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Modeling the Role of Maternal Care in the Educational and Health Development of the Children

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Abstract

Mothers play different roles in their family which has an effect on health and well being of all members of the family specially on children. Almost in all different societies around the world, they have been assigned to be primary care-givers to infants and children. The present study investigates the relationship of maternal care and its effects on the educational performance and health of children in Pakistan from a statistical perspective. The modeling and significance has been established by measures of association and automated linear regression.

Keywords: Maternal care, health, Educational Performance, Association, Regression modeling.

Introduction

Child care is caring of a child usually from age of six weeks to thirteen years. Early childhood care is a very important component in the child development. Mothers are children's first teacher and therefore play an integral role in their early education. Quality care from a young age could have a huge impact on the future successes of children. It covers a wide spectrum of contexts, activities, social and cultural conventions. Approximately six out of every ten children, or almost 12 million children who are the age of five and younger, are being jointly cared by parents, relatives or other childcare providers. Mostly the arrangements for child care depend upon their mothers. The traditional role of women in society can not be ignored. In societies like Pakistan, the domain of women is the domestic sphere within the home and domain of men is the responsibility outside the home. Our system is linked with a clearly defined female role in which men are support of the family and women are the producers and breeders of children. This is one of the significant role of women that must be involved in child care activities.. The children of the age under 1 and who have got a good and sensitive care from their mothers are very much associated with them and they are most of the times able to get comfort from their mothers when needed. Children use their mothers care as the secure base to explore their characteristics (Bowlby,1982). Some researchers have shown that during the first year of life, infants who had spent more hours in non-maternal care were more likely to form an insecure-avoidant affection relationship with their mother (Belsky & Rovine, 1988; Schwartz, 1983). Beenstock and Sturdy (1990) found that Controlling for other socioeconomic factors, the relative probability of infants dying was twenty seven percent higher for working mothers than for non-working mothers. Women who have two different kinds of duties upon them, which includes providing care and secondly is to provide income support which provides a good basis and a central point on the association of women work to child results. Children who have got admission to the school and those who receive medical care have positive associations with the assets owned by the mother (Duraisamy 1992 and Duraisamy and Malathy 1991). The assumption of the mother employment has a negative effect on the children and it has recently firmed the fears that family development suffers if mothers go out for the employment (Scott, 2008).

There exists a strong relationship between the health of the child and their nutrition provided by their mothers. There is a great chance that malnourished children develop an illness which has

long lasting effects on their health throughout their life. Regrettably, most of the developing countries children are less nourished. The malnutrition can be explained as improper taking of the calories and nutrients, which can result into illness which can create the cause of death in extreme cases (Chen et. al., 1980). According to the theoretical models present in the study, there seems to be an common opinion among the economists that parents educations especially mothers has a positive effect on child's health (Rosenzweig and Schultz, 1982) (Behrman and Deolalikar,1988). It is the education which makes mothers more able in processing the information, for example, the mothers who are more educated are capable to read the label of the medicines and can give the proper dose to their children. Therefore it can be seen that education of the mother improves the status of child health. The mothers who are educated are supposed to have more incomes. Therefore educated mothers have more financial facilities to spend on their children's health issues (Thomas, Strauss and Henriques, 1991, and Glewwe, 1999). In theories, there are three kinds of mechanisms by which the education of mother may affect child health; information processing effects, income augmenting effects and the interactive effects with community services (Thomas et al., 1991). A Research was conducted to find the link between mother's work and child health. The data have been collected from a survey of 75 working and 75 Non-working women in a village in Tamil Nadu, India. Mothers who are educated have strong bargaining ability over household accessories and resources therefore they have positive impact on their children's health (Handa, 1999).The informal way of childcare by the relatives is common (La Valle, 1999; Owen, et al., 1999) but even the presence of an aunt or grandmother provides the care and eventually brings care for the children which has some kind of positive impact (Crompton, 1995). The study conducted by Aziz Marjan Khattak et. al. (2007) evaluated the nutritional knowledge of mothers about their children. It was found in study that women kept the utensils clean, washed their hands before preparing meals and advised their children to keep clean. The children also kept their teeth clean and washed their hands after using the bathroom. It was also observed in the study that women cook food according to the choice of their children. Most of the money earned is spent on food. The food was purchased by the couple in 100% of the cases. Mothers at each income level had more control over decisions directly related to food than family decisions that could indirectly affect the potential of nutritional care. There is awareness among mothers about feeding their children, but it can be improved through basic health education, awareness and appropriate counseling. Arif (2004) examined the health status of Pakistani children using two important indicators, morbidity and malnutrition, and weight was measured by age and height by age. Immunized children were less likely to become infected than children who were not. They are more likely to get sick with working women.

