



# Prevalence of TB association with Alcoholism

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## ABSTRACT

To identify the prevalence of Pulmonary Tuberculosis in Andhra population of India. A total of 100 pulmonary TB in-patients treated in chest and tuberculosis hospital in Visakhapatnam, A.P,India were taken into study during the year 2009-2014. The results revealed in the study that 57% of the patients were alcoholic and 46% of the patients were non-alcoholic. There was no subsequent association between TB and alcoholism. Further study on alcoholism with other associated risk factors in TB patients should be assessed.

**KEYWORDS :** PTB, age, gender, alcoholism.

### Introduction:

Tuberculosis is one of the major causes of death throughout the world. The burden of the disease was estimated to be 9 million in 2013. WHO reported that 1.5 million people died of the disease in 2014. The report shows that many people are losing their lives because of tuberculosis which is curable. However the relative impact of the disease is declining by an average of 1.5% a year. This disease is caused by single infectious agent Mycobacterium tuberculosis.

Several factors are responsible for increasing the risk of this disease, Alcohol being one of them. The association between alcohol and TB was reported by many scientists in the 18<sup>th</sup> century (Jacobson 1992; Szabo G 1997). 90% of the individuals infected with MTB do not develop the disease (Comstock GW 1982). This shows that majority of the people have adequate immune system and are able to resist the infection but only 10% of those infected develop TB where their immune system is unable to resist the infection (Flynn JL, Bloom BR 1996)

Research shows that heavy intake of alcohol impairs the immune system and increases the individual susceptibility to active TB infection and also reactivation of latent TB infection (Szabo G 1997; Flynn 1996, Happel, Nelson 2005, Zhang P et al., 2002)

### Material and Methods:

A Survey was carried out in the Chest and Infectious disease (TB hospital) in the district of Visakhapatnam. 100 clinically confirmed Pulmonary TB in-patients in male and female wards were visited and their case history was studied in the year 2009-2014. Information about drinking and smoking habits was taken into consideration using a well prepared questionnaire. The age of the patients was between 10 -80 years.

### Results:

The obtained results showed that 54% of the total TB patients were habituated to alcoholism and 46% were non alcoholic. The study also shows that 82% of the patients were males and 18% were females. Male patients are more habituated than females patients. The graph represents that male PTB patients between the age of 31-40years and 51-60years are more habituated to alcoholism.(Table1,2 &Fig1)

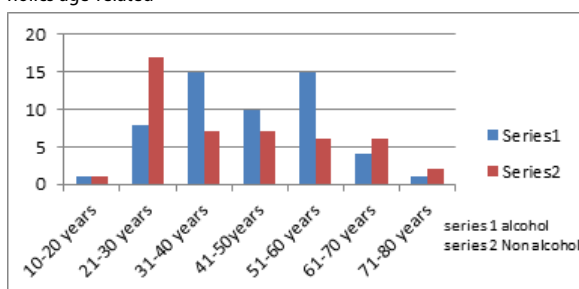
**Table1.Comparison between alcoholics and non-alcoholics in male and female TB patients**

S.no	AGE	Alcoholic		Total(%)	Non Alcoholic		Total(%)
		Male	Female		Male	Female	
1	11-20 years	1	0	1(1.85%)	0	1	1(2.17%)
2	21-30 years	8	0	8(14.81%)	11	6	17(36.95%)
3	31-40 years	15	0	15(27.7%)	6	1	7(15.21%)
4	41-50years	10	0	10(18.51%)	3	4	7(15.21%)
5	51-60 years	14	1	15(27.7%)	4	2	6(13.04%)
6	61-70 years	4	0	4(7.4%)	3	3	6(13.04%)
7	71-80 years	1	0	1(1.85%)	2	0	2(4.34%)

**Table2:Incidence of Pulmonary TB in Alcoholics and Non-Alcoholics**

S.no	AGE	Alcoholic	Non-Alcoholic	Total(%)
1	10-20 years	1	1	1(2.17%)
2	21-30 years	8	17	17(36.95%)
3	31-40 years	15	7	7(15.21%)
4	41-50years	10	7	7(15.21%)
5	51-60 years	15	6	6(13.04%)
6	61-70 years	4	6	6(13.04%)
7	71-80 years	1	2	2(4.34%)

**Fig 1:**Graph showing comparison between Alcoholics and non alcoholics age-related



**Discussion:**

In many parts of India and other countries women drink less or do not. In the present study males are more affected with TB than females, and among the affected females only one female TB patient has the habit of alcohol consumption.

