

Factor Affecting Polio Eradication Program in Pakistan

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Abstract

Polio is one of the major viral diseases in the developing countries caused by a polio virus which leads to life time paralysis, usually in legs and in some cases even death could be occurred. The virus could be transmitting from one infected child to other and also passes to environment through feces of infected person. Polio is eradicated from the world except three countries i.e., Pakistan, Afghanistan and Nigeria. Pakistan is considered the exporter of polio virus to endemic countries with highest number of polio cases in recent years. In last two decades, lots of efforts have been made in Pakistan for a polio free country but still struggling. The government of Pakistan developed National Emergency Action Plan (NEAP) for polio eradication in 2014 which results 82% declining in polio cases in 2015. The findings of this study identified that highest potential factor which affecting polio eradication program is poor routine EPI with beta value of (-0.80). The study was carried out in 115 Union councils of District Okara by targeting 88 respondents through simple random sampling.

Keywords: Polio eradication program; Poliomyelitis; Paralysis; OPV; IPV; EPI; Vaccination; Awareness; Routine EPI

Introduction

Background of the study

In the 20th century, developed countries were facing many challenges one of them was the most feared disease of polio which disabling thousands of children every year. But after the invention of effective vaccine in the 1950s and 1960s, polio came under control and practically these countries moved to polio eradication. In developing countries and third world nations polio recognized as a major disease bit later (World Health Organization, 2013). Lameness Surveys, (1970) disclosed that polio disease was also very common in developing countries. Consequently, routine immunization program was launched in all parts of the world in 1970s, which helped to control polio disease in many developing countries [1].

Global Polio Eradication Initiative taken in 1988, when polio disabling thousands of children around the world every day. By the help of international investment of more than 8 billion US dollars, round about 2.5 billion children were immunized in 200 plus countries with the collaboration of 20 million volunteers. This worldwide war against polio reduced number of polio cases 99% since 1988, from estimated 350000 to 650 cases in 2011. In 2012, just three countries of the world remained where polio virus still existed are Afghanistan, Nigeria and Pakistan, while in 1988 more than 125 countries have polio virus. The children lived in entire world will be at risk of potential polio disease even a single child remains infected. If the polio will not be eliminated from these three remaining countries, it could be resulted 200,000 new polio cases every year in all over the world within 10 years (World Health Organization, 2013) [1].

“Expanded Program on Immunization (EPI)” in Pakistan was launched in 1978. The major aim of this program was to protect children by vaccinating them against childhood diseases. Almost 200 plus countries of the world have been declared polio free through polio preventive vaccine. But unfortunately, Pakistan is losing war against polio. In Pakistan, polio eradication program launched in 1994 with the help of World Health Organization resulted remarkable success. In Pakistan, numbers of polio cases were 1155 in 1997 which fell down to 28 in 2005. The hopes were high that very soon Pakistan will become

polio free country, but war on terror in tribal areas and drone attacks in FATA made it difficult for health workers to continue their polio vaccination campaigns in these areas. Many areas became inaccessible for polio teams and migration of population from war-torn areas to other cities became a common practice which destroyed all serious efforts for polio eradication.

According to Global Polio Eradication Initiative (GPEI) situated in Geneva reported Pakistan has highest polio cases in world for two consecutive years. In 2011, 198 cases reported and in 2010, 144 polio cases reported. These cases are highest in among all three countries which are not polio free till now. Consequently, Pakistan has now been considered a polio danger zone. Pakistan have major share in total identified cases of the entire world i.e., 647. The international community is worried and takes great interest in Pakistan's polio policy because it is fact that even one case here means a child anywhere around the world remains at risk [2].

Polio disease has no cure but we can prevent transmission of this virus by immunizing every child through safe and effective polio vaccines. The first-time polio vaccine was introduced by Jonas Salk in 1952. Now a day, two types of vaccine are available; Inactivated Polio Vaccine (IPV) and Oral Polio Vaccine (OPV) [3]. The Taliban of Afghanistan, issued Fatwa against vaccination as deflect the will of Allah (God) and it is funded by non-Muslims especially Americans to unfertile. Muslim population [4]. Pakistan, also have confronted rumors about polio vaccine that it is not Halal and contain pig fat [3].

