

Research Article

A Reconnoiter on the Incidence and Alliance of T2DM and Substandard Lifestyle Habits among Employees of Aligarh Muslim University Aligarh: An Observational Study

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Abstract WHO has defined diabetes mellitus (DM) as a heterogeneous metabolic disorder characterized by common features of chronic hyperglycemia with disturbance of carbohydrate, fat, and protein metabolism in addition; the prevalence of diabetes among all age groups worldwide which was estimated to be 2.8% by the year 2000 has been projected to rise 4.4% by 2030. Type 2 diabetes mellitus is closely related to lifestyle factors including diet, physical activities, alcohol, smoking, tobacco chewing, calorie intake as well as obesity and positive family history. Among these possible risk factors, personal habits are considered to be an important one in the causation of T2DM. It was aimed to assess personal habit as a risk factor among AMU employees. The aim and objective of the study was to identify the personal habits as risk factors for T2DM among the employees of AMU Aligarh and to find out the association of established risk factors of personal habits with incidence of T2DM. The present study was an observational cross-sectional study; conducted to find out the risk factors of T2 DM among employees of Aligarh Muslim University, Aligarh, UP, India. The duration of study was of 15 months. The sample Size was Calculated 614 (rounding off 650) using formula $n = 4pq/L^2$. The ethical clearance was obtained from the IEC (Institutional Ethical Committee). Diagnosed cases of T2DM of both sexes were included in the study. A Pre-typed semi-structured proforma consist of several questions was prepared for collection of data from the subjects. Each subject was inquired about the current and previous status of personal habits. The findings of the study suggested that currently 29.1% were smokers while 18.3% were tobacco chewers and 3% were alcohol consumers. The history showed that previously there were 48.7% smokers while 36.1% were tobacco chewers and 4.6% were alcohol consumers. The difference itself suggests of gradual enhancement of awareness among employees regarding the bad personal habits and their impact on health. Most of the subjects were having good personal habits as 51.3% subjects were non-smokers while 63.9% were non-tobacco chewers and 95.4 were non-alcohol consumers.

Further there is a clear evidence of decreasing the number of smokers, tobacco chewers and alcohol consumers after the diagnosis of T2DM. With the available data it can be concluded that personal habits are a possible Risk factor in the development of Diabetes Mellitus Type 2.

Keywords *Alcoholism; Smoking; Tobacco chewing; T2DM*

1. Introduction

Diabetes mellitus is an important public health problem worldwide (Ramchandran et al., 2012; Ramchandran et al., 2010; Anthony et al., 2008). The prevalence of diabetes among all age groups worldwide which was estimated to be 2.8% by the year 2000 has been projected to rise 4.4% by 2030. Type 2 diabetes mellitus is the more common type and accounts for 80-90% of all forms of diabetes mellitus, and many of the affected patients are relatively asymptomatic initially. During last few decades' diabetes has broken all the restriction of age, socioeconomic status, life style etc. WHO recently declared the India as the capital of diabetes. 80 million diabetics is the projected number up to 2030 for India (Anthony et al., 2008; Vijaykumar et al., 2009; Fazil et al., 2013). Approximately, 40 million cases of the diabetes residing in India.

The relation between alcohol intake and risk of T2DM has been examined in relatively few prospective studies (Stampfer et al., 1988; Feskens and Kromhout, 1989; Holbrook et al., 1990; Balkau et al., 1991; Hodge et al., 1993; Rimm et al., 1995; Perry et al., 1995; Tsumara et al., 1999; Wei et al., 2000; Ajani et al., 2000). Some studies reported no association, while others have suggested that heavy drinking is a risk factor for diabetes (Feskens and Kromhout, 1989; Holbrook et al., 1990; Balkau et al., 1991; Hodge et al., 1993; Wei et al., 2000). On the other hand, recent prospective studies suggest that light to moderate drinking may protect against the development of diabetes (Rimm et al., 1995; Perry et al., 1995; Tsumara et al., 1999; Ajani et al., 2000). This is consistent with observations that low to moderate amounts of alcohol intake increase insulin sensitivity and it is established that insulin resistance and hyperinsulinemia play an important part in the etiology of T2DM (Mayer et al., 1990; Facchini et al., 1994; Kiechl et al., 1996; Lazarus et al., 1997; Haffner et al., 1990; Saad et al., 1991). Thus, the apparent protective effects of light to moderate drinking may be partially mediated by serum insulin concentrations.

