Knowledge Attitude and Practice Towards Primary Immunization in Pakistani Parents; A Hospital Based Study

Saad Ateeq, Faisal Basheer, Muhammad Sulman Javaid

Pak Emirates Military Hospital Rawalpindi/National University of Medical Sciences (NUMS) Rawalpindi, Pakistan

ABSTRACT

Objective: To assess the impact of parental knowledge and attitude on their children immunization practices.
Study Design: Prospective longitudinal study.
Place and Duration of Study: Pak Emirates Military Hospital Rawalpindi, from Dec 2017 to Jun 2018.
Methodology: A sample of 318 parents was enrolled in the study to gauge the impact of parental knowledge and attitude on their children immunization practices. To know knowledge and attitude of the parents, a 10-prompt and a 6-prompt questionnaire was used respectively followed by the immunization status of their children.
Results: A total of 318 respondents were included in the study. Of them, 231(72%) were accompanied by both parents, 78 (24.5%) by mothers and only 9 (3%) by fathers. Out of the 10 diseases of Expanded Program of Immunization (EPI), only 20.8% (66) knew about ≥5 diseases. About inclusion of newer diseases to vaccination schedule 184 (57.9%) had the knowledge. Alarmingly, only 63 (19.8%) knew the correct ages at which various vaccines needed to be given. Despite this, 89.3 % (284) parents stated immunization to be necessary. Regarding the knowledge score, only 35.5 % (113) scored >7 on a 10 prompt questionnaire. Regarding attitude survey, 35.5 % (113) scored ≥5 on a 6 prompt questionnaire. A significant impact was recorded between means of father educational years when compared with positive attitude for vaccination (p=<0.001), while in the same way mother educational years had an insignificant impact on attitude (p=0.710).
Conclusions: Knowledge and attitude of parents, especially father's, is the key factor in predicting practices of immunization in Pakistan.

Keywords: Development, Immunization, Knowledge, Practice, Questionnaire, Reliability, Validity.

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INTRODUCTON

Vaccines have been the time-tested prevention device for infectious diseases since their development that not only reduce illness load in regards to sufferings and expenses but also improve the quality of life.[1] This has prompted to the development of vaccines for many diseases, both childhood as well as grownups.[1] Immunization rate is considered the best public health outcome and service indicator of the last 100 years as the impact goes a long way.[2] Childhood immunization almost ensures protection from many major illnesses. According to statistics, it averts 2 million deaths per year worldwide and therefore is accepted as extremely good and workable aspect of scientific interventions.[1,2]

Childhood immunization plays a crucial role in limiting infectious diseases and fundamentally diminishing childhood mortality. But in the developing third-world countries like Pakistan, there are many obstacles to the success of these immunization programs.[3] The expanded program on immunization (EPI) started in 1978 for six preventable diseases.[3] Later on with the help of agencies new vaccines i.e. Hepatitis B, Hemophilus Influenza type B (Hib), Pneumococal vaccine (PCV 10) and Inactivated Polio (IPV) were added in 2002, 2009, 2012 and 2015 respectively. There has been noteworthy improvement in vaccine coverage and control of diseases yet at the same time the children mortality from these infections is high in Pakistan, much higher than the other third-world countries.[4]

According to published literature,[3,4] lack of education and false concepts in convictions of guardians are viewed as the prime contributing variables for vaccination failure in Pakistani children. Parents, particularly mothers, are the primary stake holder of their child's well-being, therefore, their knowledge and attitude has direct impact on the healthcare measures of the children.[5,6] However, Pakistan being a patriarchal society has paternal influence masking the maternal domain of child's healthcare.[7,8] With this foundation, we set out to divulge in knowledge and attitude of Pakistani parents affecting their practice and also the inoculation status of their children, knowledge about the newer vaccines

Correspondence: Dr Saad Ateeq, Department of Pediatric, Pak Emirates Military Hospital, Rawalpindi-Pakistan
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in an urban population. This study will not only be helpful for pediatrician but also for preventive medicine specialist to know about the hidden facts regarding this neglected practice and furthermore the results will make the specialist to address this community oriented pediatric topic in a much better way.

METHODOLOGY

This prospective longitudinal study was carried out on parents presenting in immunization out-patient clinic of Military hospital covering urban population of Rawalpindi (Punjab, Pakistan) and suburban peripheries of Rawalpindi from a period of January 2018 to July 2018 a sample of 318 respondents were included in the study. Sample size was calculated by WHO Sample Size Calculator with population prevalence proportion of 95%.[9] Non-probability census based sampling technique was used where parents willing to participate were included in the study.