The issue of child care imposes a very serious responsibility on women, especially when she leaves home to go to work. But the nature and scope of this role are different for working mothers who live in the same family system and for those who are not. The study by Humera et al (2011) found that in the culture of Pakistan, the family system exists because of the low income levels and the limited resources available to them. Data on the family system have revealed that the majority of the respondents live in a joint family system. The observation data show that the combined family system is mainly through men and is responsible for raising dependents. Rural women from the mixed family are more involved in domestic and agricultural activities. This family system helps take care of each other and distributes activities outside the farm and on the farm.

Methodology

The survey was conducted in homes of Sargodha city, Pakistan using the convenience sampling. Many researchers prefer this sampling technique because it is fast, inexpensive, easy and the subjects are readily available. In all kinds of research, this sampling technique is preferred over other sampling techniques because of outsized population since it is impossible to include every in-

dividual. A sample of 1500 mothers was selected by using the online sample calculator and the information was collected using the questionnaire technique. The ages range from 23-45 which include both working and housewife mothers. The age of the child was established less than thirteen years, according to the international standard as most things are influenced under the age thirteen.

Measures of association and correlations

Cross tabulations shows that how one factor is contingent upon other factors. Chi squares are used to check the association between different factors and correlations are used to find out the strength of association of the factors. Table 1 explains the significance of different variables.

Table 1: Measure of association and correlation with their values and significance

Education variables	p-value of Pearson's chi-square	p-value of Pearson's R correlation
Association between teaching by mother and grades in the last examination	0.001***	0.002***
Association between facilities provided by the father and grades in the last examination.	0.000***	0.000***
Association between beating the child by mother and grades in the last examination.	0.0039**	0.717
Association between beating the child and positive effect of this activity on them.	0.036**	0.035**
Association between sources used by the mother to educate them before formal schooling and grades in the last examination	0.000***	0.000***
Association between time given by mother for the education of children and their grades in the last examination	0.040*	0.163
Health variables		
Association between regular breakfast provided by the mothers and impact on health of child.	0.000***	0.000***
Association between house cleaning by mothers and impact on health of child.	0.000***	0.000***
Association between recreational facilities provided by mothers and impact on health of child.	0.000***	0.000***
Association between medical facilities provided by mothers and impact on the health of child.	0.000***	0.040***

*** Highly significant

** Significant

Automatic linear regression analysis

This technique is used to check the consistency and reliability of variables. It can use dichotomous variable, multiple category variables, and ordinal or scale variable. It is one of the best techniques used to predict the values on single scaled outcome variable. The good thing about this technique is that categorical variable with several categories can be used and it will break that variable in a way that makes best sense for the given data. So variables having more than two categories can be used in automatic linear modeling as they are, and there is no need to convert them into dichotomous ones.

Table 2: Computation of Coefficients by Automated Linear Regression Target Variable: Grades of Children

Model Term	Coefficient	p-value	Importance
Intercept	0.981	0.000	--------
Proper education facility provided to children	-0.462	0.000	0.404
Forcing children to get top position	-0.295	0.000	0.202
Number of family members	0.016	0.005	0.089
Taking proper diet by mothers while pregnant	-0.12	0.031	0.053
mothers being optimistic about education of children	0.139	0.034	0.052
Started education from Montessori system	-0.101	0.039	0.049
Number of children	-0.121	0.046	0.046
Time spent with children in a day by mothers	-0.061	0.049	0.044
Proper facilities regarding the necessities of children provided by husband	0.091	0.092	0.033
Separate family system	0.061	0.111	0.029

Initial model is having R^2 of 0.076. The factors, proper facilities provided by parents regarding necessities of children and separate family system, are remarkable but their p-values are showing a debatable result. It shows that high grades don't depend on proper and adequate facilities provided by parents regarding necessities of children and separate family systems. Forcing children to get top positions, number of family members, taking proper diet in pregnancy, being optimistic about education of children, total number of siblings, Montessori based education, more time spent with children and proper education facility provided to children have an impact on getting grades in academics.

Table 3: Computation of Coefficients Target: Grades of Children

Model Term	Coefficient	Sig.	Importance
Intercept	0.922	0.00	-------
Proper education facility provided to children	– 0.449	0.00	0.551
Forcing children to get top position	– 0.252	0.00	0.259
Mothers beingoptimistic about education of children	0.143	0.029	0.079
Started education from Montessori system	– 0.098	0.046	0.066
Number of family members	0.063	0.1	0.045

The interpretation of table 3 is much the same as interpretation of table 2, although with five variables less. The R^2 for this model is 0.268. While looking at the importance of the predictor variables in figure 1, proper education facility provided to children by parents having predictor importance of 0.55, seems to be most closely related to grades in academics. While looking at the importance of the predictor variables in figure 1, proper education facility provided to children by parents having predictor importance of 0.55, seems to be most closely related to getting grades in academics. Figure 2 is just another way to show the effect of predictors on the targeted variable i.e. grades in academics. The thickest line is showing high significance upon the target variable.

