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A study of major determinants of health status among north Bihar Darbhanga district

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Abstract

Many factors combine together to affect the health of individuals and communities. Whether people are healthy or not, is determined by their circumstances and environment. To a large extent, factors such as where we live, the state of our environment, genetics, our income and education level, and our relationships with friends and family all have considerable impacts on health, whereas the more commonly considered factors such as access and use of health care services often have less of an impact.

Keywords: Infant Mortality, so identified determinants, life expectancy

Introduction

The health of an individual has been defined by the World Health Organisation as a state of complete physical, mental and social well-being, and not merely absence of disease or infirmity. This comprehensive definition has made it necessary to define the health of a community in a broad perspective, and not merely in terms of the individual demographic indicators such as Birth Rate, Death Rate, Infant Mortality Rate, Life Expectancy at Birth, Mortality Rate by Causes, and so on. A community would be healthy if a large majority of the individuals constituting the community were healthy. The primary requirements for anyone to be healthy are availability of adequate food, shelter and clothing; but these necessities could be met only if there is a sufficient scope of income generation.

In fact, health status of individuals is characterized by a multiplicity of factors—demographic, physical as well as social health infrastructure. Relative significance of these factors is not expected to remain static, but instead may be differential temporally as well as spatially. An attempt has been made in the paper to identify the chief determinants of health status among the major North Bihar Darbhanga, and to examine the extent and pattern of disparities in the health status. An evaluation has also made on the relative positioning of the states, jointly on the basis of the so identified determinants.

In his paper discussed the measurement of economic development in order to identify the backward regions, and, subsequently, to examine the trends in inter-regional and inter-sectoral disparities in Darbhanga Urban. The technique of Principal Component Analysis including the construction of Composite Index was adopted for the purpose. It was also revealed that less developed states were moving towards national composite rate and the disparities were reducing. Discussed about the disparities of the backward regions in a developing Darbhanga Urban, which would be helpful in formulating plan to avoid disparities and composite index of development based on co variation in various indicators of development was constructed. It was pointed out that disparities had not been reduced in the course of 15 years of planning. Based upon the analysis of 18 Blocks, examined the inter-linkages between regional imbalances and plan outlays for the different Blocks. Further, in order to construct a composite index of development, the author employed principal component analysis and noticed that Punjab scored the highest and Bihar the lowest rank. Pathak and Gaur (1997) has brought to light in objective and quantitative terms the utility of the systems approach for finding out in relative terms the health status of different States of Bihar, and also the individual importance of various environment and programme factors in determining the health status. The author concluded that with the increase in infant mortality rate and crude birth rate, the value of the composite index increases, indicating that the

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situation is becoming more and more unhealthy; but, the association between infant mortality rate and life expectancy at birth is negative, meaning thereby that the situation becomes less and less unhealthy as Life Expectancy at Birth increases. Das (1999), by applying factor analysis, found that education; availability of food; minimum purchasing power; facilities like safe drinking water; and health infrastructure; etc. were the factors which played an important role in development process. According to the author, the basic objective of development should focus on expansion of human capabilities which has been neglected for too long in India. Kumar (2011) noticed that regional disparities in women's status could be perceived to be present across states, which have persisted over time with little change in the development ranking of District. Like Patna, Chapra, Madhubani, Hajipur and Samastipur have continued to occupy higher ranks in the index of economic development over time, while states like Madhya Pradesh, Rajasthan and Uttar Pradesh have continued to lag behind. Kumari (2011) attempted to measure inter-district disparity in education and health attainment in UP at two points in time: 1990-91 and 2007-08. The results from principal component analysis showed that apart from existence of wide disparities there were some regions/ districts that have done well in educational attainment, but are poorly placed in terms of health attainment and vice-versa.

For the purpose of identification of the major determinants of health, numerical information was compiled on as many as 16 health statistics [*viz.*, Birth Rate (BRRT, per 1000 population p.a.), Death Rate (DTRT, per 1000 population p.a.), Infant Mortality Rate (IMRT, per 1000 live births p.a.), Life Expectancy at Birth (LEBR, in years), Number of Hospitals per 100 sq km (NHPK), Number of Hospital Beds per Lakh of Population (NBPL), Number of Sub-Centers per 100 sq km (SBPK), Number of Primary Health Centers per 100 sq km (PHPK), Number of Community Health Centers per 100 sq km (CHPK), Number of Doctors per Lakh of Population (DCPL), Number of Pharmacists per Lakh of Population (PRPL), Number of Auxiliary Nursing Midwives per Lakh of Population (ANPL), Number of Lady Health Visitors per Lakh of Population (LHPL), Number of Nurses per Doctor (NRPD), Number of Assistants per Doctor (NAPD), and Per Capita Income (PCIN, in Rs'000)] at three points of time: 1999-2000, 2004-05 and 2009-10.

For accomplishing the task, we have made use of exploratory factor analysis technique. As per requirements of the technique, each of the concomitants (i.e., manifest variables) were considered in comparable terms (either in terms of per unit population or in terms of per unit area) and were suitably re-expressed, if required, in such a manner that higher value of each of the concomitant indicated towards better health status of a state. For instance, Death Rate (DTRT) was transformed into 1000/DTRT. Similar was the treatment in respect of Birth Rate (BTRT) and Infant Mortality Rate (IMRT). Before subjecting the transformed data to the analysis, each of the variables were duly standardized for their mean (μ) and standard deviation (σ). Further, in order to ensure accounting of the largest extent of variance among the available data set, as also to come out with a conspicuous extraction of the factors, we have made use of promax oblique rotation of the axes.

Highly significant values of Spearman's rank correlation coefficients between the indicators of economic development (i.e. Per Capita Income) and that of health

status (i.e. Composite Index of Health Status) at each of three points in time, clearly reveals that among the Indian states the level of economic development and the level of health status has very strongly and directly associated with each other; a state high in the level of economic development is expected to be high in terms of health status and vice-versa.

With the primary objective to adopt suitable policy measures for an improvement in health of the people, an attempt has been made in paper to identify the chief determinants, as also to examine the extent and pattern of disparities, of health status among 17 major states of Bihar. For this purpose, we have made use of exploratory factor analysis approach (with promax oblique rotation method) as applied to the compiled information on 16 indicators of health at three different points in time: 1999-00, 2004-05 and 2009-10. As per the results, the chief determinants of health status have undergone voluminous reshuffling during the study span from usual demographic indicators to physical as well as social health infrastructure. Thus, as policy measures, the states need to concentrate more on the consolidation of both physical and social health infrastructure (by way of increased investment on these activities); the usual demographic indicators would expectedly get a push upwards in an autonomous manner. So far as the relative positioning of city is concerned, Patna, Chapra, Darbhanga have performed well and have undergone improvements during the study span in the context of health status.

Thus, on the whole, there is a dire need for higher level of investment on health infrastructure, particularly in laggard states and the states which have undergone a rapid slippage in their relative rankings. The policy makers need to undertake investment priorities on health infrastructure. If the state alone cannot shoulder the burden of increased expenditure on this important economic activity, then public private partnership (PPP) model needs be propagated. Such policies are expected to have a direct bearing on the improvement of socio-economic status of the states.

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