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Factors Driving the Attitudes and Hesitancy of Albanian Parents toward COVID-19 Vaccination of Children †

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Abstract: In June 2022, the Food and Drug Administration (FDA) authorized the use of Moderna and Pfizer-BioNTech COVID-19 mRNA vaccines for children aged 6 months–4 years in the United States. Vaccine hesitancy is context-, time-, place-, and vaccine-specific. This study aims to analyze the different factors influencing the perceptions and attitudes of Albanian parents toward COVID-19 vaccination of children. The anti-COVID-19 vaccine remains unapproved for children younger than 12 in Albania. A validated questionnaire composed of 33 elements was used for the purpose of this study. A total of 600 parents/caregivers responded to the questionnaire. The negative perceptions toward vaccination of their child were linked to mild forms of the disease faced by their children and fear of adverse events.

Keywords: COVID-19; vaccination; children

1. Introduction

Data reported to the World Health Organization (WHO) from 30 December 2019 to 25 October 2021 show that children under five years old represent 2% (1,890,756) of the reported global cases and 0.1% (1797) of the reported global deaths. (1) The number of COVID-19 cases in children increased dramatically in 2022 during the Omicron variant spread. In the United States, during the Omicron wave, the COVID-19–associated hospitalization rates in children aged 5–11 years were 2.1 times as high among unvaccinated children (19.1 per 100,000 population) as among vaccinated children (9.2) [1].

More than 3 million cases of COVID-19 have been reported among infants and children aged < 5 years (children) and more than 500 associated deaths have been reported as of 2 December 2022 in the United States [2]. In a European study, conducted in 10 EU countries, there were approximately 117 hospitalizations for every 10,000 reported symptomatic pediatric cases during the two-month period (3 August 2020 to 3 October 2021) [3]. In Albania, an upper-middle-income country of 2.88 million inhabitants, there are no published data about children infected with COVID-19. However, since the beginning of the pandemic until 20 May 2023, a total of 334,090 (11.61% of the total population) infected people and 3604 deaths have been reported [4]. Over 1 million COVID-19 vaccine doses (either Pfizer-BioNTech or Moderna vaccines) have been administered to children aged 6 months to 5 years in the United States of America (US) since June 2022 [5]. Moderna and Pfizer-BioNTech are mRNA vaccines.

Vaccination is recommended in 12–17-year-olds in all EU/EEA countries, with some now also recommending booster doses for this age group [4]. The European Medicines Agency (EMA) has approved vaccination for 6–11-year-olds (Spikevax and Comirnaty), which are also mRNA vaccines [6].

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Meanwhile, in Albania, there are no suggested vaccines for children under 12 years of age. Vaccination is of particular importance for children at higher risk of severe disease. The World Health Organization's Strategic Advisory Group of Experts on Immunization (SAGE) has adopted the new concept of vaccine hesitancy, which is defined as "a motivational state of being conflicted about, or opposed to, getting vaccinated, including intentions and willingness" [7]. As vaccine hesitancy is context-, time-, place-, and vaccine-specific, this study aims to analyze the different factors influencing the perceptions and attitudes of Albanian parents living in Albania, Kosovo, as well as diaspora toward COVID-19 vaccination of children.

2. Methods

2.1. Subjects of the Study

The subjects of this study were parents of children 0–18 years old. Inclusion criteria were Albanian parents who understood and spoke Albanian well and parents of children 0–18 years old. Exclusion criteria were parents less than 18 years old, Albanian parents who did not understand Albanian well, and parents of children more than 18 years old. Parents and caregivers were informed about the aims and goals of the study. Confidentiality and anonymity of the data were guaranteed to them. The participants were reassured about the privacy of the interview and informed that no negative consequences would apply if they declined participation.

2.2. Study Instrument

A validated questionnaire composed of 33 elements was used for this study. The first section of the questionnaire is composed of demographic questions. The other sections aimed to collect data about the economic level, political status of the country where they live, policies toward vaccination, parents' perceptions, and beliefs about COVID-19 vaccines in children, and access to immunization settings. The survey tool was composed of questions aimed to measure the complacency, convenience, and confidence of the respondents toward COVID-19 vaccines in children.

