ISSN 2080-2021 • e-ISSN 2449-9021

Puls Uczelni 2016 (10) 3

Prace oryginalne | Original papers

DOI: 10.5604/20812021.1220906

FACTORS INFLUENCING THE PARTICIPATION OF PATIENTS IN OPTIONAL VACCINATIONS IN PRIMARY HEALTH CARE

CZYNNIKI WPŁYWAJĄCE NA UDZIAŁ PACJENTÓW W SZCZEPIENIACH FAKULTATYWNYCH W RAMACH PODSTAWOWEJ OPIEKI ZDROWOTNEJ

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A – przygotowanie projektu badania | study design, **B –** zbieranie danych | data collection, **C –** analiza statystyczna | statistical analysis, **D –** interpretacja danych | interpretation of data, **E –** przygotowanie maszynopisu | manuscript preparation, **F –** opracowanie piśmiennictwa | literature review, **G –** pozyskanie funduszy | sourcing of funding

SUMMARY

Background: Many factors determine the reasons for vaccination and nonvaccination among the public.

Aim of the study: The purpose of the study was to identify the factors that influence the decision to receive additional vaccination.

Material and methods: The study involved 135 people, the research tool being an original survey questionnaire consisting of 28 questions.

Results: An overwhelming number of respondents (80.7%; 109) indicated that they accepted vaccinations for their health benefits. The results show that both mothers and fathers with a university degree accept optional vaccinations more frequently. People with higher education more often perceive the health benefits associated with extra vaccinations. The results show that there is no statistically significant relation between maternal age and acceptance of the recommended vaccinations. The cost was the main reason given by all respondents for not receiving vaccinations. Significant differences were observed depending on respondents' financial situation: The worse the financial situation, the less frequently additional vaccinations were received. Those assessing their financial situation as good or average were more likely receive vaccinations.

Conclusions: Family physicians and nurses Educational should seek to educate about and promote immunization. For many patients, the cost of vaccination is a major barrier. The knowledge of immunization possessed by people with lower education needs to be broadened, as should be their awareness of the dangers of not using recommended vaccinations—including of the risks of traveling abroad without the appropriate inoculations.

KEYWORDS: recommended vaccination, family physicians, nurses, primary health care, financial situation

STRESZCZENIE

Wstęp: Wiele czynników determinuje wyszczepialność lub jej brak wśród społeczeństwa.

Cel pracy: Celem badania była identyfikacja czynników wpływających na podejmowanie decyzji o realizacji szczepień dodatkowych.

Materiał i metody: W badaniu wzięło udział 135 osób, narzędziem badawczym była ankieta autorska składająca się z 28 pytań.

Wyniki: Przeważająca liczba badanych wskazuje na stosowanie szczepień ze względów zdrowotnych 80.7% (109). Wyniki świadczą o tym, że zarówno matki, jak i ojcowie posiadający wyższe wykształcenie częściej korzystają ze szczepień fakultatywnych. Osoby z wykształceniem wyższym częściej dostrzegają też względy zdrowotne. Analiza badania wykazała, że nie wystąpiła istotna statystycznie zależność między wiekiem matki a korzystaniem ze szczepień zalecanych. Wszyscy respondenci jako główny powód rezygnacji z profilaktyki szczepień podali dodatkowe koszty. Dostrzegalne były różnice w zależności od sytuacji materialnej. Im gorsza ocena sytuacji materialnej tym częstsza rezygnacja ze szczepień dodatkowych. Osoby oceniające sytuację materialną jako dobrą lub przeciętną chętniej korzystają ze szczepień.

Wnioski: Działania edukacyjne i promujące szczepienia zalecane powinny być realizowane przez lekarzy rodzinnych i pielęgniarki wykonujące szczepienia. Dla wielu pacjentów koszt szczepień stanowi główną barierę. Wśród osób z niższym wykształceniem należy poszerzać wiedzę na temat szczepień i zagrożeń wynikających z niekorzystania ze szczepień zalecanych, w tym przed wyjazdami zagranicznymi.

