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IMPACT OF ALCOHOL, TOBACCO LEAF CONSUMPTION AND SMOKING ON HUMAN HEALTH ASSOCIATED WITH AGE AND SEX

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ABSTRACT

Ever since civilization began, several changes have been steadily altering the way an individual lives and perceives his surroundings. Diseases and disorders with respect to age and sex studied in a selected population of human individuals. Human individuals were divided into '10' groups according to their age (between 1 to 100 years). Also the serum samples were collected. Clinical based case control study has been done to determine the impact of consumption of alcohol, tobacco leaf and smoking on occurrence of diseases and disorders in human individuals. DMR test was done where Values are means (n=6) which do not share common superscript differ significantly at $p<0.05$. In males, smoking is predominant followed by alcohol later tobacco leaf. In females, alcohol is predominant followed by smoking and tobacco leaf is from few individuals. Age groups (in years) between 31-70 in male individuals and 41-60 in female individuals are more vulnerable to occurrence of several diseases and disorders associated with the consumption of alcohol, tobacco leaf and smoking.

Keywords: Alcohol, Smoking, Tobacco, Human health, Age, Sex

INTRODUCTION:

Changes in civilization create advancements and modification in the life style, habits etc., In this days and age, innovations in different fields have affected humans in many ways. Boons and banes apart, they have made living life much easier, thus lessening the effort one has to put in to get a desired product. Urban and countryside lifestyles differ in terms of health of all the aspects. The latter has lesser

access to health care as compared to its former counterpart.

As the years go by, body becomes weak and prone to any sort of pressure caused by a continuous activity. Ageing is accompanied by decline in immune system function and immune alteration which increases susceptibility to infections **[1]**. Exactly what constitutes "a drink" is a fairly fluid and even there's no universally accepted standard drink definition **[2]**. Alcohol being both a tonic and a poison, dosage makes the difference. The, Ethanol a simple molecule is an active ingredient in alcoholic beverages affects the body in many different ways **[3]**. Although the level of alcohol consumption differs widely around the world, the burden of disease and death remains significant in most regions. Europe and America have the highest alcohol attributable fractions at 6.5% and 5.6%, respectively **[4]**.

The differences as well as similarities on the extent of alcoholic drink consumption may also explained by Socio-cultural factors **[5, 6]**. It directly influences the stomach, brain, heart, gallbladder, and liver. It affects levels of lipids (cholesterol and triglycerides) and insulin in the blood, as well as inflammation and coagulation. By the time liver and kidneys show symptoms, most of the organ damage has been already done and cannot be reversed by any chance except by prolonging their life expectancy through heavy medication. Heavy drinking is a major cause of preventable death in most countries. It also alters mood, concentration, and coordination. In the U.S., alcohol is implicated in about half of fatal traffic accidents **[3]**.

Smoking is the most important and preventable cause of morbidity and premature mortality in the developed and developing world **[7]**. Powdered tobacco or masher rubbing on the teeth is a continuous practice in India. Tobacco toothpaste is marketed commercially **[8]**. Nicotine is the primary alkaloid derived from tobacco leaves, is responsible for the addictive properties of smoking. Hence, there is growing research interest for the exploration of gender differences in various aspects of alcohol consumption and AUD and its associated risk factors and clinical outcomes **[9, 10]**.

Studies to identify diseases and disorders that are among human individuals on consumption of alcohol, tobacco leaf and smoking based on the age & sex are limited and there is a significant relationship between them. This research has been done to explore the same and increase the health cautious among human individuals.

MATERIALS AND METHODS:

The village Pasupala (15.7735° N, 78.0723° E) located in Kurnool, Andhra Pradesh having a population of

approximately 2900 including both educated and uneducated human individuals were divided into '10' groups according to their age (between 1 to 100 years). Serum samples were collected. This study was done for 12 months i.e. from October 2022 to September 2023. Diagnosis for the diseases and disorders was carried out by standard clinical methods and these procedures were followed in accordance with ethical standards as per the guidelines laid down by central ethical committee of Indian Council of Medical Research. This study and the collection of data were carried out with the approval of institutional review board.

