

Assessment of parent knowledge and perception towards the importance of child immunization in Sudair region, Saudi Arabia

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Abstract. – OBJECTIVE: According to WHO, global coverage of immunization was 86% in 2019, which dropped to 83% in 2020. The objective of this study is to assess parental knowledge and identify their perception towards the importance of child immunization. This study has also tried to determine the possible influencing factors for parental decision-making towards child immunization.

PATIENTS AND METHODS: A community-based cross-sectional study was conducted in 2020 in Sudair region of Saudi Arabia. The study was done among parents residing in Sudair region, where the sample was randomly selected based on the household. The sample of 436 was taken using the population proportion formula. Data were collected and analyzed using SPSS version 18 (SPSS Inc., Chicago, IL, USA). Both the descriptive and inferential statistics were used to draw the results.

RESULTS: In this study the three-fourth (77.1%) of respondents were female and the remaining were male (23%). The majority of the respondent's knowledge was reported to have some form of influence on their idea of immunization followed by Ministry of Health, family members, medical staff, social media and others. A significant association was seen between age, marital status, occupational status and parents' knowledge on the importance of immunization (thinking if all child immunization was important). Association was also seen between parents' perception that immunization causes serious side effects and the age of the respondents.

CONCLUSIONS: The specific programs and bcc materials are needed to enhance the knowledge and perception of individuals regarding the need for complete immunization and also regarding the fact of vaccine-preventable diseases.

Key Words:

Immunization, Vaccine-preventable, Perception, Knowledge.

Introduction

Immunization has prevented more than 20 life-threatening diseases. It prevents 2-3 million deaths every year as well as helps people of all ages live longer, healthier lives¹. Although vaccination has been succeeding continually around the world, there are approximately 20 million infants who still have insufficient access to vaccines. In the history of public health, the vaccine has been recognized as a powerful tool. According to WHO, global coverage of immunization was 86% in 2019, which dropped to 83% in 2020. It includes infants who received three doses of the diphtheria-tetanus-pertussis (DPT) vaccine. In 2009 approximately 23 million children under one year of age did not receive basic vaccines, which was the highest in number. Similarly, the number of completely unvaccinated children in 2020 was increased by 2.3 million. Only 19 were reported as vaccine introduction in 2020, which was less than half of any years in the past two decades. The reason for this slowdown is due to the focus on controlling COVID-19 pandemic and on the introduction of the COVID-19 vaccine. Additionally, in 2020 girls who were not fully vaccinated against human papillomavirus (HPV) were 1.6 million, which is increased compared to the previous year². Children who are not completely immunized on time are generally

associated with lower socioeconomic status, residing in rural areas, and having restricted access to healthcare facilities³. Besides, there are several cases of vaccine refusal as well. World Health Organization (WHO) estimates that about 1 in 5 children each year around the world were not given routine life-preserving immunization¹. In addition, 1.5 million children faced death from vaccine-preventable diseases. According to the study done in Saudi Arabia, 37.5% of parents' perception towards immunization is not positive as they think it is not required. Furthermore, 25% of them mentioned their hesitation towards the vaccine's substances. Additionally, there were other reasons that influenced the refusal, such as the lack of explanation from doctors and nurses. Also, the impact of social media, religion, family and prolonged waiting times at the community health centers played a role in the rejection of vaccination⁴.

The objective of this study is to assess the parental knowledge and identify their perception on the importance of child immunization. This study has also tried to determine the possible influencing factors for parental decision-making towards child immunization.

Patients and Methods

A community-based cross-sectional study was conducted in 2020 in Sudair region of Saudi Arabia. The study was done among parents residing in Sudair region, where the sample is randomly selected based on the household. The sample size for the study was determined using the population proportion formula ($n = [(Z\alpha/2)^2 \cdot P(1-P)]/d^2$) with the prevalence of the knowledge of immunization among mothers taken as 55%⁵ delay, or are hesitant to vaccinate their children. For the final calculation, the confidence interval was taken as 95% assuming marginal error as 5% and 10% non-response rate making the sample of ± 436 .

