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THE EDUCATIONAL IMPACT OF MOTHERS REGARDING MALNUTRITION AMONG CHILDREN IN DEVELOPING COUNTRIES: A CROSS-SECTIONAL STUDY AND LITERATURE REVIEW

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ABSTRACT

Background: Health and nutrition have both intrinsic value and economic returns. Therefore, many countries have taken actions to promote both child health and nutrition, with varying degrees of success. More specifically, many countries have implemented health programs and projects (vaccination campaigns, the building of hospitals, construction of sanitation facilities, etc.) with mixed results. These mixed results are reflected in high rates of malnutrition in many developing countries. **Materials and Methods:** Study Design: Descriptive Cross-sectional Study. Setting: This study was conducted at Deen Dayal Upadhyay Hospital, VMMC & Safdarjung Hospital in New Delhi and Mayo Hospital Lahore. Duration: The research duration was two months (Oct 2019- Nov 2019). Sample size: Following simple formula was used for calculating the adequate sample size in prevalence study n=Z2P(1−P)d2 Where n is the sample size, Z is the statistic corresponding to the level of confidence, P is expected prevalence (that can be obtained from same studies or a pilot study conducted by the researchers), and d is precision at a confidence level of 95% with anticipated population proportion of 70% and relative precision of 10%. The sample size will be taken as 300. **Results:** The study was conducted on the topic of "The Impact of education of the mother on the malnutrition of children aged 1-5 years. The mean age of mother was found to be 27.61 ± 5.13 years. The majority of the mothers were educated (89%) Most of the mothers were housewives (77%), while only 23% were working mothers. The mean age of the children was 2.41 ± 1.17 years. The median number of children born per family was three, while the mean age of the mother at the first childbirth was 20.31 ± 4.03 years. About 57 % of the index children were males, while 43.0% were females. The childhood developmental milestones were normal 88% while they were delayed in 12.0%. About 90% of the children had a normal nutritional status, while 10% had malnutrition. Moreover, 96% of the children had a proper vaccination status while 95% had EPI cards present. Antenatal visits were done routinely by 94% of the mothers & the number of hospital births was also 94%. **Conclusion:** Maternal education levels are consistently found to be strongly correlated with a child's educational achievement. Children's learning outcomes as well as time allocated to educational activities outside school, both have shown a positive linkage with the number of years of mother's schooling. Proper nutrition during the first two years of life is crucial for child health, physical growth, and mental development.

INTRODUCTION

Health and nutrition have both intrinsic value and economic returns. Therefore, many countries have taken actions to promote both child health and nutrition, with varying degrees of success. More specifically, many countries have implemented health programs and projects (vaccination campaigns, the building of hospitals, construction of sanitation facilities, etc.) with mixed results.

These mixed results are reflected in high rates of malnutrition in many developing countries. It is