There is a growing body of evidence to show that smoking is a risk factor for Type 2 Diabetes (Hsin-Chieh et al., 2010; Ko and Cockram, 2005; Rimm et al., 1995; Radzeviciene et al., 2009; InterAct Consortium et al., 2014). Several hypotheses have been proposed to explain this link. Smoking has been identified as a possible risk factor for insulin resistance (see below), a precursor for diabetes. Smoking has also been shown to deteriorate glucose metabolism which may lead to the onset of Type 2 diabetes (Fagard and Nilsson, 2009).

There is also some evidence which suggests that smoking increases diabetes risk through a body mass index independent mechanism (Cullen et al., 2009; Nagaya et al., 2008). Smoking has further been associated with a risk of chronic pancreatitis and pancreatic cancer, suggesting that tobacco smoke may be toxic to the pancreas (Johns Hopkins Medicine website; Lynch et al., 2009; Ye et al., 2015). A systematic review of 25 studies found that all but one revealed an association between active smoking and an increased risk of diabetes (Willi, 2007). On the basis of this review, it is estimated that 12% of all Type 2 diabetes in the United States may be attributable to smoking (Ding et al., 2007).

Smoking is associated with multiple complications of diabetes; the risk of complications associated with tobacco use and diabetes in combination has been stated to be approximately 14 times higher than the risk of either smoking or diabetes alone (Haire-Joshu et al., 2005). Increased risks of kidney disease (nephropathy) have been shown in Type 1 diabetes patients who smoke (Mulhauser et al., 1996). There is also evidence that both active and passive smoking increases the risks of chronic

Kidney disease in Type 2 diabetes patients (Jiang et al., 2014). Smoking has been found to increase the risk of albuminuria (the presence of protein in the urine, which indicate signs of kidney disease) in both Type 1 and Type 2 diabetes (Ritz et al., 2014; Chase et al., 1991).

A small study of 33 people with Type 2 diabetes with kidney disease found that smokers' kidney function declined more rapidly than that of non-smokers, despite drug treatment, suggesting that smoking cessation could slow the progression of kidney disease in people with diabetes who use ACE inhibitors (Chuahirun and Wesson, 2002).

2. Methodology

Study Design: The present study was an observational cross-sectional study conducted to find out the risk factors of T2 DM among employees of Aligarh Muslim University, Aligarh, UP, India from February 2016 – May 2017 (15 months).

Sample Size: The sample size was Calculated 614 (rounding off 650) using formula

$$n = 4pq/L^2$$

Ethical clearance: The ethical clearance was obtained from the IEC (Institutional Ethical Committee).

Inclusion criteria

- Diagnosed cases of T2DM.
- Patients of either sex.
- Persons having sound mental status

Exclusion Criteria

- Patients of Type 1 Diabetes.
- Patients with any physical or mental problem.

Collection and Analysis of Data

Data was collected by the survey of each faculty of the institution. Survey data was processed and analyzed by using software "R".

3. Results

Table 1: Distribution of the population according to the personal habit

	Cigarette smoking		Tobacco chewing		Alcohol consumers	
	No. of individuals	Percentage	No. of Individuals	Percentage	No. of individuals	Percentage
Current users	189	29.1	20	3.0	119	18.3
Ex-users	127	19.6	11	1.6	116	17.8
Non-users	334	51.3	619	95.4	415	63.9
Total	650	100.0	650	100.0	650	100.0

4. Discussion

The present study delineated that 48.7% (316) were smokers (cigarette & bidi) among studied population, while 51.3% (334) were non-smokers. Present history of these patient showed that currently there were 29.1% (189) cigarette smokers as 19.6% (127) of population had quitted smoking after diagnosis of T2DM. Fagard RH et al. identified smoking as a possible risk factor for insulin resistance, a precursor for diabetes. Smoking has also been shown to deteriorate glucose metabolism which may lead to the onset of Type 2 diabetes (Fagard and Nilsson, 2009).

