## Good research paper about contributions of dust exposure and cigarette smoking to...

Health & Medicine, Addiction



Chronic obstructive pulmonary disease (COPD), or else known as chronic obstructive airway disease (COAD, is a form of obstructive lung disease categorized by persistently reduced airflow and it is typical for this situation to get worse over the years. The key symptoms comprise of shortness of breath, cough, and mucus making . It is not uncommon for individuals with bronchitis to show symptoms of COPD . Smoking is considered one of the main factors in causing COPD along with other important causes including air pollution and genetics. Nowadays, and especially in Third World Countries, insufficient cooking and ways of heating are a key factor for the disease with lasting exhibition that can produce an fiery reaction in the lungs causing in a tightening of the small airways and slow collapse of lung material that is more familiar as emphysema. Ways for the disease to be diagnosed is the measurement of airflow of the lungs with lung performance testing and contrary to asthma the airflow decline does not get better with the provision of pharmaceutical drugs.

The disease can be stopped by lowering or completely pausing disclosure to the main factors mentioned above. This contains energies to decrease the number of smokers and the improvement of air quality. Other treatments include: resigning from smoking, immunization through injection and often using bronchodilators. It has been observed that long-term oxygen therapy or receiving lung transplants.. Around the world, this disease touches more than 300 million people or an estimated 4% of global population and a few years ago it was categorized as the third-leading cause of death claiming the lives of around 3 million people. But this figure is expected to rise since smokers are increasing and the global population is getting older. There is a difference between chronic obstructive pulmonary disease and emphysema. The acronym COPD is an umbrella term which contains asthma, chronic bronchitis and even emphysema. The latter is more than often the immediate result of chronic smoking and it can influence mainly elder individuals. The part of smoking is also crucial. Almost 500 hundred thousand people in the USA die each year due to diseases that are connected with smoking. It is estimated that an average of 14 years of life are lost for smokers and almost 50% of lifelong smokers die early. Smokers also are in peril of perishing from lung cancer before age 85 with a chance of an average of approximately 15% for male and female smokers. Some diseases that can stem from smoking are vascular stenosis, cancer and of course, as mentioned above, COPD.

Administrations around the world are struggling to prevent people from smoking with the use of campaigns in mainstream media by emphasizing the damaging lasting effects of smoking. Additionally, passive smoking, which influences people in the surrounding area of smokers, is considered a main reason for the implementation of smoking bans. Smoking bans are laws imposed to halt people from smoking in public places.

## Image 1: A USA government graph showing the correlation between smoking and lung cancer.

A number of studies have revealed relations between dust exposure or lung problem and emphysema in coal miners even though the distinct influences of various predicting factors have yet to be unmistakably shown. We will try to measurably assess the connection between increasing exposure to coalmine dust that is inhaled, smoking, and other influences on the extent that a person shows the symptoms of emphysema. We will be based on a 2008 survey that watched a group of 722 coal miners in the USA. But first we have to familiarize with COPD and the problems it causes. To examine the physiology of the lungs we first must think of the bronchi of the lungs like small bloats that expand and shrink when a person breathes. But if and when the bronchi become injured, they are unable to inflate and deflate correctly, something that consequently makes it hard to breathe. As the bronchi become lastingly overextended, the lungs will have trouble absorbing oxygen and ejecting carbon dioxide. Subsequent lung damage could result in grave health problems. Although, there is yet a total treatment to be found for COPD, the symptoms can be treated in general and the disease's advancement can be prevented. The main target of the disease controlling is to decrease risk determinants and to restrict the disease in a stable and viable for the patient state.

