ORIGINAL ARTICLE

PERCEIVED KNOWLEDGE, ATTITUDE, AND BEHAVIOR OF PARENTS/CAREGIVERS TOWARDS ROUTINE IMMUNIZATION IN DISTRICT PISHIN, BALOCHISTAN PAKISTAN: A CROSS-SECTIONAL SURVEY

Najeeb Ullah[1], Muhammad Anwar Bugti[1], Jawwad Afzal Kayani[2], Farman Ullah[1], Muhammad Azan Ahmed[3], Hamd Ullah[4]

[1]Polio Eradication Initiative Program World Health Organization, Quetta (Block) Pakistan
[2]Health Department, Azad Jammu and Kashmir
[3]District Emergency Operation Cell, Pishin (Balochistan) Pakistan
[4]Field Monitor Balochistan Rural Support Program, Pishin (Balochistan) Pakistan

ABSTRACT

Background: This study evaluates the perception, attitude, and behavior of parents/caregivers towards the vaccination of their child. vaccination is the greatest impactful steps, determining the real goal for public health.

Material and Methods: A cross-sectional survey was conducted among the sample of 403 Parents/caregivers of children aged under 5 years by using a two-stage random sampling technique in the period between February to March 2022 in district Pishin of Baluchistan, Pakistan.

Results: Community health workers were used to administer the questionnaire to parents or caregivers, to seek information about 1) Socio-demographic characteristics 2) knowledge regarding vaccines and their types; 3) behavior regarding the administration of vaccination. The knowledge regarding vaccine-preventable diseases was higher in parents who attend higher levels of education. HCPs were the primary source of information and the majority of sources are verbal. Parents/caregivers show a positive attitude toward vaccines and 59% are aware of vaccine importance and 39% are aware of childhood diseases with their names.

Conclusion: The positive attitude was significantly higher in those who considered vaccines boost immunity and protect against diseases. Greater attention from policymakers and healthcare providers is needed to increase the knowledge-seeking behavior of parents/caregivers on recommended vaccines and their importance on timeliness and completion to increase immunization coverage.

Keywords: Vaccine-preventable diseases, Immunization, Childhood

BACKGROUND

For primary prevention of common childhood diseases (CHD) vaccine is one of the greatest impactful steps, delineating the real goal for public health.[1] Vaccines decreased the economic and social burden linked with mortality and morbidity and eventually common childhood diseases. Vaccines are considered unsafe and needless despite knowing all these benefits in the general population.[2] Immunization activities are widely practiced in the pediatric field. American Academy of Pediatrics, provides recommendations after emphasizing the clear importance of vaccination in this age group.[3] The immunization record shows, 1.5 million children die due to vaccine-preventable diseases annually.[4] Child age under 1 year of age dies due to vaccine-preventable diseases.[5] Pakistan is still far from the objective of complete vaccine coverage.

The Expanded Programme on immunization (EPI) established in 1976, provide vaccination for six childhood diseases: tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus, and measles. If EPI is discontinued 1000 deaths in under five years of children will likely to occur.[6] Significant regional disparities, only 27% of children in Baluchistan are fully immunized. The Quetta and Qilla Abdullah are the high-risk reservoir hubs.[7] It is therefore interesting to assess the perceived knowledge of parents/caregivers regarding vaccination, as they are the primary source of information in delaying vaccination and make an informed contribution to decision making in health-related matters of family. The literature highlighted different studies assessing the knowledge, attitude, and behaviors of parents/caregivers and healthcare providers regarding vaccination,[8,9] defining specifically one vaccine-preventable disease associated with

Correspondence: Dr. Jawwad Afzal Kayani, Health Department, Muzaffarabad, Azad Jammu and Kashmir

Email: drjawwadkayani@hsa.edu.pk

This article can be cited as: Ullah N, Bugti MA, Kayani JA, Ullah F, Ahmed MA, Ullah H. Perceived knowledge, attitude, and behavior of parents/caregivers towards routine immunization in District Pishin, Baluchistan; A cross-sectional survey. Infect Dis J Pak. 2023; 32(3): 78-82. DOI: 10.61529/idjp.v32i3.90.

Receiving date: **01 Apr 2022** Acceptance Date: **28 May 2023**
Revision date: **28 May 2023** Publication Date: **30 Sep 2023**

vaccination.[10,11] However, in Baluchistan, there is a dire need to draw attention to the issue of decreased vaccination coverage and assess the perception, attitude, and behaviors of parents/caregivers. The secondary focus of this study was to find out the determinants associated with these outcomes.