SŁOWA KLUCZOWE: szczepienia zalecane, lekarze rodzinni, pielęgniarki, podstawowa opieka zdrowotna, sytuacja materialna

Background

Vaccination of the elderly and chronically ill is one of the most effective forms of prevention of infectious diseases in the context of their severe outcome and the risk of serious complications. The Polish immunization program, which is updated each year, recommends a number of vaccines for this group of patients. However, the patients themselves must purchase these recommended vaccines, and this very often constitutes an obstacle [1].

The cost of these recommended vaccines is not refunded to patients, making access to them more difficult. However, this is not the only reason for patients not receiving the recommended vaccinations: some patients refuse receive them due to a lack of knowledge on the subject. Factors that might have significant impact on the decision to purchase the recommended vaccines include the organization of immunization on the level of primary care—and also on the microscale of the family environment—economical and religious reasons, and individual attitudes towards vaccination [2].

The factors that lie behind the decisions of patients of all ages regarding vaccination for themselves or their children are still poorly understood. The data indicate that 57% of the population follows their physician's advice, and the decisions of 16% are influenced by the Internet and media campaigns [3]. Providing patients with clear and comprehensive information on the benefits and risks of recommended vaccinations may be a key element in decision making [4]. Both doctor and nurses who deal with vaccinations should have current knowledge of all mandatory and recommended vaccinations.

Failure to receive a recommended vaccination involves not only health risks for the individual, but also economic and health-related consequences for society as a whole [5]. In the United States during the 1960s, due to negligence regarding vaccination, an outbreak of rubella occurred, in consequence of which 11,000 women aborted or lost their pregnancy, 20,000 children were born with congenital anomalies (of whom 2,100 died), 12,000 children consequently suffered from hearing loss, 3,580 suffered from vision loss, and 1,800 children suffered from delays in mental development.

In Japan in 2000, an outbreak of measles resulted in 200,000 people being taken ill, of with 88 reported deaths, mostly among children [6]. In Poland, the number of unvaccinated children whose parents did not report for compulsory vaccinations has gradually increased from its 2010 value of 2,500 to 12,300 in 2014 [7–8]. The available data indicates that, during the 2013/2014 influenza epidemic season, the number of vaccinated children under four years of age in Poland was as little as 1% of the total population, while the percentage of vaccinated children under 15 years of age was 1.67% of the total population [9].

As indicated by the results of previous studies, immunization coverage is positively correlated with the frequency of procedures undertaken during visits to a general practice, such as interviews, physical examinations, referrals to specialists, laboratory tests and analysis of their results, the issuing of certificates, and health education. Outside the physician's office, immunization coverage is positively correlated with decreases in the number of home visits, in the frequency of phone counseling, in the number of nurse interventions, in the number of hospitalizations and with factors related to the patient's condition: with increasing duration of the disease and with number of somatic symptoms, including higher NYHA class [10].

Aim of the study

This study investigates patients' views on the use of additional vaccines and the reasons for receiving or not receiving recommended vaccinations in relation to sociodemographic variables.

Material and methods

The study involved 135 patients from a Primary Health Care Center (PHC) who provided their families' sociodemographic data. The respondents were randomized and consciously decided to participate in the survey by agreeing to fill out the questionnaire. Each respondent filled out the questionnaire independently. The study was conducted from June to November 2014 at a GP's practice in Oława. Participation was anonymous and voluntary. The study was approved by the Bioethics Committee of Wrocław Medical University (decision no. KB-431/2014).

Sociodemographic data of the surveyed families

The largest group (49.6%; 67) was that of mothers aged 26–35 years and the least numerous group (3.7%; 5) was of women under the age of 25. The most numerous male group was of fathers aged 26 to 35 years (41.7%; 55), with the least numerous group (2.3%; 3) (and also the youngest) being that of fathers under the age of 25. 78 respondents had children aged 1–18 years (58%). Most parents had two children (50.4%; 65), and only (7%; 9) had three children. Most of the women surveyed (65.9%; 89) had higher education, with two women (1.5%) having only completed primary education.

