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Prevalence and Pattern of Tobacco Consumption in India

Soni Preeti[1] and Raut D.K.[2]
[1]Institution: VMMCand Safdarjung Hospital, AIIMS, New Delhi, INDIA
[2]Department of Community Medicine**,** VMMCand Sfdarjung Hospital**,** New Delhi, INDIA

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Abstract

The recent epidemic of drug abuse has been recognized as one of the major problems facing the human race, both in the developing and the developed countries. India is equally affected by this malaise which is slowly threatening the very base of our society- individual, family and social relationship leading to weakening of social solidarity and integration. The problem of drug abuse is no longer confined to small segments of population, but has captivated and affected the people from all walks of life. The poor use it to escape from the horrendous realities of life loaded against them and the rich consume these substances as an extension of the "western enjoy culture. The selective use of drugs has degenerated into increasing abuse, dependence and crime among the younger generation. Of the various drugs abused, the most widely distributed and commonly used drug in the world is 'Tobacco'. Many social, economic and political factors have contributed to the global spread of tobacco consumption. This article gives a global overview of prevalence and patterns of tobacco consumption with special focus on India. It highlights the risks of exposure of tobacco for both adults and adolescents. It also focuses on the impact of tobacco use on human right, ecology and economy of the country.

Keywords:

Introduction

Drug abuse: an emerging problem: Abuse of drugs is one of the biggest curses that modern society has come across. It is not confined to any one country or region alone, but has widely afflicted the globe. Today, no part of the world is free from the curse of drug trafficking and drug addiction. With a turnover of around $500 billion, it is the third largest business in the world next to petroleum and arms trade. About 190 million people all over the world consume one drug or the other, such as heroin, smack, ganja, affeem, bhang, tobacco, etc[1]. Recorded history indicates that some of these drugs were used not just for their presumed therapeutic effects, but also for recreational purposes to enhance pleasure and relieve stress[2]. Drug use, misuse or abuse is primarily due to the nature of the drug abused, the personality of the individual and the addict's immediate environment.

Of the various drugs abused, the most widely distributed and commonly used drug in the world is 'Tobacco'. Many social, economic and political factors have contributed to the global spread of tobacco consumption. The fast changing social milieus, social sanctions and other factors are mainly contributing to this proliferation and has posed serious challenge to individuals, families, societies and nations[1].

Over the past four decades, tobacco use has caused an estimated 12 million deaths in the world, including 4.1 million deaths from cancer, 5.5 million deaths from cardiovascular diseases, 2.1 million deaths from respiratory diseases and 94,000 infant deaths related to mothers smoking during pregnancy. According to WHO (2009) consumption of tobacco has been growing at the rate of 2% to 5% per annum. It is estimated that number of deaths due to tobacco will increase from 3 million per year worldwide to 70 million per year by 2025[2].

In India it is estimated that of the 10 million workers employed in the tobacco industry, approximately 60% of them are women and 12% to 15% of them are children mainly young girls[3]. They are involved in a whole range of jobs associated with tobacco like planting, weeding, making and maintaining beds, picking tobacco leaves, tying leaves, and removing leaves after drying, grading of tobacco and rolling of beedis[4]. Nearly 10 million workers are employed in the beedi industry (6 million rolling beedi and 4 million collecting leaves. For instance, in some families, everyone – including children – help make beedis. The frequent inhalation of tobacco flakes has similar effects as that of actual use of the tobacco product. Workers engaged in tobacco cultivation suffer from an occupational illness known as green tobacco sickness (GTS). Since the sickness is self-limiting, therefore, treatment is not always necessary[5]. However, these families have an increased risk of lung diseases and cancers of the digestive tract and addiction is common among these families. Working conditions in beedi and cheroot industries are poor, the places are poorly ventilated, crowded with tobacco dust and bad smell. Inhalation of tobacco dust for prolonged periods induces chronic asthma among the workers. Tuberculosis is also a common finding among the beedi workers in India. Lack of space and crowded working conditions led to easy spread of infection among the workers[6].

