<td>1.000</td>
</tr>
<tr>
<td>Recommendation by your friends or relatives</td>
<td>2 1</td>
<td>1 1</td>
<td>1 1</td>
<td>1.000</td>
</tr>
<tr>
<td>The protection of people around you</td>
<td>27 15</td>
<td>19 19</td>
<td>8 9</td>
<td>0.047</td>
</tr>
<tr>
<td>To avoid costs related to treatment</td>
<td>6 3</td>
<td>2 2</td>
<td>4 5</td>
<td>0.424</td>
</tr>
<tr>
<td>The seriousness of the disease</td>
<td>67 36</td>
<td>40 41</td>
<td>27 31</td>
<td>0.151</td>
</tr>
<tr>
<td>Being ill is unpleasant</td>
<td>6 3</td>
<td>4 4</td>
<td>2 2</td>
<td>0.685</td>
</tr>
<tr>
<td>Being ill disturbs me or makes me lose time</td>
<td>5 3</td>
<td>2 2</td>
<td>3 3</td>
<td>0.669</td>
</tr>
<tr>
<td>Do not know</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>NA</td>
</tr>
<tr>
<td>Wrong answer</td>
<td>13 7</td>
<td>8 8</td>
<td>5 6</td>
<td>0.508</td>
</tr>
</tbody>
</table>

Discussion

This study of immigrant (47%) and Belgian (53%) adolescents provided the opportunity to compare the knowledge and attitudes of both groups. There were no significant differences between the two groups of adolescents with respect to general perceptions of vaccination, interest in vaccinations or willingness to receive vaccines.

Belgian adolescents scored better on the knowledge questions than immigrant adolescents. More immigrant adolescents incorrectly thought that vaccines existed for diabetes, obesity and HIV/Acquired Immune Deficiency Syndrome (AIDS). In other European countries, 16% of adolescents thought that a vaccine against HIV/AIDS existed, 8% had the same misunderstanding about
obesity and 27% of European adolescents thought that a vaccine existed for diabetes [11]. Compared to our results, the European results are significantly different for obesity (P = 0.014) and diabetes (P = 0.006) but not for HIV/AIDS (P = 0.12). However, in the European study, there were some important variations between countries: 44% of the UK participants believed that there was a vaccine for diabetes compared to only 16% of the Italian participants. A similar difference was found for obesity (14% in the UK and 5% in Italy and Germany). Twenty-two percent of the UK participants believed that there was a vaccine against HIV/AIDS compared to 13% of the French participants [11]. These examples illustrate that there is no systematic difference between the northern and southern countries in Europe and that knowledge in the southern countries, from which many inhabitants immigrated to the northern countries, is certainly not worse than knowledge in the northern countries.

Despite the differences in knowledge, there was no significant difference in attitudes toward vaccination. A study comparing delinquent and nondelinquent adolescents showed that knowledge of hepatitis B virus infection among the former group was significantly lower, but there was no difference between the groups’ attitudes toward infection and vaccination [13].

The family physician was the most important information source for both groups. This finding was slightly different from the European study, in which parents and family were the most important sources of information [11].

Among immigrant adolescents, school, the internet and celebrities receiving vaccines played significantly more important roles and parents, relatives and radio were less important. Belgian adolescents had more interest in the mechanisms of vaccination and new vaccines.

For both immigrant adolescents and Belgian adolescents, the decision to receive a vaccine was primarily influenced by advice from physicians, parents and schools. Both groups indicated that individual protection was the most important advantage of vaccination, followed by the protection of relatives and friends.

The country of origin may not be the only influence on adolescents’ attitudes toward vaccination. A study among British adolescents showed that most participants accepted HPV vaccination (89%) [14]. Ethnicity, religion and English as a first language were associated with acceptance of this vaccination (pseudo- \( R^2 = 0.11 \)). In a multivariate analysis, only religion was significant, with girls from Muslim (odds ratio \( OR = 0.20 \), confidence interval \( CI = 0.05--0.90 \)) and Hindu/Sikh (\( OR = 0.09, CI = 0.01--0.56 \)) backgrounds being less likely to accept vaccination [15].

For both groups in our study, the three most important motives for vaccination were the seriousness of the disease, advice from a physician and the protection of people around the respondent. These findings are similar to the results of the European study [11]. However, for immigrant adolescents, the protection of other people was less important than for Belgian adolescents. The European study did not provide country-specific figures about this aspect of the study [11].

The fact that a vaccine was not recommended by a physician was a more important barrier for immigrant adolescents than for Belgian adolescents. For
Belgian adolescents, the cost of a vaccine was more important. This is surprising because we might expect that the cost would be a greater obstacle for the vaccination of immigrants, who are generally less prosperous than Belgians.

Our study only included adolescents from one city. The results for rural adolescents might differ significantly. The findings from a study of rural adolescents in the United States suggest that perceived barriers and injunctive social norms may influence vaccination acceptance [16].

Conclusions

Both Belgian and immigrant adolescents understand that vaccination is a preventive measure and not a treatment. Knowledge about the existence of vaccinations against tetanus, hepatitis B, HPV, meningitis and influenza was high. More immigrant adolescents believed that vaccines existed for HIV, obesity and diabetes. The family physician and the school played key roles in the vaccination of both groups of adolescents. Parents played a less important role among immigrant adolescents compared to Belgian adolescents. The barriers to and the motives for vaccinations were similar in both groups. However, for immigrant adolescents, the fact that a vaccination was not recommended by a physician was more important than it was for Belgian adolescents.

Vaccination strategies for Belgian and immigrant adolescents should be adapted according to these findings.

Conflict of interest

None of the authors have any financial and personal relationships with other people or organizations that could inappropriate influence (bias) their work such as employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding.

