RELATIONSHIP BETWEEN CONNECTIVITY AND CHILD HEALTH: KEY FINDINGS FROM FIELD SURVEY

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ABSTRACT

Growth and development has continued unsustainable in Pakistan due to shortage of appropriate physical as well as social connectivity. Connectivity supports trade, commerce and interactivity (with the interchange of all kind of information, thoughts, techniques and procedures, goods and services as well as transmission of funds), enhances production and economic growth, and eventually stimulates wealth. Connectivity considered as an essential part which is most relevant to economic development and it also capture foreign investment. Vision 2025 envisaged a well-organized transport system is a pre-requisite for rapid rural connectivity which in turn helps for the development of rural economy. Keeping in view the importance of connectivity for human development, present study explored the impact of connectivity on child health in rural Punjab. The study employs binary logistic regression on field survey data collected from district Sargodha. The study variables include child health, road connectivity, appointment from doctor using cell phone, vehicle ownership, family income, mother education and family size. The results revealed that road connectivity, vehicle ownership, appointment from doctor using cell phone, family income and mother education were positively related while family size was negatively related with child health. Study suggested that there is need to increase employment opportunities similarly private sector must start their own ambulance services effectively in order to meet unexpected health circumstances because there is absence of public sector ambulance services in rural areas. In the same way government should take measures to improve vaccination coverage and facilitate health staff with latest equipment like cell phones. Further, there is also needing to ensure rapid public transport system which should be provided in Sargodha city as well as for the people who lived in rural areas. It can only be possible through sufficient investment in road infrastructure. Finally, parents must focus on girl’s education for the sake of awareness among them which related to future challenges of child health, so they can prove better mothers in future.
KEYWORDS
Connectivity, Child Health, Transport, roads, Vaccination.

1. INTRODUCTION

Poor connectivity decreases the interactivity among health facilities and different population clusters that live in those areas which are far away from the roads. It is important to analyse the influence of connectivity (physical, human, and social) on sustainable growth of economy. To capitalize on human capital, it is necessary to build good connections among different areas in terms of roads, electricity, cell phone and internet. This increased connectivity will result in better job market, improved incomes, and better health facilities (GOP, 2011). World Bank estimations revealed that poor presentation related to transport sector is costing five percent loss to the GDP of our country. Additionally, about thirty percent output of agriculture wasted in 2015 because of incompetent connectivity and push agriculture community in the circle of poverty which creates negative impact on human capital. Those areas which are well connected have better enrolments in schools and also reflects better standard of living. Similarly, these areas also blessed with good medical facilities for women during pregnancy and large number of children birth handled by skilful attendants and have very little chances of birth at home (GOP, 2015).

Good health enables human capital to be more efficient and additional productive (Ljunge, 2014). Particularly, child health is very important part of human capital and it is very sensitive especially under the age of 5 years. Beside advancement in medical equipment and improved universal prosperity, there remain still some worries regarding poor health outcomes. It is also a fact that not all children suffer from poor health, still some children might be at higher risk as compared to others. But it is necessary to recognize potential details for these sustained health gender discriminations in children (Victorino and Gauthier, 2009). Child health is connected to overall environment of community, including contact to services that are provided for public use, in the same way child health is also related to characteristics of family. Family characteristics includes education of mothers which is commonly used as a proxy of family status and evidence shows that mother’s education creates impacts on child health (Schultz, 1993). The role of public policy also has greater importance in generating chances for children to have high quality health facilities and other necessary services that produce positive influences on child health. But different public services have different influences and it depends that how a public service communicates with different characteristics of family as well as with educational services and other characteristics of community (Escobal et al., 2005).

Human development indicator shows that Pakistan has not achieved the targets of human development as compared to other regional countries like Malaysia and China. They have higher life expectancy rate which was about 75 years while Pakistan and India have only about 66 years in 2013. Similarly, Pakistan has highest infant mortality rate which was 69.0 per thousand while India has 41.5 per thousand and Malaysia has the lowest infant mortality rate which was 7.2 per thousand. India has highest mortality ratio of maternal death which was about 190 per lac while Pakistan has second position in this category, the ratio of maternal death was 170 per lac while Thailand has lowest maternal death ratio and it was only about 26 per lac in 2013. Similarly, Pakistan has the highest population growth rate which was about 1.92 percent while India suffers
from 1.24 percent and Thailand has lowest population growth rate which was 0.34 percent (GOP, 2015).