The immediate and tangible benefits accruing from tobacco cultivation, manufacture and marketing act as incentives for farmers to grow tobacco and for the government to encourage tobacco cultivation and manufacture. In 2000-2001, the contribution of tobacco to the Indian economy was to the extent of Rs 81,820 million, which accounted for about 12% of the total excise collections. But the other side of the economics is that it harms not only the individual but the nation as well. Indian Council of Medical Research reported three tobaccos related disease groups namely, cancers, coronary heart disease and chronic obstructive lung disease which had cost the country Rs. 277.61 billion (or $6.5 billion) in 2004. Whereas the nationwide sale value of all tobacco products was only Rs. 244 billion. Tobacco problem in India is more complex than probably that of any other country in the world because of the diverse patterns of tobacco consumption: smoking, chewing, applying, sucking, gargling, etc. and a large consequential burden of tobacco related diseases and death [7]. In the late 1980s, the number of tobacco-attributable deaths in India was estimated to be 630,000 per year[8]. Currently, conservative estimates of tobacco-attributable deaths range between 800,000 and 900,000 per year. Indian Council of Medical Research puts the figure to approximately 1, 60,000 people who develop cancer each year as a result of tobacco consumption. The greatest challenge that India faces is with regard to the highest rates of oral cancer in the world which constitutes 12% of all cancers in men and 8% of cancers among women. This is due to easy availability of variant smoking and smokeless tobacco products which include pan masala, snuff, gutkka, cigar, hukka, and cigarettes/beedis. Mouth cancer is one of the most common cancers in India due to the use of tobacco. Every year some 4.5 million Indian smokers suffer from angina or heart disease and about 3.9 million people get lung disease. Approximately half of all cancers in men are tobacco related, while over 60% of those suffering from heart disease below the age of 40 are smokers. There is an estimated 12 million cases of preventable tobacco related illnesses each year, in India[9]. Researchers at the Tata Institute of Fundamental Research (2006), Mumbai believe that the real number of cases at any given time might be 2.5 to 3 times higher than this number, because so far no proper epidemiological data is available in India. The World Health Organization predicts that tobacco deaths in India may exceed 1.5 million annually by 2020. Thus, with its 250 million tobacco consumers, India is sitting on the verge of an unparalleled health crisis[10].

Every form of tobacco like cigarettes, cigars, pipe tobacco, snuff, and chewing tobacco contain nicotine which is highly addictive and is readily absorbed into the bloodstream when a tobacco product is chewed, inhaled, or smoked[9]. Studies suggest that additional compounds in tobacco smoke, such as acetaldehyde, may enhance nicotine's effects on the brain [11]. Clinicians, behavioural scientists, researchers and public health experts have increasingly recognized that manufactured tobacco products are some of the most addictive and deadly dependence-producing substances available [4]. Studies indicate that adolescents are especially vulnerable to these effects and may be more likely than adults to develop an addiction to tobacco[12].

Ecological and Environmental Effects of Tobacco Use

Effect of Tobacco on Environment: The environmental effects of tobacco are seldom mentioned when the harm done by tobacco is discussed in policy documents. Even in the public mind, it is only the second-hand smoke that has come to be recognized as an environmental hazard in recent years. The environmental impact of tobacco agriculture and manufacture is less well known[13].

Growing tobacco impacts the environment in different ways. Like all plantation crops tobacco requires clearing of fertile land. Since it is a remunerative cash crop it lures farmers to clear more forests to reap more profits. This means that farmers may forsake planting subsistence crops, often risking far too much in anticipation of earning money. As tobacco is processed in stages, it consumes fuel wood, causing deterioration of forest cover. It grows in dry lands, is water-demanding, and consumes large quantities of fertilizers and pesticides which eventually degrade the land and pollute the water-bodies. The making of cigarettes and cigars also produces large quantities of waste in the form of tobacco slurries, solvents, oils and greases, paper, wood, plastic, packaging materials and results in air pollution[14]. Tobacco-related deforestation is substantial and much larger than what had been anticipated by local communities and governments. Approximately 200,000 hectare of forests/woodlands is removed by tobacco farming each year[15]. A study assessing the amount of forest and woodland consumed annually for curing tobacco concluded that nearly 5% of deforestation in developing countries where tobacco was grown was due to tobacco cultivation.

Tobacco Control and Human Rights: In 2001, the National Human Rights Commission (NHRC) of India considered the issues related to tobacco control from the perspective of human rights. The commission concluded that the following rights of an individual are violated due to lack of tobacco control mechanisms in India, mainly: i. Right to clean air: A non-smoker is forced to inhale tobacco smoke in public areas. ii. Rights of children: Rights of born and unborn children are violated when they are exposed to tobacco smoke (active and passive) in the home or public areas. They are the most vulnerable and worst affected. iii. Right to information: Both the smoker and non-smoker are not provided with adequate information about the harmful effects of tobacco products and in fact, are bombarded with misinformation about tobacco products through advertisements/events/celebrity and role model - linked promotion. iv. Right to education: Both the smoker and non-smoker are not adequately educated about the drastic ill- effects of tobacco on their personal and public health. v. Right to redressal: Both the smoker/non-smoker does not have any redressal mechanism for the injuries/ill-effects suffered by them due to tobacco products. vi. Right to tobacco cessation programme/activities (as part of right to health): The smoker and his/her family have a right to have access to various cessation strategies. Although there are some rights of the smoker which

may be violated by regulatory measures intended for tobacco control but these have to be superseded in the interest of public health and human rights of the larger community. Based on this assessment, the National Human Rights Commission (NHRC) recommended that: i. A comprehensive national tobacco policy should be evolved at the highest level, in consultation with all the stakeholders in public health. ii. A multi sectoral national-level nodal agency should be established for tobacco control with strong representation from the legal, medical and scientific communities. The right of people to access correct information related to the effects of tobacco consumption must be promoted through programmes of information, education and communication. Such programmes should be adequately supported through dedicated resource allocation. Assistance for smoking cessation should be integrated into the health care services. iii. Maintenance of health and environment falls within the purview of Article 21, as their degradation adversely affects the life of citizens. In the light of the above, the Supreme Court held that public smoking of tobacco, whether in the form of cigarettes, cigars, beedis or otherwise, is illegal, unconstitutional and violative of Article.

