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### **Research Article**

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# A cross sectional study of alcohol consumption among tribal and non-tribal adults of Narayanganj block in Mandla district of Madhya Pradesh, India

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### **ABSTRACT**

**Background:** Alcohol consumption is widely prevalent habit among tribal & non-tribal. Awareness about its hazardous effects is important to reduce the number of alcohol users and its dependency in them. A main objective of the study is to find out the magnitude of alcohol consumption among tribal & non-tribal & its association with hypertension.

**Methods:** A cross sectional study using Multi stage sampling method with house to house visits. Sample size came out 300 each from the tribal & non-tribal adults. Study was conducted in Narayanganj block of Mandla district.

**Results:** Among tribal study subjects about 29.3% of the subjects consumed alcohol whereas in non-tribal this was 14.3% & this difference was found to be statistically significant (P<0.0001) ( $\chi^2$ =28.04, P<0.001;OR=2.90 (95%CI=1.90-4.43)). The difference between Audit score between tribal & non-tribal was found to be statistically significant (P<0.05). Association of hypertension with alcohol among tribal & non-tribal which was significant ( $\chi^2$  tribal vs. non-tribal=9.22, P=0.0023).

**Conclusions:** Our study shows that the habit of alcohol consumption, AUDIT score & association between alcohol consumption & hypertension was more among tribal.

Keywords: Alcohol consumption, Tribal, Non-tribal, AUDIT score

### INTRODUCTION

Alcohol consumption in any form is widely prevalent & socially accepted behavior in society. NNMB in its rural-third repeat survey 2011-12 also found about 30% respondents consumed alcoholic beverages. Alcohol Intake with rest of the population was statistically significant in tribal population as revealed in the studies conducted by Mohindra K., among poorer and socially marginalized groups, notably Scheduled Tribes (STs), Manimunda et al in Car Nicobar tribal population. V. S. Sreeraj, Surjit Prasad, Christoday Raja Jayant Khess and N. A. Uvais, study conducted among the tribal of Jharkhand. NNMB in its technical report no: 24, NIH, Indian Council of Medical Research (ICMR) reported

that alcohol consumption were significantly (p<0.001) associated with hypertension among tribal population in their study in nine states of India. Todkar SS et al found a significant association of alcohol intake & hypertension among rural people. Praveer saxena et al, in an epidemiological study of hypertension in Rural Tehri Garhwal found alcoholism was significantly associated with hypertension.

The AUDIT was developed by the World Health Organization<sup>7</sup> (WHO) as a simple method of screening for excessive drinking and to assist in brief assessment. It can help in identifying excessive drinking as the cause of the presenting illness. It also provides a framework for intervention to help hazardous and harmful drinkers reduce or cease alcohol consumption and thereby avoid

the harmful consequences of their drinking. The first edition of this manual was published in 1989.<sup>8</sup> Bello Segun et al found a significant association between increased levels of AUDIT scores & hypertension.<sup>9</sup>

Dempsey Jared et al explored the relation between high blood pressure & AUDIT scores and found a modest positive correlation. Wilson et al studied the AUDIT scores in Hypertensive patients. 11

Alcohol consumption in any form is Increasing in rural as well as in tribal pockets of the country, also the lack of awareness about the hazardous effects of its consumption makes the situation grim & alarming therefore we opted for this study to explore the magnitude of the problem not only in rural non-tribal but also in tribal people of this backward tribal district of Madhya Pradesh-Mandla.

### **METHODS**

### Ethical considerations

This study plan has got Ethical clearance from the Institutional Ethical Committee of NSCB Medical College Jabalpur, Madhya Pradesh, India & informed written consent was taken from each participating subjects and in case of any illiterate subjects this consent was read out to him/her.

### Methodology

A cross sectional study was conducted in Narayanganj block of Mandla Tribal District of Madhya Pradesh during 01 October to 30<sup>th</sup> September 2015. Multistage random sampling method was used to select the study subjects. The sample size was drawn by applying calculation method for qualitative data with 25% prevalence rate & with 5% allowable error. It was done separately for tribal & non-tribal subjects that came out to be 288 that was rounded to 300 each for respective group hence 600 total subjects.

A pretested & pre- designed questionnaire was filled with house to house method.

Having chosen the block on first stage, 20 villages were selected randomly and lastly from every village 15 tribal & 15 non-tribal adults were chosen randomly by house to house visit method where a pre tested & pre designed questionnaire were filled.