MATERIAL AND METHODS

The survey was conducted from February to March 2022 in the geographical area of district Pishin under the Quetta block, the boundary with Qilla Abdullah, Qilla Saifullah, Quetta, and Afghanistan. The population size of this area is approximately a 0.8million. District Pishin is comprised of four tehsils (Barshore, Karezat, Huramzai and Pishin). To obtain the data of 430 parents/caregivers of district Pishin two-stage cluster sampling techniques were being applied, 1) identified list of 43 union councils; 2) 10 households were selected randomly from each union council where children under five years old were present. 27 parents/caregivers refused to participate in the study and 403 parents/caregivers were recruited as per inclusion criteria, The effective sample size was estimated to be 430, 95% confidence interval, an error of 5% and non-responsiveness rate was 6.2%.

Prior to data collection the research team contacted union counselor of selected district by letter of permission to collect data, shed lights on objectives of the study, methodology, and assuring the confidentiality and privacy of participants. On secondary level is written and verbal informed consent was taken from parents/caregivers before administration of the questionnaire. Participants were informed that the collected data will be anonymously processed and analyzed and their identity will be mentioned as pseudo-number. The respondent did not receive any financial compensation to get enrolled in this study.

A standardized questionnaire was used, the first part was about the socio-demographic characteristics of participants, second part was about knowledge of vaccination, associated diseases, and recommended vaccines and the last part was about the behavior of participants on vaccine recommendation, source of knowledge, advice from health care providers and whether they need additional information. All statistical analysis was performed on Software SPSS version 18. Initially descriptive analysis has been performed to assess demographic characteristics and secondly chi-square test was conducted for bivariate analysis. Standardized linear regression analysis was performed with statistical significance level of p value <0.05.

RESULTS

A total of 403 parents responded to the cross-sectional survey with a response rate of 93.9%. The majority of the parents/caregivers who responded to questionnaire were male and mean age was 36.7 ± 4.2 years. Approximately one third have a post graduate degree. The demographic characteristics are described in Table-I. The mean age of children was 20 ± 4.2 months.

Among the 403 respondent, 67 (16%) respondents suggested the ideal age for vaccination is 0 to 6 months, age 6m to 5 years 29 (7.1%), at birth 193 (47.8%), and others have no idea 115 (28.5%). Majority of the respondent 240 (59%) stated that vaccine boost the immunity and protect from childhood diseases and the remaining 158 (39%) has a different opinion on vaccination described in Table-II.

Knowledge regarding vaccination recommended for children under five years children are mentioned in Table-III. Approximately 158 (39%) of respondents are aware of diseases prevented by vaccine administration. 256 (63.5%) of respondents perceived that one or more can be given to the child at one time and it causes no harm. 266 (66%) of the respondent received information on the side effects and benefits of vaccines through health care providers (HCPs). It was observed that the majority of the information provided verbally by HCPs and brochures were given least importance. Logistic and linear regression analysis are the significant predictors of knowledge: educational level and source of information. Those who received information from HCPs were more likely to understand the importance of vaccination (OR = 2.24; 95% CI 1.53 -6.50).

With regards to the attitude of the respondents 18 (4.4%) perceived that vaccine causes disease and kills the child and the majority of the respondents considered them safe and protects against childhood diseases. Factors such as motivation, positive attitude, and understanding of vaccine usefulness were higher among those parents/caregivers 240 (59%) who understand that vaccines are not harmful to their children. Parents perceived that if a child is vaccinated then other children in surrounding are also protected from

acquiring the CHD.

Table-I: Demographic characteristics of parents.

Characteristics	N	%
Age, mean ± SD, years	36.7 ± 4.2 (18-55)	
Gender		
Female	20	4.96
Male	383	95.0
Number of children		
1	200	49.6
2	131	32.5
3	53	13.1
4	19	4.7
Education level		
No formal education	79	19.6
Primary level	130	32.2
Secondary Level	125	31.0
Graduate	15	3.7
Post-graduate	55	13.6
Marital status		
Married	389	96.5
Widow/widower	08	1.98
Divorcee	06	1.48

Table-II: Myths and Understanding regarding vaccine

Understanding regarding vaccine	**N**	**%**
It boosts immunity and protects against childhood illness	238	59.3%
Causes disease to children and kills	18	4.4%
It's a medicine	11	2.7%
No idea	136	33.7%

Table-III: Knowledge and Understanding of Vaccine Preventable Diseases VPD.