Prevalence of Tobacco Use in India: Surveys covering prevalence of tobacco use are rare in India. Information on tobacco use has been provided by the population-based surveys conducted in limited areas to study risk factors for various diseases and mortality. Additionally, two major national surveys have also collected limited tobacco use information. The prevalence and trends of tobacco use will be discussed based on these studies conducted mostly on populations 15 years of age and above.

In India, the National Sample Survey Organization (NSSO) has been conducting yearly surveys since 1950-1951. Tobacco use is part of the consumer behaviour component of the National Sample Survey (NSS), conducted every five years. The nationwide survey was undertaken as the 50th round of the National Sample Survey (NSS, 1993-1994) and a total of 115,354 households located in 6951 villages and 4650 urban blocks were visited and information on tobacco use including product types were obtained for all members aged 10 years and above residing in each surveyed household. This information was obtained from one member of the household, usually the male head. The NSSO tabulated the survey results for urban and rural resident's gender - wise and age - wise for 32 states and union territories. In the report the age groupings were as follows: 10-14, 15-29, 30-44, 45-60 and 60 + years. The NSSO survey showed that 432,393 individuals of all ages were tobacco users. The major findings were 51.3% males and 10.3% of females were regular tobacco users; 35.3% males and 2.6% females were regular smokers; 24.0% males and 8.6% females were regular users of smokeless tobacco and about 250 million users were aged 10 + years in the country. Thus among males smoking remained by far the most common form of tobacco consumption and among females chewing of zarda, dokta, etc. was the most common form of tobacco consumption in most parts of the country.

Another nationwide household survey, the National Family Health Survey (NFHS), in its second round (1998-1999), collected information on tobacco use and health-related practices and behaviour in 26 states. Over 90,000 households were surveyed and information on paan/tobacco chewing and tobacco smoking were obtained for 315,597 persons aged 15 years and above. In the NFHS-2 report, the age categorization adopted was 15-19, 20-24, 25-29, 30-39, 40-49, 50-59 and 60 years and above. It found that tobacco use among men was 46.5% and among women 13.8%. The prevalence of smoking and chewing varied widely between different states and had a strong association with individual's socio-cultural characteristics.

The survey found that prevalence of both chewing tobacco/*pan masala* and smoking tobacco was significantly higher in rural, poorer, and uneducated populations compared to urban, wealthier and more educated populations both in men and women, though the differentials for chewing tobacco were smaller. The socioeconomic gradients (by household wealth as well as by education) were steeper for women than for men for both chewing tobacco/*pan masala* and smoking tobacco. While the two surveys have similar sampling methods, it should be kept in mind that in the National Sample Survey the male head of the household responded for all members, while in the National Family Health Survey the female head of the household responded for all members, which is an important difference in methodology. Prevalence rates of tobacco use were calculated from both the recent NSS 50th Round and NFHS-2 for the population aged 15 years and above to permit comparison [16]. Other than the above two nationwide survey reports, the results of a complete rural population survey have also been used to estimate the national prevalence in this section. This survey was conducted in the entire Karunagappally population located in Kollam district of Kerala during 1990-1998. These results were also used for estimating prevalence as this was a complete population survey conducted by face-to-face interviews with results tabulated for 5-year age groups by gender, which made it possible to obtain age-specific prevalence rates for males and females. In the rural Karunagappally population, current tobacco use prevalence in the population 15 years of age and above were 53.8% among males and 14.2% among females [17].

According to a study tobacco use increases with increasing age[18]. It is seen that in areas with a high prevalence of tobacco use, initiation may occur at an early age. The National Household Survey of Drug and Alcohol Abuse in India (NHSDAA), conducted in 2002 among males, covering over 40,000 individuals aged 12-60 years in nearly 20,000 households in 25 states revealed that the overall prevalence of current tobacco use was 55.8% showing an increase in tobacco use with age, levelling off after 50 years of age[19].

Prevalence studies of tobacco use in India have shown wide variations between urban and rural areas, regions, age, gender, education, and other socio-demographic variables across the country. It is clear that the estimates obtained here suffer from limitations. The most important limitation is that the surveys

were not designed to collect information on tobacco use. Surrogate responses were used, which can introduce inaccuracies and biases. Also, the household was used as a sampling unit rather than an individual, and it was not possible to make appropriate statistical adjustments for that while doing the estimation.

