



## Impact of Motivational enhancement programme on nicotine dependence, temptation to smoke, readiness to quit smoking among students

Mr.Saju L T<sup>1</sup>, Dr B Sara<sup>2</sup>

Ph.D. Scholar<sup>1</sup>, Reader<sup>2</sup>

Department of Nursing

Rani Meyyammai College of Nursing, Chidambaram, Tamilnadu, India

**Abstract:** More than 8 million deaths are caused by tobacco each year; more than 7 million of these mortality are due to direct tobacco use, and around 1.2 million are due to non-smokers being exposed to second-hand smoke. In low- and middle-income nations, where the burden of tobacco-related disease and mortality is highest, 80% of the world's 1.1 billion smokers reside. The majority of smokers who are aware of the risks associated with tobacco have the desire to stop. A cigarette user's odds of effectively quitting might be more than quadruple with counselling and drugs. The possibilities for health professionals to encourage tobacco cessation is the highest of any group in society.. The objective of the study was to determine the effectiveness of Motivational enhancement programme on nicotine dependence, temptation to smoke, readiness to quit smoking among students. Design: quasi experimental design where Non Equivalent control group design was adopted for the study settings: Anupama group of institutions Participants: 12 student smokers in selected degree colleges who fulfil the inclusion criteria were selected by purposive sampling techniques. Methods: After the completion of the pretest, motivational educational programme (educational sessions on hazards of smoking, benefits of quitting and at the end of the educational session, 5'R's and Nicotine replacement therapy) were administered to the samples as per the schedule. Post-test-I was conducted to assess the effect of selected interventions regarding the dependence status, resist temptation and planning for quit attempt, after 1 month of interventions. Reinforcement of the intervention (educational sessions, 5'R's and Nicotine replacement therapy) and follow up of the subjects while performing the intervention was done for 1 month after the posttest I. Then, the posttest II was conducted after 3 month among the study participants to reassess the level of motivation of quit smoking. Self-report on quitting was biochemically confirmed by urine cotinine test Result: In experimental group, Repeated measures F-test analysis shows that, mean overall nicotine dependence score is statistically significant different between pre-test and post-test-II(  $\chi^2 = 9.65P \leq 0.001$ ), mean overall Temptation score is statistically significant different between pre-test and posttest-II(  $\chi^2 = 8.33P \leq 0.001$ ) and the level of readiness to quit smoke score were similar in both the groups and in posttest-II, there is a significant difference in level of readiness to quit smoking score between experimental and control group of student smokers. Therefore, we can conclude that a motivational enhancement programme reduces significantly nicotine dependence, Temptation to smoke and improves significantly readiness to quit smoking among student smokers. This showed that that motivational enhancement programme was effective among student smokers in selected colleges.

**Key words-** Impact, motivational enhancement programme, nicotine dependence, readiness to quit, student smokers

### I. INTRODUCTION

Tobacco use is one of the most avoidable causes of adult mortality and disability globally. According to WHO estimates (2015), more than

1.1 billion people (>15 years) smoke tobacco, with males (939 million) smoking more than women (175 million). Although global tobacco consumption is dropping, the incidence of male

smoking is rising in several nations. Tobacco use is predicted to reach 948 million men and 147 million women by 2025. Moreover, around 367 million persons worldwide use smokeless tobacco (SLT). Tobacco is used all around the world, but in the WHO Southeast Asia area, both smoking and SLT are utilised. The region accounts for about 21% of smokers and 82% of SLT users. **(Panchmal. Et al. 2020)**

Considering the Indian government's tobacco control legislative action, tobacco use among teenagers and young adults remains high, owing to the industry's creative advertising and focused marketing efforts. Additional factors contributing to the epidemic include plentiful tobacco production, lax implementation of tobacco control measures, and the ease of access and affordability of nicotine products. Notwithstanding these obstacles, India has made tremendous progress in addressing this issue to varied degrees. The Cigarettes and Other Tobacco Products Act (COTPA) was adopted at the national level in 2003, followed by ratification of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) in 2004. Furthermore, the government launched state-level tobacco control and prevention initiatives to assist with quitting efforts and capacity building. The drop in tobacco consumption can also be ascribed to civil society and community group support for tobacco control activities, as well as government actions. **(Jodalli, Praveen et al. 2020)**

Quitting smoking is a challenging task for the majority of smokers. Many smokers attempt to stop several times before succeeding, and some even relapse after a lengthy period of abstinence. In the United States, there are now various population-based tobacco control initiatives with the purpose of encouraging effective quitting. These programmes are often evaluated using point prevalence estimates, which are a measure of the percentage of the population who presently smoke based on self-reported current smoking status. Some short-term ex-smokers will undoubtedly relapse, and if public health interventions entail many efforts to stop in the short term but not in the long term, point prevalence may not be the

ideal indicator. An estimate that includes some successful cessation strategies is required instead. Furthermore, a greater knowledge of the length of abstinence and relapse should aid in the design of successful relapse prevention programmes as well as the ideal follow-up time.

