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A CLINICAL ANALYSIS OF SELECTED PARAMETERS OF SMOKING AMONG PATIENTS ATTENDING KATURI MEDICAL COLLEGE HOSPITAL PULMONOLOGY OPD, GUNTUR FROM 2012-2014

R. Ramakrishna[1], G. Jaya Bharat Reddy[2]

ABSTRACT: 200 symptomatic smokers from KMC Pulmonology OPD were analysed regarding their smoking habits. The parameters studied were: 1. Tobacco form consumed, 2. Frequency per day, status of inhalation, 3. Dependency, 4. Purpose of smoking, 5. Motivation behind their smoking, 6. Refrainment from public places and places to be forbidde, 7. Association with alcohol, Quit attempts Majority of the symptomatic were Beedi smokers followed by cigarette and chutta. A majority of them were motivated by peer influence. Smoke for pleasure and few for bowel movements. Majority of them inhale deeply. 60% of the smokers never attempted to quit while 40% attempted. More than 50% have associated alcohol habit. COPD is the commonest disease identified. Degree of obstruction was more with beedi smokers.
KEYWORDS: Tobacco smoking, cigarette, chutta, Beedi.

INTRODUCTION: Tobacco epidemic is one of the biggest public health threats the World has ever faced. Tobacco use is the single largest preventable cause of death and disability worldwide.[1] It is a very well established fact that tobacco use is the common and major risk factor for six of the eight leading causes of death in the world namely IschaemicHeart Disease (IHD), Cerebrovascular accidents (CVA), Lower Respiratory Tract Infections (LRTI), Chronic Obstructive Pulmonary Disease (COPD), Tuberculosis (TB) and Cancers (trachea, bronchus and lung).

According to recent estimates, nearly 6 million people die due to tobacco use every year and this figure is expected to increase to 10 million deaths per year by 2020, with 7 million of these deaths to occur in China and India.[2] With current smoking patterns alone, about 500 million will eventually be killed by tobacco,[3] more than half of these deaths will occur in today's children and teenagers.[3] Approximately one person dies every six seconds due to tobacco use.[1]

India is home to one sixth of the global population. Currently about one fifth of all worldwide deaths attributed to tobacco occur in India, in which more than 8 lakh people die and 12 million people become ill as a result of tobacco use each year. It is estimated that 5,500 adolescents start using tobacco every day in India, joining the 4 million young people under the age of 15 who already regularly use tobacco.[4] In India, deaths due to tobacco were estimated to be 8 lakhs in 1996 and recent studies indicate that the risk of deaths due to tobacco may in fact be more than that identified earlier.[5] Tobacco kills about one million people in India every year.[6] The total cost to the country for the year 1999 due to tobacco related cancers, coronary artery disease and chronic obstructive pulmonary disease was estimated at Rs. 27,761 crore.[7] The economic cost of tobacco use in India is around 1,04,500 crores according to latest report on

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economic burden of tobacco related diseases in India compiled by public health foundation of India 2012. The WHO predicts that India will have the fastest rate of rise in deaths attributable to tobacco in the first two decades of 21st century. Many of these deaths will occur in the productive years of the adult life, as a consequence of an addiction acquired in adolescence.[8]

This study aims at knowing various trends in tobacco smoking, knowledge regarding health hazards of tobacco abuse, factors responsible for its initiation, continuation and dependence and the effect on the respiratory and other systems in patients attending our department at Katuri Medical College situated about 15 kilometres from Guntur which is the major tobacco yielding district of Andhra Pradesh. Identifying the factors responsible for initiation of tobacco use will help to tailor efficient policies and programmes for tobacco control in this part of the world.

In India, multiple forms of tobacco use complicate attempts to reduce its overall impact on public health.[9] Hence, knowing and addressing the factors which influence tobacco usage is going to be beneficial in order to reverse the rising tobacco epidemic.

