A CORRELATIVE STUDY ON ORAL HEALTH STATUS AND KNOWLEDGE ON ORAL HEALTH HAZARDS AMONG ADULTS CONSUMING TOBACCO OF SELECTED COMMUNITIES OF DATIA, M.P.

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ABSTRACT

Tobacco use is generally perceived as an adult problem. The diseases widely caused by tobacco are mostly seen to afflict the older population, yet tobacco use most often starts in youth, vast majority start consuming tobacco before the age of 25 years. Tobacco use has injurious effects on oral health. The oral health is an important aspect of community health. To plan important interventions it is necessary to find out the prevalence and factors associated with them. This study is aimed at assessing the knowledge of adults on hazards of tobacco consumption on oral health and to assess their oral health status.

Objectives of the study were to assess the oral health status of adults consuming tobacco using observational checklist., to determine the knowledge on hazards of tobacco consumption on oral health and to find an association between oral health status and knowledge on hazards of tobacco consumption on oral health.

A descriptive correlative approach was used for this study. The study was carried out in Datia. Research design was correlative design. The sample comprised of 100 adults consuming tobacco (50 tobacco smokers and 50 tobacco chewers). Sample was selected using purposive sampling technique. Formal written permission was obtained to conduct the study and informed consent was obtained from the adults prior to data collection process. Using a structured interview schedule and observation checklist data was collected. Data were analysed using descriptive and inferential statistics (unpaired t-test and chi-square test).

The results of this study showed that there was no significant difference between the knowledge score of tobacco smokers and tobacco chewers ($t_{98}= 0.7$, p >0.05). There was no significant difference between oral health status of the tobacco smokers and tobacco chewers ($t_{98} = 1.85$, p >0.05). There was no correlation

between knowledge on hazards of tobacco consumption on oral health and oral health status of the smokers ($r = 0.0015$, $p > 0.05$). There was no correlation between knowledge on hazards of tobacco consumption on oral health and oral health status of the chewers ($r = 0.271$, $p > 0.05$). The computed chi square value showed significant association between occupation of tobacco smokers and oral health status ($\chi^2_1 = 9.09$, $p < 0.05$). The statistical significance was at 0.05 level

The study revealed that even though the adults had good knowledge on hazards of tobacco consumption on oral health they had poor oral health status. The findings of the study support the need for conducting educational programme to increase the knowledge of adults on tobacco consumption and its related problems. Educating the youth and adults and providing them with correct information can help them to avoid bad habits and develop as healthy citizens.

Keyword: Knowledge on hazards of tobacco consumption on oral health; oral health status.

I. INTRODUCTION

Globally, cigarette smoking is the dominant form of tobacco use. In Indian context, the tobacco use implies the use of tobacco in any form of chewing or smoking. Smoking and chewing habits however differ a great deal in different parts of India. Different types of smoking habits such as beedi and cigarette & chewing habits such as khaini, mawa and betel quid differ even more in different parts of the country. In general, men smoke as well as chew tobacco whereas women generally chew tobacco with exception of few areas where prevalence of smoking among women is high. In coastal areas of Andhra Pradesh and Orissa, women smoke cheroot (called chutta) in a reverse manner (i.e. with glowing end inside the mouth) and in some northern parts of India, women often smoke hukkah or hubble- bubble. Among men, cigarette smoking is largely confined to urban areas whereas in rural areas men mostly smoke beedi.

Tobacco use is socially accepted in many segments of Indian society. Tobacco use in India is increasing but there are considerable changes in the type and methods by which it is used. According to WHO estimates 194 million men & 45 million women use tobacco in smoked or smokeless form in India. Only 20% of the tobacco consumed in India is consumed as cigarette, 40% consumed as beedi and the rest in smokeless form. Extraordinary high use of tobacco products has devastating impact on the health of people. The WHO estimate that about 8 lakh persons die from tobacco related diseases. In India approximately 50% of cancers among males and 20% of cancers among females are caused by tobacco consumption. Although people are becoming aware of the ill effects of smoking in terms of morbidity and mortality still they get enslaved.

I. RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem. It deals with defining the problem, formulation of hypothesis, methods adopted for data collection and statistical techniques used for analysing the data with logical reason behind it. The study was conducted with the purpose of assessing

the knowledge of tobacco consuming adults on oral health hazards and assessing their oral health status in selected communities.

3.1 Population and Sample

The target population was adults consuming tobacco either in the form of tobacco chewing or tobacco smoking only. In the study sample comprises of 100 adults (50 tobacco smokers and tobacco 50 chewers) who fulfilled the sampling criteria.

3.2 Data and the Source of Data

A formal written permission was obtained from Health officer of Datia. Data were collected. The investigator familiarised himself with the subject and explained the purpose of the study, method of data collection, the use of mouth mirror and probe for oral health assessment and the time duration. He requested the participants for their full co-operation and assured about the confidentiality of their response. An informed consent was taken from the subject willing to participate in the study. Subject were selected by purposive sampling. Subject were identified by house – to – house survey.

The subject were first interviewed and their demographic and baseline information was collected. There after their knowledge on hazards of tobacco consumption on oral health was obtained using the structured interview schedule. Subject were given clear instruction regarding the structured interview schedule. They took 10-15 minutes to answer the structured interview schedule

The subject were made to sit on a chair comfortably with neck tilted back. They were observed under the natural light. Sets of mouth mirrors and probes were used along with the oral health assessment observation checklist to assess the oral health status. The investigator took approximately 5-10 minutes per subject. After each use instruments were sterilised using a sterilizer. According to the availability of the subject the investigator collected the data. The data collected was then compiled for data analysis.

3.3 Theoretical Framework

In the present study dependent variables refers to oral health status of tobacco consuming adults and independent variable was the knowledge on hazards of tobacco consumption on oral health among tobacco consuming adults. Extraneous Variable of this study referred to age, sex, religion, educational status, occupation, income, type of family, marital status, dietary habits, forms of tobacco frequency of consumption, motivational factor, and reason for consuming tobacco.

3.4.1 Descriptive and inferential statistics

Description and inferential statistics was used for the data analysis.

IV RESULT AND DISCUSSION

Section I: Description of demographic and baseline characteristics

Table 1: Distribution of subject according to their demographic characteristics

N = 1OO

Variables	Frequency (f)	Percentage (%)
Age (in years)		
21-30	14	14
31-40	26	26
41-50	27	27
About 50	33	33
Sex		
Male	75	75
Female	25	25
Religion		86
Hindu	86	86
Muslim	10	10
Sikh	4	4
Any other	-	-
Education status		
Illiterate	29	29
Primary	48	48
Secondary	28	28
Graduation	0	0
Professional	2	2
Occupation		
Unskilled	42	42
Skilled	27	27
Unemployed	30	30
Professional	1	1
Student	-	-
Income of the family (in rupees)		
Below 2000	9	9
2001-3000	5	5
3001-4000	35	35
Above 40001	41	41

Type of family		
Nuclear	87	87
Joint	13	13
Marital Status		
Single	7	7
Married	76	76
Separated / Divorced/ / Widowed	17	17
Dietary habits		
Vegetarian	7	7
Mixed Diet	93	93

Data presented in Table 1 show the following:

Most of the subject (33%) belonged to above 50 years of age group.. Only 14% belonged to 21 – 30 years of age group.

Majority of the subject (75 %) were males and only 25% were females.

Majority of the subject (86%) belonged to Hindu religion. The remaining subject were Muslims (10%). Only 4% were Sikhs.

Most of the subject (48%) had primary education. The remaining 29% were illiterate and only 2% were professionals. None of the adults were graduates.

Forty two percent were unskilled, 27 % were skilled, 30% were unemployed and only 1% were professional.

Most of the subject (41%) belonged to the income range of above rupees 4001. Only 5% belonged to rupees 2001 – 3000 income group.

Majority of the subject (87%) belonged to nuclear family and 13% belonged to joint family.

Majority of the subject (76%) were married; 17 % were widowed and 7% were single.

Majority of the subject (93%) consumed mixed diet and only 7% were vegetarian.