Clinical smoking cessation programmes have long demonstrated that abstinence time is the most important indicator of long-term success. Schwartz recommended in a study and assessment of smoking cessation programmes, without providing supporting data, that 1 year was an excellent follow-up time for programme evaluation, however 6 months was acceptable. The great majority of smokers quit on their own, and their abstinence rates are likely to differ from those observed in therapeutic settings. **(Elizabeth A et al. 1997)**

Helping smokers quit includes two processes: encouraging them to attempt and then assisting them in quitting once they have tried. Just approximately 10% of smokers aim to quit within the next month, 30% expect to quit within the next six months, 30% plan to quit at an unknown period, and 30% have no intentions to quit. As a result, the great majority of therapeutic therapies focus on encouraging smokers to try to stop.

**OBJECTIVES:** Evaluate the effectiveness of Motivational enhancement programme on nicotine dependence, Temptation to smoke, readiness to quit among students.

## HYPOTHESIS

**H<sub>1</sub>:** There is a significant difference in nicotine dependence status, temptation to smoke, and readiness to quit smoking after the motivational enhancement programme among students with smoking habit in experimental group than control group.

## METHODOLOGY

The research design used for this study was quasi experimental design in that Non-equivalent control group design was adopted among 12

student smokers. Purposive sampling techniques used to select the sample for both the group.

### Setting of the study

The study conducted at selected degree colleges Anupama group of institutions in Bangalore.

### Variables

Independent Variable: Motivational enhancement programme

Dependent Variable: Nicotine dependence, temptation to smoke, readiness to quit smoking.

### Population

In this study population refers to student smokers at selected colleges

### Sample

In this study, the samples were male student smokers studying in selected colleges who fulfilled the inclusion criteria.

**Sample Size:** 6 students were assigned to the control group, while 6 students were assigned to the experimental group.

**Sampling Technique:** purposive sampling technique was used for this study.

### Criteria for Sample Selection

#### Inclusion Criteria

It included student smokers:

- Who has smoked cigarettes since one week onward
- who will be in Pre-contemplation and contemplation stage.

#### Exclusion Criteria

Student smokers:

- not willing to participate in the study.
- who will be in Preparation, action and maintenance stage.

### Development of Data Collection Instruments

#### Section I: Socio Demographic Variable Proforma

The sociodemographic variable of tobacco consumers were studied using a proforma wherein the socio demographic variables such as Age of the students (in years), Types of college, Class in which studying, Area of residence, Present residence of the students, Marital status, Fathers

educational status, Mothers educational status, Fathers occupation, Mothers occupation, Family monthly income, Do you receive Pocket money, How much pocket money do you receive per month and Have you undergone any training sessions regarding tobacco cessation.

#### Section II: FAGERSTROM Tolerance Questionnaire

FAGERSTROM Tolerance Questionnaire (1978) is a Standardised self-report scale used to generally assess nicotine dependence level. The scale consists of 6 structured questions with few options to give the response.

#### Section III: Readiness to Quit Ladder

It is a standardized scale with 10 response options that assess motivation along a continuum, from not considering quitting at all in near future to having already quit smoking. The ladder has the advantage of being a short, efficient and face valid measure that is generable for use with many diverse population.

#### Section IV: Temptation / Self Efficacy Scale

It is a structured questionnaire that measures temptation / self-efficacy scale in resisting smoking in various situations. It helps to find out how tempted the smoker was using a 5 point scale with 1, not at all tempted, to 5, extremely tempted. The score is reversed for self-efficacy to resist temptations i.e. 1 extremely tempted to 5 not at all tempted. Cronbach alpha test was applied to find out reliability of this instrument. The reliability score was 0.94 and found to be reliable for assessing the temptation / self-efficacy to resist smoking temptations

#### Data Collection Procedure

- A formal permission was obtained and the pilot study was conducted among the student smokers studying in Sacred Heart Group of institution.
- A brief introduction and detailed explanation about the study, its purpose and other related activities involved in the study were thoroughly discussed. The researcher personally explained the purpose of the study and obtained an informed written consent from the study samples individually.
- Pre-test was assessed by Nicotine dependence status, temptation to smoke and readiness to quit smoking.