estimated that the prevalence rate of stunting (low height-for-age) in developing countries' preschool children was 33% in 2000.[1] This rate masks regional disparities. The same authors estimated that the prevalence rates of stunting for Africa, Asia, and Latin America, and the Caribbean were 35%, 34%, and 13%, respectively. Prevalence rates between 30 and 39% are considered high. There are also several costs of illnesses related to malnutrition, including physical suffering, time costs for both parents and children, and monetary costs. Parents will have to pay for healthcare and will also lose income by having to stay home and care for their sick children. Sick and malnourished children cannot develop properly and thus will not be able to learn as well as healthy children. In the long term, these individuals would also lose income as adults due to reduced learning. Staying home to care for a sick child implies that parents will lose hours of work. The higher the number of parents who will have to miss work to care for sick children, the less production will take place in the economy. This might adversely affect economic growth. Children's nutritional status, therefore, not only reflects a country's level of development but also determines it in the long run.[2] For developing countries, more research on child health and nutrition outcomes is needed to improve our understanding of the determinants of these outcomes. This would facilitate the design of better policies that contribute to enhancing child health and nutrition outcomes in the short run, improve education outcomes in the medium run, and labor market outcomes in the long run. In the very long run, this chain of events should lead to higher rates of sustained economic growth. Children, especially at young ages, depending on their parents for nutrition, and mothers play a crucial role in children's nutrition. Therefore, mothers have a potentially great influence on children's health outcomes. The theoretical justification of the relationship between education and health goes back to Grossman's 1972 model of the demand for good health. His model predicts that if education increases the efficiency of gross investments in health, then more educated people would choose a higher optimal stock of health. This means that education positively affects health. In most families, mothers spend more time than fathers taking care of children; so mothers play a more important role in decisions about child health and nutrition. This suggests that it is likely that mothers' education would matter more than fathers' education, after controlling for income (this is the rationale behind treating mothers' education as endogenous but not fathers'). Therefore, more educated mothers should have healthier, better-nourished children.[3] A major problem in estimating the effect of maternal education on child health is that unobserved factors may affect maternal education and child health simultaneously. This problem, which may be called the endogeneity problem, means that the estimates of the effect of maternal education on child health may be biased. Most studies on the relationship between maternal education and child health have attempted to use instrumental variables (variables that are correlated with maternal education but are not correlated with unobserved factors that have a direct impact on child health status) to remove the bias caused by the endogeneity problem. Because it is very difficult to find instrumental variables that satisfy these requirements, instrumental variables do not guarantee a solution to the endogeneity problem. Maternal education levels are consistently found to be strongly correlated with a child's educational achievement. Children's learning outcomes as well as time allocated to educational activities outside school, both have shown a positive linkage with the number of years of mother's schooling. Given this association, maternal education figures revealed by ASER 2013 are quite worrying. These statistics have important implications for the future of children growing up in developing countries. Although in the urban settings there is a more positive trend towards education among both the male and the female members of the family yet the gender gap remains. Inadequate nutrition has consequences for the child and for the society in which the child lives. Proper nutrition during the first two years of life is crucial for child health, physical growth, and mental development. Poor nutrition for young children can lead to poor schooling outcomes, adversely affecting productivity later in life, which results in low economic growth.[4]

LITERATURE REVIEW

There is a great difference in the rates of enrollment of boys, as compared to girls in India and Pakistan. Girls generally outclass boys in the examination, and they are also higher achievers in universities. Unfortunately, the majority of the girls never get an opportunity to develop their educational capabilities Women's education leads to significant social development. Some of the most notable social benefits include decreased fertility rates and lower infant mortality rates, and lower maternal mortality rates. Closing the gender gap in education also increases gender equality, which is considered important both in itself and because it ensures equal rights and opportunities for people regardless of gender. Women's education has cognitive benefits for women as well. Improved cognitive abilities increase the quality of life for women and also lead to other benefits. One example of this is the fact that educated women are better able to make decisions related to health, both for themselves and their children. Cognitive abilities also translate to increased political participation among women. Educated women are more likely to engage in civic participation and attend political meetings, and there are several instances in which educated women in the developing world were able to secure benefits for themselves through political movements. Evidence also points to an increased likelihood of democratic governance in countries with well-educated women.[5]

The state with the highest rate of female literacy, at 91.98%, is the southern state of Kerala. 26.9% of female students in Kerala are likely to pursue higher education, while men are less likely at 19.3%. The state's GDP is

ranked 11th out of all Indian states. The extremely high female literacy rate, especially when compared to the national rate of female literacy at 65.46%, is attributed to the historical, societal value of women compared to other Indian states. Female education is claimed to have taken value through the guiding of western evangelism influence brought to Kerala and its value on female education. This can be seen in comparative women participation and some autonomy in academia and the arts, playing roles in politics, administration, festivals, and social reform. Women have the power to inherit the land and choose their spouse, which provides Kerala with one of the lowest early marriage rates in India. The strongest connection between the educational impact on social systems is the low fertility rate in Kerala, achieving "below replacement level fertility two decades ahead of the all-India target year of 2011."