The rumors about vaccination have created many problems and opposition in Muslims, this situation created tough time for workers

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who are working in this program. In recent years, the security issues are very common with polio workers and it is open debate in televisions and newspapers. The year 2013, was worst and record-breaking year for polio workers in which 155 were killed, 171 were seriously injured and 134 were kidnapped in 30 countries. Surprisingly, three-quarter of these cases took place in only Pakistan, Afghanistan, Nigeria, Syria and Sudan [5].

Pakistan is one of those countries which are not polio free till now. Polio Eradication is one of largest project of World Health Organization in Pakistan its estimated completion period was given by WHO firstly 2000 and secondly 2005. But in three countries Pakistan, Afghanistan and Nigeria polio cases increases recent years rather than decreasing or eliminating. It is an alarming situation for Pakistan as well as entire world. Pakistan is one of those countries where in the direction of WHO polio certificate is compulsory for adults to travel in foreign countries, it may be converted into ban on foreign travelling also if polio cases will not be reduced in near future. Consequently, it is a serious problem for Pakistan as well as entire world. After National Emergency Action Plan (NEAP, 2014) government of Pakistan has reduced number of polio cases in better way and ensures to international community that we are committed to eradicate polio. In 2014, international community was thinking about travel restrictions on Pakistan if Pakistan will not control polio cases in future. In 2015, polio cases are reduced to 54 only which are 306 in 2014 (End Polio Pakistan, 2016) [6].

Pakistan was on right direction till 2007 and near to polio free country but after drone attacks in FATA and American war on terror badly affects this international cause. After 2007, number of polio cases increased every year in Pakistan and the year 2014 was the worst year for reported cases of polio. According to End Polio Pakistan, (2016) the current status of polio cases in Pakistan is as under (Figure 1) [6].

Number of Research articles and research work had been done on this issue. But in this current study, we explored factors which are affecting this Polio Eradication Program in Pakistan by investing and targeting population, those employees of health department who are directly involved in this program. There are different factors and causes which are affecting polio eradication program in Pakistan but in this study taken only those factors that influencing great this international cause, including Religious militancy and beliefs, war on terror and security situation, poor routine EPI and misconception about polio vaccine.

Literature Review

Impact of religious militancy and beliefs on polio eradication program

Tehreek-e-Taliban Pakistan (TTP) and some other militant groups have hurdle in polio eradication in Pakistan. These groups believe that

polio vaccine has Haram ingredients including monkey fecal and pig fats which is prohibited in Islam. They distributed pamphlets in FATA and some areas of KP against polio vaccine, they saying it is conspiracy of Americans against Muslims, and on one side they are killing innocent children and women in drone attacks and on the other side spending million dollars on polio campaigns [7]. The controversies about polio and other vaccines have taken their roots from cultures and religious beliefs in Pakistan, India, Nigeria and Afghanistan. Their perception about polio vaccine that it is hormonal polluted vaccines. It is plan of USA to reduce the population of Muslims in the world. The clerics of FATA and KP announced in 2007, that it is infidel campaign against Muslims to control their birth rate. They said, this vaccination belongs to Kuffar (Non-Muslims) and it is not according to the will of Allah. They believed, fate of every child has been written before his birth, so this vaccine is considered an attempt to deflect the will of God. The Imam at mosques and population of these areas are uneducated and they have no knowledge of science and technology so they refused to vaccinate their children [8].

Impact of war on terror and security situation on polio eradication program

In last few years, Islamist insurgency put strong effect on polio elimination program, these insurgents spreading negative information which undermine the importance of polio campaigns and continuous attacking polio workers and vaccinators. These Islamist insurgencies increased due to use of drone attacks and the CIA's use of fake polio campaign in Abbotabad, for the assassination of Osama Bin Laden and seriously damage the GPEI's activities [9]. War on terror by Americans in Afghanistan and drone attacks in Federal Administered Tribal Area (FATA) in Pakistan destructed polio elimination efforts. In Pakistan, mostly refusal cases came from FATA and KP, the reason behind this, these areas under the influence of the Taliban. Taliban claimed the polio campaigns are used by American agencies to gather data about them, like Osama Bin Laden case. The militant groups banned polio workers to move in their under-control areas and also threatened local population to avail the services of these workers. Attacks on polio teams and lady health workers in Pakistan appears that these militant groups do not like continuation of the polio campaigns in their under-control areas [10]. In Pakistan, the vaccination program was successful and going into right direction without any interference for the last 15 years. But in two recent years, polio team workers have been killed in FATA and other areas of Pakistan. The purpose of these killings of polio teams and vaccinators is to achieve attention of international media which led militant groups to believe they can acquire their aims by this interference [11].

