# Smoking status and copd awareness of teachers in Sanliurfa

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## Abstract

**Aim:** This study aims to investigate the smoking status of teachers, the relationship between smoking and COPD, and teachers' awareness of COPD.

**Materials and Methods:** 504 teachers participated in this cross-sectional study. The data was obtained through an online questionnaire utilizing a 22-question form designed by the researchers.

**Results:** The mean age of the participants was 38.67 ± 7.70 years, 47.8% of them were female, and 81.5% worked in public schools. 27.8% of teachers reported smoking. 24.4% of teachers reported living with a COPD patient, with 86.5% citing smoking as the major risk factor for COPD. 88.3% of participants indicated that avoiding tobacco products is crucial in preventing COPD. The majority of participants (92.7%) provided the correct response when asked about the symptoms of COPD. While 67.7% responded that PFT is used for diagnosis, 50.6% reported that it is a treatable disease, and 25.2% reported that inhaler medicines are used for treatment. There was a statistically significant distinction between the frequency of hearing about COPD and the specialties of the teachers. It was shown that 91.1% of smokers were aware of COPD, however, no statistical correlation was found between smoking and awareness.

**Conclusion:** This study revealed that the prevalence of smoking among teachers in Sanliurfa was lower than previously reported in the literature. The level of awareness that COPD is a lung disease was found to be higher than in previous studies of a similar sort. It was established that awareness of the risk factors for COPD, its symptoms, preventive strategies, and the fact that COPD is a treatable disease was high. We believe that this awareness will play a crucial role in protecting students from smoking and various smoking-related diseases, such as COPD.

## Introduction

Smoking is a significant public health issue in Turkey and all over the world [1]. There are over 1 billion smokers worldwide, and approximately 4.5 million people die annually from smoking-related causes [1]. Previously, only lung cancer was identified as a smoking-related disease. In the subsequent decades, however, scientific research has discovered the negative effects of smoking on the development of chronic lung diseases, coronary heart disease, stroke, and a number of malignancies [2, 3]. The high smoking rate in Turkey is the major risk factor for chronic obstructive pulmonary disease (COPD), one of the most prevalent chronic respiratory diseases [4]. Occupational factors, air pollution, infections, malnutrition, poverty, a sedentary lifestyle, and passive smoking may also contribute to COPD [5]. However, the main risk factor in COPD development is smoking in more than 90% of cases [6]. Active smoking is the most critical risk factor for developing COPD, although in recent years studies have concluded that there is some evidence for a causal relationship between secondhand smoke exposure and adult respiratory disease [7]. Secondhand smoke (SHS) contains a mixture of side-stream smoke from burning cigarettes and mainstream smoke from smokers' breath.

COPD is a heterogeneous lung condition characterized by chronic respiratory symptoms (dyspnea, cough, sputum production and/or exacerbations) due to abnormalities of the airways (bronchitis, bronchiolitis) and/or alveoli (emphysema) that cause persistent, often progressive, airflow obstruction. Patients with COPD typically complain of dyspnea, wheezing, fatigue, chest tightness, activity limitation, and/or cough with or without sputum produc-

tion, and may experience acute events characterized by increased respiratory symptoms called exacerbations that influence their health status and prognosis, and require specific preventive and therapeutic measures. A common, preventable, and treatable disease, but extensive under-diagnosis and misdiagnosis leads to patients receiving no treatment or incorrect treatment [8]. Smoking is a significant health issue that causes economic and social consequences due to its high prevalence and rising incidence around the World. The prevalence of COPD in adults over 40 years old is around 9–10% in the World. Appropriate and earlier diagnosis of COPD can have a very significant public-health impact. COPD caused 3.28 million deaths worldwide in 2019, according to data from the Global Burden of Disease Study [8,9,10]. COPD is not a well-known disease in Turkey as well in other regions of the world, and there are diagnostic and treatment gaps [11].

