African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

A STUDY TO ASSESS THE EFFECTIVENESS OF TEACHING LEARNING MODULES ON SMOKING AND ITS HAZARDS AMONG ADOLESCENT BOYS AGED BETWEEN 18- 21 YEARS STUDYING AT SELECTED POLYTECHNIC COLLEGE IN BENGALURU.

Ezhilarasi. R Msc (N)[1], Dr. Helen shaji[2], Prof. Mariyam Jaisy Msc (N)[3]

[1]PhD Research Scholar, Sri Balaji Vidyapeeth (Deemed – to be-University), Pondicherry, ORCHID iD: 0009-0005-2078-672X.
Associate Professor in Sapthagiri college of Nursing, Bangalore.
[2]J.C Shri Sathya Sai College of Nursing, Sri Balaji Vidyapeeth Deemed to University, Pondicherry.
[3]Principal, Department of Pediatric Nursing, Sapthagiri college of Nursing, Bangalore.

Article Info

_____

ABSTRACT:

Background:
Rapid changes occur in the areas of the body, mind, and social interaction during adolescence. It is the period during which one becomes somebody prepared to play an adult role in every aspect of life, involving developing their attitude and habits[2]. More than 50% worldwide population is thebelow age of 20 years. According to the World Bank as reported that nearly 82 thousand to 99 thousand children and adolescents all over the world begin smoking daily. If present tobacco smoking trends continue, almost 252 million adolescents will die from tobacco use[1]. Every two seconds, one adult Indian die from a tobacco-related disease, and one adult Indian tries tobacco for the first time.[2] The study investigate the effectiveness of teaching learning modules on smoking and its hazards among adolescent boys studying at Polytechnique college in Bengaluru. So, education will improve the attitude and increase awareness in relation to health status and help to prevent smoking[3]. Research methodology: the research design adopted for this study was a quasi-experimental design and the research approach was an educative approach, the sample consisted of 100 adolescent boys aged between 18 - and 21 years studying at a polytechnic college result: the result of this study shows that pretest percentage knowledge score was 10.88(43.5%) and the posttest knowledge score20.34(83.4%), consequently, there was a greater comparison between the percentage of smoking and its risks at the pretest and post-test. Compared to the pre-test, the mean post-test knowledge score was substantially higher overall. At the P = 0.001 level, the paired student t-test result of 32.47 was significant. The chi-square test shows that there is a significant association between post-test knowledge scores between residence, type of family, and occupational status of the mother.

Evidencing a potent tool in curbing adolescent smoking, the study underscores the imperative of comprehensive educational initiatives targeting youth populations. By equipping adolescents with pertinent knowledge, such interventions hold promise in fostering a tobacco-free generation.

Conclusion: The study has significant implications for teaching learning modules on smoking and its hazards among Polytechnique students in Bengaluru effectively increasing student's knowledge, its underscores the importance of educational interventions in combatting smoking – related health risks. Finding suggest the need for further research to replicate the program's success with more rigorous study design, and long-term effectiveness evaluations are recommended to establish the sustained impact of such intervention over time

Keywords: Effect, Adolescent boys, Knowledge of smoking and its hazards, teaching-learning modules

1. AIM OF THE STUDY:

The "aim of the study is to identify and improve the knowledge of adolescent boys regarding smoking and its hazards.

Objectives:
1.   To identify the level of knowledge on smoking and its hazards among adolescent boys
2.   To find out the effectiveness of teaching a learning module on smoking on the knowledge of adolescent boys.
3.   To associate the level of knowledge on smoking and its hazards with Selected socio-demographic" variables.

Hypothesis:
There will be a significant increase in the level of knowledge of adolescent boys after the Teaching Learning Module on smoking and its hazards,

2. METHODS

An experimental strategy was used as the research methodology for this investigation. The study employed a quasi-experimental research design with a single group pretest and posttest to evaluate the adolescents' understanding of smoking and its associated risks[4].
A teaching and learning module were created with a structured knowledge questionnaire on smoking and its hazards among teenage boys studying at Polytechnic College, ages 18 to 21, in considering the nature of the problem and the study's aims.
The investigation was carried out in Polytechnic College in Chikkabanavara, Bangalore. 100 adolescent boys were chosen by the simple random sampling approach was employed for the selection of sampling. A systematic questionnaire with two sections was employed to gather the data

Section 1: Socio-demographic variables of Adolescent boys
Section 2: Questionnaire regarding knowledge of adolescent boys aged between 18-21 years regarding smoking and its hazards.
The pre-test structured self-administered questionnaire was employed to obtain knowledge regarding smoking and its hazards. The teaching-learning module[11] in the form of a teaching program of 45 minutes was administered soon after the pretest of 20 minutes to all the adolescent boys of the study group by using flashcards, posters, and a booklet. Seven days have passed after the teaching-learning module was administered when the post-test was completed.