OBJECTIVES:

1. To know the pattern of tobacco smoking and tobacco trends in patients attending Katuri Medical College.
2. To evaluate the knowledge regarding health hazards of tobacco usage among these population.
3. To assess the factors influencing early initiation of tobacco use among these individuals and to assess the dependence on nicotine and its products.
4. To assess the smoking indices in the study group.
5. To know the impact of smoking patterns on various diseases in this study group and the effect of various forms of smoking on their pulmonary functions.
6. To enumerate various methods for early cessation of tobacco and bring awareness of tobacco hazards in the young population.
7. To conclude that beedi smoking is more harmful compared to cigarette smoking.

METHODOLOGY:

SETTING: This is a Randomized study done to know various patterns and trends of smoking and its effect on respiratory system in patients attending Pulmonology clinic at Katuri Medical College & Hospital, Guntur during the period between August 2012 and August 2014. It is located in a rural area of Guntur and the patients attending the hospital are predominantly rural (85%) and (15%) being urban.

PARTICIPANTS: 200 smokers attending Pulmonology clinic at KMC & H were picked randomly. These patients were to undergo a designed protocol which was attached to the annexure at the end of this project.

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INCLUSION CRITERIA:
1. Smokers above 18 years of age.
2. Both current smokers and ex-smokers were included in the study.
3. Smoking and smokeless forms of tobacco was taken in to consideration.
4. Patients with respiratory symptoms were included in the study.

EXCLUSION CRITERIA:
1. All the smokers less than 18 years of age.
2. Passive smokers i.e. smokers exposed to second hand smoke were not included in the study due to the fact that every individual is exposed to SHS and ETS.
3. Patients with ongoing infectious process and very old age smokers were not allowed to undergo pulmonary function tests.

INFORMED CONSENT: Verbal and written informed consent was obtained from all patients before explaining them about the study.
1. All the 200 patients were designated to undergo a questionnaire consisting of their
   ➢ Tobacco form consumed
   ➢ frequency per day, status of inhalation
      ➢ dependency
      ➢ purpose of smoking
      ➢ motivation behind their smoking
      ➢ Refrainment from public places and places to be forbidden
      ➢ Association with alcohol
      ➢ Quit attempts

Knowledge about smoking hazards and ill health Chief complaint of presentation to the hospital.

RESULTS:

Tobacco form	No. of patients	Percent
Cigarette	59	29.5
Chutta	26	13
Beedi	55	27.5
Smoke & Smokeless	7	3.5
Predominant Beedi with rarely Chutta/ Cigarette	53	26.5
Total	**200**	**100**
Table 1		

Majority of the smokers use Beedi (beedi alone/combination with other), followed by cigarette and chutta.

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DEEP INHALATION:

DEEP INHALATION	No. of patients	Percent
Yes	172	86
No	28	14
Total	**200**	**100**
Table 2		

86% of the patients inhale their smoke deep into lungs. 14% i.e., chutta smokers do not inhale deeply.

LIGHTING FIRST CIGARETTE/BEEDI IN THE DAY:

Lighting 1st Cigarette in the Day	No. of patients	Percent
< 5 Minutes	115	57.5
< 30 Minutes	45	22.5
< 1 Hour	16	8
> 1 Hour	24	12
Total	**200**	**100**
Table 3		

Majority of the individuals light their first cigarette in less than five minutes in the day (58%).

DEPENDENCY ON NICOTINE: +

DEPENDENCY	No. of patients	Percent
Low Dependence	31	15.5
Moderate	60	30
Highly Dependent	109	54.5
Total	**200**	**100**
Table 4		

54.5% of individuals are highly dependent on Nicotine.

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DEPENDENCY AND TOBACCO FORM CO-RELATION:

Tobacco form DEPENDENCY Cross tabulation	DEPENDENCY			Total
	1	**2**	**3**	
Cigarette	15	23	21	59
Chutta	9	11	6	26
Beedi	4	12	39	55
Smoke + Smoke less	2	1	4	7
Predominant Beedi with Chutta / Cigarette	1	13	39	53
TOTAL	**31**	**60**	**109**	**200**
Table 5				

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	39.469[a]	8	0.00
Likelihood Ratio	42.858	8	0
Linear-by-Linear Association	25.077	1	0
a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is 1.09.			

