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Impact of Mass Media Campaigns on Attitude Change toward Polio Vaccination

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Keywords	Abstract
Mass Media Campaigns, Attitudes Change, Demographic Characteristics, Polio Vaccination.	*Poliomyelitis is spread by a virus, and it is an irreversible disease and can be prevented by vaccinating the children. Oral Polio Vaccine (OPV) is considered the most effective vaccine in polio eradication. Being the source of information, media are used for spreading news regarding the polio vaccine. This research explored the impact of mass media campaigns on attitude change towards polio vaccination among residents of District Dera Ismail Khan. Twenty to sixty years of age and above was the population of the study. The non-probability sampling method was used to collect data through a well-structured close-ended questionnaire. The sample size of the study was 520. The results of this study indicate that attitudes about polio vaccination among various demographic characteristics differ significantly.*

INTRODUCTION

Poliomyelitis (common name: polio) is a viral disease which paralyzes the children aged up to fifteen years. This virus affects the Central Nervous System (CNS) and leads to paralysis. It can be fatal if the virus severely affects the respiratory system. This virus enters the human body with contaminated water or food. The virus can live and survive only in the human body. It is an irreversible disease and can be prevented by vaccinating the children. Every child is at risk until and unless the polio virus circulates.

In 1908 two Austrian physicians, Karl Landsteiner and Erwin Popper, found polio to be a viral disease. Then in 1931 Dame Jean Macnamara and Sir Macfarlane Burnet identified three types (P1, P2, and P3) of wild poliovirus (WPV). Type 2 and 3 viruses were considered eradicated worldwide in 2009 and 2012 (Nadeem, 2016).

The history of polio campaigns in Pakistan traces back to 1974. Involving international donors, the country started official efforts to eradicate polio in 1994. The National Immunization Days (NIDs) were launched by PM Benazir Bhutto vaccinating her daughter Asifa with Oral Polio Vaccine (OPV). Supplementary Immunization Activities (SIAs) were launched in Pakistan in 2000 when 119 polio cases were registered across the country. From 20000 polio cases every year, Pakistan has reported 12 positive cases in 2018, of which half of the cases were recorded in Khyber Pakhtunkhwa (KP) Tribal Districts (GPEI, 2019). Efforts to make Pakistan polio-free have been made by the Emergency Operational Centre (EOC). Unfortunately, the polio virus is still not surrounded, and there is still much more left to do to eliminate WPV. The world is now

coming in closer towards polio eradication since the World Health Assembly meeting held in 1988. The focus of the meeting was improvement in communication tools in polio eradication strategies (Obregón et al., 2009).

Since then communications have played a vital role in the polio vaccination campaign, and mass media promotion is thought to be the suitable way of changing one's opinion regarding an idea. Studies have emphasized the need to increase the communication skills of the health workers in persuading the parents and to change their attitude for OPV. Khan et al. (2015) found in their study the attitude of the respondents was quite negative about polio vaccination. Garon et al. (2016) suggests that converting the parent's attitude towards repeated vaccination requires studying their minds and preparing a constructive strategy for the fulfillment of their needs. Larson (2018) explores how the higher the exposure to media messages about the benefits of vaccines, the higher will be the acceptance towards vaccination. If the audiences are exposed to negative messages about vaccination, their attitude will be negative. Speaking of the attitude, the Napolitano et al. (2019) study shows that more than 50% of the respondents who have not received any vaccine had a significantly positive attitude towards vaccination. Among the respondents who consider vaccination useful and those who seek advice from doctors, there is a high positive attitude towards vaccination.

Polio arose as one of the serious threats to human life in the 20th century. Having caused so many deaths, it grabbed the attention of organizations working in the health sector. A lot of work has been done to eradicate polio from the society, & unluckily Pakistan and Afghanistan have still not eradicated WPV. This research explored the attitude of people regarding polio vaccination with different demographic variables. In this study the researcher tried to understand how the background information affects attitude about polio vaccination. The focus of the study is on changing the attitude of the respondents and exploring the liking and disliking of polio vaccination by the people. The findings of the study are crucial in understanding how media messages are planned. The health department, EOC and marketing agencies can get help from the findings of this study. Utilizing and framing the best tools in communication campaigns, advertisers could be able to make better policy, keeping in view different demographics.