Impact of poor routine EPI on polio eradication program

From 1995 to 2007, all surveys conducted in Pakistan for routine

PROVINCE	2009	2010	2011	2012	2013	2014	2015	2016
PUNJAB	17	7	9	2	7	5	2	0
SINDH	12	27	33	4	10	30	12	7
KPK	29	24	23	27	11	68	17	8
FATA	20	74	59	20	65	179	16	2
BALUCHISTAN	11	12	73	4	0	25	7	1
GILGIT-BALTISTAN	0	0	1	1	0	0	0	0
AZAD JAMMU & KASHMIR	0	0	0	0	0	0	0	0
TOTAL	89	144	198	58	93	306	54	18

Figure 1: The current status of polio cases in Pakistan.

immunization showed that just half of the targeted children were fully vaccinated while administration claimed high immunization. The main cause of poor routine EPI in Pakistan is limited access to immunization services and unawareness, lack of interest by community. The areas of FATA and KP are high risk areas and where children are not receiving required number of doses of polio vaccine due to limited access and security problems. The reason of poor routine EPI was the insufficient number of vaccinators which leads to failure of polio eradication program. Every year 10-20% children fail to receive their third dose of polio vaccine (OPV III) in routine immunization [12]. It is very clear that polio elimination cannot be achieved only with NIDs and SNIDs unless the coverage of routine EPI not improved. In the year 2000, only 22.6% children had received 3 doses on polio in routine immunization in Sindh province while in 2009, half of the reported polio cases had not received 3 doses. It could be one reason of failure of polio eradication but this data reflects the poor routine immunization of polio. There is another misconception among people that only polio drops in NIDs are enough. It concluded that the status of routine EPI is poor and for polio eradication the coverage of routine immunization should be improved [13].

Impact of misconceptions about polio vaccine on polio eradication program

One major problem in polio eradication is the misconception of people about polio vaccine. They have misconception about polio vaccine that it causes infertility. Due to this rumor about vaccine 40000 plus parents refuses to vaccinate their children in every polio campaign in FATA and KP [7]. Awareness of parents has an important role in making decision whether to vaccinate their children are not. Polio teams are not well qualified and have not proper knowledge of disease and vaccine which is necessary for trust building in people. This situation is favorable for religious scholars to develop misconception about polio and other vaccines and other medical acts. These religious clerics explained there is no concept of vaccination in Islam and those who die from these diseases will be martyrs, also claimed vaccines are infidel [10]. By spending millions of dollars for polio elimination, the government and donor agencies have been failed to remove misconception of the people about vaccination. The religious clerics publicly had been blaming the polio campaigns as it is attempt by the west to infertile females and males for reducing the population of Muslims. In Pakistan, health structure is very poor and mostly parents refuse polio drops because they ask questions from polio teams why the government does not provide them other health facilities free of cost.

They think the government or donor agencies have any special agenda behind these campaigns so they send polio teams every month to their homes. The mindset of people like this had badly damaged the reputes of donor agencies and also affects the efforts for polio elimination [14].

Statement of the problem

The reason of selecting this topic for research is Pakistan has been unable to eradicate polio while almost entire world is polio free. Pakistan is an Atomic power but standing with Nigeria and Afghanistan in this issue. Anywhere in the world, if polio case detected entire world think Pakistan will be the exporter of this potential polio virus. Pakistan is on probation period, WHO can impose travel restriction on Pakistanis incase polio will not eradicate. Mostly countries required polio immunization certificate from adults who are citizen of Pakistan and want to travel abroad.

This study answers the question below.

What are the factors that keep significant impact on failure of polio eradication program in Pakistan?

