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A STUDY ON AWARENESS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AMONG SMOKERS

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ABSTRACT

Background: COPD is the disease characterized by chronic airway obstruction and it is not fully reversible. As per the WHO's estimation, COPD will become 3rd common cause of the death by 2020. It is very essential to study awareness about COPD among smokers. So, we conducted this study with following aims and objectives.

Objectives: The objective of this study was to observe the COPD awareness level in smokers and study the factors influencing smoking.

Methods: Current smokers aged 18 to 59 belonging to the areas of west zone, Ahmedabad were recruited after a verbal informed consent using pre-validated Questionnaire.

Results: The study included 230 participants. Participants were observed as: very less aware = 3.47% (8); less aware = 26.95% (62); average aware = 51.73% (119); good aware = 16.52% (38); very good aware = 1.30% (3). 60% of the smokers felt cough, 23% felt chronic mucus production, 13% felt shortness of breath and 12% felt wheezing.

Conclusion: Very low level of awareness is seen in the population who are in current smokers. About half of the participants were not even 50% aware of the COPD.

Keyword: COPD, Smokers, Awareness, Spirometry

INTRODUCTION

COPD is the fourth leading cause of the death worldwide, and it will become 3rd leading cause of the disease by 2020[1]. As per the estimation done by the WHO around 2.74 million deaths occurs due to COPD, which is 5% of the total death worldwide[2]. Out of this death rate around 90% of the death occurs due to smoking. This shows that smokers are at the high risk of developing COPD in their life span. The main reason for this much higher mortality is lack of awareness of the disease worldwide. COPD is the disease which develops gradually and generally it is very silent in the initial stages of the disease, so when the people come to know about the severity of the risk of the disease they loss their 50% of the lung function[3]. If the people aware about the disease in advance they can take precautions about it and make their life better and safe from the disease like COPD. So, it is very essential to observe the awareness of the COPD disease in the general population and make them aware about the disease. Along with that it is also very essential to know the factors which influence people to smoke or the factors which stops people to quit smoking. So, in future one can reduce consumption of smoking by taking preventive steps against the factors. Therefore, we conducted this study with the aim and objectives of studying the COPD awareness level in the population who are in the habit of smoking by a simple self-administered question-

naire. We also studied factors which influence people to continue to smoke.

METHODOLOGY

Design of Study: This is an exploratory observational, population based study. It was conducted in seven areas of west zone of Ahmedabad. The areas included in the study were representative of different climates and comprised urban and rural populations. The geographical areas of west zone Ahmedabad are Vasna, Paldi, Gandhigram, Vadaj, Naranpura, Sabarmati and Stadium area.

Selection of Participants: The total population of west zone of Ahmedabad as per the census of India was around 3,070,737. Out of this population 1,610,220 were male who has the age of around 20-59 years. Now as per data, almost 8.2% of the male are smokers in India[4,5]. So, almost 132,038 male of west zone of this age group might be smoking daily. So, if 0.1% of this population will become the sample size for this study considering resource constrains, around 132 male smokers may be recruited. But to avoid any kind of bias and for getting a proper data the sample size was kept at least 200 male smokers. Non-eligible subjects included, those living outside the study area for >6 months per year, institutionalized persons, female smokers and those with ages outside the range at the time of recruitment. Around 1,989 potential participants were initially identified for the main study, out of which around 963 participants were excluded initially, due to not belonging from the areas of west zone of Ahmedabad. The remaining 1026 participants were asked for the verbal consent for the main study, out of this around 756 participants refused to give consent and hence were excluded from the study. The refusal might be due to stigma associated with public smoking in the society and law prohibiting public smoking practices. The remaining 270 participants, who were ready to give consent, were continued with questionnaire of the study. Around 40 participants windrow from the study in between and were excluded from the study and study continued with around 230 participants.

