

**AWARENESS OF HARMFUL EFFECTS OF SMOKING AMONG SMOKERS**Srikanti Raghu<sup>1</sup>, Modini Venkata Rao<sup>2</sup>, Surya Kiran Pulivarthhi<sup>3</sup>, Juvva Kishan Srikanth<sup>4</sup>**HOW TO CITE THIS ARTICLE:**

Srikanti Raghu, Modini Venkata Rao, Surya Kiran Pulivarthhi, Juvva Kishan Srikanth. "Awareness of Harmful Effects of Smoking among Smokers". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 80, October 05; Page: 13937-13942, DOI: 10.14260/jemds/2015/1985

**ABSTRACT: BACKGROUND:** Smoking is the preventable risk factor for many non-communicable diseases like COPD, atherosclerotic diseases, stroke and many malignancies. Many smokers smoke their 1<sup>st</sup> cigarette at early age due to various social factors. Many of the smokers doesn't know the harmful effects of the smoking on individual systems. **METHODS:** Prospective study conducted on 102 smokers attending to outpatient department of the Government fever hospital, Guntur. They were surveyed about their smoking preferences. After taking the preliminary details they are enquired about the level of awareness of harmful effects of smoking. **RESULT:** More than half the members (n=56,54.90%) smoke in their houses. They don't know about effect of second hand smoke on the health of the members. Only few members know the complication of the smoking like Skin diseases (17,16.66%), Cerebrovascular accidents (26,25.49%) and endocrine complications including diabetes (n=2, 1.8%). Most of subjects know risk of Carcinomas (92,90.19%), Cardiovascular diseases (34,33.33%) and Respiratory diseases (85,83.33%). People continue smoking inspite of awareness of complications of smoking due their addiction. **CONCLUSIONS:** Newer policies should raise towards educating the people about the exact impact of smoking on health. Policies should target the younger people that should stop smoking their 1<sup>st</sup> cigarette or beedi.

**KEYWORDS:** Awareness, Guntur, Health, Smoking.

**INTRODUCTION:** Tobacco use causes six million deaths annually throughout the world. Upto five million deaths are due to direct tobacco use, while secondhand smoke causes more than 600 000 deaths in nonsmokers. If unchecked, tobacco use may cause more than eight million annual deaths by 2030. Tobacco use accounts for one in 10 adult deaths, nearly one person dies every six seconds.<sup>(1)</sup> Smoking is the one of the preventable risk factor for many non-communicable diseases COPD, atherosclerotic diseases, stroke and many malignancies. Tobacco use accounts for one in 10 adult deaths, nearly one person dies every six seconds.

World Health Organization(WHO) in 2008 lunched MPOWER, a more practical and cost effective way for implementation of provisions of the of FCRC (Federaration convention on tobacco control). The six MPOWER measures are: Monitor tobacco use and prevention policies, Protect people from tobacco use, Offer help to quit tobacco use, Warn about the dangers of tobacco, Enforce bans on tobacco advertising, promotion and sponsorship, Raise taxes on tobacco.<sup>(2)</sup> Many smokers smoke their 1<sup>st</sup> cigarette at early age due to various social factors. Many of the smokers does not know the harmful effects of the smoking. Risk perceptions of secondhand smoke are less well known among adults and little is known about changes in this risk perception over time

**MATERIALS AND METHODS:** It is a prospective study conducted on patients and patient attenders, attending to outpatient department of the Government fever hospital, Guntur. They are enquired about smoking preferences and knowledge towards the harmful effects of smoking on individual systems of the body and cancer risks. There is no female member in the study because of the social stigmata.