Objective of the Study

To explore the relationship between different demographic characteristics with attitude towards the polio vaccination campaign

METHODOLOGY

The **s**urvey method was used to satisfy the objectives of the study. The study is descriptive by nature, where the researcher described the relationship between various variables under study. A cross-sectional research design was used in this study to collect data, which means that data was collected at one point in time from the sample selected for the purpose. According to the 2017 census, D. I. Khan has a population of 1,627,132 individuals, and out of the total population of Dera Ismail Khan District, 1,264,901 live in rural areas, while 362,231 people live in urban areas of the district (Huda & Burke, 2017). Under the convenient sampling technique, the sample size of the study was 520. Data is collected from both rural and urban populations while using a closed-ended questionnaire.

Measurement of the Concepts

To understand how the background information affects media consumption and/or attitude about polio vaccination measured through questions, i.e.

1. The age of the respondents was checked through the following question containing different categories.
   a. 20 to less than 30, b. 30 to less than 40, c. 40 to less than 50, d. 50 to less than 60, e. 60 and Above
2. The following question was asked to explore the ethnicity of the respondents.
   a. Pashtun b. Saraiki c. Urdu Speaking d. Other (specify)
3. Educational level was measured by asking the following question.
   a. Literate b. Illiterate
4. The residential pattern of the respondents was measured through the following question.
   a. Rural b. Urban
5. Attitude level of the respondents was measured through statements, i.e., a. Polio vaccine is safe for my children, b. Polio vaccine is Haram (forbidden in Islam), c. Polio has adverse effects, d. Polio vaccine is linked with infertility, e. Polio vaccine is linked with AIDS, f. Polio is part of the western agenda, g. Polio vaccination is not necessary, h. Only polio is being focused on, not other diseases, i. Polio vaccines are not capable of preventing the disease, j. The quality of the vaccine is not well maintained, and k. Excessive campaigns result in overdose. Each item in the list has a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Cronbach's Alpha= .86

Hypotheses

H_1: There is a significant difference between attitudes of people with different age groups towards polio vaccination.

H_2: There is a significant difference in the attitudes of people with different ethnicities towards polio vaccination.

H_3: There is a significant relationship between level of education and people's attitude towards polio vaccination.

H_4: There is a significant difference between attitudes of rural and urban people towards polio vaccination.

RESULTS

There are two major sections in the results section. The univariate analysis of all demographic factors makes up the first part. This presentation aims to provide a thorough understanding of the nature of the data and the survey's various respondents' responses. Testing of hypotheses comprises the second section. For statistical analysis of these hypotheses, one-way ANOVA and independent sample t-tests were applied. All of the hypotheses had an alpha level of .05. The results are presented in the following six separate tables, followed by their explanation.

Table 1: Frequency Distribution of Demographic Variables

		F	%	Cf %
Gender	Male	318	61.2	61.2
	Female	202	38.8	100.0
Age	20 to < 30	180	34.6	34.6
	30 to < 40	132	25.4	60.0
	40 to < 50	99	19.0	79.0
	50 to < 60	64	12.3	91.3
	60 and above	45	8.7	100.0
Ethnicity	Pashtuns	183	35.2	35.2
	Non-Pashtuns	337	64.8	100.0
Education	Literate	343	66.0	66.0
	Illiterate	177	34.0	100.0
Residential Pattern	Rural	410	78.8	78.8
	Urban	110	21.2	100.0
	Total	520	100.0	

The above table shows the distribution of different demographic variables (gender, age, ethnicity, education and residential pattern), which shows that 61.2% were male and 38.8% were female respondents out of the total sample. The age-wise distribution of the sample suggested that people aged 20 to less than 30 years were 34.6%, 30 to less than 40 years were 25.4%, 40 to less than 50 years were 19.0%, 50 to less than 60 years were 12.3%, and respondents in the 60 years and above age group were 8.7%. Ethnic distribution of the sample shows that Pashtuns were 35.2%, while non-Pashtuns were 64.8%. Out of the total sample, 66.0% were literate and 34.0% were illiterate. 78.8% were from rural areas, and 21.2% were from urban areas.

