Report

Reduction in Deaths due to Tobacco Consumption

Freedom from Tobacco, Act for young

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- Sristi Summer School 2021
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References/ Prior lit Review
1. Introduction

Governments across the world, Thousands of NGOs, Hundreds of social activist, doctors, and community leaders are trying to eliminate the hazards of Tobacco since decades through framing policies, campaigns, training, education and many other mechanisms. Oceans of information is available.

However the danger is still there and still damaging million lives.

How we can address? Why even after so much efforts we are not so successful? Why human being continues to be slave of Nicotine even after knowing that death is following Nicotine addiction? Why pregnant ladies continue to consume tobacco knowing that it is harmful to both –mother and child? Why people pay heavy price for tobacco products and sacrificing their meals?

Is it the area of Research? Does it require innovative strategies? Does it require top priority for developing and applying advanced tools and technologies? Is it unmet need to be addressed with full force? Are we all sensitive to millions of death and tragic sufferings? Are we helpless against powerful tobacco companies?

I think all of you have clear answers for above but challenge is how to convert situation in favor of mankind. How to change human behavior and mindsets?

So far I think that focus is on Tobacco consumers to make them aware about health aspects, financial aspects, it is working to certain extent.

It is time to shift the focus on Nonsmokers and engage them in this battle against tobacco. Particularly young men and women to be the leaders. Engaging each and every school and institutes of learning Continuous efforts.

The change in human behavior requires lot of efforts. Change in mind sets required changes in one’s belief system is required.
In this project effort is made to develop better educational and awareness system to address youth and improve effectiveness. The system is still to be tested and validated. Scientific do it yourself activity and importance of healthy life are the key features of the educational and awareness plan. Without active involvement of nonsmokers the system cannot improve to great extent.

We welcome your feedbacks, suggestions and comments.

We take this opportunity to sincerely thank to all the mentors for imparting knowledge and sharing their reach experiences. Special Thanks to Professor Anil Gupta continuously guiding and inspiring to learn new concepts and to focusing on unmet needs of society. Our thanks to all the staff members of SRISTI for all the support,
2. Problem Statement

Loss of Young lives of India due to Tobacco Use

Tobacco consumption is the leading cause for deaths across the world. It is time to wake up and save OUR vulnerable children from the ravages of tobacco and smoking. More than 1.3 billion people consume Tobacco.

The fight of mankind against Tobacco is very old. Its addictive property and capabilities to create adverse health impacts are known since early days. Many RULERS in history tried to control it, ban it. Unfortunately the fight still goes on in every country of world. The fight is going on various fronts-legal, community, financial, etc. BUT the power of Nicotine is still to be conquered by mankind.

Tobacco is responsible for 8 million deaths in the world every year. In India every year 1000000 human lives are lost due to tobacco.
As per the REPORT 267 million people consume tobacco in India.

Tobacco use among youth is increasing in epidemic proportions across the world. It is estimated that the vast majority of tobacco users start using tobacco products well before the age of 18 years. Globally, 1 in every 10 girls and 1 in every 5 boys, aged 13 to 15 years, use tobacco. It is further projected that current trends of tobacco use would result in the deaths of 250 million children and young people over time, most of them in developing countries.

Primary Focus Group

- The focus area to protect from tobacco is kids. Kids are influenced by scenes of movies, web series and powerful hidden advertisement by tobacco companies. They are also influenced by the habits of family members and peers.
- As per the survey, Among youth (ages 13-15), 14.6% currently use some form of tobacco (boys 19.0%; girls 8.3%) and 4.4% smoke cigarettes and 12.5% use other tobacco products.
- Easy accessibility and affordability of tobacco products is one of the factor. For example despite of ban on Gutkha in other forms it is easily available. Similarly requirement of no tobacco product sales in 100 meters of educational institute remains on paper.
• Under such circumstances here effort has been made to combine Human behavior and modern technologies to develop effective deterrents amongst the youth.

Field Research Briefing

Efforts are made to consult and involve psychiatrist, teachers, and social workers. However due to prevailing situations of COVID 19 the number of such interactions are not adequate. More efforts will be made to know and analyze actual situations.

It was surprising that teachers and staff can consume tobacco in schools. It is also revealing that more than 50% of medics have addiction. Specific research study is required further to confirm this.