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**RESULTS:** Total 102 smokers were studied, mean age of the smokers in our study was 40.8 years. Average age at which they started smoking was 16.8 years. Beedi is the most common form of the smoking (48 members, 47.05%) followed by chutta (n=33 members, 32.35%), cigarette (n=21 members, 20.58%). Most of the members are preferred to smoke in public places. About half the members (n=56,54.90%) smoke in their houses. They don't know about effect of passive smoking on the health of the members. Not Surprisingly for most there is family history of the smoking. Many of the members know something harmful in smoking but they didn't know the exact impact of the smoking on individual system. Only few members know the complication of the smoking like Skin diseases (17,16.66%), Cerebrovascular accidents (26,25.49%) and endocrine complications including diabetes (n=2, 1.8%). Most of subjects know risk of Carcinomas (92,90.19%), Cardiovascular diseases (34,33.33%) and Respiratory diseases (85,83.33%). People continue smoking inspite of awareness of complications of smoking due their addiction. Results are shown in Tables 1, 2, 3.

**DISCUSSION:** Tobacco smoke has around 5000 chemical which are incorporated at different stages of processing of tobacco.<sup>(3)</sup> Nicotine is principal component of the tobacco smoke. When inhaled, it rapidly absorbed into the circulation and reaches the central nervous system (CNS) by crossing the blood-brain barrier. Nicotine is a stimulant of the CNS where it acts by binding to and activating the nicotinic acetylcholine receptors (nAChRs), members of a superfamily of transmembrane ligand-gated ionchannel proteins.<sup>(4)</sup> These receptors are found in both the CNS, peripheral nervous system (PNS) and in some peripheral tissues. Nicotine has ability to increase synaptic neurotransmission in the mesolimbic dopaminergic neurons. Addictive properties of tobacco rewarding and reinforcing effects of nicotine, are mediated by the release of neurotransmitter dopamine.<sup>(5)</sup> Cytochrome P450 enzymes CYP2A6 and CYP2B6 in the liver metabolizes Nicotine into form a variety of metabolites.

Nicotine is metabolized to Cotinine which also an alkaloid found in tobacco. Upto 70 to 80% of nicotine is converted to cotinine then excreted in the urine.<sup>(6)</sup> Nicotine causes Skeletal muscle contraction by activation of nAChRs at the neuromuscular junction and neurotransmission along the autonomic ganglia, leads to activation of the postganglionic adrenergic and cholinergic fibers.

Cardiovascular and metabolic responses of nicotine are due to increased catecholamine levels by adrenal medullary Acetyl choline receptors stimulation. Catecholamines causes increase pulse rate and blood pressure, the release of plasma free fatty acids, and the mobilization of blood glucose.<sup>(7)</sup>

Nicotine causes decreases in skin temperatures, arousal and relaxation.<sup>(8)</sup> Nicotine increases the synthesis and release of neurotransmitters and hormones. It also activates synthesis transcription factors and the catecholamine-synthesizing enzyme tyrosine hydroxylase. Generally Smokers have reduced body-weight. Weight gain one of the unwanted effect of the smoking cessation. Many smokers particularly among female smokers resume smoking due to their weight gain.<sup>(9)</sup>

Some people intentional use of cigarette smoking to lose weight.<sup>(10)</sup> Smoking worsens insulin resistance in spite of the weight loss, even with second hand smoke.<sup>(11)</sup> Smoking is one of the predisposing factor for metabolic syndrome due increased visceral adiposity.<sup>(12)</sup> Smoking causes increased incidence of hypoglycemic attacks in insulin users due decreased clearance of the insulin from the subcutaneous fat tissues.<sup>(13)</sup> Smokers are at increased risk of Non-alcoholic fatty liver disease (NAFLD) and non-alcoholic steato-hepatitis (NASH) due to insulin resistances.<sup>(14)</sup> The classic dyslipidemia observed in smokers characterized by elevated triglycerides (TG) and reduced **high density** lipoprotein cholesterol (HDL-C), with lesser effects on total and low-density lipoprotein cholesterol (LDL-C), which is also due to the insulin-resistance.<sup>(15)</sup>

