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Education Complements Health Status of Households in Kerala: A Study of Malappuram District

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Abstract: *Health is a persistent source of education development and social welfare of a nation. There is unpredictable qualitative and quantitative association between education and health. This paper is generated from the pilot survey results of the research works of the authors. In this paper the researchers assess about the link between education and health by stating two objectives: to examine the status of education and health of people in Kerala and to analyse the influence of education and other individual characteristics on the health status of households. A multiple regression model has been applied for the analysis of data. An education index is constructed by taking the actual years of formal education of individuals ages 23 and above since they have most likely already be completed their formal education. For the construction of aggregate health index (AHI), the researchers have framed nine other health indices namely, Physical Environment Index (PEI), Life Style Disease Index (LSDI), Consumption Index (CMPNI), Intoxicant Abuse Index (IAI), Health Awareness Index (HAI), Maternal Health Index (MHI), Health Maintaining Index (HMI), Individual Hygiene Index (IHI) and Nutritious Food Index (NFI). This paper exhibits that there is an improvement in the education and health status of people of Kerala during the analysis period of seven decades. Education has a positive significant association on the health status of households. Income of the households is negatively related with health status in the study area since, higher income households diagnose their health problems and reported it properly. Age status is negatively related with health status of households. The sex ratio and the year of marriage are positively associated with level of education.*

Key Words: *Aggregate Health Index, Body Mass Index, Education Index, Income index, Literacy.*

I. Introduction

Education and Health are the two social goals and is considered as an integral part in the development process of a nation. There is persistent and unpredictable qualitative and quantitative association between education and health. This association has been observed and analysed by many researchers at different time periods. The health status of a community depends on its socio-economic, educational, environmental, biological and political factors. Education is an essential element for the development of mind. According to the 2003 Human Development Report, "Education, health, nutrition, water and sanitation complement each other, with investments in any one contributing to better outcomes in the others".

Education and health are the two interrelated qualitative achievements of the human being. It has also been rightly recognised that improvement in the quality of human resource, by way of education and health, contributes not only to economic development, but also to the general well being of the people. Education is an instrument which provides the means of living to the people. It also will provide the income and wealth to the people. While education acts as a means of income and wealth, it will be supported to overcome the ill-health or malnutrition. The constitution of World Health Organisation says, *"Enjoyment of the high standard of health is one of the fundamental rights of every human being".* The general education and health education make awareness among the people about the need of good health and the problems and consequences of ill-health.

II. Review of Literature

Comparative literature shows that education affects health. The lack of education can be seriously detrimental to health. Namely, people with lower levels of education die younger and live more years with disability than people with higher levels of education. Each additional year of schooling reduces mortality rates by 8% (Deaton, A 2003). Adequate social and cognitive development in childhood is a necessary foundation for success in education, which has a strong influence on health.

Almost all of the literature reviewed in this paper supported the strong correlation between the health status and the education level arguing that more years of schooling produces more health. According to Ross and Mirowsky (1999, p. 457), the findings on the positive effect of years of education on health are consistent with the argument that years of schooling develop effective capacities that shape many of life circumstances that ultimately affect health, including paid full-time employment, fulfilling work, economic well-being, a sense of

personal control and social support, and a healthy life style. Each year spent at school up to 16 is associated with better perceived health and physical condition. Schooling provides general skills, especially cognitive skills, specific skills useful for work; it socialises people into values, behaviours and dispositions necessary for achievements.

Health provides human capital. Grosssman (1972) develops a model in which illness prevents work so that the cost of ill health is lost labour time. Therefore ill health may also be an effect on worker productivity. There is strong correlation between literacy levels and life expectancy and that literacy may have an important influence on health and hygiene and further the educational advancement becomes a catalyst for economic development (Hicks-1980). Investment in education will make overlapping generation effects. Schultz (1961), observed that investment in education is three to five times more attractive than investment in physical capital. Ross and Chia-ling (1995) point out that education is associated with good health. They argue that education exerts its positive effects on health through four broad channels: by influencing work and economic conditions; by enhancing social and psychological resources; by enabling life-style and health behaviours; and directly, with no known mediators. Namely, people with more education are less likely to be unemployed; they earn more and have more fulfilling jobs. People with more education also have better social-psychological resources (social support and high sense of personal control). Besides, they are more likely to have healthier lifestyles compared to those with lower education. Better educated are less likely to smoke, are more likely to exercise, to drink moderately, and to receive preventive medical care.