Interaction with one of the leading psychiatrist tobacco companies are using on line platforms to attract youngsters.

Interaction with Health officer highlighted similar thing citing the example of movie Kabirsingh which has total 30 minutes of scenes with tobacco and alcohol.

Authorities explained the difficulties in complying legal requirement of Tobacco Act.
Loss of Young lives of India due to Tobacco Use.

3. Mind Map

[Diagram showing a mind map with various nodes and arrows connecting them.]

- Improving effectiveness of anti-smoking drive
- Psychology
- Total weight
- Effective deterrents
- Incentives
- Funds
- Movies with such display more tax
- More income tax on such businessmen
- More charges for each shop selling

[Nodes and connections indicating various aspects of tobacco control and awareness.]
Mind map Analysis

Through mind-map analysis it is possible to work out strategies for further work. Incentives and deterrents are one of the key measures for improvement however being administrative in nature not addressed. Tobacco is consumed in various forms. In India is major consumer of Smokeless tobacco. The smokeless tobacco is main cause of Oral CANCER.

Among the various age groups it is decided to focus on Youth.

As means to tackle the problem it is considered to develop effective educational program with demonstration. To make the program effective experts from different field will be involved.

Preliminary Problem Analysis

- Poor People are worst affected.
- Bidi making is cottage industries.
- Enforcement of laws need improvement.

Problems Identified

1. Despite of poverty people spend money on Tobacco This habit does not only affects health but also put them in vicious cycle of poverty. Money for Health and education is diverted to tobacco and education of children suffers.
2. One of the poorest district of Gadchiroli of Maharashtra has pointer on this as reported by SEARCH Organization.

   The rise of Tobacco(https://searchforhealth.ngo/alcohol-tobacco-control/)

<table>
<thead>
<tr>
<th>Tobacco Expenditure</th>
<th>2009</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs 73 crores</td>
<td>Rs 260 crore</td>
<td></td>
</tr>
</tbody>
</table>

3. Cigarettes Company trapped youth by offering free cigarettes initially.
4. Despite of awareness of adverse effects of tobacco on health youngsters start consuming it.

5. The legal provision of Gutkha ban and minimum distance of 100 yards are not effectively implemented.

Selected Problem Area

To prevent kids from imitating the consumption of tobacco. It is estimated that around 5500 kids start consuming tobacco every day.
4. Cause (concern to solve problem)

- As country of the youngest population of world it has big impact and also in future for health care in later decades. (Everyday 5000 Children start, Prime Target)

- Everyday 5500 children start Tobacco use.

- Every 5 second one death due to tobacco in the world.

- According to the statistics, there are about a million tobacco deaths in India each year - 1000000, world 8000000

- Every day death 2740 India, World-21917

- EVERY Hour death 114 India, World 913

- Tobacco kills about half of its users.

- At least one in two people are exposed to secondhand smoking in India.

- Despite bans on advertising, sale and smoking in public areas, it has been reported that more than one in every 3 adults in India uses some form of tobacco

- Tobacco smoke contains 7000 chemicals, 400 toxins and 60 carcinogens.
• Bidi and cigarette smokers die 6 to 10 years earlier than their non-smoking counterparts.

• Around 6.5 trillion cigarettes are sold around the world each year, which translates to roughly 18 billion cigarettes per day.

• In 2016, nearly 85 billion cigarettes were sold in India.

• Bidi rolling in India is a cottage-based industry employing mainly women and children. Bidis outsell cigarettes by a ratio of eight to one (8:1) in India.
5. Context  -  Understanding the user and scenario

- Usage of different forms of Tobacco across the classes. (poor/rich/rural/urban/male/female)
- Despite of efforts and programs, Behavior Influenced by aggressive advertisements and surroundings. “Just for try “becomes deadly habit.
- Ninety percent of adult smokers begin this deadly addiction as teenagers or earlier. As a result, youth are critical and powerful voices in the fight against tobacco. They encourage their peers to be tobacco-free, stand up to the tobacco industry and its deceptive marketing, and urge elected leaders to take action

Smokeless tobacco causes cancer

Overall, people who dip or chew get about the same amount of nicotine as regular smokers. They are also exposed to more than 25 chemicals that are known to cause cancer. The most harmful cancer-causing substances in smokeless tobacco are tobacco-specific nitrosamines (TSNAs). TSNA levels vary by product, but the higher the level the greater the cancer risk
6. Comprehension