Similarly, among the surveyed men, the majority were fathers with higher education (53.8%; 71), with one man (0.8%) having completed only primary education. The largest group of respondents (29.6%; 40) lived in cities, while only 18 people (13.3%) lived in rural areas. The majority of respondents described their social status as average (45.2%; 61) or good (34.8%; 47). Only nine respondents (6.7%) identified their financial situation as bad.

Research tool

The authors' original questionnaire consisted of 28 questions on ages of the parents, the number of children in the family, the place of residence of the respondents, the educational level of the parents, and a subjective assessment of the financial situation of the family. Further questions asked about the sources of information that had guided the respondents to receive an optional vaccination, and the vaccine formulations which they were most interested in.

Statistical analysis

Microsoft Excel 2010, R version 3.0.2, and PSPP were used for descriptive statistics. Fisher's exact test was used (with an extension allowing tables larger than 2×2) to calculate relationships, as the variables were of a qualitative nature (with nominal and ordinal scales) and the condition for the chi-square test was not met. The analysis assumed a significance level of 0.05.

Results

The majority of respondents (73.3%; 99) stated that the information they obtained about vaccinations at the PHC was sufficient. The majority of respondents (90.4%; 122) confirmed that they obtained vaccination information from nonpublicly funded sources.

The largest group of respondents (65%; 80) stated that their family doctor was their primary source of knowledge about vaccinations; another large group (43.1%; 53) pointed to nurses working at the vaccination point. A small percentage of respondents (3.3%; 4) stated that leaflets, brochures, and—in the case of two respondents (1.6%)—radio and television were their sources of information on immunization.

Over half of respondents (60.7%; 82) knew whom the additional vaccinations were recommended for. More than half of respondents (66.3%; 55) reported that they would take advantage of the influenza vaccine. Significantly fewer respondents indicated that they would avail of the hepatitis B (33.7%; 28) and meningococcus (28.9%; 24) vaccines; small numbers of people intended to receive the tetanus (8.4%; 7), hepatitis A (2.4%; 4), pneumococcus (2.4%; 4) and typhoid (1.2%; 2) vaccines.

Of those surveyed, most (79.3%; 107) were knew a single vaccine could be received as part of a combination vaccine, whereas 28 (20.7%) claimed they had not been given such information. More than half of respondents (55.6%; 75) reported that they had received combined vaccinations, meaning that 60 (44.4%) had not.

The largest group of respondents (83%; 64) said that their reason for receiving a combined vaccination was that they preferred to undergo fewer injections. Only 9 (11.7%) of the respondents indicated that the possibility of vaccinating children with the recommended vaccinations was a reason for the use of combined products.

A very large group of respondents (80%; 48) said that the bad financial situation in the family was their reason for not availing of the combination vaccinations. Furthermore, 16.7% (10) of respondents did not take advantage of combination vaccinations on account of negative opinions on these vaccinations (including information from antivaccination movements), 48.3% (29) indicated that they were not well informed of this possibility, 3.3% (2) stated children's age as a reason, and 1.7% (1) stated that the vaccination was not needed.

The vast majority of respondents (92.5%; 123) stated that they were able to avail of the recommended vaccinations. A majority of respondents (80.7%; 109) also believed that the recommended vaccinations were carried out mainly for health reasons.

Over half of respondents (59.2%; 74) decided to avail of the pneumococcal vaccine. Fewer chose the rotavirus (32.8%; 41), influenza (24.0%; 30), varicella (23.2%; 29), meningococcal (15.2%; 19), hepatitis B (10.4%; 13), and borellia meningo-encephalitis (9.6%; 12) vaccines. Only 3.2% (4) took advantage of the vaccine against hepatitis A and 1.6% (2) of the HPV vaccine.

