WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 7.523
Volume 6, Issue 8, 1864-1877. Research Article ISSN 2277– 7105

PREVALENCE AND DETERMINANTS OF TOBACCO SMOKING AND EFFECTIVENESS OF NRT FOR TOBACCO CESSATION AMONG COLLEGE STUDENTS IN A PRIVATE INSTITUTION

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Article Received on
07 June 2017,
Revised on 27 June 2017,
Accepted on 17 July 2017
DOI: 10.20959/wjpr20178-9107

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ABSTRACT

Aim: To estimate prevalence and determinants of tobacco smoking and effectiveness of Nicotine Replacement Therapy (NRT) for tobacco cessation among college students in a private institution. **Materials and Methods:** The study was conducted in Aditya Institutions for a period of 6 months. The data was directly collected from the students with the help of informed consent form, well prepared questionnaire and data collection form. The data was collected in suitably designed documentation form. **Result:** Two fifty students were included in the study, out of which 58.8% (n=147) students were smokers and 41.2% (n=103) students were non smokers. Out of 147 smokers 25.17% (n=37) students belongs to the age group of17 to 20, 42.17% (n=62) of students were in the age group of 21 to 24 and 32.65% (n=48) 0f students were in the age above 26. From Fagerstrom test, out of 147 tobacco smokers, 2%(N=3) of students were having high level of dependence to tobacco smoking, 3.4%(n=5) of students having moderate level of dependence and 94.5%(n=139) of students having low level of dependence. Reduction in the usage of cigarettes has been noticed after using NRTs in the student. **Conclusion:** There is an urgent need to curb the use of tobacco among the sub- groups of population with higher prevalence. Tobacco control policies in India should adopt a targeted, population-based approach to control and reduce tobacco consumption in the country. NRT appears to be an effective and safe approach to smoking cessation, along with behavioural modification and other pharmacologic interventions.

KEYWORDS: Prevalence, dependence, NRT, Fagerstrom test.

INTRODUCTION

Tobacco is leading preventable cause of death in the world today approximately kills 5.4 million people a year which can increase more than 8 million a year by 2030 if left unchecked or untreated. Tobacco is also one of the major causes of deaths and diseases in India, accounting for almost a million deaths every year.[1]

Tobacco dependence is condition where a person will be on addiction to tobacco which is mainly caused by drug nicotine. The person with tobacco dependence cannot stop using the tobacco although its harms to them.[2]

Tobacco leaf consists of Nicotine as most abundant volatile alkaloids which acts on nicotinic cholinergic receptors and affects various parts of our body systems. Nicotine is a powerful psychoactive and addictive agent which result various effect in central and peripheral nervous system effects, as well as effects on the cardiovascular, gastrointestinal, endocrine and skeletal motor systems. Nicotine normally constituents' 5% of a tobacco plant, by weight. Approximately our body absorbs 1 mg of Nicotine although cigarettes contain 8 to 20 milligrams (mg) of nicotine.[3]

Absorption of nicotine mostly occur in the lungs although it can be absorb in mouth if it is cigar and pipe tobacco as it will be alkaline smoke. After smoking, Nicotine absorption and its concentration rapidly rises in blood stream which is metabolized mainly in liver into two major metabolites cotinine and nicotine-N'-oxide. Person taking nicotine leads to dependence, additive symptom and experience withdrawal symptoms with smoking cessation like headache, dizziness, constipation stomach pain, insomnia and fatigue.[4]

Smoking is learned behaviour leading to addiction to any person which is important to be cessation. The combination of counselling and pharmacologic therapies can produce higher quit rates than either one alone for smoking cessation.[5]

Preparation, intervention and maintenance are three phases of smoking cessation. Preparation focus smoker's by providing motivation in order to quit and to build confidence that he or she can quit smoking. Intervention helps smokers to achieve abstinence. Maintenance helps smokers by providing counselling support and other substitute behaviours or strategy.[6]

PHARMACOTHERAPY

Medications available for tobacco cessation can broadly be divided into two groups:

1. Nicotine Replacement Therapy (NRT)
2. Non Nicotine Replacement Therapy

Nicotine Replacement Therapy (NRT)

In NRT, nicotine receptor are stimulated by delivering non-toxic forms of nicotine, thereby eliminating withdrawal symptoms of smoking like headache, abdominal cramp and the sensations of craving for nicotine during a smoking cessation attempt. Study suggests that nicotine products help for those people who want to quit smoking.[7] Nicotine replacement therapy (NRT) works by reducing person motivation to smoke and by controlling physiological and psychomotor withdrawal symptoms often experienced during an attempt to stop smoking. Products related with NRT are taken orally absorbs like chewing gums lozenges, sublingual tablets, inhaler/inhalator or in transdermal patches which absorbs through skin.[8]

Non Nicotine Replacement Therapy

Varenicline and Bupropion are the orally administered non-nicotonic drugs which are considered as first line treatments; either used alone or in combination with nicotine replacement therapy. Clonidine and Nortriptyline is considered as Second-line treatment for tobacco cessatation.[9]

OBJECTIVES

- **Primary objective**
  - ✓ To estimate the prevalence and determinants of tobacco smoking among college students.
  - ✓ Effectiveness of NRTs among tobacco smokers.

- **Secondary objective**
  - ✓ To educate the college students about the harmful effects of tobacco smoking.
  - ✓ To understand the level of tobacco dependence by college students.
  - ✓ To identify the percentage of students want to quit smoking

METHODOLOGY

STUDY DESIGN

This is an Institutional based cross sectional and prospective study.

STUDY SITE

The study was conducted in Aditya Institutions.

STUDY PERIOD

The study was conducted for a period of 6 months.

STUDY CRITERIA

Inclusion criteria

- Students present in class during visit in college
- Students of Aditya Institutions
- Students who are willing to participate

Exclusion criteria

- Non – consenting students were excluded.

SOURCE OF DATA AND MATERIALS

The data will be directly collected from the students with the help of informed consent form, well prepared questionnaire and data collection form.

STUDY PROCEDURE

The study was conducted in Aditya Institutions, Yelahanka and the students who were present in the class during visit in the classroom were enrolled in the study after taking consent from each student. I requested teachers of the respective classes to make necessary arrangement for the study. The data was collected in suitably designed documentation form. The prevalence and determinants of tobacco smoking among college students was estimated by using questionnaire. The obtained data are analysed by using suitable statistical method.

The students who were interested for tobacco cessation were given with NRTs. The data was analysed and interpreted.

RESULTS AND DISCUSSION

Two fifty students were included in the study, out of which 58.8% (n=147) students were smokers and 41.2% (n=103) students were non smokers. Amongst them 57.2% (n=143) students were males and 42.8% (n=107) students were females.