PURPOSE OF SMOKING:

PURPOSE OF SMOKE	No. of patients	Percent
Pleasure, Comfort and relief	66	33
Social Taboo	1	0.5
Bowels and Digestion	41	20.5
> One of the Above	92	46
Total	**200**	**100**
Table 6		

46% Individuals smoke for more than one purpose of pleasure, comfort, relief and bowels.33% regularly use smoking for pleasure, comfort & relief while 21% use it for bowels and easy digestion.

MOTIVATION FOR SMOKING:

MOTIVATION	No. of patients	Percent
Peer influence	115	57.5
Parental	38	19

Famous personality	1	0.5
Availability	4	2
Both 1 & 2	42	21
Total	**200**	**100**
Table 7		

58% individuals reported that they have learned this habit from their peer age group, 19% being influenced by parents and grandparents while 21% replied that both of the above were influencing them.

ATTEMPT TO QUIT SMOKING:

QUIT ATTEMPT	No. of patients	Percent
Yes	80	40
No	120	60
Total	**200**	**100**
Table 8		

40% individuals said that they have attempted to quit once or many times while 60% have never tried to quit.

ASSOCIATION WITH ALCOHOL:

ALCOHOL ABUSE	No. of patients	Percent
Yes	103	51.5
No	97	48.5
Total	**200**	**100**
Table 9		

52% patients have an association regularly or more than twice/thrice in a week.
49% have no association with alcohol.

KNOWLEDGE REGARDING ILL HAZARDS OF TOBACCO ABUSE:

KNOWLEDGE	No. of patients	Percent
Yes	116	58
No	84	42
Total	**200**	**100**
Table 10		

58% knew about the ill hazards of tobacco while 42% denied.

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CHIEF COMPLAINT AT PRESENTATION:

CHIEF COMPLAINTS	No. of patients	Percent
Cough	77	38.5
Shortness of Breath	96	48
Expectoration	8	4
Haemoptysis	7	3.5
Wheezing	5	2.5
Chest pain	3	1.5
Miscellaneous	4	2
Total	**200**	**100**
Table 11		

48% Patients presented with shortness of breath as chief complaint while 39% presented with cough as primary complaint.

DURATION OF SYMPTOMS:

DURATION	No. of patients	Percent
Acute and Sub acute	89	44.5
Chronic	111	55.5
Total	**200**	**100**
Table 12		

PREVALENCE OF VARIOUS DISEASES IN THE STUDY GROUP:

DIAGNOSIS	No. of patients	Percent
COPD/Chronic Bronchitis	70	35
AECOPD/ AECB	21	10.5
TB	21	10.5
Interstitial Lung Disease	4	2
Bronchiectasis	10	5
Bronchogenic Carcinoma	8	4
TB sequelae with COPD	14	7
Pneumonia and lung abscess	14	7
Pneumothorax	4	2
Pleural Effusions	4	2
Bronchial Asthma	8	4

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LRTI and others	22	11
Total	**200**	**100**
Table 13		

Majority of patients (45%) presented with chronic obstructive pulmonary disease and its exacerbations while various other diseases shared the rest.

SPIROMETRY:

Spirometry	No. of patients	Percent
Mild Obstruction	24	18
Moderate Obstruction	53	39
Severe and Very Severe	36	27
Restriction	4	3
Mixed Obstruction and Restriction	10	8
Normal	6	5
Total	**133**	**100**
Table 14		

Spirometry done in 133 patients revealed moderate to severe obstruction in majority of the patients.

PREVALENCE OF COMORBIDITIES:

COMORBIDITIES	No. of patients	Percent
Hyper tension	43	21.5
Diabetes	19	9.5
CHD	12	6
CVA	1	0.5
CKD	1	0.5
Oral Cancer	2	1
No Co morbidities	65	32.5
Cataract	4	2
Corpulmonale and PH	4	2
Multiple Co morbidities	49	24.5
Total	200	100
Table 15		

33% had no associated co morbidities, 25% had more than one co morbidity and 22% had associated hypertension.

