

# Comparison of Sources of Communication for childhood immunization: Evidence from PDHS 2017 – 18

MUHAMMAD BEDAR BAKHT<sup>1</sup>, RUBEENA ZAKAR<sup>2</sup>

<sup>1</sup>Institute of Public Health, University of Punjab, Lahore

<sup>2</sup>Dean, College of Public Health, Institute of Social and Cultural Sciences, University of Punjab, Lahore,

Correspondence to Dr. Muhammad Bedar Bakht, Email: [muhammadbedarbakht@gmail.com](mailto:muhammadbedarbakht@gmail.com), Cell: +923229465566

## ABSTRACT

**Aim:** To compare the sources of media versus Lady Health Worker in communication for EPI in Pakistan

**Methods:** The study carried out by secondary analysis of “Pakistan demographic and Health Survey 2017-18”. It includes women who have a baby of age between twelve to twenty four months at the time of survey. The exposure is access to media / visit of LHW and outcome is immunization status of baby. T-test and chi square tests were conducted for continuous and categorical variables. To calculate association of communication variables and childhood vaccination, binary logistic regression and multiple logistic regression analysis was used.

**Results:** Respondents who are not seen by LHW have 28% increased probability of inadequately vaccinated babies in comparison with households visited by LHW in previous one year, even when adjusted for socio-demographic variables. The association between “access to any source of information” and inadequate immunization status of the babies remains insignificant.

**Conclusion:** It is concluded from our study that the women not met by Lady Health Worker have increased probability of incompletely vaccinated kids in comparison to women who are seen by Lady Health Worker during the previous year.

**Keywords:** Immunization, communication,

## INTRODUCTION

Besides the revolutionary development in medicines and antibiotics, the major chunk of the childhood mortality is caused by vaccine preventable diseases (VPDs)<sup>1,2</sup>. Childhood immunization has great influence to reduce the deaths from VPDs<sup>3</sup>.

Different strategies of communication have been employed to counter the false beliefs of masses regarding vaccines and vaccination. The importance of electronic and social media cannot be ignored in this regard. The role of Lady Health worker (LHW) / fieldworker is one of the major factors doing excellent job of communication in health related activities<sup>4,5</sup>.

The mother and child health related health service is the major task among responsibilities; the childhood immunization support cannot be disregarded<sup>6,7</sup>. The main purpose of this research is to investigate the role of radio, television, internet and LHW in childhood immunization.

The objective of the study was to compare the sources of media versus Lady Health Worker in communication for EPI in Pakistan

## METHODS

The secondary analysis of the “Pakistan Demographic and Health Survey (PDHS) 2017-18” data is done. The details are described elsewhere.<sup>8</sup>The variables are limited to mothers with their last baby between twelve to twenty four months of age. It makes more or less approximately 2882 of our sample of interest. A kid should obtain 13 doses by the age of fifteen months. The dependent variable is computed as “immunization status” by estimating “thirteen doses” of “ten vaccines”, i.e. which showed “Received: BCG<sup>1</sup>, oral polio drops (0,1,2,3), Penta [DPT, Hib, Hepatitis B](1,2,3), Pneumo (1,2,3), IPV (1 dose) and measles (1 dose)”. All of these inoculation variables have five categories of replies in data. The answers of “No” and “Do not know” numbered “0” and intended as “not taken the inoculation”, and the other answers “vaccination date on card, informed by mom, inoculation marked on card” classified as “1” taken as “completed the scheduled inoculation”. These vaccine related entities are combined and label as “vaccination status”. It is coded as “1” if baby had got all doses and understood as “complete immunization”. The kid missed

even one dose, recoded as “0” and intended as “incomplete immunization”. The data is then organized by age, and the data of kids included with age between twelve and twenty four months.

Independent variables are chosen from previous research studies, with their availability in the data set. Previous studies have taken “information” from the radio, TV and computer. In PDHS 2017–18 following information is present, i.e. “radio, newspaper, TV, cell phone and internet”.<sup>9</sup> Out of these, three entities are made; i.e. one variable for radio and newspaper ; one for TV, and one for cell phone and internet as explained below.