The vast majority (92.6%; 125) of respondents reported that the reason they did not avail of the recommended vaccinations was their poor financial situation; 43.0% (58) of the respondents also stated that they lacked sufficient knowledge of vaccinations. A small group (11.1%; 15) pointed to other factors, such as negative opinions presented in the media or in various discussion groups.

A majority of respondents (75.6%; 102) believed they should be vaccinated before traveling abroad. At the same time, most respondents (79.4%; 81) stated that the risk of contracting a disease was a reason for receiving a vaccination, while 33.3% (33) pointed to the risk of infecting their loved ones. Few people (13.7%; 14) indicated that they had sufficient knowledge on this subject.

All 33 respondents who feared infecting their loved ones mentioned additional costs as the main reason for not receiving a vaccine while traveling abroad; an additional 36.4% (12) indicated that they lacked sufficient knowledge; one person (3%) stated that the problem was a lack of time.

Relationships between variables

The results allow us to reject the null hypothesis. This means that there was a statistically significant correlation between availing of the recommended vaccines and the level of education of the mother (Fisher's exact test, $p = 0.030$) and of the father (Fisher's exact test, $p = 0.006$). Mothers and fathers with higher education levels more often took advantage of additional vaccination.

There is a statistically significant relation between the mother having had secondary or higher education and her belief that health is a reason for receiving optional vaccinations (Fisher's exact test, $p = 0.025$).

A statistically significant relation was also confirmed between financial status of the family and this belief that health is a reason for receiving optional vaccinations (Fisher's exact test, $p = 0.017$): the worse the financial situation, the less common the belief that the recommended vaccines were worth getting for health reasons.

Similarly, a correspondence was seen between the financial situation of the family and the conviction that it is worth receiving vaccinations before traveling abroad (Fisher's exact test, $p = 0.003$): the better the subjective assessment of the financial situation of the family, the more frequent was the conviction that it was beneficial to receive the recommended vaccinations before going abroad.

There was no statistically significant relation between not availing of the optional vaccinations and knowledge of the topic (Fisher test, $p = 0.128$). Neither was there a statistically significant relation between taking advantage of the recommended vaccines and the maternal age (Fisher's exact test, $p = 1$), the paternal age (Fisher's exact test, $p = 0.282$), the place of residence of the respondents (Fisher's exact test, $p = 0.212$), or subjective evaluation of the situation of the family (Fisher's exact test, $p = 0.825$).

Discussion

The vast majority of respondents were aware of the benefits arising from the use of vaccinations. The worse the subjective assessment of material situation, the less frequently were additional vaccinations taken. There is also a group of people who do not benefit from additional vaccination, not only because of the cost, but due to potential side effects that might result. As it follows from the analysis, there are still valid concerns among the respondents due to insufficient knowledge.

A small number of literature reports have described the reasons for the low uptake of recommended vaccinations. Kochman and Rudzińska [11] described the relation between mothers' age and their decision to have their children receive the recommended vaccinations: 59% of mothers aged below 25 decided to have their children vaccinated, as did 67.4% of women aged 26–30 and 54.5% of those aged 31–35 years; among the over-36s, the percentage was 62.5%. The results of the study showed, however, that maternal age had no statistically significant effect on the frequency of availing of the recommended vaccinations.

The study of Kochman and Rudzińska [11] showed that, among women with low education levels, few (28.6%) decided to receive recommended vaccinations, while among mothers with secondary and higher education, interest was significantly higher (62% and 86%, respectively). Similar results were obtained in our own investigation, which furthermore confirmed the importance of the educational level of the father. Most often, the recommended vaccinations are received by mothers and fathers with higher education, and the least likely to accept these vaccinations are parents with only primary or secondary education. Moreover, a statistically significant relationship can be seen between parental education and believing that health benefits result from vaccination.