Data were collected using a pretested and structured closed-ended questionnaire. The content validity of the questionnaire was assessed in a similar setting visit where the prepared questionnaire was pretested, and the observed deviation was reframed and corrected for finalization. The administered questionnaire is comprised of three sections. Section "A" is composed of questions related to socio-demographic information of the respondents; Section "B" consists of influ-

encing factors and perception of parents towards child immunization; the last Section "C" contains questions to assess the knowledge of parents in regard to child immunization.

The collected data were entered and analyzed using SPSS version 18 (SPSS Inc., Chicago, IL, USA). For the data analysis, both descriptive and inferential statistics were used wherein the general frequency, and percentage were obtained as part of descriptive analysis, and a chi-square test was performed to see the association between knowledge/perception with socio-demographic variables. The interpretation of the association was based on the obtained *p*-value. The data visualization was done using the required graphs and tables. Before every data collection, participants were informed about the procedure and purpose of the study, followed by obtaining written consent where confidentiality of participants' identity and information were highly ensured.

Results

Socio-Demographic Characteristics of Respondents

Among the respondents, more than three fourth (77.1%) were female, and the remaining were male (23%). 44% of the respondents were of the age group >40 followed by the age group by age group 31-25 (16.9%), 36-40 (15.7%), 26-30 (12.9%), and less than 25(10%). The majority of the respondents were married (95%), while 3% of them were divorced, and almost 2% reported that they were widowed. 79% of the respondents were from Al-Majmaah, followed by Al-Zulfi (6.4%), Tumair (3.1), Al-Hota (2.6%), Shagara (2.4%), Jalajil (2.4%), and Rawdah Alsidair (0.5%).

More than half of the respondents (65.5%) had the education of bachelor or diploma level, followed by 20.2% who had high school level education and 13.8% who had masters or Ph.D. level education. Likewise, 58.2% of the respondents were employed, 15% were housewife, 10.7% were retired, 8.8% were unemployed, 5.3% were students, and 1.9% was self-employed. The majority of the respondents had children (83.1%). Among them, 67% had 1-5 children, 18% had more than 10 children, and almost 15% had 6-10 children. Approximately one-third of the respondents had children aged both more than 5 years and of 5 years or less, while 21% of respondents had children of 5 years or less, and 16.4% had children aged more than 5 years.

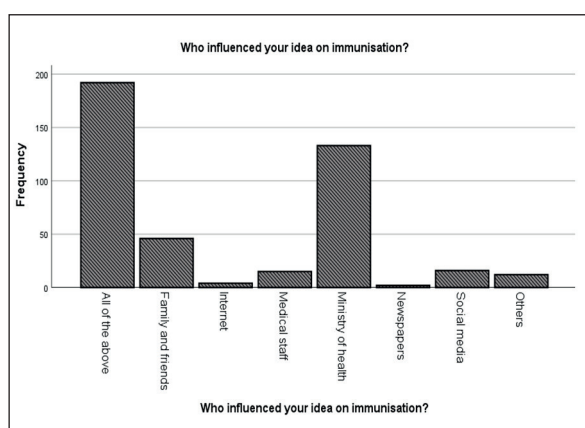


Figure 1. Paternal Influencer for decision making on immunization.

The majority of the parents with children reported that children had no chronic illness (91%), while 6% reported their children had asthma, followed by 1.4% who had diabetes mellitus, chronic respiratory illnesses (1.1%), and thyroid disorders (0.4%).

The majority of the respondent reported all of the optioned given to them had some form of influence on their idea of immunization followed by Ministry of Health, family members, medical staff, social media and others (Figure 1).

Table I shows parents’ thoughts on whether or not child immunization was significantly associated with the age (p -value = 0.029) and the marital status (p -value < 0.001) of the parents. The respondent’s perception on whether the fever that accompanies the vaccines makes immunization harmful also showed a significant association with the age (p -value = 0.041), marital status (p -value = 0.020), and occupational status (p -value = 0.007) of the parents.