Education is considered by the authors as the main indicator of socio-economic status, because it affects occupation and income, which all have influence on health (Bossuyt et al, 2004, in: Camargos, Machado and Rodrigues, 2006; Valkonen, Sihvonen and Lahelma, 1997; Bossuyt, Gadeyne, Deboosere and van Oyen, 2004; Department for International Development, 2000; etc.). Currie (2008) says that education based inequality sorts people into different positions that are associated with different risks and rewards. Location in the stratification system shapes the ongoing stressors to which people are exposed. Better education leads to jobs connected to better income. The budget constraint will be less binding in wealthier families and these families will be better able to purchase more or better quality material health inputs, such as better quality medical care and food, as well as safer toys, housing and neighbourhoods.

Zill (1996) also argues that many of the health problems that affect today's children are exacerbated by high-risk behaviours of parents. Several kinds of adult behaviour that can have detrimental effects on health and development of children have been found to be more common among high school non completers than among parents with more schooling. The author also claims that limited maternal education was associated with lower literacy and higher problem behaviour in preschoolers. Mothers having low literacy skills often cannot give adequate supervision that leads to unintentional child injuries, harsh punishment, failed to get children immunized etc.

There is clearly two-way causality as health is partly a consequence of income levels. Preston (1975) demonstrated a positive correlation between national income levels and life expectancy. One of the reasons for this link is that higher income levels allow access to inputs that improve health through which better food, clean water and sanitation, education and medical care.

III. Definition of health and Education

Public health has a broad definition that includes not only the "absence of disease" but also "overall well-being". Health is now considered as an ecological characteristic of populations and not simply a personal and family level issue (Griffiths and Hunter, 1999; Katz, Peberdy and Douglas, 1997; Peterson and Lupton, 1996). McMichael and Beaglehole (2003).

WHO defines, "*Health is the state of complete mental, physical, social, economic and spiritual well being and not merely the absence of disease or infirmity".*

Education is a medium through which knowledge is imparted from one generation to another. It leads to further learning and research.

IV. Research Problem:

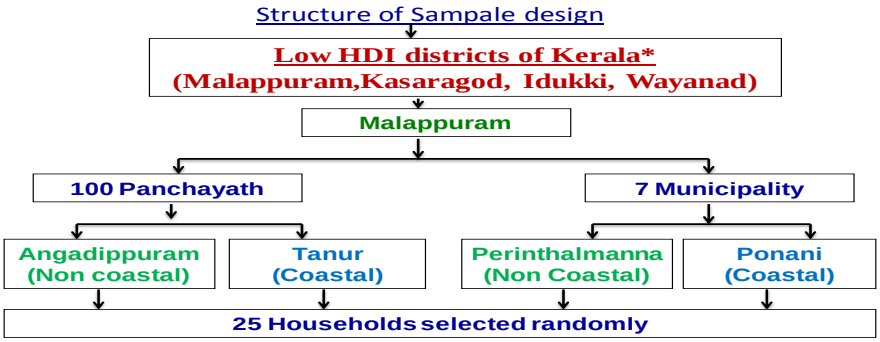
Does education affects health positively or negatively?

V. Objectives

1. To examine the status of education and health of people in Kerala.
2. To analyse the influence of education and other individual characteristics on the health status of households.

