Module 11 : Tobacco
Lecture 15 : Tobacco

Tobacco

Tobacco is a pervasive part of people’s lives, especially the poor in low and middle income countries and its use poses a considerable public health risk both for users and their family members. In this lecture we will begin by considering some research findings, regarding tobacco use. We will then look at the history of tobacco, the physiology of smoking and tobacco use and its impact on health. We will then discuss the theories of smoking and issues of smoking initiation and cessation.

1.22 billion people around the world smoke.

- more men
- more poor and uneducated
- more in the developing countries

12% of mortality is attributed to Tobacco(WHO, 2012)

The Global Adult Tobacco Survey (GATS) India 2009 -2010 results indicate that

- 35% adults use tobacco
- 21% smokeless tobacco
- 9% smoke
- 5% smoke as well as chew tobacco
- 48% males
- 20% females
- 38% rural
- 25% urban
- 274.9 million users in India.
- Second Hand Smoke- 52% exposed at home
- Economics – monthly expense on cigarettes Rs 399.20
- Bidis -Rs 93.40

Statistics that indicate the awareness of the dangers of tobacco are also reported by this survey. 71% cigarette smokers, 62% bidi smokers and 63% smokeless tobacco users had noticed health warnings on the packets. 38%, 29% and 34% had thought of quitting because of these warnings.

History of Tobacco

Tobacco was first used as an Entheogen in the Americas. An entheogen is a substance used in religious rituals to achieve an altered state of consciousness. With the British and Spanish colonizing the Americas, tobacco was taken to Europe. Tobacco was cultivated in the colonies and exported to Europe. Initially it was used for medical purposes and it was believed to cure coughs. However there is evidence from early that its ill effects were recognized. In 1604, King James of England in a piece titled ‘A Counterblaste to Tobacco’ decries the harmful effects of tobacco to the eyes, nose, brain and lungs and compares it’s use with being in hell. In that year a heavy tariff was imposed on every pound of tobacco brought into England from the colonies (“History of Tobacco”, n. d.). Tobacco became quite popular in Europe and it was smoked or used as snuff among the nobility and even among women who used bejeweled snuff boxes.

However it was not until the invention of the Automated Cigarette Machine in 1881 that the mass production of cigarettes began and it became easily available. During the first World War in 1914 cigarettes became almost a necessity for the soldiers and smoking became widely prevalent (“History of Tobbaco”, n.d.).

A Cigarette is made up of
Tar – carcinogen (high benzene content)
Nicotine
Carbon Monoxide – reduces oxygen

**The Physiology of Smoking (Rossi, 2010)**
- Inhaling - delivers drugs into the bloodstream (as the gas diffuses directly into the pulmonary vein, then into the heart and from there to the brain) and affects the user within less than a second of the first inhalation.
- Reaches the brain within 8-10 seconds which explains why it is so addictive.

Neurotransmitters that are implicated are

**Acetylcholine**
- The shape of the nicotine molecule is remarkably like the shape of acetylcholine molecule.
- Leads to heightened attention
- Increase in heart rate, blood pressure and rate of breathing.
- Over the long-term, these effects can lead to cardiovascular problems, according to the Center for Substance Abuse Research at the University of Maryland. These effects contribute to chronic high blood pressure, also called hypertension, a weakened heart, heart attacks and stroke.
- **Dopamine Release**
  - Pleasure
  - Sense of motivation
- **Inhibition of GABA**
  - GABA inhibits dopamine
  - Prolonging pleasure

**Impact on Health**

**Cardiovascular disease**
Smoking accelerates the hardening and narrowing of your arteries which leads to an increased probability of Blood Clots in the Brain as well as Heart.

**Cancer** – an increased risk of cancer in the
- Lung
- Mouth
- Throat
- Bladder
- Kidneys
- Pancreas
- Cervix

**Chronic Obstructive Pulmonary Disease**
- Emphysema – Damage to Alveoli in the lungs.
- Chronic Bronchitis

**Other Effects**
- High BP
- Asthma
- Macular Degeneration (center of the retina looses its function resulting in failing vision)
Periodontal Disease
Impotence
Infertility
Smoker’s face (restricts blood flow to the face, giving the skin a pallor and a leathery appearance)

The impact of Secondary Smoke
- Asthma
- Bronchitis
- Allergies
- Middle ear infection
- Cot death – infants under two
- Lung Cancer in adults
- Risk of pre term birth for Pregnant Women

Chewing Tobacco
Chewing tobacco involves direct contact with the mucosal lining of the mouth and gums which are very vascular and absorb nicotine. Chewing tobacco and poor oral health in India makes for a deadly combination. Gutka, which is a spice mix with tobacco and areca nut and nitrosamines and other carcinogens is now mass produced in little sachets that cost Rs 1 or 2 and is being increasingly consumed by children as young as 10 and 12 who become addicted. Tobacco is responsible for 50% of the cancers in men and 20% in women. India has the worlds highest number of oral cancer patients because of tobacco.