GENDER DISTRIBUTION

TABLE 1a: Gender distribution of tobacco smokers among college students

GENDER	NUMBER	PERCENTAGE%
MALE	133	90.47%
FEMALE	14	9.52%
TOTAL	147	100%

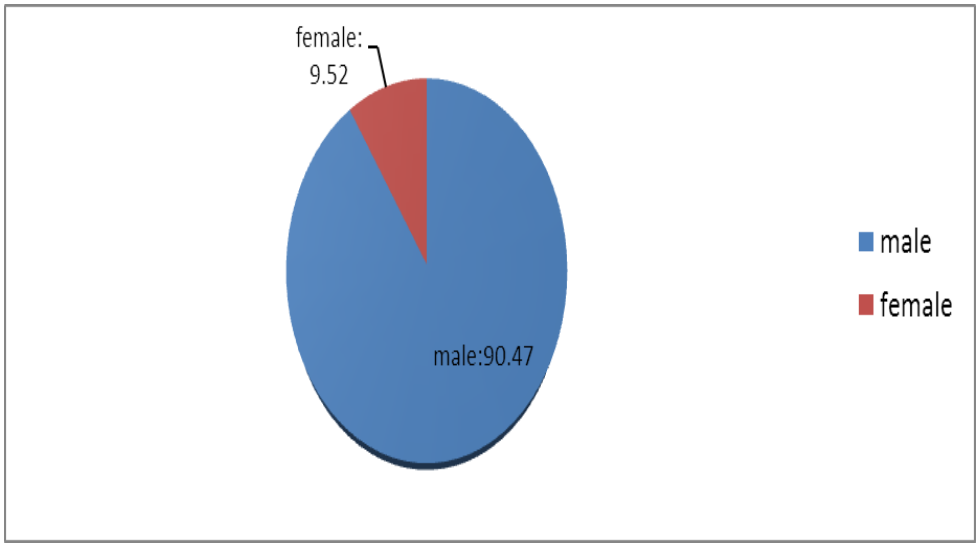

FIGURE 1a: GENDER DISTRIBUTION OF TOBACCO SMOKERS AMONG COLLEGE STUDENTS

The prevalence of the tobacco smoking among the study participants was 58.8%. Among 147 students 90.47% (n=133) of students were males and 9.52% (n=14) of students were females.

TABLE 1b: Age distribution of tobacco smokers among college students

AGE	NUMBER	PERCENTAGE%
17-20	37	25.17%
21-24	62	42.17%
>26	48	32.65%

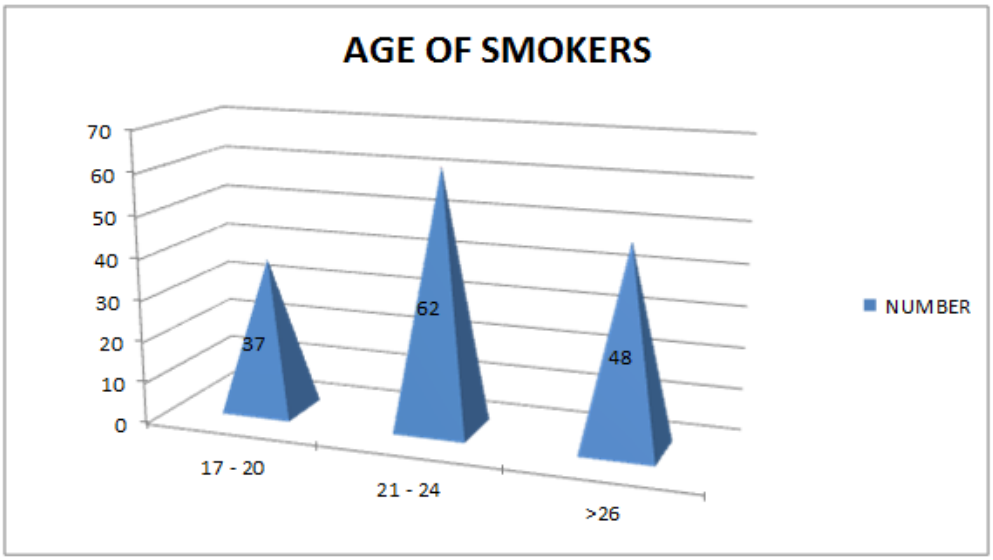

FIGURE 1b: AGE DISTRIBUTION OF TOBACCO SMOKERS AMONG COLLEGE STUDENTS

Out of 147 smokers 25.17% (n=37) students belongs to the age group of17 to 20, 42.17% (n=62) of students were in the age group of 21 to 24 and 32.65%(n=48) 0f students were in the age above 26.

Out of 250 students 3.2% (n=8) students used tobacco smoking daily, 55.6%(n=139) of students used tobacco smoking less than daily and 41.2%(n=103) 0f students were not at all using tobacco smoking.