Various studies conducted in Turkey indicate that 29.1% to 52.4% of teachers are smokers [12]. Global statistics indicate that even among pregnant women, smoking prevalence is substantial (32.5%) [3,13]. Education of the public is the most crucial step in reducing smoking rates and preventing smoking-related diseases. The support of teachers, who act as role models for society and the next generation, is essential at this juncture. Teachers play an important role in society's education and the fight against tobacco addiction.

The aim of this questionnaire study was to determine the smoking status of teachers, teachers' awareness of the association between smoking and COPD, and the awareness of COPD among Sanliurfa teachers during the 2021-2022 school year.

The research questions developed for this purpose are as follows:

1. Is there a difference between the specializations of teachers and their smoking frequency?
2. Is there a difference between the employment institution of teachers and the frequency of smoking?
3. Is there a difference between the specializations of teachers and their hearing of COPD?
4. Is there a difference between the employment institution of teachers and hearing about COPD?
5. Is there a difference between teachers' smoking status and COPD awareness?

The hypotheses developed in the light of these research questions are;

1. H0: There is no difference between the specializations of teachers and the smoking frequency.
2. H0: There is no difference between the employment institution of teachers and the frequency of smoking.
3. H0: there is no difference between the specializations of teachers and their hearing of COPD.
4. H0: There is no difference between the employment institution of teachers and hearing about COPD.
5. H0: There is no difference between teachers' smoking status and COPD awareness.

## Materials and Methods

This was a cross-sectional study conducted between May 12 and June 17, 2022, among Sanliurfa's public and private school teachers. The Harran University Faculty of Medicine Clinical Research Ethics Committee and the Sanliurfa Provincial Directorate of National Education approved this research. This study was approved by the Harran University Ethical Committee (22/05/29; session: 05; decision no: 29). Consent was obtained from the volunteers participating in the study.

According to data obtained from the Sanliurfa Provincial Directorate of National Education, the total number of teachers in Sanliurfa in 2022 was 35.399.

For population is known societys was calculated sample size. With a confidence interval of 95%, a margin of error of 5%, and incidence 27.7% the sample size was determined. The sample size calculated for the study was 260. Simple random sampling method was used as the sampling method. The names of private and public schools were written on paper and thrown into a bag. Data related to the study were collected by sending a google form to randomly selected schools from the bag. When all the teachers who wanted to participate in the study in the schools where the study was conducted were included in the study, the sample number of the study reached 504.

A Google Forms questionnaire was used as the data-gathering instrument. This questionnaire, which was created based on the literature, comprised socio-demographic data of respondents, smoking characteristics, and a total of 22 COPD-related questions.

The obtained data were evaluated in IBM SPSS statistics (version 22.0) Statistics Package programs in the computer environment. The values of Shapiro-Wilks and skewness were analyzed to determine whether the data followed a normal distribution. Using the frequency and percentage distributions and the Chi-square test, normally distributed data were analyzed. $\alpha=0.05$ was established as the level of significance for all outcomes.

## Results

The mean age of the study's participants was 38.67±7.70 years (21-68). Of the participants, 241(47.8%) were female and 433(85.9%) were married. The most common of the participants were public school employees [81.5% (n = 411)]. When the participants are grouped according to the professions; 6.0% (n = 30) of the participants were preschool teachers, 27.2% (n = 137) were primary school teachers, 54.8% (n = 276) were branch teachers, and 12.0% (n = 61) were guidance counselors. Of the participants 140 (27.8%) were smokers. When asked about their awareness of COPD; 84.9% (n = 428) of the participating teachers had heard of COPD; 91.1% (n = 459) knew that COPD is a disease; 1.6% (n = 8) claimed that COPD is not a disease; and 7.3% (n = 37) did not know whether COPD was a disease or not (Table 1). The annual mean number of cigarettes smoked by participants was 16.78±7.77 packs, and the daily mean number was 14.38±8.29 (data not shown in the table).