• After the completion of the pretest, motivational educational programme (educational sessions on hazards of smoking, benefits of quitting and at the end of the educational session, 5'R's and Nicotine replacement therapy) were administered on the samples as per the schedule.

• Post-test-I was conducted to assess the effect of selected interventions regarding the dependence status, resist temptation and planning for quit attempt, after 1 month of interventions.

• Reinforcement of the intervention (educational sessions, 5'R's and Nicotine replacement therapy) and follow up of the

subjects while performing the intervention was done for 1 months after the posttest I. Then, the posttest II was conducted after 3 month among the study participants to reassess the level of motivation of quit smoking. Self-report on quitting was biochemically confirmed by urine cotinine test

### Plan for Data Analysis

The inferential statistics like Friedmann test, Mann whitney test, used to find out the effectiveness of selected motivational enhancement programme among the students

## RESULTS

**Table I- Frequency and percentage distribution of Demographic variables**

Demographic variables		Group				Chi square test
		Experimental(n=6)		Control(n=6)		
		n	%	n	%	
Age	17 years	3	50.00%	2	33.33%	$\chi^2=1.43$ $p=0.70(NS)$
	18 years	1	16.67%	2	33.33%	
	19 years	0	0.00%	2	33.33%	
	20 years	2	33.33%	0	0.00%	
	21 years and above	0	0.00%	0	0.00%	
Type of college	Arts and Humanity	3	50.00%	1	16.67%	$\chi^2=0.04$ $p=0.98(NS)$
	Science & Commerce	2	33.33%	2	33.33%	
	Other degree level courses	1	16.67%	3	50.00%	
Class in which studying	First year	4	66.67%	2	33.33%	$\chi^2=0.00$ $p=1.00(NS)$
	Second year	0	0.00%	2	33.33%	
	Third year	2	33.33%	2	33.33%	
Area of residence	Urban	3	50.00%	2	33.33%	$\chi^2=1.81$ $p=0.40(NS)$
	Rural	0	0.00%	4	66.67%	
	Semi Urban	3	50.00%	0	0.00%	
Present residence	With family/relatives	5	83.33%	4	66.67%	$\chi^2=0.17$ $p=0.92(NS)$
	With friends	0	0.00%	1	16.67%	
	Hostel/Paying Guest	1	16.67%	1	16.67%	
Fathers Educational Status	No formal education	0	0.00%	0	0.00%	$\chi^2=0.14$ $p=0.99(NS)$
	Primary education	0	0.00%	1	16.67%	
	Secondary education	1	16.67%	3	50.00%	
	Undergraduate/Diploma	5	83.33%	1	16.67%	
	Post graduate/Doctoral Degree	0	0.00%	1	16.67%	
Mothers educational status	No formal education	0	0.00%	0	0.00%	$\chi^2=0.99$ $p=0.91(NS)$
	Primary education	1	16.67%	2	33.33%	
	Secondary education	1	16.67%	2	33.33%	



	Undergraduate/Diploma	3	50.00%	1	16.67%	
	Post graduate/Doctoral Degree	1	16.67%	1	16.67%	
Fathers occupation	Government employee	1	16.67%	1	16.67%	$\chi^2=1.74$ $p=0.63(NS)$
	Private employee	4	66.67%	3	50.00%	
	Own business	0	0.00%	0	0.00%	
	Skilled Worker/ Unskilled worker	1	16.67%	2	33.33%	
Mothers occupation	Government employee	3	50.00%	2	33.33%	$\chi^2=1.33$ $p=0.72(NS)$
	Private employee	1	16.67%	1	16.67%	
	Own business	1	16.67%	1	16.67%	
	House Maker	1	16.67%	2	33.33%	
Family monthly income	Less than 20000	1	16.67%	1	16.67%	$\chi^2=1.77$ $p=0.41(NS)$
	20001 to 40000	1	16.67%	2	33.33%	
	40001 and above	4	66.67%	3	50.00%	
Do you Receive Pocket Money	Daily	1	16.67%	1	16.67%	$\chi^2=1.39$ $p=0.71(NS)$
	Weekly	2	33.33%	1	16.67%	
	Monthly	1	16.67%	1	16.67%	
	Whenever necessary	2	33.33%	3	50.00%	
How much Pocket money do you receive per month	Less than Rs.1000	2	33.33%	1	16.67%	$\chi^2=0.09$ $p=0.99(NS)$
	Rs.1001 to 2000	2	33.33%	2	33.33%	
	Rs.2001 to 3000	1	16.67%	2	33.33%	
	Rs.3001 to 4000	1	16.67%	1	16.67%	
	Rs,4001 to 5000	0	0.00%	0	0.00%	
	Above Rs.5000	0	0.00%	0	0.00%	
Have you undergone any training section regarding tobacco cessation	Nil	6	100.00%	6	100.00%	$\chi^2=0.15$ $p=0.70(NS)$
	Through mass media	0	0.00%	0	0.00%	
	Health professionals	0	0.00%	0	0.00%	
	Others	0	0.00%	0	0.00%	