### AUDIT score

Study subjects were assessed by means of a set of 10 questions translated into Hindi language and score was calculated. In most cases the total AUDIT score will reflect the patient's level of risk related to alcohol. In general health care settings and in community surveys.<sup>7</sup>

The AUDIT categorizes consumers of alcohol into four different risk levels.<sup>7</sup>

0-7 = Low-risk 8-15 = Risky or hazardous level 16-19 = High risk or harmful level 20 or more = High-risk

### Score interpretation

Total scores of 8 or more are recommended as indicators of hazardous and harmful alcohol use, as well as possible alcohol dependence.

Scores between 8 and 15 are most appropriate for simple advice focused on the reduction of hazardous drinking.

Scores between 16 and 19 suggest brief counseling and continued monitoring.

AUDIT scores of 20 or above clearly warrant further diagnostic evaluation for alcohol dependence.<sup>7</sup>

Blood pressure of the study subjects was also recorded at the time of interview by using calibrated BP measuring instrument.

### Inclusion criteria

All the subjects above 18 years of age.

### Exclusion criteria

- Terminally ill patient& mentally retarded individuals who couldn't respond to the items in questionnaire.
- Pregnant females, lactating mothers, post-partum females (Up to 12 weeks).
- Adults not willing to be the part of study/those who denied
- Patients of hypertension on medication.

# Operational definition of hypertension

The operational definition of hypertension was taken from the seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure. 12

### Statistical analysis

Analysis was done using SPSS (version 20, IBM, USA).

### **RESULTS**

About the age wise distribution (Figure 1),the majority (31.6% & 25.3%) of the subjects in both the studied groups were found to be in the age group of 18-29 years respectively for tribal and non-tribal. Least numbers of people were found in the age group of above 60 years in

both Tribal (7.0%) & non-tribal (5.6%). Mean age were observed at  $40.03(\pm 4.02)$  years for Tribal subjects and 39.07 ( $\pm 4.25$ ) years for non-tribal subjects. Statistically there was no significant difference between the mean ages of both the groups (t=1.84; p>0.05).

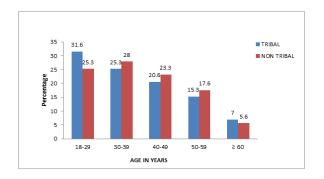


Figure 1: Age wise distribution of the study subjects.

The gender distribution revealed (Figure 2). A total of 127 (42.3%) males & 173 (57.7%) females were found among tribal population and among non-tribal subjects males were 139 (46.3%) & females were 161 (53.7%). Statistically there was no significant difference in the proportion of Male and Female subjects in both studied groups ( $\chi^2$ =0.972;p=0.324).

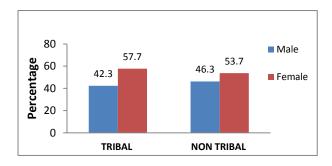


Figure 2: Gender wise distribution of the study subjects.

Among tribal study subjects about 29.3% of the subjects consumed alcohol in any form whereas in non-tribal this was 14.3% (Table 1) & this difference was found to be statistically significant (P<0.0001) ( $\chi^2$ =28.04, P<0.001;OR =2.90 (95% CI= 1.90-4.43)).

Table 1: Distribution of alcohol consumption in any form among subjects.

Alcohol consumption	Tribal	Non-tribal	Total
	(N=300)	(N=300)	(N=600)
Yes	98	43	141
	(29.3%)	(14.3%)	(23.5%)
No	202	257	459
	(70.7%)	(85.7%)	(76.5%)
Total	300	300	600
	(100%)	(100%)	(100%)

 $(\chi^2 = 28.04, df=1, P<0.001; OR=2.90 (95\%CI=1.90-4.43))$ 

In the distribution of AUDIT (alcohol use disorders identification test) score among study subjects who consumed alcohol (Table 2) among tribal 0-7 score was present in 73.7%, 8-15 score was present in 21.05%, 16-19 was present in 3.94% & >20 in 1.31% of the tribal who consumed alcohol. The difference between Audit score between tribal & non-tribal was found to be statistically significant (P<0.05) ( $\chi^2$  linear trend of tribal vs non-tribal=4.046, P<0.05).

Table 2: Distribution of audit (alcohol use disorders identification test) score among study subjects who consumed alcohol.