Which disease can be prevented	**N**	**%**
Influenza	22	5.45%
Tetanus/Diphtheria/pertussis	47	11.6%
Measles/Mumps/rubella	154	38.2%
Varicella	154	38.2%
Pneumococcal disease	11	2.72%
Human papillomavirus	0	-
Meningococcal disease	160	39.7%
Hepatitis A	48	11.9%
Hemophilus influenza type b	3	0.7%

DISCUSSION

This study was conducted in the district Pishin of Baluchistan, Pakistan, the perceived knowledge, attitude, and behavior regarding vaccines among parents/caregivers and the factors linked with them. The findings of the study show unique result, found that among people attend higher degree qualifications, 59% perceived that it's not harmful. 38.2% of the respondent are aware of childhood diseases that can be prevented by vaccine administration. The refusal rate is higher in this district due to the lack of sources of information in form of brochure, pamphlet, only verbal information was provided in first place.[12-14] Female participation in this study was very low as male caregivers are decision-makers in family concern to health-related issues. It is important to underline that, regardless of the positive attitude vaccine ratio in this area is still very low and this draws the attention of policymakers and healthcare professionals working on one goal should make an effort to plan intervention and ensure full coverage despite all barriers. Similar studies were conducted regardless of low vaccination coverage in developed countries the US, Canada, and Germany.[15-17] This study as well as previous studies indicated the importance of vaccination coverage and efforts to make it 100% is essential. Another reason for low coverage we found is the cost of vaccine which creates delay in completion of immunization on time, 39.2% parents pay out of pocket cost to get their child vaccinated. Despite of the low vaccination coverage respondents showed a positive attitude towards willingness to receive the recommended vaccine. No matter how the lower rate of vaccination is several reasons pop up fear and no understanding of the side effects of vaccines, communication gap between HCPs and parents, lack of knowledge-seeking behavior.[18] To aware the parents/caregivers Healthcare workers HCWs working at the community level should be more involved, information strategies are needed to bring impactful results.

The objective of the study was to provide a basic understanding of factors associated with low coverage of vaccines. The primary source of information was HCPs, this is because people trust more on physician's advice and previous studies suggested that HCPs are the more reliable source of acquiring health-related information. It has been observed that females are less likely involved in the decision-making process, female caregivers should be involved in delivering the counseling services door to door and increase the involvement of them increase coverage response, similar studies in same geographical area suggested that providing information, knowledge, attitude, and behavior within the targeted population vaccine coverage is higher.[14, 18, 19]

This survey has a few limitations that should be considered to make a correct interpretation of findings,

recall biases are possible due to the cross-sectional survey methodology and the fact that 27 parents/caregivers refused to participate in the study may have skewed the results and limited the generalizability of the findings to other districts in Balochistan but qualitative approach may help in understanding the deep root causes of low vaccine coverage.

CONCLUSION

Decreasing immunization coverage is a major public health concern globally. It is important for children to receive their recommended doses of vaccines in a timely and complete manner in order to protect them from vaccine-preventable diseases. From the perspective of Balochistan, the educational status of the father and mother are key factors in increasing immunization coverage. This finding is consistent with similar studies that have been conducted.

To achieve the desired outcome of increased immunization coverage, it is important to conduct awareness sessions and provide counseling to parents and caregivers. Female healthcare providers can play a particularly important role in increasing female caregiver participation in immunization efforts. By involving female healthcare providers, it may be possible to increase the participation of female caregivers in the immunization process and improve overall immunization coverage in the region. Cost-effective intervention should be executed to achieve the objective.

