

## ORIGINAL ARTICLE

## EFFECTS OF MOTHER'S LITERACY ON CHILD HEALTH ASSESSED BY PERSONAL HYGIENE, NUTRITIONAL AND VACCINATION STATUS

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**Background:** In Pakistan, literacy means 'the ability to read and write'. Mother's education is a stronger determinant of child survivorship. This study was carried out in order to determine the impact of mother's literacy on child health in terms of personal hygiene of child, nutritional status and vaccination status, and to compare the child health status of literate and non-literate mothers. **Methods:** It was a cross-sectional study carried out in Paediatric Unit, Ayub Teaching Hospital, Abbottabad, from Dec 2015 to Aug 2016. Data was collected using non probability sampling and analysed on SPSS-21. Frequencies and percentages were calculated for categorical variables like gender, residence, education, immunization and hygiene status, and Mean±SD were calculated for quantitative variables like age. **Results:** Among total 160 children, mothers of 48 (30%) children were completely uneducated. Nutrition status showed that 89 (55.6%) were of normal height for age while rest of them were having stunting of mild to severe categories. Immunization of 135 (84.4%) of the children was done as per their age. Regarding hygiene, clothing of 129 (80.6%) was clean, nails of 95 (59.4%) children were properly clean and trimmed, while hair hygiene of 119 (74.4%) children and dental hygiene of 109 (68.12%) children was well maintained. Majority of those whose immunization, nutrition, and hygiene status was maintained had educated mothers. **Conclusion:** Maternal literacy has a direct effect on the overall child health with respect to personal hygiene, nutritional and vaccination status.

**Keywords:** literacy, health, hygiene, nutrition, vaccination, immunization, mother, child, status, stunting

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## INTRODUCTION

Definition of literacy varies in different countries. In Pakistan, it is defined as 'the ability to read and write'<sup>1</sup>, which is somewhat different from UNESCO<sup>2</sup>. As mother provides the primary care in early childhood, that's why her education matters a lot<sup>3</sup>. Educated mothers lead to educated nations.<sup>4</sup> Mother's education is a stronger determinant of child survivorship.<sup>5</sup>

Pakistan has high rate of child mortality at different ages. According to Pakistan demographic and health survey in 2013, mortality rates in Pakistan are 55 per 1,000 live births for neonates, 74 per 1,000 live births for infants and 89 per 1,000 live births for children under the age of five. In Khyber Pakhtunkhwa, neonatal mortality rate is 41 per 1,000 live births, infant mortality rate is 50 per 1,000 live births and under five mortality rate is 70 per 1,000 live births.<sup>6</sup>

The child health depends on the mother's education even within the same social class.<sup>7</sup> Higher socioeconomic status of mother as a determinant of mother's education has a great impact on the child's health and nutrition, also in regards causes, prevention and treatment of diseases.<sup>8</sup> Children of uneducated mothers have more chances of suffering from malnutrition specially in 1<sup>st</sup> three years of life.<sup>9</sup> Under nutrition accounts for 35% of annual deaths of children less than 5 years of age.<sup>10</sup>

In the African region where mothers' literacy rate is low, the average coverage ranges from 50-80%<sup>11</sup>,

compared to Europe where it is more than 90%. Similarly the results of a research conducted in Sindh, Pakistan have shown that maternal education is one of the important determinants of vaccination status of the children.<sup>12</sup>

The best global indicator of children's well-being is growth. Growth assessment is closely linked with nutritional and health status of children. It also serves as indicator for the quality of life of the entire community.<sup>13</sup> By improving maternal education the prevalence of three important measures of child nutrition, i.e., dwarfism, decreased muscle mass, and lower body weight can be significantly decreased.<sup>14</sup> In a nutshell mother's literacy has a better effect on the child health especially in developing countries.<sup>15</sup> Enhancing women education will increase the health status of the whole family and community.<sup>16</sup> Healthy children are key to a healthy and bright future. Thus for the achievement of this important purpose, mothers' education is a corner stone in the development of modern society.<sup>17</sup>

This study was conducted in order to determine the impact of mother's literacy on child health in terms of personal hygiene, and nutritional and vaccination status, and to compare the health status of the children born to literate and illiterate mothers.

