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Study of Relationship Between Quality of Life with The Frequency of Oro-Respiratory Symptoms Among Patients Attending A Tertiary Hospital

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ABSTRACT
India is now believed to have a high burden of tobacco and its related morbidity and mortality. The goal of present study was to determine the presence of oro-respiratory symptoms in smokers and to compare them with non-smokers as well as determine the relationship between quality of life with the frequency of oro-respiratory symptoms. Present study was institution-based case control study. The study was conducted on a sample of 300 subjects, who were divided into four groups. The first group consists of regular Tobacco smokers (75 subjects), second group consists of regular tobacco chewers (75 subjects), regular tobacco smokers and tobacco chewers (75 subjects) and control as individuals whom neither tobacco smokers nor tobacco chewers in their lifetime (75 subjects). Oral symptoms were maximum in tobacco chewers compared to the other type of participants. The symptoms of cough, phlegm, breathlessness and wheezing were more common in smokers and those who used both the forms. There is a significant association between the quality-of-life index and the type of participant indicating that the quality of life is relatively poorer in those who use both the forms of tobacco compared to the other type of participants. There was a negative correlation between the quality-of-life index and the oro-respiratory symptoms. There is a strong association between oro-respiratory symptoms and quality of life, number of years of tobacco usage, tobacco per day and total tobacco consumption. Oro-respiratory symptoms are higher in both (tobacco chewers, tobacco smokers) as compared to tobacco smokers, tobacco chewers and control respectively. Our study shows that, as oro-respiratory symptoms increases, quality of life index decreases.

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Key Words
Oro-respiratory symptoms, quality of life, tobacco usage, tobacco chewers, tobacco smokers

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INTRODUCTION

Tobacco use is one of the common risk factors for major non-communicable diseases (NCD), i.e. cancer, cardio-vascular diseases and accounts for more than two-third of all new cases of NCD[1]. It kills up to half of its users. Smoking tobacco leads to disease and disability and harms nearly every organ of the body[2,3].

India is now believed to have a high burden of tobacco and its related morbidity and mortality. It has been estimated that among all the people who smoke worldwide, 16.6% live in India, an absolute figure of 182 million[4]. Substance use is a serious public health challenge and is a big curse that the modern society has come across. It is defined as persistent or sporadic use of a drug inconsistently or unrelated to acceptable medical practices.

Quality of life is a broad term that refers to the total well-being of the individual in terms of physical, psychological, emotional, mental and social well-being and which is in turn influenced by numerous factors including age, gender, socioeconomic status, risk factors in behavior, the environment and the absence or presence of disease[5]. The goal of present study was to determine the presence of oro-respiratory symptoms in smokers and to compare them with non-smokers as well as determine the relationship between quality of life with the frequency of oro-respiratory symptoms from the aspect of gender, age, the environment in which they live and the total monthly income of smokers compared to non-smokers.

MATERIAL AND METHODS

Present study was institution-based case control study, conducted in department of community medicine, Navodaya Medical College Hospital and Research Centre, India. Study duration was of three month April to June 2022. Study approval was obtained from institutional ethical committee.

Inclusion Criteria:

- Patients of Age >18 years old, willing to participate in present study
- The study was conducted on a sample of 300 subjects, who were divided into four groups. The first group consists of regular Tobacco smokers (75 subjects), second group consists of regular tobacco chewers (75 subjects), regular tobacco smokers and tobacco chewers (75 subjects) and control as individuals whom neither tobacco smokers nor tobacco chewers in their lifetime (75 subjects)

Exclusion Criteria:

- Ex-smokers (who have left smoking for a period more than 2 years)
- Subjects who have not given consent
- Severe illness, other serious co-morbid conditions in which the patient is debilitated or in severe pain.

After taking an informed oral consent, data was collected using a semi structured questionnaire. (SF-36 and MRC). A pilot study was done to correct any deficiencies in the questionnaire, then the data was collected. There was a tendency toward more equitable distribution of respondents according to their place of residence in relation to rural and urban areas. The study used a questionnaire designed for research purposes provided for a self answering. The survey questionnaire was designed to test the quality of life.