The major findings of the study:
According to the study's findings, 10.88 (or 43.5%) people answered correctly on the pretest about smoking's risks and hazards. The percentage of posttest knowledge on smoking and its hazards including knowledge score in the experimental group was 20.84(83.4%). Hence the comparison in the test percentage of smoking and its hazards in the knowledge score of the approximately 40% difference during assessment. Adolescent boys' mean post-test knowledge score was considerably greater than their pre-test knowledge score overall. At the p=0.001 level, the paired students' t-test result of 32.47 is significant. Hence the hypothesis stated is accepted. The results of the chi-square test indicate that there was a significant correlation between the post-test knowledge score and the kind of household, the residents, the mother of

the teenage boys' occupation, and the boys' smoking habits.

Section 1:
Distribution of Adolescent boys according to Socio-demographic variables

Table:1 DISTRIBUTION OF ADOLESCENT BOYS ACCORDING TO SOCIO-DEMOGRAPHIC DATA.
n = 100

Demographic Variables		N	Percentage
Age	18-21yrs	63	63.00%
Residence	Rural	46	46.00%
	Urban	54	54.00%
Religion	Hindu	87	87.00%
	ChristianMuslim	02	2.00%
		11	11.00%
Type of Family	Nuclear family	78	78.0%
	Joint Family	22	22.0%
Education of the Father	Primary school	6	6.0%
	Secondary school	21	21.0%
	Higher Secondary	26	26.0%
	Graduation	21	21.0%
	Postgraduate	7	7.0%
	Never attended school	3	3.0%
	School drop out	16	26.0%
Occupation of Father	Govt sector	7	7.0%
	Private sector Self-employed	78	78.0%
		15	15.0%
Occupation of the Mother	Govt sector Private sector	24	24.0%
	Self-employed	12	12%
	Housewife	27	27%
		37	37%
The monthly income of the family	Rs.1001 to 3000	38	38.0%
	Rs. 3001 to 5000	32	32.0%
	Rs. More than 5000	30	30.0%

Socio-Demographic Variables
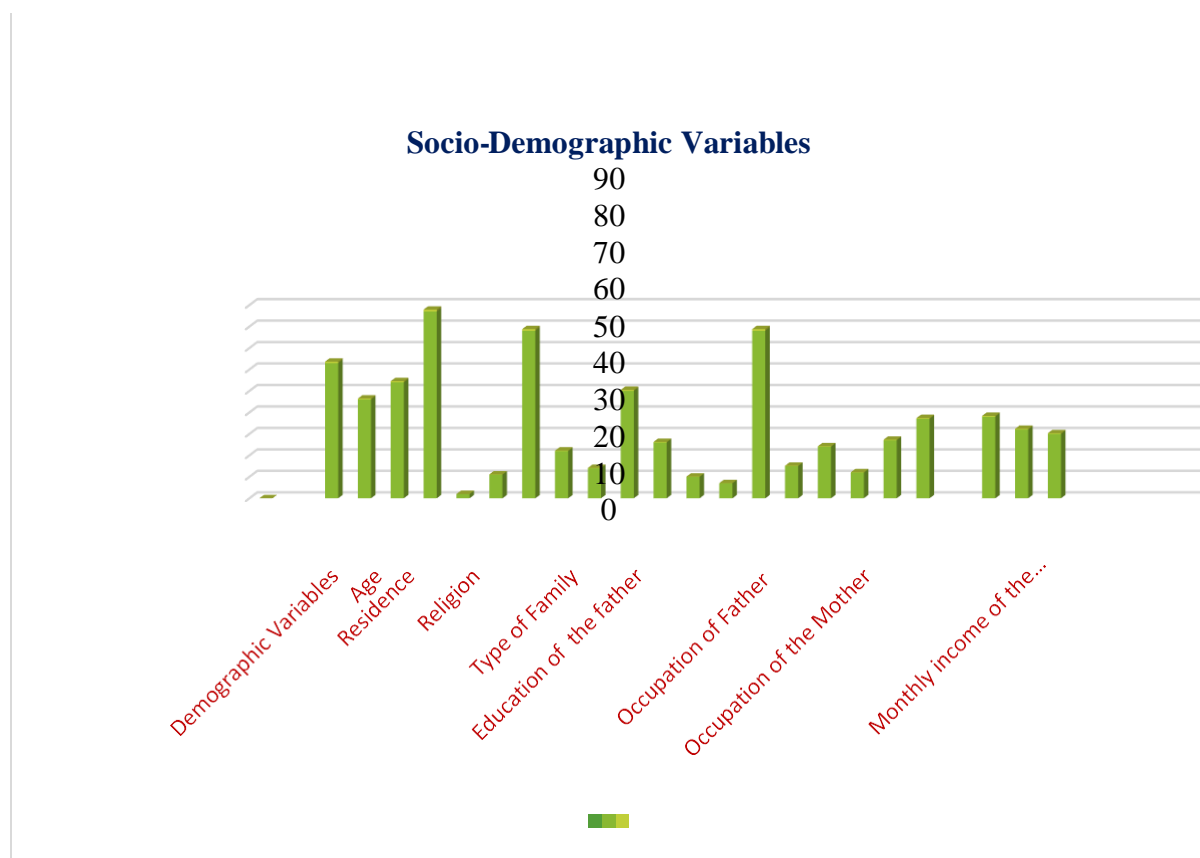
Distribution Socio-Demographic Variables
Section – II

