PARENTAL EDUCATION STATUS OF THE CHILDREN AFFECTED BY MEASLES

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ABSTRACT

Objective: To elucidate the education status of the parents of children affected by measles and to find out the association between parental education level and measles vaccination status.

Methods: It was a cross-sectional study carried out in the Department of Paediatrics of Khyber Teaching Hospital Peshawar from November 2012 to October 2013. A proforma was used to collect the data. The data collected was displayed as graphs and tables in percentages and frequencies. Education status of the parents was recorded as educated if they cleared the primary level. Chi-square test was used to demonstrate significance of variables ($p = < 0.05$).

Results: A total number of 324 cases of age 9 months-10 years were included in this study. Among those, males were 184 (57%) whereas 140 (43%) were females. A total of 42 (13%) were vaccinated against measles whereas 282 (87%) were unvaccinated. The vaccination status was poor in children of uneducated fathers (i.e. 93% were unvaccinated) as compared to educated fathers (83.4%) which was astatistically significant result ($p = 0.009$).

Conclusion: This study signifies the education status of the parents of children affected by measles as a cause of failure to vaccinate. Literacy rate of both parents was very low which could be one of the reasons for the failure of immunization, although this study only proved an association between paternal education status with the vaccination status of the child.

Keywords: Measles, vaccination, education status, Children.

INTRODUCTION

Measles is highly contagious and one of the major cause of childhood mortality although an effective vaccine is available[1-3]. There were 110 000 measles deaths globally in 2017, mostly among children under the age of five[4].

The complete vaccination course against diseases such as polio, tuberculosis, measles, diphtheria, and neonatal tetanus is an efficient approach todecrease childhood morbidity and mortality [5, 6].

In 1963, when the measles vaccine was not introduced yet, about 30 million cases of measles were reported with an annual mortality rate of more than 2.6 million[7]. Measles vaccination from 2000 to 2017 resulted in an 80% drop in measles deaths globally and prevented an estimated 21.1 million deaths[4]. According to WHO Measles immunization coverage (MCV) among one-year-old children in Pakistan was 59% in 2002 which has improved to 80% in 2009[8]

Most deaths in measles are due to its complications[9, 10]. The mortality and morbidity due to measles is higher in two extremes i.e. in infants or adults above 30 years of ageand result in many serious complications[7].

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Several studies report a positive relation between parent education status, particularly the education status of the mother, and child health [11]. It is thought that low health literacy affectsthe awareness of health-related problems and subsequent interactions with the health-care system[12]. Various studies report maternal educationand socioeconomic conditions among major variables in attaining improvedimmunization uptake in developing countries[13–17].

Most of the research in the past emphasize the role of education status of the mother only, ignoring the involvement of paternal variables. There are only a few small studies which focus on the role of paternal education in health care of a child including vaccination uptake[18-19].

To the best of our knowledge, there are limited national studies available which address the level of parental education in patients presenting with measles. The data from this study will help in highlighting the level of parental education as one of the causes associated with the level of measles vaccination. This study aims to determine the level of parental education in children presenting with measles.

METHODOLOGY

This was a cross-sectional study carried out in the Paediatric Department of Khyber Teaching Hospital from November 2012 to October 2013.Patients fulfilling WHO case definition of measles i.e. “Any person in whom a clinician suspects measles infection, or any person with

fever and maculopapular rash (i.e. non-vesicular) and cough, coryza (i.e. runny nose) or conjunctivitis (i.e. red eyes)" of age ranging from 9 months to 10 years were included in the study. Patients having rash without cough, coryza, conjunctivitis, fever, and patients who were not accompanied by parents were excluded from the study. The study was carried out after approval fromthe Ethical Review Committee of Khyber Medical College.