Acknowledgments

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Appendix A. Questionnaire for the study on knowledge about vaccination in Europe

Personal information
- Boy/girl
- Age:......................
- Branch of studies and class:......................
- Place of residence:......................
- Land of origin (if not Belgian) for yourself and your parents:......................
- How long have you lived in Belgium (if not born in Belgium):......................

Vaccination questionnaire

Question 1: Can you give the three words that come to your mind when I say "vaccination"?
Question 2: How interested are you in the topic of vaccination?
1. Not interested at all
2. Not very interested
3. Somewhat interested
4. Very interested
Question 3: According to you, vaccination is...:
- A way to treat disease when it occurs
- A way to avoid disease
- I have no idea
Question 4: How much do you personally agree with each of the following statements?
Give a score on a scale from one to ten: 1 means you do not agree at all and 10 means you strongly disagree
- There are still important discoveries to be made in the field of vaccination and important vaccines to create
- Vaccination is truly a major asset/discovery for the healthcare of humanity
- Vaccination is the best way to prevent diseases because it is efficient
- Vaccination is the safest way to prevent diseases
- Vaccination is synonymous with innovation
- There has not been major progress in the field of vaccination in the last 20 years
Question 5: Do you think that you are better protected by vaccination compared with:
- Your grandparents’ generation Yes/no
- Your parents’ generation Yes/no
- Teenagers in developing countries Yes/no
Question 6: I am going to mention some diseases. For each, tell me if these vaccines are available in your country.
- Influenza Yes/no
- Measles Yes/no
- Cervical cancer Yes/no
- Diabetes Yes/no
- Obesity Yes/no
• Hepatitis B    Yes/no
• Polio        Yes/no
• Meningitis   Yes/no
• HIV/AIDS    Yes/no
• Tetanus      Yes/no

Question 7: In the next 5 years, vaccines will be available to protect against the following diseases. Would you be interested in receiving the following vaccinations?

For each, provide a score on a scale from one to ten: 1 means you would not be interested at all in getting vaccinated and 10 means that you would be very interested in being vaccinated.

• Avian influenza
• HIV
• All types of meningitis
• Hepatitis C
• Genital herpes
• Cervical cancer (female respondents only)

Question 8: For each of the following statements about the main benefits of vaccination, how much do you personally agree, using a scale from one to ten?

1 means that you do not agree at all and 10 means that you strongly agree.

• Vaccination allows me to be protected against diseases
• Vaccination allows my family to be protected against diseases
• Vaccination allows my friends and relatives to be protected against diseases
• Vaccination prevents epidemics, saves lives and makes diseases disappear in my country
• Vaccination prevents epidemics, saves lives and makes diseases disappear in the world

Question 9: What would be the three main reasons that would have the highest impact on your decision to get vaccinated?

• The fact that an illness is serious
• The fact that a physician recommends vaccination
• The fact that your parents recommend that you get vaccinated against a disease
• The fact that getting vaccinated also means protecting people around you
• The fact that being ill is unpleasant
• The fact that being ill could disturb you or make you lose time in your daily life
• The fact that a vaccination is mandatory by public health authorities
• Being vaccinated can avoid costs related to the treatment of the disease
• The fact that a friend or a relative recommends that you get vaccinated against a disease
• Do not know

Question 10: What would be the three main reasons for not being vaccinated?

• The side effects of the vaccine
• The injection/fear of the needle
• Your physician did not mention the need to get vaccinated
• Not all vaccinations are necessary
• The fact that the disease can be easily treated
• You do not feel at risk
• The cost of the vaccine
• You are against vaccination
• Do not know

Question 11: Does your education program include lessons about vaccination or have you ever been told about and/or been given information about vaccination at school?

• Yes, once
• Yes, several times
• No
• Do not know

Question 12: Are you interested in more information about vaccinations?

• No, not at all
• No, not really
• Yes, somewhat
• Yes, definitely

Question 13: On a scale from one to ten, indicate how well informed you consider yourself to be about vaccination. 1 means you are not informed at all and 10 means you are very well informed.

Question 14: In general, can you tell me what/who your sources of information about vaccination are?

• Parents, family
• GPs
• School (doctor, nurse, education program)
• TV
• Specialists (pediatricians, etc.)
• Other healthcare professionals
• Newspapers/magazine
• Friends
• Radio
• Internet
• Leaflet in GP’s office (UK only)
• Other source of information
• No specific source
• Do not know

Question 15: For each of the following attributes, indicate on a scale from one to ten how strongly they would influence you to get vaccinated: 1 means no influence at all and 10 means a very strong influence.

• Your doctor’s recommendation
• Your parents’ recommendation
• The school’s recommendation
• Rapid disease outbreak in European countries
• Rapid disease outbreak in non-European countries
• News in media
• Campaign from health authority on TV, radio, press
Knowledge and attitudes about vaccination

- Campaign from health authority on the internet
- Campaign from manufacturers on TV, radio, press
- Campaign from manufacturers on the internet

Question 16: What kind of information about vaccination would be of interest to you?
- New vaccines
- Your own vaccination status
- Vaccine side effects
- Consequences of not getting vaccinated
- Vaccinations that should be given to teenagers
- Vaccine efficiency/benefits
- R&D on vaccination, future vaccines
- Vaccines that require boosters
- Existing vaccinations and related diseases
- Successful consequences of vaccination
- Educational information on vaccine mechanisms
- Vaccination campaigns in developing countries
- Testimonials of famous people who support vaccination
- None
- Do not know

Question 17: Objective evaluation with the teacher: Did this student ever receive specific courses about vaccination at this school?
- Yes/no

References


