

PARENTS' OPINION OF CHILDREN AND TEENAGERS' VACCINATION IN LOWER SILESIA

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A – study design, B – data collection, C – statistical analysis, D – interpretation of data, E – manuscript preparation, F – literature review, G – sourcing of funding

ABSTRACT

Background: Immunization in Poland might be seriously threatened because of inaccurate information about its safety and effectiveness. It is necessary to monitor people's opinions about immunization in order to stop the negative process of disinformation.

Aim of the study: The aim of the diploma paper was to understand parents' attitude and concerns about immunization in Poland.

Material and methods: Two hundred parents from Lower Silesia were enrolled in the study in 2016. The research tool was the author's unnamed questionnaire.

Results: The research shows that the majority of parents 92.5% (183) have positive attitudes towards immunization. The obligatory immunization rate among children in Poland was very high 96% (191). 70.4% (138) of children were given at least one vaccination that was not obligatory in Poland and in most cases that was vaccination against pneumococcus – 61% (103) of children and chickenpox – 54.4% (92) of children. A relationship was noted between the recommended vaccination and financial situation of parents and their education level. There were several reasons why people's attitudes to vaccination might be negative: financial reasons 60.3% (41), vaccine injury 27.19% (19), ineffectiveness 7.4% (5), and natural ways of supporting immunity 20.6% (14). More than half of respondents 51.6% (101) claim that their knowledge about the immunization is insufficient. The main source of information about immunization for parents is medical staff (doctors, nurses and midwives). Nevertheless, 32.8% (65) of respondents reported not receiving any information about recommended vaccination from their attending physician.

Conclusion: The uptake of immunization is related on parents' education and financial reasons. Medical staff do not inform parents and promote immunization adequately. Parents are not informed about the possibility of extended vaccination. It is necessary to educate parents about the safety and effectiveness of immunization.

KEYWORDS: parents, children, vaccination

BACKGROUND

The introduction of large-scale vaccinations was a breakthrough in the fight against infectious diseases. Vaccinations have eliminated or reduced the incidence of, for example, smallpox, diphtheria, measles and polio. Vaccination is the most reliable and, so far, the most effective method of disease prevention. In the last twelve or so years, the number of available vaccines has significantly increased, and their safety and quality have improved. Despite this, there are some controversies related to active immunization, which mainly result from ignorance and fears of adverse post-vaccination reactions. According to the survey conducted in 2017 by CBOS [Centre for Public Opinion Research], the fear of consequences was the most frequent reason for

giving up vaccinations by parents (40%) [1]. However, specialists agree that vaccinations do not have adverse health effects, such as allergies, autoimmune diseases or autism [2]. The epidemiological study published in March 2018 in the United States also excluded the negative impact of a large number of vaccines on children's immune system [3]. Unfortunately false information among the public about the harmfulness and ineffectiveness of vaccinations has an unfavorable impact on vaccination coverage levels. The increasing activity of so-called *anti-vaccination* movements, which is particularly noticeable on internet portals, and the lack of adequate knowledge of parents about vaccination may in the future pose a threat to the appropriate implementation of preventive vaccination programs. Currently,

in Poland, the percentage of people vaccinated against infectious diseases, who are covered by the mandatory vaccination program, is sufficient to maintain population resistance. Thanks to the high percentage of vaccinated population, community immunity, which usually accounts for 90–95%, ensures protection against diseases, also among people who are unvaccinated [4]. However, the growing number of unvaccinated children observed for several years is disturbing. According to data from the Supreme Audit Office, in 2011 there were 4,689 people who avoided vaccinations, and in 2017 this number increased to 30,089 (fig. 1) [5]. As shown, for example, by the increased incidence of measles, the threat of infectious diseases is real. According to the ECDC data, there were 14,451 cases of measles reported in Europe in 2017, which is three times more than a year before (4,643) [6]. In order to ensure epidemiological security, we need to, among others, constantly monitor attitudes towards vaccination, launch campaigns promoting vaccination and encourage medical staff to undertake educational and information campaigns.