Statistical analysis of the data was analyzed by 'DMR test' and observed that the individuals in the age groups 1 to 100 years distinguishing males and females suffering from respective diseases, disorders; where $p<0.05$ considered as significant. Individuals of no consumption of alcohol, tobacco leaf and no smoking are treated as controls in the respective sample size and total sample size too.

RESULTS:

Of the total male and female individuals around 30.44% and 9.71% respectively habituated to the consumption of alcohol, tobacco leaf and smoking. In males, smoking is predominant followed by alcohol later tobacco leaf. In females, alcohol is predominant followed by smoking and tobacco leaf is from few individuals **(Table 1)**. This study reveals that impact of consumption of alcohol and smoking is more in the individuals than of tobacco leaf in males in the age groups (in years) 81-90, 71-80, 61-70, 51-60 were more affected in proportion to the consumption followed by the age groups (in years) 41-50, 31-40, 11-20 with greater significant values indicating $p<0.05$ **(Table 2)**. Age groups (in years) 0-10, 91-100 were least affected in proportion to the said age groups on consumption of alcohol, tobacco leaf and smoking.

Where as in females the age groups (in years) 71-80, 61-70, 51-60 were more affected in proportion to the consumption followed by the age groups (in years) 41-50, 31-40 with greater significant values indicating $p<0.05$. Age groups (in years) 0-10, 11-20, 21-30, 81-90, 91-100 were least affected in proportion to the said age groups on consumption of alcohol, tobacco leaf and smoking.

Table 1: Consumption of alcohol, tobacco leaf and smoking in male and female individuals

Age group (in years)	Males (in nos.)	Consumption			Total (in nos.)	Females (in nos.)	Consumption			Total (in nos.)
		Alcohol	Tobacco leaf	Smoking			Alcohol	Tobacco leaf	Smoking	
0-10	227	0	0	0	0	197	0	0	0	0
11-20	275	05	0	10	15	239	0	0	0	0
21-30	279	15	0	19	34	284	05	0	0	05
31-40	277	18	05	46	69	185	06	02	0	08
41-50	182	54	14	66	134	124	20	02	12	34
51-60	126	52	14	54	120	129	31	02	12	45
61-70	113	26	08	29	63	91	12	02	04	18
71-80	64	11	06	16	33	43	14	01	03	18
81-90	14	02	0	04	06	26	0	0	0	0
91-100	0	0	0	0	0	0	0	0	0	0
Total (in nos.)	1557	183	47	244	474	1318	88	09	31	128

Sample size 'N' = 50, for each age group of males and females

Table 2: Affected individuals of males and females on consumption of alcohol, tobacco leaf and smoking

Age group (in years)	Males (in nos.)	Affected (%)	Females (in nos.)	Affected (%)
0-10	0	0 (0.00)	0	0 (0.00)
11-20	15	3^{a} (20.00)	0	0 (0.00)
21-30	34	5^{c} (14.70)	05	0 (0.00)
31-40	69	16^{d} (23.18)	08	2^{a} (25.00)
41-50	134	40^{f} (29.85)	34	12^{d} (35.29)
51-60	120	76^{h} (48.93)	45	15^{e} (43.24)
61-70	63	48^{g} (76.19)	18	9^{b} (50.00)
71-80	33	22^{e} (66.66)	18	11^{c} (61.11)
81-90	06	4^{b} (66.66)	0	0 (0.00)
91-100	0	0 (0.00)	0	0 (0.00)
Total (in nos.)	474 [1557]	214 (45.14)	128 [1318]	49 (38.28)

Number in the parentheses is the total no. of individuals tested; Sample size 'N' = 50, for each age group of males and females;
Controls are the unaffected individuals from respective sample size; Values are means [n=6] which do not share common superscript differ significantly at $p<0.05$.