Tobacco Advertising
The tobacco companies claim to advertise only to get existing smokers to switch brands. However a Meta-analysis (48 studies) indicated that tobacco advertising significantly increased tobacco sales.
- Drop in tobacco consumption bet 4 - 16% in countries with an advertising ban
- Tobacco sales tax contributes to government revenues all over the world.

India earns Rs 7,200 crore in excise revenue from tobacco according to the director of the Central Tobacco Research Institute and ranks third in the world in the production of tobacco. Tobacco growing is subsidized by the Indian government (Tobacco Earns Rs. 7200 cr Excise Revenue For India, 2006).

- Tobacco advertising is now targeting the young and women in developing countries because of the fall in consumption in the developed world. Thus young working women in the urban developing world are succumbing to this targeting as the numbers among them taking to smoking rise.

Theories of Smoking
Smoking is a complex practice with biological, psychological and social aspects

Biological Theories
- Nicotine –active ingredient
- Weight loss, decreased irritability, increased alertness and improved cognitive functioning is associated with smoking.
- Increased tolerance among regular users
- Nicotine paradox refers to the relaxed feeling people experience on inhaling when in fact nicotine is a stimulant.
- Smoking is addictive because it activates the dopamine pathways which are rewarding or pleasurable.
- 30% of those who try tobacco become addicted
Genetic Factors play a role in initiation and persistence

Twin Studies (Heath & Madden, 1995; True et al 1997) indicate that genetic factors play a role in determining whether people became regular smokers.

Psychological Theories
Smoking is initially physically unpleasant but due to reinforcement from peers it is sustained. Thus the smoking response gets conditioned to certain stimuli (with friends, in a pub, to escape or avoid unpleasant situations)

Ikard et al (1969) based on a survey identified 6 motivating factors to smoke
- Reduction of negative affect
- Habit
- Addiction
- Pleasure
- Stimulation
- Sensorimotor manipulation/Taste

Boredom and Nothing to do were other reasons reported by Murray et al 1988
Sensation seeking and high levels of stress may contribute to people smoking

Social Theories
- Qualitative Studies explored the social meaning of smoking (Murray et al 1988, Graham, 1976).
- At work- cigarette – taking a break
- Low Income mothers – a way of coping
- Essential means of coping with everyday difficulties
- Marker of adulthood

Smoking Initiation
Smoking initiation has been explained by a model by Conrad et al (1992). The Social environment provides the larger context within which interactions with family, peers and school are the more immediate context where social learning through observation and personality factors such as self esteem and self efficacy interact to influence the individual’s knowledge, attitude and behavior with regard to smoking. This would hold true for chewing tobacco as well, it is most prevalent in the lower SES as a pleasant break that is cheaply available and used by everybody. Tobacco becomes a way of coping with the stress of poverty.

Smoking Cessation

Biological Aspects
Nicotine in tobacco is an addictive substance and when people quit using it they have withdrawal symptoms like irritability, weight gain, headaches, restlessness etc which are alleviated by the administration of nicotine through a patch or chewing gum but not by a placebo.

Psychological Aspects
The Transtheoretical Model (TTM) involves four constructs -
- the processes of change (experiential and behavioral).
- the stages of change of Prochaska & DiClemente (1982)
Decisional Balance – between costs and benefits of quitting influences the behavior, and
Self Efficacy – the sense of confidence that one will be able to quit successfully influences the
decision and behavior.

Temptation – the urge to give into cravings has to be factored in and varies according to the stage of
change.

Social Aspects
The social environment or context plays a role in people quitting, for instance if there is a strong social
stigma against smoking or there is a group initiative at work to quit – this increases the motivation to
quit. If using tobacco is the norm as in some lower SES groups then it becomes twice as hard to quit as
opposed to if it is frowned upon as in the middle class.

Social support for quitting aids in being able to successfully quit. As the withdrawal symptoms are quite
serious and if there is social support that is understanding yet encouraging it helps people to not relapse
and meet their goals of staying tobacco free.

The third issue concerns the trade off between the immediate gains of tobacco use versus the long term
benefits of quitting. The long term benefits of quitting are not always apparent to the poor given their
relatively immediate horizons of the future and struggle for survival that is made a little easier by
tobacco. Quitting in this context is not easy and may require some substitute that may be less harmful.

References

  Welfare.
  and Medicine*, 10, pp. 399-405.
  Cardon, L.R.; and Hewitt, J.K., (eds.) *Behavior Genetic Approaches in Behavioral Medicine*. New
  Aldershot: Gower.
- Prochaska J.O. and DiClemente C.C. (1982). Trans-theoretical therapy - toward a more
tobacco-smoking-on-the-brain-spinal-cord/.
- Tobacco Earns Rs. 7200 cr Excise Revenue For India (2006, November16). One India News.
  Retrieved from http://news.oneindia.in/2006/11/16/india-earns-rs-7200-cr-excise-revenue-
  through-tobacco-1163678820.html.
  Genetic and environmental contributions to smoking. *Addiction*, 92 (10), pp. 1277-1287.