Patterns of Tobacco Consumption in India

Within each country there is great variation in the consumption patterns. There has also been a complex interplay of socio-cultural factors which influenced not only the acceptance or rejection of tobacco by sections of society but also determined the patterns of use. In traditional Indian joint families smoking at home was initially a taboo. It was restricted to only the dominant male members of the family. The younger members of the family would desist from using it in the presence of the elders and even the master of the house would not use it when an elderly relative, especially an aged parent, was around. Members of different generations smoking together, in a home setting, is rare even today though modernity has led to some relaxation of these rules. The increasing replacement of the joint family by nuclear families, especially in the urban setting, has provided a more permissive atmosphere to use tobacco at home[20]. Although smoking tobacco was a taboo in traditional families but smokeless forms of tobacco was widely accepted. Inclusion of tobacco as one of the ingredients of paan highlights the importance of this product and wide social acceptability of tobacco chewing in ancient India. The social acceptance and importance of paan increased further during the mughal era and paan chewing became a widely prevalent form of smokeless tobacco use in India. Women ate paan for cosmetic reasons as chewing it produced a bright red juice that coloured their mouth and lips[21].

For each type of tobacco use, a wide range of tobacco products may be available. Some of these products are industrially manufactured on a large scale, some locally on a small scale, some may be prepared by a vendor and some may be prepared by the user himself or herself[22]. Tobacco may be used in raw, processed mixtures and pyrolised forms. The raw forms are generally sun-cured or air-cured, consist of flakes of plain tobacco leaves mixed with other ingredients especially lime, areca nut and / or other condiments. The pyrolised forms (mishri, bajjar, etc.) are used as dentifrice. Oral use of snuff is also practiced in some specific areas [33]. Though tobacco chewing was practised for many centuries, commercial production and marketing were up-scaled recently with the introduction of gutka. The rate of growth and consumption of gutkka has overtaken that of smoking forms of tobacco. As a result, oral tobacco consumption has opened a new and broader front in the battle between commercial tobacco and public health in India [34]. The varied forms and types in which tobacco is consumed in India are: Cigarette: cigarette smoking is the most common method of tobacco consumption. There is "Low Tar," "Light," or "Ultra Light" cigarettes which refer to the type of filter that is used and can vary depending on the brand; Beedis: it is similar to cigarettes and accounts for about 40% of tobacco consumption. It produces three times more carbon monoxide and nicotine and five times more tar than regular cigarettes [35]; Hookah: also referred to as shishas is an indigenous device, made out of wooden and metallic pipes, used for smoking tobacco. Hookah smoking became a part of the culture and sharing of a hookah became socially acceptable and got associated with brotherhood and a sign of conveying equality [36]; Cigar: this is made of air cured, fermented tobacco, usually in factories, and are generally expensive. Cigar smoking is predominately an urban practice; Pipe smoking: the tobacco leaves are ground and placed into a pipe for inhalation. Pipe smoking has been found to increase the risk of various cancers by 33 per cent; Smokeless tobacco: it comprises of tobacco or tobacco-containing products which are chewed or sucked as a quid, or applied to gums, or inhaled such as Snuff, Dried tobacco leaves, Gutkha, Paan with tobacco, Paan masala, Mawa, Mishri, gudakhu and toothpastes, Plug tobacco, Twist tobacco and Dry snuff.

Thus, it is seen that: i. Tobacco has been used in India for centuries. ii. Early forms of tobacco were limited to chewing tobacco leaves or smoking tobacco. iii. Today several products made of, or containing tobacco, are available in the market. iv. More than 7,000 different chemicals have been found in tobacco and tobacco smoke. Among these more than 60 chemicals are known to cause cancer. v. Nicotine is a drug found in tobacco. It is highly addictive – as addictive as heroin or cocaine. Over time, a person becomes physically and emotionally addicted to, or dependent on, nicotine. vi. Almost 30 percent of the Indian population older than age 15 years uses some form of tobacco. Men use more smoked tobacco than smokeless tobacco. Women are more likely to use smokeless (chewed) tobacco. Beedis are smoked more than cigarettes especially in rural areas.

So powerful is the addiction of tobacco and so blinding is the advertising appeal of tobacco products that most consumers, even highly educated ones, believe that somehow they will be spared of the harm [37].

Tobacco and Adolescents: an Emerging Problem

Tobacco use among adolescents is influenced by multiple etiological factors, including individual, socio-cultural and environmental factors[38]. Adolescent tobacco use is a complex behavior factors like, social bonding, social learning, lacking refusal skills, risk-taking attitudes and intentions have been highlighted as reasons for the onset of tobacco use in studies in developed countries[39]. One study in the United States, found that the most powerful predictors of transition to smoking were alcohol, marijuana, and other drugs, involvement with violence, learning problems, a history of sexual intercourse, frequent hanging out with friends and having friends who smoke[40]. Cigarette smoking, in the developed world, has been the major habit among children for both boys and girls. They usually take to the habit while in school before the age of 18. It has been

observed that smoking prevalence among 11 to 16 year olds in many Western countries has historically followed adult patterns. In fact teenage prevalence has hardly changed in many countries despite concurrent declines in adult prevalence[41].

