



An Estimate That Type-2 Diabetic Population Among Daily Wagers Of Chevella Region Of South India, Consume Toddy Regularly

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Abstract

Consumption of toddy is very common in south India and especially in Telangana. There is an alarming increase in the prevalence of type-2 Diabetes in Telangana and it's the need of time to understand the various underlying reasons related to toddy consumption, contributing to the increase in the rate of Type-2 diabetes. It is an observational study to learn the percent of young population between 25-40 years of Chevella region are diabetic. Two months of data was collected from Department of clinical Biochemistry laboratory and observed the sample results for blood sugar levels and HbA1C collected. The basic socio demographic data was collected from all the participants with high sugar and HbA1C levels, after obtaining a writing informed consent. All the participants were given counselling and explained the complications arising due to the consumption of artificial toddy. A questionnaire with 10 open end questions were given to the participants to obtain the data related to toddy consumption and their knowledge. Artificial toddy consumption is unhealthy. We found increase in the prevalence of diabetes in Chevella population and are learnt to have a regular habit of artificial toddy consumption. The lack of education, awareness and knowledge related to their addicted habits could also be the contributing reason. Further studies are recommended in larger population in this area.

Keywords: NIL

Introduction

India is the second most affected country due to diabetes. In India 1 in 11 Indians with an estimate of 77 million populations are diagnosed with diabetes, suggestive that 17% of the world's diabetic population is from India (1). Type-1 diabetes is more in western population than in Indians and it is noticed

that only one third of the Indians diagnosed with type-2 diabetes have their body mass index (BMI) more than 25 (1). The prevalence is subjective to the lifestyle and environmental changes as a result of industrialization or migrations or practices of urbanization by rural population too (2).

Consumption of toddy is very common in south India and especially in Telangana. There is an alarming increase in the prevalence of type-2 Diabetes in Telangana and it's the need of time to understand the various underlying reasons related to toddy consumption, contributing to the increase in the rate of diabetes. Palm wine/ toddy is an accepted traditional beverage obtained from various palm trees. Its consumption is more in India (South India) and Africa. Fresh and natural toddy is learnt to have certain nutritious values like sugar about 12%, vitamin B1 and C, proteins and minerals like calcium, iron, potassium, magnesium, sodium, manganese, copper and zinc (3). Toddy is easily available, inexpensive beverage and had known to possess nutritional and medicinal values; most of rural population consumes it. Increasing in demand challenges the maintenance of quality and stability of toddy. It has active flora and is highly susceptible for spontaneous fermentation say within hours of extraction or when exposed to sunlight. Very few studies are available stating the changes in the nutritional and medicinal values or properties of toddy this dearth of information is very precious in regards to public health. This is the positive information about toddy. Toddy is consumed occasionally on account of festivals, get together and various gatherings by rural population and for some it has become a daily habit. This huge amount of toddy production from palm trees is highly impossible and fails to meet the requirement. To compensate this artificial toddy is prepared by adding just one portion of natural toddy to flavour with various additives like urea, detergent, baking soda, saccharine, low quality water. One can measure the complications on consuming these compounds.

The present study is an observational study taken up to study the prevalence of diabetes in Chevella region of Telangana and tried to learn about the common habit of the population through questionnaire.

Aim of the study: To study the percent of Type-2 diabetes in Chevella region of Telangana state and emphasis the reasons for diabetes.

Objectives:

1. To study the percent of young population between 25-40years of Chevella region are diabetic.

Methods & Materials: The study was conducted at Dr. Patnam Mahender Reddy Institute of Medical Sciences and hospitals, in Chevella, Telangana. Two months of data was collected from Department of clinical Biochemistry laboratory and observed the sample results for blood sugar levels and HbA1C collected. The basic socio demographic data was collected from all the participants with high sugar and HbA1C levels, after obtaining a writing informed consent. All the participants were given counselling and explained the complications arising due to the consumption of artificial toddy. We had given them the knowledge of the toxic constituents added in the preparation of toddy.

The samples of artificial and original toddy were tested for sugars using semi-quantitative benedict's test and urea by enzymatic colorimetric method.

A questionnaire with 10 open end questions were given to the participants to obtain the data related to toddy consumption and their knowledge. Observed the patient sample for fasting (FBS), post prandial sugars (PLBS) and Glycosylated haemoglobin (HbA1C) levels.

Results: We collected 2months of data of the samples tested for fasting, postprandial and HbA1c and had found 48 individuals with diabetes between the age of 25-40years. Table.1 details the opinion about the habit of toddy consumption and their knowledge about the benefits and complications on the consumption of artificial toddy, of patients between 25-40 years, who visited general medicine department of PMRIMS at Chevella and diagnosed as diabetic. When asked about the reason for consumption of toddy 81% of the participants replied that it is an alternative to alcohol, 79% have expressed that toddy is affordable as it is inexpensive and they feel that they get relieved from physical and mental stress experienced. Personal, family and economic crisis was stated as a reason by about 56% of the participants wherein 16% has no reason to state for toddy consumption. It is noted that about 85% of the participant were having the habit of consuming toddy on regular basis. 60% of the participant revealed that they consume 1-2 bottles of toddy regularly (1bottle=750ml). On suggesting the participants to give up the habit of toddy consumption 52% of them had said that they would try one for giving up the habit, 22% were reluctant to

give up the habit and 2% had declared that they completely stopped toddy consumption. When questioned about the knowledge of availability and complications of artificial toddy about 43% of the participant are aware of artificial toddy among them about 13% of the population possess the knowledge that anxiolytics, sedatives are added to artificial toddy and only 2% of the population stated the complication of consuming artificial toddy. After counselling and detailed explanation about toddy 56% of the participants agreed that toddy consumption is unhealthy, but 8% of the participants denied to accept the facts about toddy and expressed their view that we are giving them a created information. 52% of the participants expressed that they wanted to shift alcohol like beer, whisky, etc; if not toddy and 27% wanted to have soft drinks and wherein 20% of the participants wanted fresh fruit juices regularly if provided for no cost through schemes and only 2% seriously quite consumption of alcohol and toddy when diagnosed with diabetes.

