

Perceptions of parents regarding polio vaccination in Karachi

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Received: August 2020; Accepted: September 2020; Published: October 1, 2020.

Citation: Hareem Arshad et al. Perceptions of parents regarding polio vaccination in Karachi. World Family Medicine. 2020; 18(10): 66-76 DOI: 10.5742/MEWFM.2020.93876

Abstract

Introduction: Since the launch of the Global Polio Eradication Initiative (GPEI) in 1988, the number of annual polio cases has decreased by >99%. As of March 2013, circulation of indigenous wild poliovirus (WPV) continued in only three countries: Afghanistan, Nigeria and Pakistan. Pakistan is one of only three endemic countries in the world still struggling to interrupt poliovirus transmission and meet the target of global polio eradication by 2012. The failures to successfully immunize the population of Pakistan has impacted child mortality in the country and is an important area of research for the progression of child healthcare. Children who are under the age of five make up 15% of the population of Pakistan. Unfortunately, this demographic makes up 50% of the mortality rate in this country. Polio is an acute viral disease that is still endemic in Pakistan mainly due to failure of efforts to promote community participation. The polio vaccination program is facing many challenges that result in an increased number of new cases in the country. This research was conducted to find out the parents' knowledge, attitudes and practices regarding polio vaccination. Pakistan is still not polio free and findings of this research reflect the mindset of parents regarding polio vaccination.

Objective: To determine the perceptions of parents regarding polio vaccination at National Institute of Child Health in Karachi.

Methodology: A Cross sectional study was conducted at the OPD of National Institute of Child Health in Karachi from April 2019 to August 2019. The participants were the parents of children under five years of age who had brought the latter for treatment at the hospital. The sample size was calculated to be 385. The sample was selected using non probability purposive sampling technique. A structured questionnaire with close ended questions was the data collection tool. It was translated into simple Urdu. It was handed out to our data collectors who after obtaining verbal consent, conducted personal interviews amongst the parents of children who had come to the OPD. Data collected was analyzed using the SPSS software version 20.0. Frequencies and percentages were taken out for categorical variables. The statistical analysis was conducted with a 95% confidence interval and a p-value of <0.05 as threshold of statistical significance. All ethical considerations were observed. Any research misconduct was avoided and rights and well-being of research participants were protected.

Results: Out of the 385 parents of children under five years, their frequencies and percentages with respect to their age ranges, 63.9% (n=246) were 18-22 years, 23.4% (n=90) were 23-26 years, 8.8%

(n=34) were 27-30 years, 3.1% (n=12) were 31-40 years and 0.8% (n=3) were more than 40 years. Regarding the relationship status with the under five children the participants accompanying them, 51.4% (n=198) were fathers and 48.6% (n=187) were mothers. According to the literacy status, 43.4% (n=167) of the parents were educated and 56.6% (n=218) were uneducated. When asked what polio was, 68.1% (n=263) called it a disease, 18.7% (n=72) called it fate, 4.4% (n=17) termed it as a superstitious happening and 8.5% (n=33) did not know what it was. Stating their source of information about polio, 31.1% (n=120) learnt about it from TV, 11.4% (n=44) from the internet, 48.2% (n=186) through their surroundings and 9.1% (n=35) learnt about polio from polio workers. Describing polio severity, 110(28.5%) called polio severe, 56.6% (n=216) termed it extremely severe, 6% (n=23) regarded it as moderate and 9.3% (n=36) as mild. When asked about any relative of the parents who suffered from polio, 25.1% (n=97) said yes and 74.4% (n=287) said no. Responding to the question about mode of spread of polio, according to 30.3% (n=117) by food and water, 16.8% (n=65) airborne, 11.7% (n=45) by vector and 40.9% (n=158) did not know the mode of spread of polio. According to 65.8% (n=264) a vaccine existed for polio, 13.2% (n=51) denied existence of polio vaccine, 5.2% (n=20) were not sure and 15.5% (n=60) did not know about such a vaccine. About the mode of administration of polio vaccine, 74.1% (n=286) thought it was oral, 6.7% (n=26) thought it was parenteral and 68 (17.6%) did not know. When asked at what age should a child get polio vaccine, according to 33.4% (n=129) it was at birth, 51.8% (n=200) during childhood, 5.2% (n=20) during adulthood and according to 9.3% (n=36) parents a child could get polio vaccine at any age. Responding to the question regarding polio vaccine effectivity, 58% (n=224) termed it as good, 19.4% (n=75) called it normal, 11.9% (n=46) referred to it as not effective and 10.4% (n=40) had no idea.