The progressive increase in the consumption of tobacco amongst adolescents is emerging as a complex and multidimensional problem. It continues to occupy a premier position as public health concern in almost all countries. Tobacco is the most common hazardous substance because it is legally available, heavily promoted and widely consumed by our future generations[42].

In India, tobacco consumption in multiple forms presents an emerging, significant and growing threat to the health of the adolescents. Many factors contribute to the initiation, experimentation and regular use of tobacco among youth. Major determinants are: i. exposure to parental, sibling and peer smoking; ii. peer group pressure; iii. easy access to smoking and non-smoking forms of tobacco; iv. aggressive promotion and advertising; v. low cost, etc.

There are only a few studies in India on prevalence and initiation of smoking and smokeless tobacco use among children [43and44]. The most common reasons cited for children to start using tobacco are peer pressure, parental tobacco habits and pocket money given to children [45]. Some of the researches have also indicated that a decision to take to tobacco is associated with factors such as: peer smoking, peer attitudes and norms, stress, health concerns, risky behaviours, parental smoking, family income, parental attitudes, sibling addiction, attachment to family and friends, depression, and self-esteem[46and 47]. In one study, conducted in Mumbai in 1999 among 300 college students, 40 percent admitted to be influenced by advertisements and said that sports and film personalities (for boys) and stylish lifestyles (for girls) were the most influential factors in taking to tobacco. Children in a large study in Uttar Pradesh (Mainpuri) were impressed by advertising depicting a high lifestyle, which included smoking, drinking, good clothes and affluent surroundings. Other important reasons for starting (and/or using) tobacco among youth were warm feeling of sharing among friends, fun/enjoyment or to remove boredom and to pass time. Some young smokers said they smoked to relieve feelings of anxiety / stress / failure. The desire to enhance one's image, adding to one's status, appearing grown up or macho were reasons cited by many. Working children stated necessity to keep awake as a prominent reason. Children generally started with experimentation and occasional use but with appearance of withdrawal symptoms, addiction soon took over [48]. Forcing by friends or relatives, a direct form of peer pressure and parental smoking are often quoted reasons for young taking up the habit. Use of tobacco is progressively increasing among adolescents.

Like other developing countries, the most susceptible age (15-24 year) for initiating tobacco use in India is during adolescence and early adulthood (NSS 50th round (1993-1994). Most tobacco users start consuming tobacco before the age of 18 year, while some start as young as 10 years (40). In a nationally representative study covering males in the age group 12-60 year across all the 25 states of India in 2002, tobacco use was reported by 55.8% of individuals in the age group of 12-18 year[49]. The most disturbing fact is the age of initiation, which is progressively falling[50]. Children today begin to experiment with tobacco at a relatively younger age than they were doing a decade ago. It is found that the vast majority of tobacco users started consuming tobacco when they were adolescents[51]. The risks of tobacco use are highest among those who start early and continue its use for a long period[52]. The early age of initiation underscores the urgent need to intervene and protect this vulnerable group from falling prey to this addiction[53].

In India about 5 million children under the age of fifteen are addicted to tobacco[54]. Early initial consumption of tobacco has been regarded as a serious health problem not only because it is believed to open the way for subsequent poly drug use, but also because of its linkage to impaired psychological and social development reflected in disrupted familial relations, school involvement and employment[55.] According to WHO (2009) tobacco consumption, in India, will continue to increase at 2.4 percent per annum and most of the new users will be India's school children and those who begin to use in their mid-teens are likely to get lung cancer by the time they are in their mid - thirties. Further, tobacco use may also give these students hypertension, heart disease, recurrent lung infections, ear infections, asthma, cough and poor grading[56].

The major concern is that tobacco consumption is associated with certain other behaviours and long range consequences. Its use is directly associated with alcohol and other substances, and risky sexual behaviour, which can lead to life-long problems and chronic diseases such as AIDS (60). Each day, nearly 4,000 kids under the age of 18 try their first cigarette and another 1,000 become regular, daily smokers[57].

Conclusion

Prevention of tobacco use in young people appears to be the single opportunity for preventing non-communicable disease in the world today. Therefore consumption of tobacco, among school students should be considered as a matter of great concern which requires holistic understanding. Government and Non-government institutions need to develop expertise in research, planning, designing and implementing of need-based interventions, fund raising and in working with all those sectors needing activation for effective tobacco control [22]. More and more NGO's should be involved in tobacco control programme as NGO's have expertise in advocacy, judicial intervention, youth intervention, community intervention, consumer movement, in developing material for advocacy and in media advocacy. But unfortunately, in India, only a few NGO's are involved in tobacco control programme. There is need to enhance the involvement of more NGO's.