DISCUSSION:

Metabolism at optimal levels in the age group (in years) 21-40 rather reduces from the age of 40 onwards; upon consumption of alcohol further reduces with high impact associated with liver diseases and other disorders. Improper life style, stress, imbalanced diet are other factors integrated with the said impact resulting in organ malfunctioning, tissue degradation etc., As liver is the main organ of detoxification, affecting the same worsens the health condition of the respective individuals.

Alcohol consumption is now the world's third largest risk factor for disease and disability as per recent evidences; almost 4% of all deaths globally are attributed to alcohol **[11]**. There is convincing evidence that alcohol consumption increases the risk of breast cancer, and more the alcohol consumed, greater is the risk **[12, 13]**. The World Cancer Research Fund and American Institute for Cancer Research indicate that there is convincing evidence linking alcohol to cancers of the mouth, pharynx, larynx, oesophagus, breast, liver, colon, and rectum **[14]**. The International Agency for Research on Cancer concluded that both the ethanol in alcohol and acetaldehyde, a chemical formed from the breakdown of ethanol, are carcinogenic to humans in high amounts **[15]**. The risk is multiplied for drinkers who also smoke tobacco or have a poor diet.

Heavy drinking can take a toll on the body and cause inflammation of the liver (alcoholic hepatitis), lead to scarring of the liver (cirrhosis) and a potentially fatal disease. It can increase blood pressure, damage heart muscle (cardio-myopathy) and has also been linked with several cancers: Alcohol consumption negatively affects human health across the lifespan. Previous studies show that alcohol consumption is associated with a burden of diseases such as cancer, pancreatitis, liver cirrhosis, tuberculosis, pneumonia, diabetes mellitus, alcohol use disorder, malignancies, psychiatric morbidity, and injury **[16, 17]** and was observed in the present study also.

Firstly, men and women are ascribed to different societal standards and norms. Socio-cultural perspective, traditional masculine norms specifically can play an important role and is strongly associated with alcohol use among men and have been attributed to excessive consumption of alcohol, which then predicted alcohol-related issues **[10, 18]**. Similarly to global estimates, lifetime prevalence and 12-month prevalence for AUD (Alcohol Use Disorder) were higher in males than females as is evident from this study.

On the other hand, females endorsing more traditional feminine traits do not engage in alcohol consumption as

frequently as males **[19]**. The life expectancy of one in four smokers is reduced by as much as 15-20 years and 50% of smokers die of a smoking related disease **[20]**. Before the advent of widespread tobacco use in World War II, lung cancer was rare **[21]**. Damage to one's skin, mouth, hands, feet, respiratory system, heart, bones and reproductive system becomes readily evident in long-time smokers **[22, 23, 24]**. The risk of a heart attack drops to half that of the risk of smokers after one year of cessation **[25]**.

Chewing the tobacco leaf a part of life style of individuals especially rural areas. Now-a-days prominently resulting in the health deterioration specifically lung diseases associated with other respiratory diseases and disorders. The 'pyridin' content of tobacco smoke destroys the comma bacillus of cholera and tobacco smoking can 'give rise to constitutional effects which diminish the resisting power of the body to disease **[26]**. Chewing tobacco or smokeless tobacco products are not safer than cigarettes, either. People who use chewing tobacco may develop cancers of the mouth, esophagus and pancreas besides causing gum disease, tooth decay and tooth loss **[27, 28]**. Similar symptoms were observed in the present study also and support the earlier evidences.

Further investigation is required to have comprehensive study to fill any such gaps on alcohol, tobacco leaf consumption and smoking their impact on human individuals in relation to several other factors even in relation to location, diet etc.,

CONCLUSION:

Age groups (in years) between 31-70 in male individuals and 41-60 in female individuals are more vulnerable to occurrence of several diseases and disorders associated with the consumption of alcohol, tobacco leaf and smoking.

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