Effects of Gender Biasness on Child Immunization in Pakistan

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Abstract: The study aimed to see the gender biasness in child immunization in Pakistan. Cross sectional data were taken from the DHS (Demographic and Health Survey) of Pakistan from year 2005-2006. Study has been done in department of economics, Govt. College University Faisalabad from July 2013 – November 2013. Multilogistic model was applied to see the effects of gender biasness. Mother’s age at first birth, gender of household head, gender of child, birth order was taken as independent variables. Child immunization was used as the dependent variable. It is concluded that the young mothers immunize their children more than the old mothers. Female child had less probability to get immunized than the male children. Male heads were less conscious to immunize their children than the female heads. It was recommended that the male and female should be treated equally. It was also suggested that the heads of family should be male.

Keywords: Immunization, Children, Birth Order, Family, Household Head, Gender, Mother

1. Introduction

It is the right of every human being to get equally access to all basic necessities of life. In Millenium Development goal females were focused to get complete rights as they deserve. In Eastern countries women are neglected. Female children are not given equal treatment in case of health that is the basic right of all children. In Asian countries cultural traditions are main hurdle in the woman empowerment. Women are active participants of development in a country.

EPI was started in 1974 by WHO (world health organization). It started its work formally in Pakistan in 1978. Its aim was to provide vaccine free of cost to all areas without any biasness. Its aim was to get rid of polio till 2012 but still it has not achieved its goal. EPI also started Vitamin A supplement along with Polio vaccine in 1999.

EPI has formulated some rules and regulations to achieve its objectives some of them are given below

- Immunization should be given at the age of 0-15 month.
- It has decided to complete 90% of immunization that is recommended in its objective.
- Polio should be completely eradicated from the country.
- Tatanus should be removed till 2015.
- Pertussis, Dephtheria and Tuberculosis should be reduced at minimum level.

All policies formulated regarding health are equal for all children. Pereference of boys is very common in Asian communities. In India female mortality is often increased. Female is not well fed as boys in this region. In all underdeveloped countries the ratio of females is very high as compared to male. Gender inequality does’nt affect the people in one way while one type of inequality effected the other type. If females are neglected in getting basic health facilities then they also get a neglected behaviour in education. In Asia morbidity and mortality rate of females is very high.

People feel blessing if they got a baby boy but the birth of a baby girl made them worried. In Eastern countries the stigma of dowry is the main cause of creating gender biasness. Gender inequality can be found in a diverse form survival inequality, natal inequality, unequal facilities ownership inequality unequal share of property and domestic
violence. If gender inequality exists in one way it will promotes the other type of gender inequalit\textsuperscript{9}.Most of the families consider it natural as they got this thought inheritedly. Women has to face the double burden of work both inside and outside the house\textsuperscript{9}. The millennium developmental goals were formulated in 1990\textsuperscript{s} and were aimed to achieve them till 1915. The third goal is focusing on the gender equality.

- Completely overcome the poverty and hunger.
- To achieve absolute education in the world.
- To empower woman and enhance gender equality.
- To overcome the child death in the world.
- To bring improvement in the mother’s health.
- To reduce the vaccine preventable disease.
- To improve the environmental problems in the country.
- To maintain a global relationship.

Immunization is the protective measure of the child. To protect the child before the occurrence of disease is called as immunization. It is necessary to start this immunization soon after birth. The first injection given to the infant is BCG (Bacillus Calmette Guarnette). In traditional areas people do not prefer to immunize their children. In Pakistan the mortality and morbidity rate in children are high due to the resistance of families against immunization. People in rural areas are backward and the lack of education make them reluctant to immunize their children. The early fever after the injection create fear in parents to immunize their children. It also protects children from disability and infirmity\textsuperscript{10}.

Pakistan is a highly populous country. Despite of all Government efforts still Polio has not been eradicated from the country. To achieve this goal former Prime Minister Banazir Bhutto started NID’s (Natal Immunization Day) from 1994. It has also started supplement of vitamin A to the children in association with Polio Drops. More than five million children are given the vaccine yearly. The rank of Pakistan in EPI countries is 127\textsuperscript{th} out of 133. Comparatively its neighbouring country India is ranked at 118\textsuperscript{th}. Newzealand is at 1\textsuperscript{st} and Sweden is at 2\textsuperscript{nd} rank. The number of fully immunized children has 12% increased from the year 1999\textsuperscript{11}.

