

SOCIO-DEMOGRAPHIC DETERMINANTS OF NON COMMUNICABLE DISEASES IN ASSAM, INDIA

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INTRODUCTION

In the past few years, non communicable diseases (NCDs) have taken over infectious diseases as the primary cause of death. The growing epidemic of NCDs are now the leading cause of death worldwide affecting the global health scenario and socio economic development; the worst sufferers being the low and lower middle income countries, who fail to avail services for timely diagnosis and necessary treatment. In 2016, NCDs were responsible for 41 million of the world's 57 million deaths, which is equivalent to 71% of the total deaths. The main types of NCDs behind these deaths are cardiovascular diseases (such as heart attacks and stroke), cancer, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes. According to World Health Organization (WHO), NCDs, also known as chronic diseases, are diseases of long duration and slow progression and the result of a combination of genetic, physiological, environmental and behavioral factors. The risk factors mainly being behavioral and metabolic. 75% of premature adult death was caused by NCDs which implies that NCDs do not target the older population alone. Also unlike the common old belief that NCDs is a disease of affluence, it is now emerging both in poorer countries and among the poorer population in richer countries. This rapid rate of change poses a major threat to the world and at the same demands immediate and effective measure for prevention and control.

India, one of the largest economies of the world also faces the NCD burden. 63% of total deaths in the country in 2016 were attributed to NCDs. The country is presently experiencing a phase of rapid health transition wherein the mounting magnitude of NCDs is gaining prominence with substantial repercussion on health and economic productivity which implies there is an urgent need to prioritize NCD control techniques. (WHO, 2018). The epidemic of NCDs poses devastating health consequences for individuals, families and communities, and threatens to overwhelm health systems. The socioeconomic costs associated with NCDs make the prevention and control of these diseases imperative.

A number of studies on NCDs have since been carried out worldwide, the basis of most of which is identification of risk factors-modifiable (or behavioral) and metabolic. Majority of NCDs are due to lifestyle and behavior, can therefore, be prevented to a great extent. The rise of NCDs have been driven by primarily four major risk factors: tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets. In India too, researchers have attempted modeling of chronic diseases at various levels. A lot of similar research has been carried out on NCDs for

entire India. But when we look into the state scenario, fewer number of studies have been conducted for individual states and for the state of Assam, we came across only a very few number of such studies. Hence in our study we intend to throw some light on the prevalence of NCDs in this most important state of north-east India. Assam is the second largest northeastern state in terms of area, covering an area of 78,438 km² (30,285 sq miles). The state is bordered by Bhutan and Arunachal Pradesh to the north; Nagaland, Arunachal Pradesh and Manipur to the east; Meghalaya, Tripura, Mizoram, and Bangladesh to the south; and West Bengal to the west. As per the Census 2011, the total population of Assam is 3.12 crores. India's gateway to the northeast, Assam is inhabited by a multi-ethnic, multi-linguistic and multi-religious society. Lowry et al (1996) have opined that the effect of socio-economic and demographic factors on health outcomes particularly prevalence of NCDs may result from a variety of social and individual factors that vary by social class and adoption of lifestyle behavior that are associated with prevalence of NCDs. This is another reason for choosing to study about Assam and investigating the relationship between NCDs and the various variables or factors affecting it.

STUDY DESIGN AND METHODOLOGY

The study utilized data from the second round of the Indian Human Development Survey (IHDS;2011-12) conducted by the National Council of Applied Economic Research, New Delhi and University of Maryland. IHDS II is a nationally representative multi-topic survey of 42152 households in 1503 villages and 971 urban neighborhoods across India. We extracted the data for Assam to carry out our analysis. This data set consisted of 4651 individuals. Since the prevalence of chronic disease among individuals below age 30 was insignificant, we carried out the analysis only on those aged above 30. Hence the reduced sample size was 2123, out of which 1094 were males and 1029 females. IHDS asked about the presence of chronic morbidity among all household members. Three set of responses were recorded "yes", "no" and "cured". Our study considered the response 'yes' and 'cured' to define that the member was diagnosed with chronic morbidity or suffering from the disease during the time of the survey.

We carried out logistic regression to examine the relationship between various socio economic, demographic, contextual level variables and different risk factors with chronic diseases. Socio demographic characteristics (age, sex, marital status and education), lifestyle behavior (tobacco and alcohol use) household status (social group, religion) and place of residence (urban, rural) were taken as the independent variables. The individuals aged 30 and above were considered as the number of afflicted persons below age 30 was very less. Each respondents' marital status were categorized as married, widowed/separated/divorced and unmarried. Education was measured as highest level attained-never attended, below primary, below secondary and secondary or higher. The respondents' use of tobacco (smoked cigarette, chewed gutka/tobacco, drink alcohol) was categorized as never, sometimes and daily user. Hindu, Muslim, Christian and others (Jain, Sikh and others) were 4 broad categories of religion and caste groups were categorized into General, OBC, SC, ST and others.

The dependant variable in our analysis is individuals suffering from NCDs (no/yes).