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DISCUSSION: The major percentages of our patients come from rural areas (85%) and are of lower and middle class. Beedi is predominant form when compared to cigarette and chutta smoking. Beedi is the primary smoking form. 54% smoke beedi alone or in combination with occasional chutta/cigarette. Beedis and chuttas are cheap and primary smoking forms in lower and middle classes. Cigarettes are smoked by 29% of individuals and these belong to upper middle and higher classes. Chuttas are smoked by 13.5% patients.

The fraction of smokeless forms in our study is very low (3.5%) and is usually seen associated with one or other forms of smoking. This is very low when compared to national index and state indices[10] which may be due to the small sample size selected and selection of patients from respiratory clinic alone.

Majority of individuals smoke beedis and cigarettes by which the individual can inhale deeply. 86% of them inhale deeply. Cigar or chutta smokers do not inhale deeply. Beedi smoking was overall the commonest type of smoking in the community. Cigarette smoking was more common inthe higher income groups and among the graduates and postgraduates. Beedi smoking was the main form of smoking among the lower and middle-income groups and among illiterates and less educated people.[11] In a study done at Vallabhai Patel chest institute by S. K. Chabra ET al[11]Out of 916 male smokers, 547 (59.7%) smoked beedis, 269 (29.4%)smoked cigarettes, 95 (10.4%) smoked both beedis and cigarettes and 5 (0.5%) smoked hookah. Beedi smoking was much more common in the lower and middle economic groups while cigarette smoking was more common in the higher economic group (x2 = 249.21, P<0.0000l). In the lower economic group, 308 (79.4%) smoked beedis, 47(12.1%) smoked cigarettes and 33 (8.5%) smoked both. In the middle economic group, 200 (59.3%) smoked beedis, 85 (25.2%) smoked cigarettes, 50(14.8%) smoked both and 2 (0.6%) were hookah smokers. In the higher economic group, 3920.4%) smoked beedis, 137 (71.7%) smoked cigarettes, 12 (6.3%) smoked both and 3 (1.6%) smoked hookah.

In our study comparing the socioeconomic status and tobacco form (P= 0.0001) and showed a very good statistical significance, indicating more prevalence of beedi smoking among lower socioeconomic groups and cigarette in higher socioeconomic groups.

NUMBER OF SMOKING YEARS: This parameter is important in the calculation of pack years which depict the smoking status and there by the increasing disease burden and economic burden. In our study 19% patients smoked for less than 20 years, 24% smoked for 20-30 years, 30% smoked for 30-40 years and 27% smoked above 40 years in their entire life. On an average the number of years smoked by the study group was around 34.6 years. Mean duration of tobacco use was 23.0 (±15.4), 14.6 (±12.2) and 8.9 (±12.4) years for beedi smokers, cigarette smokers and chewers, respectively, in a study done by George d Souza[12] smokers attending a tobacco cessation clinic at Bengaluru.

DEEP INHALATION: Majority of individuals smoke beedis and cigarettes by which the individual can inhale deeply. In our study 86%said that they inhale deeply when compared to 14% chutta smokers who doesn't inhale deep.

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FREQUENCY/DAY: Frequency of smoking depends upon the type of smoking form. It is high for beedis, moderate for cigarettes and low for chuttas. On an average frequency per day in our study was about 19 pieces per day. Three-fourths of the current smoking males were heavy smokers with more than 20 cigarettes per day or more than 20 yr of smoking.[13] This is higher than the normal frequencies for cigarette and beedis because of mixture of all the forms without separating each entity and the second reason being the study done only among the diseased individuals without taking normal and asymptomatic individuals. The country mean for number of beedis smoked was around 11.6 and for cigarette it is 6.2. The state mean for Andhra Pradesh is 11 and 6 for beedi and cigarette respectively.[10] The mean number of cigarettes/beedis smoked per day was 14 (±11.5) in a study done by S.K. Jindal et al.[14] In rural areas it is around 17 and urban it is 11 per day.