Table 2: Item-wise assessment of pre-test levels of knowledge on smoking and its Hazards among adolescentboys.

RESPONSE GIVEN BY ADOLESCENT BOYS DURING THE PRE – TEST.

Knowledge on Smoking and its hazards		Correct answer		Wrong Answer	
		No. of students	%	No, of students	%
i) 1.	General information Initiation of smoking is morecommon in the age group of:	47	47.0%	53	53.0%
2.	The commonest toxin present in cigarettes is	55	55.0%	45	45.0%
3.	The concentration of nicotine present in the cigarette is:	47	47.0%	53	53.0%
4.	The toxins present in cigarettes cause:	32	32.0%	68	68.0%
5.	The gas inhaled through smoking is	49	49.0%	51	51.0%
6.	The nicotine is absorbed into the human body through the,	60	60.0%	40	40.0%

ii) 7.	Dangerous effect Severe effect of smoking on the respiratory tract is caused by:	23	23.0%	77	77.0%
8.	The hazardous effects of smoking on the respiratory system are:	45	45,0	55	55.0%
9.	The lasting effect in a chronic smoker may commonly	66	66.0%	34	34.0%
10.	A chronic smoker may have a drastic effect on the cardiovascular system(heart), such as:	24	24.0%	76	76.0%
11.	The effect of smoking on the blood vessel of the brain is:	39	39.0%	61	61.0%
12.	The obstruction of blood supply to optic nerve result in:	33	33.0%	67	67.0%
13.	The Early change is seen on the teeth ofan individual lips of a continuous smoker is:	43	43.0%	57	57.0%
14.	Effect of smoking on the teeth of an individual is:	42	42.0%	58	58.0%
15.	The effect of smoking on the gastric mucosa is:	56	56.0%	44	44.0%
16.	Smoking affects the renal system by an:	43	43.0%	47	47.0%
17.	Smoking causes cancer of the bladder as a result of:	41	41.0%	59	59.0%
18.	Effect of smoking on the male reproductive system is:	48	48.0%	52	52.0%
19.	Effect of smoking on the skeletal system is:	39	39.0%	61	61.0%
20.	The main effect of smoking in the the integumentary system is:	40	40.0%	60	60.0%
21.	Smoking by a pregnant woman result in:	39	39.0%	61	61.0%
22	smoking in a public place by an individual affect:	43	43.0%	57	57.0%
23.	The withdrawal symptoms of smoking in an individual are:	39	39.0%	61	61.0%
24.	Smoking in an adolescent can be prevented by:	38	38.0%	62	62.0%

