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Knowledge, Attitude and Perception towards Polio Immunization

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Abstract

Poliomyelitis is a highly contagious & viral disease that mainly affects young children. Despite the efforts of national and international organizations, polio has not been eradicated from Pakistan, which is one of three remaining polio-endemic countries in the world. Study aimed to assess the knowledge, attitude and practices among people regarding polio immunization in Lahore Pakistan. A cross-sectional study involving 300 participants was conducted from November 2018 to March 2019 in Lahore, Pakistan. Both male and female were included.

Results showed that significant association was found between different statements of knowledge and age (p=0.005 and p=0.003), gender (p= 0.021), qualification (p=0.003, p<0.001, p= 0.021, p=0.001, and p=0.029), residential status (p=0.039, p=0.008 and p=0.001), employment status (p=0.030), monthly income (p=0.005, p=0.027, p=0.020,p=0.044 and p=0.002) and people having children less than 5 years of age (p=0.003). Significant association was found between different statements of attitude and gender (p=0.030), qualification (p=0.015and p=0.022), residential status (p=0.030), employment status (p=0.011), monthly income (p=0.031) and people having children less than 5 years of age (p=0.033 and p=0.039). Significant association was also found between different statements of perception and age (p=0.008, p=0.001 and p=0.036), qualification (p=0.004, p=0.002, p= 0.001, p=0.002, and p=0.011, p=0.004, p=0.015, p= 0.001 and p=0.004), residential status (p=0.023, p=0.004, p=0.028 and p=0.014), employment status (p=0.015, p=0.007 and p=0.01), monthly income (p=0.048, p=0.021, and p=0.040) and people having children less than 5 years of age (p=0.037, p=0.027 and p=0.021). It is concluded that most of the participants had adequate knowledge & wanted the complete elimination of polio from Pakistan but there are still few people who have improper knowledge & they don't believe in these campaigns which lead to failure of eradicating polio.

Keywords: Knowledge; Attitude; Perception; Polio; Immunization

Introduction

Poliomyelitis is an acute communicable disease of humans caused by 3 poliovirus serotypes (types 1, 2 or 3). Where sanitation is poor, these viruses are believed to spread mainly by fecal-to-oral transmission, whereas the oral-to-oral mode of transmission probably dominates in settings with a high standard of sanitation. In the pre-vaccine era, virtually all children were infected by polioviruses, and on average 1:200 susceptible individuals developed paralytic poliomyelitis [1].

Poliomyelitis is a highly contagious and incurable disease, which mainly affects children under five years of age leading to irreversible paralysis and possibly death [2]. The virus is transmitted by person-to-person and is spread mainly through the fecal-oral route [3]. Polio can be easily transmitted when someone infected with the poliovirus has close contact with many other people, such as in day care centres and family homes. Thereafter, the virus multiplies in the intestine, from where it can invade the nervous system and cause paralysis.

The disease was controlled using the formalin-inactivated Salk polio vaccine (IPV) and the Sabin oral polio vaccine (OPV). Global poliomyelitis eradication was proposed in 1988 by the World Health Organization to its member states. OPV is the vaccine of choice for the poliomyelitis eradication program because it induces both a systemic and mucosal immune response. The supplementary immunization with monovalent strains of OPV type 1 or type 3 or with a new bivalent oral polio vaccine bOPV (containing type 1 and type 3 PV) has been introduced in those regions where the virus has been difficult to control.

Medin first reported the epidemic form of this disease in 1890, after an epidemic of 44 cases in Stockholm in the summer of 1887. He recognized a systemic phase of the disease which often failed to progress to neurological paresis and developed the classification of that. Pakistan is one of three remaining polio-endemic countries in the world, along with Afghanistan and Nigeria. However, since the launch of the Pakistan's Polio Eradication Programme in 1994, there has been a massive decline in polio cases in Pakistan from approximately 20,000 every year in the early 1990s to only eight cases in 2017. Polio has been circulating in the Pakistani regions of Karachi, Northern Sindh, Quetta, and areas in Federally Administrative Tribal Areas (FATA.