In this study, 23.8% (n = 120) of the participants stated that they or a family member had visited a doctor for

**Table 1.** Participants' sociodemographic characteristics.

|  | n | % |
|---|---|---|
| **Age** | | |
| 34 and below | 183 | 36.3 |
| 35-44 years old | 211 | 41.9 |
| 45 years and older | 110 | 21.8 |
| **Gender** | | |
| Female | 241 | 47.8 |
| Male | 263 | 52.2 |
| **Marital status** | | |
| Married | 433 | 85.9 |
| Single | 71 | 14.1 |
| **Employment Institution** | | |
| Public School | 411 | 81.5 |
| Private School | 93 | 18.5 |
| **Specializations of Teachers** | | |
| Early Childhood Teacher | 30 | 6.0 |
| Primary School Teacher | 137 | 27.2 |
| Branch Teacher | 276 | 54.8 |
| Councelor Teacher | 61 | 12.1 |
| **Smoking Status** | | |
| Smoker | 140 | 27.8 |
| Nonsmoker | 364 | 72.2 |
| **Having Beforehand Heard About COPD** | | |
| Yes | 428 | 84.9 |
| No | 76 | 15.1 |
| **The Knowledge That COPD Is a Lung Disorder** | | |
| Yes | 459 | 91.1 |
| No | 8 | 1.6 |
| No Idea | 37 | 7.3 |

**Table 2.** Levels of COPD Awareness.

|  | Yes n(%) | No n(%) |
|---|---|---|
| Have you or a member of your family seen a doctor for COPD? | 120(23.8) | 384(76.2) |
| Have you or a member of your family been diagnosed with COPD? | 123(24.4) | 381(75.6) |
| **Risk factors for COPD** | | |
| Smoking | 436(86.5) | 68(13.5) |
| Air pollution and chemical exposure | 391(77.6%) | 113(22.4) |
| Afflicted with Asthma | 277(55.0%) | 227(45.0) |
| Genetic factors | 168(33.3%) | 336(66.7) |
| Nutrition | 122(24.0%) | 382(76.0) |
| Flu Infections | 100(19.8%) | 404(80.2) |
| No Idea | 40(7.9%) | 464(92.1) |
| **Methods to avoid COPD** | | |
| Sport | 374(74.2%) | 130(25.8) |
| Herbs obtained from herbalists | 58(11.5%) | 446(88.5) |
| Healthy diet | 323(64.1%) | 181(35.9) |
| To make hijamas | 40(7.9%) | 464(92.1) |
| Abstinence from tobacco products | 445(88.3%) | 59(11.7) |
| Not consuming alcoholic drinks | 205(40.7%) | 299(59.3) |
| Utilization of medication | 426(84.5%) | 78(15.5) |
| **COPD symptoms** | | |
| Cough | 426(84.5%) | 78(15.5) |
| Sputum | 250(49.6%) | 254(50.4) |
| Shortness of breath | 467(92.7%) | 37(7.3) |
| Fever | 24(4.8%) | 480(95.2) |
| Weakness | 176(34.9%) | 328(66.1) |
| Other symptoms | 20(4.0%) | 484(96.0) |
| **COPD Diagnosis** | | |
| Blood analysis | 79(15.7%) | 425(84.3) |
| Chest X-ray | 346(68.7%) | 158(31.3) |
| Computerized tomography | 350(69.4%) | 154(30.6) |
| Pulmonary function test | 341(67.7%) | 163(32.3) |
| No Idea | 99(20.4%) | 405(79.6) |
| **Treatment of COPD** | | |
| Inhaler | 127(25.2%) | 377(74.8) |
| Antibiotic | 97(19.2%) | 407(80.8) |
| Vitamin supplement | 57(11.3%) | 447(88.7) |
| Serum treatment | 44(8.7%) | 460(91.3) |
| Cough medicine | 81(16.1%) | 423(83.9) |