A total number of 324 patient were enrolled via a convenient sampling technique from the two pediatric units of Khyber Teaching Hospital. Patients admitted in these as well as patients from OPD and EPS (Emergency Pediatric Services) who fulfilled WHO clinical case definition of measles were examined and the parents were interviewed regarding the history of the patient. Data was collected on a pre-designed proforma. Parents of the patients were interviewed for history and then patients were examined. Education status of the parents of the patients was also recorded. A parent who had cleared at least primary level of school was recorded as educated.

Immunization status was documented by asking the parents for a vaccination card or history of previous vaccination sites, number of doses and timing if the card was not available. A child who received 1 dose of measles vaccine by the age of 9 months and 2 doses of measles vaccine by the age of 15 months was recorded as vaccinated whereas a child who received no dose of measles vaccine at all or one dose of measles vaccine by the age of 15 months was considered unvaccinated.

Data was entered and analyzed in SPSS v.23. Graphs and frequency tables were displayed for qualitative data. Variables such as immunization status of the children was stratified against the education status of the mother and father via chi-square test to find out the significance ($p < 0.05$) of the results.

RESULTS

A total number of 324 cases (n=324) of age 9 month and above were enrolled in this study.The mean age was 31 months with SD ± 26.

Table 1 shows the age distribution of patients affected by measles. The first group had patients aged 9 months- 12 months, second had 13-36 months, third had 37-60 months whereas the fourth group had patients aged above 60 months of age. Majority of the children affected by measles were aged 13 months- 36 months (40.7%).

Figure 1 shows the frequency of gender distribution among the children affected by measles. In this study, the total number of males was 184 (57%) whereas 140 (43%) females were affected by measles. The majority of children affected by measles were males.

Figure 2 shows the vaccination status of the

Table. 1: Age Distribution

No.	Age Group	n (%)
1	9 months- 12 months	108 (33.3%)
2	13 months- 36 months	132 (40.7%)
3	37 months- 60 months	52 (16%)
4	>60 months	32 (9.9%)

Table 2: Association of Vaccination Status of the Children to Parental Education Status

	Educated	Uneducated	p- value*
Maternal Education status			0.5
Vaccinated	12 (11.4%)	30 (13.7%)	
Unvaccinated	93 (88.6%)	189 (86.3%)	
Paternal Education status			0.009
Vaccinated	35 (16.5%)	7 (6.2%)	
Unvaccinated	177 (83.4%)	105 (93%)	

*p-value calculated using chi-square test.