Pakistan has highest under-5 mortality ratio and it was about 85.5 per thousand while in India it was 52.7 and Malaysia has 8.5 per thousand which was lowest under-5 mortality in comparison of all other countries (GOP, 2015). It is already stated by a study (UNICEF, 2008) that about one third children that are died are only due to those diseases which could be prevented from proper vaccination. Moreover, it is also evident that about 20 percent of these diseases occur due to the poor nutritional status and insufficient availability of health facilities during pregnancy. The availability of vaccine and parental care creates significant influences on child life; it also creates effects on economic opportunities. It also affects different employment opportunities (Majid, 2013). It was reported by World Health Organization (WHO), that about 23 million children were not receiving proper vaccine in 2009. More surprisingly 70 percent of those children were lived in ten countries, including Pakistan (Aslam and Kindon, 2012). It was indicated that among every five kids one child was not vaccinated as well as rural areas, two among every three kids were not properly vaccinated (USAID, 2012). Mothers are more conscious in order to complete the vaccination of their children. Literature highlighted a strong relationship among maternal learning and children health (Ali et al., 2011). So, in the light of above discussion, study will focus on district Sargodha, particularly on rural areas and try to explore the important insights of child health in relation with connectivity.

2. LITERATURE REVIEW

Previous discussion has defined the relationship between child health and different community variables. Child health has significant importance in the development of societies which must be strongly develop in the early life of children it will produce positive influence on child health in their later life (Gupta et al., 2007). It was also evident that higher level of inequality exists, especially in isolated areas, so it is necessary to connect isolated areas with national and regional markets of the country (Shami, 2012) for better access towards health facilities, electricity and road infrastructure which in turn provide help to sustain child health (Majid, 2013). By investing in health services, particularly in poorer countries, positive impacts created on GDP and provide help for the reduction in gap among richer and poorer families which is very necessary (Amiri and Gerdtham, 2013). Those children who belongs to lower income families suffered more poor health conditions (Malat et al., 2005) because poor households spent less on medical expenditures and they spends only 6 to 5 percent of their income on the health care services (Su et al., 2006). Often, they are biased toward male children, equipped them with better health facilities as compared to female children (Alderman and Gertler’s, 1997). But better access to local health facilities reduces the chances of gender discrimination in the long-term (Holmes, 2006).

In Brazil the quality of health services provided by government was much lower than private health facilities. It happened because of the preference of richer people for private health services. It was also shown that large numbers of people were not able to meet basic needs of life like food, shelter and proper clothing because they lived below poverty line (Crespo and Reis, 2008). In developing counties, between every 5 children at least one child was poor, continuously this trend of poverty increased in 2007 as compared to 2000 which is shown in statistics that about 13.3 million children survive under worst poverty conditions (Moore et al., 2009).
Some other factors are also responsible for poor child health like pollution may become a reason of death among children in younger ages (Beatty and Shimshack, 2014) similarly extreme precipitation may become a cause of hand, mouth as well as foot disease in children (Cheng et al., 2014). In the same way behaviour of parents creates effects directly on the health of children in context of their mental as well as their physical health (Burgess et al., 2004). One more important factor of father’s job loss also affects child health negatively, but mother’s job loss enables her to provide more time for take care of their children, specifically younger children more effected by parental job loss (Liu and Zhao, 2014) because in the absence of parent’s child’s mental health more influenced as compare to their physical health (Lee, 2011).

3. DATA AND METHODOLOGY

The present research was conducted to analyse the relationship between child health and connectivity in District Sargodha. The basic aim of the study was to quantify the benefits of connectivity on child health. District Sargodha was selected as study area because children in rural areas of Sargodha suffered poor health conditions due to improper accessibility of health services. This study was conducted on comparison basis between rural and urban Sargodha. Study contain sample of 150 respondents, collected from rural and urban households of district Sargodha. All samples were collected with proper care, attention and according to the need of study. To obtain the data a well-designed and pre-tested questionnaire used. After pre-testing some changes developed in the questionnaire and then proper face to face interviews were conducted from respondents. The information collected related to socio economic characteristics, use of cell phones, child health, road connectivity, transportation and finally suggestions of respondents were taken into account. To check the relationship of child health with other explanatory variables study employed binary logistic regression by using following logit model.

$$CH = f(RC + VO + ADUC + FE + FI + ME + FS)$$

(1)

To analyse the health status of children we ask from people that weather their children gets sick or suffer poor health conditions in last four weeks as a measure of health status since it is much reliable as compare to self-evaluated health (Li et al., 2015).