COPD. Also, 24.4% (n = 123) of the teachers in the study group have had COPD or have had a COPD-afflicted family member. When questioned about COPD risk factors; 86.5% (n = 436) of the participants cited smoking, whereas 77.6% (n = 391) cited exposure to air pollution and chemical agents. The next responses were asthma (n=255), poor nutrition (n=122), seasonal influenza (n=100), and genetics (n=168). Forty participants (7.1%) were uninformed of COPD risk factors. When asked what must be done to reduce the risk of developing COPD, 88.3% (n=445) of participants reported that they must not smoke and 84.5% (n=426) reported that they must use medication therapy. 74% (n=374) of respondents said they must exercise regularly, 32% (n=323) adhered to a healthy diet, 20% (n=205) said they must abstain from alcohol, 11% (n=58) said they must take herbal supplements, and 9% (n=40) said they must perform a hijama ritual. Shortness of breath was selected as the most prevalent symptom of COPD by 467 participants (92.7%), while wheeze was selected by 426 (84.5%). When participants were asked about the method used to diagnose COPD, the frequency

of those who said by chest X-ray was 68.7% (n=346), the frequency of those who said by Computed Tomography was 69.4% (n=350), and the frequency of those who said by pulmonary function test was 67.7% (n= 341). Of the participants, 99 (20.4%) were uninformed of how COPD was diagnosed. Inhalers were reported as being utilized

**Table 3.** Status of teachers' smoking.

| | Smoking status | | | |
| --- | --- | --- | --- | --- |
| | Yes* n(%) | No * n(%) | Total** n(%) | Test value/p |
| **Specializations of teachers** | | | | |
| Preschool teachers | 8(26.7) | 22(73.3) | 30(6.0) | |
| Primary school teachers | 37(27.0) | 100(73.0) | 137(27.2) | 2.781/0.427 |
| Branch teachers | 83(30.1) | 193(69.9) | 276(54.8) | |
| Guidance counselors | 12(19.7) | 49(80.3) | 61(12.1) | |
| **Employment Institution** | | | | |
| Public school | 112(27.3) | 299(72.7) | 411(81.5) | 0.183/0.669 |
| Private school | 28(30.1) | 65(69.9) | 93(18.5) | |

*: row total, **: column total.

**Table 4.** Hearing status of teachers regarding COPD.

| | Having Beforehand Heard About COPD | | | |
| --- | --- | --- | --- | --- |
| | Yes* n(%) | No * n(%) | Total** n(%) | Test value/p |
| **Specializations of teachers** | | | | |
| Preschool teachers | 28(93.3) | 2(6.7) | 30(6.0) | |
| Primary school teachers | 124(90.5) | 13(9.5) | 137(27.2) | 13.0983/0.003 |
| Branch teachers | 226(81.9) | 50(18.1) | 276(54.8) | |
| Guidance counselors | 50(82.0) | 11(18.0) | 61(12.1) | |
| **Employment Institution** | | | | |
| Public school | 353(85.9) | 58(14.1) | 411(68.8) | 2.653/0.103 |
| Private school | 150(80.6) | 36(19.4) | 186(31.2) | |

*: row total, **: column total.

**Table 5.** Teachers' awareness of COPD and smoking status.

| | Smoking status | | | |
| --- | --- | --- | --- | --- |
| | Yes* n(%) | No * n(%) | Total** n(%) | $X^2$/p |
| **Is COPD a disease?** | | | | |
| Yes | 128(91.4) | 331(90.9) | 459(91.9) | |
| No | 2(1.4) | 6(1.6) | 8(1.6) | 0.045/0.978 |
| No idea | 10(7.1) | 27(7.4) | 37(7.3) | |
| **Having heard about COPD beforehand** | | | | |
| I Heard | 120(85.7) | 308(84.6) | 428(84.9) | 0.095/0.757 |
| I Didn't Hear | 20(14.3) | 56(15.4) | 76(15.1) | |

*: row total, **: column total.

in the management of COPD by 25.2% (n = 127) of the study's participants (Table 2).

It was discovered that 89.3% of the participants (n=450) thought that environmental exposures (air pollution) and exposure to dust, smoke, and chemicals in particular occupational groups contribute to the development of COPD. The percentage of individuals who think smoke from a fire, wood, coal, or tandoor poses a risk for developing COPD is 45.2% (n=228). Of the participants 255 (50.6%) stated that COPD is treatable. When asked which age group has the highest prevalence of COPD, 74.6% (n = 376) of the participants replied 40 or older, 4.2% (n = 21) stated

youth, and 0.4% (n=2) stated childhood. Of the participants 115 (20.8%) reported that they were uninformed of the age range in which COPD is most prevalent (data not shown in the table).