The questionnaire provides acceptable, psychometrically appropriate and efficient way of measuring quality of life from the patient's perspective through questions and answers on standardized questionnaire[5]. Data entered in Microsoft excel and analyzed using SPSS software version 21. Categorical variables were presented by numbers and percentages and was assessed using numerous tests wherever necessary (Chi square test, ANOVA test and Correlation test). The p value of <0.05 considered as significant.

RESULTS

About 33% of the participants were aged between 45-60 years,78% of the participants were males,63% of the participants were from urban background, 32.7% of the participants were illiterate, Nearly 36% of the participants were semi-skilled workers, 82% of the participants were Hindus,54% of the participants had less than 5 family members.

About 45% participants have good health ,28.3% have fair, 14.3% have very good ,10% have poor and 2.3 % have excellent health. 11.3% participants are much better compared to 1 year ago while 41% much worse. 29.3% of the tobacco users had been using it for 16-30 years. Most of the tobacco users use less than 5 packets/ cigarettes per day. 40% of the tobacco users inhale smoke (Table 1).

Vigorous activities were limited the most among the participants. Among the tobacco users the limitation of physical activities was maximum among those who used both the smoke and smokeless forms (Table 2).

Among the participants 55% of them have cut down the amount of work they used to do. 20% participants have cut down amount of time on work or another activity 10.7 % participants have accomplished less than they liked and 8.3% had difficulty in doing work (Table 3).

Table 1: Sociodemographic Factors

Parameters	Frequency	Percent
Age		
18-30	75	25
30-45	90	30
45-60	100	33.3
>60	35	11.7
Gender		
Male	234	78
Female	66	22
Address		
Urban	189	63
Rural	111	37
Marital Status		
Married	228	76
Unmarried	72	24
NO. Of Family Members		
<5	161	53.7
5 to 10	118	39.3
>10	21	7
Socio-economic Status		
Upper	5	1.7
Upper middle	31	10.3
Middle	88	29.3
Lower middle	130	43.3
Lower	46	15.3
General Health at Present		
Excellent	7	2.3
Very good	43	14.3
Good	135	45.0
Fair	85	28.3
Poor	30	10.0
Present Health 1 Year Ago		
Much better	9	3
Somewhat better	6	2.0
About same	123	41.0
Somewhat worse	128	42.7
Much worse.	34	11.3

About 20% had slight emotional problems interfering with their normal social activities 33% had slight bodily pain during the past 4 weeks and 31% had moderate pain in normal work. Social activities and pain posed a problem more in those who smoked and those who used both the forms compared to the ones who chewed tobacco (Table 4).

Oral symptoms were maximum in tobacco chewers compared to the other type of participants (Table 5).

The symptoms of cough, phlegm, breathlessness and wheezing were more common in smokers and those who used both the forms (Table 6).

There is a significant association between the quality-of-life index and the type of participant indicating that the quality of life is relatively poorer in those who use both the forms of tobacco compared to the other type of participants (Table 7).

In Table 8 -0.703 indicates that there is a negative correlation between the quality of life index and the oro-respiratory symptoms.

DISCUSSION

The epidemic of harmful substance use, mainly chewing tobacco and smoking, is increasing at an alarming pace. Nearly 1.3 billion people around the world are tobacco users and 80% of them live

Table 2: Relationship Between Type of Participant and Limitation of Physical Activities

	Type of participant					
Limitation of activities	Tobacco smoking	Tobacco chewing	Both	Control	Total	Chi square test
Vigorous activities						
Not limited	9	13	2	52	76	$\chi^2 = 0.000$
Limited a little	28	32	28	21	109	significant
Limited a lot	39	31	45	0	115	
Moderate activities						
Not limited	24	31	8	65	128	
Limited a little	38	30	51	8	127	
Limited a lot	14	15	16	0	45	
Climbing Flights of Stairs						
Not limited	14	32	17	73	136	
Limited a little	54	35	42	0	131	
Limited a lot	8	9	16	0	33	
Walking More than a Mile						
Not limited	29	44	46	73	192	
Limited a little	36	27	24	0	87	
Limited a lot	11	5	5	0	21	
Bathing or Dressing						
Not limited	59	67	62	73	261	
Limited a little	7	6	10	0	23	
Limited a lot	10	3	3	0	16	