In our study 57% of patients smoke within 5 minutes of waking up from the bed, 23% smoke after 5 minutes and less than 30 minutes. 8% smoke less than 1hour after waking up and 12% more than 1 hour after waking up. Those who replied to smoke less than half an hour after waking up are primarily those individuals who are addicted to nicotine for their bowel movements apart from their addiction for pleasure and relief.

The use of tobacco within a short span of time after waking up is an indirect indicator of nicotine dependence.[10] More than one in five (20%) daily tobacco user resorts to tobacco use immediately or within five minutes after waking up, 39 percent use it after five minutes but within 30 minutes,[10] 15 percent within half an hour to an hour of waking up, and the remaining 25 percent make the first use of tobacco of the day after one hour of waking up.[10] In other words 60 percent of daily tobacco users are so addicted to tobacco that they resort to tobacco use within half an hour of getting up from the bed, and three quarters of all the tobacco users use it within the first hour of waking up.[10]

DEPENDENCY ON NICOTINE: Dependency on nicotine can be known by Fagerstrom Test for Nicotine Dependence (FTND) which consists of a set of six questions[15]. A shorter version of the test consisting of two questions was employed in our study to know the dependency on nicotine. The two questions were 1. frequency/day and 2. time of lighting of first cigarette in the day. 16% of individuals are of low dependence, 30% being moderately dependent and 55% highly dependent

PURPOSE OF SMOKING: In our study 80% of people have said that they smoke for pleasure, comfort and relief rather being unknown of the fact that they are addicted to nicotine constituent of tobacco. 20% people said that they have to purely depend on tobacco for bowel movement and easy digestion or else they have to suffer with constipation

MOTIVATION FOR SMOKING: There are many reasons to explain why the young people begin using tobacco. Teenagers, and even preteens, who are in the stage of developing behaviours, social connections, and attitudes are mainly influenced as they often experiment with different behaviours because they see these behaviours in peers they admire, in adults they hope to be like someday, or in media or entertainment idols.[16]

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QUIT RATES: Quit rates are helpful for the clinician in judging the ability of a person in cessation of smoking. In our study 40% individuals had attempted to quit once or more in the past while 60% did not attempt for any quitting. In a study done by George d Souza Et al [12] 43% patients had attempted to quit for once or more in the past which was similar to our study. In our study we had 15 ex- smokers and we have included them in quit population. According to GATS[10] 38% of smokers have attempted to quit smoking in the last year while the quit rates in Andhra Pradesh are high accounting up to 55%.

ALCOHOL AND TOBACCO: It is a well-known fact that alcohol and tobacco are closely related associates. In our study 103 patients (52%) have regular association with alcohol, consuming alcohol for twice/more in a week. This high percentage of alcohol association is due to relatively lower socioeconomic status in the study group. In a study organized by George d Souza et al[47] 52% patients had an association with alcohol which was quite similar to my study values but the difference being that our study was done in rural areas while the other study done in urban area. In a study done by Prakash C. Gupta Et al[17] 51.1% of people were concurrent smokers and alcoholics and the risk of alcohol use increased with tobacco use. Heavier alcohol use has been reported among those with nicotine dependence and is more with severe forms of nicotine dependence.[17] A positive association was found between smoking and alcohol in the above study[17] which was found in our study too.

KNOWLEDGE ABOUT ILL HAZARDS OF SMOKING: In our study 58% of tobacco users have said that they knew that tobacco use causes one or other form of diseases pertaining to various systems while 42% said that they were unaware of the fact. These high rates might be due to literacy and socioeconomic status of our study group. In a study done by Kumar SR and Borker[18] about 88% said that they are aware of the ill hazards of tobacco use. This variation from our study was due to high literacy rates in their study which was done in Kerala where the literacy was very high. The Illiteracy in our study was 49% when compared to their study where illiteracy was only 1%.

