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ATTITUDES OF PARENTS TOWARD RECOMMENDED VACCINES IN BULGARIA

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ABSTRACT

INTRODUCTION: The introduction of immunization programs globally is one of the most powerful tools in combating infectious diseases. Parental awareness regarding vaccines is crucial for achieving good vaccination coverage and reducing the spread of infections.

PURPOSE: To study the opinions of parents regarding the recommended vaccines in the Republic of Bulgaria.

MATERIALS AND METHODS: An anonymous online survey was conducted among 156 parents in Bulgaria. The questionnaire contained 25 closed-ended questions related to the recommended vaccines. Sociological, statistical-mathematical, and graphical methods were used.

RESULTS: The study found that 53.8% of parents are familiar with the recommended vaccines administered in Bulgaria, 94% of them specifically mentioning the rotavirus vaccine and 56.9% the human papillomavirus vaccine. Regarding awareness, 49.4% of respondents reported that accessible information exists about the benefits, safety, and efficacy of the recommended vaccines. The main sources of information cited by respondents were general practitioners (40.4%), followed by social networks (22.4%), and 17.3% received information from official sources such as the Ministry of Health and the World Health Organization. A recommendation from a personal physician for vaccination with the recommended vaccines for children was received by 63.5% of parents, but despite the recommendations, 29.3% of them did not vaccinate their children. Nearly one-quarter of respondents (25.6%) do not agree that the recommended vaccines protect their children, and 39.1% expressed doubts about their effectiveness. The main concerns of parents regarding the application of recommended vaccines are related to fears of side effects (69.4%) and concerns about the development of autism or infertility (45.9%). When asked if they knew of children who experienced severe complications after vaccination, 25% answered affirmatively.

CONCLUSION: Despite good parental awareness of the availability of recommended vaccines in Bulgaria, there are significant concerns and hesitations regarding their effectiveness and safety, leading to subsequent refusal of immunizations for their children. Targeted actions and strategies are needed to improve vaccination policies directed at both parents and healthcare professionals.

Keywords: vaccines Bulgaria, recommended vaccines for children, parental opinions on vaccines

INTRODUCTION

Vaccines are the most powerful tool in combating infectious diseases. Their application has led to the eradication of smallpox and the near-eradication of poliomyelitis in most countries worldwide, as well as a significant reduction in the spread of vaccine-preventable infectious diseases affecting the pediatric population (1).

According to the World Health Organization, vaccines prevent approximately 3 million deaths annually (2) and result in significant cost savings of over $500 billion annually by reducing the need for treatment and hospitalization due to infectious diseases (3).

Vaccines protect not only individuals but also society as a whole (4). To achieve high and long-lasting epidemiological and immunological effectiveness, it is essential to reach a vaccination coverage of over 95% globally. This is particularly critical for vulnerable groups who cannot be vaccinated due to contraindications (5).

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Concerns regarding the safety, efficacy, and potential side effects of vaccines have existed since their inception. Today, information about immunization products is widely accessible and spreads rapidly via social media, regardless of its accuracy (6). The dissemination of misinformation by anti-vaccine movements, which is not based on medical facts and evidence, fosters hesitation and fear among parents regarding vaccines administered to their children. Successful immunization campaigns require collaboration among healthcare professionals, social media platforms, and parents to foster an accurate understanding of the real benefits and risks of immunizations. This cooperation will help build parental trust in vaccines and national immunization strategies (7).

PURPOSE

To investigate parents' opinions regarding the recommended vaccines in the Republic of Bulgaria.

MATERIALS AND METHODS

An anonymous sociological survey was conducted among 156 parents in Bulgaria via the social network Facebook during July and August 2024. The questionnaire included 25 closed-ended questions related to recommended vaccines. Sociological, statistical-mathematical, and graphical methods were applied for data analysis using Jamovi statistical software, version 2.6.44.

RESULTS AND DISCUSSION

The survey was conducted in July and August 2024, involving 156 participants who were parents of children eligible for vaccination. The majority of respondents resided in urban areas (92.9%). The demographic characteristics of the participants are presented in **Table 1**.

Table 1. *Demographic characteristics of respondents*

Characteristics	Number	%
Gender		
Female	104	66.7%
Male	52	33.3%
Age		
18 - 24	9	5.8%
25 - 34	64	41%
34 - 44	68	43.6%
45 - 54	15	9.6%
Education		
Primary	1	0.6%
Secondary	35	22.4%
Higher	120	76.8%
Number of children in the family		
parents with one child	67	42.9%
parents with two children	73	46.8%
parents with three or more children	16	10.3%
Ethnicity		
Bulgarians	154	98.7%
Turks	1	0.6%
Roma	1	0.6%

In terms of professional status, 68.1% of respondents are employed, 24.4% are on maternity leave, 5.1% are students, and 2.6% are unemployed.