Questionnaire: The ethics committee approved questionnaire was used in all 7 areas of west zone. The questionnaire was designed according to the need and understanding of the general population, so the data which were generated from the questionnaire would be very effective and knowledge giving. The questionnaire contained both personal and general information and was pre-validated. All the questions have their own significant value and had been divided as per their importance. These all questionnaires were checked by the certain criteria and as per that criteria participants were divided in the different categories. Participants who had given correct answer of at least 6 questions were come under very less aware category, who gave 7-12 correct answer came under less aware category, participant who has given correct answer of maximum thirteen to eighteen questions, were kept under average category. Participant who were good in the awareness of COPD and who had given correct answers of maximum nineteen to twenty-four questions were placed under good aware category. And the Participants who were really very good and aware about the basics were placed under very good category.

Statistical Analysis: Once, after creating database, univariate or descriptive analysis was performed. Participants were placed into one of five categories based on questionnaire criteria. Frequency table were made from the questionnaire.

RESULTS:

A total of 230 eligible participants with positive smoking history, who were following inclusion and exclusion criteria were included. The age distribution of the study participants are summarized in Table-1. Their mean age was 39.5 ± 19.5 yrs. In the study, most of the participants were from the young age group of 18-29 years (33.47%), this shows that smoking has a very good grip on the young smokers and most number of smokers may develop COPD in their forties. In the elder ages of 50-59 years there were only 34 participants which were only 14.79% of the study participants, almost half of the young population.

As per the data fifty-five (24%) participants were severe smokers, and smoke more than 20 cigarettes/day. One hundred seven (46.52%) participants were moderate smokers, smokes 10-19 cigarettes/day and sixty-seven (29.13%) participants were mild smokers and were smoking at least 0-9 cigarettes/day.

Table-1 Age groups and Number of Cigarettes per day

Age-Groups	Cigarettes Smoking per day			Total (%)
	0-9	10-19	>20	
18-29	45	30	1	76 (33)
30-39	7	43	14	64 (28)
40-49	2	33	22	57 (25)
50-59	3	11	19	33 (14)
Total	57	117	56	230

(P-value<0.0001)

General population is very good in facts and figure, and it was proved by the smokers' population of the study. Out of total 230 smokers, around 178 (77.39%) smokers were aware that the COPD is the 5th common cause of the death worldwide and it will become 3rd by 2020. Though only 69 (30%) smokers were aware that there are 600 million cases of COPD worldwide, and 161 (70%) of smokers were unaware of this fact. Many smokers also think that COPD is an infectious disease, and it spreads with some environmental factors. Almost 140 (60.86%) participants had given the wrong answer that COPD is an infectious disease, and only 90 (39.13%) participants were correct. Other than that many smokers, almost 132 (57.40%) participants believe that COPD spreads more in summer, whereas the correct answer was given by the only 98 (42.60%) participants. These results show that most of the smokers have many wrong conceptions about COPD and their basic knowledge about COPD is really not so good.

Table-2 Questionnaire & Responses related to COPD among participants

Questionnaire	Aware (%)	Unaware (%)
COPD is a respiratory disease of air flow obstruction.	204 (88.69)	26 (11.31)
Smoking as a primary cause of COPD.	199 (86.52)	31 (13.48)
COPD is an irreversible disease.	117 (50.86)	113 (49.14)
50% lung function can be lost before the COPD symptom appears.	93 (40.43)	137 (59.57)
Alcohol consumption does not lead to COPD.	72 (31.30)	158 (68.70)
COPD is not a birth defect.	93 (40.43)	137 (59.56)
Female smokers are more prone to COPD.	97 (42.17)	133 (57.83)
Asthma and COPD are different.	89 (38.69)	141 (61.31)
COPD is the 5th common cause of the death and it will become 3rd.	178 (77.39)	52 (22.60)
There are 600 million cases of COPD worldwide.	69 (30.00)	161 (70)
COPD is not an infectious disease.	90 (39.13)	140 (60.87)
COPD spreads more in cold season.	98 (42.60)	132 (57.40)
In Asia, COPD cases are higher in male population.	109 (47.39)	121 (52.60)
COPD is more common in the age group of 40-59.	104 (45.21)	126 (54.78)
COPD is more common in Cigarette smokers.	69 (30.00)	161 (70.00)
Spirometry is the best single test for COPD.	69 (30.00)	161 (70)
Smokers may have normal spirometry results.	90 (39.13)	140 (60.87)
COPD patients cannot be cured completely.	95(41.30)	135 (58.70)
Lung of Smokers cannot become normal if he quit smoking.	83 (36.08)	147 (63. 92)
India has appropriate treatment available for COPD.	85(36.95)	145 (63. 04)
90% of COPD deaths occur in low-middle income countries.	115 (50.00)	115 (50.00)
In India, COPD cases are 5 times higher than the cancer cases.	88 (38.26)	142 (61.73)
Life of the COPD patient is worse than death, smokers can be one of them.	71 (30.86)	159(69.13)