A survey conducted by Harvard Opinion Research Program in collaboration with UNICEF reported low OPV coverage in higher conflict areas of Pakistan (eg FATA), parents' misperceptions about polio virus and OPV, and lack of parental trust on local healthcare workers [4].

Globally various studies have been reported on knowledge, attitude and perception of general public regarding polio immunization and showed that success of immunization depends on positive attitude and knowledge of public. Many studies identified that positive attitude and adequate knowledge about immunization increased the immunization rate up to 90% [5]. There is no cure for poliovirus infection. Treatment focuses on managing the consequences of severe muscle weakness. This may include admission to intensive care to assist with breathing, and physiotherapy or medicines to reduce muscle spasm [4]. Polio virus can be prevented by excluding people with polio from childcare, preschool, school and work until a public health doctor has given a clearance to return. In addition to proper hygiene and hand washing techniques, the best way to prevent polio is by being vaccinated. The polio vaccine, or IPV (Inactivated polio vaccine), is recommended four times, when child is 2 months old, 4 months old, between 6 and 18 months old and between 4 and 6 years old (children 7 to 18 years old may catch up as needed) [6].

Two types of polio vaccines are available which include; a live attenuated or weakened oral polio vaccine (OPV) commonly called the Sabin vaccine which is administered orally, and an inactivated (killed) polio vaccine (IPV) commonly called the Salk vaccine which is administered via injection [7]. Present study was conducted to determine the Knowledge, Attitude and Perception of polio immunization among the people of Lahore Pakistan. Questionnaires were distributed among people in hospitals and community.

Materials and Methods

Study Design

A cross-sectional study design was adapted using convenient sampling technique, during the period from November -2018 to April- 2019. Data was collected from 300 parents from Services Hospital and Mayo Hospital. Both male and female having children included in study and parents who were willing to participate in the study.

A data collection form was concisely designed covering demographic information (age, sex, level of education, average family income, children less than 5 year of age), general knowledge about disease (symptoms of polio, schedule, route of administration, either "Yes" "No" or "Don't know"), perception of the respondents towards Polio Immunization and patient's attitude towards Polio Immunization. Five point Likert scale was used to assess perception (5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree), "Yes" "No" or "Don't know" response in attitude.

Both male and female were interviewed directly after taking their verbal consent and their details were noted in a specially designed data collection form, finally these data collection forms were coded and analyzed by Statistical Package for Social Sciences (SPSS. P value $P<0.05$ was taken as significant.

Ethical Considerations

The study was approved from Institute of Pharmacy, Lahore College for Women University, Lahore Pakistan. Prior permission was sought by heads of respective hospitals before starting the survey. An informed consent was taken verbally by the participants before filling the questionnaire. Confidentiality of individuals about their personal information was assured.

Results

Participant's Demographics

Participant's demographics are presented in Table1.

Demographics	Options	f (%)	Mean	SD
Gender	Male	49(16.3)	1.84	0.370
	Female	251(83.7)		
Qualification	Illiterate	54(18.0)	3.58	1.695
	Primary	29(9.7)		
	Secondary	65(21.7)		
	Intermediate	36(12.0)		
	Graduate	73(24.3)		
	Above graduate	43(14.0)		
Residential status	Rural	31(10.3)	1.90	0.305
	Urban	269(89.7)		
Employment	Student	20(6.7)	2.23	0.558
	Unemployed	191(63.7)		
	Employed	89(29.7)		
Age (21-55years)	21-28years	96(32.0)	2.24	1.073
	29-36years	86(28.7)		
	37-44years	69(23.0)		
	45years &above	49(16.3)		
Children less than 5 years of age	Yes	165(55.0)	1.45	0.498
	No	135(45.0)		
Monthly income	Below 10000	76(25.3)	2.15	0.938
	Upto 25000	138(46.0)		
	Upto 50000	50(16.7)		
	Above 50000	36(12.0)		
	No			

Table 1: Participant's demographics (n=300).