Our study found that parents are familiar with the recommended vaccines in Bulgaria. The vaccines with the highest awareness rates among respondents are for rotavirus (87.8%), human papillomavirus (70.5%), influenza (69.2%), and varicella (64.1%) **(Figure 1).**

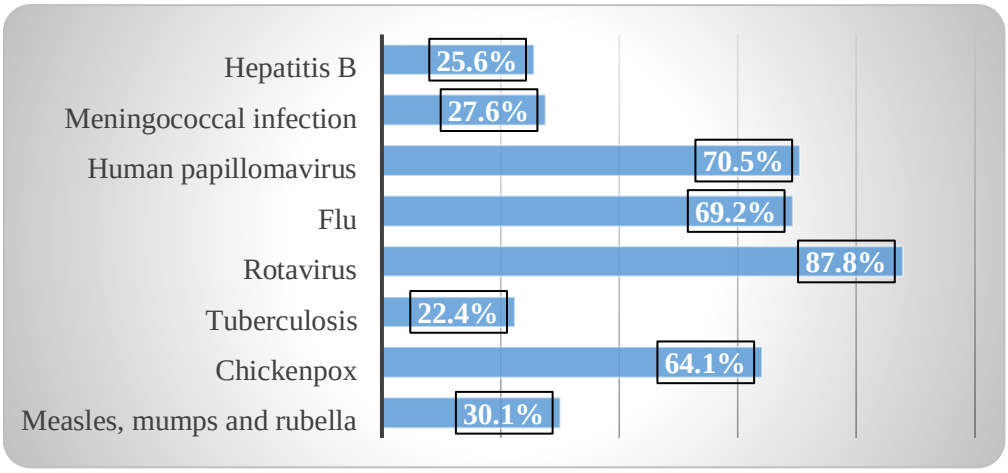

Figure 1. Recommended vaccines in Bulgaria according to parents

Nearly half of the respondents (46.2%) were unaware that some of these vaccines are provided free of charge by the Ministry of Health. This finding highlights the need for improved communication between parents and general practitioners to promote national immunization programs effectively.

The primary sources of information about recommended vaccines, as identified by respondents, are general practitioners (40.4%), followed by social media (22.4%) and official sources such as the Ministry of Health and the World Health Organization (17.3%) **(Figure 2).**

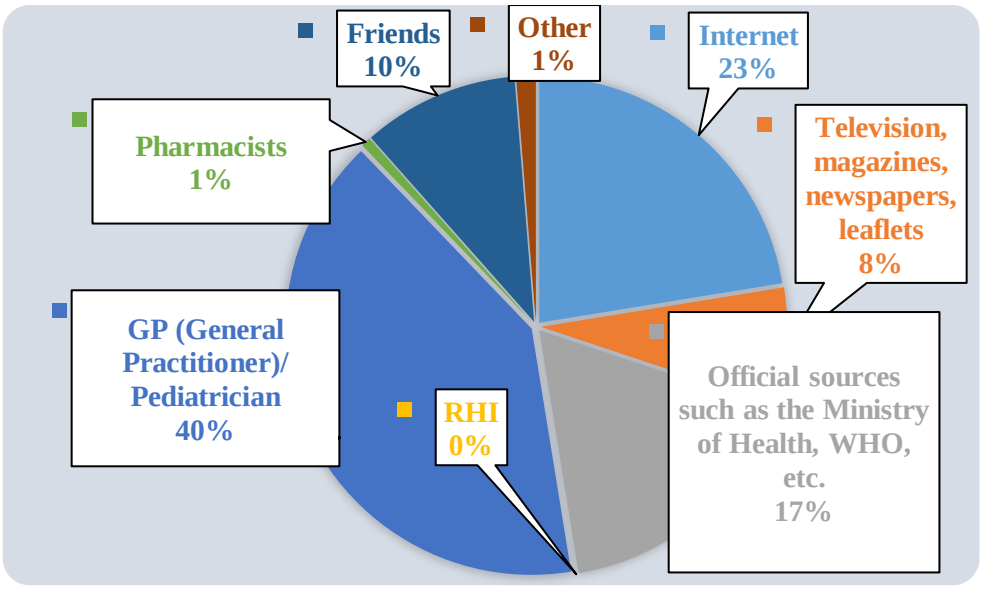

Figure 2. Sources of information about vaccines.