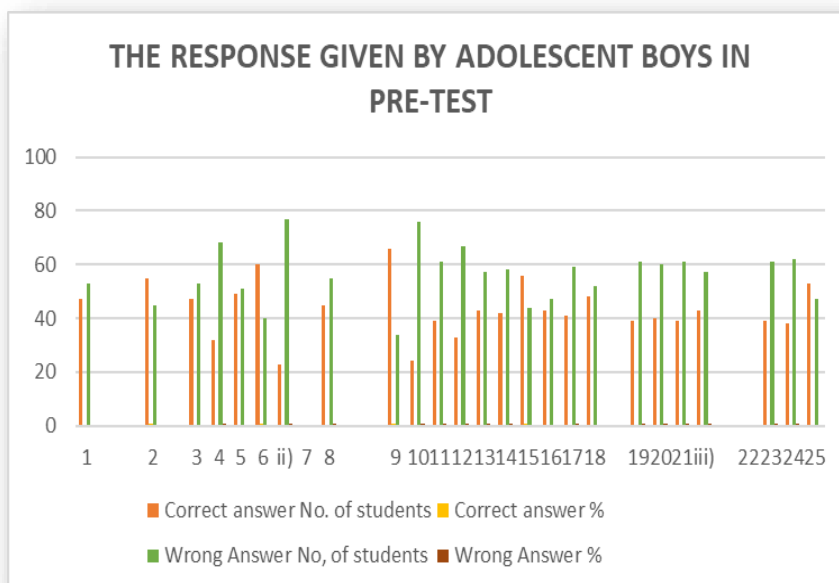| 25.	The best message for a" smoker "would be to:	53	53.0%	47	47.0%

THE RESPONSE GIVEN BY ADOLESCENT BOYS IN PRE-TEST

Table:3 PRE-TEST OVER ALL KNOWLEDGE SCORE:

knowledge on smoking and its hazards	No. of. Questions	Min-Max score	Mean ±SD	%of Knowledge
Overall knowledge	25	0 – 25	10.88+	43.5%67
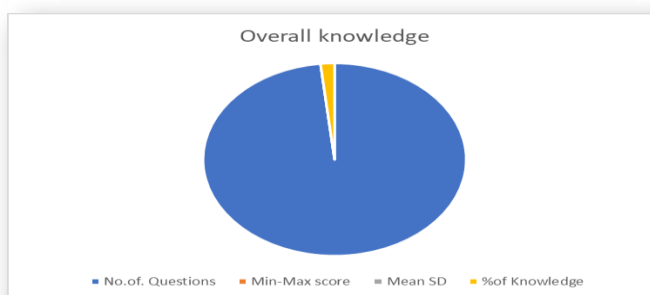
Overall knowledge

Posttest Over all knowledge score

Knowledge on smoking and its hazards	No. of questions	Min-Max score	Mean ±SD	% of correct response
Over all knowledge	25	0 – 25	20.84 + 1.47	83.4%

Table:4 Comparison of Pretest and Posttest mean knowledge score on different aspectsof smoking and its hazards among the adolescent boys n=100

Knowledge on smoking and its hazards	Correct response		Student paired t- test
	Pre-test Mean ± SD	Post-test Mean±SD	
General Information	2.76±1.19	5.36±0.72	t=19.5 p=0.001 significant
Dangerous effects of smoking on boys	6.36±1.89	12. 44±1.25	t=19.5 p=0.001 significant
Passive smoking and prevention of smoking	1.76±1.07	3.04±0.88	t = 9.29 p = 0.001 significant
Overall	10.88±1.21	20.84±	t =32.47p=0.001 significant