Knowledge of Participants about Polio Immunizatio

Knowledge of participants about polio immunization is depicted in Table2. Result showed that 82.7% participants thought that Polio is common & serious in Pakistan. 96.7% participants had heard about polio, 13.7% of participants had past experience with polio patients in their family, 70.3% participant answered that Polio occur at age of 0-5 years, 76.3% participants had knowledge that polio is caused by virus, 79.3 % had knowledge that Polio is diagnosed by stool test, 93.3% had knowledge that oral polio vaccine protect from polio. Only 42.7% participants had knowledge that Polio drops should not be given to children in mild illness, 3.7% believed side effect of polio is headache,4.0% believed that side effect is vomiting, while 3.3% believed that side effect is diarrhea. Only 28.3% participants had knowledge of symptoms of polio, 79.3% had knowledge of schedule of polio vaccine.

Knowledge	Options	f (%)	Mean	SD
Polio is common & serious in Pakistan	Yes	248(82.7)	1.21	0.481
	No	42(14.0)		
	Don't know	10(3.3)		

I have heard about Polio	Yes	290(96.7)	1.03	0.18
	No	10(3.3)		
I have past experience with polio patients in my family	Yes	41(13.7)	1.87	0.362
	No	256(85.3)		
	Don't know	3(1.0)		
Polio can occur at the age of	0-5 years	211(70.3)	1.66	1.117
	>5 years	24(8.0)		
	At any age	21(7.0)		
	Don't know	44(14.7)		
Polio is caused by virus	Yes	229(76.3)	1.42	0.738
	No	16(5.3)		
	Don't know	55(18.3)		
Polio is diagnosed by	Blood test	132(44.0)	3.08	2.247
	Stool test	37(12.3)		
	Urine test	16(5.3)		
	Throat test	8(2.7)		
	All of these	5(1.7)		
	Don't know	102(34.0)		
Oral Polio vaccine protects from polio	Yes	280(93.3)	1.1	0.396
	No	10(3.3)		
	Don't know	10(3.3)		
Polio drops should not be given to children in mild illness	Yes	128(42.7)	1.78	0.766
	No	110(36.7)		
	Don't know	62(20.7)		
The side effects of poliomyelitis vaccine are	Headache	9(3.7)	4.7	1.095
	Vomiting	12(4.0)		
	Diarrhea	10(3.3)		
	All of these	45(15.0)		
	None	176(58.7)		
	Don't know	48(16.0)		
Symptoms of poliomyelitis are	Pain or stiffness in the arms or legs	57(19.0)	3.36	1.469
	Loss of reflexes	6(2.0)		
	Paralysis of limbs	85(28.3)		
	All of above	111(37.0)		
	None of these	6(2.0)		
	Don't know	35(11.7)		
Vaccine is administered	Orally	189(63.0)	1.71	0.943
	Intravenous	9(3.0)		
	Both	102(3.4)		

Schedule of polio vaccine	2,4,6 months & between 4-6 years	238(79.3)	1.52	1.077
	3, 4, 8 months	12(4.0)		
	1-2 years	7(2.3)		
	Don't know	43(14.3)		

Table 2: Knowledge of participants about Polio immunization.