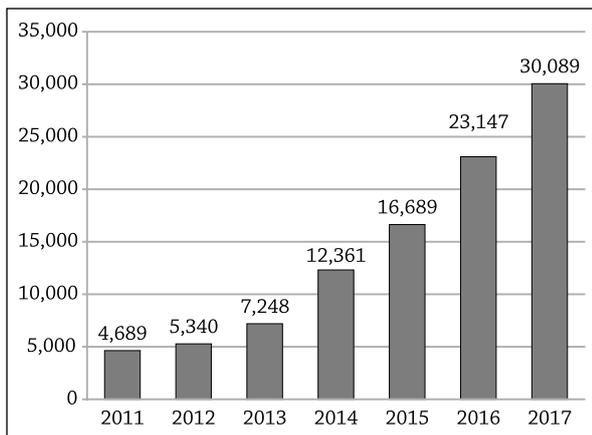


Figure 1. People who avoided compulsory vaccination in the years 2011-2017 according to the data of the National Institute of Public Health.

AIM OF THE STUDY

The main aim of the study was to get to know parents' attitude and concerns towards the immunization in Poland. The next aim was to check the relationship between the number of recommended vaccinations administered to children and education and financial situation of parents. In addition, the survey examined the need for greater education in the field of vaccination.

MATERIAL AND METHODS

This study, evaluating parents' attitudes towards recommended vaccinations, was conducted from January to March 2016. The research covered a group of two hundred parents living in the Lower Silesian province. A diagnostic survey was used in the work, with an original questionnaire applied as a research tool. Participation in the study was anonymous and it was carried out in several medical institutions (180 respondents).

Also, 20 respondents filled in the questionnaire via the website. The questionnaire consisted of the general part containing data on sex, age, education, place of residence, number of children and financial situation of the respondents. The main part consisted of 20 questions (16 closed and 4 semi-open, single choice and multiple choice questions). Microsoft Excel was used to work out the results. When verifying the hypotheses, the significance level of $p < 0.05$ was assumed as the limit value. For analytical purposes, several tests were used: the Fisher, Shapiro-Wilk and Kruskal-Wallis test. In some questions, percentages do not add up to 100%, whereas the number of answers – to 200 because respondents could give more than one answer; not all respondents answered each question; and some questions were addressed only to some parents.

The majority of respondents were women 84% (168). A large group of the subjects were people over the age of 35 – 40% (80), most often with secondary or higher education. The respondents were mainly residents of small towns and usually had one or two children. Over half of those surveyed 60.5% (121) assessed their financial situation as good and very good (tab. 1).

Table 1. Characteristic of respondents.

Feature	Amount (n)	Percentage (%)
Sex		
Female	168	84
Male	32	16
Age		
19-25	12	6
26-30	50	25
31-35	58	29
>35	80	40
Education		
Primary	7	3.5
Vacacional	26	13
Secondary	70	35
Higher	97	48.5
Place of residence		
Village	44	22
City to 50 thousand inhabitants	120	60
City to 100 thousand inhabitants	14	7
City > 100 thousand inhabitants	22	11
Number of children		
1	85	42.5
2	84	42
3 or 4	29	14.5
>4	2	1
Financial situation		
Bad	6	3
Average	73	36.5
Good	107	53.5
Very good	14	7
Altogether	200	100

RESULTS

The research showed that 96% (191) of parents inoculated children according to the current Preventive Vaccination Program. In addition, 70.4% (138) of respondents accepted at least one of the recommended vaccinations. 5 in 1 and 6 in 1 combination vaccinations were used by 55.4% (108) of the subjects. As the main reason for avoiding the inoculation of children with recommended vaccines, parents usually indicated financial reasons 60.3% (41) and fear of adverse post-vaccination reactions 27.9% (19). Some of the respondents were supporters of natural methods of increasing immunity 20.6% (14) and 7.4% (5) did not believe in the effectiveness of vaccines. The study demonstrated a relationship between the financial situation of parents and avoiding vaccination. The lower the income, the more often parents indicated financial problems as the reason for refusing to subject the child to recommended vaccinations $p < 0.01$. Almost one third, i.e. 32.9% (26), of the respondents in a poor or average financial situation indicated that economic considerations were decisive in this regard. The same answer was chosen by 14% (15) of the respondents in a good financial situation. Parents whose economic status was very good did not mention the financial factor at all.