Table 2: Descriptive Analysis of Attitude towards Polio Vaccination of Various Age Groups

Age in Years	N	M	SD
20 to less than 30	180	3.90	.73
30 to less than 40	132	3.37	.82
40 to less than 50	99	3.30	.96
50 to less than 60	64	3.04	.97
60 and above	45	3.30	.86
Total	520	3.49	.90

The descriptive analysis of five age groups showed that the younger people with ages group of 20 to less than 30 years (M= 3.90; SD= .73) have a higher mean value and lower standard deviation than the other age groups. The mean values of all the other age groups are lower than the total mean value (M= 3.49), while the mean value of the first group is higher than the total mean value. Similarly, the standard deviation of all the other groups except the first one is either higher than or close to the total standard deviation. The standard deviation of the first age group is much lower than the total standard deviation.

Table 3: Difference between Attitudes of Various Age Groups towards Polio Vaccination

	SS	*df*	MS	F	Sig.
Between Groups	50.05	4	12.51	17.60	.000
Within Groups	366.03	515	.71		
Total	416.08	519			

One-way ANOVA was used to measure the attitude of different age group people towards polio vaccination (Group 1= 20 to < 30; Group 2= 30 to < 40; Group 3= 40 to < 50; Group 4= 50 to < 60, and group 5= 60 and above. At alpha=.05, the result suggested significant difference among various age groups [F (4,515) = 17.60, *p*=.000]. The Post-Hoc test (Bonferroni) was used for multiple comparisons. This test showed that Group 1 (M= 3.90; SD= .73) was significantly different from all other age groups. While there was no significant difference among the remaining age groups. These results reject the null hypothesis that there is no significant difference among attitudes of different age groups towards polio vaccination. The results support the first research hypothesis (H1) of this study, "There is a significant difference between attitudes of people with different age groups towards polio vaccination." These results suggest that the youngest people have a comparatively more positive attitude towards the polio vaccination than the older people.

Table 4: Difference in Attitude between Pashtun and Non-Pashtun People towards Polio Vaccination

Ethnicity	N	M	SD	*T*	*df*	Sig
Pashtun	183	3.16	1.00	-6.43	518	.000
Non-Pashtun	337	3.67	.78			

To compare the mean score of Pashtun and non-Pashtun people's attitudes towards polio vaccination, independent sample *t*-test was used. The result showed that there was a statistically significant difference in Pashtun (M= 3.16; SD= 1.00) and non-Pashtun (M= 3.67; SD= .78) people; t (518) =-6.43, *p*= .000 (two tailed), towards polio vaccinations. The non-Pashtun people have more positive attitudes towards polio vaccination than the Pashtun, as higher values on the scale indicate positive attitudes. According to the Cohen Kappa 1988 principle, the magnitude of difference is very small (η^2= -.07)**.**

Table 5: Difference between Literate and Illiterate People regarding Attitude towards Polio Vaccination

Education Status	N	M	SD	*T*	*df*	Sig	η^2
Literate	343	3.58	.93	3.17	518	.002	.02
Illiterate	177	3.32	.81				

An independent sample *t*-test was used to compare the mean score of literate and illiterate people's attitudes towards polio vaccination. The result suggested that there was a statistically significant difference in literate (M= 3.58; SD= .93) and illiterate (M= 3.32; SD= .81) people; t (518) =3.17, *p*= .002 (two tailed). According to the Cohen Kappa 1988 principle, the magnitude of difference is very small (η^2= .02)**.**