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Smoking cessation causes Favorable effects on lipid profile of the, particularly with increased HDL-C. People exposed to secondhand smoke (SHS) are at increased risk of development of asthma, lung cancer, heart disease, bronchitis, development of ear infections among children, and some evidence on diabetes.<sup>(16)</sup> Oxidants in the smoke causes damage to elastin in the various tissues which results in the chronic obstructive pulmonary disease (COPD) and skin wrinkling.<sup>(17)</sup> Cigarette smoke also contain tar, arsenic, 1, 3- butadiene, carbon monoxide (CO), several nitrosamines, aldehydes, and small organic compounds. Nitrosamines, aldehydes, organic compounds may contribute to the cancer risk associated with smoking. Polycyclic hydrocarbons and nitrosamines are responsible for causation of many cancers.

They involve in many steps of carcinogenesis like tumor initiation and progression.<sup>(18)</sup> Endocrine effects of nicotine and smoking are much less is known to the smokers when compared to cardiovascular and lung diseases. Total sperm motility is decreased by the seminal cotinine and trans-3'- hydroxycotinine levels. Nicotine causes increased prolactin synthesis and release by dysregulation of dopaminergic response towards the prolactin release. Smoking can cause both hypothyroidism or hyperthyroidism. Stimulatory effect of cigarette smoke exposure on thyroid hormone release causes higher levels of serum T3 and T4 and lower levels of TSH are seen in smokers.<sup>(19)</sup> Smoking causes increased cortisol levels in the body which may be augmented by the stress.<sup>(20)</sup> Stress is one of the leading causes of smoking relapse. Withdrawal symptoms of Nicotine includes irritability, frustration, poor concentration, insomnia, and restlessness, all of which may exacerbate stress and lead to craving for continued nicotine use.

Smokers are in the state of elevated stress in as measured by elevated resting cortisol, which is a reflection of the dysregulated HPA axis. Decreased fertility is noted in both males and females smokers.<sup>(21)</sup> Negative association between clinical outcome of assisted reproduction treatment (ART) and smoking was also noted. Cigarette smoking is also associated with hypogonadism and erectile dysfunction. It was estimated that 23% of cases of erectile dysfunction can be attributed to smoking. Smoking is associated with PCOD and its related complications in female smokers, which may reversed with the smoking cessation.<sup>(22)</sup> Elderly Smokers are at risk of hip fractures due the increased risk of osteoporosis.<sup>(23)</sup> Current study is to know about the knowledge of smokers about the harmful effects of smoking. Total 102 subjects were studied. The average age of the smokers was 40.8, youngest one is 19 years of age and oldest one is 78 years of age. Most of the smokers smoke their 1<sup>st</sup> smoke early in the adolescence, average age at which subjects smoke their first cigarette was 16.8 years.

Most common cause of starting of smoking is 'peer pressure' and next to that 'image' of the smoker. Most common form of smoking in this study was beedi it may due the low socioeconomic status. After beedi, chutta was most common mode of smoking next to that cigarette. These values may not be applied to whole because smaller number of subjects surveyed and most of them have rural background .most of the smokers smoke in houses they don't know about effect of the passive smoking. Many of the smokers doesn't know about the effect of second hand smoke on the family members. Many of the smoker know about the harmful effects of the smoking like Carcinomas (92,90.19%), Cardiovascular diseases (34,33.33%) and Respiratory diseases (85,83.33%), yet they continued smoking because of their addiction.

They know about these ill effects by watching televisions, and statutory warning printed on the cigarette packs. Only few members know about the harmful effects like Skin diseases

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(17,16.66%), Cerebrovascular accidents (26,25.49%) and endocrine complications including diabetes (n=2, 1.8%).