The state also demonstrates low infant and child mortality rates, the lowest in all of India—a universal indicator of educational impact—as women feel more confident and able in their child's care and are more aware of health practices. The state with the lowest female literacy is the state of Rajasthan, at 52.66%. 20.8% of male students in Rajasthan go on to pursue higher education, while a lesser 14.9% of women seek further education. The complexity in the comparison of Kerala and Rajasthan is seen in the higher ranking of Rajasthan in terms of GDP, ranked 9th highest out of all of the Indian states, with Kerala at 11th.[6] Although Kerala's female literacy rates and female higher education applicants far exceed Rajasthan's, Rajasthan's GDP is ranked higher. This shows regional contradictions in the theory that increases in female education can drive development and exposes the complexity of this discourse. The low rates of female literacy in Rajasthan are caused by a much more conservative culture and a historically Muslim influence that does not value females, let alone their education. Evidence of this is seen in the sex ratio of Rajasthan, with 800-900 females per 1000 males, while the sex ratio of Kerala is over 1000 females per 1000 males, which shows a higher value placed in females.[7]

Traditionally valued female child labor in Rajasthan has lead to high student dropouts, especially in the cotton industry, and child marriage is still an issue in-of-itself that leaves females less likely to attend school. Another economic cause of this low literacy is the many children throughout Rajasthan without access to education and communities that don't value education due to poor facilities. Paradoxically, while child labor is the largest contribution to keeping children out of school in Rajasthan, improved access to and condition of educational facilities could help break the vicious cycle of poverty that is attached to child labor. The societal value of females, ending child labor, and improving educational facilities are keys in Rajasthan's improvement in female and male literacy and poverty rates.[8]

Objectives

- The Impact of education of mother regarding malnutrition among children under 5 years of age in the urban population of India and Pakistan.
- To make recommendations on how to improve maternal education.

MATERIALS AND METHODS

Study Design: Descriptive Cross-sectional Study.

Setting: This study was conducted at Deen Dayal Upadhyay Hospital, VMMC & Safdarjung Hospital in New Delhi and Mayo Hospital Lahore.

Duration: The research duration was two months (October 2019- November 2019).

Sample size: Following simple formula was used for calculating the adequate sample size in prevalence study $n=Z2P(1-P)d2$ Where n is the sample size, Z is the statistic corresponding to the level of confidence, P is expected prevalence (that can be obtained from same studies or a pilot study conducted by the researchers), and d is precision at a confidence level of 95% with anticipated population proportion of 70% and relative precision of 10%. The sample size will be taken as 300.

Sample Selection

(a). Inclusion Criterion

- Mothers living in India and Pakistan.
- Between the age of 18-60 years.

(b). Exclusion Criterion

- People who did not give consent.
- People below the age of 18 years.
- People above the age of 60 years.

Methodology

Data Collection Procedure: Questionnaires were handed over to the participants and their answers were sorted out to analyze the different variables under study, the data was collected by the research team.

Data Analysis and Compilation Plan: The data was compiled and analyzed by using SPSS software version-23 and appropriate statistical techniques.

Data Collection Tool: A semi-structured questionnaire (pre-designed closed-ended with few open-ended questionnaire) was used to collect information from Students

Statistical Analysis of results

1. The results obtained were recorded on the respective questionnaires.
2. The completed questionnaires were entered into the computer using SPSS version 23.
3. Data analysis was done using the same software.
4. Data was analyzed for description i.e. for continuous variables like age and presented in the form of tables, graphs, and diagrams.
5. Confidence limits (95%) were calculated using standard error of mean and standard error of

proportion for continuous and categorical variables respectively. Z-Test was used to determine the significant difference between continuous variables.

6. Chi-square test was used to determine the association and significant difference between categorical independent variables and outcome variables, and to compare proportions. A level of 5 % was used for significance testing.

