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An Assessment of Ineffective Security as an Impediment to Polio Vaccination In Tehsil Khwazakhela, Swat

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ABSTRACT

The present study ascertains ineffective security as an impediment to polio vaccination in tehsil khwazakhela, Swat, Pakistan. A sample size of 200 respondents in a population of 364 through simple random sample was selected. Majority of respondents i.e. 53% age were from (26-35), 58.5% male and 84% were married respectively. All the respondents were literate and majority of the respondents i.e. 36.5% were graduate, most of the respondents i.e. 36.5% had monthly income (15000-20000PKR). On security point of view 83% participated in the most recent polio vaccination, and 63.5% were satisfied from security measure, 68% polio vaccination affected from terrorism. At Bivariate level militants threatened the people was found significant $p = (0.028)$ with impediment to polio vaccination. On the basis of study findings, although a proper and eminently efficient system of polio vaccination existed in the study area, however coordination between various state and non-state agents was comprehensively lacking. A well patronized campaign over media through proper display of victims from polio with explicit display of agonies from the victims is essential. An informative system through spy agencies with the coordination of health department and local police department can prove to be a success in curbing the militant tendency amongst the anti-state elements against polio vaccination. The vaccination workers had the very right to be encouraged in cash payment and other prizes like certification etc.

INTRODUCTION

Polio is a viral disease also called infantile paralysis. It is a subgroup of picornaviridae family with three major serotypes as PV1, PV2 and PV3 respectively. Immunity against all these three types is essential for prevention against it to human being (Atkinson et al. 2009; and Heymann, 2008).

Pakistan has also witnessed a gap in provision of these services due to natural calamities and disaster with insecurity and challenges to this writ of the state and poor infrastructure. Internal displacement of large scale of population such as in case of swat and Waziristan could not ensure the access to such facilities /services as unabated due to logistic hazards. All the factors have crippled the ability and efficiencies SIAs and EPI to



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properly render their services in adequate delivery system in Pakistan. (Sheikh et al.,2011, Van Herp et al.,2003, WHO, 2011, Helleringer et al., 2012, Bonuet et al., 2003 and Schreuder et al., 2001). A number of studies across the globe have indicated the success of immunization campaign which has led to a comprehensive dropout despite low maturity awareness due to illiteracy and lack of parental education as barriers, Pakistan has been facing, and Pakistan spread over a terrain of glaciers, mountains and dispersed population size in the valley of Punjab and Baluchistan. And a huge population size of almost 180 million require huge money and energy to cope with such a challenging situation in teams of providing services with median schooling period for women are 10 and 3 years in urban and rural areas respectively, where in 2/3 of the total population is living in rural areas (Ali., 2000; Bhore et al 1946; Mantey 2001; Dietz et al., 2000; and UNICEF., 2009).

Objectives

To dig out ineffective nature of security as impediment in to the eradication of polio

To measure the association between ineffective nature of security and polio vaccination drive

To suggest policy recommendations on the basis of findings of study

LITERATURE REVIEW

Basu, (2004) concluded that WHO resolution was mostly and his findings owned by countries like India and Pakistan to wash out the existence of polio vaccination by 2000. However, India was included amongst the 10 leading countries responsible for transmission of polio epidemics. WHO is preparing the leading instruction and guideline, to properly monitor the containments of polio eradication from the world.

Hafeez et al., (2009) stressed for appropriate steps like strengthening of polio campaign in order to achieve excel in longer achievements in eradication of polio in Pakistan. His efforts included the evaluation of all the relevant record including documents on province basis while meeting with community worker in LHW and supervisors.

Khan and Qazi (2013) found that polio campaign was stopped in FATA due to security reasons in 2012, leaving almost over 300,000 unvaccinated children in only Waziristan where the militants had banned vaccination in mid-2012.