Although, in developing countries like India, the proportion of the male smoker is really very high than the female smokers of the country, many male smokers' participants think that the cases of COPD are more in females than the male. Around 121 (52.60%) participants had proposed that COPD cases are much higher in the females than the males, but only 109 (47.39%) participants had given the correct answer that cases of COPD are much higher in male smokers in comparison of female smokers. The participants were also confused that in which population and in which age groups COPD is more common. Therefore only 104 (45.21%) participant had given the correct answer that COPD is more common in the age group of 40-59, and only 69 (30%) participants had given correct answer that cigarette smoker's population are more common to COPD than bidi, chillum and passive smoking. These results show that most of the participants were not very good in the awareness level for COPD.

Spirometry is one of the best single tests for diagnosing the COPD, though out of 230 participants only 69 (30%) smokers aware about the spirometry, and only 90 (39.13%) smokers agree that smokers may have normal spirometry reports, though he/she suffering from the disease. Almost 161 (70%) participants were totally unaware of the spirometry, these means about three quarters of the smokers were not concerned about diagnostic tool of COPD. Around 135 (58.70%) smokers did not aware that COPD patients cannot be cured completely and only 95(41.30%) participants were aware that COPD patients cannot be cured completely and around 83 (36.08%) participant were aware that if the smoker quite smoking, his lungs cannot become as normal as non-smoker. Moreover, only 85(36.95%) participants aware that India has appropriate treatment available for COPD, and 145 (63. 04%) are totally unaware about the treatment options available in India (Table-2). These shows that most of the smokers' participants are

not concerned about diagnosis and treatment. But the positive result is that around 188 (81.73%) participants really want to go for the spirometry after attending the questionnaire. These mean more than three-quarters of the population is getting concern about importance of diagnosis of COPD.

In the low and middle income countries, 90% COPD death occurs due to lack of implemented effective strategies for prevention and control[6]. But only 115 (50%) smokers were aware about this fact and believe in it really, and only 88 (38.26%) participants aware that in India COPD cases were five times to cancer cases and only 90 (39.13%) smokers aware that in Ahmedabad only, there was 35% of increment in the cases of COPD in last 5 years. These mean that, more than half of the smokers were unaware of the cases of COPD in India and in Ahmedabad.

COPD develops gradually and generally it is very silent in their primary stages. This means when COPD symptoms appears in individual he/she might be unaware of it, and when they come to know almost 50% lung capacity can be lost. To check these early symptoms in the questionnaire some questions were kept. And the result are as shown in Table-3. The frequencies of these symptoms were also measured, and the results were 113 (49.13%) smokers felt these symptoms only sometimes, 24 (10.43%) smokers felt it most of the times, 24 (10.43%) smokers felt it even when they do minor exercise and other do not want to disclose it. These show that, more than half of the smokers were in the initial stages or at the edge of getting affected by COPD.

Most of the healthcare providers felt that "life of the COPD patient is worse than death", and smokers can be one of them. But how many smokers really concern about it? The results show that only 71 (30.86%) participants were really aware about it and almost 159(69.13%) participants still unaware of it and around 122 (54.35%) participants were unaware that most of the pharmaceutical companies are creating awareness, providing knowledge and treatment for COPD. These means only 105 (45.65%) participants really aware that pharmaceutical companies are creating awareness, providing knowledge and treatment for COPD, which is very less than the half of the population of smoker. However, the positive results is that, around 218 (94.78%) smokers felt that smokers population need more education and guidance for COPD and out of them 183 (79.56%) smokers felt that volunteers are the prominent way to create awareness, whereas almost 63 (27.39%) participant put their figure on advertising as a best option for creating awareness, 55 (23.91%) smokers felt that article and 21 (9.13%) smokers felt seminars are the better option to spread awareness in the both smokers and general population. These results show that most of the smokers are now being concern about the severity and facts of the COPD and really wants to quit smoking, which means the awareness of COPD is increasing.