Table: 2 Current tobacco smoking status of students

Current Status of tobacco smoking	Number	Percentage%
daily	8	3.2
Less than daily	139	55.6
Not at all	103	41.2

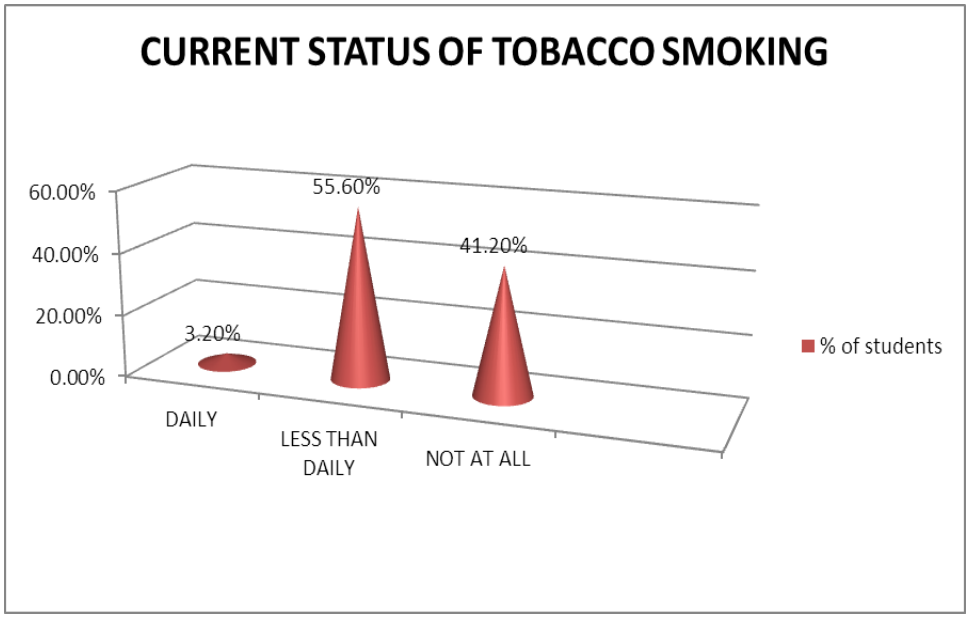

FIGURE 2 CURRENT STATUS OF TOBACCO SMOKING

Out of 250 students only 0.4% (n=1) student was using tobacco in the past, remaining 99.6% (n=249) of students were not using tobacco in the past.