Abimola (2013) also found that in Pakistan, polio workers had been performing the same role for the past 15 years without any substantial interference. Until recently, national immunization days were considered a routine health-sector activity. Abimola (2013) also found that in Pakistan, polio workers had been performing the same role for the past 15 years without any substantial interference. Until recently, national immunization days were considered a routine health-sector activity. Closser, (2010) who found that Security and service delivery are challenges to polio vaccinators. Sheikh et al (2013) found that there was a shortage of coordination between security personnel and polio teams indicating that the teams who participated in the polio campaigns did not have adequate security personnel which put them at risk for target killings. The major barrier to eradication is security fears which have prevented health workers from reaching to at-risk populations (outbreak in Syria world report 2013). Mehmood et al., (2014) found that polio campaign was stopped in FATA due to security reasons in 2012, leaving almost over 300,000 unvaccinated children in only Waziristan where the militants had banned vaccination in mid-2012.



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RESEARCH METHODOLOGY

Universe of the Study

The study was limited to Tehsil Khwazkhela Swat District of Khyber Pakhtunkhwa Province. Culture is the major driving force in molding behavior of the locals. Prevalence of anti-polio vaccination cases in the area made it a suitable place to study. The study universe was constituted of Union Council Shalpin, Janoo Chamtalai, Khwazakhela, Kotanai, Shin, Fatehpur, and Union council Miandam of Tehsil Khwazakhela district swat respectively

Sampling

As the representativeness of the sample was critical for the study, Lottery Procedure of Simple random sampling, a subtype of probability sampling, was adopted to bring more consistency and reliability in data. The distribution of the respondents to various strata of study universe is given in the Table-1. Through proportional allocation basis proportional allocation precedence was carried out while adopting the formula

$$n_1 = N_1 n / N.$$

N_1 = strata population

n = Sample Size

n_1 = strata sample size

N = population size (Chaudhry and Kamal 1995)

Table 1. Indicating Sample Size Distribution of the Respondents into Various Strata of Study Population

S. No.	Village Name	Total population	Sample Size
	Union Council		
1	Shalpin	50	27
2	Janoo chamtalai	57	32
3	Khwazakhela	70	38
4	Kotanai	40	22
5	Shin	46	25
6	Fatehpur	47	26
7	Miandam	54	30
Total		364	200

Sample Size

Sekaran (2003) simplified the sample size decision process, for multiple variables, by providing a table that greatly simplifies the decision of sample size and ensure good decision model with maximum precision.

For a population size of 364 the table provided a sample size of 200 respondents. The



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sample size was distributed in to the different strata of the universe and the sample size drawn through proportional allocation.

Conceptual Framework

A Conceptual framework of the study comprised one independent and one dependent variables were designed. The variables are show below in table-2

Table 2 Conceptual Framework of the study

Independent Variable	Dependent Variable
Ineffective nature of Security	Impediment to polio vaccination

Data Collection

For collecting primary data a well thought out and comprehensive interview schedule was designed, encompassing all the essential aspects of the study. The conceptual frame work was designed with one dependent variable (Impediments to Polio Vaccination) and independent variable. The Interview Schedule was pre-tested for its relevance to objectives of the study and the inconsistencies and ambiguities corrected before actual data collection.

Analysis of Data

The Data was analyzed through simple frequency distribution.

Bi-variate Analysis

Bi-variate analysis was carried out to study the association between independent variable (Ineffective nature of Security) and dependent variable (Impediments to Polio Vaccination). For this purpose the dependent variable was indexed and cross tabulated with independent variable. The analysis was carried out to determine the level of association between independent and dependent variable respectively.

Chi-square test

Chi-square (χ^2) test was used to test the hypothetical association between independent and dependent variables. Following procedure was adopted to calculate chi-square test statistics as was outlined by Tai (1978)

$$(\chi^2) = \sum_{F_i} \sum_{F_j} \frac{(f_{ij} - F_{ij})^2}{F_{ij}}$$

Where

(χ^2) = Chi-square for two categorical variables

f_{ij} = the observed frequencies in the cross-classified category at ith row and jth column

F_{ij} = the expected frequency for the same category, assuming no association between variables under investigation



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The formula simply directs one to take squared summation of the frequencies for each cell, divided by the expected frequency. The resulting frequency is distributed as chi-square with relevant degree of freedom. The degree of freedom was calculated as follows;

Df	=	(r-1) (c-1)	where
Df	=	Degree of freedom	
r	=	the number of rows	
c	=	the number of columns	