Table 2:- Distribution of subject according to their baseline characteristics

N=100

Variables	Frequency (f)	Percentage (%)
Forms of tobacco used		
Cigarette	7	7
Non filter cigarette (Beedi)	43	43
Betal leaf with tobacco	26	26
Other specify (Gutkha, Jarda, Kuber)	24	24
Age of initiation of Tobacco consumption (in years)		
Below 20	25	25
21-30	55	55
31-40	20	20
41-50	-	-
More than 50	-	-
Frequency of Tobacco use per week		
Daily	64	64
Occasionally	31	31
Once in 2 days	0	0
Most of the days	5	5
Frequency of tobacco use per day		
1-5 times a day	9	9
6-10 times a day	15	15
More than 10 times	23	23
Continuously	53	53
Motivational factors		
Self Interest	61	61
Influence of others (friends)	27	27
Influence of parents / elders	2	2
Advertisements	10	10

Reasons for tobacco consumption

To relieve mental tension	9	9
To reduce tiredness	4	4
To gain pleasure	6	7
To spend time	81	81

Section II: Knowledge of subject on hazards of tobacco consumption on oral health

Section II deals with analysis of knowledge score and comparison of knowledge score area wise.

Table 3: Distribution of subject according to their knowledge score.

N= 100

KNOWLEDGE SCORE	INFERENCE	TOBACCO SMOKERS (%)	TOBACCO CHEWERS (%)	TOTAL (%)
16 – 20	Very good	13	15	28
11 – 15	Good	25	28	53
6 – 10	Average	12	7	19
<5	Poor	0	0	0

Maximum score = 20

The data presented in the Table 3 show that most of the subject (53%) had good knowledge, scored within the range of 11 – 15. A very few subject (19%) had average knowledge, scored in the range of 6 – 10. Nearly 28% of the subject had very good knowledge, scored in the range of 16 – 20. None of the subject had poor knowledge (score below 5).

Table 4: Area wise mean, percentage, and standard deviation of knowledge score of tobacco smokers

N=50

AREAS	MAX. SCORE	MEAN	SD	%MEAN SCORE	REMARKS
Content of smoked tobacco	1	0.76	5.32	76	Good
Effects of tobacco consumption on oral health	17	10.62	2.95	62.4	Good
Oral hygienic practices	2	1.56	0.24	78	Good

Maximum score = 20

The data in Table 4 show that subject had good knowledge in the area of contents of smoked tobacco (76%), effects of tobacco on oral health due to tobacco consumption (62.4%) and oral hygienic practices (78%).

Table 5: Area wise mean, percentage, and standard deviation of knowledge score of tobacco chewers

N=50

AREAS	MAX. SCORE	MEAN	SD	%MEAN SCORE	REMARKS
Content of smokeless tobacco	1	0.96	1.09	96	Very Good
Effects of tobacco consumption on oral health	16	9.9	2.31	61.3	Good
Oral hygienic practices	3	2.48	0.47	82.6	Very Good

Maximum score = 20

The data presented in Table 5 show that subject gained very good knowledge in the area of contents of smokeless tobacco (96%) and oral hygienic practices (82.6%). The subject had good knowledge in the area of effects of tobacco on oral health due to tobacco consumption (61.3%).

Table 6: Area wise comparison of knowledge score of tobacco smokers using Friedmann's test.

N=50

AREAS	MEAN	SD	%MEAN SCORE	χ^2 value
Content of smoked tobacco	0.76	5.32	76	
Effects of tobacco consumption on oral health	10.62	2.95	62.4	85.24*
Oral hygienic practices	1.56	0.24	78	

$\chi^2_{(2)} = 5.99$, p<0.05   * = Significant

The data presented in Table 6 show that there is significant difference in the knowledge score of tobacco smokers in different areas since the calculated χ^2 value is greater than the table value ($\chi^2_{(2)} = 85.24$, p<0.05).

Table 7: Area wise comparison of knowledge score of tobacco chewers using Friedmann's test.

N=50

AREAS	MEAN	SD	%MEAN SCORE	χ^2 value
Content of smoke tobacco	0.96	1.09	96	
Effects of tobacco consumption on oral health	9.9	2.31	61.3	42.10*
Oral hygienic practices	2.48	0.47	82.6	

$\chi^2{}_{(2)}$ = 5.99, p<0.05   * = Significant

The data presented in Table 7 show that there is significant difference in the knowledge score of tobacco chewers in different areas since the calculated χ^2 value is greater than the table value $(\chi^2{}_{(2)}$ = 42.10 p<0.05).