CHIEF COMPLAINT AT PRESENTATION: 48% patients complained shortness of breath as their predominant symptom while 39%.

DURATION OF SYMPTOMS: In our study 55% patients presented with chronic symptoms i.e., symptoms persisting for more than 8 weeks of duration, while 45% patients presented with symptoms of acute (<3 weeks) and sub-acute (3-8 weeks) duration. The duration of symptoms in chronic patients depends on form, duration and frequency of smoking presented with cough and remaining 13% presented with other cardinal symptoms like expectoration, hemoptysis, wheezing, chest pain and miscellaneous other symptoms. According to Dheeraj Gupta Et al[19] the prevalence of chronic respiratory diseases (CRD) among smokers with 2.5 and >13.5 pack years was 13% and 60% respectively.

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PREVALENCE OF VARIOUS RESPIRATORY DISEASES: It is a well-known fact that tobacco smoking leads to various chronic and respiratory diseases. In our study the prevalence of various diseases was as follows. 46% of patients presented with either COPD or its exacerbation (AECOPD). 10%patients presented with Tuberculosis (TB), 11% presented with Lower respiratory infections, 4% with Bronchial asthma, 4% with Bronchiectasis, 7% with COPD and TB sequelae such as fibrosis, fibro thorax, destroyed lung, post TB Bronchiectasis, 4% presented with cancers of lung, 11% presented with various other diseases like Pneumonias, lung abscesses, Interstitial lung disease (ILD) and various other diseases. In a study done by George d Souza Et al 44% patients presented with COPD and 9% presented with TB. (64).

PREVALENCE OF VARIOUS COMORBIDITIES: Apart from the respiratory illnesses smoking is also responsible for various other life threatening and long term illnesses. 22% patients had hypertension, 10% with diabetes, 6% with CAD, 2% with right heart failure, 1% with CVA from lung disease, 24% presented with more than one of the above co morbidities, while 33% presented with no co morbidities. In a study done by George d Souza Et al[12] hypertension was reported in 23% patients, 9% with diabetes, 1%CVA which was similar to our study.

SPIROMETRY: Spirometry is essential for the diagnosis of obstructive and restrictive disorders. Severity staging of COPD is important for disease prognostication and treatment. GOLD guidelines classify COPD into

- Mild $FEV_1 \geq 80\%$
- Moderate $50\% \leq FEV_1 < 80\%$
- Severe $30\% \leq FEV_1 < 50\%$
- Very severe $FEV_1 < 30\%$

In our study both severe and very severe obstruction are labelled into single category due to statistical reasons and all the degrees of restriction are labeled into a single category for statistical ease. Restriction is defined when FEV_1 is normal with FVC <70%. Mixed blockade is seen with both obstruction and restriction. In our study spirometry is done in 133 out of 200 patients. Spirometry is not carried out in 67 patients who were either infectious or in individuals who cannot perform spirometry.

18% patients presented with mild, 39% presented with moderate restriction, 8% with mixed blockade and 5% have normal spirometric values. obstruction, 27%presented with severe and very severe obstruction.3%presented with restriction, 8% with mixed blockade and 5% have normal spirometric values.

Beedi and chutta smoking is found to have higher degrees of obstruction when compared to other forms in our study. The same was reported by S. K. Chabra ET al[11] in a study in Delhi. According to them Lung function (FEV_1/FVC and FEV_1% predicted) showed significantly greater airways obstruction in beedi smokers as compared to cigarette smokers. It was concluded that the beedi smoking was as or more likely to cause clinical and functional impairment of lungs compared to cigarette smoking. The chi-square test in our study showed a value of 0.041 which is significant stating that beedi is more likely to cause damage than cigarette smoking.