When asked whether their child can become sterile after taking polio vaccine, 23.6% (n=91) said yes, 50.5% (n=195) said no, 12.7% (n=49) said maybe and 13% (n=50) said that they did not know. Replying to question if polio can be caused by malnutrition, 23.6% (n=91) said yes, 39.1% (n=151) said no, 16.1% (n=62) said maybe and 21% (n=81) did not know. When asked whether polio vaccine was haraam or forbidden in religion, 72.5% (n=279) said no and 27.5% (n=106) said yes. Responding to the question whether there were proper preventive measures against polio in Karachi, 58% (n=224) said yes, 20.7% (n=80) said no, 7.5% (n=29) said maybe and 13.5% (n=52) did not know. Giving answers to how many times did polio workers had visited the parents' houses, 9.6% (n=37) said monthly, 33.4% (n=129) said twice a year, 43.8%

(n=169) said once a year and 12.4% (n=48) said that polio workers never visited their homes. When asked whether there were any preventive measure available against polio other than vaccination, 20.2% (n=78) said yes, 49% (n=189) said no and 28.2% (n=109) said maybe; replying to the question was polio a contagious disease, 28.2% (n=109) said yes, 69.7% (n=269) said no and 1% (n=4) said maybe. Giving answer to the question whether polio as a disease was treatable, 38.3% (n=148) said yes, 59.8% (n=231) said no and 1.6% (n=6) said maybe. When asked if any member of their family was suffering from polio, 22% (n=85) said yes and 76.9% (n=297) said no. When asked the question if those suffering from polio in their family received polio drops at the time of vaccination, 39.6% (n=153) said yes and 60.1% (n=232) said no.

Conclusion: Pakistan is among three countries in which polio is still endemic. Most of the cases sprouting up in the city are from slum areas where the majority of the population is uneducated. Several religious and fictional beliefs and misconceptions have been playing a pivotal role in keeping polio endemic in the area despite many sincere efforts of government. More efforts are needed to be done in this respect particularly in educating parents of children and carrying out social campaigns to spread awareness among every single parent and make them affirm that polio is preventable and by only vaccinating their children they can save them from this disease.

Key words: polio vaccination, endemic, parents, misconceptions

Introduction

Poliovirus (PV), an enterovirus belonging to the Picornaviridae family is the etiological agent of poliomyelitis, an acute paralytic disease. This disease results from lower motor neuron damage and is characterized by asymmetric persisting weakness (flaccid paralysis) (1). In May 2012, the World Health Assembly of the World Health Organization (WHO) declared the completion of polio eradication a programmatic emergency (2). Since the launch of the Global Polio Eradication Initiative (GPEI) in 1988, the number of annual polio cases has decreased by >99%. As of March 2013, circulation of indigenous wild poliovirus (WPV) continued in only three countries: Afghanistan, Nigeria, and Pakistan (the last case in India had onset in January 2011). This report provides an update on progress toward global polio eradication during January 2011–March 2013, using data reported as of April 23, 2013 (3). Pakistan is one of only three endemic countries in the world still struggling to interrupt poliovirus transmission and meet the target of global polio eradication by 2012. Polio supplementary immunization activities (SIAs) for the home delivery of oral polio vaccine (OPV) were initiated in the country in 2000, when 119 cases of polio were reported. Although the number of cases declined to 32 in 2007, it has been rising steadily since 2008(4). According to a study conducted in Pakistan by Mangrio, he states “the ways in which various immunization efforts, for a range of vaccine-preventable diseases, have achieved success or failure and the reasons why this plays a part in the disease burden of Pakistan” (5).

Immunization is the most cost-effective public health intervention that has had the greatest impact on health of the people. According to a study in Pakistan, the proportion of incompletely immunized children in Pakistan varies from 37–58%, and this has recently resulted in outbreaks of measles and polio. Despite the efforts of national and international organizations, polio has not been eradicated from Pakistan. The failures to successfully immunize the population of Pakistan has impacted child mortality in

the country and is an important area of research for the progression of child healthcare. Children who are under the age of five make up 15% of the population of Pakistan. Unfortunately, this demographic makes up 50% of the mortality rate in this country. For comparison, the world average for under-five mortality as a percentage of overall mortality is around 8% (6). Another study in Pakistan states that 10–20% of the children who have received their first dose of trivalent polio vaccine were deprived of their 2nd and 3rd dose because of poor performance of EPI and lack of information about immunization. The number of global polio cases has fallen dramatically and eradication is within sight, but despite extraordinary efforts, polio retains its grip in a few areas (7).

Parental attitudes and level of awareness are of key importance to promote successful polio vaccination. A study conducted in Jordan showed that vaccination coverage rate was high; however, some aspects of knowledge, attitudes, and practice of vaccination needed to be improved. Knowledge and attitudes of mothers were directly associated with their practice of vaccination (8).

Polio is an acute viral disease that is still endemic in Pakistan mainly due to failure of efforts to promote community participation. The polio vaccination program is facing many challenges that result in an increased number of new cases in the country. The success of polio vaccination has been threatened in different parts of Pakistan. In the past, the immunization program was affected by different factors including insecurity, inducing mass migration and displacement, life threats to polio workers, and restricted access to the vulnerable population. In addition to that, misconceptions and misunderstanding about the polio vaccine are a major obstacle in polio eradication which need to be erased by organized effects of increasing vaccine awareness (9). This research was conducted to find out the parents knowledge, attitudes and practices regarding polio vaccination. Pakistan is still not polio free and findings of this research reflect the mindset of parents regarding polio vaccination.