Perception about Polio Immunization

Perception of participants about Polio immunization is depicted in Table 3

Perception	Options	f (%)	Mean	SD
Infected children should not be brought to public place because of risk of infection	Agree	54(18.0)	2.97	1.286
	Strongly agree	66(22.0)		
	Neutral	39(13.0)		
	Disagree	117(39.0)		
	Strongly disagree	24(8.0)		
Communities should actively participate in controlling poliomyelitis in Pakistan	Agree	109(36.3)	1.74	0.717
	Strongly agree	173(57.7)		
	Neutral	9(3.0)		
	Disagree	5(1.7)		
	Strongly disagree	4(1.3)		
People with poliomyelitis/ polio are less productive than non-disabled ones.	Agree	107(35.7)	2.21	1.169
	Strongly agree	85(28.3)		
	Neutral	54(18.0)		
	Disagree	45(15.0)		
	Strongly disagree	9(3.0)		
Poliomyelitis is curable	Agree	105(35.0)	2.48	1.36
	Strongly agree	61(20.3)		
	Neutral	36(12.0)		
	Disagree	80(26.7)		
	Strongly disagree	18(6.0)		
Poliomyelitis can cause death of the patient	Agree	60(20.0)	2.86	1.219
	Strongly agree	51(17.0)		
	Neutral	75(25.0)		
	Disagree	99(33.0)		
	Strongly disagree	15(5.0)		
Travel to polio affected area is also a risk factor	Agree	74(24.7)	2.82	1.366
	Strongly agree	58(19.3)		
	Neutral	45(15.0)		
	Disagree	93(31.0)		
	Strongly disagree	30(10.0)		

Polio vaccines are not capable to reduce the transmission of infection.	Agree	17(5.7)	3.74	0.918\
	Strongly agree	13(4.3)		
	Neutral	34(11.3)		
	Disagree	203(67.7)		
	Strongly disagree	33(11.0)		
Hot food stuff can be given just after (within half an hour) administration of polio drops	Agree	62(20.7)	2.61	1.084
	Strongly agree	61(20.3)		
	Neutral	119(39.7)		
	Disagree	48(16.0)		
	Strongly disagree	10(3.3)		
Lack of immunization is a risk factor	Agree	74(24.8)	1.66	0.702
	Strongly agree	57(19.1)		
	Neutral	44(14.8)		
	Disagree	93(31.2)		
	Strongly disagree	30(10.0)		
A child gets polio disease	By drinking dirty water	66(22.0)		
	By eating dirty food	33(11.0)		
	By air/breath	44(14.7)		
	By evil eye	3(1.0)		
	Through sewage contamination of food/water	116(38.7)	3.61	1.823
	By drinking dirty water	38(12.7)		
	Don't know	11(3.7)		
People don't get their children immunized because	Harmful for children	81(27.0)	2.85	1.798
	No faith in this activity	45(15.0)		
	Ignorance	121(40.3)		
	Contain haram content	10(3.3)		
	American conspiracy	16(5.3)		
	Cause HIV	16(5.3)		
	Don't know	11(3.7)		
Perceptions about safety of polio vaccine	Completely safe	252(84.0)	1.21	0.55
	Reasonably safe	36(12.0)		
	Not safe at all	8(2.8)		
	Others	4(1.3)		

My all children are immunized with polio vaccine	Agree	174(58.0)	1.49	0.667
	Strongly agree	110(36.7)		
	Neutral	11(3.7)		
	Disagree	4(1.3)		
	Strongly disagree	1(0.3)		
It is important to follow vaccination schedule	Agree	158(52.7)	1.53	0.635
	Strongly agree	130(43.3)		
	Neutral	8(2.7)		
	Disagree	3(1.0)		
	Strongly disagree	1(0.3)		
Decision maker regarding the health matters of the children	Mother-in-law	9(3.0)	3.06	0.548
	Father-in-law	4(1.3)		
	Husband & wife	251(83.7)		
	All	31(10.3)		
	None	5(1.7)		
Immunization is the most effective way of preventing poliomyelitis/polio	Agree	183(61.0)	1.47	0.681
	Strongly agree	102(34.0)		
	Neutral	8(2.7)		
	Disagree	6(2.0)		
	Strongly disagree	1(0.3)		
Polio affects the persons	Brain & spinal cord	243(81.0)	1.69	1.472
	Stomach	102(34.0)		
	Heart	8(2.7)		
	All of these	6(2.0)		
	Don't know	1(0.3)		

Table 3: Perception about Polio immunization.

