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Role of Media Usage in Knowledge, Attitude and Behavior towards Polio Vaccination: Case of Dera Ismail Khan Highly Affected Regions of KP, Pakistan

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Efforts have been made to eradicate Wild Polio Virus and make Pakistan polio free nation. WHO and other partner organizations are supporting Pakistan to achieve this mile stone. This research is aimed to explore the perception of residents living in District Dera Ismail Khan regarding the influence of polio advertisements. Whether media usage changes knowledge, attitude and behavior about polio vaccination? A sample was selected among the population and a closed ended questionnaire was distributed to know the perception of the sample regarding polio related advertisements. Sampling technique and sample size was selected after the researcher explored the demographic of the population. Data collected from these respondents was then analyzed for comparison and findings suggested that those who were less exposed to media messages (high mean value) have high knowledge, more positive attitude and behavior towards polio, compared to those who are more. The results support all the three hypotheses.

Introduction

Polio is a viral disease which paralyses the children less than fifteen years. Polio virus enters the human body with contaminated water or food and cause paralysis. Polio is an irreversible disease and can be prevented by vaccination. Until and unless polio virus exists, every child in the world is at risk (Shakeel, et al., 2019; Debaje, 2017). The history of polio campaigns in Pakistan traced back to 1974 while the country started official efforts to eradicate polio in 1994. SIAs were launched in Pakistan in 2000 when 119 polio cases were reported. From 20000 polio cases per annum in the past Pakistan has reported 12 positive cases in 2018 of which 50% cases were recorded in Khyber Pakhtunkhwa Tribal Districts (Garon, et al., 2019).

Mass media advertising is thought to be the suitable way of changing one's opinion regarding polio vaccination. Polio ads seem to be major contributors of the success achieved by the government and partner organizations. Public announcements through media, banners and posters are used for creating awareness and to encourage participation in Supplementary Immunization Activities (SIAs).

Present Study was developed under the Knowledge Attitude Behavior (KAB) model also referred to as Knowledge Attitude Practice (KAP) which explains the way humans' behavior is formed and the role of knowledge in deciding, which leads to the formation of attitude and finally results in the behavior (Harmancı et al., 2003). Polio Vaccine has always been the target of propaganda directly and indirectly which led to the refusal of vaccine. Misinformation, Disinformation & remaining uninformed about the polio disease are the biggest contributors to the refusals of the Polio Vaccinations. KAB model argues that first to change a behavior is to educate a person about what is being offered. What will be its impact on the life of that person and what can be the side effects if that product is being ignored or refused? In Polio case, a person shall be informed about the harms of polio disease, how the vaccine will help and what can be the potential threats if the vaccine is not being taken. This study focuses on the role of Mass Media Campaigns about the polio vaccines in changing the attitude towards Polio. Being educated/increase in knowledge about the product/issue will lead towards the formation of attitude towards that product/idea/issue. Once a person receives information that Polio is a dangerous disease which can result in physical disability and polio vaccines can protect you from what is thought as "Potential Threat" will force that person to have a second thought on his "Decision of Refusal" (especially when he/she is misinformed or dis-informed). This positive "Knowledge" will lead to a change in "Attitude" which will finally result in the changed "Behavior" of that person. Since knowledge is the first and most important factor in KAB model, mass media messages are important in providing the information (Knowledge) about polio disease and vaccination program. Media messages (campaigns) therefore, should be planned in a way that they can produce the desired effects (Positive Attitude & Behavior) about the issue. Under the umbrella of KAB model the researcher was willing to explore the influence of media messages in K (Knowledge), A (Attitude) & B (Behavior) about polio vaccines.

Pakistan and Afghanistan are the only endemic countries having Wild Polio Virus circulation. This study is crucial in understanding how to overcome the reservations and develop positive attitude towards polio vaccination. Ministry of health, EOC and marketing agencies can get help from the findings of this study to make a better policy for communication campaigns related to polio and how to frame the message and broadcast keeping in view the level of target audience.

Objectives of the study

1) To find out the most effective channel for communicating information about polio vaccination.
2) To understand the role of media messages in shaping attitude towards polio vaccination.
3) To explore the relationship between exposure to media messages and behavior about polio vaccination.