Objective

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Results

Out of the 385 parents of children under five years, their frequencies and percentages with respect to their age ranges 63.9% (n=246) were 18-22 years, 23.4% (n=90) were 23-26 years, 8.8% (n=34) were 27-30 years, 3.1% (n=12) were 31-40 years and 0.8% (n=3) were more than 40 years. Regarding the relationship status with the under five children the participants accompanying them, 51.4% (n=198) were fathers and 48.6% (n=187) were mothers. According to the literacy status, 43.4% (n=167) of the parents were educated and 56.6% (n=218) were uneducated. When asked what polio was, 68.1% (n=263) called it a disease, 18.7% (n=72) called it fate, 4.4% (n=17) termed it as a superstitious happening and 8.5% (n=33) did not know what it was. Stating their source of information about polio, 31.1% (n=120) learnt about it from TV, 11.4% (n=44) from the internet, 48.2% (n=186) through their surroundings and 9.1% (n=35) learnt about polio from polio workers. Describing polio severity, 110 (28.5%) called polio severe, 56.6% (n=216) termed it extremely severe, 6% (n=23) regarded it as moderate and 9.3% (n=36) as mild. When asked about any relative of the parents who suffered from polio, 25.1% (n=97) said yes and 74.4% (n=287) said no. Responding to the question about mode of spread of polio, according to 30.3% (n=117) it was by food and water, 16.8% (n=65) airborne, 11.7% (n=45) by vector and 40.9% (n=158) did not know the mode of spread of polio. According to 65.8% (n=264) a vaccine existed for polio, 13.2% (n=51) denied existence of polio vaccine, 5.2% (n=20) were not sure and 15.5% (n=60)

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When asked whether their child can become sterile after taking polio vaccine, 23.6% (n=91) said yes, 50.5% (n=195) said no, 12.7% (n=49) said maybe and 13% (n=50) said that they did not know. Replying to question if polio can be caused by malnutrition, 23.6% (n=91) said yes, 39.1% (n=151) said no, 16.1% (n=62) said maybe and 21% (n=81) did not know. When asked whether polio vaccine was haraam or forbidden in religion, 72.5% (n=279) said no and 27.5% (n=106) said yes. Responding to the question whether there were proper preventive measures against polio in Karachi, 58% (n=224) said yes, 20.7% (n=80) said no, 7.5% (n=29) said maybe and 13.5% (n=52) did not know. Giving answer to how many times had polio workers visited the parents' houses, 9.6% (n=37) said monthly, 33.4% (n=129) said twice a year, 43.8% (n=169) said once a year and 12.4% (n=48) said that polio workers never visited their homes. When asked whether there were any preventive measure available against polio other than vaccination, 20.2% (n=78) said yes, 49% (n=189) said no and 28.2% (n=109) said maybe, replying to the question was polio a contagious disease, 28.2% (n=109) said yes, 69.7% (n=269) said no and 1% (n=4) said maybe. Giving answer to the question whether polio as a disease was treatable, 38.3% (n=148) said yes, 59.8% (n=231) said no and 1.6% (n=6) said maybe. When asked if any member of their family was suffering from polio, 22% (n=85) said yes and 76.9% (n=297) said no. When asked the question if those suffering from polio in their family received polio drops at the time of vaccination, 39.6% (n=153) said yes and 60.1% (n=232) said no.

Figure 1 showing the ages of the children's parents as 63.9% (n=246) were 18-22 years, 23.4% (n=90) were 23-26 years, 8.8% (n=34) were 27-30 years, 3.1% (n=12) were 31-40 years and 0.8% (n=3) were more than 40 years.