Study used child health as a dependent variable. This variable is binary in nature and researcher assign 0 for unhealthy child and 1 for healthy child. Road connectivity (RC) defines that weather paved road is directly linked to the area or not, this variable is dichotomous in nature and researcher assign 1 for directly paved linked roads and 0 otherwise. Vehicle ownership (VO) define that weather transport is available in case of emergency or not, this variable is categorical and represents VO = 1 if transport is available in case of emergency and 0 otherwise. Similarly, appointment from doctor using cell phone (ADUC) defines the role of cell phones in child health and this variable is also dichotomous in nature, ADUC = 1 if child parents take appointment from doctor using cell phone and 0 otherwise. In the same way family income (FI) indicates the total family income from all sources, this variable is continuous in nature and it is measured in thousand rupees. Another important explanatory variable is mother education (ME) which indicates child’s mother education level which is measured by mother’s year of schooling and this variable is also continuous in nature and finally family size (FS) last independent variable, includes all the members of family living in one home, this variable is continuous in nature and it measured in terms of addition of one person in family.
4. RESULTS

Table 1 summarize the key statistics of data in terms of accessibility towards hospitals or health clinics and also defines the connective situation of rural and urban areas comparatively.

Table 1. Key Statistics of Households

<table>
<thead>
<tr>
<th>Variables</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of only 1 earning hand in one family</td>
<td>87</td>
<td>78</td>
</tr>
<tr>
<td>Percent of Illiterate Mothers</td>
<td>57</td>
<td>6</td>
</tr>
<tr>
<td>Percent of Illiterate Fathers</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>Percent of cemented houses</td>
<td>46</td>
<td>74</td>
</tr>
<tr>
<td>Percent of households who ever used ambulance service</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Vaccination is very important for children to protect them from different diseases after birth which in turn help to reduce infant mortality rate. A basic vaccination must be completed in 15 months after child birth and it includes 6 types of vaccines that are must be provided at specific time. A vaccine which immediately injected after birth to prevent the child from Childhood Tuberculosis and it is called Bacillus Calmette Guerin (BCG). Similarly, Pentavalent (P1), Pentavalent (P2), Pentavalent (P3) should be provided to children in the age of 1.5, 2.5 and 3.5 months respectively after birth, to prevent them from diseases like Poliomyelitis, Diptheria, Wooping Cough, Tetanus and Hepatitis B. In the same way Measles 1 (M1) and Measles (M2) provided in the age of 9 and 15 months respectively, to prevent the child from Measles.

Table 2 compares the situation of vaccination coverage in rural and urban area of district Sargodha. It shows that BCG was received by 78 and 98 percent children in time while 22 and 2 percent children not provided by the BCG at proper time in rural and urban areas respectively. Similarly, P1 was provided to 64 and 82 percent children at proper time while 31 and 18 percent of children were not provided by P1 in time respectively while 5 percent children were not mature for P1 vaccine in urban area. Similarly, P2 was provided to 61 and 72 percent children at proper time while 29 and 28 percent children were not provided by this vaccine in time respectively and 10 percent of children were not mature for P2 vaccine. P3 was provided to 61 and 62 percent children in time while 28 and 36 percent children were not provided by P3 at given time while 11 and 2 percent of children were not mature for the P3 vaccine respectively. On the other hand, M1 was provided to 66 percent children in time in both rural and urban areas while 13 and 10 percent children were not avail this vaccine at proper time and 21 and 24 percent children were not mature for M1 vaccine respectively. Finally, M2 was provided to 56 and 64 percent children in time while 16 and 8 percent children were not achieved this vaccine in time respectively and finally 28 percent children were not mature for M2 vaccine in rural and urban area.

Table 2. Child vaccination coverage (Percentage)

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>Given in time</th>
<th>Not given in time</th>
<th>Immature</th>
<th>Given in time</th>
<th>Not given in time</th>
<th>Immature</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>78</td>
<td>22</td>
<td>0</td>
<td>98</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>P1</td>
<td>64</td>
<td>31</td>
<td>5</td>
<td>82</td>
<td>18</td>
<td>0</td>
</tr>
</tbody>
</table>

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Table 3 defines the results of logistic regression the main dependent is child health. The major explanatory variable is road connectivity which is constructed by using the proxy of paved roads; those areas which are connected directly by paved roads are considered as connected areas while otherwise it considered as isolated area. It is worth noting that some rural areas are totally isolated, not connected by any proper road, though which transport flows consistently while some areas are semi-connected by non-paved roads. It shows in results that road connectivity has positive impact on child health.

