DETERMINANTS OF VACCINE HESITANCY AND REFUSAL IN CHILDREN OF DISTRICT SWABI KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT:

OBJECTIVES:

The objective of the study was to evaluate factors associated with vaccine hesitancy and refusal at District Swabi, Khyber Pakhtunkhwa.

METHODOLOGY:

This cross-sectional study was conducted at a teaching hospital of Khyber Pakhtunkhwa District Swabi over a period of four months. Children between the ages of 9 months to 10 years from the local population admitted to the children ward/daycare centre were included in the study. Parents were inquired about vaccination status and in case of no vaccination or partial vaccination; then the reason was inquired after proper informed consent. Data were collected by using a structured proforma and analyzed using SPSS-24.

RESULTS:

A total of 828 children were included in this study. Out of these 492 (59.4%) were male and 336 (40.6%) were females. Of the total 828 children, 753 (90.9%) were vaccinated up to date, 48 (5.8%) were not vaccinated and 27 (3.3%) were partially vaccinated. Under vaccinated were 75 patients, 52% were left out due to misconception/beliefs, 6% patients were having issues due to living far away, 2.7% patients could not be vaccinated due to presence of other diseases and 37.3% due to lack of knowledge regarding vaccination. A significant correlation was found between the vaccination status of children and aforementioned reasons (p-value ≤0.001).

CONCLUSION:

The most common cause of not vaccinating children with polio vaccines was misconceptions/beliefs and lack of knowledge of the parents.

KEYWORDS: *Vaccination, Vaccine Hesitancy, Vaccine Refusal, Myths*

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INTRODUCTION:

High child mortality is one of the most alarming problems faced by our country. Malnutrition and infections are the main causes found to increase mortality and morbidity in children[1]. There was 51.8% (3.257 million) under-five mortality in children due to infectious causes of 6.3 million deaths in the year 2013[2]. One of the major

predisposing factors to the infectious diseases is poor vaccination status. Vaccination is the most effective and cost-effective way to prevent the disease and improve the health of children along with adults. Due to the development of vaccines, countless lives have been saved and have improved the quality of life of humans by prevention of diseases. Vaccination of the population is one of the primary responsibilities of the state for which immunization programs have been started[2]. In Pakistan EPI (Expanded Program on Immunization) is working on a project of immunization of children with help from donor agencies. Despite the improvements made in the EPI Program, there are multiple factors,[3] e.g. social and religious beliefs, living at far-flung areas, poor knowledge and concomitant illness, which may hamper the vaccination process[4-6]. The social factors and religious beliefs of the parents, as well as misconceptions regarding vaccination and other ground factors; play an important role in the prevention of vaccination by parents of their children[7]. Parents‟ attitudes can vary from total refusal to complete acceptance of vaccination for their children. Some people are against some specific vaccines. In our country, people have myths against polio vaccine; however, they accept some injectable vaccines with doubt in mind[8]. Vaccine hesitancy and vaccine refusal are the two phenomena; the health care workers are facing despite the availability of vaccination services[9]. Although childhood vaccination has a high rate of coverage and is accepted by most as a public health measure,[10] yet some children are not vaccinated or partially vaccinated and are a constant source of disease transmission[11]. The objective of this study was to find factors responsible for compelling parents to hesitate or refuse vaccines. In this study, these factors were evaluated to improve the awareness and knowledge regarding vaccine-preventable diseases. This study will also help public health managers to draft policies for rectifying the factors leading to vaccine refusal or vaccine hesitancy.

METHODOLOGY:

This cross-sectional study was conducted at a designated teaching hospital of KPK in district Swabi. The study was conducted over a period of four months from March 2016 till June 2016. The institutional review board approved the study. Children between the ages of 9 months to 10 years from the local population admitted to children ward/daycare centers were included in the study after the informed consent of parents. Parents who did not give consent were excluded. Also, children in whom vaccination was not done due to specific contraindication like immunosuppressant medicine and immunodeficiency were excluded. The sample size was calculated by an open epi sample size calculator taking the vaccine coverage as 51.3%,[12] for age with a confidence interval of 99%. The calculated sample size was 663 patients. First parents (mother, father or both) were briefed about the purpose of data collection and then were included after they consented. Parents were inquired about vaccination status and if not vaccinated or partially vaccinated then the reason was to know the specific factor behind not vaccinating their child or leaving the vaccination course incomplete. The child was taken as vaccinated up to date when completed the course of vaccines required up to that age limit. If some child got the initial one or more vaccine doses but has not completed the course of vaccines required for that age then considered as partially vaccinated. If some child did not get any vaccine shot including the oral polio vaccine given by Expanded Program on Immunization (EPI) then considered as not vaccinated. The reasons for not vaccinating or missing vaccination were classified into four groups. Group one included the misconception or belief that vaccine is either haram in Islam or it is not safe from a medical aspect. The Second group included children living far away from health care facilities as parents have to travel long distances for vaccination of their child and they prefer not to go for vaccination either due to difficult traveling or financial issues in traveling. The Third group included children who missed or did not complete vaccination due to some other illness and parents were focused on the disease and ignored vaccination. The Fourth group included the children of parents having poor knowledge that vaccines should be given for protection against different communicable diseases. Data was collected by using a proper proforma and analyzed using SPSS-24. Quantitative data as age was presented in the form of mean and standard deviation. Vaccination status is given in the form of a percentage along with different reasons. Chi-square test was used for comparison of nominal data, where applicable and p-value <0.05 taken as significant.