This study found that 26.7% of preschool teachers smoked (n= 8), 27.0% of primary school teachers smoked (n = 37), 30.1% of branch teachers smoked (n = 83), and 19.7% of guidance counselors smoked as well. There was no statistically significant difference in the smoking rates of teachers based on their areas of specialization. ($X^2$ = 2.781/p = 0.427). This study found that 27.3% (n = 112) of public school teachers were current smokers, while 30.1% (n =

28) of private school teachers were current smokers. However, there was no statistically significant correlation between the institutions in which the teachers worked and the prevalence of smoking. ($X^2 = 0.183/p = 0.669$) (Table 3).

In this study, the frequency with which preschool teachers heard about COPD was 93.3% (n = 28), the frequency with which primary school teachers heard about COPD was 90.5% (n = 124), the branch teachers heard about COPD was 81.7% (n = 226), and also the frequency with which guidance counselors heard about COPD was 82% (n = 50). There was a statistically significant variation in the frequency with which teachers heard about COPD according to their specialty areas. ($X^2 = 13.0983/p = 0.003$) (Table 4).

When asked if COPD is a disease, 91.4% (n = 128) of the smokers in the study group responded yes. There was no significant difference between those in the study group who smoked and those who did not smoke regarding their awareness of COPD as a disease. ($X^2 = 2.781/p=0.427$). Among smokers in the study group, 85.7% (n = 102) had heard of COPD, while 14.3% (n = 20) had not. There was no statistically significant difference between the smoking status of the teachers in the study group and their hearing about COPD ($X^2 = 0.095$; p=0.757) (Table 5).

## Discussion

In this study, the smoking habits and COPD awareness levels of teachers working in the province of Sanliurfa were examined. There were 504 participants in the study, and the mean age was 38.67±7.7 years. When the sociodemographic data were analysed, it was determined that the majority of participants were male, and that a high proportion of individuals were married. The majority of participants in this study were employed by public schools. The majority of the participants (over fifty percent) were branch teachers, followed by primary school teachers and guidance counselors.

In the study by Çoban et al., 31.5% of the participants were reported to be smokers [14]. In contrast, the study conducted by Danacı et al. revealed that 40.7% of Manisa teachers smoked [15].When analysing the smoking status of the participants in this study, a rate of 27.8% was determined.

In a study conducted in Turkey to discover how much respondents knew about asthma and COPD, 49.6% of participants knew COPD is a lung disease, whereas 47.9% did not [16]. A 2010 Canadian awareness assessment study found that 39% of Canadians were aware of COPD [17]. In this study, 91.1% of teachers were aware that COPD is a pulmonary disease. This study revealed that participants' awareness of COPD was greater than that of other studies in the literature. It is probable that this is attributable to the high level of education of the study population. Also, of the participants 120 (23.8%) in this study stated that they or a family member had visited a doctor for COPD. Family members or teachers own previous doctors' application for COPD may also contribute to these result.

The outcomes of this study indicate that 93.3% of preschool teachers were aware of COPD, along with 90.5%

of primary school teachers, 81.7% of branch teachers, and 82% of guidance counselors. It was revealed that there was a statistically significant variation in the frequency with which teachers heard about COPD based on their specialty areas.

The prevalence of COPD varies considerably from country to country and area to region, but ranges between 3 and 21 percent globally [10]. A prevalence study conducted in Turkey in January 2004 found that the prevalence of COPD in people over the age of 40 in Adana, Turkey, was 19.1% [18]. 24.4% of the participants in this study indicated that they or a member of their family had been previously diagnosed with COPD. This study's high prevalence can be attributed to the fact that participants were asked if they or any of their close relatives had been diagnosed with COPD. We think that the prevalence would be lower if only the participants were questioned about there own diagnosis status.

