

# Effectiveness of Tobacco Cessation Programme on Physiological Changes among Smoking Tobacco Users

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**Abstract:** Tobacco use, including tobacco smoking (Cigarettes, bidi, cigars, pipe, hookah) and smokeless tobacco (Chewing, Snuff and Snuff) use, causes a wide spectrum of diseases including oral diseases World Health organization (WHO) informed that, Tobacco kills more than 8 million people each year. This study aim is to assess the effectiveness of Tobacco cessation programme on Physiological changes among smoking tobacco users. One group pre test and post test design was adopted, in which only experimental with 50 smoking tobacco users chosen as per selection criteria using purposive sampling technique The study was conducted in Mappedu village, Tiruvallur. The samples were pretested by collecting Socio demographic data and Physiological parameters like Temperature, pulse rate, respiration rate, SpO2 rate, systolic and diastolic blood pressure were also assessed. Administration of tobacco cessation program to the participants - on one - to - one basis by face to face for 3 months. The post - test I will be conducted on 7th day. Post - test II will be conducted on 15th day by using the same tool. The findings of this study reveal that majority of the patients who attended the smoking cessation program benefited in the form of lowered pulse rate, Respiration rate, SpO2 %, systolic and diastolic blood pressure.

**Keywords:** Tobacco cessation programme, Physiological changes, smoking Tobacco Users

## 1. Introduction

Tobacco use, including tobacco smoking (Cigarettes, bidi, cigars, pipe, hookah) and smokeless tobacco (Chewing, Snuff and Snuff) use, causes a wide spectrum of diseases including oral diseases World Health organization (WHO) informed that, Tobacco kills more than 8 million people each year. More than 7 million of those deaths are the result of direct tobacco use while around 1.2 million are the result of non - smokers being exposed to second - hand smoke. Over 80% of the world's 1.3 billion tobacco users live in low - and middle - income countries. In 2020, 22.3% of the global population used tobacco, 36.7% of all men and 7.8% of the world's women. According to Centers for Disease Control and Prevention (CDC), Tobacco use is the leading cause of preventable disease, disability, and death in the United States.

In India, Global Adult Tobacco survey (2017) reveals that Khaii is the most commonly used tobacco product (used by 10.4 adults) followed by bidi (smoked by 7.2 crore adults).28.6% of adults aged 15 and above (26.7crore) use tobacco in any form.19.9 crore adults in rural areas and 6.8crore adults in urban areas use tobacco. Every fifth adult (19.9 crore) uses smokeless tobacco and every tenth adult (10.0 crore) smokes tobacco.3.2 crore adults' resort to dual use of tobacco.

Smoking causes an acute increase in blood pressure (BP) and heart rate It is associated with malignant hypertension. Nicotine acts as an adrenergic agonist, mediating local and systemic catecholamine release and possibly the release of vasopressin. In hypertensive patients the blood pressure lowering effect of beta - blockers may be partly abolished by tobacco smoking whereas alpha - receptor blockers seem to maintain the antihypertensive efficacy in smokers

Quitting tobacco is a difficult task. Quitting smoking can help reduce high blood pressure As a person with oral disease, it is even more important for them to quit tobacco use. Quitting tobacco is important for smokers and their family. The great risks of smokers having oral disease; the benefits of quitting and how to improve their confidence in making a quit attempt. Every primary care provider should have some basic knowledge of tobacco use and tobacco dependence, the benefits of quitting, challenges in quitting tobacco and effective coping skills will help you deliver brief tobacco interventions. Nurses are in an ideal position to make a difference in smoking cessation and to improve the health of their patients

### Objectives:

This study aim is to assess the effectiveness of Tobacco cessation programme on Physiological changes among smoking tobacco users

### Hypothesis:

There was a significant difference in the Physiological changes before and after tobacco cessation programme among smoking Tobacco users

## 2. Methodology

One group pretest and posttest design was adopted. in which only experimental with 50 smoking tobacco users chosen as per selection criteria using purposive sampling technique. The study conducted in the villages of Tiruvallur districts, namely Mappedu Permission was obtained to conduct the study in the setting. Mappedu is a village situated in Tiruvallur taluka of Tiruvallur district in Tamil Nadu. As per the Population Census 2020, there are a total of 1, 083 families residing in the village Mappedu. The size of the

area is about 14.84 square kilometer. The Mappedu totally covers 11 villages. The total population of Mappedu is 7452 out of which 3733 are males and 3719 are females thus the Average Sex Ratio of Mappedu is 1.004.