Limitation of the study

There are some limitations of our study. First the response of respondents would be different in rural and urban areas, in small cities and big cities and among different provinces. Second the actual behavior and customs of Pakistani people would be different from other countries. Third the ground realities and law and order situation would be different in within Pakistani areas and also other countries which have impact on results.

Research Methodology

The purpose of this empirical study was to asses' which factors influenced polio eradication program in Pakistan. In this study used polio eradication program as dependent variable and religious militancy and beliefs, war on terror and security situation, poor routine EPI and misconceptions about polio vaccine were independent variables. The data was collected form 88 respondents of 115 Union Councils of district Okara, thorough five likert-scales questionnaires and processed through SPSS v.16 to generate results. The respondents were included Union Council Monitoring Officers (UCMOs) (Figure 2).

Target population, sampling technique and sample size

Researchers used random sampling technique in current study.

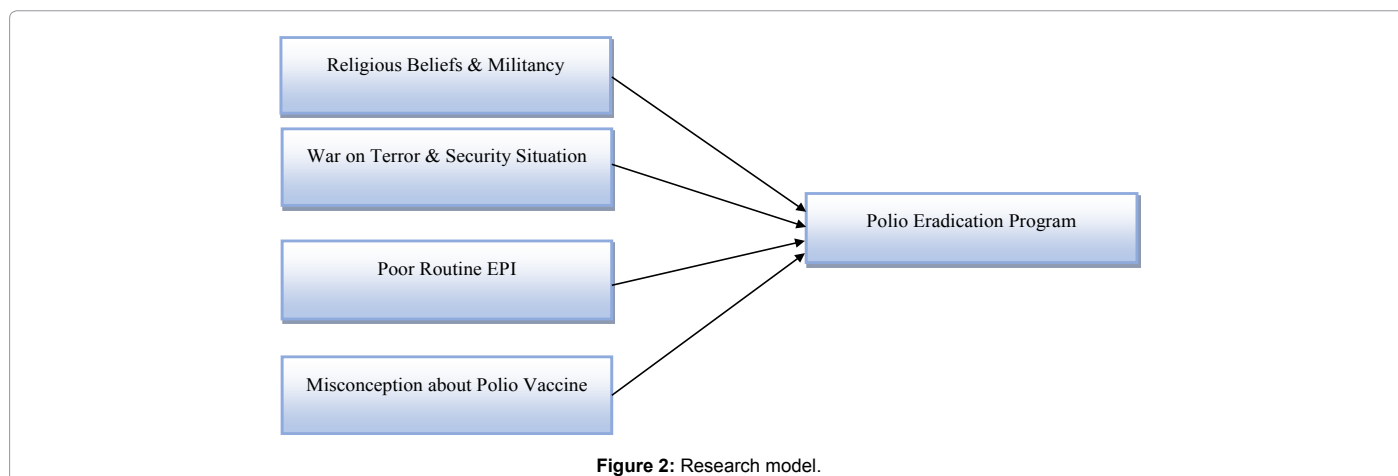


Figure 2: Research model.

A sample of 88 Union Council Monitoring Officers (UCMOs) was selected from a population of 115 Union Councils of district OKARA. For the purpose of this study the decision about the sample size was made based on the table that has been simplified by Krejcie and Morgan [15]. According to Krejcie and Morgan [15] table the correct sample size of my research is 88.

Instruments of data collection and its reliability

In this study, we designed close ended questionnaire for data collection through literature review of relevant studies references [16,17] because it gives adequate time to respondents for their responses. This technique of data collection has an opportunity to collect information from wide range of area within a short period of time. Before distributing questionnaire to all sample population, it is distributed to small sample of 18 individuals for its validity. Through SPSS v.16 the reliability of questionnaire was calculated. The computed value of Cronbach's alpha was 0.72. The study instrument comprises of 29 items which were divided into five sections A to F. Each section consisted on 5 questions except section F. Section A related to religious militancy and beliefs, section B related to poor routine EPI, Section C related to war on terror and security situation, section D related to misconception about polio vaccine, section E related to polio eradication program and section F consisted on demographic information of respondents (Figure 2).