Attitude about Polio immunization

Attitude of participants about polio immunization is depicted in Table 4.

Attitude	Options	f (%)	Mean	SD
I am aware of importance of polio vaccine	Yes	292(97.3)	1.03	0.189
	No	7(2.3)		
	Don't know	1(0.3)		
Ever refused giving polio drops to your child	Yes	13(4.3)	1.98	0.264
	No	279(93.0)		
	Don't know	8(2.7)		

I prefer my child to get immunized from	Government institute	264(88.0)	1.18	0.569
	Private facility	23(7.7)		
	Both	8(2.7)		
	None	4(1.3)		
	Don't know	1(0.3)		
I am satisfied with the way in which vaccination is provided	Yes	283(94.3)	1.07	0.287
	No	14(4.7)		
	Don't know	3(1.0)		
Polio staff regularly visit my area	Yes	281(93.7)	1.1	0.405
	No	8(2.7)		
	Don't know	11(3.7)		
Reasons for non-eradication of polio	Lack of awareness	183(61.0)	1.95	1.418
	Lack of facilities	28(9.3)		
	People's behavior	47(15.7)		
	Terrorism/Religious militancy	11(3.7)		
	All of these	24(8.0)		
	Don't know	7(2.3)		
A child can be prevented from polio by	Proper disposal of waste/sewage	33(11.0)	2.58	1.382
	Vaccinating a child/person with polio drops	193(64.3)		
	Avoiding contact with an infected child/person	7(2.3)		
	Washing hands with soap and water	16(5.3)		
	All of the above	38(12.7)		
	Others	11(3.7)		
	Don't know	2(0.7)		
Source of knowledge about polio	TV	151(50.3)		
	Radio	1(0.3)		
	Newspaper	16(5.3)		
	Relatives	38(12.7)		
	Posters	1(0.3)	3.5	2.867
	Friends	7(2.3)		
	Vaccinators	40(13.3)		
	All of these	43(14.3)		
	TV	151(50.3)		

Table 4: Attitude about Polio immunization.

Association of Demographics with Knowledge

Association of demographics with knowledge is depicted in Table 5.

Gender is significantly associated with schedule of polio vaccine (p= 0.021). Qualification is significantly associated with 'polio is common and serious in Pakistan'(p=0.003), diagnostic tests, (p<0.001), side effects of vaccine (p= 0.021), symptoms of polio (p=0.001), and route of administration of vaccine (p=0.029). Residential status is significantly associated with polio occurring age (p=0.039), cause of polio (p=0.008) and symptoms of polio (p=0.001). Employment status is significantly associated with polio diagnostic tests (p=0.030), Age is significantly associated with diagnostic tests (p=0.005) and route of administration of vaccine (p=0.003). Monthly income is significantly associated with 'polio is common and serious in Pakistan'(p=0.005), 'past experience with polio patients'(p=0.027), cause of polio (p=0.020) diagnostic tests (p=0.044) and schedule of polio vaccine. (p=0.002). People having children less than 5 years of age was significantly associated with route of administration of vaccine. (p=0.003).

Statements	Gender	Qualification	Residential Status	Employment	Age	Monthly Income	Having children > 5 years
Polio is common & serious in Pakistan	0.582	0.003*	0.088	0.121	0.831	0.005	0. 900
I have heard about polio	0.582	0.364	0.972	0.205	0.496	0.933	0.747
I have past experience with polio patients in my family	0.552	0.255	0.163	0.116	0.217	0.027	0.082
Polio can occur at the age of	0.517	0.099	0.039	0.461	0.682	0.104	0.455
Polio is caused by virus	0.603	0.077	0.008	0.547	0.282	0.020	0.351
Polio is diagnosed by	0.277	<0.001	0.244	0.030	0.005	0.044	0.624
Oral polio vaccine protects from polio	0.111	0.649	0.550	0.219	0.618	0.370	0.897
Polio drops should not be given to children in mild illness	0.431	0.070	0.892	0.521	0.073	0.858	0.106
The side effects of poliomyelitis vaccine are	0.184	0.021	0.995	0.292	0.117	0.133	0.210
Symptoms of poliomyelitis are	0.680	0.001	0.001	0.394	0.815	0.250	0.120
Vaccine is administered	0.788	0.029	0.976	0.122	0.003	0.350	0.003
Schedule of polio vaccine	0.012	0.231	0.873	0.573	0.054	0.002	0.704