It is imperative to impose a ban on oral tobacco products, strengthen enforcement of existing regulations, establish coordinating mechanisms at the levels of center and state and mobilize people to combat the problem. Taxes on tobacco products should be raised and the generated revenue could be spent for strengthening of the tobacco control program. Multipronged approaches should be undertaken for the cessation of use of tobacco. Under the Ministry of Health there is an active Anti-tobacco Cell which has been putting lot of efforts for tobacco control. Since other ministries do not have anti-tobacco cells, such cell should be started in other ministries also. There is need to have joint coordination mechanisms between the Ministries of Health, Agriculture, Labour, Commerce, Finance as well as Information and Broadcasting for sustainable and definitive results on the tobacco control front in the long run.

India needs to adopt a more holistic and coercive approach to fight the problem of tobacco. Not only the government, but all responsible citizens will need to support the fight against this global epidemic.

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References

1. Ramakrishna G.S., Sarma P and Thankappan K.R., Tobacco Use among Medical Students in Orissa, *Natl Med J India,* **18,** 285-99 **(2005)**

2. Reddy K.S. and Arora M., Tobacco Use among Children in India: A Burgeoning Epidemic, *Indian journal of Paediatric,* **42,** 757-761 **(2005)**

3. Rahul S., Vijay L., Grover S. and Chaturved A., Tobacco Use among Adolescent Students and the Influence of Role Models. New Delhi: Department of Community Medicine, UCMS and GTB Hospital, India **(2009)**

4. Sen U., Tobacco Use in Kolkata, *Lifeline Newsletter,* **8,** 7-9 **(2002)**

5. Shoba J. and Vaite S., Tobacco and Poverty: Observations from India and Bangladesh, Canada: Path **(2002)**

6. Sinha D.N., Gupta P.C., Pednekar M.S., Jones J.T and Warren C.V., Tobacco Use among School Personnel in Bihar, India, *Tobacco Control,* **11,** 82-5 **(2002)**

7. Sinha D.N., Global Youth Tobacco Survey in Uttar Pradesh, India. http://www.searo.who.int/Link. Accessed: 1.6.2009 **(2002)**

8. Bhojani U.M., Chander S.J and Devadasan, N., Tobacco Use and Related Factors among Pre-University Students in A College In Bangalore, India. *National Medical J. India,* **22,** 294-7 **(2009)**

9. Conrad K.M., Flay B.R and Hill D., Why Children Start Smoking Cigarettes: Predictors of Onset. *British J Addiction*, **87,** 17-24 **(1992)**

10. Chaudhary K., Prabhakar A.K., Prabhakaran P.S., Prasad A., Singh K. and Singh A., *Prevalence of Tobacco Use in Karnataka and Uttar Pradesh In India*. New Delhi: Indian Council of Medical Research and WHO **(2001)**

11. Chadda R.K and Sengupta S.N., Tobacco Use by Indian Adolescents Tobacco Induced Diseases. *Disease and Control*, **1,** 42-56 **(2008)**

12. Chakraborty A.K., Smoking and Drug-Abuse among the Newly Admitted Students of Medical Colleges In West Bengal. *Indian J Public Health*, 25, 30-45 **(2009)**

13. Daftary D.K., Bhonsle R.B., Murthi R.B., Pindborg J.J and Mehta F.S., An Oral Lichen Planus-Like Lesion in Indian Betel-Tobacco Chewers, *Scandinavian Journal of Dental Research.* **8,** 244-9 **(1980)**

14. Gowda M., The Story of Pan Chewing In India, *Botanical Museum Leaflets,* **14,** 181-214 **(1951)**

15. Gupta P.C., Mehta F.S., Irani R.R., Comparison of mortality rates among bidi smokers and tobacco chewers, *Indian J. Cancer,* **17(3),** 149–151 **(1989)**

16. Aghi M.B., Psychological Aspects of Acquitting and Cessation of Tobacco Habits in India, *World Smoking Health*, **55(12),** 4-7 **(1982)**

17. Anantha N., Nandakumar A., Vishwanath N., Venkatesh T., Pallad Y.G and Manjunath P., Efficacy of an Anti-Tobacco Community Program in India. *Cancer Causes and Control*, **6,** 119-29 **(1995)**

18. Atlanta G. and Georgia M., Health and Human Services, *Public Health Service,* **64,** 236-278 **(1995)**

19. Abrahamson E. and Mizrahi R., Social Network Effects on the Extent of Innovation Diffusion, A Computer Simulation. *Organization Science*, **8(3),** 289-309 **(1997)**

20. Aghi M., Asma S., Yeong C. and Vaithinathan R., Initiation and maintenance of tobacco use. *Women and the Tobacco Epidemic: Challenges for the 21st Century*. Geneva: WHO **(2001)**