Dangerous effects of smoking on boys 6.36±1.89 12. 44±1.25
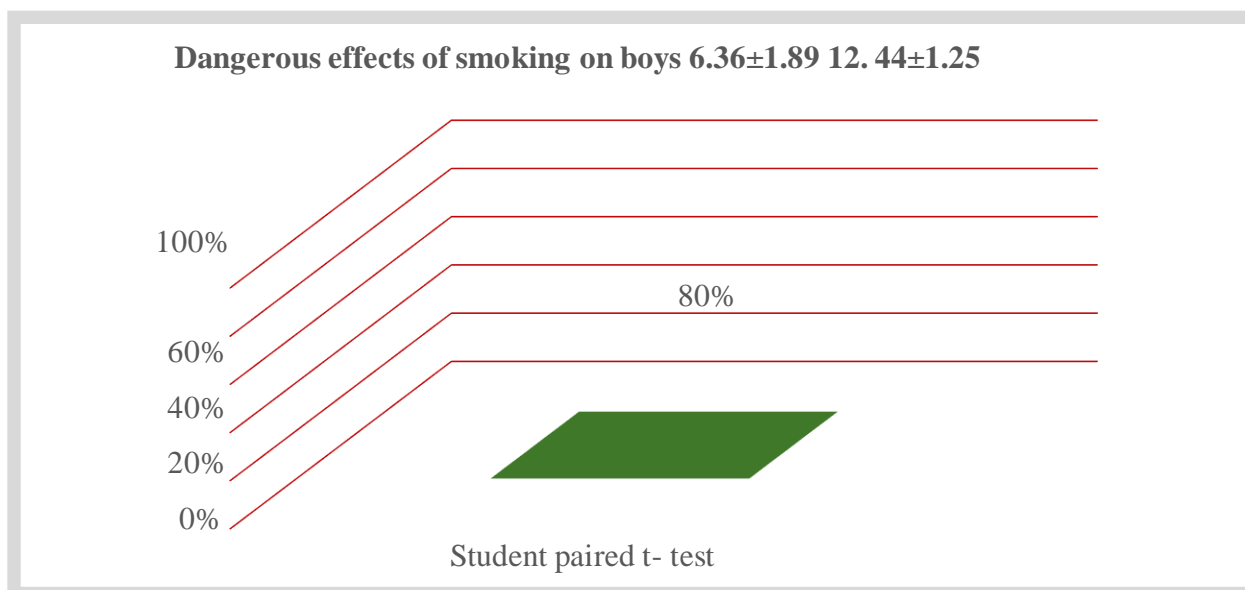
Table: 5 COMPARISON OF PRETEST AND POSTTEST LEVEL KNOWLEDGE SCORE n=100

Knowledge on smoking and its hazards	Inadequate	Moderate	Adequate	Chi-squareTest
Pre-test	79 (79%)	21 (21%)	0 (0%)	χ^2=181.1 P = 0.001 Significant
Post-test	0 (0%)	10 (10%)	90 (90%)	

Table 5 compares pretest and posttest knowledge levels among adolescent boys. Pretest: 0% had adequate knowledge, increasing to 90% posttest. The X2 test revealed a significantly

higher difference in knowledge scores between pretest and posttest.

Table: 6 Association between participant smoking status and knowledge gain score in different aspects of smoking due to teaching learning module

n=100

Different aspects of smoking andits hazards	Participants smoker				Student independentt =test
	Yes		No		
	Mean	SD	Mean	SD	
General information	2.89	1.10	2.53	1.38	t=1.14 P=0.29NS
Dangerous effects of smoking on the body	6.11	1.45	6.07	2.40	t =0.01p=0.05 NS
Passive smoking and prevention and prevention of smoking	2.05	0.97	1.10	1.40	t=7.88 p=0.006 S
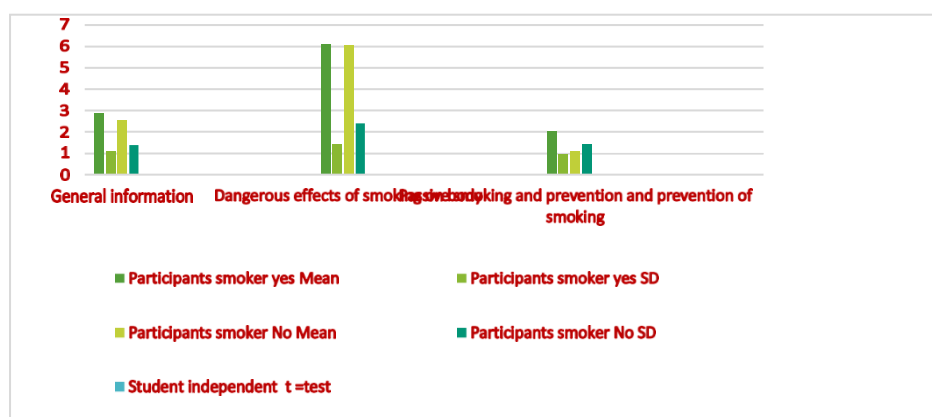
ASSOCIATION BETWEEN THE OVERALL POST-TEST KNOWLEDGE SCORE AND SOCIO-DEMOGRAPHIC VARIABLES

Table: 7 Association between Age group, Residence, Religion, type of family, Education of father, and their knowledge gain score.