Audit	Tribal	Non tribal	Total
score	(N=98)	(N=43)	(N=141)
0-7	70 (73.7%)	37 (86.1%)	107 (75.9%)
8-15	24 (21.05%)	6 (13.9%)	30 (21.3%)
16-19	3 (3.94%)	0	3 (2.1%)
≥20	1 (1.31%)	0	1 (0.7%)
Total	98 (100%)	43 (100%)	141 (100%)

 $(\chi^2 \text{ linear trend of tribal vs non-tribal=}4.046,P<0.05)$ 

In the distribution of association of hypertension with alcohol (Table 3) among tribal 47% of the hypertensive patients consumed alcohol & among non-tribal 21.3% of the hypertensive consumed alcohol. The difference between the two groups was significant ( $\chi^2$  tribal vs. non-tribal=9.22, P=0.0023).

Table 3: Distribution of hypertension cases with consumption of alcohol in any form.

Alcohol consumption	Tribal (n=66)	Non tribal (n=61)	Total (n=127)
Yes	31 (47%)	13 (21.3%)	44 (34.65%)
No	35 (53%)	48 (78.7%)	83 (65.35%)
Total	66 (100%)	61 (100%)	127 (100%)

 $(\chi^2 \text{ tribal vs non-tribal=9.22, P=0.0023;OR=3.27, 95\% CI 1.40-7.71})$ 

### **DISCUSSION**

Our study showed that majority of the subjects in both the studied groups were found to be in the age group of 18-29 years respectively for tribal (31.6%) and non-tribal (25.3%). Least numbers of people were found in the age group of above 60 years in both tribal (7.0%) & non-tribal (5.6%). Mean age were observed at  $40.03(\pm 4.02)$  years for Tribal subjects and  $39.07(\pm 4.25)$  years for non-tribal subjects.

The gender wise distribution of both tribal and non-tribal groups. A total of 127 (42.3%) males & 173 (57.7%) females were found among tribal population and among non-tribal subjects males were 139 (46.3%) & females were 161 (53.7%). Statistically there was no significant difference in the proportion of Male and Female subjects

in both studied groups ( $\chi^2$ =0.972;p=0.324). The higher proportion of female subjects in both study and control groups were only due to their availability at home at the time of interview/survey and most of the time males of these families have temporarily migrated for their wage earning.

Among tribal study subjects about 29.3% of the subjects consumed alcohol whereas in non-tribal this was 14.3% (Table 1) & this difference was found to be statistically Significant (P<0.0001) ( $\chi^2$ =28.04, P<0.001; OR=2.90 (95%CI=1.90-4.43)).

NNMB in its rural-third repeat survey 2011-12 found about 30% respondents consumed alcoholic beverages. <sup>1</sup>

Integrated disease surveillance project (IDSP) non-communicable disease risk factors survey 2005-06, Madhya Pradesh, <sup>13</sup> found About 14% respondents had consumed alcohol in past 30 days and 19% consumed in past 12 months.

V. S. Sreeraj, Surjit Prasad, Christoday Raja Jayant Khess, and N. A. Uvais, (2012) study conducted among the tribal of Jharkhand also found that the consumption of alcohol was greater in tribal compare to non-tribal.<sup>4</sup>

Manimunda et al also found that alcohol intake with rest of the population was statistically significant in tribal population.<sup>3</sup> Mohindra K also found alcohol consumption in India is disproportionately higher among poorer and socially marginalized groups, notably scheduled tribes (STs).<sup>2</sup>

Regarding AUDIT score the difference between Audit score between tribal & non-tribal was found to be statistically significant. P<0.05 showing higher AUDIT score in tribal people & hence their dependence & high risk behavior (Table 2).

Manimunda et al used AUDIT SCORE in Nicobarese tribe living in Car Nicobar Island, India.<sup>3</sup>

M C Gulliford et al in his study 'Socioeconomic inequality in blood pressure and its determinants: cross-sectional data from Trinidad and Tobago' used AUDIT score. 14 Simone Bernardes de Paula et al also used AUDIT. 15

The association of hypertension with alcohol (Table No.3) among tribal & non tribal was significant. NNMB in its technical report no: 24, NIH, Indian Council of Medical Research (ICMR) reported that Alcohol consumption were significantly (p<0.001) associated with hypertension among tribal population in their study in nine states of India, Thus supporting our findings. <sup>1</sup>

Todkar SS et al found a significant association of alcohol intake & hypertension among rural people.<sup>5</sup>

Praveer Saxena et al in an epidemiological study of hypertension in rural Tehri Garhwal found alcoholism was significantly associated with hypertension.<sup>6</sup>

But Manimunda et al revealed that though the use alcohol was very high among Nicobarese tribe but it did not add to the risk of hypertension.<sup>3</sup>

### **CONCLUSION**

Our study shows that alcohol consumption was more in the tribal population. AUDIT Score was found to be more in tribal Population. The association of hypertension with alcohol consumption was also more in tribal subjects.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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