Section III: Oral health status of tobacco consuming adults

Section III deals with analysis of health status of various parts of oral cavity.

Table 8: Frequency and percentage distribution of score of oral health status among the subject

N=100

ORAL HEALTH STATUS SCORE	INFERENCE	TOBACCO SMOKERS (%)	TOBACCO CHEWERS (%)	TOTAL (%)
0 – 7	Good	2	7	9
8 – 14	Average	28	15	43
15 – 21	Poor	18	25	43
22 - 28	Very poor	2	3	5

Maximum score = 28

The data presented in the Table 8 show that most of the subject (43%) had average oral health status. Only 9% of subject had good oral health status. The remaining 5% of subject had poor oral health status

Table 9: Distribution of the subject according to the health status of various parts of the oral cavity.

N=100

HEALTH STATUS OF VARIOUS PARTS OF ORAL CAVITY	TOBACCO SMOKERS		TOBACCO CHEWERS	
	Normal (%)	Deviation (%)	Normal (%)	Deviation (%)
Halitosis	40	60	28	72
Lips	10	90	14	86
Buccal mucosa	56	44	58	42
Tongue	2	98	58	42
Floor of the mouth	88	12	92	8
Commissure	90	10	66	34
Palate	4	96	40	60
Gingiva	20	80	18	82
Tooth stains	0	100	0	100
Regression attrition of teeth	28	72	32	68

The data presented in Table 9 show that 100% of subject had tooth stains. Among the tobacco smokers 98% had affected on tongue;. The floor of the mouth and commissar were least affected nearly 12% and 10% respectively. Nearly 60% of subject had halitosis.

Among the tobacco chewers 100% of the subject had tooth stains; 86% had pigmented lips; 82% had gingival infection; 72% had halitosis and 60% had affected palate. Nearly 42% of subject had affected buccal mucosa.

Section IV:

a) **Comparison between oral health status and knowledge on hazards of tobacco consumption on oral health among the subject.**

Section IV describes the unpaired 't' test, correlation test and chi square computation to find out an association between knowledge on hazards of tobacco consumption on oral health and oral health status and comparison between knowledge of tobacco smokers and tobacco chewers; comparison of oral health status of tobacco smokers and tobacco chewers and association between oral health status and selected personal characteristics.

Ho₁ There is no significant difference between knowledge score of tobscco smokers and tobacco chewers.

Table 10: Comparison between the knowledge score of tobacco smokers and tobacco chewers.

N=100

KNOWLEDGE SCORE	MEAN	SD	%MEAN SCORE	t VALUE	Inference
Tobacco smokers	12.92	3.39	64.6		Non
Tobacco chewers	13.34	2.49	66.7	0.7	significant

$t_{(98)} = 1.98$, $p < 0.05$

      The unpaired t test show that there is no significant difference between the knowledge score of tobacco smoker and tobacco chewers since the calculated $t_{(98)} = 0.7$, $p > 0.05$ is less than the table value. i.e, tobacco smokers and tobacco chewers were equally knowledgeable on oral health hazards. Hence the null hypothesis was accepted.

Ho₂ There is no significant difference between the oral health status of tobacco smokers and tobacco chewers.

Table 11: Comparison between the oral health status of tobacco smokers and tobacco chewers.

N=100

ORAL HEALTH STATUS SCORE	MEAN	SD	%MEAN SCORE	t VALUE	Inference
Smokers	13.46	4.01	67.3		Non
Chewers	15.12	5.03	75.6	1.85	significant

$t_{(98)} = 1.98$, $p < 0.05$

      The unpaired t test show that there is no significant difference between the oral health status of tobacco smokers and tobacco chewers since the calculated $t_{(98)} = 1.85$, $p > 0.05$, is less than the table value, i.e. tobacco smokers and tobacco chewers oral health status was the same. Hence the null hypothesis was accepted.

b) **Correlation between knowledge on hazards of tobacco consumption on oral health and oral health status**

Ho₃ There is no significant relationship between the oral health status and knowledge on hazards of tobacco smoking on oral health among tobacco smokers.