Age	No. of students	Pretest		Post test		Gain score		Student independent t-test
		Mean	SD	Mean	SD	Mean	SD	
16-17yrs	63	10.94	2.83	20.93	1.12	9.96	3.16	t=0.09 P=0.93 Not significant
17-18yrs	37	10.70	2.35	20.73	1.38	10.02	2.95	
Total	**100**	**10.85**	**2.65**	**20.84**	**1.46**	**9.99**	**3.07**	
Urban	55	11.50	2.797	20.77	1.39	10.77	2.76	t=2.50 p = 0.01 Significant
Rural	45	10.15	2.325	20.92	1.55	9.99	3.07	
Total	**100**	**10.85**	**2.65**	**20.84**	**1.46**	**9.99**	**3.07**	
Hindu	87	11.06	2.691	20.80	1.445	9.7471	3.08868	**One-way ANOVA Test**
Christian	02	9.50	2.12	21.50	2.12	12.000	0.0000	

	No. of students	Pretest Mean	Pretest SD	Post-test Mean	Post-test SD	Gain score Mean	Gain score SD	F-test
			1		1	0		**F-test**
Muslim	11	9.45	2.067	21.00	1.673	11.545	2.76997	F= 2.15 P = 0.12 Not Significant
Total	**100**	**10.85**	**2.65**	**20.84**	**1.46**	**9.99**	**3.07**	
Nuclear Family	**78**	**11.19**	**2.62**	**20.72**	**1.39**	**9.52**	**3.00**	t = 2.95 P = 0.004 Significant
Joint family	**22**	**9.64**	**2.44**	**21.27**	**1.66**	**11.63**	**2.82**	
Total	**100**	**10.85**	**2.65**	**20.84**	**1.46**	**9.99**	**3.07**	
Primary school	6	11.50	3.082	21.33	1.75	9.83	3.48	**One-way ANOVA Test F-test**
Secondary school	21	10.33	2.176	21.52	1.03	11.19	2.82	
Higher secondary	26	11.04	2.749	20.81	1.60	9.76	3.46	
Graduation	21	11.38	2.674	20.43	1.39	9.04	2.53	F = 1.03 P = 0.41 Not Significant
Post-graduate	7	11.86	2.673	21.00	1.29	9.14	3.53	
Never attended school	3	10.67	3.055	21.33	1.15	10.66	2.30	
School dropout	16	9.88	2.895	20.19	1.60	10.31	3.09	
Total	**100**	**10.85**	**2.657**	**20.84**	**1.46**	**9.99**	**3.07**	

Table: 7 shows the association between age, residence, type of family, education of the father, and their knowledge gain score on smoking and its hazards after teaching the learning module. A significant association was seen in residence (p = 0.01) and Type of family (0.004) other variables are not significant.

Table: 8 Association between father's, Mother's occupational status, Monthly income of the family, and adolescent boy's knowledge gain score:

Fathers occupational status	No. of students	Pretest Mean	Pretest SD	Post-test Mean	Post-test SD	Gain score Mean	Gain score SD	One-way ANOVA Test F-test
Govt sector	28	11.21	2.61	21.14	1.50	9.92	2.87	F = 2.15 P = 0.12 Not significant
Private sector	25	11.00	2.69	20.36	1.37	9.36	3.41	
Self-employed	47	10.55	2.68	20.91	1.48	10.36	3.01	
Total	**100**	**10.85**	**2.65**	**20.84**	**1.46**	**9.99**	**3.07**	
Mothers' occupational status Govt sector	13	9.31	2.56	21.31	1.70	12.00	2.67	F = 2.85 P = 0.04 Significant
Private sector	6	10.00	1.26	21.00	1.09	11.00	1.67	

Self-employed	5	10.00	1.87	20.66	1.14	10.60	1.81	
Housewife	76	11.24	2.70	20.76	1.47	9.52	3.15	
Total	**100**	**10.85**	**2.65**	**20.84**	**1.46**	**9.99**	**3.07**	
Monthly Income Rs.1001-3000	24	10.88	2.95	20.50	1.53	9.62	3.62	F = 0.22 P = 0.80 Not Significant
Rs.3001 -5000	28	10.89	2.84	20.96	1.40	10.07	3.23	
>Rs.5000	48	10.81	2.43	20.94	1.47	10.12	2.72	
Total	**100**	**10.85**	**2.65**	**20.84**	**1.46**	**9.99**	**3.07**	

Table: 8 shows the association between the father's and mother's occupational status, the Monthly income of the family, and their knowledge gain score on smoking and its hazards after teaching the learning module.