## SUBJECTS AND METHODS

This cross-sectional study was conducted at Ayub Teaching Hospital, Abbottabad from Dec 2015 to Aug

2016. A total of 160 children were included from Paediatrics Unit of Ayub Teaching Hospital, Abbottabad. Children aged <5 years, having no congenital abnormality, admitted in Paediatrics Unit of Ayub Teaching Hospital, Abbottabad, and their mothers alive were included in study.

The data was collected by using non probability sampling technique. Informed written consent was taken from all the patients with ethical approval from Ethical Committee of at Ayub Teaching Hospital, Abbottabad. Data was analysed using SPSS-21. Frequencies and percentages were calculated for categorical variables like gender, residence, education, immunization and hygiene status, while Mean±SD were calculated for quantitative variables like age. The results were compared with other similar studies on the same subject.

**RESULTS**

Out of total 160 children, 97 (60.6%) were male and 63 (39.4%) were of female; 102 (63.8%) were from to urban and 58 (36.2%) were from rural areas. Out of 160 children, 27 (16.9%) were from age group of 12–18 months, 36 (22.4%) were 19–24 months old, 13 (7.9%) were of 25–30 months age. Similarly 25 (15.6%) children were 31–36 months old, 8 (5%) were among the age group of 37–42 months, 28 (17.5%) were in 43–48 months group, 8 (5%) children were 49–54 months old and remaining 15 (8.5%) were falling in the age group of 55–60 months. Socioeconomic status showed that 98 (61.2%) belonged to lower class families, 60 (37.5%) were from the middle class and only 2 (1.2%) belonged to upper class families.

Mothers of 48 (30%) of children were uneducated, 37 (23.1%) were educated up to primary level, 34 (21.2%) up to secondary level, 23 (14.4%) up to intermediate level, 10 (6.2%) were graduates while 8 (5%) were postgraduate mothers.

Eighty-nine (55.6%) children were of normal height for their age, 43 (26.9%) were having mild stunting, 15 (9.4%) had moderate stunted growth while 13 (8.1%) of them were severely stunted. Immunization of 135 (84.4%) of the children was done as per their age while that of 25 (15.6%) was not done according to the immunization schedule. Ratio of children’s stunting

went on decreasing with increasing educational status of the mother like postgraduate mothers who had only 2 mild stunted children out of 71 (Table-1).

**Table-1: Mothers’ education and children’s height for age**

Mother’s	Children’s height for age			
	Normal	Mild stunting	Moderate stunting	Severe stunting
None	18	19	6	5
Primary	20	9	4	4
Matric	18	9	3	4
Intermediate	18	3	2	0
Graduate	9	1	0	0
Postgraduate	6	2	0	0
<b>Total</b>	<b>89</b>	<b>43</b>	<b>15</b>	<b>13</b>

Immunization status, clothing, nails, hair, and dental hygiene was much appreciable in children whose mothers were educated than those whose mothers were uneducated. Children’s immunization and hygiene status was directly related to level of maternal education status, i.e., children’s hygiene and immunization status went up as maternal education goes up.

Table-2 shows that immunization of 135 (84.4%) children was done as per their age while that of 25 (15.6%) was not done according to the immunization schedule. Children born to intermediate, graduate and postgraduate mothers were totally immunized assigned sufficient to their age. Clothing of 129 (80.6%) out 160 children was clean, while that of 31 (19.4%) children was not clean, 19 out of those 31 children were born to illiterate mothers, and none had graduate or postgraduate mother. Nails of 95 (59.4%) children were trimmed, and those of 65 (40.6%) children were not trimmed; 28 out of those 65 children belonged to uneducated mothers. Hair hygiene of 119 (74.4%) children was maintained while that of 41 (25.6%) children wasn’t maintained; 20 out of those 41 had uneducated mothers, while all the graduate and postgraduate mothers had well maintained hair hygiene of their children. Dental hygiene of 109 (68.1%) children was well maintained, while that of 51 (31.9%) wasn’t maintained; out of those 51 children, mothers of 26 were illiterate and 16 children’s mothers were primary level educated. Only one postgraduate mother had poor dental hygiene of her child.