RESULTS:

A total of 828 children were included in this study. Patients were included by probability sampling (simply random sampling). Out of these 492 (59.4%) were male and 336 (40.6%) were female.

The age range of children included in the study was between 9 to 120 months with a mean age of 28.71±29.92 months. The Majority (59.3%) of children were under one year of age. Of a total of 828 children 753 (90.9%) were vaccinated up to date, 48 (5.8%) were unvaccinated and 27 (3.3%) were partially vaccinated. There were a total of 75 patients who were either not vaccinated or partially vaccinated.

Table 1: Cross Table Between Gender and Vaccination Status

Gender	Vaccination Status			Total
	Vaccinated up to Date	Partially Vaccinated	Not Vaccinated	
Male	445	19	28	492
Female	308	8	20	336
Total	753	27	48	828

Table 2: Partial Vaccination and No Vaccination Versus Reasons

Groups	Frequency	Percentage
Misconception/Belief	39	52
Far Living	6	8
Due to Other Illness	2	2.7
Poor Knowledge	28	37.3
Total	75	100.0

Table 3: Cross Table Between Reasons and Vaccination Status

Vaccination Status	Reasons					Total	P-Value
		Misconception/Belief	Far Living	Due to Other Illness	Poor Knowledge		
Vaccinated up to Date	753	0	0	0	0	753	<0.001
Partially Vaccinated	0	12	2	1	12	27	
Not Vaccinated	0	27	4	1	16	48	
Total	753	39	6	2	28	828	

Table 4: Cross Table Between Gender and Reasons

Gender	Reasons				Total
	Misconception/Belief	Far Living	Due to Other Illness	Poor Knowledge	
Male	26	4	1	16	47
Female	13	2	1	12	28
Total	39	6	2	28	75

DISCUSSION :

Vaccines are cheaper sources that protect from the common infectious diseases. In the present study, there were vaccine refusals for polio vaccine in most of the cases. As the government of Pakistan is committed to eradicating polio from Pakistan with help of WHO and UNICEF. Due to endemic of polio in Pakistan, there is much concern about Pakistan at international level and Pakistan has to face criticism worldwide. In our study first, we inquired about the vaccination status of children admitted to the children's ward or who stayed in daycare for a short time. After knowing the vaccination status of children, we took a short interview from the parents (mother, father or both) of partially vaccinated or not vaccinated children. Most of the parents were quite cooperative and talked in a friendly manner. The most important driving factor for not giving vaccines to children was religious beliefs. Most parents were of the opinion that as these vaccines are imported from

western countries, especially the polio vaccines, they believe that the vaccines are not made from halal ingredients and contain porcine components. Making this belief they refuse vaccines for their children. Other misconception was that western countries are worried about Muslims not taking control of the world, so in order to control population they launched the campaign of controlling Muslims population under the cover of vaccine campaigns. As it is believed the vaccines decrease fertility not only in girls but also in boys. One of the respondents said though as a mother she believes that vaccines are for better health of her children but her children could not get vaccinated due to religious beliefs of family members. These religious beliefs of the parents as well as misconceptions regarding vaccination play a significant role in preventing the parents from getting their child vaccinated[7]. Ali A et al,[13] conducted one study in Swat and found the misconception to be one of main issues related to vaccine refusal along with religious issues. One of father who was an engineer by profession even had issues with the EPI vaccination program. His concern was why the west is so concerned about the health of our children and donating money for vaccination. As one hand they are giving vaccines free of cost and on other hand they try their best to take resources of Muslim countries and keep them backward. Important reasons for not vaccination were pointed out by Paterson P et al,[14] in their study about childhood influenza vaccination done in West Yorkshire and Greater Manchester, England that the majority of parents were of the opinion that their children do not need influenza vaccine and others were concerned about the vaccine side effects and its efficacy. Some were reluctant due to the porcine content of the vaccine due to religious beliefs. The misconception regarding vaccines is not only here in our part of the world but also in western and developed countries, as reported by Wessel L,[4] in science-mag there are myths about MMR vaccine related to autism and mercury content of vaccines being harmful for humans. Poor knowledge and far living were the main reasons for 37.3% and 6% of children respectively. Parents were not aware that vaccines are for better health of their child and available free of cost. Only things required in a timely follow up of vaccine schedule. As the district in which study had been done has far flung areas in mountains and people do have difficulty in access to the health care facility. In one study conducted by Khan S et al,[15] in the Child Health Department, Khyber Teaching Hospital, Peshawar, KPK, Pakistan showed that the majority of children who were not vaccinated or partially vaccinated were due to poor knowledge about the vaccination and benefits associated with it. As 56.4% children were under vaccinated due to poor knowledge. The other factor found by Khan S et al was either far living or difficulty in accessibility to health care centers for vaccination. Another study done by Murtaza F et al,[16] by data from Pakistan Integrated Household Survey/Household Integrated Economic Survey 2001–2002 data showed that poor knowledge and literacy rate along with far living is the common reason for under vaccination. Another factor we came across in our study was that whenever there was any other illness, even some minor illness or flu, the parents got concerned about the vaccine safety and did not opt for vaccination, as in our study 2.7% children could not be vaccinated at all or further due to concomitant illness. The countries where there are better health care facilities and access to vaccination services, still people are hesitant. Like the acceptability of measles vaccine in some areas across Europe, polio vaccine in Pakistan and Nigeria and in Japan human papillomavirus (HPV) vaccine are examples of concerns about the vaccines[17-20].