A significant association was seen in the Mothers occupational status ($p = 0.04$).

3. DISCUSSION

The results highlight the critical role of educational interventions in increasing awareness and knowledge about smoking hazards among adolescents. The significant improvement in knowledge underscores the potential of structured educational programs to alter perceptions and potentially reduce smoking initiation rates. The association between knowledge gain and socio-demographic factors suggests that tailored interventions considering these variables might enhance effectiveness.

Limitations:
The study's limitations include its focus on a specific age group (18-21) and male adolescents, excluding females, which restricts the generalizability of the findings. Additionally, the study was confined to a single polytechnic college, limiting the broader applicability of the results.

Delimitation:
1. The study focuses specifically on adolescent boys aged between 18 – 21 years
2. 2. The study is limited to adolescent boys only, excluding girls from the research population
3. The study is conducted in selected RR Polytechnic colleges in Bengaluru, limiting the research to students enrolled in RR Polytechnic College.

Recommendation:
1. For the study, a sizable sample from foster homes, de-addiction facilities, and illiterate street adolescents can be included.
2. It is possible to compare adolescents from rural and urban areas in a study.
3. It is possible to carry out a study to evaluate parents' attitudes and level of awareness about smoking's risks.
4. A similar study evaluating the knowledge of adolescents in several subjects, such as science, the arts, economics, commerce, agriculture, etc., might be carried out.

4. CONCLUSION:

The study demonstrates that teaching-learning modules are highly effective in enhancing knowledge about smoking hazards among adolescent boys. These findings advocate for the integration of educational programs into community health strategies to curb smoking

initiation and promote a tobacco-free generation. Public health efforts must continue to focus on awareness and education to combat the pervasive issue of adolescent smoking.

Acknowledgements and Ethical Considerations:
The study acknowledges the contributions of the university, faculty and students involved. It declares no conflict of interest and has received ethical approval from the Sapthagiri Institute of Medical Sciences and Research Centre review board.

Overall, the study provides valuable evidence supporting the implementation of targeted educational initiatives to reduce smoking rates among adolescents, highlighting the need for sustained and comprehensive public health strategies.

5. BIBILIOGRAPHY:

1. www.worldbankreport.com
2. Jaison L Schwartz. (2019). The Secret History of Smoking. Baltimore: Johns Hopkins University Press.
3. Kevin C. Davis. (2018). Changing the Face of Tobacco: A visual Journey through the Changing Landscape of Tobacco. New York: Springer.
4. 4.Jonathan P. Winickoff & Susanne E. Tanski (2018. Tackling Youth Smoking with Education: Strategies and interventions. NewYork: Springer.
5. Melanie Wakefield, John B. Unger, &Catherine segan. (2017). Tobacco Control Interventions for Adolescents: Evidence – Based Approaches. New York: Oxford University Press.
6. Cheryl G. Healton & Kenneth E. Warner. (2016). Tobacco Control Policies: Strategies to Prevent Youth Smoking. Washington, D.C.:American Public Public Health Association.
7. WWW. Sciencefriday.com
8. 8.www.smokingzone.com
9. The times of India" Thrusday 12th Dec 2006.
10. New Indian Express, Tuesday 12th dec2006.
11. Christian PJ.Nursing progress of conceptual models.3rd. Phiadelphia:C.VMosby Company:1987.
12. Nicher M.Van sickle D etal "Popular perception of tobacco products and patterns of use of tobacco among college students in India " social Science Medicine 2004 jul:59(2):415 – 31.
13. [PubMed] [Google Scholar]
14. Reddy KS, Perry CL, Stigler MH. Arora M, Differences in tobacco use among young people in rural India by sex, socio – economic status, age and school grade assessment of baseline survey date. Lancet.2006 Feb. 18,367(9510)
15. Kotwal A Thakur R Seth T, Correlates of tobacco – use pattern amongst adolescents in two schools of new Delhi, India, Indian J Med Sci 2005 jun:59(6);243-52.
16. Kapoor SK, Anand K, Kumar G. Prevalence of tobacco use among school and college going adolescents of Haryana. Indian J Pediate.1995 jul-Aug; 62(4);461-6.
17. Polit DF, Hungler BP. Nursing research',6th ed. Philadelphia: Elsevier Publication;2005.
18. Singh V Gupta R, Prevalence of tobacco use and awareness of risk among school children In Jaipur. J Assoc Physicians India 2006 Aug;54;605 – 7.