These effects of smoking are much less known to smokers because they are very much less discussed by physician or health care personals. Ankur Garg et al study on smoking in Newdelhi found that awareness of ill effects of smoking in population is much low.<sup>(24)</sup> Weinstein et al (2001) found that some health risks of smoking, such as lung cancer, are well recognized; however, other risks of smoking are much underestimated.<sup>(25)</sup>

**CONCLUSION:** Many of the smokers know something about the harmful effects of the smoking but most of the smokers doesn't know the actual impact of smoking on their health. Newer policies should raise towards educating the people about the exact impact of smoking on health. Policies should target the younger people that should stop smoking their 1<sup>st</sup> cigarette or beedi.

### Tables:

**Table 1**

Number of patients surveyed	102
Average age of the smokers studied	40.8
Average age of smokers started their 1 <sup>st</sup> cigarette	16.5
Type of smoking	Cigarette (21) beedi(48) chutta(31)
Is they smoke before their family members	Yes(46) No(56)
Family history of smoking	Yes(74) No(28)

**Table 2**

Ill effects	Yes	No
Skin diseases	17	85
Carcinomas	92	10
Cardiovascular diseases	34	68
Respiratory diseases	46	56
Cerebrovascular accidents	26	76
Endocrine effects including diabetes	02	100
Metabolic syndrome and insulin resistance	00	102

**Table 3**

Status after questionnaire	Yes	No
How you tried to stop smoking	35	67
If yes how long (Average duration)	14.2 days	-
How many willing to pass information to family and friends	96	6
How many want to stop smoking after this session	84	18
How many smokers liked this session	66	--
How many disliked this session	36	--

**REFERENCES:**

1. WHO | Tobacco. Available on <http://www.who.int/mediacentre/factsheets/fs339/en/>. Accessed on 22-06-2015.
2. WHO global report on trends in tobacco smoking 2000-2025. [http://www.who.int/tobacco/publications/surveillance/report on trends to baccosmoking /en /index1.html](http://www.who.int/tobacco/publications/surveillance/report%20on%20trends%20to%20baccosmoking%20/en/index1.html). accessed on 23-06-2015. Accessed on 22-06-2015.
3. Talhout R, Schulz T, Florek E, van Benthem J, Wester P, Opperhuizen A. Hazardous Compounds in Tobacco Smoke. *International Journal of Environmental Research and Public Health*. 2011; 8(2):613-628. Doi: 10.3390/ijerph8020613.
4. Tuesta LM, et al. Recent advances in understanding nicotinic receptor signalling mechanisms that regulate drug self-administration behavior. *Biochem Pharmacol*. 2011; 82:984–995. [PubMed: 21740894].
5. Liu RH, et al. The expression and functional role of nicotinic acetylcholine receptors in rat adipocytes. *J Pharmacol Exp Ther* 2004; 310:52–58. [PubMed: 14993259].
6. Yildiz D. Nicotine, its metabolism and an overview of its biological effects. *Toxicol*. 2004; 43:619–632. [PubMed: 15109883].
7. Mendelson JH, et al. Effects of smoking successive low- and high-nicotine cigarettes on hypothalamic–pituitary–adrenal axis hormones and mood in men. *Neuropsychopharmacology*.2008; 33:749–760. [PubMed: 17507912].
8. Benowitz NL. Nicotine addiction. *N Engl J Med*. 2010; 362:2295–2303. [PubMed: 20554984].
9. Klesges RC, et al. Factors associated with participation, attrition, and outcome in a smoking cessation program at the workplace. *Health Psychol*. 1988; 7:575–589. [PubMed: 3215163].
10. Potter BK, et al. Does a relationship exist between body weight, concerns about weight, and smoking among adolescents?. An integration of the literature with an emphasis on gender. *Nicotine Tob Res*. 2004; 6:397–425. [PubMed: 15203775].
11. Audrain-McGovern J, Benowitz NL. Cigarette smoking, nicotine, and body weight. *Clin Pharmacol Ther*. 2011; 90:164–168. [PubMed: 21633341].
12. Willi C, et al. Active smoking and the risk of type 2 diabetes: a systematic review and metaanalysis. *JAMA*. 2007; 298:2654–2664. [PubMed: 18073361].
13. Hirai FE, et al. Severe hypoglycemia and smoking in a long-term type 1 diabetic population: Wisconsin Epidemiologic Study of Diabetic Retinopathy. *Diabetes Care*. 2007; 30:1437–1441. [PubMed: 17372156].
14. Hamabe A, et al. Impact of cigarette smoking on onset of nonalcoholic fatty liver disease over a 10-year period. *J Gastroenterol*. 2011; 46:769–778. [PubMed: 21302121].
15. Chelland Campbell S, et al. Smoking and smoking cessation –the relationship between cardiovascular disease and lipoprotein metabolism: a review. *Atherosclerosis*. 2008; 201:225–235. [PubMed: 18565528].
16. Bernie J Lonergan, Sarah Meaney, Ivan J Perry, Harry Comber, Bernadette Power, Colin Bradley et al. Smokers Still Underestimate the Risks Posed by Second-hand Smoke: A Repeated Cross-Sectional Study. *Nicotine & Tobacco Research*, Volume 16, Number 8 (August 2014) 1121–1128.
17. Patel BD, Loo WJ, Tasker AD, et al. Smoking related COPD and facial wrinkling: is there a common susceptibility? *Thorax*. 2006; 61(7):568-571. doi:10.1136/thx.2005.053827.