The assumptions for the test were that the subjects for each group were randomly and independently selected, the groups were independent, and each observation qualifies for one and only one category. Furthermore, the sample size was fairly large that no expected frequency is less than 5, for r and c >2, or < 10, if r = c = 2. These assumptions, however, were violated several time in the data therefore, Fisher Exact Test which also known as Exit Chi-square Test was used instead of simple Chi-Square, to overcome the violation of Chi-Square assumptions. The relationship developed by fisher to overcome such violation is given in equation below (Baily, 1982).

$$\text{Fisher Exit Test Probability} = \frac{(a+b)! (c+d)! (a+c)! (b+d)!}{N! a! b! c! d!}$$

Where a, b, c and d were the observed numbers in four cells of contingency table and “N” the total number of observations.

Data Analysis

The collected data was coded and entered in to SPSS software for its analysis. All relevant statistical tools i.e. frequency and percentage distribution was carried out. Moreover, χ^2 test statistics was used to determine the level of relationship between dependent and independent variables respectively.

Security

Explanation of security Aspect with Impediments to polio vaccination

Security means protection to respect, morality, dignity, property and life of people working for the achievements of desired goals through smooth and effective chains of activities.

Relationship between more security risk during polio vaccination in the area compared to other areas and impediments to polio vaccination was found non-significant ($p > 0.05$). It could be attributed to sound security endorsement restored by the Pakistan army after expelling of Taliban from the area. Khan and Qazi (2013) found that polio campaign was stopped in FATA due to security reasons in 2012, leaving almost over 300,000 unvaccinated children in only Waziristan where the militants had banned vaccination in mid-2012.

An addition relationship between threats has being given to polio vaccinators against vaccination and impediments to polio vaccination were also found non-significant ($p > 0.05$). again this is due to the prevalence of smooth and congenial environment for



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polio workers to perform. Abimola (2013) also found that in Pakistan, polio workers had been performing the same role for the past 15 years without any substantial interference. Until recently, national immunization days were considered a routine health-sector activity.

Regarding participation of the polio vaccinators in the most recent polio vaccination campaigns with the impediments to polio vaccination was found non-significant. It could be deduced from the data that workers had little problems in performing their duties. It was perhaps the peaceful environment prevalent in the area. Thacker et al., (2012) indicated that participation of polio vaccinators is one of the important aspects of success for polio eradication.

Furthermore relationship between Kidnappings of polio vaccinators in the area and impediments to polio vaccination was found non-significant ($p>0.05$). It is again to complete security provided by the law enforces agencies, which had brought peace to the area. Abimola (2013) also found that in Pakistan, polio workers had been performing the same role for the past 15 years without any substantial interference. Until recently, national immunization days were considered a routine health-sector activity. Similarly relationship between beatings polio vaccinators in the area and impediments to polio vaccination was found non-significant ($p>0.05$). It indicated towards the non-existence of such cases.

However parents who are terrorized by terrorists in the area with impediments to polio vaccination was found significant ($p<0.05$) It could be attributed to the prevalence of anti-polio sentiment, which had taken a shape of religious obligation due to misinterpretation of polio vaccination as unislamic.

Likewise, relationship between satisfactions of polio vaccinators from Security measure during polio vaccination and impediments to polio vaccination was found non-significant ($p>0.05$). It could be due to some incidence where insecurity could have been demanded, however the overall situation was under control of the security agencies, these findings had similar to Closser, (2010) who found that Security and service delivery are challenges to polio vaccinators.

In response to relation between existence of strong coordination between polio and security teams with impediments to polio vaccination was found non-significant ($p>0.05$). Perhaps the non-existence of security teams was due to there no demand as peace was on prevalence. Sheikh et al (2013) found that there was a shortage of coordination between security personnel and polio teams indicating that the teams who participated in the polio campaigns did not have adequate security personnel which put them at risk for target killings.

Similarly relationship between insecurity is big hurdle in smooth vaccination and impediments to polio vaccination was found non-significant ($p>0.05$). The major barrier to eradication is security fears which have prevented health workers from reaching to at-risk populations (outbreak in Syria world report 2013).

In addition to local's security agencies, liaison is essential in proper vaccination with the impediments to polio vaccination was found non-significant ($p>0.05$).it could be due to low demand for security to the polio workers. Abimola (2013) also found that in Pakistan, polio workers had been performing the same role for the past 15 years without any substantial interference. Until recently, national immunization days were considered a routine health-sector activity.