So, in the 2008 survey, data was gathered on work past, smoking condition – if the person that was examined was a smoker or not- the ethnicity, the race, the age that the person died along with a questionnaire given to the relatives of the person examined. Emphysema was characterized and rated with the use of an homogenous representation. The past of the workers was checked in terms of mean aggregation of inhalable coal mine dust and in analogue terms with work histories to estimate growing exposure. Relations amid numerous measuring factors of dust hazard together with increasing exposure and lung dust problem and emphysema hazard were examined in weighted least squares regression simulations. The comparative influence of job-related dust exposure and smoking to COPD is related to job-related and

environmental factors that favor lung disease in general but what is more interesting is that there is a relation with coal mining. The view that that the COPD disease as well as emphysema which is categorized under the general term, is triggered mainly by smoking has slowed down the prospect for primary preventive measures, finding the disease and treating it. This view perseveres in the medical world in spite of numeral studies that that indicated that the presence of dust in the work environment in general is connected with disruptive respiratory problems and functional deficiency. Also, studies have demonstrated the relation of the coal mining profession with a higher risk of developing chronic obstructive pulmonary disease including emphysema comparative to the non-miner population. Bigger rates of death from COPD have been linked with increasing exposure to inhaled coal mine dust with the smoking history taken into account. A noteworthy negative connection between emphysema hazards during the span of their lifetime was demonstrated in gold miners from South Africa and also in a subgroup of miners in the present study. In a controlled environment examination of USA coal miners, COPD was the main lung disease that was rapidly rising among miners with rapid decline in FEV1 (FEV1, else known as Tiffeneau-Pinelli index is a designed proportion utilized in the identification of obstructive and restrictive lung diseases. It is the ratio of an individual's vital lung capacity that he can expire in the first second of expiration). Airflow restriction, which is typical of COPD, is triggered by a combination of big airway disease and lesser airway disease. Part of the effort in defining the significance of dust exposure in coal miners or smoking, and other issues of COPD comes from the tricky diagnostic task of discovering the numerous

sources of airway obstruction since those reasons are connected with shortages in FEV1 and though a conclusive diagnosis of emphysema is constructed on anatomic foundations assessed by pathologic surveillance of the individual's lung as a whole, it could also be perceived on typical chest radiographs and sorted by computerized tomography.

## Image 2: Correlation Graph of Emphysema hazard to Overall Coal Mine Dust Exposure

Only a handful of studies had the numerical data to determine the relations among dust exposure, smoking, and emphysema hazard. In the 2008 study, the job related miners' overall exposure to coal mine dust is valued with the usage of individual miners' data. This information is used to study if this dust exposure is linked with CODP hazard after clarifying the role of other influences like smoking.

After analyzing a study group consisting of 722 examined individuals, including 616 coal miners from southern West Virginia it was found that total exposure to inhaled coal mine dust was a greatly important forecast factor of emphysema hazard with a p-values of 0. 0001 (the p-value is the likelihood of finding the observed sample outcomes -or a more excessive outcomewhen the null hypothesis is essentially correct. If the p-value that was found is significantly small, typically in an area of values of 1% to 5%, that was beforehand selected known as the significance level it advocates that the detected information is inconsistent with the supposition made that the null or zero hypothesis is true and as a result this hypothesis must be renounced and the other hypothesis acknowledged to be true) after measuring smoking using the index of the number of packs smoked during the years, how old the miner was at the time of his death and his ethnicity (nonwhite). It becomes evident that emphysema hazard is projected to rise with increasing exposure to inhaled coal mine dust.

As a result, it becomes evident in the 2008 study that there is a correlation between the factors that were examined, increasing exposure to coal mining dust, smoking, age at death, and race can with great chance, forecast emphysema hazard in the group that was examined. COPD is linked with factors such as smoking, air pollution, and job-related exposure. Still, it is essential to establish a bigger knowledge of the parts played by each aspect in triggering respiratory damage. An improved perception of the main COPD conjecturers that can and will improve prospects for the main stoppage, the analysis, and medical supervision of such dust-related syndromes. This along with additional influential studies have showed the meaning of medical appraisal of lung physiology and meaning together with radiological variations, to establish the full danger of lung diseases in the coal mining population.

The principal avoidance of dust-related COPD consists of restraining contact with the substance through practical standards, dust control, and private protective gear for each individual provided by the employer; minor actions comprise of premature diagnosis and therapy supervision as soon as possible. Refining disease investigation and alertness among health-care specialists and maybe even more significantly, among the local mining communities about the work-related mechanisms of COPD together with emphysema can aid in the direction of real detection and controlling those diseases since the consequences of dust that are reported in this study are related to existing situations in numerous countries, along with the USA,

where a rise in quickly progressive pneumoconiosis has lately been detected.

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