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The net weight of tobacco in a beedi (150-250 mg) is considered to be about one-fourth of that in a cigarette. In literature[11] 'cigarette-equivalent' had been calculated by assigning a weight of 1 for a cigarette and 0.25 for a beedi, based on number of grams of tobacco content. Consumption of tobacco has, therefore, been calculated in terms of "pack years" based on tobacco weight. Logically, "pack-years" cannot be calculated on the basis of the weight of tobacco; otherwise, "pack-years" would vary accordingto brand of cigarettes as different brands have different weights. Thus, there appears to be no scientific basis for equating cigarette and beedi on the basis of tobacco weight.

According to Raj Kumar ET al[20] Beedis are independent entities. Even if the tobacco content is less than that in cigarettes, their harmful effects may be more as:

(i) nicotine content is more in beedi;
(ii) Nature of inhalation is different in beedi smoking;
(iii) Puff content is more in beedi smoking.

Nicotine content in a beedi (21.2 mg/g) is significantly higher than that of a cigarette (13.3-16.5 mg/g). They have to inhale more deeply leading to increased level of exposure to Carbon monoxide (CO) and other harmful constituents. Astudy[21]indicates higher level of tar, CO in beedi than in cigarette. The CO level and other constituents have been found to be higher in beedi smoke than cigarette smoke.

Lung cancer has also been reported to be higher inbeedismokers[21] than the cigarette smokers. There is strong evidence that beedi smoking is more hazardous than cigarette smoking in the development of lung or esophageal cancers. Thus, there is no justification to compare cigarette and beedion the basis of weight to calculate "pack-year".

In a study Malson et at[22] have compared the nicotine content of 12 unfiltered brand of beedi cigarettes (hand rolled cigarettes imported from India) with eight popular brands of filtered and unfiltered cigarettes from the United States of America (USA) and conventional beedis from India. The concentration of the tobacco of beedis (21.2 mg/g) was significantly greater than the commercial filtered (16.3 mg/g) and unfiltered cigarettes (13.5 mg/g). They concluded that beedis contain higher concentration of nicotine than conventional cigarettes. Therefore, it is logical to presume that beedi smokers have a high risk of becoming nicotine dependent. Although we did not measure the nicotine content, the tobacco content in beedi (216.8 mg) was less than in the cigarette (695 mg)[20]

Beedis are smoked differently than commercial cigarettes. Beedis must be re-lit several times because they self-extinguish. To continue lighted they have to be puffed at least two times a minute. There is less air dilution through the tend leaf than conventional cigarette hence they must be inhaled deeply to keep the fire on and this causes more significant damage.

In study done by Raj Kumar ET al[20] individuals who smoked cigarette/beedi more than five pack-years showed a higher breath CO level which is significantly higher in beedi smokers compared to cigarette smokers. This was despite the fact that average tobacco weight in a beedi is almost one-third of average tobacco content of a cigarette. This probably may be due to the fact that beedi has no filter and hence, all the noxious contents of tobacco smoke enter the lung unhindered. One more factor responsible for the above result could be, because of low

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combustibility of beedi and its self-extinguishing nature, more puffs per minute are required and the smoker has to inhale more frequently and more deeply to increased level of exposure to CO and other harmful constituents of tobacco smoke. The low combustibility forces a smoker to inhale deeply resulting in greater delivery of CO, nicotine and other components of tobacco smoke. Hence, these factors may exaggerate the health risks associated with nicotine and other components of beedi smoke.

SUMMARY: Beedi is the most common form when either smoked alone or in combination (54%) with chutta or cigarette. Cigarette (29%) and Chutta (13%) are next common forms of smoke. Smokeless tobacco is not common in our study. Chewing tobacco in combination with beedi is 3.5%.

Deep inhalation is common with cigarettes and beedis but not for chuttas. Frequency of smoking is high for beedi moderate for cigarette and low for chutta.

1. Lighting first cigarette in the day is less than 5 minutes indicating high nicotine addiction property which is more among beedi smokers.
2. High dependency for nicotine is seen in 55% of patients (FTND) with majority of being beedi smokers.
3. Majority of the smokers smoke for pleasure, comfort and relief rather than not being aware of nicotine addictive properties. One fifth of patients use it for bowel movements.
4. Peer (58%), Parental (29%) and both 21% patients are major motivating factors.
5. 40% people have attempted to quit once or more in the past with 5% being successful quitters.
6. Alcoholic association is high with 52% being associated with alcohol along with smoking.
7. More than a half of the individuals know about the ill hazards of smoking but continue to smoke.
8. Shortness of breath is the common chief complaint followed by cough and others.
9. 56% patients presented with chronic symptoms while 45% presented with acute and sub acute symptoms.

