



PREVALENCE OF NON-COMMUNICABLE DISEASES AND ITS RISK FACTORS AMONG ADULT POPULATION OF ARUNACHAL PRADESH: A HEALTH-CAMP BASED OPPORTUNISTIC SCREENING PROGRAM.

Dr. Pallavi Boro	Assistant Professor, Dept. of Community Medicine, TRIHMS
Dr. Debarshi Paul*	Assistant Professor, Dept. of Community Medicine, TRIHMS *Corresponding Author
Dr. Mandula Prashanth Kumar	Tutor, Dept. of Community Medicine, TRIHMS
Dr. Asthomi Jamoh	Assistant Professor, Dept. of Pharmacology, TRIHMS
Dr. Anoop Dev	Associate Professor and HOD I/C, Dept. of Community Medicine, TRIHMS
Dr. Moji Jini	Director, TRIHMS.

KEYWORDS :

Background:

Tobacco and alcohol consumption, unhealthy diet and insufficient physical exercise along with other associated factors are considered to be the main causes of the four most common NCDs – cardiovascular diseases, cancers, chronic respiratory diseases and diabetes.¹ Rapid urbanization and industrialization has led to a global socioeconomic transition and thus promoted health risk behavior resulting in cardiovascular diseases and events.²

The mortality in India over the last 26 years has shifted towards non-communicable diseases (NCDs) and injuries leading them to be important contributors of the overall disease burden.³ An estimate reveals that 1.3 million deaths in India could be prevented with tobacco control alone. Also, the age group of 20–35 years contributes a major share in the list of alcohol users. The Indian population consumed twice the recommended daily salt intake, while the bulk of the total population consumed inadequate amount of fruits, vegetables and dark green and leafy vegetables per day.⁴

According to a report on disease burden profile of Arunachal Pradesh, cancers, CVDs and diabetes were among the top ten causes of death in 2016.⁵ However, regarding public health facility utilization for treatment, the North-Eastern states reported more use of public health facilities with Arunachal Pradesh reporting the highest usage (92%).⁶ Surveillance of NCD risk factors helps to envisage the future risk of NCD in the population. It is an important public health tool for evaluating the disease burden and helps to prioritize the formulation of health policies and programmes.²

A multi-specialty health camp was organized by TRIHMS, Naharlagun at New Dari on 3rd and 4th December, 2021. The health camp, a part of TRIHMS out-reach program, was headed by Dr. Moji Jini, pediatric surgeon and the Director of TRIHMS. Faculties of various clinical and non-clinical departments like General Medicine, General Surgery, Ophthalmology, ENT including Dentistry took part in the multi-specialty health camp to provide free diagnosis, laboratory investigations, treatment and also referral services for the needy population of the area.

Taking this opportunity as a platform of learning, the Department of Community Medicine, TRIHMS decided to conduct a short study to understand the scenario of non-communicable diseases among the adult population by carrying out a community based cross-sectional study among the rural population of East Siang district.

Rationale:

New Dari in East Siang district, the study area, represents a typical rural setting of the Tribal habitation of Arunachal Pradesh with little exploration into the health profile and health hazard assessment till date. Population Demographics mainly comprises of individuals from the GALO community settled in hard to reach remote areas with poor road connectivity and communication. With increased influence of urbanization and modernization of lifestyle, a shift from daily vigorous work habits to more sedentary work and life style has been noted, contributing to a risk factor for NCD. Since no previous data available from this part of the country, this health camp provided us an excellent opportunity to assess the baseline information about population dynamics and NCD specific statistics.

Methodology:

The department selected a group of fourteen MBBS students on voluntary basis to accompany to the health camp so as to acquire a brief idea about how health camps are organized and operated and what benefits are provided to the community. They would simultaneously collect data for this study. They were given training by the investigators about how to seek consent, ask and explain each question and also perform every anthropometric and clinical measurement in such a way so as to minimize the inter-observer variation during data collection process.

Study population included all the adult men and women aged 30 years and above who were residing in the village for at least six months and volunteered to be beneficiary of the health camp. However, all pregnant women and those who were apparently sick or had physical deformity or mentally unsound to understand and those not giving consent for the study were excluded.

Sample size was calculated using the formula for estimating one sample proportion i.e. $N = \frac{Z^2 pq}{l^2}$ with specific relative precision. Taking an estimated prevalence of hypertension as 33.1% from NFHS 5 state fact sheet data of Arunachal Pradesh⁷ and an allowable error of 5% at 95% level of significance and non-response rate 20%, the was calculated to be 340. But due to time constraint, only 217 participants could be interviewed. Convenient sampling technique was used. Each eligible candidate, from whom a valid, informed consent could be taken, was included in the study and interviewed. The process was continued till the completion of the health camp.

Data was collected using WHO STEPS CORE questionnaire

divided in 4 parts to assess socio-demographic profile, behavioral risk factors, anthropometric and clinical assessment and biochemical parameters (random blood glucose and serum cholesterol profile)

One -to-one interview was conducted, and basic clinical and anthropometric measurements were taken in a standardized form. The questionnaire was pre-tested (10% of sample size) in a similar setting by the investigators and little changes in technical terminologies (stroke, type of alcohol, etc) were done as per need.