Table 5: Association of demographics with knowledge.

Association of Demographics with Perceptions

Association of demographics with perception is depicted in Table 6.

Qualification of participants was significantly associated with most of the perception statements. Residential status was significantly associated with 'Poliomyelitis is curable' (p=0.023), with 'People don't get their children immunized' (p= 0.004), with 'my all children are immunized with polio vaccine'(p=0.028) and with 'Immunization is the most effective way of preventing poliomyelitis/polio' (p=0.014). Employment was significantly associated with 'Infected children should not be brought to public places because of risk of infection' (p=0.015), with 'Poliomyelitis is curable'(p=0.007) and with 'Poliomyelitis can cause death of the patient' (p=0.01). Age was significantly associated with 'poliomyelitis can cause death of the patient' (p=0.008), 'hot food stuff can be given just after (within half an hour) administration of polio drops' (p=0.036) and 'safety of polio and qualification' (p=0.001). Monthly Income was significantly associated with 'Infected children should not be brought to public place because of risk of infection'(p=0.048) with 'People with poliomyelitis/polio are less productive than non-disabled ones' (p=0.040) and with 'Poliomyelitis is curable'(p=0.021). People having children less than 5 years of age was significantly associated with 'Poliomyelitis is curable'(p=0.027), with 'child gets polio disease' (p=0.021) and with 'People don't get their children immunized' (p=0.037).

Statements	Gender	Qualification	Residential Status	Employment	Age	Monthly Income	Having children > 5 years
Infected children should not be brought to public place because of risk of infection	0.961	0.004	0.557	0.015	0.13	0.048	0.703
Communities should actively participate in controlling poliomyelitis in Pakistan	0.779	0.095	0.078	0.680	0.347	0.272	0.068
People withpoliomyelitis/ polio are less productive than non-disabled ones.	0.753	0.002	0.381	0.560	0.318	0.040	0.067
Poliomyelitis is curable	0.175	0.001	0.023	0.007	0.194	0.021	0.027
Poliomyelitis can cause death of the patient	0.988	0.002	0.153	0.010	0.008	0.169	0.989
Travel to polio affected area is also a risk factor	0.759	0.011	0.264	0.517	0.119	0.984	0.775
Polio vaccines are not capable to reduce the transmission of infection.	0.945	0.414	0.775	0.948	0.291	0.880	0.458
Hot food stuff can be given just after (within half an hour) administration of polio drops	0.104	0.004	0. 243	0.473	0.036	0.093	0.304
Lack of immunization is a risk factor	0.298	0.112	0.798	0.813	0.672	0.394	0.248
A child gets polio disease	0.432	0.015	0.795	0.192	0.751	0.837	0.021
People don't get their children immunized because	0.180	0.168	0.004	0.194	0.067	0.919	0.037
Perceptions about safety of polio vaccine	0.434	0.001	0.234	0.525	0.001	0.190	0.523
My all children are immunized with polio vaccine	0.080	0.004*	0.028	0.383	0.050	0.284	0.073
It is important to follow vaccination schedule	0.655	0.134	0.728	0.284	0.603	0.316	0.350
Decision maker regarding the health matters of the children	0.474	0.294	0.358	0.959	0.897	0.873	0.572
Immunization is the most effective way of preventing poliomyelitis/polio	0.149	0.104	0.014	0.129	0.271	0.122	0.491
Polio affects the person's	0.899	0.067	0.696	0.827	0.112	0.182	0.451

Table 6: Association of demographics with perception.