RESULTS

The study was conducted on the topic of "The Impact of education of the mother on the malnutrition of children aged 1-5 living in Developing Countries." The mean age of mother was found to be 27.61 ± 5.13 years. The majority of the mothers were educated (89%) Most of the mothers were housewives (77%), while only 23% were working mothers. The mean age of the children was 2.41 ± 1.17 years. The median number of children born per family was three, while the mean age of the mother at the first childbirth was 20.31 ± 4.03 years. About 57 % of the index children were males, while 43.0% were females. The childhood developmental milestones were normal 88% while they were delayed in 12.0%. About 90% of the children had a normal nutritional status, while 10% had malnutrition. Moreover, 96% of the children had a proper vaccination status while 95% had EPI cards present. Antenatal visits were done routinely by 94% of the mothers & the number of hospital births was also 94%.

Mann-Whitney U test was applied to determine the association between parent's education status and nutritional status. Higher Maternal educational status (p = 0.011) were found to be significantly associated with normal child nutritional status. The impact of parents' educational status on the nutritional status of the children has been evident.

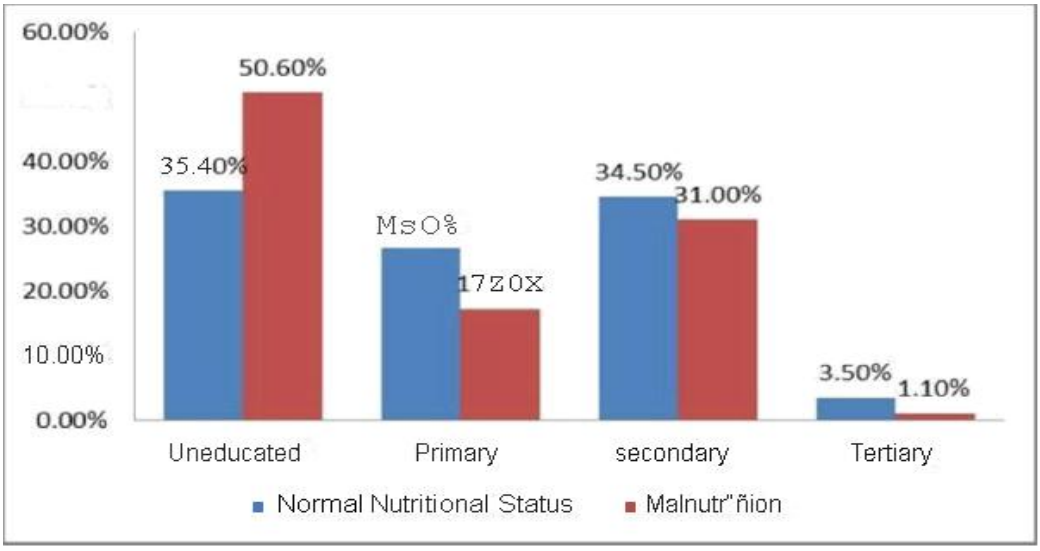
Demographics

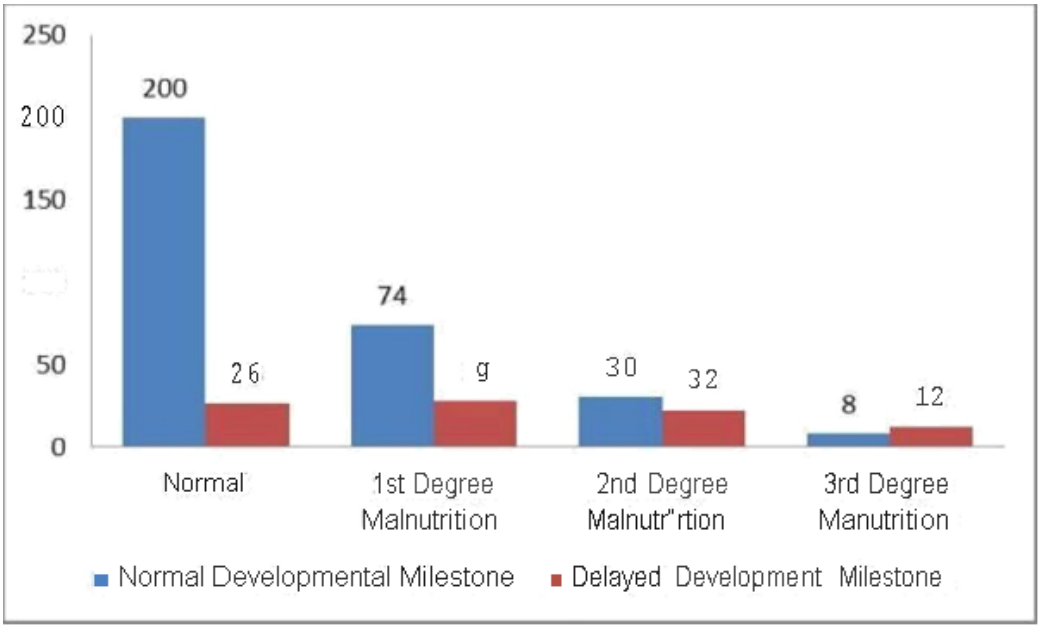
Table 1:

EDUCATED	89%
UNEDUCATED	11%
AGE	27.61+/- 5.13
MALE CHILDREN	57%
FEMALE CHILDREN	43%

Table 2:

	Educated	**Uneducated**
Housewives	**77%**	**100%**
Employed	**23%**	**0%**
Children per family	**2**	**4**
Developmental		
Milestones(Delayed)	**22%**	**35%**
Developmental		
Milestones(Normal)	**88%**	**75%**
Nutritional Status	**84% normal**	**35.40% normal**
Vaccination Status	**94%**	**81%**
EPI card	**93% present**	**81% present**
Hospital Birth	**100%**	**80%**
Child weight	**86% normal**	**61% normal**
Breastfeeding history	**82% normal**	**70% normal**





DISCUSSION