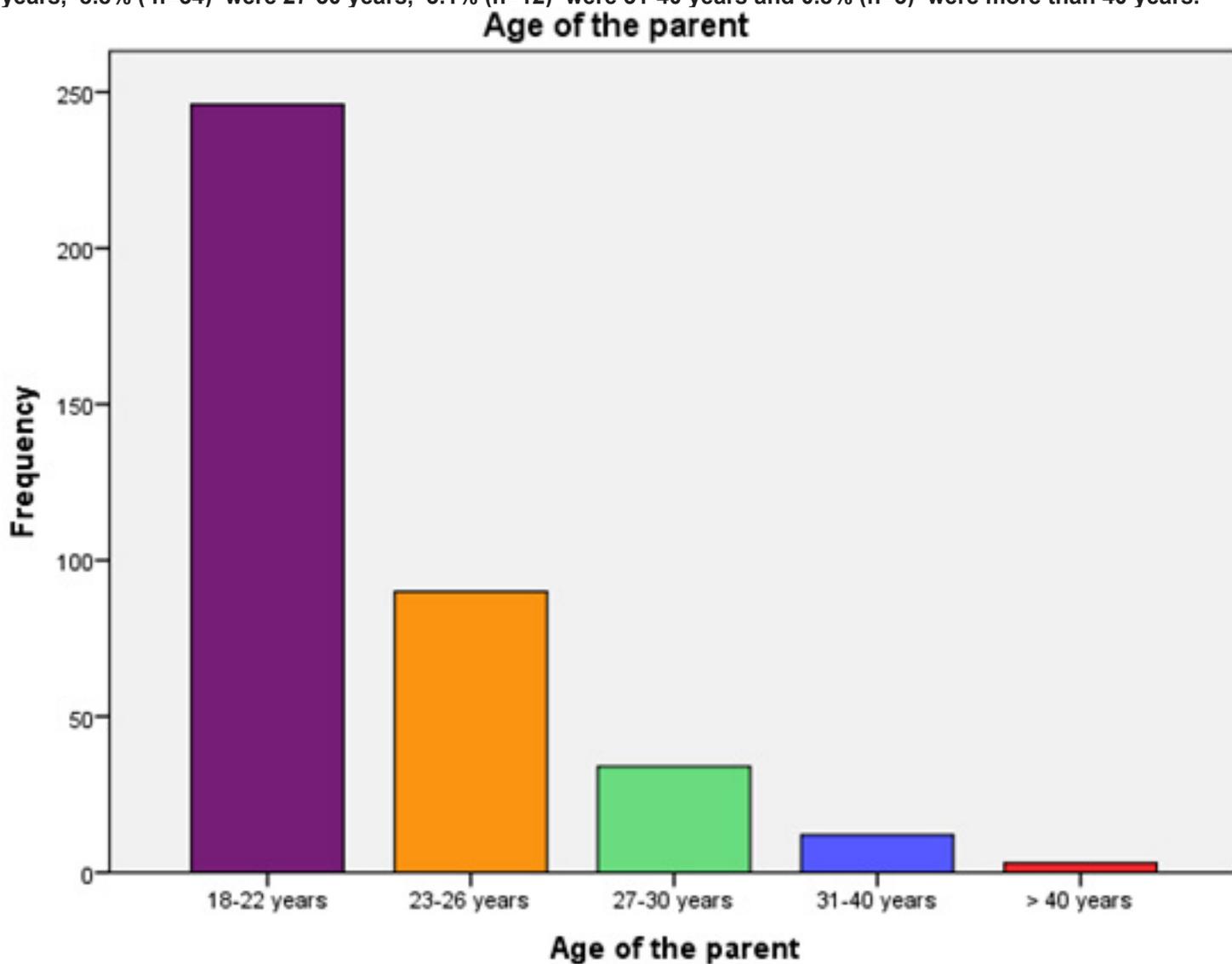


Figure 2 showing the relationship status of the parents with the under five children who they were accompanying, 51.4% (n=198) were fathers and 48.6% (n=187) were mothers.