- Users neglecting deadly consequences despite of awareness.
- Lack of adequate national coverage with powerful and effective motivational force reaching to potential target coupled with slack of enforcement of laws.
- Limited use of advanced technology of behavior changes
- Inadequate research and focus considering gravity of problem

Youth who are out-of-school, earning, less educated and live in rural areas are more likely to use tobacco and start during the preteen years. Better educated youth may know the health effects of smoking but the dangers of passive smoking are generally unknown. Youth are fairly unconcerned about the present or future effects of tobacco use on health but do favour tobacco control measures. Children and youth are more responsive than adults to tobacco education. In India, a manufactured smokeless tobacco product, gutkha, has been targeted toward youth and has become extremely popular. An evolving epidemic of oral submucous fibrosis attributed to gutkha use has been documented among youth, with a resultant increase in oral cancer in lower age groups.
7. Brainstorming

- **Why adolescents start consuming Tobacco**
  - Surrounding environments (Family/school/friends)
  - Experiencing feeling of loneliness/depression
  - Influenced by Marketing and advertising of companies
  - Easy accessibility and affordability
  - Show off
  - Mental stress
  - Media effect-Relationship
  - Lack of self-motivation/self-control

Potential solutions to prevent adolescents start consuming Tobacco

- Parental support
- Special focus during standard X/XI/XII (AGE group 10-18)
- Alerting them about small negative effects
- Complete ban on Tobacco advertising of companies
- Reducing accessibility and affordability
- Eliminate acceptance of Tobacco
- Scientific demonstration of ill effects and actual stories of affected family
- Ban on WEB series promoting tobacco consumption
- Promote Healthy and fit lifestyle for better self-motivation/self-control
8. Concept Development

- Identify key differentials for Fitness amongst young smokers, Smokers who quit and non-smokers.
- Identify behavioral indicators among young smokers, Smokers who quit and non-smokers.
- Develop appropriate model with support of behavior scientists and IT professionals for alerting youngsters based on behavioral indicators and motivating them based on Fitness parameters.
- Demonstrate damage to body parts by correlating tobacco consumption (Mainly to Students of standard 8 to 12)

https://www.youtube.com/watch?v=69R0E_Rg_mQ American Lung Association.

- All nonsmokers must be activated as they are also affected but not realizing

Based on literature it is clear that Nonsmokers have better physical fitness compare to smokers. It is also confirmed that muscle strength is reduced and overall physical strength is reduced.

Multiple studies have found a variety of adverse effects on military personnel due to smoking.

Military personnel who smoke are less productive and do not perform as well on physical fitness tests relative to nonsmoking personnel.
9. Communication Design & Design Check

Module 1

Design educational and awareness program to inspire students to appreciate the hazards of tobacco and to refrain from it and help others to quit.

Following are the proposed composition of team

1. Parents
2. Students
3. Psychiatrists
4. Psychologists
5. Pulmonologists
6. IT Professional
7. Communication experts
8. Government authorities
9. School Teachers/Principals
10. Youth Role model
11. Community leader

The team will prepare effective presentation to students of standard 7 to 10 with demonstration of working model of lungs. Students will be given kits to make lungs model.

List of Toxic chemicals, heavy metals and carcinogens to be explained.

Regional language will be used.
True story of tobacco consumers and affected family, will be included

**Design check**

![Diagram of Design Check Process]

**Module II**

Design educational and awareness program to inspire students of standard 11 and higher to appreciate the hazards of tobacco and to refrain from it and help others to quit.

The team will prepare effective presentation to students of standard 11 to 12 with demonstration of working model of lungs. Effect of smoke can be explained with video of American lung association. Regional language will be used.

True story of tobacco consumers and affected family, will be included

**Model 1 briefing:**

Each group needs:

- 2-liter empty plastic bottle with cap
- 2 plastic drinking straws; available inexpensively at restaurant supply stores or donated by fast-food chains; do not use the flexible drinking straws
- 2 9-inch balloons
- 1 larger balloon; for example, for a punch ball
- 2 rubber bands
- **Lung Worksheet**, one per student


The activity is to give idea of lung functioning and importance of respiratory system. It will be followed by extended activities of what happens when some consumes tobacco.