Maternal education levels are consistently found to be strongly correlated with a child's educational achievement. Children's learning outcomes as well as time allocated to educational activities outside school, both have shown a positive linkage with the number of years of mother's schooling. Given this association, maternal education figures revealed by ASER 2013 are quite worrying. Seventy-two percent of all the mothers surveyed in rural Pakistan have never been to school and the average number of years of schooling for those who have been to school in 2.8 years.[9] These statistics have important implications for the future of children growing up in developing countries. Although in the urban settings there is a more positive trend towards education among both the male and the female members of the family yet the gender gap remains. Inadequate nutrition has consequences for the child and for the society in which the child lives. Proper nutrition during the first two years of life is crucial for child health, physical growth, and mental development.

According to UNESCO figures, primary school enrollment for girls stand at 60 percent as compared to 84 percent for boys. The secondary school enrollment rate stands at a lower rate of 32 percent for females and 46 percent males.[10] The statistics shed some interesting facts about education; the gender disparity in education is much lower in urban places vis-à-vis rural areas. One of the possible explanations of this pattern is the relatively stronger dominance of tribal, feudal, and patriarchal traditions in rural areas. Moreover, there are very few employment opportunities for women in rural areas, and thus, there is a very little financial incentive for families to send their girls to schools. However, despite the meager representation of females in the education sector, the level of achievement of female students is consistently far higher than that of their counterpart male students.

Maternal literacy has a direct association with overall child health with respect to personal hygiene, nutritional, and vaccination status. Malnutrition in children is one of the health challenges in developing countries & it has a strong correlation to maternal education. Malnutrition-related mortality and morbidity is a burden on the national exchequer at one end and on health care institutions on the other. This important issue can be handled with multi-pronged policies and multidimensional and multisectoral cooperation and integration. The focus of all these programs should be the mother in terms of security, employment, literacy, justice, healthcare, food, shelter, and social equality.

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