Inclusion Criteria: Parents of the children age less than 10 years were included in the study.

Exclusion Criteria: None.

Presence of single or both parents was accounted along with number of children, income of father, education of both parents, knowledge about the diseases included in EPI and newer vaccines, ages at which these vaccines are to be given, and the source(s) of knowledge along with opinion about immunization was recorded. To know knowledge and attitude of the parents, a 10-prompt and a 6-prompt questionnaire was used respectively followed by the immunization status of their children. Incidence of all variables was documented. Score comparison was performed between educated and uneducated parents. Correlation of father's scholastic status with their attitude score and knowledge of newer vaccine was determined as well as the relationship of family income and vaccination status of children

Summary characteristics were presented as mean ± standard deviation for continuous variables and number with percentage for categorical level. Pearson's chi-square was used to determine the relationship between the concerned variables. Data analysis was performed using IBM SPSS version 24.

RESULTS

The study involved a total of 318 respondents. Out of which, 231 (72.6%) were accompanied by both parents, 78 (24.5%) by mothers and only 9 (2.8%) by fathers. The total number of children ranged from 1-9 with an average of 2.16 ± 1.16. The educational status of parents was taken in years which later was stratified in to groups for easy understanding as shown in Table-I.

Table-I: Level of Education of Parents.

Level of Education	Mother	Father
	n (%)	n (%)
Illiterate	27 (8.5)	9 (2.8)
Primary	76 (23.9)	6 (19.2)
Middle	27 (8.5)	12 (3.8)
Higher	36 (11.3)	64 (20.4)
Graduate	144 (45.3)	163 (51.3)
Professional	8 (2.5)	8 (2.5)

Out of EPI diseases, 252 (79.2 %) of parents were acquainted with fewer than 4 diseases and only 66 (20.8%) knew about 5 or more diseases. 184 (57.9%) however had knowledge about inclusion of newer diseases to immunization schedule and 134(42.1%) were ignorant to any such inclusion.

Alarmingly out of 318, only 63 (19.8%) knew the accurate ages at which different vaccines needed to be given while 255 (80.2%) were oblivious in this domain. Despite this 284 (89.3%) parents stated immunization to be Must,[24] (7.5%) reported about it stating it to done only if easily accessible and only 10 (3.1%) reckoned immunization unnecessary.

As regards the knowledge score, 144 (45.3%) scored 5 or less, 61 (19.2%) scored 6- 7 and only 113 (35.5%) scored between 8-10 on a 10 prompt questionnaire. Regarding attitude survey, 65 (20.4%) scored between 1-2, 140 (44%) scored between 3-4, and 113 (35.5%) scored between 5-6 on a 6 prompt questionnaire (Table-II).

Table-II: Knowledge Source of Parents.

Source of Knowledge	n (%)
Doctor	116 (36.5)
Hospital	118 (37)
Media	80 (25.2)
Random	04 (1.3)

Chi-square was used to check the relationship between father educational years with attitude towards vaccination. Result (p<0.001) showed that father's educational status in terms of years will have impact on the attitude towards vaccination.

In the same way mother educational year was tested for its impact on the attitude towards vaccination of the child. Results (p=0.710) showed that mother educational years will not impact child vaccination status (Table-III).

Table-III: Relationship between vaccination status and sociodmographic variables.

Factors	Positive attitude	No Positive Attitude	*p*-value
Age			
<35 years	133 (41.8%)	17 (50%)	0.727
>35 years	151 (58.2%)	17 (50%)	
Education of Father			
Less than higher	59 (20.8%)	24 (70.6%)	<0.001
Higher or more	225 (79.2%)	10 (29.4%)	
Education of mother			
Less than higher	118 (41.5%)	13 (38.2%)	0.710
Higher or more	166 (58.5%)	21 (61.8%)	

DISCUSSION

Analysis of the demographic characteristics of the parents participating in the present study demonstrated that >70% kids were escorted by both parents. This observation was different than contemporary study in Taif, Saudi Arabia, where mothers constituted the study population.[5] Like-wise in a Malaysian study, 90% respondents were mothers.[2]

Our study showed that average number of children of the respondents were 2 ranging between 1 to 9. Same results were shown in Faisalabad study.[4]

Scholasticstatus in our study was quite encouraging with only 32.4% mothers and 22.1% fathers having only primary level education with 67.6% mothers and 77.9% fathers having above high school education. Another Pakistani study had 63% uneducated respondents, contrary to our study with less than 10% individuals having less than 10 years of education.[4,10]