## ORIGINAL ARTICLE

18. Talhout R, Schulz T, Florek E, van Benthem J, Wester P, Opperhuizen A. Hazardous Compounds in Tobacco Smoke. *International Journal of Environmental Research and Public Health*. 2011; 8(2):613-628. Doi: 10.3390/ijerph8020613.
19. Wiersinga WM. Smoking and thyroid. *Clin Endocrinol (Oxf)*. 2013 Aug; 79(2):145-51. Doi: 10.1111/cen.12222. Epub 2013 May 11. Review. PubMed PMID: 23581474.
20. Xue Y, et al. Venous plasma nicotine correlates of hormonal effects of tobacco smoking. *Pharmacol Biochem Behav*. 2010; 95:209-215. [PubMed: 20100507].
21. Practice Committee of American Society for Reproductive Medicine. Smoking and infertility. *Fertil Steril*. 2008; 90:S254-S259. [PubMed: 19007641].
22. Pau CT, Keefe CC, Welt CK. Cigarette smoking, nicotine levels and increased risk for metabolic syndrome in women with polycystic ovary syndrome. *Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology*. 2013; 29(6):551-555. doi:10.3109/09513590.2013.788634.
23. Dimai HP, Chandran M. Official Positions for FRAX(R) clinical regarding smoking from Joint Official Positions Development Conference of the International Society for Clinical Densitometry and International Osteoporosis Foundation on FRAX(R). *J Clin Densitom*. 2011; 14:190-193. [PubMed: 21810524].
24. Garg A, Singh MM, Gupta VK, Garg S, Daga MK, Saha R. Prevalence and correlates of tobacco smoking, awareness of hazards, and quitting behaviour among persons aged 30 years or above in a resettlement colony of Delhi, India. *Lung India : Official Organ of Indian Chest Society*. 2012; 29(4):336-340. doi:10.4103/0970-2113.102812.
25. Weinstein, N. (2001). Public understanding of risk and reasons for smoking low-yield products. Bethesda, MD: U.S. Department of Health & Human Services, National Cancer Institute. Retrieved from [http://cancercontrol.cancer.gov/brp/TCRB/monographs/13/m13\\_6.pdf](http://cancercontrol.cancer.gov/brp/TCRB/monographs/13/m13_6.pdf).

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### FINANCIAL OR OTHER

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Date of Submission: 25/09/2015.  
Date of Peer Review: 26/09/2015.  
Date of Acceptance: 26/09/2015.  
Date of Publishing: 03/10/2015.