VI. Source of Data and Sample Design

Both primary and secondary sources were used for the data collection. Kerala Government Economic reviews, Census reports, Reports of the Directorate of Economics and Statistics, Economic Surveys, Human Development Reports, Sample Registration System Reports, National Family Health Survey Reports, Reproductive and Child Health Reports, National Rural Health Mission (NRHM) reports etc were used for fulfilling the first objective. A primary data is collected from Malappuram District of Kerala for fulfilling the second objective



Note: * The low HDI districts is based on the Human development indicators, Human development report-Kerala 2005

VII. Methodology

For the first objective, the researchers have considered the literacy status and basic health indicators for seven decades. The analysis is based on the scatter diagram and linear trend models. For the second objective, the Correlation co-efficient and multiple regression models were applied.

$$H_{ih} = a + \alpha E_{ih} + \beta Y_{ih} + \gamma A_{ih} + ui$$

Where $H_{ih}$is a measure of household i's health, E_{ih} stands for household i's years of completed education, Y_{ih} is the household i's income, A_{ih} is the household i's age and 'a' is the constant term and 'ui' is the error term. α, β and γ are the coefficients of education , Income and Age respectively

For the analysis of the second objective, the researchers constructed the year of education index by considering the actual year of formal education of individuals ages 23 and above since they have most likely already completed their formal education. For the construction of aggregate health index (AHI), researchers have framed nine other health indices namely, Physical Environment Index (PEI), Life Style Disease Index (LSDI), Consumption Index (CMPNI), Intoxicant Abuse Index (IAI), Health Awareness Index (HAI), Maternal Health Index (MHI), Health Maintaining Index (HMI), Individual Hygiene Index (IHI) and Nutritious Food Index (NFI). All indices are standardised by the formula, $\text{Index Standardisation} = \frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$

VIII. Education Status of Kerala

Kerala has achieved far ahead among the other Indian States in social indicators like literacy rate, higher enrolment rate of students, higher percentage of girl, SC and ST students in schools and colleges, low dropout rate among students etc. Kerala State government and Local Self Government institutions are very particular in providing good quality infrastructure and hygienic environment in educational institutions. The state has attained a remarkable achievement in the field of Human Development Index (HDI), which is comparable with those of the developed countries.

Literacy

The literacy rate of Kerala is very much comparable with the most advanced countries of the world. Kerala's literacy rate was only 47.18% in 1951 has almost doubled to 93.91% in 2011. The male, female literacy gap was 21.92% in 1951 which has come down to 4.04% in 2011. The trend of Kerala's literacy rate from 1951 to 2011 is given in table 1

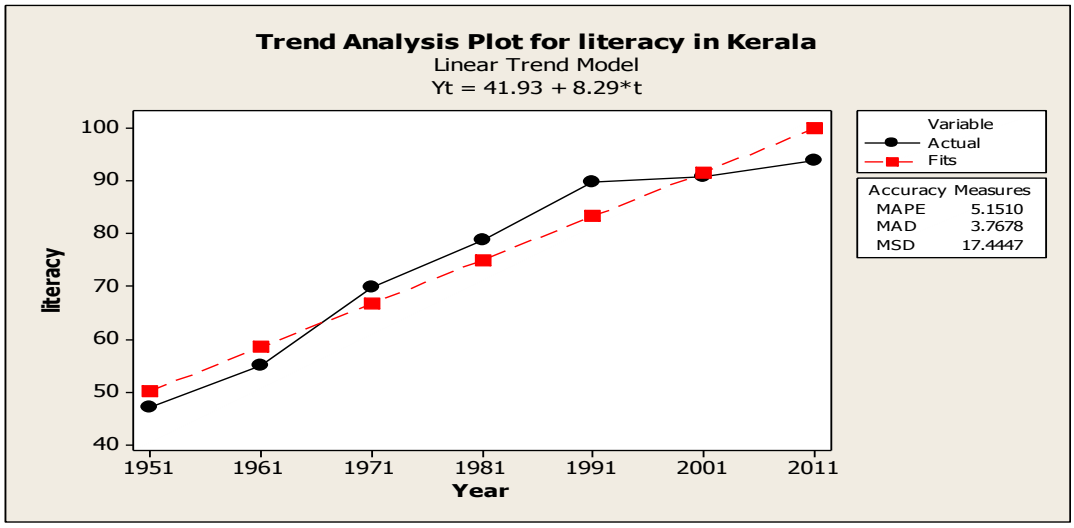
Table 1: Literacy Rate Kerala 1951-2011*