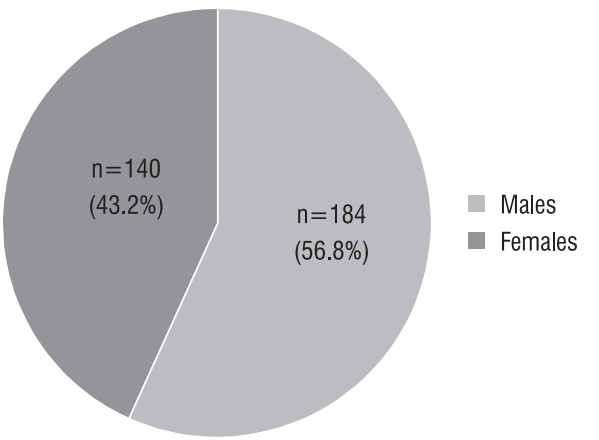

Figure 1. Gender Distribution

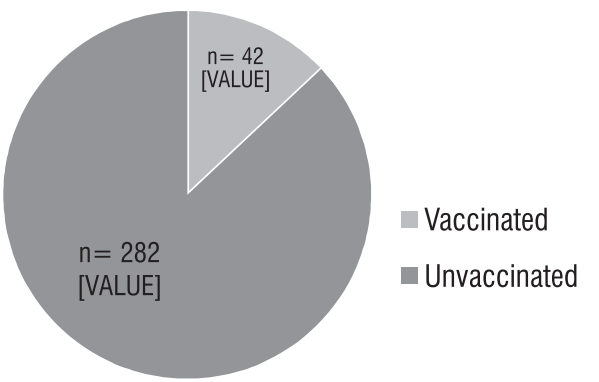

Figure 2. Measles Vaccine

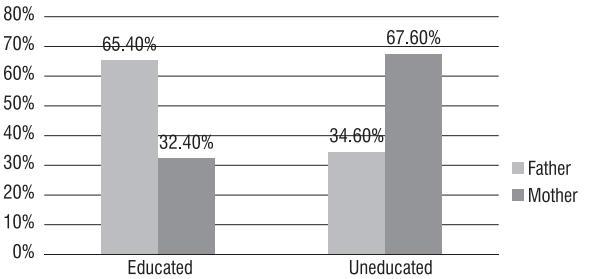

Figure 3. Education Status of the Parents

children affected by measles. Majority of the children were unvaccinated (87%) i.e. either they did not receive measles vaccine at all or did not receive the second dose of measles vaccine by the age of 15 months.

Regarding education status of the parents, our study depicts a higher number of uneducated mothers (67%) whereas fathers of the children affected by measles were more educated (65%) as compared to mothers as shown in Figure 3.

Table 2 shows the association of parental education status to the vaccination status of the children. The number of unvaccinated children was high among educated mothers (88.6%) as compared to uneducated mothers (86.3%) but the results were not significant. On the contrary, education status of the father was associated with vaccination status of the child. Among uneducated father, the percentage of unvaccinated children was significantly higher (93%) and the result was observed to be statistically significant ($p = <0.05$).

DISCUSSION

Measles is a preventable disease due to the presence of an effective vaccine but the number of children affected by measles in our country is still very high. Various reasons are responsible for the low vaccination rate among the children belonging to our province.

In this study, the mean age of affected patients was 31 months which closely coincides with a study done in another province of Pakistan which reported the mean age of the patients affected by measles in their study to be 29 months[20]. The majority of patients belonged to the age group beyond 13 months of age (66%) which is comparable to other local and international studies[21, 22]. Majority of the patients affected were males (57%) which is also reported by other local studies[20, 23].

Our study depicts a high rate of failure of measles vaccination i.e. 87% which is a lot higher than the vaccination status reported in Rawalpind[20] i.e. 65% of the children were not vaccinated against measles whereas another local study found measles vaccination coverage to be 60%[24].

Regarding the education status of the mother, our study shows that only 32% of the mothers were educated whereas our neighboring province reported 74% of the mothers of children affected by measles received at least 5 years of education[20]. Comparing to polio vaccination, 62% of the mothers who had primary level education[25], completed polio vaccination whereas our study reports that only 11.4% of the mothers with at least primary level of education completed measles vaccination. A study conducted in Istanbul reported a higher rate of failure to fully vaccinate the child (51%) among the mothers who were illiterate[26].

Our study showed that there was a high rate of failure to vaccinate the child against measles even if the mother was educated. On the other hand, the vaccination status of the child was significantly affected by the education status of the father i.e. rate of failure to vaccinate was higher (93%) among uneducated fathers. Another study from Pakistan demonstrated that although mother's education status affected long term health outcomes of a child, father's education was positively associated with the decision regarding vaccination uptake[18]. A meta-analysis from six countries, including Pakistan, reported a positive correlation of the education status of the father with vaccination uptake of the child against measles, even if the mother was illiterate[19].

CONCLUSION

A number of reasons could be responsible for the low vaccination rate among the children of our population. One of the reason appears to be the education status of parents. Rate of failure to complete vaccination was higher among children of uneducated fathers whereas the literacy rate of mothers was also very low, although, education status of the fathers influenced the vaccination status of the children with a statistically significant result.

Recommendations

Mothers are intimately involved in the upbringing of the child as compared to fathers but the role of fathers could not be any less important. Role of the father in achieving completion of overall vaccination of the children should also be investigated. The target of awareness regarding vaccination should not only be females and mothers but also males of the community.

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