Table 3: Past history of tobacco smoking among college students

PAST HISTORY OF SMOKING	NUMBER	PERCENTAGE%
YES	1	0.4
NO	249	99.6
TOTAL	250	100

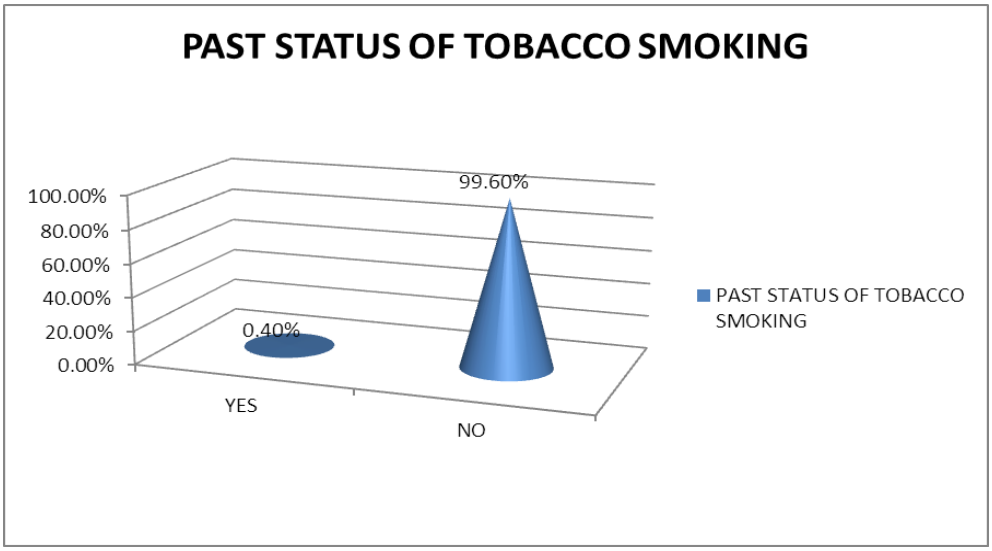

FIGURE 3 PAST HISTORY OF TOBACCO SMOKING

Among 147 smokers, approximately 76.87% (n=113) of students were smoking when they were with other smokers. Least percentage can be seen when they were in college 6.80%(n=10),65.98% (n=97) of students were smoking during recreative parties. 15.6%(n=23) of students were smoking in home.

Table 4: Place of tobacco smoking

Place of smoking	Number	Percentage%
At home	23	15.64
When with smokers	113	76.87
In college	10	6.8
During recreative parties	97	65.98
Others	46	31.29

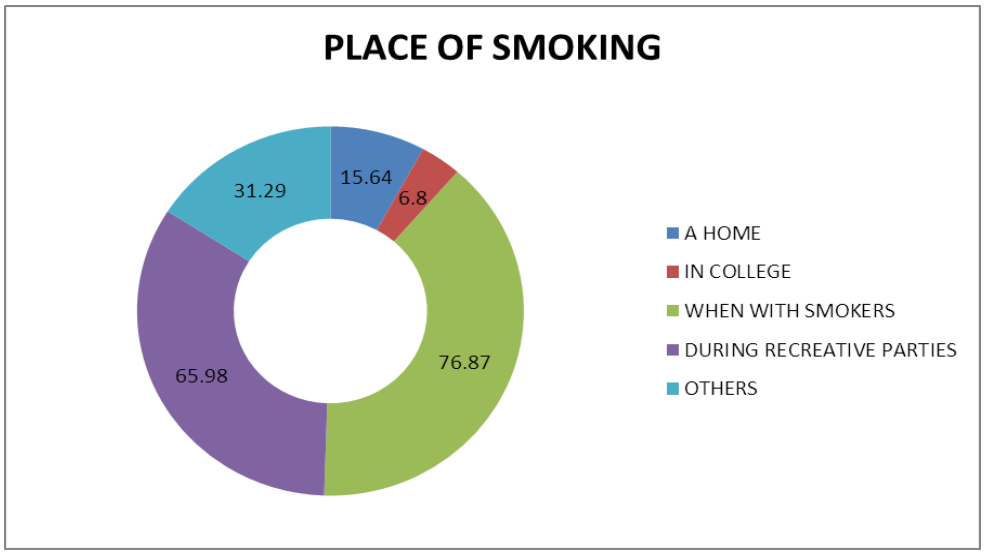

FIGURE 4: PLACE OF SMOKING

Table 5: Reason of start smoking

Reason of start smoking	Number	Percentage%
Imitation	21	14.2
Stress	68	46.25
Advertisement	31	21.08
Curiosity	89	61.54
Pleasure	121	82.3
others	54	36.73