Results and Discussion

Total 88 questionnaires were distributed to participants in monthly meeting of UMCOs and 88 questionnaires were received back but 3 questionnaires were uncompleted. Out of 85 respondents

Demographic Feature	Frequency	Percentage
Gender		
• Male	79	92.94%
• Female	6	7.06%
Job experience as UCMO		
• Less than 5 years	24	28.24%
• More than 5 years	61	71.76%
Position held in department		
• Nutrition Supervisor	58	68.24%
• Other	27	31.76%
Posting place of UCMO		
• Urban	11	12.94%
• Rural	74	87.06%

Table 1: Demographic characteristics of participants (n=85).

of the instrument 92.94% were males and 7.06% were females. It is purely field duty which is little tough for females so ratio of female as compare to males was less. Out of 85 respondents 71.76% have more than five years' experience as a UCMO and only 28.24% have less than five-year experience. Majority of UMCOs were nutrition supervisors which ratio was 68.24% and only 31.76% were other than nutrition supervisor including Sanitary Inspectors (SI's), Dispensers' and Health Technicians (HT's). Mostly UCMOs were posted in rural areas, percentage was 87.06% and only 12.94% were posted in urban areas (Table 1).

The above Table 2 reflects the correlation analysis between dependent variable i-e polio eradication program and the following independent variables: religious beliefs and militancy, poor routine EPI, war on terror and misconception about polio vaccine. The association among all independent variables with polio eradication program (DV) had significant negative with value (-0.74, -0.80, -0.722 and -0.72 respectively). It shows that strongest negative correlation is between poor routine EPI (IV) and polio eradication program (DV) with highest value -0.80. It is also revealed that all independent variables are positively correlated with each other.

The regression analysis revealed that all independent variables are religious beliefs and militancy, poor routine EPI, war on terror and misconception about polio vaccine had significant negative association with dependent variable which is polio eradication program with beta values (-0.74, -0.80, -0.722 and -0.72, respectively). Furthermore, all variables are making a statically significant unique contribution to the prediction of the dependent variable (polio eradication program) with R² values (0.548, 0.640, 0.521 and 0.519, respectively). This means that almost 50 percent plus of the variance dependent variable (polio eradication program) is explained by the variation in the independent variables. The highest R² value is 0.640 of poor routine EPI which indicate that the strongest dependence relationship is 64% explained (Table 3).

Conclusion and Recommendations

Success of polio eradication program is still biggest challenge for Pakistani government as well as international donor agencies. The respondents of this study are those employees who are directly involved in polio campaigns. The study findings showed poor coverage of routine EPI was the highest factor which affecting success of polio eradication program. Special attention should be given to enhance the coverage of routine EPI and also focus to overcome the misconception about polio vaccine among people. Currently, government of Pakistan's conclusive

	Religious Militancy	Poor Routine EPI	War on Terror	Misconception about Polio Vaccine	Polio Eradication
Religious Militancy	1	0.619**	0.576**	0.567**	-0.740**
Poor Routine EPI	0.619**	1	0.680**	0.642**	-0.800**
War on Terror	0.576**	0.680**	1	0.801**	-0.722**
Misconception about Polio Vaccine	0.567**	0.642**	0.801**	1	-0.720**
Polio Eradication	-0.740**	-0.800**	-0.722**	-0.720**	1

**Correlation is significant at the 0.01 level (1-tailed).

Table 2: Correlations results.

Model	R Square	Adjusted R Square	Standardized Coefficient (Beta)	t-Value	Sig.
Religious Militancy (IV)	0.548	0.543	-0.74	-10.210	0.000
Poor Routine EPI(IV)	0.640	0.636	-0.80	-12.367	0.000
War on Terror (IV)	0.521	0.516	-0.722	-9.64	0.000
Misconception about Polio vaccine (IV)	0.519	0.513	-0.720	-9.630	0.000

Dependent variable: Polio Eradication Program.

Table 3: Regression analysis.

action against terrorism through operation Zarb-e-azb had a positive effect on polio eradication program which resulting 67% decrease in polio cases in 2016 as compared to 2015. Polio will be eradicated from Pakistan if strong and serious efforts are made for changing mind of people about religious beliefs and misconception about polio vaccine.

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