In the present study, 79.2% parents were not acquainted with the diseases incorporated in the EPI comparable to another study conducted in the region in which only 10.6% knew the names of the diseases. In our study, 57.9% knew about the inclusion of newer vaccines to the program in contrast to another local study where only 21% were cognizant of newer vaccines. In present study, only 19.8% knew the precise ages at which vaccines needed to be given analogous to a local study which showed that <5% parents were familiar with the exact ages of immunization.[3,11,12]

In spite of this 89.3% (284) parents in our study indicated immunization to be "Must", 24 (7.5%) were casual about it stating it to be done only if easily manageable and only 10 (3.1%) reckoned immunization unnecessary. This was a profoundly positive observation. According to Qutaiba *et al*,[6] approximately 94% of parents preferred vaccination for their children and 96% of parents suggested immunization to other parents in an Iraqi study comparable to our data outcomes. Similar were the outcomes from an Indian study by Sunny and coworkers.[7,13]

Like-wise in present study, 73.6% people admitted that their source of vaccination knowledge was doctors and hospitals similar to other studies which state physicians to be the key source. In a study by Qutaiba *et al*,[6] the majority received information about immunization from physicians and other medical staff.

In the present study, regarding the knowledge score, 144 (45.3%) scored 5 or less, 61 (19.2%) scored 6 to 7 and only 113 (35.5%) scored between 8 to 10 on a 10 prompt questionnaire and regarding attitude survey, 65 (20.4%) scored between 1 to 2, 140 (44%) scored between 3-4, and 113 (35.5%) scored between 5-6 on a 6 prompt questionnaire. The results were similar from an Indian study stating that knowledge and atti-tude score is poor among parents.[7,14] Also comparable were the outcomes from a local study of Pakistan and a study from Taif, KSA.[3] In the same way a study conducted in Karachi on 209 mothers showed that their knowledge regarding immunization was not enough to make immunization successful.[8] Knowledge of parents is taken as an important parameter in immunization and it is directly related with the success of immunization.

In our study, father's ($p< 0.001$) level of education and not the mother's ($p=0.710$) was related with substantial positive connection and altogether affecting the attitude towards vaccination. Understanding mother's knowledge and attitudes towards immunization is important, although the father's involvement was shown to be associated with the child's vaccination status. This may be due to Pakistan being the patriarchal society and male dominance might be the explanation for these outcomes. This is in contrast to the outcomes of other studies. The study by Awadh *et al*,[2] in Malaysia found major positive correlations between parents' especially mother's, intellectstatus and their practices; this is consistent with other studies piloted in China and in Iraq.[9-11] This shows that parents who have adequate levels of cognizance regarding immunization will have positive practices towards immunization.[12,13] In a study by Sunny and coworkers, academic status of mothers was recognized as an independent factor in the decisiveness of child's vaccination status. Mothers with lower primary and diploma inculcative status were found with excellent vaccination adherence. Poor adherences were noticed with mothers

who are graduate. This result is contrary to the study conducted by Abdul raheeman *et al*,[10] to ascertain the causes for incomplete immunization and reasons for over-looked opportunities among rural Nigerian children, which found that there is an association between mothers' inoculation status and missed opportunities of vaccination.

Paternal level of education has an inconsistent positive corelation with infant vaccination access to health services and other infrastructure, and is related with better vaccination coverage of infants as per the research done by Mathew.[14] However, in another study there were contrasting results showing that the vaccination status and attitude towards immunization was not dependent on level of education of parents especially mothers. Like in Mabrouka *et al*, study on knowledge, attitude and practices of mothers regarding immunization of infants and preschool children at Al-Beida City, Libya.[15] Meanwhile two other studies which primarily focused on mothers level of education showed that even though if mothers were illiterate, but with proper awareness programs and schemes can have better outcome of immunization status of their children.[16,17] The employement status of Mothers also negatively impacted the immunization status of children as pointed out by Singh *et al*,[18] i.e., the unemployed mothers had their kids better vaccinated as compared to the employed mothers.

CONCLUSION

There is a need to improve mind fullness about the advantages and significance of vaccination, and additionally the negativeeffects of inappropriate immunization. An organized inculcative program (especially for fathers) is required; the academic dimension of the parents should be contemplated when the program is actualized, particularly concerning those with a lower level of education.

Conflict of Interest: None.

Authors' Contribution

SA: Article writing, FB: Data analyis, MSJ: Data analysis.

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