Our findings align with a similar study conducted in Italy, where 74% of participants trusted their general practitioners as the main source of information, and 25% relied on social media (8).

The data emphasize the critical role of pediatricians and general practitioners in the immunization process, as well as the importance of accurate information about vaccines being published and disseminated via social media and online platforms.

Regarding the information provided by general practitioners about childhood vaccines, 69.2% of respondents agreed that it was sufficient and gave them confidence in administering the vaccines. However, 30.8% expressed dissatisfaction. In comparison, a similar study in Sicily reported significantly higher trust in pediatricians, with 83% of parents expressing confidence and only 17% dissenting (9).

A total of 63.5% of parents reported receiving a recommendation from a general practitioner or pediatrician regarding the administration of recommended vaccines. A moderate positive correlation was observed between receiving such a recommendation and the actual administration of vaccines to children (Pearson`s r =0.31). These findings underscore the impact of healthcare provider recommendations on parental vaccination decisions **(Figure 3).**

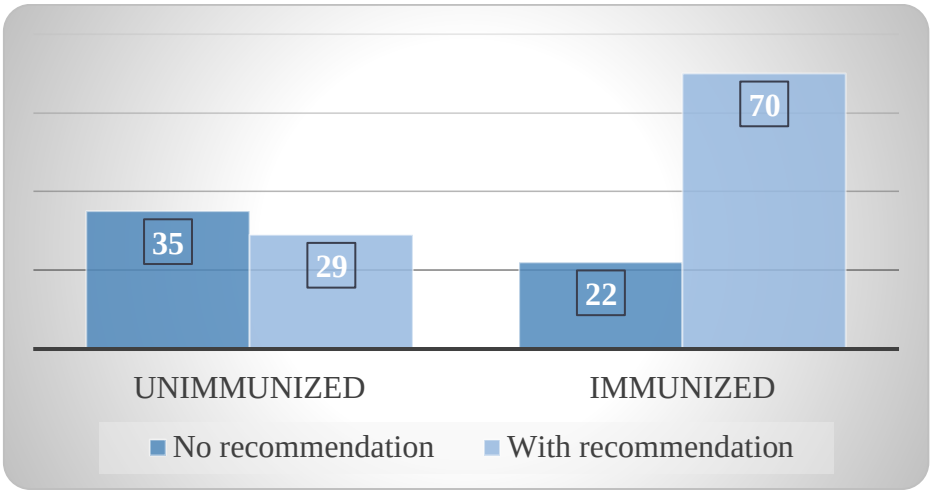

Figure 3. Immunization status of children by presence of recommendation from a healthcare provider

Among the respondents, 59% had vaccinated their children with recommended vaccines. The highest coverage was reported for the rotavirus vaccine (85.9%), followed by the varicella vaccine (37%) and the human papillomavirus (HPV) vaccine (20.7%) **(Figure 4).**

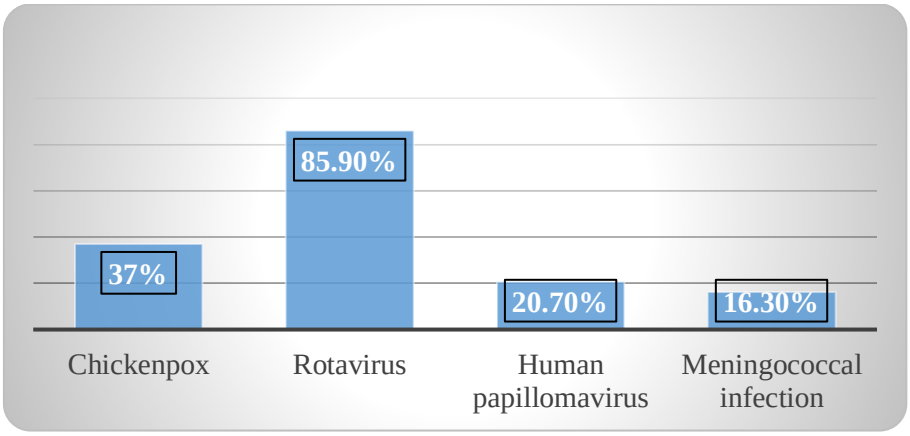

Figure 4. Recommended vaccines administrated to children according to parents

The main reasons cited by the remaining 41% of parents for not vaccinating their children included: doubts about vaccine efficacy (39.1%), fear of side effects (34.4%), lack of accessible information (21.9%), financial barriers to purchasing vaccines (4.7%).