Year	Persons	Male	Female	Literacy Gap
1951	47.18	58.35	36.43	21.92
1961	55.08	64.89	45.56	19.33
1971	69.75	77.13	62.53	14.6
1981	78.85	84.56	73.36	11.2
1991	89.81	93.62	86.17	7.45
2001	90.92	94.24	87.72	6.52
2011	93.91	96.02	91.98	4.04

Source: Census of India 2011: Provisional Population Totals

* Literacy rates for 1951, 1961 and 1971 related to population aged five years and above. The rates for the years 1981 to 2011 related to the population aged seven years and above.

Fig.1



IX. Health Status of Kerala

A high emphasis has been given to health and hygiene in the state from the very historical past has helped the state to achieve a high level in health status and also to undergo the demographic transition. Kerala makes its remarks with a vast network of public health institutions with the sub-centre and PHC, CHC, Taluk/District Hospitals and Medical College Hospitals at the primary, secondary and tertiary levels, which leads to the universal accessibility and availability of medical care even to the poor sections of the society. The extensive spread of medical care institutions in Indian systems of medicine and homeopathy also made this possible. The extent of private sector health care institutions also provides significant role in the provision of health care in the state. But the abundant health care institutions are not enough to prevent the problems due to rapidly increasing prevalence of non-communicable and communicable diseases associated with lifestyle changes and the problems of old age groups. It is true that in Kerala both birth rate and death rates started falling from the middle decades of the 20th century, the fall in death rate being more rapid than that of birth rate. Kerala, thus, finished the second stage and enter in to the third stage of demographic transition in very beginning of the 21 century. The steep fall in the birth rate started in the early seventies. The birth rate during 1941-51 was 39.8 and went down to 14.8 in 2012. The death rate of Kerala during 1941-51 was 18 per 1000 population which has come down to 7 per 1000 population in 2012.

Table 2: Basic health indicators of both Kerala and India 1951-2012

Indicators	Kerala				India			
	1951	1971	1991	2012	1951	1971	1991	2012
Birth rate	39.8	37	19.8	14.8	39.9	41.2	30.5	22.1
Death Rate	18	11	5.8	7	27.4	19	10.2	7.2
Infant Mortality Rate	153	66	17	13	192	129	91	47
Life at birth : Male	39	59.3	68.7	71.4	32.5	47	58.6	62.6
Female	42.3	59.3	73.7	76.3	31.7	45.6	59	64.2

Source: Government of Kerala: Economic Review, Various Years

CMIE, Data Base for the Indian Economy-1989, Government of Kerala: Directorate of Health Services

As per the above table of basic health indicators, Kerala state is ahead in all the health indicators than the national average. The life expectancy of Kerala for both male and female are more than that of the national average.

X. Influence of education on the health status of households

The regression result exhibits that there is a significant positive correlation between education and health. The health index is negatively related with age of the people. It is higher among young age groups than old age groups. The income of households is negatively related with the health status index in the study area[1]. Since people in the study area are more health conscious, if the income allows people will diagnose the health problems and identify the disease and reported it properly. But simultaneously, the less income groups also suffers various health problems equal to or more than that of high income groups but due to lack of proper income it will not be diagnosed. Therefore the health problems of less income groups were not properly reported

Table 3: Education, Income and Age versus Health Status

Variables	Aggregate Health Index(AHI)					
	Correlation	P-Value	Regression			
			Constant	Coefficient	R^2	$R^2_{(adj)}$
Education Index	0.559	0.004	0.550	0.195	31.3%	28.3%
Income Index	-0.237	0.254	0.691	-0.0676	5.6%	1.5%
Age Index	-0.149	0.491	0.687	-0.0543	2%.1	0%

Source: Computed from the variables Specified

The sex ratio of the sample area is 1475 which is a clear indication of the impact of education. The correlation result also supports the positive link between education and sex ratio[2]. The average year of marriage of the study area is 23. It is also a net result of education and the correlation results have also support it[3]. The Body Mass Index (BMI) of the study area is 24.95 which is the upper limit of the normal range 22 to 25.