RESULT AND DISCUSSION

Our analysis was carried out on 2123 respondents out of which 51.5% were males and 48.5% females. Nearly 48% belonged to the age group 30-44, followed by 35% in the group 45-59 and 17% elderly, i.e. aged 60 and above. Majority of people had attained secondary level education or beyond (47%). A significant percent had never attended any school (28.5%). 66.5% were Hindus, followed by 31% Muslims, and around 2% belonging to other religions. Nearly 50% respondents belonged to general category, followed by around 17% in OBC and SC category each; 13% belonged to ST category. 6% of the participants consumed tobacco/gutka on daily basis while around 4% smoked were daily smokers. Overall prevalence of NCDs in state was 4%.

As per the Classification table, the overall correct percentage of 69.3% is quite satisfactory. Hosmer-Lemeshow test of goodness of fit was conducted to check the appropriateness of the model. We obtained a significant value of 0.717 which suggests that the logistic regression model fits the data well.

We examined the association between various characteristics and chronic illness using logistic regression technique and also computed odds ratio for different categories with corresponding 95% confidence intervals.

It was seen that there is a significant association between socio-demographic characteristics age, gender and chronic illness. We observed that as compared to females, males have 20% less chance of being afflicted by a chronic morbidity. Similar results were obtained by Patra S, Bhise M (2016). According to their study, prevalence of NCD was higher among women as compared to men. Among the Indian states; Himachal Pradesh and Uttaranchal; whereas among the union territories; Daman and Diu showed the widest gap in the prevalence of NCDs between men and women. Sharma S, Vishwakarma D, et al.(2019) in their study also concluded that there exists marked gender differences in NCD prevalence among the adults in India. In contrast to studies conducted in the past few years, many recent studies claim that women in India possess more burden of NCD compared to men. NCDs affect women inequitably. They have been the leading cause of death among women globally for at least the past three decades and are now responsible for two in every three deaths among women each year. This burden is expected to increase substantially in the coming decades, especially in Low and Middle income Countries.(WHO)

Individuals below age 60 had less chance of having any chronic illness as compared to those aged 60 and above (OR 0.134). This finding is at par with many similar studies conducted in the past. With the ageing population, the older are likely to face various health conditions and disease risk. According to the Longitudinal Ageing Survey of India also, prevalence of single morbidity and multi-morbidity conditions increases with age. 75% of the elderly people suffer from one or the other chronic disease. It was found that the prevalence of multi-morbidity conditions among the elderly i.e. aged 60 and above was much higher in the states/UTs of Kerala Chandigarh, Lakshadweep, and Andaman & Nicobar Islands.

Lifestyle characteristic (chewing tobacco/gutka) was noted to be significantly associated with the prevalence of NCD. The likelihood of chronic illness was lower among those adults who

chewed tobacco/gutka sometimes as compared to those who did so on daily basis. It is worth mentioning that Singh PK, Singh L, Dubey R et al. also obtained similar results while analyzing data for entire India. They concluded from their study that older adults who never consumed smokeless tobacco stood at 20% fewer chance of having any chronic illness. According to WHO, in 2014 there were 346 million smokeless tobacco users – 7% of the world's population. 80% of these users resided in the South East Asian region, and were at an increased risk from oral cancers.

We also observed a significant association between education level of an individual and prevalence of NCD. However, it was seen that those who attained education below the secondary level had lesser chance of being afflicted as compared to those who were more educated, which is an unexpected and surprising result and needs further in depth investigation to reveal possible factors responsible for it.

CONCLUSION

The rapid change in epidemiological and mortality trends in India calls for strong, and well planned strategies. It's imperative for public health experts to expand their vision and agenda when it comes to NCDs. Any sort of delay in diagnosis and treatment of NCDs not only escalates the costs, but also amplifies long term health and financial repercussions. India needs to achieve the Sustainable Development Goal-3 to ensure healthy lives and promote well-being at all ages as well as the target to reduce by one third the premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being. To achieve this goal, researchers and health experts must come forward to study the prevalence of diseases first at state level-urban and rural areas as together all the healthy states would lead to a healthy India.

Our present study is an attempt to fill the void that exists when it comes to studying about the prevalence of NCDs in the state of Assam. It provides insight into the association between various socio demographic characteristics, lifestyle behaviors, household status and chronic illness among the adults of Assam. Our findings suggest that characteristics like age, sex, education, smokeless tobacco consumption had significant effect on prevalence of chronic diseases. However no association was observed between characteristics like marital status, caste, religion, alcohol consumption and presence of non communicable disease.

Chronic diseases are largely preventable diseases. While age, sex and genetic susceptibility are non-modifiable, many of the risks associated with age and sex are modifiable. Such risks include behavioral factors (e.g. diet, physical inactivity, tobacco consumption); biological factors (e.g. hypertension, overweight etc) and finally societal factors which include a complex mixture of interacting socio-economic, cultural and other environmental parameters. Thus, prevention and early diagnosis should be the prime concern of the hour, seeking participation from multiple sectors of government, industry, medical field and society.