It is encouraging that 69.2% of respondents trust the effectiveness of vaccines and believe they protect their children from severe infectious diseases. However, 25.6% expressed disagreement, raising concerns about their potential susceptibility to negative vaccine-related information and the risk of alignment with anti-vaccination movements in the country.

A significant proportion of parents (76.3%) view vaccinating their children as important for the health of others, demonstrating a strong

sense of responsibility toward public health. They perceive vaccination not only as a personal obligation but also as a collective commitment. In comparison, a higher proportion was reported in Italy, where 90% of parents believe that vaccinating their children contributes to the protection of society as a whole (10).

Regarding newly introduced vaccines in national immunization programs, 45.7% of respondents expressed skepticism, believing that these vaccines carry greater risks than older, well-established vaccines with proven epidemiological efficacy over decades.

In this study, 59% of parents rejected the notion that contracting an infectious disease is a better method for acquiring immunity. A similar study conducted in 18 European countries reported a higher percentage (70%) of parents who believed that vaccination is a safer and more effective way to build immunity (11).

Over half of the respondents (54.5%) expressed concerns about the administration of recommended vaccines. Their primary worries include: risk of side effects (69.4%), fear of developing autism, infertility, or other chronic conditions (45.9%), doubts about vaccine effectiveness (37.6%) **(Figure 5).**

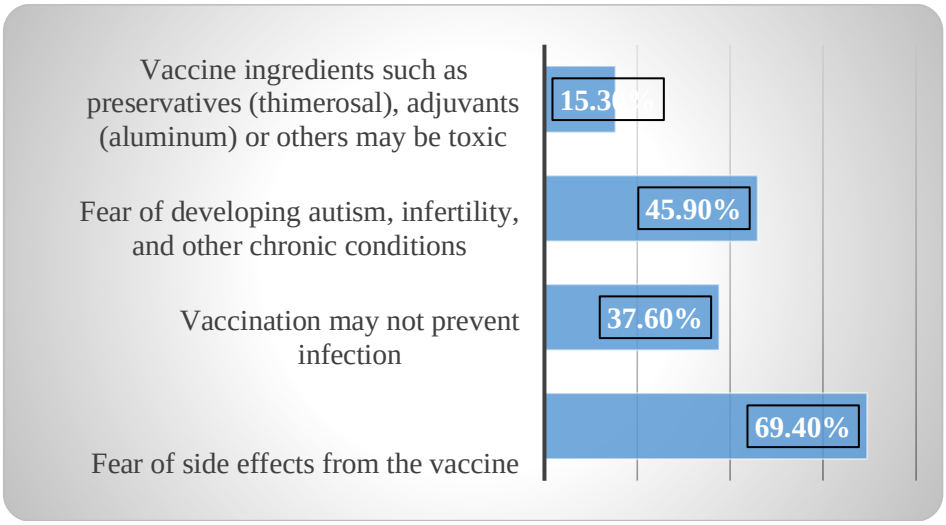

Figure 5. Parents' concerns about the administration of recommended vaccines

Similar findings are observed in studies conducted in Turkey, where 57% of parents feared that vaccination might lead to autism in their children, and 33% expressed concerns about vaccine side effects (12). In Greece, 33.5% of parents identified fear of autism as their primary concern (13).

Our study also explored parents' attitudes toward anti-vaccine movements. A positive attitude was expressed by 9.6% of respondents, while 58.3% strongly opposed these movements. The remaining 32.1% of respondents reported no particular stance regarding anti-vaccination movements.

In comparison, a study conducted by Boncheva P. and Konstantinov R. in 2015 in the city of Varna found that 34.41% of parents were against these movements, while 22.58% had a positive attitude toward them. Our results indicate a higher degree of negative sentiment toward anti-vaccine movements and a lower proportion of parents supporting anti-vaccine ideology (14).

CONCLUSION

Despite the good awareness among parents regarding recommended vaccines in Bulgaria, our study highlights their concerns and hesitations about vaccine effectiveness and safety, which may result in refusal to vaccinate their children.

Targeted strategies need to be developed to alleviate parents' fears, with the active involvement of general practitioners and national health institutions as trusted sources of information. Additional educational campaigns aimed at debunking myths and misinformation about vaccination are crucial for building trust in the immunization process.

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