In a 2018 study conducted in Turkey, 62% of participants identified smoking as a risk factor for COPD [19]. In a Canadian study of the causes of COPD, 69% of respondents identified smoking as the most significant cause [17]. A study conducted in China revealed that respondents were knowledgeable that smoking is a significant risk factor for COPD [20]. The majority of participants in this study identified smoking as the most significant risk factor for COPD. Asthma and exposure to air pollution and chemical agents were also listed as risks.

The participants of 87% were reported smoking as the most important factor in the development of COPD in a study conducted in Kırıkkale [21]. When asked how to prevent COPD, the vast majority of this study's participants (89%) chose to abstain from smoking. This was followed by the options of engaging in sports, consuming a healthy diet, and abstaining from alcohol.

In a Turkish study by Daşkapan et al., 88% of participants correctly identified the symptoms of COPD [21]. The most prevalent symptom of COPD, as reported by 94.4% of the participants in this study, was shortness of breath, whereas cough was reported by 84.1% of the respondents.

COPD should be considered in the presence of risk factors in individuals with shortness of breath, chronic cough, and/or sputum production and a pulmonary function test should be performed to diagnose the condition [22]. 69.8% of the participants in this study selected testing for pulmonary function as one of the diagnostic procedures for the diagnosis of COPD. The option of chest X-ray was selected by 69.2% of the participants, whereas the option of computed tomography was selected by 73.4%. 20.4% of participants were uninformed of how COPD is diagnosed.

In addition to smoking, environmental exposures (air pollution), occupational exposure to dust smoke and chemicals, cooking with firewood, baking bread, preparing tandoori bread, and heating homes with firewood and coals all contribute to the development of COPD [22, 23]. In this study, 89.3% of participants were aware that occupational exposures (dust, smoke, and chemicals) and environmental exposures (air pollution) led to the development of COPD. 45.2% of them knew that cooking over wood fires, making bread, tandoori bread, utilising wood in the home, and

heating with coal all led to the development of COPD.

In the study conducted by Yıldız et al., only 25.2% of participants were aware that COPD is treatable [16]. The participants in this study had a level of awareness of 50.6% about the fact that COPD is a treatable disease.

According to the findings of the study conducted by Çoban et al., 31.5% of those who participated in the study were smokers [14]. In contrast, Danacı et al. reported a smoking rate of 40.7% among Manisa teachers in their study [15]. In a study of teachers in Kocaeli conducted by Barış et al., in which the smoking prevalence and COPD prevalence were analyzed jointly, 44% of the participants were reported to be active smokers [25]. When the smoking behaviors of the participants in this study were analyzed, it was discovered that 27.8% were smokers. This study found a smoking rate among teachers that was substantially lower than what prior studies had indicated.

35.3% of teachers were found to be smokers in a study of guidance counselors in Kayseri [11]. 26.2% of primary school teachers and 37.7% of secondary school teachers were found to be smokers in a study conducted in Spain [26]. 27.3% of public school teachers and 30.1% of private school teachers were smokers, according to this study. However, there was no statistically significant variation in smoking frequency based on the institution where the teachers worked. 26.7% of preschool teachers, 27% of primary school teachers, 30.1% of branch teachers, and 19.9% of guidance counselors were smokers. There was no significant difference between the smoking rates of teachers from different departments.

## Conclusion

The rate of smoking among Sanliurfa teachers was found to be lower than that stated in the literature, according to this study. In this study, it was revealed that teachers knew more about COPD as a lung disease than teachers in earlier studies of a similar nature. This may be due to the high education level of the study population. The frequency with which preschool teachers heard about COPD was higher than that of other teacher groups. The participants in this study had a high level of awareness of the risk factors for COPD, the disease's symptoms, prevention methods, and the fact that COPD is a treatable disease. We think it would be advantageous to leverage on this high level of awareness to protect students from smoking and numerous smoking-related disorders, including COPD.

*Ethical approval*

This study was approved by the Harran University Ethical Committee (22/05/29; session: 05; decision no: 29).

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