After obtaining the informed written consent the pretest data will be conducted by using Socio demographic variables and Temperature, pulse rate, respiration rate, SpO2 rate, systolic and diastolic blood pressure were also assessed. Administration of tobacco cessation program to the participants - on one - to - one basis by face to face for 3 months. This programme consists of Education related to ill effects of Tobacco use, Oral visual examination, quitting method by STAR method, Deep breathing exercise, Coping strategies for the withdrawal and trigger symptoms due to tobacco cessation, and Follow up. This programme is designed based on 5A model of Tobacco cessation

programme framed by WHO. Participants will be issued a diary to record the type and frequency of tobacco use - in any and withdrawal and trigger symptoms. Reminders for tobacco cessation will be planned via mobile and in person. The post - test I will be conducted on 7 th day. Post - test II will be conducted on 15th day by using the same tool

**Analysis of data and result**

Descriptive statistics used in terms of frequency, percentage, mean, standard deviation etc. Inferential statistics used in terms of one - way RM ANOVA with Bonferroni ‘t’ test for post - hoc comparisons, SigmaPlot 14.5 version (Systat Software Inc., San Jose, USA) was used for statistical analysis and for graph plotting

**3. Results**

**Table 1:** Frequency and percentage distribution of sociodemographic variable among smoking tobacco users (n - 50)

S. No	variables	Category	Frequency (F) Percentage (%)		
1.	Age in years	Below 21 years	0 (0)		
		21 - 30 years	18 (36 %)		
		31 - 40 years	12 (24%)		
		41 - 50 years	11 (55%)		
		Above 50 years	09 (18 %)		
2.	Sex:	Male	50 (100%)		
3.	Education	Illiterate	11 (55%)		
		Literate without formal education	03 (6%)		
		Primary/secondary	12 (24%)		
		Higher secondary	11 (55%)		
		Graduate and above	13 (26%)		
4.	Marital status	Unmarried	10 (20%)		
		Married	39 (78%)		
		Widowed/ Divorced / Separated	01 (02%)		
		Professional and semi professional	07 (14%)		
5.	Occupation	Skilled, semiskilled and unskilled worker	22 (44%)		
		Unemployed	04 (08%)		
		Retried	02 (04%)		
		Students	03 (06%)		
		Others not specified	12 (24%)		
		6.	Income per month	<10, 000	12 (24%)
				10, 000 - 20, 000	30 (60%)
>20, 000	08 (16%)				
7.	Religion:	Hindu	39 (78%)		
		Muslim	03 (06%)		
		Christian	08 (16%)		

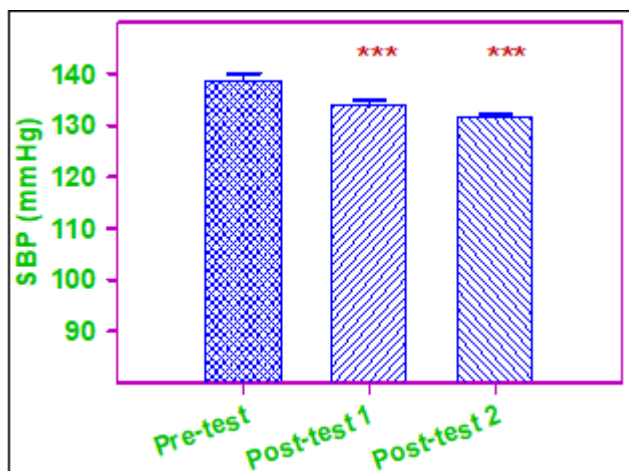
Table 1 shows that out of 50 smokers 36% were in the age group of 21 - 30 years, and 18% were in the age group of above 50 years. Regarding sex 100% were men. With respect to educational qualification of smokers 26% educated up to Graduate and above and 03% had educated up to Literate without formal education. Considering the marital status 78% were married and 02% were Widowed/ Divorced / Separated. Regarding occupational status of the smokers 44% were Skilled, semiskilled and unskilled worker and 04% were retried As far as monthly income of the family 60% were earning Rs 10 000 - 20 000 and 16% were earning above Rs 20 000. Out of 50 smokers 78% were Hindus and 06% were Muslim

**Table 2:** Effectiveness of Tobacco cessation Programme on body physiological parameters among smoking tobacco users (n=48)

Para meter	Treatment	Mean	SD	SEM	Comparison	Diff of Means	Bonferroni t - test):
Temperature	Pre - test	98.032	0.794	0.112	Post - test 1 vs. Pre - test	0.220	t=1.992 P > 0.148 (NS)
	Post - test 1	98.241	0.445	0.0636	Post - test 1 vs. Post - test 2	0.0602	t =0.535 P >1.000 (NS)
	Post - test 2	98.194	0.337	0.0486	Post - test 2 vs. Pre - test	0.160	t =1.436 P > 0.462 (NS)
Pulse	Pre - test	83.840	5.358	0.758	Pre - test vs. Post - test 2	5.675	t = 13.372 P <0.001