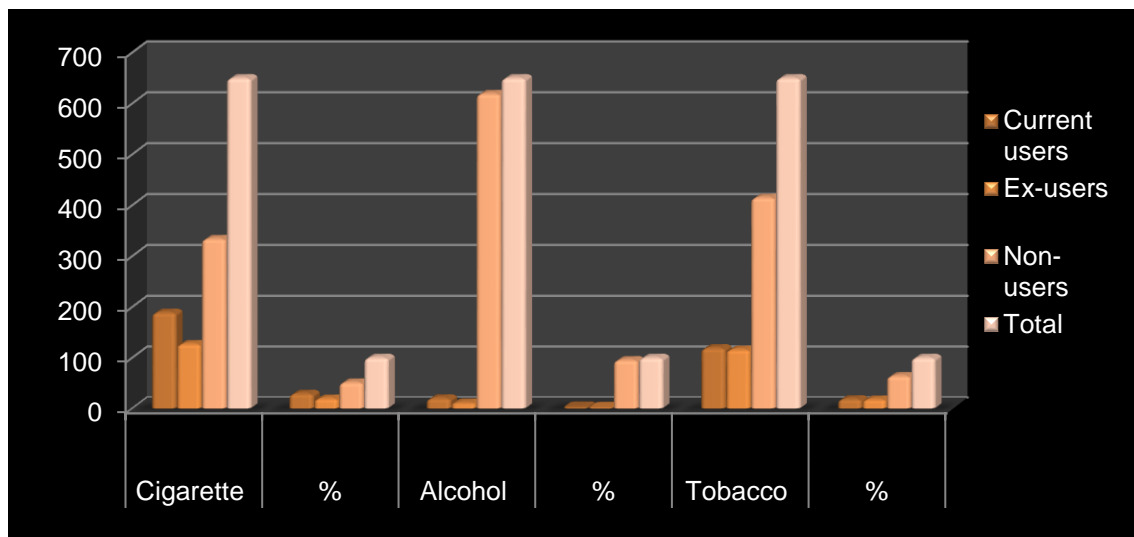


Figure 1: Distribution of the population according to the personal habit

Currently 18.3% (119) were tobacco chewers while 17.8% (116) had quitted this habit and 63.9% (415) were the non-tobacco chewers. Many studies had proven its link in the development of T2DM (Fagard and Nilsson, 2009; Willi, 2007). A systematic review of 25 studies found association between active smoking and an increased risk of diabetes (Fagard and Nilsson, 2009; Willi, 2007).

In Present study 4.6% (31) subjects were found to be alcoholic while 95.4% (619) were non-alcoholic. Our study revealed that 1.6% (11) people had quitted alcohol consumption after diagnosis of T2DM. Current data indicates that majority of the population were non-alcoholic but this data is not sufficient to draw conclusion for other population group because this study group consist of a population which have 90.4 (587) subjects from Muslims community where alcohol is prohibited due to religious belief. Therefore, the present result is not sufficiently suggestive for establishing a relationship of alcohol intake in the development of T2DM.

Nicholas et al. concluded in their study that occasional episodes of alcohol consumption generally do not worsen blood sugar control in people with diabetes and may even have beneficial effects. Regular consumption of even moderate amounts of alcohol (i.e., two to four drinks per day), however, clearly interferes with blood sugar control and increases the risk of impotence; peripheral neuropathy; and, possibly retinopathy (Emanuele et al., 1998). It was found in this study that 48.7 % were smokers (Cigarette & Bidi), 35.6% were found as tobacco chewers, 4.6% were those who were alcoholics.

5. Conclusion

Present study concluded that bad personal habits and bad lifestyle have massively worse impact on life. Personal habits like smoking, tobacco chewing, and alcoholism undoubtedly act as a precursor

for the development of T2DM. It is recommended to avoid these things to live healthy and enjoy diabetic free as well as disease free life.

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