Table 3: Health problems

Health problems	Frequency	Percent
Emotional Health Problems		
Cut down amount of time on work	61	20.3
Accomplished less than they liked	32	10.7
Difficulty in doing work	25	8.3
Physical Health Problems		
Cut down amount of time on work	164	54.7
Accomplished less than they liked	148	49.3
Difficulty in doing work	110	36.7

Table 4: Social activities and pain in the participants

	Type of participant				
Social activities and pain	Tobacco smoking	Tobacco chewing	Both	Control	Total
Emotional Problems					
No	44	53	55	60	212
Slight	22	13	11	13	59
Moderate	9	9	9	0	27
Severe	1	1	0	0	2
Bodily Pain for 4 Weeks					
No	23	25	4	60	112
Slight	29	28	29	13	99
Moderate	21	18	32	0	71
Severe	3	4	10	0	17
Very severe	0	1	0	0	1
Pain in Normal Work					
No	23	25	9	72	129
Slight	21	24	13	1	59

Table 5: Oral cavity symptoms of participants

	Type of participant				
Oral cavity symptoms	Tobacco smoking	Tobacco chewing	Both	Control	Total
Mouth soreness	16	37	70	0	123
Difficulty in speaking	2	14	13	0	29
Difficulty in eating Food	2	17	17	0	36
Difficulty/Restriction in drinking	0	4	9	0	13
Difficulty in Swallowing	3	17	17	0	37
Altered taste	17	31	47	0	95
Altered smell	1	9	12	0	22
Oral cavity examination					
Unhygienic	48	69	69	21	207
Hygienic	28	7	6	52	93

Table 6: Respiratory Symptoms of Participants

	Type of participant				
Respiratory symptoms	Tobacco smoking	Tobacco chewing	Both	Control	Total
Cough					
Mild	12	5	7	3	27
Moderate	32	9	12	0	53
Normal	16	47	8	59	130
Severe	16	15	48	11	90
Phlegm					
Mild	9	8	0	0	17
Moderate	19	9	27	0	55
Normal	22	47	29	73	171
Severe	26	12	19	0	57
Breathlessness					
Mild	22	15	30	6	73
Moderate	11	13	20	1	45
Normal	26	32	9	66	133
Severe	17	16	16	0	49
Wheezing					
No	42	56	59	72	229
Yes	34	20	16	1	71

in low- and middle-income countries[6]. Tobacco use kills 8 million people every year[7]. Developing countries like India are no exception. Most smoking-related deaths arise from respiratory diseases (mainly COPD), cancers and cardiovascular diseases[7]. Chewing tobacco increases the risk of cancers of the oral cavity (including cancer of the mouth, tongue, lip and gums), throat and esophagus, as well as leading to various oro-dental diseases[7].

Our study shows that there is a significant association between address, gender, marital status, religion, education, occupation and socio-economic status with the type of participants. It was observed that in the study, among the study populations, most of the participants using tobacco products were male (78.7%) in comparison to females (21.3%). This finding is similar to another study by Koshy *et al.*[8], with males (40.23%) and females (36.17%)

It was observed that married people had higher tobacco usage (76.6%) than unmarried subjects (23.7%). Among the entire study population, it was found out that 1/3rd of the entire test group was illiterate and consumed significant amounts of tobacco by a study of Verma *et al.*[9], with unmarried (24%) and married (76%).