Association of Demographics with Attitude

Association of demographics with attitude is depicted in Table 7. Significant association was found between gender and 'I am aware of importance of polio' curable'(p=0.030), qualification and 'I prefer my child to get immunized'(p=0.015), 'Source of knowledge about polio' (p=0.022), 'residential status' and 'reasons for non-eradication of polio' (p=0.030), employment and 'source of knowledge about polio' (p=0.011), Monthly Income and 'I am satisfied with the way in which vaccination is provided'(p=0.031). People having children less than 5 years of age was significantly associated with 'Polio staff regularly visit my area' (p=0.033) and 'A child can be prevented from polio'(p=0.039).

Statements	Gender	Qualification	Residential Status	Employment	Age	Monthly Income	Having children > 5years
I am aware of importance of polio vaccine	0.448	0.707	0.623	0.824	0.754	0.545	0.435
Ever refused giving polio drops to your child	0.444	0.158	0.527	0.439	0.170	0.613	0.474
I prefer my child to get immunized from	0.854	0.015	0.793	0.915	0.662	0.638	0.741
I am satisfied with the way in which vaccination is provided	0.340	0.319	0.354	0.671	0.404	0.031	0.692
Polio staff regularly visit my area	0.945	0.108	0.311	0.780	0.235	0.220	0.033
Reasons for non-eradication of polio	0.390	0.295	0.030	0.272	0.839	0.314	0.278
A child can be prevented from polio by	0.030	0.090	0.184	0.736	0.647	0.949	0.039
Source of knowledge about polio	0.925	0.022	0.921	0.011	0.213	0.442	0.517

Table 7: Association of demographics with attitude.

Discussion

Study was conducted to asses' knowledge, attitude and perception among people regarding polio immunization in Lahore Pakistan. Polio cases have decreased by over 99% since 1988, from an estimated 350, 000 cases in more than 125 endemic countries, to 650 reported cases in 2011. In 2012, only parts of three countries in the world remained endemic for the disease.

The results of this study revealed that people have adequate knowledge about polio and wanted to eradicate it from Pakistan by participating in vaccination activities but still there are few people who believe that Polio vaccine cannot prevent disease resulting in failure to get vaccine for their children. All these gaps in vaccination can be addressed by improving literacy rate and use of print and electronic media for creating awareness of the disease.

Participants were aware of the terminology of polio and the fact that it is caused by virus. A large proportion of participants wrongly believed that polio vaccines should not be given to children with mild illnesses. Respondents' knowledge about symptoms was also not very encouraging as only few correctly answered that most patients do not develop sub-clinical symptoms.

The main reasons for routine immunization failure were unawareness of need for immunization. This study also revealed that most people knew about the schedule of the vaccination. Most participants knew that polio could be prevented through routine immunization, but they lack accurate knowledge about transmission and spread of poliovirus. Participants with low income, no formal education and residents of rural locality are also less likely to be knowledgeable about polio. Data on refusals of oral polio vaccine indicated that most participants did so because they believed inaccurate information propagated by religious preachers. For instance, parents believed that the oral polio either causes infertility in children or is not Halal; both are consistent with a recent study in Pakistan.

It is noteworthy to mention that the study highlighted the significant association of knowledge with the age of the participants. Youngsters appeared to be more knowledgeable than older ones. Religious and social beliefs appeared to be the major barrier preventing the disease from tipping over into complete eradication. These findings clearly support recommendations that for polio eradication, different modes of information, education, and communication strategies must be adopted.

Conclusion

Most of the participants had adequate knowledge & wanted the complete elimination of polio from Pakistan but there are still few people who have improper knowledge & they don't believe in these campaigns which lead to failure of eradicating polio. It is recommended that these gaps in knowledge should be addressed by use of print and electronic media for creating awareness of the disease.

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