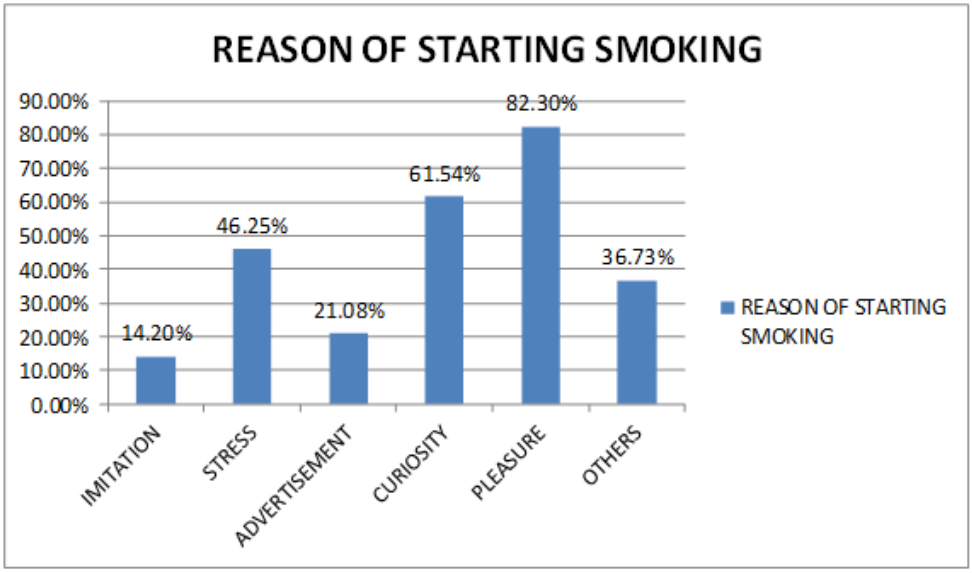

FIGURE 5: REASON OF START SMOKING

As in figure 5, out of 147 students, most of them were started smoking because of pleasure 82.3% (n=121) and curiosity 61.54% (n=89).14.2% (n=21) for imitation and 46.25%(n=68) of students started smoking because of stress and 21.08% (n=31) of students by advertisement and 36.73% (n=54) students having other reasons for start smoking.

Table 6: Reason to quit smoking

Reason to quit smoking	Number	Percentage%
Save money	51	34.69
Keep a good health	71	48.29
Self discipline	66	44.89
others	12	8.16

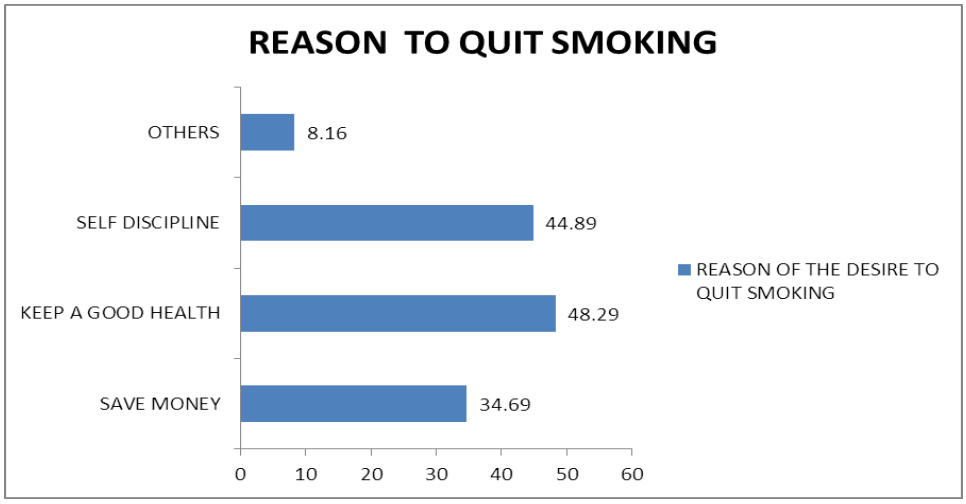

FIGURE 6: REASON TO QUIT SMOKING

From the figure 6, highest number of students desired to quit smoking for keeping good health 48.29% (n=71) and 44.89% (n=66) of students for self discipline. And 34.69% (n=51) of students decided to quit smoking to save money and 8.16% (n=12) of students for other reasons.

From Fagerstrom test, out of 147 tobacco smokers, 2%(N=3) of students were having high level of dependence to tobacco smoking, 3.4%(n=5) of students having moderate level of dependence and 94.5%(n=139) of students having low level of dependence.