2.3. Data Analysis

The data collected from the questionnaire were first coded and then studied using statistical software STATA version 16 and SPSS21 version 15 for Windows (SPSS Inc., Chicago, IL, USA). The parents/caregivers who responded to the questionnaire were categorized into 3 groups: Albanian parents living in Albania, Albanian parents living in the diaspora, and Albanian parents living in Kosovo. Descriptive statistics (frequencies and percentages) were performed. The association of socio-demographic variables with the basic variable was analyzed using Pearson's chi-squared test. Further, using the multinomial regression method, the factors that influence the concrete administration of vaccination among children were analyzed.

3. Results

A total of 600 parents/caregivers responded to the questionnaire. The mother represented 94.5% of the respondents. Moreover, 52% of the respondents had a university degree, and 33.1% had a post-graduate degree, such as in doctoral studies, a master's degree, or a specialization diploma. Additionally, 58% of the respondents declared to have a middle-income level. The age of the children in 39% of the cases was 0–2 years old, while 16% of the respondents were parents of children 12–18 years old. Furthermore, 43% of the respondents had one child, while 42% had two children. The socio-demographic data related to the respondents can be found in Table A1 (Appendix A).

3.1. Correlation between Demographic Variables and Parents' Perceptions about the Safety of COVID-19 Vaccines

About 61% of the respondents disagreed with the statement that the COVID-19 vaccines are safe. The two variables that were statistically related to parents' perception of COVID-19 vaccine safety were the age of the children and the parent's living country. Parents with at least one child aged 0–5 years were more skeptical than other categories regarding the safety of the vaccine. Parents living in Kosovo (52%) were less skeptical about the safety of anti-COVID vaccines compared to parents living in Albania (64%) and the diaspora (65%). Furthermore, 12% of the parents who were skeptical about the safety of the COVID-19 vaccine declared having postponed their children's administration of childhood mandatory vaccines, and 65% of parents with low trust in their pediatrician were skeptical about the COVID-19 vaccine safety compared to 35% of those with increased trust in their pediatrician. Moreover, 76% of the parents declaring to be against all vaccines, in general, resulted in being skeptical about the COVID-19 vaccine too, compared to 28% of those declaring themselves to be in favor of vaccination. The correlation analysis related to this section can be found in Table A2 (Appendix A).

3.2. Correlation between Demographic Variables and Parents' Perceptions about the Efficacy of the COVID-19 Vaccine

Forty-eight percent of the respondents disagreed with the statement "The COVID-19 vaccine can protect the child from getting seriously ill with COVID-19". Only 5.5% of the respondents believed that the COVID-19 vaccine could protect their child from becoming seriously ill. The age of the child and education level were statistically correlated with parents' perceptions about the efficacy of the COVID-19 vaccine in children. Parents with at least one child less than 5 years old (60%) and parents of children 6–12 years old (65%) were more skeptical about the efficacy of the COVID-19 vaccine compared to parents of children >12 years old (53%). As the education level increases, the perception about the efficacy of COVID-19 vaccines becomes more positive. Only 39% of the parents with a post-university degree were skeptical about the efficacy of COVID-19 vaccines compared to 50% of those with a university degree and 68% of those with a ninth-grade education.

3.3. Correlation between Demographic Variables and Parents' Perceptions of Disease Risk

Forty-one percent of the parents believed that the possibility for their children to become infected with SARS-CoV-2 was very high or high. A statistically significant correlation was found between the parents' risk perception of the disease and the following variables: country where they live, education level, income level, and profession. Moreover, 34% of the parents living in Albania perceived a high possibility of their children becoming infected with SARS-CoV-2 compared to 34% of the diaspora and 53% of those living in Kosovo. Furthermore, 42% of parents with an education level of ninth grade or less perceived low risk compared to 23% of parents with a university degree, and 50% of unemployed parents perceived low risk compared to 17% of parents working in the health sciences field, such as medical doctors, pharmacists, etc.

3.4. From the Multivariable Ordinal Logistic Regression Analysis, the Following Results Were Obtained

Seventy-six percent of the respondents declared that they would not vaccinate their child with the COVID-19 vaccine. To understand what factors, affect the vaccination of children with the COVID-19 vaccine, the question "Will you vaccinate the child?" has been analyzed in relation to other variables.

From the statistical analysis, the following results were obtained:

- The country where they live, and their education level do not influence parents' perceptions of vaccinating their children.
- Younger ages of parents (19–30 years old) are twice less prone to administer a COVID-19 vaccine to their children compared to older parents (31–40 years old).