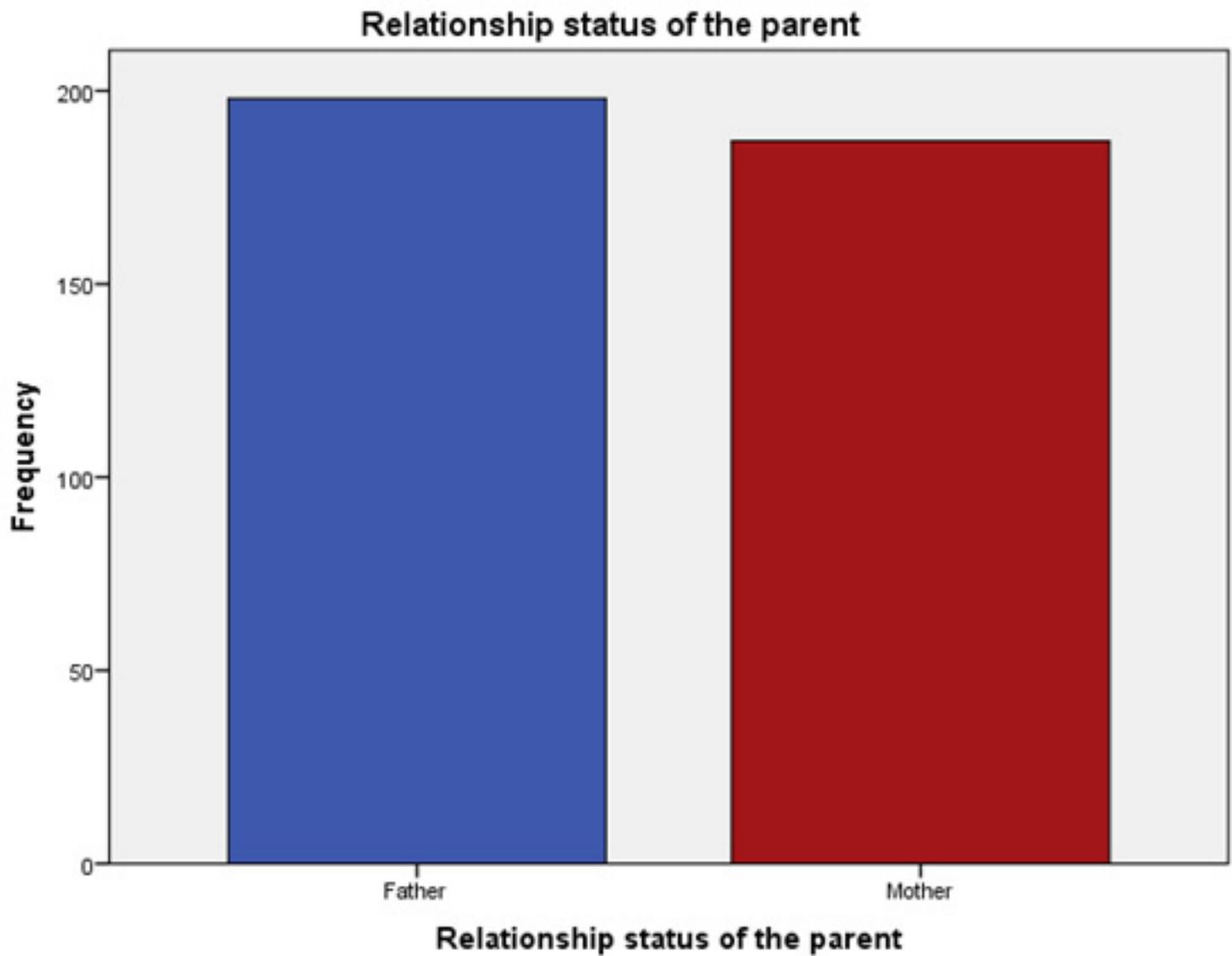


Figure 3 showing literacy status of the parents which was 43.4% (n=167) of the parents were educated and 56.6% (n=218) were uneducated.

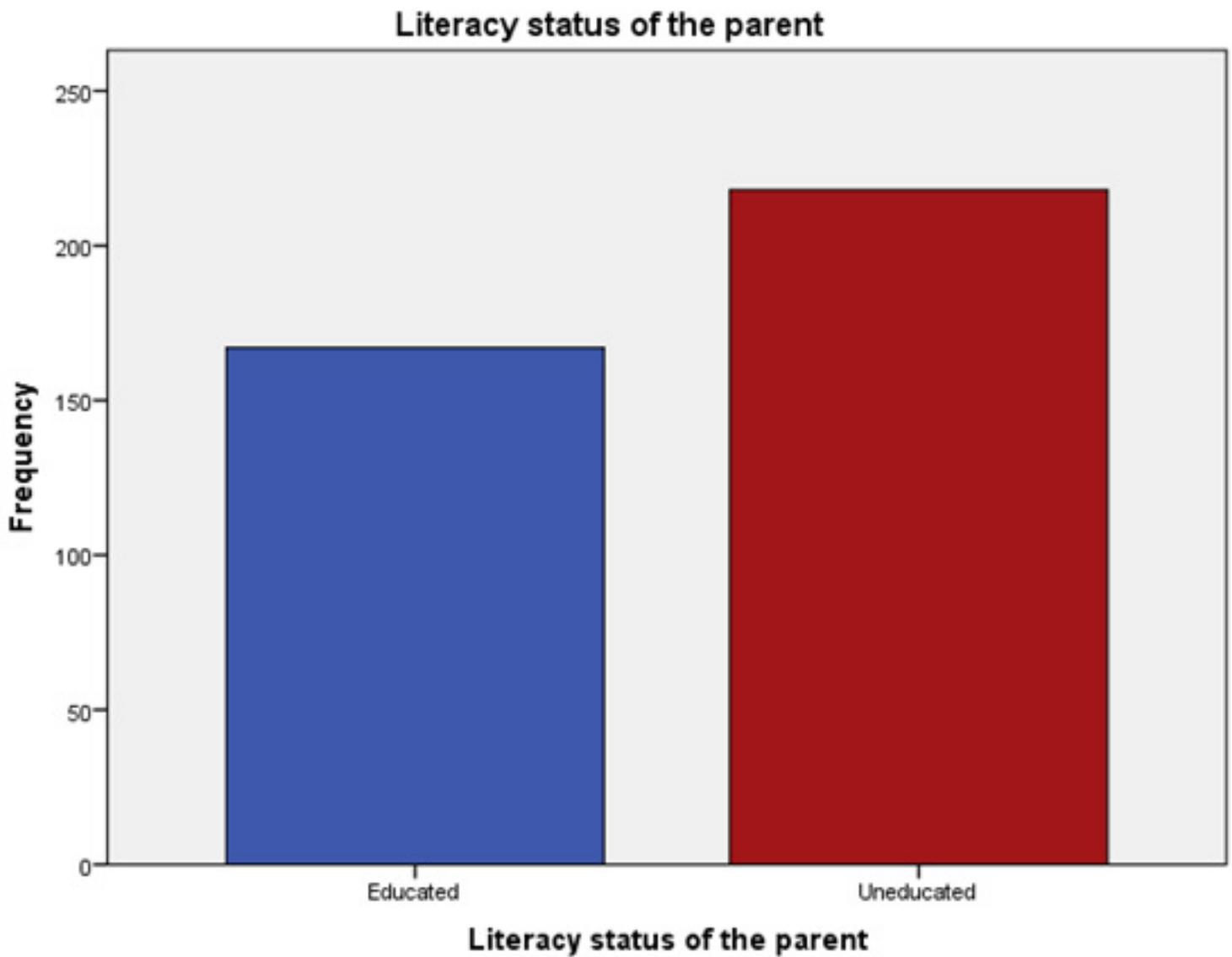


Figure 4 showing parents responses when asked what polio was, 68.1% (n=263) called it a disease, 18.7% (n=72) called it fate, 4.4% (n=17) termed it as a superstitious happening and 8.5% (n=33) did not know what it was