Death rate is very much helpful in accessing the development of country. It can be reduced only by controlling the disease before its occurrence. Mother’s immunization against tetanus during pregnancy is also an important factor in the immunization of children. Mother’s who got immunization can get better awareness about immunization in children\textsuperscript{12}.

Previous research showed that the parental education, mother’s age, sex of household head awareness has significant impact on child immunization. Political efforts are Government intervention are very important for the achievement of full immunization\textsuperscript{13}.

The removal of gender biasness will achieve many developmental goals in country. In India gender biasness is very common\textsuperscript{11}. Comparatively in Bangladesh there was more gender equity\textsuperscript{12}. In Malawi and Indonesia there was no gender biasness\textsuperscript{12,13}. The objective of this study is to see the gender biasness in child immunization in Pakistan.

### 2. Materials and Methods

This study has been conducted in department of economics G.C.University Faisalabad. Study period was July 2013 to November 2013. Data has been taken from (DHS) Demographic and Health Survey of Pakistan (2007-2008). Immunization was taken as dependent variable. It was consisted in three categories (1) Fully Immunized (2) Not immunized (3) Partial immunized. As the dependent variable was in three categories so the multilogiostic model was applied here. There were four independent variables (1) Age at 1\textsuperscript{st} birth (2) Birth order (3) Gender of child (4) Gender of household head. Children below 5-years were considered as eligible for the survey while the others were neglected. For dependent variables all injections that were recommended by EPI (Extended Programme on Immunization) in immunization schedule were included. The dependent variable was constructed by taking the following injections/vaccines into considerations: (1) BCG, (2) Polio1 (3) DPT2, (4) Polio2, (5) DPT3, (6) Polio 3, (7) Measles, (8) Polio 0, (9) HBV1, (10) HBV 2 and (11) HBV3.

Independent variables were in categorical form Mother’s age at first birth was categorized as (1) 12-19 (2) 20-25 (3) 26-32 (4) above 32, birth order (1) 1\textsuperscript{st} (2) 2\textsuperscript{nd}, 3\textsuperscript{rd} (3) 4\textsuperscript{th}.

Gender of child, (1) male (2) female, Gender of household head that was also categorized as (1) male(2)female.

\[
Y_{(a,b)} = \ln \frac{\Pr(Y = a, b)}{\Pr(Y = c)} = \alpha + \beta 1(GC) + \beta 2(GHH) + \beta 3(BO) + \beta 4(Age 1st birth)
\]

### 3. Results and Discussions

#### 3.1. Frequency of Variables

Percentage of all variables according to their frequency were given below

| Description                  | Category | Percentage |
|------------------------------|----------|------------|
| Gender of child              | Female   | 53.2       |
|                              | Male     | 46.8       |
| Gender of household head     | Male     | 92.2       |
|                              | Female   | 7.8        |
|                              | 1\textsuperscript{st} | 21.5       |
|                              | 2\textsuperscript{nd}, 3\textsuperscript{rd} | 17.6       |
|                              | 4\textsuperscript{th}, 5\textsuperscript{th} | 29.4       |
|                              | Others   | 31.5       |
| Birth Order                  | 12-19    | 46.2       |
|                              | 20-25    | 42.2       |
|                              | 26-32    | 10.5       |
|                              | Above    | 1.1        |

Table 3.1 explained that the percentage of male and female children were 53.2% and 46.8%. The ratio of male birth was high in that specific year. The percentage of male household head were 92.2% and female were 7.8%. Pakistan was a traditional country so there were found a male dominant society. Most of the families were considered their
males as the head of the family. Females got less dominance. Males were controlling and deciding the rules and regulations of their family. In data the number of children whose birth order was 1\textsuperscript{st} 21.5\%, the children from 2\textsuperscript{nd}-3\textsuperscript{rd} 17.6\% children from 4\textsuperscript{th}-5\textsuperscript{th} 29.4 \% and the above were 31.5\%. Birth order shows that most of the families were having more than 2.5 children. People did not think about their economic status and without any planning became ready to give birth to more and more children. Mother’s age was also an important factor that were affecting the gender biasness in child immunization the percentage of mothers whose age were between 12-19 was 4\%. Similarly a study conducted at India concluded that the chances to get immunization than the male children.