As per the result, around 189 (82.17%) smokers have tried to quit smoking in their past, but most of them have faced some difficulties. This is our secondary objective of the study to check the factors which influence people to smoke or the factors which stops people to quit smoking. Now, as per the survey results around 182 (79.13%) smokers feel that stress is the main factor influencing them to smoke, other than that 131(56.95%) smokers felt that friends and social factors are responsible, whereas 117 (50.86%) smokers felt depression, 108 (46.95%) smokers felt physical discomfort and 80 (34.78%) smokers felt psychological factors were the factor which stop people to quit smoking.

Table- 3 Symptoms of COPD in participants

Symptoms of COPD	Number (%)
Cough	138 (60)
Chronic Mucus Production	52 (22.60)
Shortness of breath	30 (13.04)
Wheezing	29 (12.60)
Chest tightness	19 (8.20)
Getting inadequate air	10 (4.34)

Table-4 Suggestion from participants for creating awareness

Mode of creating awareness	Numbers (%)
Volunteers	183 (79.56)
Advertising	63 (27.39)
Article	55 (23.91)
Seminars	21 (9.13)

Table-5 Factors influencing People to smoke

Factors	Number (%)
Stress	82 (79.13)
Friends and Social Factors	131(56.95)
Depression	117 (50.86)
Physical Discomfort	108 (46.95)
Psychological Factors	80 (34.78)

The study was comprised of 230 smoker participants, with different smoking habits and with different knowledge background. The results found that, out of 230 participants 8 (3.47%) participants come under very less aware category, 62 (27%) participants were less aware about the COPD, 119 (51.73%) of participants come under average aware category, around 38 (16.52%) participants come under good category and only 3 (1.30%) partici-

pants were able to give correct answers of more than 24 questions. The overall aware participants were only 42.88 %, which is actually very less to overcome the burden of the disease.

Table-6 Level of COPD awareness

Awareness	Number (%)
Very Less	8 (3.47)
Less	62 (26.95)
Average	119 (51.73)
Good	38 (16.52)
Very Good	3 (1.30)

Now, as per the age groups the awareness was also observed. This observation was measured by the number of the correct answers given in the each age group and on that data the categorization was done and the awareness in the different age groups was calculated. In the first age group of 20-29 years, almost 52.08% awareness was observed; in the age group of 30-39 years, 48.77% awareness was observed; whereas in the age group of 40-49 years there was 50.35% of awareness in the smokers and in the fourth age group of 50-59 years, there was only 43.25% of awareness observed in the smokers' participants. This means that, maximum number of awareness was observed in the young population, where the smoker's population was very high. And the old population is showing very less awareness of the disease.

DISCUSSION

The present study was conducted at seven different areas of west zone in Ahmedabad, India to look into the smoker population awareness of chronic obstructive pulmonary disease. This might be the first population based survey of this kind on COPD in the smokers' population of the Ahmedabad. This study shows that simple, knowledge based questions can aid the identification of COPD awareness in the general smokers population. The awareness of smoking in the male smokers' population reported in this study is generally very similar to the awareness of 40% reported in a survey study by the pulmonary institute, Zerifin, Israel[7]. There are very few surveys which have been carried out in the general smoker's population in India or abroad. Though, authors tried to identify the awareness level of the COPD disease in the smokers' population of the Ahmedabad.