21. Arora M., The Tobacco Journey: Seeds of A Menace. *Health for the Millions,* **29,** 30-46 **(2003)**

22. Arora M. and Reddy K.S., Global Youth Tobacco Survey (GYTS), Tobacco Control in India. *Indian Journal of Social Sciences,* **42,** 850-85 **(2005)**

23. Avinash P., Tekade Venkata V., Silpa G.S., Latif B., Vijay Sarathi Y., A study on tobacco consumption in various forms among the tobacco field workers. International Journal of Biological and Medical Research, **3(2),** 1509-1511**(2012)**

24. Bogolub E.B., Tobacco: The Neglected Addiction, *Journal of* Social Work**, 35(1)**, 77-89 **(1990)**

25. Bhonsle R.B., Murti P.R and Gupta P.C., Primary Prevention Trial in India: A 10-Year Follow-Up Study. *Journal of Oral Pathology and Medicine*. **21,** 433-9 **(1992)**

26. National Sample Survey Organisation, A Note on Consumption of Tobacco in India. *Sarvekshana, A Journal of the National Sample Survey Organization,* **21,** 69-100 **(1998)**

27. Novotny, T and Zhao, F. Consumption and Production Waste: Another Externality of Tobacco Use. *Tobacco Control*, **75,** 66-80. **(1999)**

28. Nyo Nyo Kaying., A Study of Socio economics Determinants of Tobacco Use, *Tobacco and Health*, **56,** 22-34 **(2003)**

29. Narain R., Sardana S., Gupta S. and Sehgal A., Age at Initiation and Prevalence of Tobacco Use among School Children In Noida, India: A Cross-Sectional Questionnaire Based Survey, *The Indian Journal of Medical Research,* **133(3),** 300–307 **(2011)**

30. Osterweis M., McLaughlin C.J., Manasse H.R and Hopper C.L., Power, Policy and Politics, *Health and Tobacco*, **77**, 66-89 **(1996)**

31. Poland B., Frohlich K., Haines., R. J., Mykhalovskiy E., Rock M and Sparks R. J., The Social Context of Smoking: The Next Frontier in Tobacco Control? *Tobacco Control,* **15,** 59-63 **(2006)**

32. Rani M., Bonu S., Jha P., Nguyen S.N and Jamjoum L., Tobacco Use in India: Prevalence and Predictors of Smoking and Chewing in A National Cross-Sectional Household Survey, *Tobacco Control,* **44,** 122-45 **(2003)**

33. Badger L.W., Ackerson B., Buttell F and Rand E. H., The Case for Integration of Social Work Psychosocial Services into Rural Primary Care Practice. *Health and Social Work.* **22(1),** 20–29 **(1997)**

34. Botvin G.J., Griffin K.W., Diaz T., Miller N and Williams M., Smoking Initiation and Escalation In Early Adolescent Girls: One-Year Follow-Up of A School-Based Prevention Intervention For Minority Youth. *Journal of the American Medical Women's Association,* **54,** 139–143 **(2000)**

35. Bartal M., Health Effects of Tobacco Use and Exposure, *Monaldi Arch Chest Disorder,* **56,** 545-554 **(2001)**

36. Gupta R., Gupta V.P and Ahluwalia N.S., Educational Status, Coronary Heart Disease, and Coronary Risk Factor Prevalence in A Rural Population of India. *British Medical Journal*, **309,** 1332-6 **(1994)**

37. Gupta R., Prakash H., Majumdar S., Sharma S and Gupta V.P., Prevalence of Coronary Heart Disease and Coronary Risk Factors in An Urban Population of Rajasthan. *Indian Heart Journal*, **47,** 331-8 **(1995)**

38. Gupta P.C., Sinor P.N., Bhonsle R.B., Pawar V.S and Mehta H.C., Oral Sub-Mucous Fibrosis in India: A New Epidemic? *National Medical Journal of India***, 11,** 113-16 **(1998)**

39. Geist H.J., Global Assessment of Deforestation Related To Tobacco Farming. *Tobacco Control,* **8,** 8-28 **(1999)**

40. Kostova Deliana Hana Ross., Evan Blecher and Sara Markowitz., Prices and Cigarette Demand: Evidence from Youth Tobacco Use in Developing Countries. *Journal of Health Economics*, **27,** 287-299 **(2010)**

41. Mehta F.S., Pindborg J.J., Gupta P.C., Daftary D.K., Smith C.J., Reverse Smoking in Andhra Pradesh, India: A Study of Palatal Lesions among Villagers, *Br J Cancer,* **25(1),** 10–20 **(1971)**

42. Mohan D., Sundaram K.R and Sharma H.K., A Study of Drug Abuse in Rural Areas of Punjab (India). *Drug and Alcohol Dependence,* **17,** 57-66 **(1986)**

43. Mark S., Kaplan A., Robert E and Weiler A., Social Patterns of Smoking Behavior: Trends and Practice Implications, *Journal Health and Social Work*, **22,** 88-97 **(1997)**