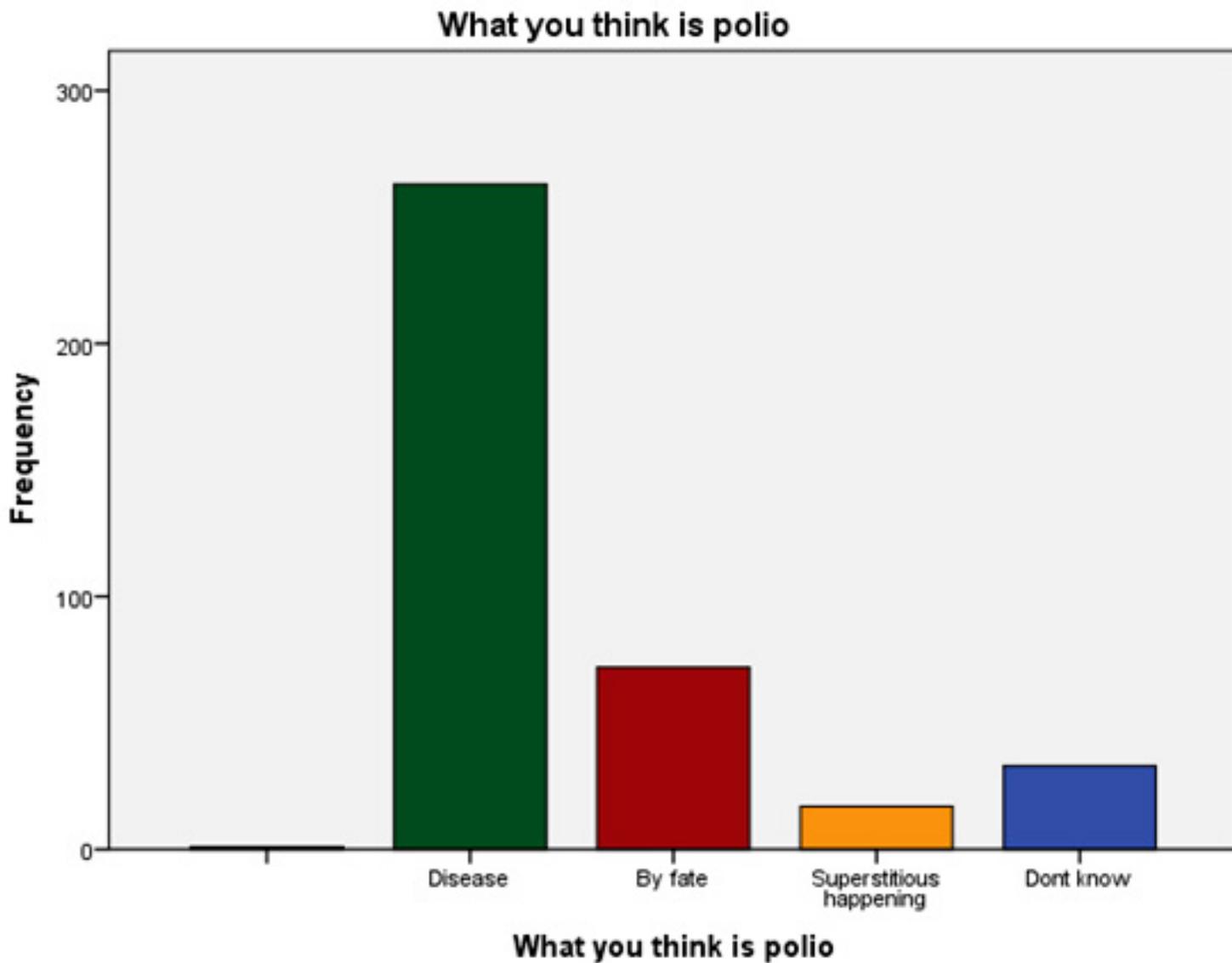


Figure 5 showing that when asked whether their child can become sterile after taking polio vaccine, 23.6% (n=33) said yes, 50.5% (n=195) said no, 12.7% (n=49) said maybe and 13% (n=50) said that they did not know