According to Table II, when asked about their perception regarding child immunization three fourth of the respondents reported that immunization would protect us from fatal diseases. This was followed by 25% who reported it causes serious side effects and 13.8% of the respondents

who knew it was important but didn’t know why. Association was also seen between parents’ perception of that immunization causes serious side effects and the age of the respondents (p -value = 0.032)

Moreover, When the respondents were asked Why is your child not up to date with their vaccines, 42.9% of them reported that they do not think it is important or necessary, followed by side effects (14.3%), cause more harm than good (14.3%), mothers’ refusal (14.3%) and fathers’ refusal (14.3%).

According to Table III, a significant association was seen between age (p -value < 0.005), marital status (p -value = 0.049), occupational status (p -value = 0.01), and parents’ knowledge on the importance of immunization (thinking if all child immunization was important). Likewise, the association was also seen in between child up to date with MoH vaccine schedule and the age of the parents.

Discussion

A study conducted in 2018 by Kumar et al⁶ shows that the participants who were included during the study nearly in the same ratio both male 52% and female 48%, whereas our study shows that 77% were female, while the remaining were male. 44% of the participants during our research had more than 40 years which is the highest among any age group, while compared to another study, the majority of participants (46%) belong to the age group between 31-40 years⁶. Likewise, a cross-sectional survey conducted among mothers with children below 5 years shows that 98.4% of women are married whereas the remaining 1.6 belong to single/divorced/widow, which is almost similar to our study⁷. The study was conducted in different places of Saudi Arabia where the majority of the participants 65.5% level of study was a bachelor or diploma, which is highest among other levels compared to another study where

Table I. Parents’ perception on childhood immunization.

R	Item	Yes	No	Significance and p -value
[A]	Do you think child immunization is important?	410 (97.9%)	10 (2.4%)	Age (p -value = 0.029), Marital status (p -value < 0.001)
[B]	Do you think the fever that accompanies the vaccines makes immunization harmful?	90 (21.4%)	330 (78.6%)	Age (p -value = 0.041), Marital status (p -value = 0.020), Occupational status (p -value = 0.007)

Table II. Parents' perception on childhood immunization.

R	Items	Frequency	Percentage (%)	Significance and p-value	
[A]	What do you think about child immunization?	It causes serious side effects.	25	25%	Age (<i>p</i> -value = 0.032)
		It is important but I don't know why	58	13.8%	
		It will protect us from fatal diseases	322	76.7%	
		The vaccine is not useful	1	0.2%	
		they are a second way to bring the diseases to our body		0.2%	
		In gods anything will happen	1	1%	
		Protect us from infectious diseases and protect us from others	2	0.5%	
				1%	
		Protects us from seasonal diseases only	4	0.5%	
		No need for it because god creates us as free humans without any conditions	2		
		Very important especially during COVID crises	3		
		Causes diseases	2		
		[B]	Why is your child not up to date with their vaccines	Due to the side effects	
Fathers refusal	1			7.1%	
I do not think it is important or necessary	6			42.9%	
It will cause more harm than good	2			14.3%	
Lack of transportation	2			14.3%	
Mothers refusal	1			7.1%	

more participants have studied higher secondary or degree (62%). The majority of the parents were employed 58.2%, whereas other study shows only 40% of participants are involved in semi-skill or work. Most of the participants have children. 67% of the participants have 1-5 children, whereas compared to other study⁶ shows that about 65% have 2 children.

Approximately one-third of the respondents (34.5%) had children aged both more than 5 years and of 5 years or less, but comparing other study⁷ shows that 79.5% of their children belong to age above 2 years. As the study shows, the majority of children do not have any chronic disease, but

6.1% of children are suffering from asthma which is also known as a global burden problem, and 1.1% other respiratory diseases. It affects both children as well as adults. According to a WHO report in 2019⁸, approximately 262 million are affected by asthma, causing 46100 deaths. Some scholars⁹ show that Type 1 diabetes is most common among children. It is another chronic disease in childhood where 1 in 350 children suffer by the age of 18. In our study, only 1.4% suffered from this disease, while the remaining 0.4% suffered from thyroid disease.