3.2. Results for Partial Child Immunization in Pakistan

Table 3.2. explained the results for partial child immunization in Pakistan. It was shown that the mothers who were between 12-19 had 1.114 more probability to immunize their children than the old mothers. The mothers whose age was between 20-26 had 1.067 more likelihood to immunize their children than the mothers whose age were above 32. The mothers whose age were between 26-32 had .780 less chances to immunize their children than the mothers whose age were above 32. The first born children had .836 less chances to get immunization than the children whose birth order was more than five. The children whose birth order was 2\textsuperscript{nd} -3\textsuperscript{rd} had 1.112 more chances to get immunization than the children whose birth order was more than five. The female head of the family had .645 less probability to immunize their children than the male heads of the family. The female children had .978 less likelihood to get immunization than the male children.

Table 3.2. Results of Multilogistic Regression.

| Dependent Variable | Coefficient | Sig | Odd ratio |
|--------------------|-------------|-----|-----------|
| Constant           | 3.862       | 0.00| 1         |
| A\_1\_1           | 176         | 0.612| 1.114     |
| A\_1\_2           | 0.074       | 0.823| 1.067     |
| A\_1\_3           | 302         | 0.401| 728       |
| A\_1\_4           | 0           |     |           |
| BO 1               | 0.155       | 0.113| 836       |
| BO 2               | 0.106       | 0.332| 1.112     |
| BO 3               | 0.071       | 0.459| 1.063     |
| BO 4               | 0           |     |           |
| HG 0               | 0.431       | 0.015| 645       |
| H1                 | 0           |     |           |
| CG 0               | 0.031       | 0.660| 978       |
| CG 1               | 0           |     |           |

3.3. Results for Full Child Immunization in Pakistan

Table 3.3. explained that the female children had .921 less chances to get immunization than the male children. Similarly a study conducted at India concluded that the gender discrimination was more in India\textsuperscript{11}. Comparatively another study that was done in UK Pearce, et al (2008) found that the females were not the victims of gender biasness \textsuperscript{14}. In contrast to my study a study that was done in Nigeria found no gender discrimination \textsuperscript{15}. Another study in four districts of Sindh, Pakistan concluded that the female children were getting more immunization than the male children in Pakistan\textsuperscript{16}. The mothers who were between the 12-19 had .074 more chances to immunize their children than the old mothers. The mothers whose age were between 20-26 had .956 less chances to immunize their children than the mothers whose age were above 32. The mothers whose age were between 26-32 had .780 less chances to immunize their children than the old mothers above 32. Similarly another study found that the younger mothers had less chances to immunize their children than the old mothers\textsuperscript{13}. Another study concluded that the mother’s age was a significant variable affecting the child immunization. The female household heads had .618 less chances to immunize their children than the male heads of the family\textsuperscript{18}. Another study evaluated that the families whose head were male had less chances to immunize their children than the female heads\textsuperscript{17}. The children whose birthorder was 1\textsuperscript{st} had .618 less chances to immunize their children than the children whose birthorder was more than 5\textsuperscript{th}. The children whose birth order was between 2\textsuperscript{nd} -3\textsuperscript{rd} had .051 more chance to get immunization than the children whose birth order was more than 5\textsuperscript{th}. The children whose birth order was between 4\textsuperscript{th} to 5\textsuperscript{th} had .029 more chances to immunize their children than the children whose no. was more than 5\textsuperscript{th}. Another study concluded that the elder children had more chances to get immunization than the younger children of their family\textsuperscript{15}. Another study found that the birth order was a significant variable that were affecting child immunization\textsuperscript{20}.

Table 3.3. Results of Multilogistic Regression.

| Dependent Variable | Coefficient | Sig | Odd ratio |
|--------------------|-------------|-----|-----------|
| Constant           | 3.802       | 0.00| 1         |
| A\_1\_1           | 0.071       | 0.857| 1.074     |
| A\_1\_2           | 0.045       | 0.909| 956       |
| A\_1\_3           | 0.248       | 0.543| 780       |
| A\_1\_4           | 0           |     |           |
| BO 1               | 0.066       | 0.573| 937       |
| BO 2               | 0.054       | 0.663| 1.051     |
| BO 3               | 0.029       | 0.785| 1.029     |
| BO 4               | 0           |     |           |
| HG 0               | 0.481       | 0.010| 618       |
| HG 1               | 0           |     |           |
| CG 0               | 0.082       | 0.315| 921       |
| CG 1               | 0           |     |           |

4. Conclusion and Recommendation

It was concluded that the young females immunize their male children more than the others. The young girls were energetic and active. They were mentally sharper than the old females. They have opportunities through media to get awareness about the child immunization. While during their social relationship they exchange their knowledge and views
with their family and friends. All these sources made them more conscious about the health of their children. The families whose heads were female immunized their children more than the male heads of the family. Male children got more immunization than the female children. Male were considered as the bread winners of the family. Due to that male children were treated specially. The birth of a male child brought happiness. At the same time if there was a birth of female child people became sad in most rural areas. It was suggested that male and female children should be treated equally there should be no gender biasness in any case. Females had to further bring up the nation so they should be conscious about the health of their children. Female heads reduced the caring of their children so the head of family should be the male. Females should give attention to their children that should be their first priority.