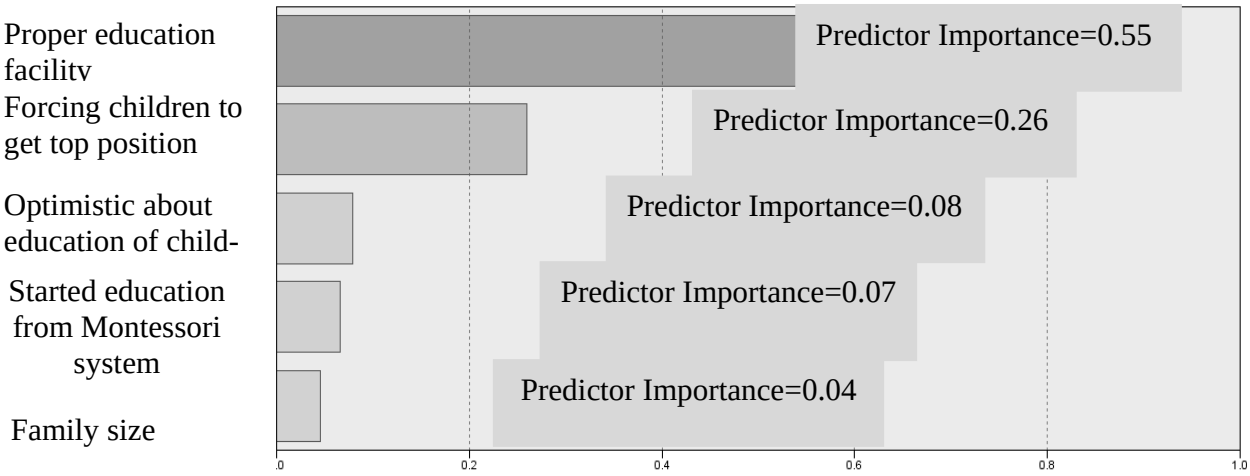

Figure 1: Predictor's Importance

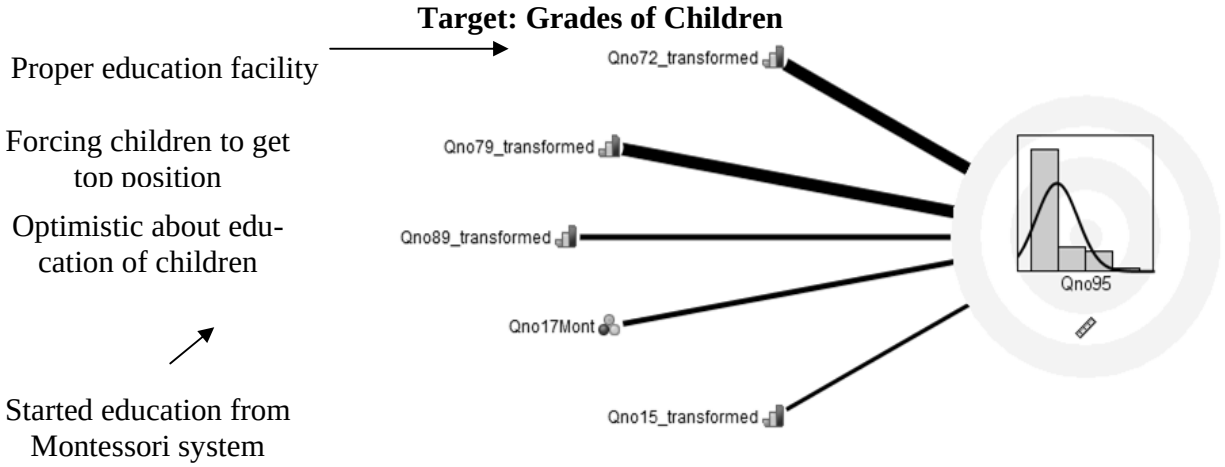

Figure 2: Effects of predictors

Interpretation of the Results

From the study, number of conclusions can be made following with the recommendations. Although mothers are more caring about their health during pregnancy but husbands should provide them with the proper food and nutrition so that in future they may produce healthy child with the healthy mind. It was concluded from the study that the good grades of the children have association with taking the proper diet during pregnancy by their mothers. So mothers should take special care towards their diet during pregnancy because ultimately it will have positive influence on studies and achievements of their children. It was observed from study that beating the children does not bring any kind of positive change in the academic and behavioral performance of them. There is no association between beating the child and their academic performance therefore the parents who beat their children so that their performance may be improved should avoid it. It was found that most of the women discuss the problems of their children with their husbands. This is the positive activity and should be adopted continually so that it may bring positive change in the children. The women who are careful about the health of their children provide them with the regular breakfast. This

brings positive effect on their health which will be fruitful for their mental development. Study also shows that mothers who provide their children with the recreational facilities brings positive effects on their studies so it is recommended that mothers should give keen interest in the recreational activities of their children and provide them the confidence to participate in such activities.

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