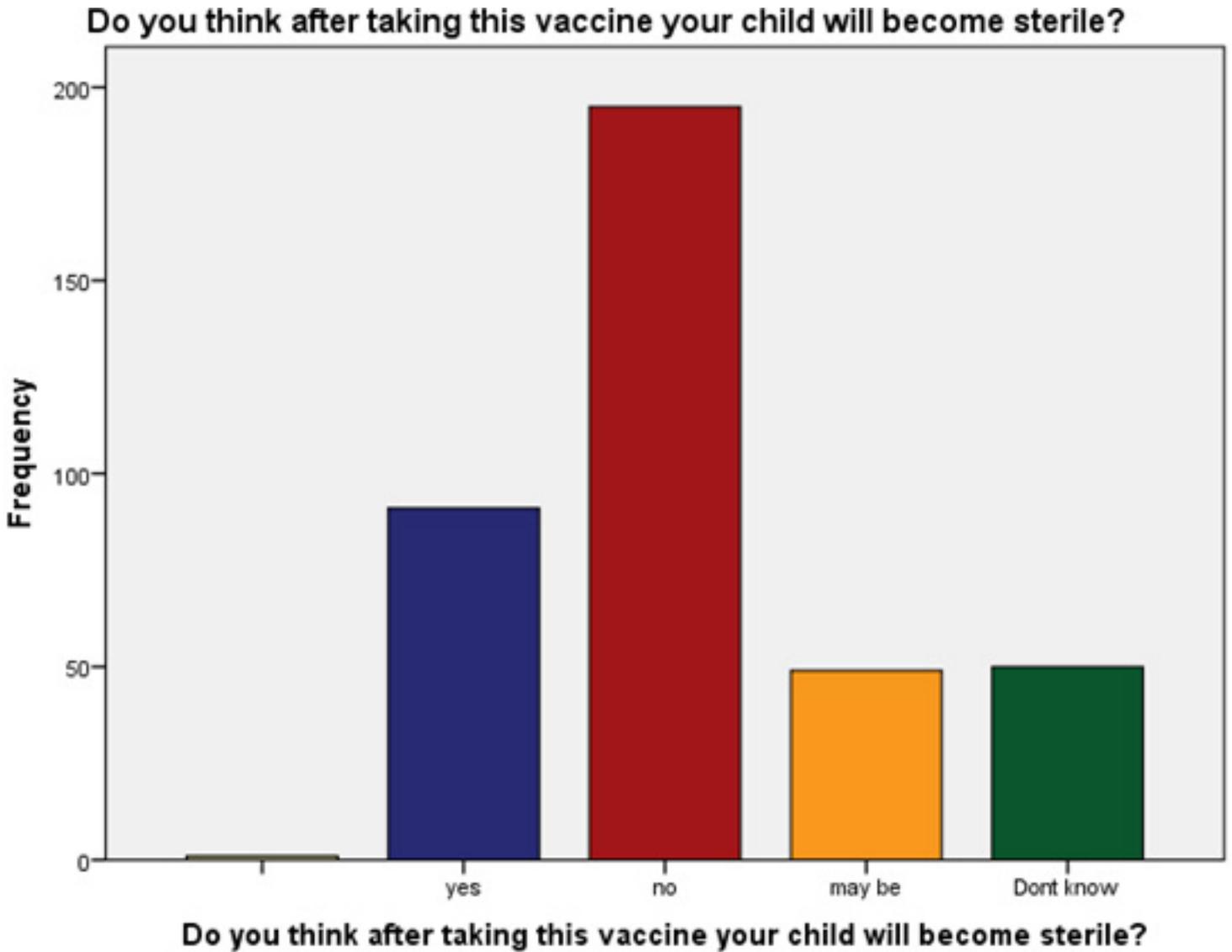
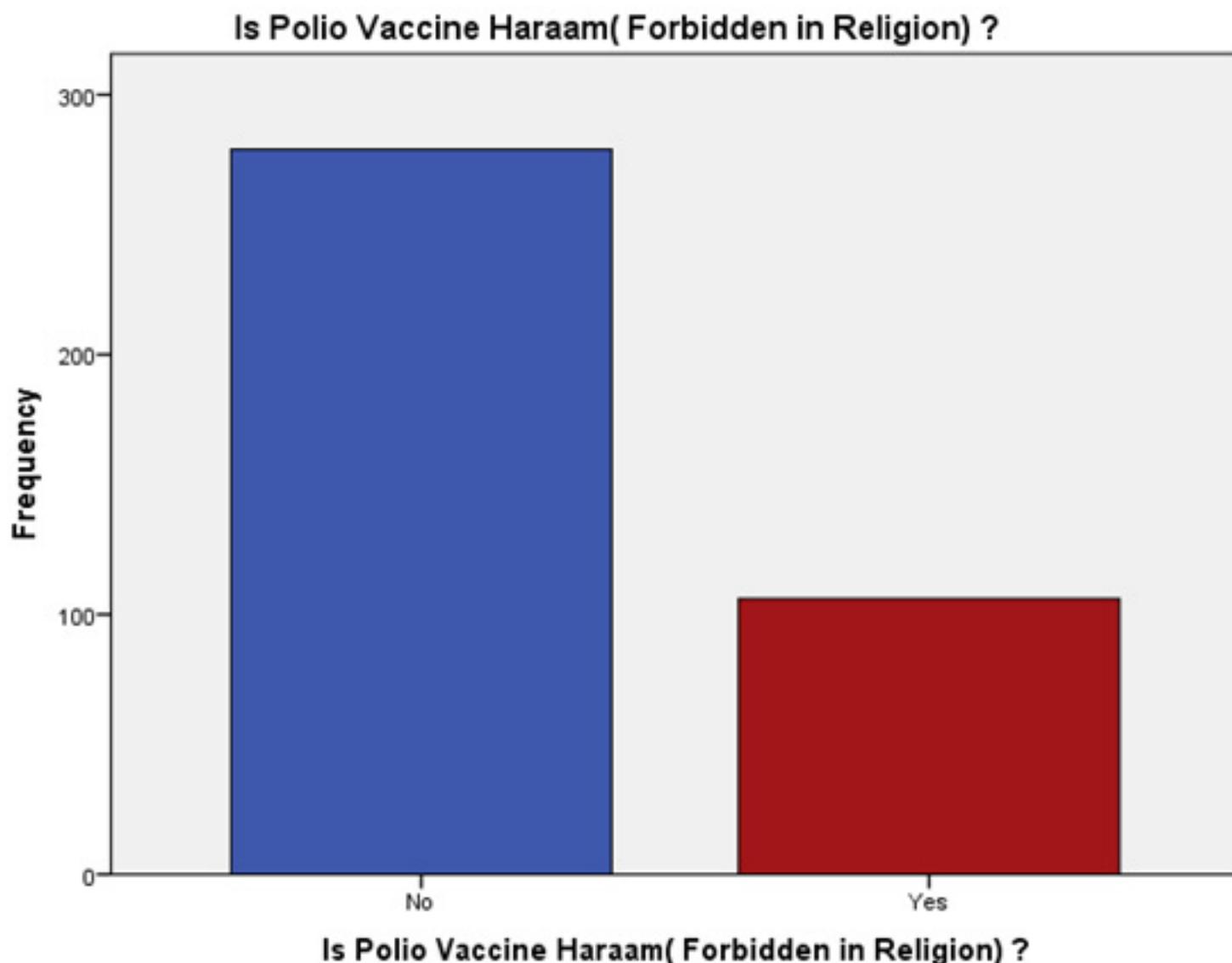