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Table 03 Showing Security aspect with Impediments to polio vaccination

Attributes	Answer	Impediments to polio vaccination			STASTICS
		Yes	No	Total	
There is more security risk during polio vaccination in your area compared to other areas.	Yes	7(3.5)	5(2.5)	12(6)	$\chi^2 = .114(0.944)$
	No	116(58)	69(34.5)	185(92.5)	
	Uncertain	2(1)	1(0.5)	3(1.5)	
Threats have being given to you against polio vaccination.	Yes	9(4.5)	1(0.5)	10(5)	$\chi^2 = 4.995(0.082)$
	No	116(58)	73(36.5)	189(94.5)	
	Uncertain	0	1(0.5)	1(0.5)	
You participated in the most recent polio vaccination campaigns.	Yes	100(50)	66(33)	166(83)	$\chi^2 = 2.126(0.102)$
	No	25(12.5)	9(4.5)	34(17)	
Kidnappings of polio vaccinators takes place in your area.	Yes	3(1.5)	3(1.5)	6(3)	$\chi^2 = 1.600(0.449)$
	No	120(60)	72(36)	192(96)	
	Uncertain	2(1)	0	2(1)	
Any case of beatings polio vaccinator happened in your area.	Yes	27(13.5)	11(5.5)	38(19)	$\chi^2 = 2.298(0.317)$
	No	90(45)	56(28)	146(73)	
	Uncertain	8(4)	8(4)	16(8)	
Parents terrorized by terrorists in the area.	Yes	33(16.5)	4(2)		$\chi^2 = 16.866(0.000)$
	No	50(25)	29(14.5)	79(39.5)	
	Uncertain	42(21)	42(21)	84(42)	
You satisfied from Security measure during polio vaccination.	Yes	78(39)	49(24.5)	127(63.5)	$\chi^2 = .181(0.913)$
	No	45(22.5)	25(12.5)	70(35)	
	Uncertain	2(1)	1(0.5)	3(1.5)	
A strong coordination exist between polio and security teams.	Yes	85(42.5)	51(25.5)	136(68)	$\chi^2 = 1.142(0.565)$
	No	39(19.5)	22(11)	61(30.5)	
	Uncertain	1(0.5)	2(1)	3(1.5)	
Insecurity is a big hurdle in smooth vaccination.	Yes	68(34)	45(22.5)	113(56.5)	$\chi^2 = 1.029(0.598)$
	No	55(27.5)	28(14)	83(41.5)	
	Uncertain	2(1)	2(1)	4(2)	
Local's security agencies liaison is essential in proper vaccination.	Yes	119(59.5)	66(33)	185(92.5)	$\chi^2 = 3.692(0.158)$
	No	4(2)	5(2.5)	9(4.5)	
	Uncertain	2(1)	4(2)	6(3)	

Conclusion

The study titled “an assessment of ineffective nature of security as an impediment to polio vaccination” with sole objectives to make possible the smooth polio vaccination campaign. The study showed that all the workers involved in this campaign had both gender representations. Where in married having association with joint family system were in leading preposition It was disclosed that workers properly participated in the



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awareness campaign as they were equipped with proper polio vaccination training with proper check and follow-up from the health department. It was also disclosed that terrorists and other anti-state elements brutally terrorized those parents who opted for owing to this vaccination for their children which resultantly restrained the children to avail this opportunity. The prevalent superstition, propagation of considering polio vaccine as American ploy, and the eminent threats from militants had led to the collapse of this important vaccination campaign in the study area.

Recommendations

Although a proper and eminent efficient system of polio vaccination existed in the study area, however coordination between various state and non-state agents was comprehensively lacking. A well patronized campaign over media through proper display of victims from polio with explicit display of agonies from the victims is essential.

A thorough informative system through spy agencies with the coordination of health department and local police department can prove to be a success in curbing the militant tendency amongst the anti-state elements against polio vaccination.

The vaccination workers had the very right to be encouraged in cash payment and other prizes like certification etc. Moreover a special package to these personals can further make them eminent amongst other working classes with a vivid edge in glory and satisfaction.

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