The collected data was transferred to excel worksheet and was checked for data consistency. The data was analyzed using both Microsoft Excel and SPSS software. The frequencies and percentages were tabulated and shown using graphs, as deemed appropriate. Bivariate analysis using chi square test helped to assess given association between risk factors with other variables at p value < 0.5 as significant.

Results:

Among all the participants in the study, 56.2% were males and 43.8% females with a median age of 46 ± 11.01 years. Regarding educational status, only 10.6% studied up to high school, 9.7% were graduates and 31.3% were illiterate. 22.1% were government servants, 2.3% worked in private sector and 11.5% were unemployed.

- Regarding smoking or chewing of any tobacco product, 46.1% did and 53.9% did not. Among those who smoked or chewed tobacco, 8.8% smoked, 20.3% used smokeless form while 15.3% consumed both forms. 34.6% consumed tobacco product daily and 8.8% occasionally. No significant relationship was found between tobacco consumption and gender.
- Among all the participants, 62.7% consumed alcohol with majority drinking country liquor (31.8%). 36.9% were occasional drinkers while 13.4% consumed alcohol daily. In one sitting, 12.4%, 3.2% and 2.8% consumed 60ml, 500ml and 1000ml liquor respectively.
- In a typical week, only 4.7% ate fruits everyday and 4.4% did not consume any fruits. 56.7% ate vegetables every day.
- 43.3% took extra salt or salty sauce with food, while majority (78.8%) consumed processed foods high in salt like pickles/smoked meat/smoked fish.
- In the context of occupation, 70% were involved in vigorous intense activity like carrying or lifting heavy loads, digging etc, While 33.6% took part in physical activity other than occupation for more than 5 days in a week and 37.8% were involved in physical activity for more than 45 minutes a day.
- 42.4% reported to have a history of hypertension. 54.9% (122) males and 67.4% (95) females had high blood pressure ($\geq 140/90$ mm Hg).
- In the present study amongst the hypertensives majority (74.2%) were not under any medication, while 22.1%, 1.8% and 0.5% were on allopathic, traditional and herbal medications respectively.
- Of the different occupations, 64.6% government employees ($n = 48$), 51.9% housewives ($n = 52$) and 64.0% unemployed ($n = 25$) had high BP. 65.0% of those who smoked or chewed any tobacco product ($n = 100$) were found to have high BP. Out of 136 participants who ever

consumed any type of alcohol, 66.2% had high BP and 53.2% of those who took extra salt or salty sauce with food ($n = 94$) had high BP and both associations were found to be statistically significant ($p < 0.05$). 58.5% of those who ate processed food high in salt ($n = 171$) had high BP. High BP was recorded in 69.2% of those whose work did not involve vigorous intense activity ($n = 65$).

- Regarding diabetes, 8.8% reported to be suffering from diabetes whereas majority (73.7%) were non-diabetic. Among the diabetics the present study revealed that only 3.7% were on oral hypoglycemic medication
- 1.8% reported to have high cholesterol out of which only 1.4% were under allopathic treatment.
- In the present study out of the 66 participants who were overweight (BMI 25.0 – 29.9), 60.4% were government servants, 48.1% housewives and 28.0% unemployed. Among them, males (47.5%) were more in number than females (44.2%). 55.4% of the overweight persons did not have any vigorous intense activity involved in their work.

Discussion:

- The median age of study participants (46 ± 11.01 years) was comparable to that in the studies done by Sarma PS et al.⁸ in Kerala, Dahal S.⁹ et al in Kathmandu and Negi PC² et al in Kinnaur HP. But educational status was poor as compared to the both the studies.
- Regarding smoking or chewing of any tobacco product and also alcohol consumption, the current study shows much higher results as compared to Sarma PS et al., Dahal S. et al and Negi PC et al.^{8,9,2}
- Fruit consumption was found to be similar in comparison to the study done by Negi PC et al² but vegetable consumption was found to be much higher in the current study.
- Extra salt intake was invariably seen in all the studies and there was no exception in the present study.
- In the present study, 70% participants were involved in vigorous intense activity which was found to be much higher than the studies done by Sarma PS et al., Dahal S. et al and Negi PC et al.^{8,9,2}
- Prevalence of hypertension was found to be 42.4% in the current study as compared to 34.6% by Sarma PS et al.⁸ and 19.7% by Negi PC et al.², thus showing a higher trend. A similar comparison was found regarding prevalence of diabetes with the current study.
- Prevalence of overweight was found to be 19.4% in the current study which was much less as compared to that in the studies by Negi PC et al.² and Sarma PS et al.⁸ But in contrast, the prevalence was more in men than in women in the current study probably because women had more physical activity than men.

Conclusion and recommendations:

The current study is showing a higher rate of alcohol and tobacco consumption among the study population. Although the population shows good physical activity, still there is a high prevalence of hypertension among the health camp beneficiaries probably due to food habits. These findings call for a population based study among the tribal population of Arunachal Pradesh and also needs to be periodically addressed by social and behavior change communication campaigns. Since social transition and urbanization is inevitable, community based interventions targeting control of

alcohol, tobacco and salted foods intake should be undertaken regularly and continuation of physical activity should be encouraged.

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