**Table-2: Cross tabulation of mothers’ education vs immunization and hygiene status of children**

Mothers’ education	Immunization		Clothing		Nails hygiene		Hair Hygiene		Dental Hygiene	
	Done	Not done	Clean	Not Clean	Trimmed, clean	Not trimmed, dirty	Clean	Not Clean	Clean	Not Clean
Illiterate	27	21	29	19	20	28	28	20	22	26
Primary	35	2	28	9	20	17	32	5	21	16
Matric	32	2	32	2	25	9	25	9	28	6
Intermediate	23	0	22	1	16	7	16	7	21	2
Graduate	10	0	10	0	8	2	10	0	10	0
Postgraduate	8	0	8	0	6	2	8	0	7	1
<b>Total</b>	<b>135</b>	<b>25</b>	<b>129</b>	<b>31</b>	<b>95</b>	<b>65</b>	<b>119</b>	<b>41</b>	<b>109</b>	<b>51</b>

## DISCUSSION

In our study, 135 (84.4%) out of 160 children were completely immunized as per their age. Out of 48 children born to uneducated mothers, 27 (56.25%) were immunized while immunization of 21 (43.75%) of them wasn't done. Similarly 35 (94.59%) out of 37 children born to primary educated mothers were immunized while 2 were not. Children born to matric, intermediate, graduate and postgraduate mothers were totally immunized assigned sufficient to their age. A cross-sectional survey conducted in peri-urban Karachi also showed that 94 (44.76%) children were appropriately vaccinated for their age.<sup>18</sup> A similar study conducted in India also showed a positive association between maternal literacy and vaccination status of the child.<sup>19</sup> The differences observed in the results may be due to differences in sample size. It may also be due to differences in literacy rate of the population in which the study was carried out.

Out of total 160 mothers in our study, 48 (30%) were illiterate and 112 (70%) were literate. A cross-sectional study conducted on 400 children under 3 years of age, residing in the rural area of district Malir, Karachi, in which 319 (79.75%) mothers were illiterate and 81 (20.25%) were literate.<sup>20</sup> In another cross-sectional study conducted in peri-urban Karachi, it was found that out of 210 mothers, 117 (55.7%) were illiterate and 93 (44.28%) were literate.<sup>18</sup> A cross-sectional descriptive study of 300 children aged less than 5 years and their mothers/caregivers conducted in Northwest Nigeria showed that 65% mothers were illiterate.<sup>21</sup>

A cross-sectional study conducted in India showed that 22% of study population was suffering from dental caries<sup>22</sup>, while in our study the children suffering from dental caries were 31.87%. Out of 51 children suffering from dental caries, mothers of 26 (50.98%) children were illiterate.

The study done in District Malir, Karachi, showed that among 400 children, 156 (39%) were stunted.<sup>20</sup> Similarly another cross-sectional study conducted in Northern Ghana showed that out of 991 children, 25% were stunted.<sup>23</sup> The cross-sectional descriptive study of 300 children aged less than 5 years and their mothers/caregivers conducted in Northwest Nigeria showed that the number of stunted children was 93 (31%).<sup>21</sup> In our study, among 160 children, the number of stunted children was 71 (44%). Mothers of a major portion of stunted children, i.e., 30 (42.25%) out of 71 children were not educated. Ratio of children's stunting goes on decreasing with increasing educational status of the mother like postgraduate mothers who had only 2 (2.82%) mild stunted children out of 71.

Saadia *et al*<sup>24</sup> in a study conducted in Abbottabad, Pakistan found that the mothers educated

up to graduation and being house-wives had better nutritional status of their children compared to highly educated and professional mothers whose children were neglected due to their professional activities and lack of time for household activities. They found mothers' education having a positive correlation with their children's nutritional status which is in agreement with the present study.

## CONCLUSION

Maternal literacy has a direct association with the overall child health with respect to personal hygiene, nutritional and vaccination status. Immunization status, height in regards of nutrition status, hair, nail clothing and dental hygiene was more prevalent in those children whose mothers were educated and was less prevalent in those whose mothers were illiterate.

## LIMITATIONS

Our study is not a multi-centre study and we had a small sample of 160 children because only children admitted in Paediatric ward of Ayub Teaching Hospital (ATH), Abbottabad, were included.

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