The present study indicated that, the prevalence of the smoking seems to be high in the young population. This might be due to some social factors, stress, and influence of others. Ljaljevi et al[8], also suggesting that, around 80,000-100,00 young people start smoking every day, and most of them are from the developing countries. As per the WHO there are 1.5 billion people in the world become regular smokers and out of them 70% of the smokers are young. Almost 82% of the deaths occur in the low and middle income countries, and almost 10 million premature deaths occur due to smoking worldwide[9]. Another similar study was done by the Zielinski & Bednarek et al[10], also supports the statement by providing the results in their study.

Some studies done on exposure of the pollution in India, suggested that most of the people are spending their maximum hours with pollution and some other chemicals, dust and smoke. These studies indicated that some 400--550 thousand premature deaths can be attributed annually to pollution in India,[11] which is a very alarming stage for the population of the India. The findings of our present study also suggested that most of the subjects are spending their maximum time with pollution such as pollution, which is also playing very important role in the development and progression of disease like COPD.

Several studies also found that smoking has negative effects on the development and progression of the COPD. According to the study done by the Lundbuk & Lindberg et al it was suggested that smoking is the primary cause of the COPD, and almost 50% of the smokers develop COPD in their life span[12]. The study done by the SLAMA also suggests that smoking is the primary cause of the death by COPD[13]. These all studies indicated that smokers should be aware about it. In the present study, almost three quarter of the population was aware that the smoking is the one of the primary cause of the disease COPD. But in the similar study, done by the Zielinski & M. Bednarek et al[10], it was suggested that in developing countries like India and China, where the smokers population contains of more males smokers than the female smokers, the male smokers have more chances to develop COPD through smoking, and people should be aware of this fact in different countries of Asia. This is not supporting our findings. Because as per the findings of our study more than half of the male smokers were unaware of the reality that in Asia, male cases of COPD are higher than the female cases.

Several other studies indicate that COPD is an irreversible disease and in the initial stages it is very silent[14,15]. Some studies also suggest that up to the time when people come to know about the disease severity and frequency most of the people have lost their 50% lung functions[3]. But the results suggest that not even half of the participants aware about it, which means there is a further need for the awareness programs in the population who are in the habit of smoking to increase their awareness level.

These means many of the participants may be in their primary stage of the COPD, and it might possible that most of them are unaware of it.

Many time most of the people suggest that asthma and COPD are not different but the same disease and they both seen in the elderly people generally and their symptoms are also same up to some extent[16]. This is supported by the findings of the present study, which shows that more than half of the participants believe that asthma and COPD were the same disease. More over it, in one study Sullivan & Weiss[17] suggest that COPD develop more in the cold season, according to them in the cold weather lung functions become less because of the bronchial constriction and hyperventilation. Marno & Bryden et al[18] suggested that many sufferers find that symptoms become worse during cold weather, which leads to an exacerbation resulting in hospital admission. But as per the findings of the current survey, only less than half of the participants were aware of this fact.

In one study done by the Zielinski & Bednarek et al[10] it was suggested that most of the COPD cases were in the age group of 40-59 year. As per the study, most of the people who have started smoking in their early twenties, have more chances to develop COPD in their forties. However, as per the findings of our study very few participants are aware about it. Regarding similar studies done by the Gupta & Agarwal et al[19], suggesting that India have the appropriate treatment available for the COPD. This important information might be known by the population but as per the finding very less people are aware about the treatment options of the India, and very few aware that COPD cannot be cured completely.

Barbara & Peter[20] suggested that COPD remains under recognized and under-treated. In this study they felt that the barriers to recognition and diagnosis of COPD are failure of participants to report COPD symptoms, lack of awareness of COPD and inadequate training in COPD diagnosis and management. Around 22%-33% of the study participants were not aware and trained as the awareness guidelines, and around 50% participants fail to recognize.[20] David and Meir[7], also suggested that lack of awareness of COPD is the primary reason for the low level of diagnosis. In the study they found that only 40% of the smokers are aware about the COPD and around 24% of smokers concern about it.

CONCLUSION

The data from this survey suggests that very low level of awareness is seen in the smoker population and almost half of the participants were not even 50% aware of the COPD. Most of the participants were average aware, which is mainly because the facts and figures they know. Therefore it is hoped that, the healthcare communities and awareness programs should be increased in the cities like Ahmedabad.

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