CONCLUSION:

Vaccination status of children in the community reflects the health care seeking behavior of the family. In our study the most major cause of non-vaccination were misconceptions/beliefs and lack of knowledge of parents. This study points to a greater problem prevalent in our society, which needs to be addressed. Society education about vaccines and its importance is the need of the day.

CONFLICT OF INTEREST: None

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REFERENCES:

1. Liu L, Oza S, Hogan D, Chu Y, Perin J, Zhu J, et al. Global, regional, and national causes of under-5 mortality in 2000-15: an updated systematic analysis with implications for the Sustainable Development Goals. Lancet. 2016;388(10063):3027-35.
2. Liu L, Oza S, Hogan D, Perin J, Rudan I, Lawn JE, et al. Global, regional, and national causes of child mortality in

2000–13, with projections to inform post-2015 priorities: an updated systematic analysis. Lancet. 2015;385(9966):430-40.
3. Geoghegan S, O'Callaghan KP, Offit PA. Vaccine safety: myths and misinformation. Front Microbiol. 2020;11:372.
4. Wessel L. Vaccine myths. Science. 2017;356(6336):368-72.
5. Perera PJ. Facts and myths about BCG vaccination. Sri Lanka J Child Health. 2018;47(2):186.
6. Horne Z, Powell D, Hummel JE, Holyoak KJ. Countering antivaccination attitudes. PNAS. 2015;112(33):10321-4.
7. Davidson. Vaccination and autism-myths and controversies. Dialogues Clin Neurosci. 2017;19:403-7.
8. Hu Y, Chen Y, Liang H, Wang Y. Reliability and validity of a survey to identify vaccine hesitancy among parents in Changxing county, Zhejiang province. Hum Vaccines Immunother. 2019;15(5):1092-9.
9. World Health Organization. Meeting of the Strategic Advisory Group of Experts on Immunization, April 2019: conclusions and recommendations. Wkly Epidemiol Rec. 2019;94(22 23):261-79.
10. Bradshaw AS, Treise D, Shelton SS, Cretul M, Raisa A, Bajalia A, Peek D. Propagandizing anti-vaccination: Analysis of Vaccines Revealed documentary series. Vaccine. 2020 Feb 18;38(8):2058-69.
11. Dubé E, Gagnon D, MacDonald NE. Strategies intended to address vaccine hesitancy: review of published reviews. Vaccine. 2015;33(34):4191-203.
12. Noh JW, Kim YM, Akram N, Yoo KB, Park J, Cheon J, et al. Factors affecting complete and timely childhood immunization coverage in Sindh, Pakistan; a secondary analysis of cross-sectional survey data. PLoS One. 2018;13(10):e0206766.
13. Ali A, Ali L, Shah M, Khan N, Shafee M, Jan SK. Polio vaccination; an analysis of cultural and traditional barriers. Prof Med J. 2018;25(1):67-72.
14. Paterson P, Chantler T, Larson HJ. Reasons for non-vaccination: parental vaccine hesitancy and the childhood influenza vaccination school pilot programme in England. Vaccine. 2018;36:5397-401.
15. Khan S, Muhammad Z, Shah SI, Sher J, Ahmed I, Haider Z. Non-vaccination of children under five years of age. J Med Sci. 2018;26(3):215-20.
16. Murtaza F, Mustafa T, Awan R. Determinants of non immunization of children under 5 years of age in Pakistan. J Fam Community Med. 2016;23(1):32-7.
17. Adongo CA, Amenumey EK, Kumi-Kyereme A, Dubé E. Beyond fragmentary: A proposed measure for travel vaccination concerns. Tourism management. 2021 Apr 1;83:104180.
18. Bulama AA, Goodman-Brown J. Polio eradication in Nigeria and India: a systematic review of challenges and successes. International Journal of Translational Medical Research and Public Health. 2019 Oct 9;3(2):83-94.
19. Ittefaq M, Baines A, Abwao M, Shah SF, Ramzan T. "Does Pakistan still have polio cases?": Exploring discussions on polio and polio vaccine in online news comments in Pakistan. Vaccine. 2021 Jan 15;39(3):480-6..
20. Butt M, Mohammed R, Butt E, Butt S, Xiang J. Why have immunization efforts in Pakistan failed to achieve global standards of vaccination uptake and infectious disease control?. Risk Manage Healthcare Policy. 2020;13:111-24.

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