Among the recommended vaccinations, parents most frequently chose inoculation against pneumococci 61% (103), chickenpox 54.4% (92) and rotavirus 48.5% (82). Least common were inoculation against tick-borne encephalitis 10.7% (18) and HPV 11.2% (19) (fig. 2). From 2017, vaccination against *Streptococcus pneumoniae* has been compulsory and free for children.

The level of education significantly affects the number of recommended vaccinations to which parents subject their children; people with higher education were more willing to make use of additional vaccinations

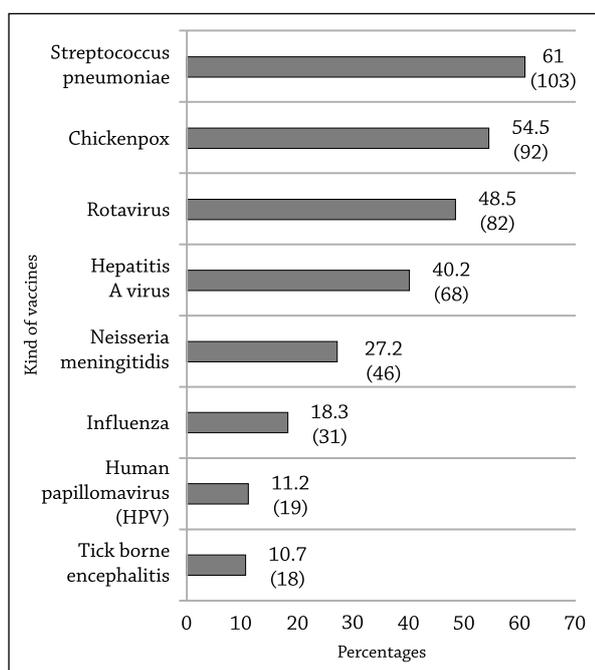


Figure 2. The use of recommended vaccines.

($p < 0.001$). Respondents indicated number of recommended vaccinations received by their child ranged from zero to eight. Among people with primary, vocational and secondary education, the median number of additional vaccinations was 1. The minimum for all these groups was 0, whereas the maximum was 4 for people with primary and 6 for those with vocational and secondary education. In each of these groups, at least half of the respondents declared that the child received not more than one such vaccination. Among the parents with higher education, the median was 2, minimum was 0 and the maximum was 8.

As the main source of information on vaccinations, the parents usually indicated doctors, nurses and midwives, followed by the Internet, press and advertisements (tab. 2).

Table 2. Sources of parents' knowledge about vaccinations.

Where did you get the information on vaccination?	Number of responses (n)	Percentage (%)
Doctor	130	65.0
Nurse or Midwife	89	44.5
Friends, family	44	22.0
Internet press corps, ads	62	31.0
Scientific and medical sources	31	15.5
Courses and training	1	0.5
Other	2	1.0
Altogether	359	179.5

Parents were also asked if they received information about new, recommended vaccinations from medical staff. A positive answer was given by 67.2% (133) and negative answer by 32.8% (65). Almost half of the carers 48.5% (95) believed that they have sufficient knowledge about vaccinations, 33.7% (66) had the opposite opinion, while 17.9% (35) had additional questions in this regard. More than a third of respondents 36.1% (70) was mistakenly convinced that vaccines fully protect against diseases. A lot of parents 28% (49) were not aware of the possibility of receiving some recommended vaccinations by selected groups of children free of charge. The results reveal that the majority of those surveyed did not have sufficient knowledge about the contraindications to protective vaccinations. More than half 53.4% (93) incorrectly nominated a runny nose, a slight cold, cough and low fever as contraindications to vaccination. 16.1% (28) of the respondents believed that allergy, bronchial asthma and atopic dermatitis were also contraindications to inoculation, while malnutrition/prematurity and breastfeeding were mentioned by 12.1% (21) and 3.4% (6), respectively. Parents with higher education had the greatest knowledge $p = 0.040$.

Most of the respondents rated their attitude to vaccinations as positive – 55.1% (109) and 37.4% (74) as positive with some reservations. Only 1.5% (3) of parents had a negative attitude towards vaccination and 6% (12) of those surveyed had no opinion.