- The possibility of getting the children vaccinated vs. not getting the vaccination increases by 2.3 times if the vaccination is mandatory.
- The hesitancy of administering the vaccination to children compared to the total refusal increases by 3 times if the vaccination is perceived as safe and 3.6 times if the COVID-19 vaccine is perceived as partially safe.
- The most important regression results show that the perceived safety of the anti-COVID-19 vaccine has a concrete impact on the administration of the COVID-19 vaccine in children: better safety of the anti-COVID-19 vaccine is related to lower hesitancy to administer the COVID-19 vaccine to children.

4. Discussion

In this study, most parents were skeptical about the safety and efficacy of COVID-19 vaccine administration for children, although most of them perceived a high risk of children being infected with COVID-19. The factors that influence parents' perceptions about the safety and efficacy of COVID-19 administration are the age of the parent, educational level, and the country where they live. In contrast, the factors influencing parents' perception of risk were the country where they live, education level, income level, and profession. Factors such as living in urban or rural areas were not determinants of their beliefs, which implies that access to vaccination locations is not a concerning issue. Income level was not an influencing factor regarding the decision of parents to vaccinate their children with the COVID-19 vaccine. Parents of younger children were more concerned about vaccine safety and efficacy issues compared to parents of older children. As they are in contact with healthcare professionals more than other parents, strategies to improve communication between healthcare professionals and parents should be implemented. This result is consistent with a study developed by the Kaiser Family Foundation COVID-19 Vaccine Monitor, which reported that one-half of the parents of children aged 2–4 years declared that they would "not vaccinate immediately" regarding their children [8]. The most important factor influencing parents' decision to vaccinate children with the COVID-19 vaccine is their perception of the safety and efficacy of the vaccine. The same concerns were reported by other studies evaluating the vaccination timeliness and confidence among Albanian parents related to childhood immunization [9,10].

Studies developed in other countries have also reported side effects from the COVID-19 vaccine as being the most common concern expressed regarding both children under 5 years and 5–12 years [11,12]. Another study evaluating COVID-19 vaccine uptake among healthcare workers in Albania observed that staff living in households with $\geq$4 members who were supposed to have dependent children in the house were less likely to receive a third COVID-19 vaccine dose compared with two-person households [13]. Although children have less possibility of developing severe COVID-19 disease, they are affected by COVID-19 control measures such as school closures, which might result in emotional distress, mental health issues, and poor quality of education. Moreover, children and adolescents can experience prolonged clinical symptoms known as "long COVID-19" [14]. Finally, children can transmit the virus to others, favoring the transmission and spread of the infection. It is important to develop communication plans and dialog-based interventions to increase population knowledge and awareness of COVID-19 vaccines. Such public health communications addressing the health risks and public health consequences of not vaccinating against COVID-19 have improved vaccination intentions among adults [15].

5. Conclusions

Considering that the main driver of COVID-19 vaccine hesitancy regarding administration among children of Albanian parents is fear of adverse events, scientific-evidence-based communication integrated with campaigns to increase awareness should be developed.

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Appendix A

Tables A1 and A2 explaining the statistical analysis developed for this study can be found in Appendix A.

Table A1. Socio-demographic characteristics of the respondents.

Socio-Demographic Variables	Categories	Number (%)
Relationship with the child	Mother	569 (94%)
	Father	28 (5%)
	Grandmother/Grandfather	6 (1%)
Age of the parent	19–30	180 (30%)
	31–40	335 (56%)
	41–50	74 (12%)
	51+	10 (2%)
Country where they live	Albania	288 (49%)
	Kosovo	168 (28%)
	Diaspora	139 (23%)
Housing	Urban	530 (91%)
	Rural	65 (9%)
Education	9th grade or less	19 (3%)
	High school	71 (12%)
	University studies	309 (52%)
	Post-degree studies	197 (33%)
Age of the child	0–5 years old	407 (68%)
	6–12 years old	153 (25%)
	>12 years old	40 (7%)
Profession	Psychology Field	23 (4%)
	Administration	29 (5%)
	Communication Sciences	15 (3%)
	Education	101 (19%)
	Economic Sciences	99 (18%)
	Engineers	22 (4%)
	Law sciences	38 (7%)
	Health Sciences	126 (23%)
	Speciality jobs	9 (2%)
	Different jobs	37 (7%)
	Unemployed	46 (8%)
Income	Low	13 (2%)
	Low-middle	52 (9%)
	Middle	345 (58%)
	Middle-high	164 (27%)
	High	23 (4%)
Number of children	1	261 (43%)
	2	250 (42%)
	>3	85 (15%)

Table A2. The correlation between demographic variables and parent's perceptions about the safety of COVID-19 vaccines.