Table 7: Level of dependence to tobacco smoking

Level of dependence	Number	Percentage
High dependence	3	2%
Moderate dependence	5	3.4%
Low dependence	139	94.5%

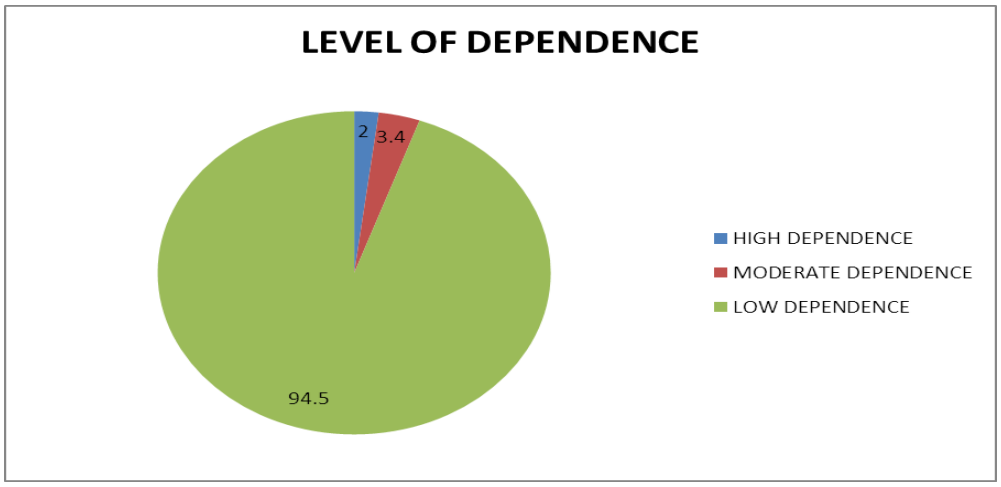

FIGURE 7: LEVEL OF TOBACCO DEPENDENCE

Out of 147 students, 5.44%(n=8) students wants to quit smoking and 94.5% of students were not ready to quit smoking.

Table 8: Number of students ready to quit smoking

Decision of students	Number	Percentage
Ready to quit	8	5.44
Not ready to quit	139	94.5
Total	147	100

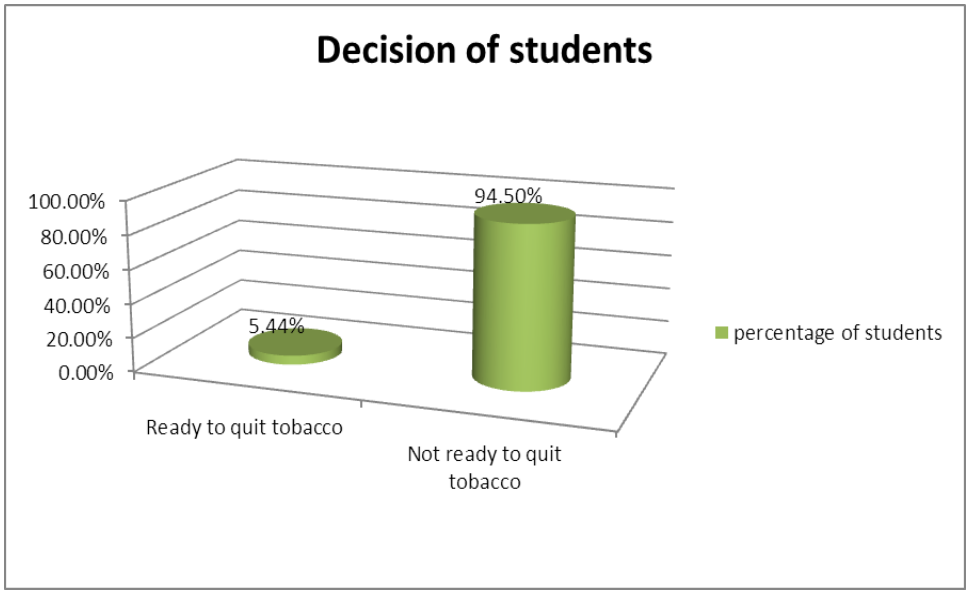

FIGURE 8: DECISION OF STUDENTS TO QUIT SMOKING

Effectiveness of NRTs among tobacco smokers. Among 8 students, all of them achieved tobacco cessation. Table 9 shows the details.