DISCUSSION

Infectious diseases are a threat to health and life, especially of infants and young children whose immune system is not fully mature. Vaccinations are effective and the best method of prevention so far. In Poland, due to limited budget, only part of the cost of inoculations is refunded by the state. These are the so-called mandatory vaccinations, which are part of the Preventive Vaccination Program updated every year. This research shows that 96% (191) of parents vaccinate their children according to this program. The result is close to the data published in the annual bulletin "Protective vaccinations in Poland in 2016". The National Institute of Public Health reports that the level of compulsory vaccination in the population is above 90% [5]. More than half of the respondents 55.4% (108) made use of combination vaccines 5 in 1 or 6 in 1. Data reported by many authors vary in this respect. Leszczyńska et al. [7] claim that only 32% of parents decided to buy a combination vaccine, while Pomnian-Osiak et al. found this percentage much higher, at 76% [8].

In the study group, 70.4% of the respondents declared that they subjected their children to at least one of the recommended vaccinations. As for combination vaccines, different authors also present different statistics. Nitsch-Osuch et al. claim that 74.4% of respondents made use of at least one recommended vaccination [9]. However, there are studies that show that less than half of parents choose recommended vaccinations [10]. Among additional vaccinations, parents most often make use of inoculation against pneumococcus and least often against tick-borne encephalitis. The data are comparable with the results obtained by other researchers [7,10,11].

The respondents who avoided vaccinations were asked about the reasons for their decisions. In more than half of the cases 60.3% (41) financial factors had a decisive impact on vaccination avoidance. The cost of the cheapest vaccine is around several dozen PLN, however, to the cost of vaccinating a child against meningococcal B (Bexsero vaccine), is about PLN 300 per one dose of the vaccine. For this reason, it seems understandable that the price of some vaccines may be too high for some parents. Only 5.7% (11) of respondents declared that they would not make use of the recommended vaccinations even if they were free. The importance of the financial aspect with regard to recommended vaccinations was also confirmed by Kalinowski et al. who claimed that the majority of respondents would subject their children to recommended vaccinations if they were free, but only sometimes. 30% of respondents < 26 years of age and over 42% of people > 26 years of age would regularly make use of such vaccinations [12]. On the other hand, Pieszka et al. noted that almost half of the respondents (47.7%) declined vaccination because of the price. The same study reported that 86% of the respondents expressed the will to vaccinate the child with the combination vaccine provided

if it was financed by the state budget [11]. Another factor influencing carers' decisions is the fear of adverse post-vaccination reactions 27.9% (19). In addition, 7.4% (5) of parents did not believe in the effectiveness of vaccines. This is despite the high level of vaccine safety, the process of detailed testing, checking the degree of purification, immunogenicity and efficacy [13]. The study also found that people with higher education more often vaccinate children with recommended vaccines compared to other groups of parents. The analysis carried out by Kochman et al. also shows that mother's education is an important determinant of decisions to subject the child to additional vaccinations [14]. 28.6% of women having primary education decided to make use of additional vaccinations, 33.3% (8) with vocational, 58.9% (40) with secondary and 90.6% (87) with higher education. In the study group, parents with higher education had greater knowledge about vaccinations. There was no such relationship between age and sex of the subjects. Barczykowska [15] concluded that the age of parents was not related to their knowledge about vaccinations. However, the authors show that the level of knowledge is significantly higher in people with higher education, both in women and men, than in people with primary and vocational education.

Doctors are the main source of knowledge for parents about vaccinations, and this was confirmed by other researchers studying similar problems [16–18]. One of the mandatory tasks of the primary care doctor is to inform patients about vaccinations, both those mandatory and recommended. This obligation stems from the Act on Prevention and Combating Infections in People [20]. However, as many as 32.8% (65) of respondents reported that they did not receive such information from their doctor. In the publication "Parental opinions on vaccinations in children" Gawlik et al. demonstrated that 13% of respondents were not informed about recommended vaccinations by a primary care physician [17]. In order to ensure the correct implementation of the Preventive Vaccination Program, it is important for the medical staff to be actively involved in the promotion of vaccinations and the education of patients in this regard.

CONCLUSIONS

1. The majority of parents vaccinate their children according to the current vaccination calendar and define their attitude towards vaccination as positive.
2. Willingness to subject children to recommended vaccines depends on education and financial situation of carers.
3. Parents' knowledge about vaccination is incomplete and insufficient. There is a need to provide them with more information, especially about the safety and effectiveness of vaccination.

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