COPD and it's exacerbation is seen in 45% patients, followed by tuberculosis 10%, LRTI 11%, and others being the rest. Hypertension is seen in 22% patients, diabetes 9%, CHD 6%, multiple co-morbidities seen in 25% and 33% with no co morbidities.

Spirometry revealed that beedi and chutta smokers have a significant reduction in pulmonary functions when compared to cigarette smokers.

CONCLUSION: Tobacco smoking has been increasing in India despite wide amount of information regarding its hazards in the media. Despite all governmental efforts tobacco consumption is on the rise particularly among the rural youth. By the time patient lands up in the hospital with the respiratory symptoms he has a history of 20-30 pack years. Majority of pulmonary, cerebro vascular, cardiac, peripheral vascular diseases and cancer have a history of heavy tobacco smoking. In other words tobacco smoking is a major cause of morbidity and mortality among Indian rural and urban population. The consequences of tobacco smoking affect

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people of middle age who are in the productive age groups. This causes tremendous economic burden on the family as well the country. Beedi smoking is causing a great threat among the rural youth and adults of India and this should be taken as a serious issue by the government of India.

Passive / SHS and smokeless tobacco are equally harmful causing profound morbidity. Since the amount of tobacco users is as high as 35% i.e., nearly 40 crore population are at risk of tobacco related complications. The problem of tobacco in India is 20 times more than that of TB and 10 times more than that of COPD and Asthma put together.

A massive programme involving the Government and voluntary organizations is necessary to curb the menace of tobacco epidemic among Indians. This should be taken more seriously than any national programme. A successful implementation can prevent many tobacco related deaths in the future.

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ABBREVIATIONS:

COPD	Chronic Obstructive Pulmonary Disease
COTPA	Cigarettes and Other Tobacco Products Act
CVA	Cerebrovascular accidents
DDT	Dichloro-Diphenyl-Trichloroethane
E-CIGARETTE	Electronic Cigarettes
ETS	Enviornmental Tobacco Smoke
FCTC	Framework Convention on Tobacco Control
FTND	Fagerstrom test for nicotine dependence
GATS	Global Adult Tobacco Survey
GOLD	Global Obstructive Lung Disease
IDSP	Integrated Disease Surveillance Project
IHD	Ischemic Heart Disease
ITC	Indian Tobacco Company
LRTI	Lower Respiratory Tract Infection
MG	Milligrams
MOHFW	Ministry of Health and Family Welfare
NA	Not Available
NFHS	National Family Health Survey
	National Household Survey on Drug Abuse
NHSDAA	NTCP National Tobacco Control Programme
NRT	Nicotine Replacement Therapy
NSSO	National Sample Survey Organisation
OR	Odds ratio
PAH	Polycyclic aromatic hydrocarbons
PH	Pulmonary Hypertension
PVC	Polyvinylchloride
SD	Standard Deviation
SES	Socio Economic Status
SHS	Second Hand Smoke
SR	Sustained Release

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TB	Tuberculosis
UN	United Nations
USA	United States of America
WHO	World Health Organisation

AUTHORS:
1. R. Ramakrishna
2. G. Jaya Bharat Reddy

PARTICULARS OF CONTRIBUTORS:
1. Professor & HOD, Department of Pulmonology, Katuri Medical College, Guntur.
2. Post Graduate, Department of Pulmonology, Katuri Medical College, Guntur.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:
Dr. R. Ramakrishna,
A-2, Raghavas Vista,
Krishna Nagar Park Road,
Guntur-522006, Andhra Pradesh.
E-mail: ramakrishna45@yahoo.co.in