44. Mohan D., Chopra, A and Sethi H., Incidence Estimates of Substance Use Disorders in A Cohort from Delhi, India. *Indian Journal of Medical Research,* **115,** 128-35 **(2002)**

45. Mohan S., Sankara-Sarma P. and Thankappan K.R., Access To Pocket Money And Low Educational Performance Predict Tobacco Use among Adolescent Boys In Kerala, India. *Prev Med, **41**,* 685-92 **(2005)**

46. Muttapppallymyalil J., Sreedharan J and Divakaran B., Smokeless Tobacco Consumption among School Children, *Indian J Cancer*, **47,** 19-23 **(2010)**

47. Narayan K.M., Chadha S.L., Hanson R.L., Tandon R., Shekhawat S and Fernandes R.J., Prevalence and Patterns of Smoking in Delhi: Cross Sectional Study, *British Medical Journal,* **312,** 1576-9 **(1996)**

48. Netting F.E and Williams F.G., Case Manager-Physician Collaboration: Implications for Professional Identity, Roles, and Relationships, *Health and Social Work*, **21(3),** 216–224 **(1996)**

49. Gupta P.C., Mouth Cancer In India-A New Epidemic. *Indian Journal of Medical Association.* **97,** 370-373 **(2002)**

50. Gupta R., Gupta V.P., Sarna M., Prakash H., Rastogi S and Gupta K.D., Serial Epidemiological Surveys In An Urban Indian Population Demonstrate Increasing Coronary Risk Factors Among The Lower Socioeconomic Strata. *Journal of the Association of Physicians of India*, **51**, 470-7**(2003)**

51. Gupta P.C and Ray C.S., Epidemic in India. *Science, policy and public health,* **44,** 253-66 **(2004)**

52. Hans G., *Prevention of Cancer in Youth with Particular Reference to Intake of Paan Masala and Gutkha*. Mumbai: NSS Unit, TISS **(1998)**

53. International Institute for Population Sciences. *Background Characteristics of Households: National Family Health Survey-2 (NFHS-2) - 1998-1999*. Mumbai: IIPS **(1999)**

54. Indian Council of Medical Research. *Prevalence of Tobacco Use in Karnataka and Uttar Pradesh.* Delhi: WHO/SEARO **(2002)**

55. Kotwal A., Thakur R and Seth T., Correlates of Tobacco-Use Pattern amongst Adolescents in Two Schools of New Delhi, India. *Indian J Med Sciences*, **59,** 243-252 **(2005)**

56. Kumar M., Poorni S and Ramachandran S., Tobacco Use among School Children in Chennai City, India. *Indian J Cancer,* **43,** 127-31 **(2006)**

57. Scal P., Ireland M. and Borowsky I.W., Smoking among American Adolescents: A Risk and Protective Factor Analysis, *Journal of Community Health*, **28,** 79-97 **(2003)**

58. Srivastava A., Pal H., Dwivedi S.N., Pandey A. and Pande J.N., *National Household Survey of Drug and Alcohol Abuse in India (NHSDAA,* New Delhi: Report accepted by the Ministry of Social Justice and Empowerment, Government of India and UN Office for Drug and Crime, Regional Office of South Asia **(2004)**

59. Sinha D.N., Gupta P.C and Pednekar M.S., Tobacco Use among School Personnel in Eight North-Eastern States of India, *Indian Journal of Cancer*, **40,** 3-14 **(2006)**

60. Sharma R., Vijay L., Grover S and Chaturvedi A., *Tobacco Use among Adolescent Students and the Influence of Role Model,* New Delhi: Department of Community Medicine, UCMS and GTB Hospital. India **(2010)**

61. Tiwari R.R and Zodpey S.P., *Use of Smokeless Tobacco*: *A Community-Based Study of Behavior, Attitudes and Beliefs*, Delhi, Regional Health Forum **(1999)**

62. Umesh K., Consumption of Tobacco, Alcohol and Betel Leaf amongst School Children in Delhi*, Indian Journal of Pediatrics*, **65,** 22-45 **(2007)**

63. Valentich M., Social Work and the Development of A Smoke-Free Society, *Social Work,* **39(4),** 439-450 **(1994)**

64. Wig K.L., Guleria, J.S., Bhasin R.C., Holmes E. J., Vasudeva Y.L and Singh M., Certain Clinical and Epidemiological Aspects of Chronic Bronchitis As Seen In Northern India, *Indian Journal of Chest Diseases.* **(6),** 183-94 **(1964)**

65. Weizenecker R. and Deal W.B., Tobacco Cropper Sickness, *Journal of Florida Medical Association*, **(57),** 13-14 **(1970)**

66. World Health Organization.*Tobacco or Health: A Global Status Report*. Geneva*:* World Health Organization **(1997)**

67. World Health Organization. Tobacco Free Initiative http://www.who.int/tobacco/research/economics/rationale/environment/en/index. html.Accessed: 2.3.2010 **(2002)**