TB is still a prevalent disease in India both in rural and urban areas. Many socio economic, genetic and environmental factors play a role in susceptibility to TB in Indians. Among them alcohol use is one of the factor. The present study is to find the risk associated with alcohol consumption on TB. The findings of the study, shows very less association with alcoholism, but associated studies reveal that the amount of intake of alcohol per day and per week also has direct affect on the incidence of TB. The habit of alcohol consumption with habitual smoking and other factors like education and socioeconomic status increases the risk of TB. The association between alcohol use and TB depends on the social gathering places where the habituated drinkers will fall at the risk of getting exposed with TB infected bacteria. Further research on the association between alcohol and TB should be assessed using other TB risk factors.

**REFERENCES**

- Anubha Mutha, Alla Vyas and Harish Vyas. 2008. A study on impact of some social evils and drinking during tuberculosis at villages of Ujjain (India). *Journal of Environmental Research and Development*. Vol. 2 No. 4. | Audrey V.Grant et al., 2013. Age-Dependent Association between Pulmonary Tuberculosis and Common TOX Variants in the 8q12-13 Linkage Region. *Am J Hum Genet*. 92(3):407-414. | Barun Mathema, Natalia E.Kurepina, Pablo J.Bifani, and Barry N Kreiswirth. 2006. Molecular Epidemiology of Tuberculosis: Current Insights. *Clin Microbiol Rev*. 19(4): 658-685 | Bennett et al., 2002. Investigation of Environmental and Host-related Risk Factors for Tuberculosis in Africa. II. Investigation of Host Genetic Factors. *Am J Epidemiol* Vol. 155, No. 11. | Boyle SJO, Power JJ, Ibrahim MY, Watson JP. 2002. Factors affecting patient compliance with anti-tuberculosis chemotherapy using the directly observed treatment, short-course strategy (DOTS). *Int J Tuberc Lung Dis*. 6(4):307-312 | C.Lienhardt et al. 2005. Investigation of the risk factors for Tuberculosis: a case-control study in three countries in West Africa. *Int J Epidemiol*. 34(4):914-923. | Comstock GW. 1978. Tuberculosis in twins: a re-analysis of the Prophit survey. *American Review of Respiratory Disease*. 117(4):621-624. | Comstock GW: Epidemiology of tuberculosis. *Am Rev Respir Dis* 1982;125:8-15. | Comstock G .1994. The International Tuberculosis Campaign: a pioneering venture in mass vaccination and research. *Clin Infect Dis*. 19(3):528-40. | Flynn JL, et al., 1992. Major histocompatibility complex class I-restricted T cells are required for resistance to *Mycobacterium tuberculosis* infection. *Proc Natl Acad Sci U S A*. 89: 12013-12017 | Flynn JL, Bloom BR : role of T1 ant T2 cytokines in the response to *mycobacterium tuberculosis* . *Ann NY Acad Sci* 1996;795:137-46. | Gajalakshmi V, Peto R .2009. Smoking, drinking and incident tuberculosis in rural India: population-based case-control study. *Int J Epidemiol* 38: 1018-1025 | Hamid Salim MA, Declercq E, Van Deun A, Saki KA. 2004 Gender differences in tuberculosis: a prevalence survey done in Bangladesh. *Int J Tuberc Lung Dis*. 8(8):952-957. | Happel KI , Nelson S : Alcohol, immunosuppression, and the lung. *Proc Am Thorac Soc* 2005;2:428-32. | Holmes CB, Hausler H, Nunn P. 1998. A review of sex differences in the epidemiology of tuberculosis. *Int J Tuberc Lung Dis* 1998; 2:96-104. | Jacobson JM: Alcoholism and Tuberculosis. *Alcohol Health Res world* 1992.16:39-45. | Jurgen Rehm, Andry V, Samokhvalov et al., 2009. The association between alcohol use, alcohol use disorders and tuberculosis (TB). A systematic review. *BMC Public Health* 2009, 9:450. | Knut Lonnroth, Brian G. Williams et al., 2008. Alcohol use as a risk factor for tuberculosis – a systematic review: *BMC Public Health* 2008, 8:289. | Mason CM, Dobar E, Zhang P, Nelson S .2004. Alcohol exacerbates murine pulmonary tuberculosis. *Infect Immun* 72: 2556-63 | Szabo G .2012. Alcohol and susceptibility to tuberculosis. *Alcohol Health Res World* 21: 30-41. | Schuckit MA. 2006. Comorbidity between substance use disorders and psychiatric conditions. *Addiction*. 101:576-88. | Szabo G. 1997. Alcohol's Contribution to Compromised Immunity. *Alcohol, Health & Research World*. 21(1):30-41. | WHO .2013. Global tuberculosis report. | Zhang P et al., Pulmonary host defences and alcohol. *Front Biosci* 2002;7:dl314-dl330