For Radio/ Newspaper”: the data has 3 responses as No, Yes, and Not a dejure resident (a very small sample, is included on either side and the data is analyzed, does not make any difference). So ‘not a dejure resident’ is regarded as “system missing”. The next variable for radio is “Frequency of listening to radio”: Four answers are there. These are divided into two, “not at all” as 0, and the other three as i.e. “not even once a week, minimum once a week, and almost daily” are coded as 1. For Newspaper variable is “Frequency of reading newspaper or magazine” is coded in same way as done for frequency variable for radio.

The above three variables are added; with values “0” as “no access”, and “1, 2, and 3” as “have access” to any one type of media, either Newspaper, Radio or both. Then variable is recoded again, with 0 as no access and 1 as access to any one or more than one means of communication. “Television”: The data has variable same as “radio”. The variable is coded in the same way as done for radio.

The variables for access to internet are “Access to Mobile / Internet” and “Owns a mobile phone”. The variable has two answers as “no” with value “0”, and “yes” with value “1”. These are used unchanged. The other variable for internet is “Use of Internet”. There are four response categories; “never”, “yes in last 12 months”, “Yes before last 12 months”, “yes but cannot establish when”. It’s divided into two categories; “never” as “0”, and remaining intended, “yes” as “1”. One more variable for internet is “Frequency of using internet last month”. It’s coded in the same way as did for frequency variable for other sources.

The three variables for mobile and internet are combined and coded again, with 0 as no approach and 1 as have in reach any one or both means of communication. In the end all three variables of radio, television and internet are combined. If anyone has access to any single source is coded as 1, and with no access to any source of information is coded as 2 and rename as info”.

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**Ethics:** The current study has used the secondary data set of de-identified individuals, which is available free for public use. The written request has been taken from the concerned.

**Statistical Analysis:** The data is weighted and analysed by using Statistical software of SPSS version 21. The statistics for “adequate vaccination status” & “inadequate vaccination status,” are computed, and described as numbers and proportions. The “T test” and “chi square test” are used for respective variables. The “binary logistic regression” is done to determine the association of different communication strategies including LHW visit with the childhood immunization. Collinearity is investigated at 0.01 levels. The variables with collinearity among them are not included in our final analysis.

**RESULTS**

Table 1 shows the descriptive Statistics of Communication related features of ladies who participated in PDHS of 2017-18 (N=2882). The survey participants, who receive information by any of the above mentioned sources, have not statistically substantial differences in descriptive statistics between two groups i.e.

adequate and inadequately vaccinated children. Women seen by LHW have statistically significant results as compared to ladies not met by LHW.

Table 2 shows the “Multiple Multinomial Logistic Regression” for the relationship of “No LHW visit” and Inadequate kids immunization status while adjusting for elements of ladies participated in PDHS 2017-18 (N=2882). The meeting of LHW is powerful source of information regarding childhood vaccination. The respondents unvisited by fieldworker during the previous one year have 28% augmented prospects of having incompletely immunized children as compared with those “Visited by Field worker in last 12 months”. The odds ratio remains statistically significant when adjusted for different variables.

Table 3 displays the “Multiple Multinomial Logistic Regression” analysis for the association between “Access to any form of information” and Inadequate childhood immunization status while adjusting for Socio- Demographics for ladies who participated in PDHS of 2017-18 (N=2882). In households where respondent has no access to any source of information, chances of inadequate vaccination are not increased. The odds ratio remains statistically insignificant when adjusted for variables.

Table 1: Descriptive Statistics of Communication related elements of ladies who participated in PDHS of 2017-18 (n=2882)

Variables	Complete immunization n (weighted%) 909 (33.1%)	Incomplete immunization n (weighted%) 1973 (66.9%)	P-value
Access to Radio/ News paper			0.50
No	601 (74.3)	1341 (75.8)	
Yes	277 (25.7)	567 (24.2)	
Access to Television			0.13
No	303 (30.9)	709 (34.7)	
Yes	576 (69.1)	1199 (65.3)	
Access to Mobile / internet			0.20
No	559 (60.4)	1234 (63.8)	
Yes	350 (39.6)	739 (36.2)	
Access to any source of information			0.09
No	184 (20.2)	454 (24.0)	
Yes	694 (79.8)	1454 (76.0)	
Visit of LHW in last one year			0.03
No	477 (42.2)	1172 (48.3)	
Yes	432 (57.8)	801 (51.7)	