	Post - test 1	80.612	4.286	0.612	Pre - test vs. Post - test 1	3.184	t = 7.560 P <0.001
	Post - test 2	78.250	3.418	0.493	Post - test 1 vs. Post - test 2	2.491	t = 5.814 P <0.001
Respiration	Pre - test	22.920	1.724	0.244	Pre - test vs. Post - test 2	3.120	t = 14.196 P <0.001
	Post - test 1	20.449	0.843	0.120	Pre - test vs. Post - test 1	2.449	t = 11.229 P <0.001
	Post - test 2	19.792	0.849	0.123	Post - test 1 vs. Post - test 2	0.671	t = 3.025 P < 0.05
SpO2	Pre - test	96.020	0.685	0.0968	Post - test 2 vs. Pre - test	3.305	t = 27.622 P <0.001
	Post - test 1	98.714	0.764	0.109	Post - test 2 vs. Post - test 1	0.611	t = 5.060 P <0.001
	Post - test 2	99.313	0.589	0.0850	Post - test 1 vs. Pre - test	2.694	t = 22.687 P <0.001
Systolic Blood Pressure	Pre - test	138.560	10.691	1.512	Pre - test vs. Post - test 2	7.119	t = 9.384 P <0.001
	Post - test 1	133.796	7.530	1.076	Pre - test vs. Post - test 1	4.531	t = 6.018 P <0.001
	Post - test 2	131.333	6.771	0.977	Post - test 1 vs. Post - test 2	2.589	t = 3.379 P < 0.001
Diastolic Blood Pressure	Pre - test	89.280	8.318	1.176	Pre - test vs. Post - test 2	5.943	t = 10.317 P <0.001
	Post - test 1	85.551	6.141	0.877	Pre - test vs. Post - test 1	3.510	t = 6.142 P <0.001
	Post - test 2	83.292	5.813	0.839	Post - test 1 vs. Post - test 2	2.432	t = 4.182 P <0.001

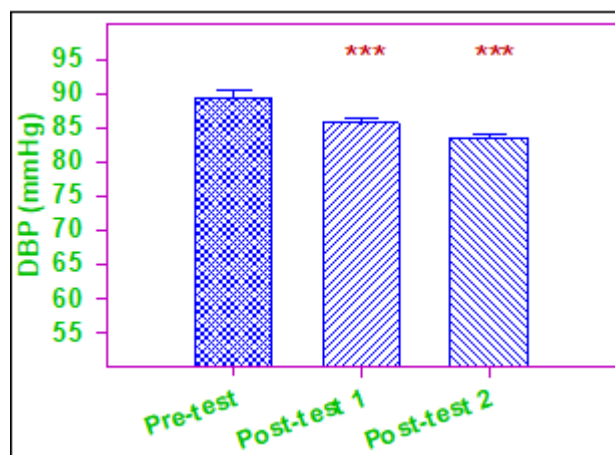
Table 2 reveals that, there was significant changes in pulse, Respiration rate, SpO2, Systolic and diastolic Blood pressure within clinical normal range showing the beneficial effect of tobacco cessation Programme at P<0.05 level



**Figure 1:** Effectiveness of Tobacco Cessation Programme on Systolic blood pressure body temperature among smoking tobacco users, in pre - test, post - test 1 and post - test 2.

The values are mean + SE (n = 50 each). The data was analysed by one - way RM ANOVA with Bonferroni 't' test for post - hoc comparisons.0

Statistically significant from the pre - test - \*\*\* P < 0.001.



**Figure 2:** Effectiveness of Tobacco Cessation Programme on Diastolic blood pressure body temperature among smoking tobacco users in pre - test, post - test 1 and post - test 2

The values are mean + SE (n = 50 each). The data was analysed by one - way RM ANOVA with Bonferroni 't' test for post - hoc comparisons.

Statistically significant from the pre - test - \*\*\* P < 0.001.

#### 4. Discussion

The community - based intervention was targeted at an urban population of Mappedu village at Tiruvallur district above 21 years of age who are widely affected by the smoking tobacco epidemic in India. In the present study the pulse rate of smoking tobacco users has found to be significantly reduced in posttest II (t = 5.814 at P <0.001) as compared to pretest (t = 13.372 at P <0.001) The Difference of Means in Systolic Blood Pressure were 7.119, 4.531 and

2.589 respectively in pre - test, post - test 1 and post - test 2, The differences were statistically significant ( $<0.001$ ). The mean, SD and SE of diastolic blood pressure is given in Table 2. The mean diastolic blood pressure in the pre - test, post - test 1 and post - test 2, were 89.280, 85.551 and 83.292 (mmHg), respectively. The differences were statistically significant ( $<0.001$ ). The diastolic blood pressure posttest II ( $t = 4.182$  at  $P < 0.001$  compared to pretest ( $t = 10.317$  at  $P < 0.001$ ) showing the beneficial effect of the intervention. Both systolic and diastolic blood pressure results were compared to the study conducted by Tsai SY et al<sup>(3)</sup>

The results of this study revealed that after the smoking cessation program, pulse rate, respiration rate, SpO<sub>2</sub>, and Systolic and diastolic blood pressure reduced significantly after the intervention

The effect of the intervention was compared with the Pretest and post - I, Post - Test I and Post - Test II and Pretest, Post - test II. This shows that the symptoms in the oral cavity decreased gradually. From the pre - test to the posttest 2, there was 5 score decrease in the symptoms, showing the beneficial effect of the intervention. which is similar to the study done by Mishra GA, et al.<sup>(4)</sup> and Mall A<sup>(5)</sup>

## 5. Conclusion

The findings of this study reveal that majority of the patients who attended the smoking cessation program benefited in the form of lowered pulse rate, Respiration rate, SpO<sub>2</sub> %, systolic and diastolic blood pressure. The effect was more significant among smoking Tobacco users.

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