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SUMMARY & CONCLUSION

6.1 INTRODUCTION

In the domain of Public Health there has been a growing acceptance that the Social Determinants of Health (SDH) have potentially far-reaching implications in formulation of public policy. The relevant scientific findings have to be accessible to policy makers and the general public for the promotion of health-equit. The present study relates to the Social Determinants of Health in rural Andhra Pradesh (AP), which is one of the four major constituents of the Southern states, the other three being Tamil Nadu, Karnataka and Kerala. The traditions, culture and customs, which play a dominant role in the determination of the health status are different in the South Indian states from those normally witnessed in the other parts of India notably in the Northern states.

The rural population distributed between all inhabited villages in Andhra Pradesh is the crux of the present study. The entire State is geographically, politically, socially; and administratively divided into three regions namely, (i) Coastal Andhra; (ii) Rayala Seema; and (iii) Telangana. In these regions, which are further divided into several districts, the population has a characteristic urban and rural divide, and the problems of the health status are different as between the urban and rural segments of the population.
6.2 NEED FOR THE STUDY

Focus on the Social Determinants of Health empowers people, communities/state and the country. Empowerment of the people is a powerful route to change both the social structure and environment. The health status in the rural Andhra Pradesh would have political, social, economic and administration dimensions. All these areas would have to work in tandem to provide the desired health status to the rural masses. Government has a significant role to play in this regard in motivating organisations at private level, as also to establish schemes for implementation by the respective departments of the government to achieve the goal of satisfactory health status. Such a study must be repeated after appropriate time intervals. It is not known whether any such study has even been conducted for rural Andhra Pradesh and therefore the need of the study has been indeed timely and its applicability and usefulness for policy making by the government need not be over stressed.

6.3 OBJECTIVES

The objectives of the present study are: (i) to identify and to categorise the various indicators that are related to social health levels; (ii) to demonstrate the extent of the influence on the rural people’s health of these categorised health determinants; (iii) to study the interrelationships between the social health status and its determinants; (iv) to make a comparative analysis of rural health levels between three different regions of the state of Andhra Pradesh; and (v) to facilitate formulation of appropriate policy framework for the attainment of higher level of rural health.
6.4 HYPOTHESES

Rural health status is a function of Social Determinants of Health like Education, Employment, Housing Conditions, Income, Health Resources, Preventive Care, Connectivity, Demographic Scenario, Standard of Living & Environment, and Local Economy. All these have a cumulative influence on the rural health status and are basis for the rural health policy to attain a better health status in the rural Andhra Pradesh.

6.5 METHODOLOGY

Social health status is a target variable, while the ten identified determinants would constitute the instrument variables. Each one of the instrument variables will be a function of several parameters that determine the instrument variable itself. The instrument variable so determined would constitute the instrument for determining the social health status. The study has been carried out to provide a database for use in understanding and explaining the diversity of people’s Health Status and the magnitude of influence of different Social Determinants of Health in the Rural Andhra Pradesh.

Study Area: The Rural Population of Andhra Pradesh as per Census of India 2001 is 5,52,23,944. Three-quarters (73 per cent) of the population of Andhra Pradesh State live in rural areas. The State has 23 districts and each district is divided into Mandals which consists of a few revenue villages. Revenue villages with hamlets account for the rural areas. There are 28,123 villages which represents the rural frame of the state. As Hyderabad district is fully urbanised, the study has been considered only 22 districts out of a total of 23 districts of the State. The study has dealt with each of these 22
administrative units (districts) as a “Unit of Study” in accordance with how they are commonly regarded and the statistics relating them are used throughout the study. The population of the individual units of this study ranged from 16,38,532 to 37,35,908; the average is 25,10,179. The sum of the all units population is 5,52,23,944 which represents the study population.

**Data Collection:** The statistics of study areas have been collected from authentic sources, like the publications of (i) Directorate of Economics and Statistics, Government of Andhra Pradesh, Hyderabad; and (ii) International Institute for Populations Sciences, Mumbai. The data on a total of 93 identified indicators has been collected to measure the Health Status and the ten assumed Social Determinants of Health. A total of 84 identified indicators are collected under the ten assumed Social Determinants of Health viz, Education (8), Employment (9), Housing Conditions (8), Income (4), Health Resources (17), Preventive Care (9), Connectivity (10), Demographic Scenario(6), Standard of Living & Environment (5), and Local Economy (8). The data is collected with varying time period of five years starting from the year 2001 to 2006 from the above mentioned sources.