We collected original and artificial toddy samples and tested for sugar and urea concentration surprisingly we found dark brick red precipitate for sugar in artificial toddy stating the sugar concentration as 2mg% and more wherein original toddy sample showed green precipitate stating 0.5mg% of sugars. Urea was nil in original toddy and artificial toddy showed 30mg/dl concentration of urea.

Discussion: The present study was taken up to observe the amount of population diagnosed with diabetes within the age group of 25- 40 years. Clinical Biochemistry lab at PMRIMS on an average got about 280 samples per day for blood glucose analysis out of this approximately 60% of the population fall between 25-40 years of age. Within two months we got about 48 patients between the mentioned age group of both the genders were diagnosed with diabetes. Most of them were working as daily wage labours in field or construction and were mostly SSC (secondary school or 10th class) qualified, only three among them were graduates. The drawback of the study is that only two months of the data was collected wherein we had not found any person between the specified age group from other profession and qualification. One of the reasons might be that the hospital organised a free camp and only the population from low economic status had

participated in this camp. If considered the data was for longer period across the Chevella region, we may get exact prevalence of diabetes within this age group. The study when asked about their regular habits surprisingly 99% of the population has stated that they consume toddy on regular basis at nights this helps them to fall a sound sleep and get relieved from body pains. Many studies had stated many health promoting benefits of natural toddy, it has antioxidant property, supports electrolytes, helps immune, respiratory and cardiovascular system (4). An interest study in animal model had stated that palm wine exhibits anti-diabetic activity and helps in modulating glucose homeostasis and contributes for the improvement of beta- cell regeneration thereby enhance the secretion of insulin (5). Preparation artificial toddy: one portion of original toddy to that 20 portions of tap water (Bore well/ municipal and lake water), detergent, urea, baking Soda, Saccharine, Urad dal paste, foaming and colouring agents, citric acid, anxiolytic drugs like Chloral hydrate, diazepam and Alprazolam (6). The report stated that approximately about 50 people die annually due to the consumption of adulterated toddy and observed that many are suffering with various Physical and mental health complications. Hence it is the time to raise alarm and spread awareness among the population regarding addiction to toddy as we observed that the effected population are young adults which in turn may lead to the burden and crisis on the individual family and also to the country.

Present study observed that about 0.476 is the percentage of type-2 diabetes in this mentioned age group with specific occupation and learnt that these population has a habit of consuming toddy. This is highly alarming percentage in the mentioned age group of 25-40 years wherein, lack of education, awareness and knowledge related to their addicted habits could also be the contributing factor for ill health. Yet the underlying reason of how artificial toddy consumption is leading to diabetes is unknown and further research in this area could help to understand this scenario in detail. Hence, further studies or research in this area is recommended in searching the link between toddy consumption and diabetes will be greatly helpful for the society.

Conclusion: Artificial toddy consumption is unhealthy. We found increase in the prevalence of diabetes in Chevella population and are learnt to have

a regular habit of artificial toddy consumption. The lack of education, awareness and knowledge related to their addicted habits could also be the contributing reason. Further studies are recommended in larger population in this area.

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1 Why do you consume toddy?				2 How many times you consume toddy?			
a	Affordable/inexpensive	38	79%	a	Weekly once	1	2%
b	Alternate to Alcohol	39	81%	b	Twice weekly	1	2%
c	Relief form physical and mental stress	38	79%	c	Thrice weekly	3	6%
d	Family/personal/economic reason	27	56%	d	Regularly/everyday	41	85%
e	No reason	8	16%				
3 Quantity of Toddy consumed				4 Giving up the habit			
a	1 glass (300ml)	0	0%	a	Reluctant to give up	11	22%
b	I -2 Bottle (750ml)	29	60%	b	Try once to give up	25	52%
c	2-3 Bottles	7	14%	c	Never thought to give up	9	18%
d	3 & more bottles	10	20%	d	Stopped completely	1	2%
5 Availabiliy of artificial toddy				6&7 Knowledge Anxiolytic and sedative are added			
a	Yes	21	43%	a	yes	8	13%
b	NO	13	27%	b	No	17	35%
c	To some extent	7	14%	c	Heard from others	14	17%
d	not bothered	6	5%	d	Not bothered	7	14%

8 complications of artificial toddy consumption				9 Changes after counselling			
a	Yes	1	2%	a	Unhealthy	27	56%
b	No	38	79%	b	Little healthy	7	14%
c	Heard from others	2	4%	c	Don't know	8	16%
d	Not bothered/ created	5	10%	d	It's a myth	4	8%
10 What if not toddy?							
a	Alcohol	21	52%				
b	Any soft drink	13	27%				
c	Juices fresh fruit juiced	10	20%				
d	Nothing	1	2%				

Table 2: Concentration of Sugar and Urea in Natural & Artificial toddy

Constituents	Natural Toddy	Artificial Toddy
Sugar	Green (0.5mg%)	Brick red (>2mg%)
Urea	Nil	30mg/dl