Mini quiz will be there and winners will be given prizes

The focus is to fix the idea of Healthy lungs and its protection.

**Observation:** Based on pilot workshops modify the system after consulting team if require

**Consultation with Experts**

It is ongoing.

**Prototype – II**

Prepare to the scale model with flow measurement devices and some sensors.

Details are being worked out.
10. Crafting

• Once ready to communication design is to be tested with selected group of students, experts and improve further based on feedback
• The developed educational programs is to be implemented with support of Schools, Community Leaders.
• The duration Program is 45 to 60 minutes and in regional language.
• Each student will make model of lung and understand its function.
• Each student will know the adverse effect of tobacco
• Science fact based quiz on tobacco
• Tailor made for different age group suitably.
• It is to be explained to youth that body muscles are among the organs that could be threatened by smoking. The damage will cause the gradual loss of physical strength and reduction of active personal and social power which in turn result in wasting useful hours of daily work and damaging the economy of the society.
11. Connecting and continuous Engagement of team

Once idea is implemented the team will continue to review the outcome to identify shortcomings and to improve further based on feedback of the target audience.
12. Future Aspects & Recommendations

Ultimate dream is Tobacco free society. To realize that dream there is long way to go. Tobacco consumption is tip of iceberg. Concentrated and continuous efforts are required. Some Recommended areas for further work

Can we develop anti dot of Nicotine?

How can we develop tracking and tracing system for each tobacco consumer?

How can we develop simulation system to help everyone visualize short term and long term effects of smokeless tobacco as well as smoking tobacco?

How to improve human behavior using modern technologies

How to strengthen legal, administrative actions?

How to develop alternative earning and information systems for farmers involved in tobacco farming

How to develop alternative earnings for bidi workers?

How enforcement agencies can monitor educational institutes and public places through GPS and camera
References: Prior art

Tobacco cessation effects on oral health by group and individualized motivational therapy in 12 to 18 years old boys – A randomized controlled study https://www.jisppd.com/article.asp?issn=0970-4388;year=2020;volume=38;issue=3;spage=280;epage=288;aulast=Patel

- **Tobacco use by Indian adolescents** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2669568/
- **Lung Carcinogenesis by Tobacco Smoke** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3479369/
- **A Wearable Sensor System for Monitoring Cigarette Smoking** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3817052/
- **Methods for Quantification of Exposure to Cigarette Smoking and Environmental Tobacco Smoke: Focus on Developmental Toxicology** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3644554/
- **Tobacco Use and Its Health Effects among Professional Athletes in Qatar** https://www.hindawi.com/journals/crj/2016/2684090/tab3/
- **Association of Tobacco Smoking with Physical Fitness of Military Males in Taiwan: The CHIEF Study** https://www.hindawi.com/journals/crj/2020/5968189/tab1/
- **The dipstick testing** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3205243/
- **Air nicotine levels in public places in Ahmedabad, India: Before and after implementation of the smoking ban** https://www.ijcm.org.in/article.asp?issn=0970-0218;year=2015;volume=40;issue=1;spage=27;epage=32;aulast=Yang
- **https://searchforhealth.ngo/alcohol-tobacco-control/**


Shekhar Grover, Tanu Anand, Jugal Kishore, ..

- **https://journals.sagepub.com/doi/full/10.1177/1179173X20927397**
  Comparison of Physical Fitness among Smoker and Non-Smoker Men

Farzaneh Moslemi-Haghighi, 1, Inan Rezaei, 2 Farahnaz Ghaffarinejad, 1, Reza Lari, 3 and Fatemeh Pouya 4

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3905518/

25 Disturbing World Smoking Facts

How Cigarettes Affect Health and Society

https://www.verywellmind.com/disturbing-world-smoking-facts-2825336

The Physical Fitness Level, Heart Rate, and Heart Rate Recovery among Adolescent Smokers and Non-smokers

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Electro-mechanical Lung Simulator Using Polymer and Organic Human Lung Equivalents for Realistic Breathing Simulation [https://www.nature.com/articles/s41598-019-56176-6](https://www.nature.com/articles/s41598-019-56176-6)

Lung Simulators for Respiratory Care Training [https://www.neosim.ch/Adult-Simulator/](https://www.neosim.ch/Adult-Simulator/)