Table 9: Number of cigarettes before and after 4 months of using NRTS.

Sl. No of students	Before 4 months	After 4 months of using NRTs	
	Number of cigarettes	Number of cigarettes	% Reduced after 4 months
FS1	40	5	87.5%
FS2	30	5	83.4%
FS3	40	30	25%
FS4	25	3	88%
FS5	20	10	50%
FS6	25	10	60%
FS7	25	15	40%
FS8	15	7	54%

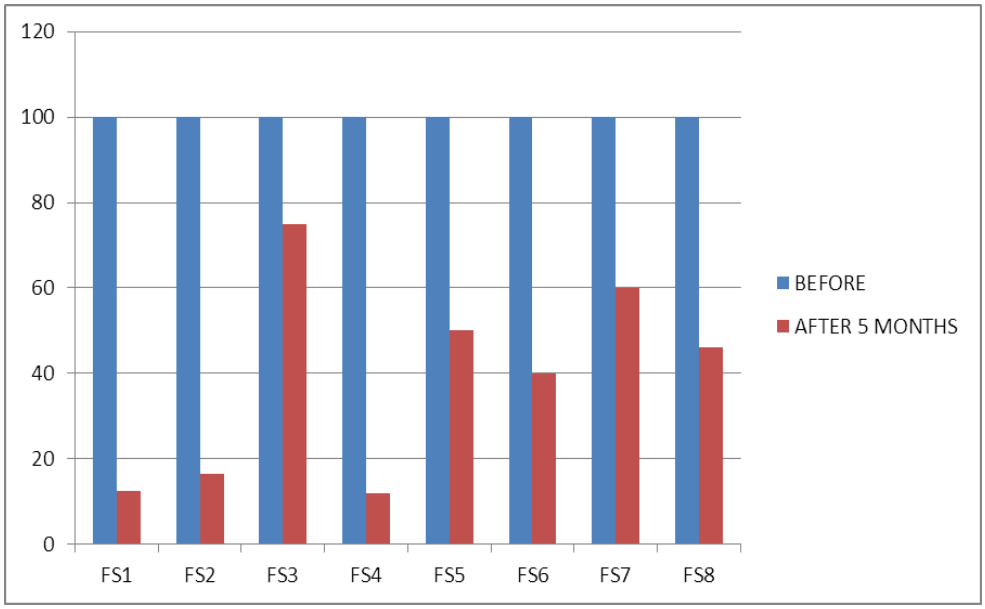

FIGURE 9: EFFECTIVENESS OF NRTS AMONG SMOKERS

CONCLUSION

Raising awareness of children is important for saving them from taking up the habit and assisting smokers to quit. Male school children are mostly affected by their peers, fathers and brothers. Thus, parents and siblings should be role models for their children /siblings, respectively, by not smoking themselves.

There is an urgent need to curb the use of tobacco among the sub- groups of population with higher prevalence. Tobacco control policies in India should adopt a targeted, population-based approach to control and reduce tobacco consumption in the country.

Because of the clear health benefits of smoking cessation, the importance of encouraging patients to stop cannot be overemphasized. A variety of pharmaceutical nicotine formulations are available for use in replacement therapy for cigarette smoking to help smokers who wish to break their habit. NRT appears to be an effective and safe approach to smoking cessation, along with behavioral modification and other pharmacologic interventions.

Many new NRTs are available and research is being undertaken to understand more fully the neural circuits and pathways involved in smoking and drug addiction. With this knowledge, we should be able to develop new and better therapies. Currently, NRT with the nicotine patch and gum are first-line therapies in smoking cessation.

ACKNOWLEDGEMENTS

My sincere gratitude to Dr. Praveen Kumar for his guidance in my study. Special thanks to Aditya Bangalore Institute for Pharmacy Education and Research, Aster CMI hospital for providing us opportunity to conduct this study. Our sincere thanks also go to my parents, guide, teaching staff and friends. Last but not the least, we extend our thanks to all those who have been directly or indirectly associated with our study.

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