References

[1] Ibnouf, A. H., Borne, V.D., & Jam, M. (2007). Factors influencing immunization coverage among children under five years of age in Khartoum State, Sudan. SA Fam Pract, 49(8), 14.

[2] Pildat (2010). Immunization in Pakistan. PILdAT (Pakistan Institute of Legislative Development and Transparency), 37.

[3] Mangrio, N. K., Alam, M. M., & Shaikh, B. T. (2008). Is expanded programme on immunization doing enough? Viewpoint of health workers and mangers in Sindh, Pakistan. J Pak Med Association, 58(2):64-67.

[4] Khan, M. A., Ahmed, M., Munir, M. A., Nazir, A., Shams, N., Hussain, O., & Ahmed, R. (2006). Studyreport, evaluation of vitamin A supplementation piloting in Pakistan. UUNICEF, Micronutrient.

[5] Kidane, T., & Tekie, M. (2003). Factors influencing child immunization coverage in a rural district of Ethiopia, 2000. Ethiop J Health DEV, 17(2):105-110.

[6] Hong R & Banta JE (2005). Effects of extra immunization efforts n routine immunization at district level in Pakistan. Eastern Mediterranean Health Journal 11(4).

[7] Bonanni, P., Boccalini, S., & Hini, A. (2008). The expected impact of new vaccines and vaccination policies. J public health, 16:253-259.

[8] Hessel, L. (2008). The contribution of vaccine manufacturers to the establishment of vaccination policies. J public health 16:299-305.

[9] Tinkew, J. B., & Dejong, G. F. (2005). Do household structure and household economic resources predict childhood immunization? Evidence from Jamaica and Trinidad and Tobago. Population Research and Policy Review, 24:27-57.

[10] Jamil, K., Bhuiya, A., Streetfield, K., & Chakrabarty, N. (1999). The immunization programme in Bangladesh: impressive gains in coverage, but gaps remain. Health Policy and Planning, 14(1), 49-58.

[11] Patra, N. (2006). Universal immunization programme in India: The determinants of childhood immunization. Dehli School of Economics.

[12] Chowdhury, A. M. R., Bhuiya, A., Mahmud, S., Abdus Salam, A. K. M., & Karim, F. (2002). Who gets vaccinated in Bangladesh? The immunization divide. Bangladesh Health Equity Watch.

[13] Monthali, C.A. (2007). Determinants of vaccination coverage in Mulawi, Evidence from the Demographic and Health Survey. Malawi Medical Journal 19(2); 79-82 June 2007

[14] Samba, R. D., Pee, S. D., Berger, S. G., Martini, E., Ricks, M. O., & Bloem, M. W. (2007). Malnutrition and infectious disease morbidity among children missed by the childhood immunization program in Indonesia

[15] Pearce, A., Law, C., Elliman, D., Cole, T. J., & Bedford, H. (2008). Factors associated with uptake of measles, mumps and rubella vaccine (MMR) and use of single antigen vaccines in a contemporary UK cohort: prospective cohort study. BMJ

[16] Antai, D. (2009). Inequitable childhood immunization uptake in Nigeria: a multilevel analysis of individual and contextual determinants. BMC Infectious Diseases, 9:181

[17] Horn, C. M. (2007). Childhood immunizations in four districts in rural Pakistan: a comparison of immunization uptake across study years (1994 and 1997) and an analysis of correlates. College of Graduate Studies and Research.

[18] Babalola, S. (2008). Determinants of the uptake of the full dose of diphtheria-pertussis-tetanus vaccines (DPT3) in Northern Nigeria: a multilevel analysis. Matern child Health J, DOI 10.1007/s10995-008-0386-5.

[19] Bhandari, P., Shrestha, S. S., & Ghimire, D. J. (2007). Sociocultural and geographical disparities in childimmunization in Nepal. Asia Pacific Population Journal, 22(1).

[20] Nath, B., Singh, J. V., Awasthi, S., Bhushan, V., Kumar, V., & Singh, S. K. (2007). A study on determinants of immunization coverage among 12-23 months old children in urban slums of Lucknow district, India. Indian J Med sci, 61(11).