Methodology

Using cross sectional survey research design the study adopted a closed ended questionnaire to measure the knowledge, attitude and behavior of the people regarding polio vaccination. In present study residents of Dera Ismail Khan District was the population. The sample size of the study was 520using convenient sampling technique. Face validity of the data collection tool was checked. Reliability results for all the questions and statements were above satisfactory level r = 0.7.Test results show higher alpha values for all the three constructs and reported in the following table.

Table No 1: Reliability Analysis

Name of Construct	No. of Items	Chronbach's Alpha
Information about Polio Vaccination	07	.78
Attitudes towards Polio vaccination	10	.86
Behavior about Polio vaccination	07	.81

n=50

Measurement of the Concepts

The information level, attitude and behavior of people regarding polio vaccination are dependent variables. Here researcher explored the knowledge level, liking and disliking of Polio vaccination and practice by the people. However, focus of the researcher was on changing attitude of the people. Using the following statements, the researcher was interested to measure the variables/concepts/constructs of the study.

1 Information level of the respondents was measured using 5-point Likert Scale ranging from, Strongly Disagree (1) to Strongly Agree (5) by the statements given bellow.
Polio is a dangerous disease, polio is curable, polio drops should not be given to children in mild illness, polio disease is severe in Pakistan, polio vaccine should be stored in standard temperature, polio drops should be given every time to each child under 5 years.

2 Attitude level of the respondents was measured by following statements using 5-point Likert Scale, ranging from, Strongly Disagree (1) to Strongly Agree (5).
Polio vaccine is safe for my children, polio vaccine is Haram, polio has adverse effects, polio vaccine is linked with infertility, polio vaccine is linked with AIDS, polio is part of western agenda, polio vaccination is not necessary, only polio is being focused not other diseases, polio vaccines are not capable of preventing the disease, quality of vaccine is not well maintained, excessive campaigns result in over dose.

3 Using 5-point Likert Scale ranging from Strongly Disagree (1) to Strongly Agree (5) following statements was asked to explore the behavior level of the respondents.
I vaccinate my children just because I am forced to do so, I vaccinate my children willingly, I take my children to vaccination center/hospital for polio vaccination, I keep record book of children vaccination schedule, I check from time to time for the scheduled vaccination of children, I support the vaccination teams in carrying out their duties in my area, I try to convince other people to give polio drops to their children.

The above stated three levels; information, attitude and behavior were tested along with the following question to explore the relationship between exposure to mass media and information/attitude and behavior about polio vaccination.

How much time do you spend using media daily?

a. Less than 1-hour b. 1 hour to less than 2 hours c. 2 hours to less than 3 hours d. 3 and more than 3 hours

Hypotheses

H1: There is significant relationship between exposure to media messages about polio vaccination and knowledge level of the people about polio.
H2: There is significant relationship between exposure to media messages about polio vaccination and attitude of the people about polio.

H3: There is significant relationship between exposure to media messages about polio vaccination and behavior of the people about polio.

Results

The results of the analysis are provided in an organized manner in order to give better understanding of the findings of the study. To test the hypothesis, One-way ANOVA is used for the entire three hypotheses. The alpha level is .05. The results are presented in six separate tables.

Table: 2: Descriptive analysis of Exposure to media and information level towards polio vaccination

Time spent	N	M	S. D
Less than one hour	120	4.22	.82
One hour to less than two hours	223	3.63	.85
Two to less than three hours	107	3.35	.80
More than three hours	70	3.45	.62
Total	520	3.68	.86

The descriptive analysis of four groups of exposure to media messages showed that those who are exposed to media messages < 1 hour (M= 4.22; SD= .82) has higher mean value and standard deviation which is closed to total, than the other exposure groups and the last group (more than 3 hours, SD= .62). The mean values of all the other exposure groups are lower than the total mean value (M= 3.68), while the mean value of first group is higher than the total mean value. Similarly, the standard deviations of all the other groups are either lower than or close to the total standard deviation. The standard deviation of last exposure group is much lower (SD= .62) than the total standard deviation.

In table no 3, One-way ANOVA was used to measure the relationship between exposure to media messages and knowledge level about Polio vaccination (Group 1= Less than one hour;

Group 2= one to less than two hours; Group 3= two to less than three hours, and Group 4= More than three hours. At alpha=.05, the result suggested significant relationship among various groups [F (3,516) = 26.17, p=.000]. Post-Hoc test (Bonferroni) was used for multiple comparisons.