In the study of Lipska et al. [3], 30% of the respondents reported a fear of adverse effects as the reason for not availing of vaccination; 28% referred to a lack of funds, and 25% suggested that there was a lack of information about the persuasive advantages of vaccination. In comparison, in our study, the financial situation and the lack of sufficient information were mainly referred to.

Rogalska et al. [12] and Dziekoński [13] concluded that family physicians are the primary source of information on vaccinations (86%), with the media and the Internet coming in second place (66%). Our study partially confirms these figures: indeed, the main source of information on vaccination is family physicians, but respondents indicated nurses in the second place, and only a few chose the media. This underlines the importance of education conducted within the framework of primary health care centers.

According to the research by Lipska et al. [3], the deciding factor on whether to avail of additional vaccines was physician's advice (57%), whereas the Internet and media campaigns were indicated by only 16% of the respondents. From the statistical analysis, it follows that, of those who stated that the information received on the recommended vaccination was insufficient, a larger number did not avail of the vaccinations. However, the percentage of nonavailers was lower among those who considered the information they obtained to be sufficient. Thus, it can be ruled out that a higher level of information is accompanied by a more frequent use of vaccinations. The demonstration of the hypothesis showed, however, that there is a statistically significant relation between not availing of vaccinations and levels of knowledge on the issue.

Lipska et al. [3] also showed that the vast majority of respondents (80%) confirmed that they had had their children vaccinated with the recommended vaccines; 6% had not. The results of our analysis are similar.

Kochman and Rudzińska [11] confirmed that the material status of families diversified children in terms of rates of vaccination with the recommended inoculations. Of those respondents who indicated that their financial situation was good, 73.5% availed of the recommended vaccines; 50% of those with very good financial status did the same; 62% of those in average or quite good financial situations did so. The percentage of vaccinated children from families with poor financial situations amounted to 33.3%. Dmytrzyk-Daniłów [14] determined that, in general, those with good or average financial status stated that they had availed of the recommended vaccines, while those respondents who assessed their financial situations as bad or poor more often did not use the optional vaccinations. Similarly, our study confirms that, the worse the subjective assessment of the financial situation of families, the less frequently additional vaccinations were availed of; while those evaluating of their financial situation as good or average were more likely to avail themselves of vaccination.

The study of Mianowany et al. [15] revealed that, in the opinion of 84.4% of the respondents from cities and 81.1% of those from rural areas, effective prevention should include, first and foremost, "immunization" against diseases that are endemic in the region. In our study, a statistically significant correlation was demonstrated between the financial situation of the family and opinions regarding receiving vaccinations before going abroad. The reason for getting such a vaccination given by over half the respondents was the fear of contracting an illness; another quarter pointed to the risk of infecting loved ones. The key reason for not ultimately receiving such a vaccination was the cost.

Conclusions

Educational around and promotion of recommended vaccinations should be carried out by the family doctors and nurses who perform these vaccination. For many patients, the cost of inoculation is the major impediment, and poses a significant access barrier to vaccinations. It is thus important that the cost of additional vaccinations are if possible refunded and, as such, included in the immunization program. The level of patient education has an impact on the use of recommended vaccines and on individuals' assessments of the benefits of vaccinations. Knowledge of immunization and the dangers of not receiving vaccinations must be broadened, especially among those with lower education. Education to raise awareness of the health risks associated with traveling abroad is crucial among individuals with a lower financial status.

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Word count: 3887 • Tables: – • Figures: – • References: 15

Sources of funding
The review was funded by the authors.

Conflicts of interests
The authors report that there were no conflicts of interest.

Cite this article as: Athanasiadou A, Kobuszyńska M, Gawlik M, Kurpas D. Factors influencing the participation of patients in optional vaccinations in primary health care.
PU-HSP 2016; 10, 3: 21–26.

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Received: 09.07.2016
Reviewed: 12.08.2016
Accepted: 21.08.2016