Socio-Demographic Variables	Categories	The COVID-19 Vaccine Is Safe for Being Administered to Children Is Safe					*p*-Value
		Totally Disagree	Disagree	Not Sure	Agree	Totally Agree	
		N	N	N	N	N	
Relationship with the child	Mother	242 (43%)	102 (18%)	193 (34%)	24 (4%)	8 (1%)	0.020
	Father	14 (50%)	6 (21%)	5 (18%)	3 (11%)	0 (0%)	
	Grandmother/Grandfather	2 (33%)	2 (33%)	0 (0%)	2 (33%)	0 (0%)	
Age of the parent	19–30	87 (48%)	20 (11%)	68 (38%)	6 (3%)	0 (0%)	0.970
	31–40	141 (42%)	66 (20%)	111 (33%)	11 (3%)	5 (1%)	
	41–50	25 (34%)	21 (28%)	17 (23%)	9 (12%)	2 (3%)	
	51+	2 (20%)	3 (30%)	2 (20%)	2 (20%)	1 (10%)	
Country where they live	Albania	123 (43%)	61 (21%)	92 (32%)	10 (3%)	3 (1%)	0.050
	Kosovo	59 (35%)	28 (17%)	67 (40%)	9 (5%)	4 (2%)	
	Diaspora	72 (51%)	19 (14%)	38 (28%)	9 (7%)	1 (1%)	
Housing	Urban	227 (42%)	101 (19%)	177 (33%)	26 (5%)	8 (1%)	0.740
	Rural	25 (47%)	7 (13%)	18 (34%)	3 (6%)	0 (0%)	
Education	9th grade or less	14 (74%)	1 (5%)	4 (21%)	0 (0%)	0 (0%)	0.120
	High school	36 (51%)	9 (13%)	23 (32%)	2 (3%)	1 (1%)	
	University studies	129 (42%)	56 (18%)	108 (35%)	15 (5%)	2 (1%)	
	Post-degree studies	75 (38%)	43 (22%)	60 (31%)	12 (6%)	5 (3%)	
Profession	Administration	14 (42%)	6 (18%)	12 (37%)	1 (3%)	0 (0%)	0.430
	Specialist	127 (41%)	57 (18%)	107 (34%)	16 (5%)	5 (2%)	
	Technician	6 (46%)	2 (15%)	5 (38%)	0 (0%)	0 (0%)	
	Different jobs	25 (66%)	2 (5%)	11 (29%)	0 (03%)	0 (0%)	
	Unemployed	14 (47%)	3 (10%)	11 (37%)	2 (7%)	0 (0%)	
	Health sciences	42 (34%)	29 (24%)	43 (35%)	8 (7%)	1 (1%)	
Income	Low	7 (54%)	3 (23%)	3 (23%)	0 (0%)	0 (0%)	0.110
	Low-middle	24 (46%)	13 (25%)	15 (29%)	0 (0%)	0 (0%)	
	Middle	139 (40%)	69 (20%)	119 (34%)	14 (4%)	5 (1%)	
	Middle-high	71 (43%)	21 (13%)	57 (35%)	13 (8%)	2 (1%)	
	High	14 (64%)	3 (14%)	2 (9%)	2 (9%)	1 (5%)	
Number of children	1	120 (46%)	47 (18%)	85 (32%)	8 (3%)	4 (2%)	0.580
	2	97 (39%)	45 (18%)	87 (35%)	16 (6%)	4 (2%)	
	3	39 (45%)	17 (20%)	26 (30%)	5 (6%)	0 (0%)	
Age of the child	0–5 years old	182 (45%)	64 (16%)	147 (36%)	11 (3%)	3 (1%)	0.000
	6–12 years old	65 (42%)	35 (23%)	39 (26%)	14 (9%)	0 (0%)	
	>12 years old	11 (28%)	11 (28%)	12 (30%)	3 (8%)	3 (8%)	

Source: Author's calculations using STATA 16.

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