XI. Conclusion

This paper discloses a significant positive association between education and health in the study area. Since education and health are the two inter related qualitative elements and which are the integral parts of the development of a nation, the authorities should consider the education and health sectors in its real sense. The education and health sectors should be treated as the two important social goals to accelerate the economic development and social welfare.

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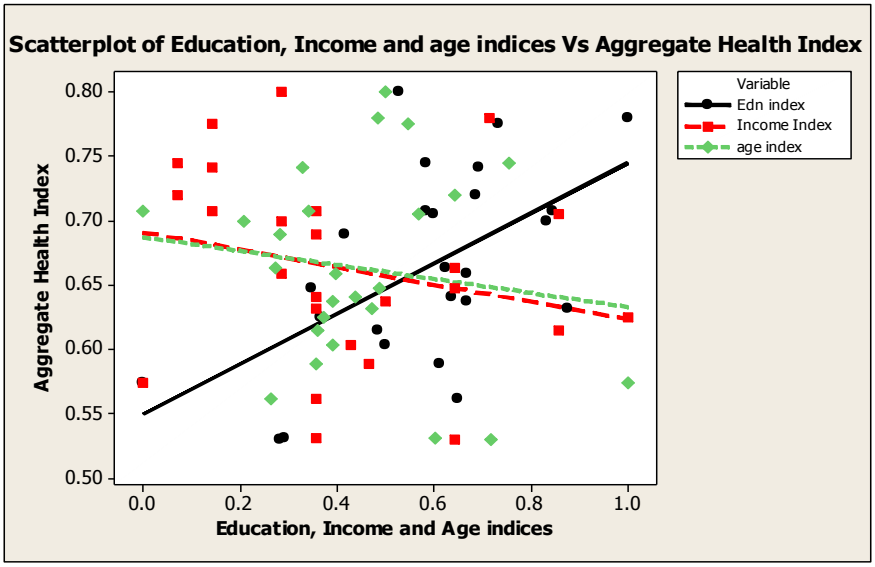
Appendix

1.



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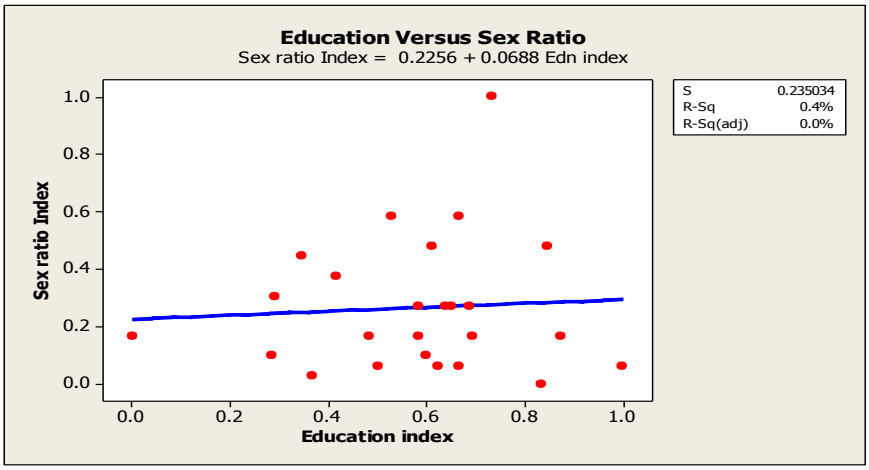

3.