Table 6: Difference between Attitudes of Rural and Urban Residents towards Polio Vaccination

Residential Pattern	N	M	SD	*T*	*df*	Sig	η^2
Rural	410	3.54	.93	2.63	518	.009	.013
Urban	110	3.29	.75				

An independent sample *t*-test was used to compare the mean values of rural and urban people's attitudes towards polio vaccination. The result shows that there was a statistically significant difference in rural (M= 3.54; SD= .93) and urban (M= 3.29; SD= .75) populations; t (518) = 2.63, *p*= .009. Therefore, the null hypothesis is rejected. According to the Cohen Kappa 1988 principle, the magnitude of difference is very small (η^2= .013)**.**

DISCUSSION AND CONCLUSION

The findings of the present research study suggest that there are significant differences between attitudes of different age groups toward polio vaccination, as the first age group, 20 to < 30 years, have more knowledge about polio as compared to others/elders. Previous studies also reached the same conclusion. For example, Khan et al. (2015) stated that young respondents had better knowledge about polio than elders. Khwaja et al. (2012) point out that 40% of Karachi's population consists of Pashtuns, and 90% of the cases are recorded in the Pashtun community living in Karachi. This is in line with current findings showing that Non-Pashtuns have more positive attitudes towards polio vaccination as compared to Pashtuns. There is a significant relationship between level of education and attitude towards polio vaccination. Educated families have more knowledge and acceptance towards polio vaccination than those who have little or no education. Past studies also supported the current study results. For example, Khan et al. (2016) stated that education plays an important role towards the awareness and acceptance of polio, and highly educated families have much more positive attitudes and acceptance and show little/no resistance towards vaccines. The current findings show that rural residents have slightly higher acceptance towards polio vaccination than urban people. Shah et al.'s (2011) study also endorsed the current study's finding that this polio vaccination's acceptance is far better in cities as compared to rural areas. The differences between rural and urban residents may be due to poor infrastructure, poor management in rural areas, and access to main media not being as effective as it is in the cities, and thus it can be seen the variation in the attitudes between rural and urban residents. However, Nadeem (2016), explaining the reasons behind the non-eradication of polio in Pakistan, says they are poor infrastructure, issues of travelling, poor management, mistrust of the polio vaccines, repeated polio campaigns and the security issues of polio workers. Similarly, Jain's (2014) study revealed that, in rural areas, the number of missed polio cases was higher owing to the problem of reach, and travel distance was a big reason behind the issue of missed cases in polio campaigns. The researcher points out that overcoming these issues will result in polio eradication.

Policy Implications and Recommendations

Hopefully through this knowledge more effective programs and policies can be introduced to eradicate and protect children from polio. Proper research is required on not achieving the vaccination goal through media messages. Government and advertising agencies

should focus on the questions in the caregiver's minds and answer them. Through proper communication policy vaccine hesitancy can be minimized in every corner of the country. While making polio message contents, they should be strong, and real-time stories of the victim families should be reported in the news so that everyone is informed about the harm poliomyelitis can bring to a child. With a more positive attitude, better vaccination status can be achieved.

The present study was carried out with a non-probability sampling; a future study should be conducted using a probability sample to compare the results with the present study and to generalize the results for the entire population. The current research was limited to Pashtun and non-Pashtun ethnicities, while another study should be carried out to explore the difference among other ethnicities of the city. The current study was carried out in the city of Dera Ismail Khan, which is a mixture of different cultures who share similarities. Future study should be conducted in a place where the population is clearly heterogeneous.

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REFERENCES

Amos, J. et al. (2008). Patterns of Vaccination Acceptance. Social Sci. Med., Vol. 49, pp. 1705–1716.

Babalola, S. (2011). Maternal Reasons for Non-Immunisation and Partial Immunisation in Northern Nigeria. Journal of Paediatrics and Child Health, 47(5), 276-281.