Figure 6 showing that when the parents were asked whether polio vaccine was haraam or forbidden in religion, 72.5% (n=279) said No and 27.5% (n=106) said yes.



Discussion

Polio was once a disease feared worldwide, striking suddenly and paralyzing mainly children for life. WHO is a partner in the Global Polio Eradication Initiative, the largest private-public partnership for health, which has reduced polio leaving its traces only in three countries of the world one of which is Pakistan where polio is still endemic. Pakistan has come a long way in its struggle to eradicate polio. In the early 1990s, the annual incidence of polio was estimated at more than 20,000 cases a year. Since its initiation in 1994, the national polio eradication programme has made major strides in reaching children with immunization in all parts of the country. The current polio epidemiology remains promising (10). Why cant Pakistan eradicate polio despite undying efforts of the government because the country still hasn't achieved that level of awareness at its community level where every single parent should know the value of polio vaccine. In this research as the data was collected at a tertiary care children hospital in Karachi .Many of the parents who were interviewed were uneducated and the researchers found that the false mindset and misconception

was still prevailing among them that polio is not a disease but can happen superstitiously or by fate and vaccine has nothing to do with it. Pashtuns from low as well as high income groups refuse to get their children vaccinated. This is due to scarcity of polio awareness, trust deficiency in vaccine efficacy, vaccine related misconceptions, and lack of confidence on polio worker.

According to this study the literacy status was distributed as 43.4% of the parents were educated and 56.6% were uneducated. These findings were also confirmed by a study conducted in Nigeria where literacy played an important role in community participation in polio eradication (11). In this study when the parents were asked what polio was, 68.1% called it a disease, 18.7% called it fate, 4.4% termed it as a superstitious happening and 8.5% did not know what it was. Such poor levels of awareness in almost 30% of population was very alarming. These findings were also similar to another study conducted in Pakistan in 2019 (12). Another misconception that was discovered in this study was that sterility was caused by polio vaccine in children. When the parents were asked whether their child could become sterile after taking polio vaccine, 23.6%

said yes, 50.5% said no, 12.7% said maybe and 13% said that they did not know. These findings were confirmed by another study conducted in Pakistan in 2019 (13). So the foremost step needed to be taken is to educate the local people by arranging different workshops and awareness campaigns to remove the misconceptions of people about polio vaccination present in the society because if people will not be educated then there is no use of any polio vaccination campaigns and it will always result in a failure.

The foremost disturbing finding which was made in this study was the religious mindset of some of the parents showing that when the parents were asked whether polio vaccine was haraam or forbidden in religion, 72.5% said no and 27.5% said yes. The same mindset was demonstrated by some communities in Nigeria where polio vaccination in high-risk communities had been considerably low despite routine and supplemental vaccination activities. Large numbers of children were left unvaccinated because of community misconceptions and distrust regarding the cause of the disease and the safety of the polio vaccine (14). Although progress toward global polio eradication has continued, challenges in identifying and vaccinating every missed child remain. Much of the recent progress reaching previously missed children has been associated with recruitment of trusted community volunteers who are invested in their locality for vaccination and surveillance efforts (15). Intensification of efforts to improve the quality of immunization and surveillance activities and to develop additional innovations in addressing persisting challenges is necessary. Until poliovirus eradication is achieved, all countries must remain vigilant by maintaining high population immunity and sensitive poliovirus surveillance (16).

Despite various setbacks, the target is still not impossible. Possible interventions need to be proposed which include effectively using modern mass media and educating vaccinators on the social and cultural background of the target community. Another approach in the eradication of polio from Pakistan is to hire more and more local female lady health workers because they can carry out the polio campaigns more efficiently in a Pashtun community and they are more reliable in overcoming the fear and misconceptions aroused by the rumors related to polio vaccination.

Conclusion

Pakistan is among three countries in which polio is still endemic. Most of the cases sprouting up in the city are from slum areas where the majority of the population is uneducated. Several religious and fictional beliefs and misconceptions have been playing a pivotal role in keeping polio endemic in the area despite many sincere efforts of government. What has been concluded from this cross sectional study is that there are more efforts needed to be done in this respect particularly in educating parents of children and carrying out social campaigns to spread awareness among every single parent and make them affirm that polio is preventable and by only vaccinating their children they can save them from polio forever.

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