Our study shows there is statistically significant ($p = 0.000$) association between type of participants and limitation of activities and physical health problems. Also, there is a significant($p<0.05$) association between social activities and pain according to a study by Mario

Table 7: Comparison Between Type of the Participant and Quality of Life Index

ANOVA test	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	93.891	3	31.297	100.445	0.000
Within Groups	92.229	296	0.312		
Total	186.120	299			

				95% Confidence Interval	
Type of participant	Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
Tobacco Smoker					
Tobacco chewer	0.276*	0.091	0.015	0.04	0.52
Both	-0.047	0.091	1.000	-0.29	0.19
Control	1.348*	0.091	0.000	1.11	1.59
Tobacco Chewer					
Tobacco smoker	-0.276*	0.091	0.015	-0.52	-0.04
Both	-0.323*	0.091	0.003	-0.56	-0.08
Control	10.072*	0.091	0.000	0.83	10.31
Both					
Tobacco smoker	0.047	0.091	10.000	-0.19	0.29
Tobacco chewer	0.323*	0.091	0.003	0.08	0.56
Control	1.395*	0.092	0.000	1.15	1.64
Control					
Tobacco smoker	-1.348*	0.091	0.000	-1.59	-1.11
Tobacco chewer	-1.072*	0.091	0.000	-1.31	-0.83
Both	-1.395*	0.092	0.000	-1.64	-1.15

*The mean difference is significant at the 0.05 level

Table 8: Comparison Between Quality of Life and Oro-respiratory Symptoms

ANOVA test	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	92.921	3	30.974	98.372	0.000
Within Groups	93.199	296	0.315		
Total	186.120	299			

Correlation coefficient(r)	Mean	Std. Deviation	N	Pearson Correlation	1	-0.703**
Quality of life Index	2.14	0.789	300	Sig. (2-tailed)		0.000
Oro-respiratory symptoms Score	2.26	0.904	300	Sig. (2-tailed)	0.000	

**Correlation is significant at the 0.01 level (2-tailed)

Guiterrez *et al.*[10], with (11%) limitation in physical activities of smokers and (9.6%) of bodily pain.

Our study shows that there is statistically significant (p = 0.000) association between type of participant and respiratory symptoms seen as 42% in moderate cough similar to the study conducted by Tillmann *et al.*[11], which showed 44.9%. In this study we analysed using ANOVA test which shows that, there is statistical significance (p = 0.000) association between type of participant and education, il-literate (32.7%) also the quality of life and education was analysed using ANOVA test which showed that there is statistically significant (p = 0.000) association between them similar to the study by Verma *et al.*[9], which showed it was (56.3%).

In this study, we compared type of participant and quality of life index using ANOVA test, it showed that there is a statistically significant (p=0.000) association between them. Also, we analysed difference between type of participants using Post-hoc tests., it showed that there is significant association within the participants.

The presence of respiratory symptoms was not associated with gender and the area of origin of the respondents, while the level of education, age, total monthly household income and smoking status were directly related to the presence of respiratory symptoms, so that respondents with lower education levels, older ones, those with lower incomes and smokers have more pronounced symptoms of respiratory problems. There is large negative impact of respiratory symptoms presence on respondent's quality of life[12].

There were few limitations of present study. Ideally the ratio between the test subjects and controls should be in the ratio of 1:1, 75 control subjects was taken so as to assess the difference between smokers, smokeless and both forms of tobacco usage hence giving the same required result in a shorter frame of time rather than collecting and analyzing 225 controls with a few minor variables. Time constraint of one month to analyse the data in an even more thorough manner also proved to be a limitation to the present study.

Health and social problems associated with the use and dependence on tobacco and other illicit substances can be prevented by greater awareness among young individuals regarding behavioral modification, withdrawal clinics and medications etc. Community level approaches such as mass media anti-tobacco advertisements, declining social acceptability of smoking or chewing tobacco, anti-tobacco campaigns and restricted access of minors to tobacco products, can be effective strategies and public health actions[13].

CONCLUSION

There is a strong association between oro-respiratory symptoms and quality of life, number of years of tobacco usage, tobacco per day and total

tobacco consumption. Oro-respiratory symptoms are higher in both (tobacco chewers, tobacco smokers) as compared to tobacco smokers, tobacco chewers and control respectively. Our study shows that, as oro-respiratory symptoms increases, quality of life index decreases.

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