Bandura, A. (1994). Social Cognitive Theory of Mass Communication, in J. Bryant and D. Zillmann, (eds.). Media Effects: Advances in Theory and Research, Lawrence Earlbaum Associates, Publisher, UK.

Bandyopadhyay, A. S., Garon, J., Seib, K., & Orenstein, W. A. (2015). Polio Vaccination: Past, Present and Future. Future Microbiology, 10(5), 791-808.

Chaffee, C.H. and Wilson, D.G. (1977). Media Rich, Media Poor: Two Studies of Diversity in Agenda Holding. Journalism Quarterly, vol.54, 466-476.

Garon, J., Seib, K., Orenstein, W. A., Ramirez Gonzalez, A., Chang Blanc, D., Zaffran, M., & Patel, M. (2016). Polio Endgame: the Global Switch from tOPV to bOPV. Expert Review of Vaccines, 15(6), 693-708. Global Polio Eradication Initiative. Polio Eradication and Endgame Strategic Plan 2013–2018.

GPEI. (2019). Polio Cases in Provinces; End Polio Pakistan. Retrieved Jan, 14. 2019 from http://www.endpolio.com.pk/polioin-pakistan/polio-cases-in-provinces.

Huda, N. S., & Burke, F., (2017). CENSUS 2017 - A Satisfactory Exercise or Continuity of Incompetency?. Retrieved April 30, 2021 from file:/// c:/users/mashaf/ downloads/census 2017-asatisfactoryexerciseor continuity ofincompetency.pdf.

Jain, A. (2014). Study of Marketing Efficacy of Pulse Polio Programme in India.

Khan, M. A., Akram, S., & Usman, H. B. (2016). Polio Immunization and Awareness: A Cross Sectional Study in Shangla and Swat Districts, Pakistan. Journal of Postgraduate Medical Institute (Peshawar-Pakistan), 30(2).

Khan, M. U., Ahmad, A., Aqeel, T., Akbar, N., Salman, S., & Idress, J. (2015). A Cross-Sectional Survey of Healthcare Workers on the Knowledge and Attitudes towards Polio Vaccination in Pakistan. PloS one, 10(11), e0142485.

Khan, M. U., Ahmad, A., Aqeel, T., Salman, S., Ibrahim, Q., Idrees, J., & Khan, M. U. (2015). Knowledge, Attitudes and Perceptions towards Polio Immunization among Residents of Two Highly Affected Regions of Pakistan. BMC Public Health, 15(1), 1100.

Larson, H. J. (2018). Politics and Public Trust Shape Vaccine Risk Perceptions. Nature Human Behaviour, 2(5), 316-316.

Nadeem, N. J. (2016). The Global Polio Eradication Initiative (GPEI) in Pakistan. JPMA. The Journal of the Pakistan Medical Association, 66(11), 1466-1471.

Napolitano, F., Della Polla, G., & Angelillo, I. F. (2019). Knowledge, Attitudes, and Behaviors of Parents towards Recommended Adult Vaccinations: An Explanatory Survey in the Geographic Area of Naples, Italy. International Journal of Environmental Research and Public Health, 16(12), 2070.

Obregón, R., Chitnis, K., Morry, C., Feek, W., Bates, J., Galway, M., & Ogden, E. (2009). Achieving Polio Eradication: A Review of Health Communication Evidence and Lessons Learned in India and Pakistan. Bulletin of the World Health Organization, 87, 624-630.

Shah, M., Khan, M. K., Shakeel, S., Mahmood, F., Sher, Z., Sarwar, M. B., & Sumrin, A. (2011). Resistance of Polio to its Eradication in Pakistan. Virology Journal, 8(1), 457.

United Nations Children's Fund (UNICEF). (2001, June 18–21). Reaching the Unreached: Mid-Year Meeting of the Advisory Group of Polio Partners on Communication for Polio Eradication. New York: Author.

Zuberi, Nasir A. (1992). Effects of Television on Children of Middle Class Families in Karachi: A Cross-sectional Study. A Ph.D. thesis submitted to the University of Karachi.