Table 2: “Multiple Multinomial Logistic Regression” to estimate the association of “No LHW Visit” with “Inadequate childhood Vaccination” of ladies participated in PDHS of 2017-18, adjusting for “Socio demographic variables”

Variables	Model 1	Model 2	Model 3	Model 4
No LHW visit in 12 months	1.28 (1.04–1.59)*	1.28 (1.04–1.59)*	1.30 (1.05–1.61)*	1.27 (1.01–1.59)*
Mother’s age		1.01 (0.87–1.18)		
Mother’s education		1.01 (0.92–1.11)		
Father’s age			1.03 (0.88–1.22)	
Father’s education			1.28 (1.16–1.42) **	
Father’s occupation			1.01 (0.92–1.11)	
Wealth index				1.19 (1.03–1.37)*
Place of residence				1.01 (0.80–1.26)
Region				1.03 (0.96–1.11)

Model one: “No LHW visit and incomplete childhood immunization”

Model two: “No LHW visit and incomplete childhood immunization” adjusting for “Mother’s age and education”

Model three: “No LHW visit and incomplete childhood immunization” adjusting for “age, education, occupation of father”

Model four: “No LHW visit and incomplete childhood immunization” adjusting for “Wealth index, Place of residence, and region”

Table 3: “Multiple Multinomial Logistic Regression” to evaluate the relationship of “Access to any form of information” with “Inadequate childhood Vaccination” of ladies participated in PDHS of 2017-18, adjusting for Socio demographics

Variables	Model 1	Model 2	Model 3	Model 4
Access to any source of information	1.25 (0.96, 1.63)	1.26 (0.95, 1.66)	1.28(0.98, 1.67)	1.12(0.83, 1.49)
Mother’s age		0.99 (0.85, 1.16)		
Mother’s education		1.01 (0.91, 1.11)		
Father’s age			0.99(0.84, 1.18)	
Father’s education			0.78(0.71, 0.86)	
Father’s occupation			1.02(0.93, 1.12)	
Wealth index				0.86 (0.74, 0.99)*
Place of residence				0.84(0.65, 1.09)
Region				1.06 (0.99, 1.13)

Model 1: “Access to any source of information and incomplete childhood immunization”

Model 2: “Access to any source of information and incomplete childhood immunization” adjusting for “Mother’s age and education”

Model 3: “Access to any source of information and incomplete childhood immunization” adjusting for “age, education, and occupation of father”

Model 4: “Access to any source of information and incomplete childhood immunization” adjusting for “Wealth index, Place of residence, and region”

## DISCUSSION

The study has used the secondary data set to compare communication for essential immunization between electronic media and LHWs. The data represents the largest conducted National level survey including population from all over the country, so the results can be generalized. Few other research studies have reported similar findings. In addition to their duty working as social mobilizers for childhood immunization, LHWs are also doing mother and child health related activities in their communities. It makes them more socially acceptable for the local population as these are one of them and local community knows them. They are known as “health workers” helping women and children giving them appropriate guidance.<sup>10,11,12</sup> So when they advise to vaccinate the children, women in the community follow their word, as they are giving them other health related beneficial knowledge. There exists a proper mechanism. Many research studies have reported such results.<sup>5,6,13,14</sup>

The study design is cross sectional and lacks temporality. It seems unlikely that outcome has occurred before the exposure in this case. Many other studies support the similar findings not only in Pakistan but also in other countries. The current research study supports consciousness through effective and objective oriented statements. Furthermore, for the electronic media, technical people with expertise in specific field should formulate the advertisements for TV or internet, to disseminate information in a suitable and persuasive way<sup>13,15</sup>.

## CONCLUSION

The conclusion of the study is to involve all the concerned people in an individual or collective manner in this regard. It includes parents, people belonging to media, health care provider as well as masses, law related departments, and of course, where available, the “Lady Health workers”. The strengthening of “Lady Health worker”, individually as well as collectively, in terms of augmenting their financial and legal status, can improve the kids immunization coverage. Administration of social care with legal and financial enforcements to these representatives of health care can lead to miracles.

**Conflict of the study:** Nil

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