Above table shows the demographic information of students those who are participated in the study. Similarity of

demographic information distribution between experimental and control group was assessed using chi square test.

**Table2: Comparison of experimental and control group nicotine dependence score among college students**

	Group				Mean difference	Mann whitney test
	Experimental(n=6)		Control(n=6)			
	Mean	SD	Mean	SD		
Pretest	3.83	1.33	3.67	1.63	0.16	$z=0.24$ $p=0.80(NS)$
Posttest-1	2.67	1.21	3.50	1.64	-0.83	$z=0.82$ $p=0.41(NS)$
Posttest -2	1.67	.52	3.33	1.51	-1.66	$z=2.40$ $p=0.02*(S)$

In pretest there is no significant difference between experimental and control group. In

posttest-1 also there is no significant difference between experimental and control group and In

posttest-2 there is a significant difference between experimental and control group. Statistical significant difference between experimental and

control group was assessed using mann whitney test.

**Table 3: Comparison of mean nicotine dependence score During Pre-test, post-test-I, post test-II among experimental and control group**

	Pre-test		Post-test-I		Post-test-II		Mean difference	Repeated measures Friedmann test
	Mean	SD	Mean	SD	Mean	SD		
Experimental	3.83	1.33	2.67	1.21	1.67	.52	2.16	$\chi^2=9.65$ $p=0.001^{***}$ (S)
Control	3.67	1.63	3.50	1.64	3.33	1.51	0.34	$\chi^2=2.25$ $p=0.12$ (NS)

In experimental group, Repeated measures F-test analysis shows that, mean overall nicotine dependence score is statistically significant different between pre-test and post-test-II(  $\chi^2 = 9.65 P \leq 0.001$ ). Therefore, we can conclude that a motivational enhancement programme reduces significantly nicotine dependence score among

students. Similarly, in control group, Repeated measures F-test analysis shows that, mean overall nicotine dependence score is not statistically significant different between pre-test and post-test-II (  $\chi^2 = 2.25, P \geq 0.05$ ). Therefore, we can conclude that a routine care not reducing nicotine dependence score significantly among students.

**Table 4: Comparison of experimental and control group temptation score among college students**

Temptation situation		Group				Mean difference	Mann whitney test
		Experimental(n=6)		Control(n=6)			
		Mean	SD	Mean	SD		
Overall	Pretest	47.50	6.09	45.33	3.56	2.17	Z=0.72 p=0.46(NS)
	Posttest-1	41.83	7.19	45.50	8.55	-4.67	Z=1.07 p=0.33(NS)
	Posttest -2	35.67	7.34	45.50	4.14	-983	Z=2.25 p=0.02*(S)

Considering overall situation, In pretest there is no significant difference between experimental and control group. In posttest-1 also no significant difference between experimental and control group and Posttest2 there is a significant

difference between experimental and control group. Statistical significant difference between experimental and control group was assessed using mann whitney test.

**Table 5: Comparison of mean Temptation score During Pretest, Posttest-I, Posttest-II among experimental and control group**

	Pre-test		Posttest-I		Posttest-II		Mean difference	Repeated measures Friedmann test
	Mean	SD	Mean	SD	Mean	SD		
Experimental	49.17	7.57	41.83	7.19	35.67	7.34	14.33	$\chi^2=8.33$ $p=0.001^{***}$ (S)
Control	45.33	3.56	45.50	8.55	45.50	4.14	0.95	$\chi^2=0.78$ $p=0.70$ (NS)

In experimental group, Repeated measures F-test analysis shows that, mean overall Temptation score is statistically significant different between pre-test and posttest-II(  $\chi^2 = 8.33P \leq 0.001$ ). Therefore, we can conclude that a motivational enhancement programme reduces significantly Temptation score among students.