Table 12: Coefficient of Correlation between knowledge on hazards of tobacco smoking on oral health and oral health status of tobacco smokers

N=50

VARIABLE	MEAN	SD	r VALUE	Inference
Knowledge	12.92	3.39		
Oral Health Status	13.46	4.01	0.015	Non Significant

Critical value of r at 49 df at 5% level=0.273

　　　The coefficient of correlation test show that there was no relationship between knowledge on hazards of tobacco smoking on oral health and oral health status of tobacco smokers since the calculated r value 0.015, p>0.05 was less than the table value. Hence the null hypothesis was accepted

Ho₄ There is no significant relationship between the oral health status and knowledge on hazards of tobacco chewing on oral health among tobacco chewers

Table 13: Coefficient of Correlation between knowledge on hazards of tobacco chewing on oral health and oral health status of tobacco chewers

N=50

VARIABLE	MEAN	SD	r VALUE	Inference
Knowledge	13.34	2.49		
OHS	15.12	5.03	0.271*	Significant

Critical value of r at 49 df at 5% level=0.273　　　　　　* = Significant

　　　The coefficient of correlation test shows that there was relationship between knowledge on hazards of tobacco chewing on oral health and oral health status of tobacco chewers since the calculated r value 0.271, p<0.05 was more than the table value. Hence the research hypothesis was accepted.

c) Association between selected personal characteristics of the subject and oral health status:

Ho₅ There is no significant association between oral health status and selected baseline characteristics such as age, occupation and duration of consumption of tobacco smokers

Table 14: Chi square value computed between selected baseline characteristics and oral health status of tobacco smokers:

N=50

Selected personal characteristics	Score of oral health status		χ^2 value	Df
	$\leq$ Mean	$\geq$Mean		
Age (in years)				
21 – 40	16	4	24.916	1*
41 – 60	2	28		
Occupation		1		
Unskilled	5	23		
Skilled	13	9	9.09	1*
Duration of smoking				
Below20 years	5	9		
21 – 40 years	13	23	0.006	1

$(\chi_1^2=3.84,p<0.05)$ *   Significant

There was significant association between age of tobacco smokers and oral health status since the calculated χ^2 value was more than the table value $(\chi_1^2 = 24.916,p<0.05)$. There was significant association between occupation of tobacco smokers and oral health status since the calculated χ^2 value was more than the table value $(\chi_1^2 =9.09,p<0.05)$. No significant association was found between duration of tobacco consumption and oral health status of tobacco smokers since the calculated χ^2 value is less than the table value $(\chi_1^2 =0.006,p>0.05)$.

Ho$_6$ There is no significant association between oral health status and baseline characteristics such as age, occupation and duration of consumption of tobacco chewers

Table No 14: Chi square value computed between selected baseline characteristics and oral health status of tobacco chewers

N=50

Selected personal characteristics	Score of oral health status		χ^2 Value	Df
	≤ Mean	≥Mean		
Age (in years)				
21 – 40	17	2	28.01	1*
41 – 60	3	28		
Sex				
Male	12	13		
Female	8	17	1.33	1
Occupation				
Unskilled	15	13		
Skilled	5	17	3.46	1
Duration of smoking				
Below20 years	9	8		
21 – 40 years	11	22	1.79	1

(χ_1^2=3.84,p<0.05)   * Significant

There was significant association found between age of tobacco chewers and their oral health status since the calculated χ^2 value was more than the table value   (χ_1^2 = 28.01,p<0.05).There was no significant association between sex of the tobacco chewers and oral health status since the calculated χ^2 value was less than the table value   (χ_1^2 = 1.33,p>0.05). There was no significant association between occupation of tobacco chewers and oral health status since the calculated χ^2 value was less than the table value   (χ_1^2 =3.46,p>0.05). There was no significant association between duration of consumption of tobacco chewers and oral health status since the calculated χ^2 value was less than the table value (χ_1^2 =3.1,p>0.05).

V. ACKNOWLEDGEMENT

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