Table No 3: Difference between knowledge levels about polio vaccination of people and time spent on media messages

	SS	D*f*	MS	F	Sig.
Between Groups	51.24	3	17.08	26.17	.000
Within Groups	336.71	516	.65		
Total	387.95	519			

This test showed that Group 1 (M= 4.22; SD= .82) was significantly different from all the other groups. Other groups have either close or less mean score than the average. These results reject the null hypothesis that "there is no significant relationship between exposure to media messages about polio vaccination and knowledge level of the people about polio. The results support the 1st research hypothesis (H1) of this study.

Table No 4: Descriptive analysis of time spent and attitude level towards polio vaccination

	N	M	SD
Less than one hour	120	3.72	.86
One hour to less than two hours	223	3.44	.92
Two to less than three hours	107	3.52	.77
More than three hours	70	3.22	.97
Total	520	3.49	.89

The descriptive analysis of four groups of exposure to media messages showed that those who are exposed to media messages less than One hour (M= 3.72; SD= .86) and those who are exposed more than 3 hours (M= 3.22; SD= .97) have respectively high and low mean values than the other groups who are closed to total mean (M= 3.49). The mean values of all the other exposure groups are closed to the total mean value (M= 3.49), while the mean value of first group is higher than the total mean value. Similarly, the standard deviation of group 3 is lower and group 4 is higher than the total standard deviation while the other two groups are closed to the total value. Similarly, the standard deviation of group 3 (SD= .77) is much lower than the total standard deviation.

Table No 5: Difference between attitudes about polio vaccination of people and time spent on media messages

	SS	D*f*	MS	F	Sig.
Between Groups	12.21	3	4.07	5.20	.002
Within Groups	403.87	516	.78		
Total	416.08	519			

One-way ANOVA was used to measure the relationship between exposure to media messages and attitude towards Polio vaccination (Group 1= Less than one hour; Group 2= One hour to less than two tours; Group 3= Two to less than three hours, and Group 4= More than three hours. At alpha=.05, the result suggested significant relationship among various groups [F (3,516) = 5.20, p=.002]. Post-Hoc test (Bonferroni) was used for multiple comparisons. This test showed that Group 4 (M= 3.22; SD= .97) was significantly different from all other groups. While the other groups except group 3 (SD= .77) have closed standard deviation to the average. These results

reject the null hypothesis that "there is no significant relationship between exposure to media messages about polio vaccination and attitude level of the people about polio. The results support the research hypothesis (H1) of the study. These results suggest that those who are exposed less to media messages has more positive attitude about polio vaccination than the other groups.

Table No 6: Descriptive analysis of time spent and behavior level towards polio vaccination

	N	M	S. D
Less than one hour	120	4.04	1.37
One hour to less than two hours	223	3.60	1.38
Two to less than three hours	107	3.14	1.46
More than three hours	70	3.14	1.65
Total	520	3.54	1.47

The descriptive analysis of 4 groups about time spent showed that those who use media less than one hour (M= 4.04; SD= 1.37) have high mean score and less standard deviation than the other groups. The mean values of first two groups are high than the total mean value (M= 3.54) and the last two groups have equal mean score (M=3.14) but less than total. Similarly, the standard deviation of all the other groups except the last one is lower than the total standard deviation. The standard deviation of first group is much lower and of the last group is much higher than the total standard deviation.

Table No 7: Difference between behavior about polio vaccination of people and time spent on media messages

	SS	D*f*	MS	F	Sig.
Between Groups	37.00	3	12.33	13.51	.000
Within Groups	470.94	516	.913		
Total	507.94	519			

One-way ANOVA was used to measure the relationship between exposure to media messages and behavior of different age groups (Group 1= 20 to less than 30; Group 2= 30 to less than 40; Group 3= 40 to less than 50; Group 4= 50 to less than 60, and group 5= 60 and above) towards Polio vaccination. At alpha=.05, the result suggested significant difference among various age groups [F (3,516) = 13.51, p=.000]. Post-Hoc test (Bonferroni) was used for multiple comparisons. This test showed that Group 1 (M= 4.04; SD= 1.37) was significantly different from all other age groups. Group 1 (M=4.04) is high than the total value and all other age group values, in the same way (SD=1.37) of the first group is lower than all age groups and total value. Therefore, current study failed to accept the null hypothesis that there is no significant difference among behavior of different age groups towards polio vaccination. The results support the research hypothesis (H1) of this study. These results suggest that the youngest people have comparatively more positive behavior towards the polio vaccination compared to the older people.