Our data shows that where paved roads are directly connected with rural areas, those areas reflect better enrolments of children in schools as well as they also have better access to transport. Vehicle ownership creates positive and significant impact on child health. Educated parents mostly possess doctor’s contact number it was reflected in field survey that mostly in urban areas parents often take appointment from doctor by using cell phone to save their time to reach the doctor exact on time as our results shows that it effects child health positively. Those parents who are well educated often contain good jobs and their earnings are higher as compared to non-educated parents, it is evident that richer families are better able to overcome poor child health as our results indicates that family income effects child health positively. Particularly mother education is very important, if mother’s schooling reached up to primary level then chances of infant death decreased up to significant level similarly our findings shows significant relationship between mother education and child health.

Table 3. Results of Logistic Regression

<table>
<thead>
<tr>
<th>Variables</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Connectivity</td>
<td>4.21 (0.00)*****</td>
</tr>
<tr>
<td>Vehicle Ownership</td>
<td>2.98 (0.00)*****</td>
</tr>
<tr>
<td>Appointment from doctor using cell phone</td>
<td>2.85 (0.00)*****</td>
</tr>
<tr>
<td>Family income</td>
<td>0.09 (0.01)**</td>
</tr>
<tr>
<td>Mother education</td>
<td>0.52 (0.08)*</td>
</tr>
<tr>
<td>Family size</td>
<td>-0.31 (0.04)**</td>
</tr>
</tbody>
</table>

Note: [Level of significance shows in parenthesis] *, **, *** Significant at 10, 5 and 1 percent respectively
Finally, the last explanatory variable is family size which shows negatively significant relationship with child health because as family size increases it will reduce the average expenditure of food with respect to per person, particularly in case of fix monthly income of family.

5. CONCLUSIONS AND POLICY IMPLICATIONS

From all the evidences and arguments provided above we concluded that this research has studied the influence of rural connectivity on child health in district Sargodha. Particularly, it has defined in this study that better access through excellent road networks, as it dignified through paved roads in study area—has affirmative and significant influence on child health. Findings reveal that road connectivity, vehicle ownership, appointment from doctor using cell phone, family income and mother education has positively related with child health and create significant impact on child health while family size negatively related with child health. At the end in the light of estimated results study suggested that there is need of transport system and ensure better road networks similarly, increase vaccination coverage through cell phones, better education of mothers and ensure increase supply of health care services in study area as well as in the whole country.

- The results of this study show that better connectivity improves child health. The results related to transport availability and road connectivity may leads toward little costly policy implication. Ensure rapid and effective public transport system and it should be provided in urban and rural areas, because some people who don’t have their own conveyance and they prefer to higher transport on rent, can easily travel from one place to another and it can only be possible through sufficient investment in road infrastructure.

- Similarly, Table 2 indicated that lots of children were not provided by vaccine at proper time and it happens mostly in hard to reach rural areas and lack of facilities. We all know very well that number of cell phones increases in our country and almost every household has cell phones. There is need to develop awareness in parents, particularly in rural areas, that they should keep connected with health staff by using their cell phones, call them time to time and ask them about the vaccination of their children.

- One of the major problem is that there is only one earning hand and number dependents increases with the passage of time in a family. So, it is necessary to generate government employment or by providing incentives to private sector that they should start their businesses in our rural and urban areas which in turn help to rises earning hands in one family, increase the income so it ultimately create positive impacts on child health. It is already evident by literature that more income control rapidly adverse conditions of child health.

- There is no ambulance service in rural areas that’s why people face trouble to use ambulance, so there is incentive for private sector that they could start their own ambulance services to overcome worse health circumstances and it ultimately increase employment opportunities.

- Parental education is very important aspect which creates good impacts on child health. So, it is necessary that fathers and mothers both should be aware about expected critical health conditions of child health which can only be possible through great emphasis on parental
education. Particularly it is the hour of need to focus on girls’ education which enables them to become better mothers in future life.

REFERENCES