Similarly, in control group, Repeated measures F-test analysis shows that, mean overall Temptation score is not statistically significant different between pre-test and posttest-II(  $\chi^2 = 0.70, P \geq 0.05$ ). Therefore, we can conclude that a routine care not reducing Temptation score significantly among students.

**Table 6: Distribution of Pretest, Posttest-I and Posttest-II level of readiness to quit smoking score**

Assessment	Level	Group				Chi-square value	P value
		Experimental Group (n=6)		Control Group (n=6)			
		No.	%	No.	%		
Pretest	Pre-contemplation	6	100%	5	83.33%	0.00	1.00 (NS) DF=1
	Contemplation	0	0%	1	16.66%		
	Preparation	0	0%	0	0%		
	Action	0	0%	0	0%		
	Maintenance	0	0%	0	0%		
Posttest-I	Pre-contemplation	5	83.33%	5	83.33%	2.14	0.14 (NS) DF=1
	Contemplation	1	16.66%	1	16.66%		
	Preparation	0	0%	0	0%		
	Action	0	0%	0	0%		
	Maintenance	0	0%	0	0%		
Posttest-II	Pre-contemplation	3	50%	5	83.33%	6.99	0.01 (S) DF=1
	Contemplation	2	33.33%	1	16.66%		
	Preparation	1	16.66%	0	0%		
	Action	0	0%	0	0%		
	Maintenance	0	0%	0	0%		

DF= Degrees of freedom S= significant NS= not significant

$P > 0.05$  not significant  $P \leq 0.05$  significant  $P \leq 0.01$  highly significant

Table compares the level of readiness to quit smoke score **between** experimental and control group of student smokers. In pretest, there is no significant difference between experimental and control group of student smokers. The non-significant p- values 1.00 indicates, the level of readiness to quit smoke score were similar in both the groups. In posttest-I, also no significant difference between experimental and control group of students. The not significant p- values 0.14 indicates, the level of readiness to quit smoke score were similar in both the groups and in posttest-II, there is a significant difference in level of readiness to quit smoking score between experimental and control group of student smokers. Experimental group students are having more level of readiness to quit smoke score than control group. The significant p- values 0.01 indicates, the level of readiness to quit smoke score were not similar in both the groups Statistical significance difference between experiment and control group was calculated using chi square test.

## CONCLUSION

There is a significant effectiveness in motivational enhancement programme between pre and post-tests on nicotine dependence status, temptation to smoke, and readiness to quit smoking among student smokers in experimental group than control group. Hence the Health care professionals can help the student smokers to stop smoking and enhance their motivation to quit through specially designed programme at college level.

## REFERENCE

1. Kumar S, Sharma RK, Soan V, Pandey M, Khan AA, Tiwari S, et al. Sociodemographic determinants of high tobacco use in Gond tribe of central India. *Natl Med J India* 2022;35:74–7
2. Elizabeth A. Gilpin, John P. Pierce, Arthur J. Farkas, Arthur J. Farkas, Duration of Smoking Abstinence and Success in Quitting, *JNCI: Journal of the National Cancer Institute*, Volume 89, Issue 8, 16 April 1997, Page 572, <https://doi.org/10.1093/jnci/89.8.572>
3. Hughes JR. Motivating and helping smokers to stop smoking. *J Gen Intern Med.* 2003 Dec;18(12):1053-7. doi: 10.1111/j.1525-1497.2003
4. Buczkowski K, Marcinowicz L, Czachowski S, Piszczek E. Motivations toward smoking cessation, reasons for relapse, and modes of quitting: results from a qualitative study among former and current smokers. *Patient Prefer Adherence.* 2014 Oct 1;8:1353-63
5. Perez-Warnisher MT, De Miguel MDPC, Seijo LM. Tobacco Use Worldwide: Legislative Efforts to Curb Consumption. *Ann Glob Health.* 2018 Nov 5;84(4):571-579. doi: 10.9204/aogh.2362
6. Buczkowski K, Marcinowicz L, Czachowski S, Piszczek E. Motivations toward smoking cessation, reasons for relapse, and modes of quitting: results from a qualitative study among former and current smokers. *Patient Prefer Adherence.* 2014 Oct 1;8:1353-63. doi: 10.2147/PPA.S67767