FUNDING

This research receives no external funding

CONFLICTS OF INTEREST

The authors declare no conflicts of interest

AUTHOR CONTRIBUTION

Najeeb Ullah, Anwar Bughti: Data collection, drafted the outline

Jawwad Afzal Kayani: Data analysis and finalizing the manuscript

Farman Ullah: Data analysis

Muhammad Azan Ahmed: Writing the manuscript, Literature review

Hamd Ullah: Drafting and proofreading of the manuscript

REFERENCES

1. Pelullo CP, Di Giuseppe G. Vaccinations among Italian adolescents: Knowledge, attitude and behavior. Hum Vaccin Immunother. 2018;14(7):1566-72. DOI: 10.1080/21645515.2017.1421877
2. Dubé E, Vivion M, MacDonald NE. Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: influence, impact and implications. Expert Rev Vaccin. 2015; 14(1): 99-117. DOI: 10.1586/14760584.2015.964212
3. Robinson CL, Romero JR, Kempe A, Pellegrini C, Practices ACoI. Advisory Committee on Immunization Practices recommended immunization schedule for children and adolescents aged 18 years or younger—United States, 2018. MMWR Morb Mortal Weekly Report. 2017; 66(5): 134. DOI: 10.15585/mmwr.mm6705e2
4. Organization WH. Immunization coverage, 2020. Geneva; 2020.
5. Scobie HM, Edelstein M, Nicol E, Morice A, Rahimi N, MacDonald NE, *et al*. Improving the quality and use of immunization and surveillance data: Summary report of the Working Group of the Strategic Advisory Group of Experts on Immunization. Vaccine. 2020; 38(46): 7183-97. DOI: 10.1016/j.vaccine.2020.09.017
6. Farrukh MJ, Ming LC, Zaidi ST, Khan TM. Barriers and strategies to improve influenza vaccination in Pakistan. J Infect Public Health. 2017;10(6): 881-3. DOI: 10.1016/j.jiph.2016.11.021
7. Haq Z, Chandio AK, Zafar S, Iqbal F, Naeem A, Karim S. The synergy between Expanded Program on Immunization and Polio Eradication Initiative in Pakistan: a policy and program exploration. J Global Health Rep. 2021; 5: e2021081. DOI: doi.org/10.29392/001c.26146
8. Mameli C, Faccini M, Mazzali C, Picca M, Colella G, Duca PG, et al. Acceptability of meningococcal serogroup B vaccine among parents and health care workers in Italy: a survey. Hum Vaccin Immunother. 2014; 10(10): 3004-10. DOI: 10.4161/21645515.2014.971602
9. Marshall H, Clarke M, Sullivan T. Parental and community acceptance of the benefits and risks associated with meningococcal B vaccines. Vaccine. 2014; 32(3): 338-44. DOI: doi.org/10.1016/j.vaccine.2013.11.042
10. Tho SLN, Ader F, Ferry T, Floret D, Arnal M, Fargeas S, et al. Vaccination against serogroup B Neisseria meningitidis: Perceptions and attitudes of parents. Vaccine. 2015;33(30):3463-70. DOI: 10.1016/j.vaccine.2015.05.073
11. Poulos C, Johnson FR, Krishnarajah G, Anonychuk A, Misurski D. Pediatricians' preferences for infant meningococcal vaccination. Value Health. 2015; 18(1): 67-77. DOI: 10.1016/j.jval.2014.10.010
12. Pelullo CP, Napolitano F, Di Giuseppe G. Meningococcal disease and vaccination: Knowledge and acceptability among adolescents in Italy. Hum Vacci Immunother. 2018; 14(5): 1197-202. DOI: 10.1080/21645515.2018.1436918
13. Morrone T, Napolitano F, Albano L, Di Giuseppe G. Meningococcal serogroup B vaccine: Knowledge and acceptability among parents in Italy. Hum Vacci Immunother. 2017; 13(8): 1921-7. DOI: 10.1080/21645515.2017.1313940
14. Napolitano F, Napolitano P, Liguori G, Angelillo IF. Human papillomavirus infection and vaccination: Knowledge and attitudes among young males in Italy. Hum Vacci Immunother. 2016; 12(6): 1504-10. DOI: 10.1080/21645515.2016.1156271

15. Sutcliffe K, Kilgore PE, DeHoff K, Evans R, Kaye KS, Malosh RE, et al. Survey of vaccination knowledge and acceptance among adults admitted to an urban emergency department. Vaccine. 2017;35(8):1148-51. DOI: 10.1016/j.vaccine.2017.01.014.
16. Skowronski DM, Pielak K, Remple VP, Halperin BA, Patrick DM, Naus M, et al. Adult tetanus, diphtheria and pertussis immunization: knowledge, beliefs, behavior and anticipated uptake. Vaccine. 2004;23(3): 353-61. DOI: 10.1016/j.vaccine.2004.05.033
Böhmer MM, Walter D, Krause G, Müters S, Gößwald A, Wichmann O. Determinants of tetanus and seasonal influenza vaccine uptake in adults living in Germany. Hum Vacci. 2011;7(12):1317-25. DOI: 10.4161/hv.7.12.18130
17. Napolitano F, Napolitano P, Angelillo IF. Seasonal influenza vaccination in pregnant women: knowledge, attitudes, and behaviors in Italy. BMC Infect Dis. 2017;17(1):1-7. DOI: 10.1186/s12879-016-2138-2
18. D'Alessandro A, Napolitano F, D'Ambrosio A, Angelillo IF. Vaccination knowledge and acceptability among pregnant women in Italy. Hum Vacci Immunother. 2018; 14(7): 1573-9. DOI: 10.1080/21645515.2018.1483809