**Computation of Indices:** The collected Statistics on each indicator corresponding to 22 study units are ranked. Then the rank sum is taken with respect to each study unit to get the *Score* of the District on Health Status and its Determinants. The familiar Rank Score Technique is used, to get the *Score* of each indicator. By using these scores of each indicator, the health index and health determinants indices, as also the regional indices
have been formulated using the concept of weighted arithmetic mean by taking rural population of each district as the weight of the study unit.

**Statistical Tools & Techniques for Analysis:** To determine the extent of influence of the Health Determinant’s on the Health Index, the *Stepwise Selection by Multivariate Regression Analysis* is performed. The Health Index is used as a dependent variable, and the indices of ten Health Determinants as independent variables. The Model is assumed as:

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n + e \]

Where \( \beta_1 \neq \beta_2 \neq \ldots \neq \beta_n \neq 0 \); and \( e \sim N(0, \sigma^2) \).

In each Step of the Analysis one independent variable can be entered, and the Coefficient of Determination \( (r^2) \) is calculated. The series of calculations may be made of Regression Analysis to compute the Coefficient of Determination along with the Analysis of Variance (ANOVA). The final adjusted Coefficient of Determination by the selected indices of Health Determinants is calculated to show the variations in the Health Index as explained in this study. Finally the assumed model may be reduced to:

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_m X_m + e \]

where, \( \beta_1 \neq \beta_2 \neq \ldots \neq \beta_m \neq 0 \); \( m \leq n \); and \( e \sim N(0, \sigma^2) \).

This has provided the summary of the Stepwise selection of Regression Analysis. All the variables left in the Model may be significant at certain Level of Significance \( (\alpha) \), and the other variables may not meet the specified Level of Significance, \( \alpha \) to enter into.
the Model. The measure of R-Square of variables left in the summary table provides the extent of influence of each one of them on the health status. *The SAS System 9.1.3 for Windows* has been used for the purpose of computations made to study the extent of influence of determinants of health on the health status.

Multivariate Correlation Analysis has been performed to study the interrelationships between the health and its determinants. To show the interrelations between the Health Determinants and the Health Index, Correlation Analysis is performed. *The SPSS 9.0 for Windows* has been used for the purpose of the Analysis of Correlation. Pearson Correlation Coefficients are calculated using the associated probabilities. Pearson’s Product Moment Correlation Coefficients have been calculated between the Health Index and each of the ten indices of the Health Determinants. The results have been tabulated and presented graphically to show the interrelations between the Social Determinants of Health and the Health Index. The graphical representation of association (interrelation) between Health status and its Determinants has been made in the form of Curve fitting with the help of the Graphical environment of the *The SPSS 9.0 for Windows*. The trend of the curve has been analysed to draw the inferences.

The Comparative Analysis of Health level between three different Regions is made using the *Microsoft Office Excel 2003*. The Graphical Techniques are used with the help of *Chart Wizard* to make the Regional Comparison, which is felt as an effective tool for comparison of the three Region’s Health Status and its Determinants.
6.6 FINDINGS OF THE STUDY

- The hypotheses of the study stands proved on the basis of the findings. Accordingly the rural health status is a function of 10 determinants namely, Education, Employment, Housing Conditions, Income, Health Resources, Preventive Care, Connectivity, Demographic Scenario, Standard of Living & Environment and Local Economy, which in turn are governed and influenced by 93 variables (Please see the Table of Indicators in the page no.’s from 93 to 96 in the chapter on Methodology) taken as a whole.

- The scenario obtained, in regard to the relationship between the determinants and the rural health status is understandably different as between the 22 districts comprising the state of Andhra Pradesh or for that matter, 9 districts comprising the Coastal Andhra, 4 districts comprising the Rayala Seema region and 9 districts comprising the Telangana.

- Inter-district variations in the health index manifest themselves into inter-regional variations and further, deviations all down the line from the Andhra Pradesh health index observed in relation to the districts or the regions. This calls for policy intervention appropriately backed by resource allocation.