This study shows that the majority of parents think that vaccination is important for the child

Table III. Parents' knowledge on childhood immunization.

R	Item	Yes	No	Significance and p-value
[A]	Do you think that all child immunization is important?	401 (95.5%)	19 (4.5%)	Age (<i>p</i> -value < 0.005), Marital status (<i>p</i> -value = 0.049), Occupational status (<i>p</i> -value = 0.01)
[B]	Is your child up to date with MOH vaccine schedule?	406 (96.7%)	14 (3.3%)	Age (<i>p</i> -value = 0.030)
[C]	If you encountered parents who have not vaccinated the children would you advice to them?	395 (94%)	25 (6.0%)	

so that they will not be affected by other chronic which is similar to another study¹⁰ showing that parents agree that taking vaccination has the advantage to protect them from diseases. Only a few parents who have low incomes think that vaccination has side effects than parents having high income. Most of the participants think that fever after immunization is harmful, whereas different research said that it is the systematic adverse effect that develops in every people after vaccination. Fever also has different patterns according to the characteristic of vaccine pattern¹¹.

This study shows that the perception of all participants is not positive. 25% of the participants think that immunization has an adverse side effect, whereas some know it is important, but they are not aware of the reason. This finding is corroborated by a retrospective study¹² carried on 630 children aged less than 3 years from all health regions of Catalonia which revealed that about 20.4% of parents stated that vaccines could have undesirable side effects. Additional majority participants, 76.5%, have knowledge that it protects them from fatal diseases. A similar study¹³ done in Northeast London has noted parents who were supportive of immunization had high concern about the safety of the vaccine, even the parents who had their children vaccinated for MMR.

They still have doubt of having short-term and long-term adverse effects to the children because of hearing from other people, media, etc.⁵. People also believe that vaccination is the other way to invite disease, protect from seasonal infection. Only very few people think it is important during this COVID-19 pandemic.

When participants were asked about reasons for not updating vaccines to their children, 42% of the participants thought it is not important, while the remaining participants have opted not to immunize due to fear of adverse reactions or lack transportation.

Compared to study by Luman et al¹⁴ the reason for refusal of immunization, 75% of parents thought alternative treatments such as homeopathy were better off compared to immunization of participants, it is the alternative treatment which has side effects. Additional participants also think it is not effective, and 25% show their doubt regarding immunization⁴. Similarly, other reasons for parental refusal to immunization are their religious belief, personal beliefs, or philosophical reasons, as well as a safety concern⁵. Mother refusal is also a contributory factor for rates of completion of the immunization schedule

and may vary depending on the maternal socio-demographic characteristics¹⁴.

About 95.5% of the participants have knowledge regarding the importance of immunization. Similarly, Kara et al¹⁵ show that participants have good knowledge of immunization where (97.6%) were up to date for all vaccinations by age. The majority of parents, 94%, said that if they come across unvaccinated children, they will suggest for vaccination.

In the present study, it was noticed that most of the respondents are influenced by the Ministry of Health, family members, medical staff, social media, and others in some other ways on their ideas of immunization. Similar findings are reported by a study done in United States in which the knowledge and perception of parents was influenced by doctors, a nurse, and/or HPC to change their decision on immunization¹³.

Conclusions

According to this study, there is a need of major public health education concerns. The programs and BCC materials are needed to enhance the knowledge and perception of individuals regarding the need for complete immunization and also regarding the fact on vaccine-preventable diseases. As age is the most associated factor of determining parental knowledge and perception towards immunization, more programs should be focused for those specific age group populations. It is also recommended to improve the accessibility of immunization services which also includes the service waiting time.

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Conflict of Interest

The Authors declare that they have no conflict of interests.

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