Discussion

Chaffee and Wilson (1977) argued those who are exposed more to media messages have more knowledge about polio than those who are less exposed. The study further states that higher the exposure to media messages higher will be the impact. Zuberi (1992), found the announcements and jingles are remembered more by the heavy viewer children and girls than those of light

viewer children and boys. Present study suggests the opposite and different factors might be the reason behind it like ethnicity, occupation, age, use of social media etc. Replication of the same study with different sample or sampling technique might produce different results. Gidado et al. (2014) of the Nigerian mothers who had not vaccinated their children at all, 66% were those who have lack of information towards vaccination. Vaccination can be improved, if the factors influencing the vaccination process are identified and solved. Harmanci et al. (2003) if the knowledge level of the care givers is low then they cannot understand the true value of vaccine, immunization time and immunization centers. Thomson et al. (2016) the acceptance towards vaccination depends largely on sharing complete information with the care givers about the safety and adverse effects of vaccine and how to frame and present the information. Navin (2017) people's choice can be affected strongly by how to frame information. Well composed and sensible information with pro and cones of the vaccine is easy to understand and helps in decision making. Bach et al, (2018) showed that majority of the respondents in Vietnam hesitate and refuse to get vaccinate their children due to listening about Adverse Event Following Immunization (AEFI) in mass media.

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. Speaking of the attitude Napolitano et al. (2019) more than 50% of the respondents who have not received any vaccine had significantly positive attitude towards vaccination. Among the respondents who consider vaccination beneficial and those who consulted doctors and received better advice have high positive attitude towards vaccination. Garon et al. (2016) suggests converting the parent's attitude towards repeated vaccination it is necessary to study their minds and to prepare a constructive strategy for the fulfillment of their needs. Tustin, et al (2018) explores, higher the exposure to media messages about benefits of vaccine higher will be the vaccination or acceptance towards vaccination. While if the audience are exposed to negative messages about vaccination their attitude will be negative. A study in Holland found those parents who have not received complete information about vaccination always search for the advantages and disadvantages of vaccination. If the parents are well qualified, they will use internet for their queries. The misleading information against vaccine, are easily available on internet especially on SNS, can lead the parents (who are already worried about vaccine) to develop negative attitude towards vaccination. Therefore, a productive communication strategy should be developed to address all the questions from the parents by the health experts (Harmsen et al., 2013).

Kennedy et al. (2010) and Tran et al. (2017) are stated that ads are framed by the advertisers to influence the behavior of the targeted consumers and to advance the life standard of the community. Brewer et al. (2017) the acceptance of vaccination or its behavior can be affected much by the behavior of health care providers. The study concludes refusing vaccination is not a big problem as compared to the interruption in vaccination in the rich countries.

Conclusion

Using One-Way ANOVA, the results of the study found those who are less exposed to media messages (high mean value) have high knowledge, more positive attitude and behavior towards polio, compared to those who are more.

Policy implications and research suggestions

From the knowledge gained through this study, hopefully more effective policies and programs can be introduced to eradicate and protect children from polio. Government and advertising agencies should address the questions in the care giver's minds. Providing proper knowledge, the vaccine hesitancy can be minimized in every corner of the country. The knowledge level of opinion leaders through participation in workshops and media messages need to be improved. As they have high influence that's why can largely enhance the vaccination process. Real time stories of the victim families should be reported in news so that everyone is informed about the harm poliomyelitis can bring to a child.

Effective Communication should be taught to the front-line workers, so that they can counter the issues in the field related to vaccination more effectively. Polio workers should provide full information to the general public to the best of their knowledge. This is also necessary to increase the capacity of the health care providers and to build high level of positive attitude in the best interest of high vaccination coverage.

Present study was carried with a non-Probability sampling; another study should be conducted using a probability sample to compare the results with the present study and to generalize the results on entire population. Present study was carried out in the district of Dera Ismail Khan which is the mixture of different cultures whom share so many similarities. Future study should be conducted in a place where population is clearly heterogeneous.

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