- The essence of the inferences that have been drawn in respect of the influence of the various Social Determinants of Health on the people’s health status in rural Andhra Pradesh has been seen that the variations appear to be more fluctuating in case of the Telangana region both in the matter of upward and downward pulls. While in case of Coastal Andhra and Rayala Seema regions the variations appear to be less violent. As a result the Andhra Pradesh average resulting from these three constituting regions appears to be more balanced.

- The interrelations between the health status and its determinants has been quantified and presented in this study. As has been observed all along the health status as a concept does not lend itself for any easy quantification. At the same
time it is a function of several complex determinants which in turn also get determined by a set of parameters which keeps varying as between various administrative units like districts or the regions.

- The analysis of the influence exerted by the Determinants on the Health status has revealed that the three Social Determinants of Health namely, Income, Housing Conditions and the Local Economy, taken together appear to be responsible for 68 per cent contribution in the determination of the health status. The remaining 7 account for the balance. It must be pointed out that one is talking about only the quantifiable contribution and there could be some other non-quantifiable determinants, which contribute to the health status but do not lend themselves for any reliable analysis. This could be a basis for further research.

- The influence exercised on the health by the determinants is different as between several districts and the three regions of the Andhra Pradesh, namely Coastal Andhra, Rayala Seema and Telangana. Policy formulation and the schemes structured for implementation of the policy would therefore have to be different.

- The determinants and the indicators governing them cannot explain and account for the entire 100 per cent health status but may account for only for about three fourths. The balance could be accounted for by factors like, culture, tradition, attitudes, which do not lend to easy quantification and analysis. This could be a basis for further research.

- It must be pointed out also that the quantification magnitude is bound to change as between different regions at any one point or during any specified period of time. It may also change in the context of any specified region as between different points of time or during different specified time periods. This may be considered as the limitation of the study.
6.7 POLICY IMPLICATIONS

Analysis of the study reveals that the three Social Determinants of Health namely, Income, Housing Conditions and the Local Economy, taken together appear to be responsible for 68 per cent contribution in the determination of the health status. The remaining would account for the balance, which can possibly indicate strongly the type of steps required to be taken by the policy makers. An attempt has been made to emphasise, the policy formulation with respect to the social determinants of health and the variables influencing the respective determinant. It must be pointed out also that the quantification magnitude is bound to change as between different regions at any one point or during any specified period of time. Since the influence exercised on health by the determinants is different as between several districts and the three regions of the Andhra Pradesh, namely Coastal Andhra, Rayala Seema and Telangana, the emphasis on policy formulation and the schemes structured for implementation of the policy would have to be different.

6.8 SUGGESTIONS FOR FURTHER RESEARCH

The emphasis placed on inter-district variations or inter-regional variations from the Andhra Pradesh average would appear to be very significant in this study. This would enable identification of the districts or the regions which require immediate and prompt attention, through the policy intervention from the government and accordingly appropriate budgetary allocations could be made to bring out that regions or districts up to the Andhra Pradesh average. Studies of this type can at best be considered as a necessary input into policy making at the district or the regional level within the state of Andhra Pradesh. The health status as it is quantified by the identified determinants and
the governing indicators would still leave a lot of un-quantified gap. This may be a major limitation of the study. Continuity is the keyword. Therefore, a study of this kind cannot be conducted as a one-time exercise and should be repeated at regular intervals so that the impact of the formulating policy on the health status can be ascertained and suitable changes in the policy formats can be brought about.

6.9 CONCLUSION

The present study by analysing the real situation as could be ascertained from the authentic data obtained from government and other sources, mostly influenced by the government style of functioning, such as the autonomous agencies or corporate bodies constituted by the government, an adequate level of health status has to be guaranteed and assured mostly by the government efforts. Therefore the studies of these kinds would enable identification of the districts or the regions which require immediate and prompt attention, on a particular SDH, through the policy intervention from the government and accordingly appropriate budgetary allocations could be made to bring out that regions or districts up to at least the Andhra Pradesh average. As the attainment of health status has been mostly a function of the government policy and a statistical study of the present type would help formulation of appropriate policy format and evaluation of schemes for the implementation of the structured policy. The studies of the present type will constitute meaningful benchmarks against which the effectiveness of governmental formulations could be assessed and if, need be, appropriate alterations could be brought about for the attainment of desired results.

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