Differential Impact of Female Education on People's Health: An Experiment using Indian Data

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Abstract

In this experiment the differential impact of Women's education on Peoples Health over the entire Life Time, is examined taking the age-specific death rates as the indicators of Peoples Health. The major Indian States are used as the units of analysis and the values of the correlation coefficient are compared to study the relative impact.

It is observed that the impact of female education increases from neo-natal to post-neo-natal ages and then to childhood ages of (1-4) years. It then starts decreasing very slowly for both males and females and decreases drastically from age (15-19) years in the case of males, but in the case of females it continues to be high although decreasing. From about the age of (40-44) years the impact starts increasing and becomes high in the elderly age range for both sexes.. It is hoped that this pattern will be confirmed by other data sets.

Introduction

It has become well known by now that female education has an impact on all Demographic processes. However, only the impact of women's education on fertility has been studied in greater detail. Thus, impact of women's education on age at marriage, on the use of contraception, on the breast feeding, and so on, have been studied in greater detail by several Researchers. But, the impact of women's education on People's Health, seems to have not been investigated in detail.

The purpose of the present Experiment is to examine the pattern of impact of women's education on the Health of People over the entire human Life Time, taking the age-specific death rates as the indicators of Peoples Health, and using the Indian States as units of analysis. The investigation also brings out the difference in the impact on the Health of males and of females. Simple Product Moment Correlation Coefficients between the age-specific death rates and the percentage of females aged (6+) years with High School or higher level of education (taken as the indicator of the level of female education in the community) are used in the investigation.

The Hypothesis

An earlier analysis by Sivamurthy (2003) showed that the impact of women's education on Post-neo-natal mortality is higher than its impact on neo-natal mortality,

but is lower than its impact on the early childhood (1-4) years mortality. It was therefore hypothesized that the impact of female education increases from neo-natal age to Post-neo-natal age and further to the early childhood age:(1-4) years, as the women shall play a greater role in looking after the children of these ages. But, the impact will start decreasing as the children grow older and the impact of the effect of the outside social environment becomes more important.

Extending this argument it is hypothesized that People's Health during the adulthood ages, say from (15-19) years to (45-49) years will be more dependent on individual behaviour and hence female education will have comparatively low impact on People's Health, especially in the case of males. In the case of females, however, the impact of female education in this age range will also affect the mortality through its impact on the behavior of women as this age range includes the reproductive ages. Hence, it is hypothesized that in this age range the impact of female education on the Health of women will be much higher than its impact on the Health of males.

In the elderly age groups: (50-54) years onwards, impact of female education will increase compared to the previous age range, as the women will start playing more and more important role as Health Care providers. Also, the gap between the impact on the Health of females and that on the Health of males will become greatly narrowed down (see Sivamurthy, 2005).

Methodology and the Data Used

The analysis is carried out taking the major Indian States as the Units of analysis. Death rates in the age groups: (0-1), (1-4), (5-9), . . . (65-69), & (70+) years are used as the indicators of the Health of the People. In the present analysis, the sex-age-specific death rates used are those obtained from the SRS (Sample Registration System), which have been used by the Office of the Registrar General of India (1995) for the construction of the State-wise Life Tables. Therefore, no separate effort has been made here to evaluate these data. Also, in this data set the death rates for neo-natal and post-neo-natal ages are not available. Hence, a separate analysis is carried out to examine the relative impact of female education on mortality in these infant ages taking the detailed data from the SRS Annual Report (1994). Unfortunately again these detailed data are not available for males and females separately. This part of the analysis is therefore, carried out taking the data for males and females together.

The data on the educational level of the women in the States used in the analysis are the percentage of females aged (6+) years with High School and above level of education obtained from the Nional Family Health Survey, India (1992-93), (International Institute for Population Sciences, 1995). The percentage of illiterates among females aged (6+) years obtained from the same Survey are also used to examine whether this Simple Index could be used as the indicator of the level of education in the community. The analysis has brought out, however, that this Simple Index does not bring out the pattern of the impact properly. Hence, in the presentation here, only the results using the percentage of females aged (6+) years with High School and above level of education are given more importance.

First, scatter diagrams were drawn taking the above indicators of the level of education in the States on the X-axis and the mortality rates in the different age groups on the Y-axis in order to visual the relationship. Then, in order to bring out the pattern of impact of female education on the mortality rates over the age ranges, the values of the Simple Correlation Coefficient are computed and compared.

The results

(A) Impact on the Health of Children in the Infant ages

Table 1 presents the data on neo-natal, post-neo-natal and (1-4) years' childhood age mortality for both males and females together, obtained from the SRS in India. It may be observed from the data that the mortality rates in the case of Kerala State are too low compared to those in other States. Hence, the data for Kerala State are not included in the analysis. In Table 1, R1 is the Correlation Coefficient between the respective death rates and the percentage of illiterates among females aged (6+) years, and R2 is the Correlation Coefficient between the respective death rates and the percentage of females aged (6+) years with High School and above education. The values of R2 clearly support the hypothesis that the impact of women's education on mortality increases from neo-natal age to the post-neo-natal age, as observed by Sivamurthy (2003) in the earlier analysis. It is however, unfortunate that these data are not available for males and females separately

(B) Impact on the Health of the People in the whole Life Time.

Table 2 shows separately for males and females, the death rates by age for the whole Life Time. It may be observed again, that the death rates in the case of Kerala are too low compared to those in all the remaining States. Accordingly, the data for Kerala State are not included in the analysis. As in the case of infant ages, the Correlation Coefficients R1 and R2, as defined above, are computed for each of the age groups and are presented in Table 2.

In order to see the pattern of impact of women's education over the entire age range, the values of R1 and R2 are shown in Figure 1 and Figure 2 respectively. While the values of R1 show a general declining pattern over the entire age range for both males and females (see Fig.1), the values of R2 depict a very interesting pattern (see Fig.2), which supports the hypothesis given in Section 2 above.

It may be observed from Fig.2 that in the case of males, the value of the Correlation Coefficient (R2) increases from age (0-1) to (1-4) years, then it declines very slowly in age groups (5-9) & (10-14) years and after that it suddenly drops to a low level in (15-19) years age group and continues to be low until age (35-39) years. From the age 6+ (40-44) years onwards, the value of the Correlation Coefficient increases to a high level although not to the same high level as in the infant ages.

In the case of females, on the other hand, the value of R2 increases continuously from age (0-1) to ages (10-14) years, and then starts declining slowly, although the value continues to be high. This declining pattern is reversed from (50-54) years onwards.

Thus, we may infer that the gap between the impact of women's education on the health of males and on the health of females, is very big in the age range (15-19) to (40-44) years which includes the reproductive life period for females, but it is small in infant and childhood ages and again in the elderly age range of (50-54) years to (70+) years (see Sivamurthy, 2005). Apparently, these observations support the hypothesis given in Section 2 of this paper.

Concluding Remarks

The results of the experiment carried out using the Indian data, bring out that women's education has a big impact on the health of males and of females in the Infant and Childhood ages as well as in the elderly age range. But, in the adulthood ages from (15-19) to (40-44) years the impact is big for females but not for males. This supports the hypothesis that individual behaviour becomes the most important factor affecting males' health in this age range. Even in the case of females, the high impact observed in this age range, will have to be interpreted as due to the impact of women's education on the behaviour of females in this age range which includes the reproductive life time for females.

It is hoped that the analyses using data from other countries will support the hypothesis formulated in this paper. The results will also be useful in formulating health policies and programs.

References:

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Fig 1: Correlation of mortality rates in age groups with Percent of females (6+ yrs.) illiterates (Without Kerala State)