

SAFETY MEASURES AND HEALTH HAZARDS AMONG COAL MINERS

Dr Adnan Khan Hamdard University Hospital khi,pakistan.

Background and Aims: Coal is a naturally occurring mineral and a large source of fossil fuel throughout the world. Its importance in Pakistan increases as other fuels, like petroleum are scarce and expensive coal is abundant and cheap. Coal dust comprise of carbon, hydrogen, oxygen, nitrogen, sulphur, quartz and some traces of iron, lead and copper. These particles are not degradable and deposit in lung throughout the life of coal mine worker. These particles resulting in fibrosis of lung, initially starting as chronic bronchitis and asthma and finally end up as coal mine worker pneumoconiosis. Almost no significant work is done at major levels either from the government or from private sector, regarding studying the health hazards and their effects among mine workers of Pakistan. The objectives of our study was to find out safety measures practices by coal miners and the occupational health hazards which are suffering from coal mine extraction.

Methods: A cross-sectional descriptive type of study has been carried out. Population targeted during this case study was the coal miners of Lakhra Coal field, Sindh. Random sampling was done and Sample size was 100 coal mine workers. The questionnaire we devised for this study which was then presented to individuals with different educational status, field of work and family background. SPSS software is used for data analysis.

Results: Out of 100 participants, 77% are illiterate. Half (50%) of the workers think that they have risk to their health in this job. Majority of workers (>90%) are not using proper safety measures. 53% of the workers think that safety measures are necessary and required during their work. Nearly 60% of the workers have the back pain and pain in their hands. 39% of the workers have heart burn. Less than 60% of the workers have the symptoms of lung disease like cough and trouble in breathing. Majority 83% of the workers are addicted out of them 76% are addicted to naswar. 84% of the workers have not got any training before joining to job.

Conclusions: Majority of the diseases found in coal mine workers are due to the improper use of safety measures. Proper supply of protective measures, regular medical check up, and different health based educational programs help to improve the quality of the life of coal mine workers.

References:

- [1] Kleinfeld M, Giel CP, Pneumoconiosis, J Chronic Diseases 1959, 9, 117-133.
- [2] Mamya SHD, Bratveit M, Mashallah Y, Moen B, High prevalence of respiratory symptoms among workers in development section of a manually operated coal mine in a developing country; A cross sectional study, BMC Public Health 2007, 7, 17.
- [3] Wagner GR. Asbestosis and Silicosis, The Lancet 1997, 349, 1311-15.
- [4] Caplan A, Certain unusual radiological appearances in the chest of coal mines suffering from rheumatoid arthritis, Thorax 1953, 8, 29-37.
- [5] Payne RB, Serum protein fractions in rheumatoid pneumoconiosis without arthritis, J Clin Pathol 1962, 15, 475-77
- [6] Thomas AJ, Cotes JE, Higgins ITT, Prevalence of coronary heart disease in elderly coal workers, The Lancet 1956, 267, 414-420.
- [7] Goldman KP, The diagnosis of lung cancer in coal miners with pneumoconiosis, Br J Disease of chest 1965, 59, 141-147.
- [8] Gilbert HR, Speech characteristics of miners with black lung disease (pneumoconiosis), J Communication Disorders 1975, 8, 129-140.
- [9] Clayson DB, Occupational Bladder Cancer, Preventive Medicine 1976, 5, 2228-244.
- [10] Jacobsen M, Smoking and Disability in miners, The Lancet 1980, 316, 740.
- [11] LeFevre ME, Green FHY, Joel DD, Laqueur W, Frequency of black pigment in liver and spleen of coal workers: Correlation with pulmonary pathology and occupational information, Human Pathology 1982, 13, 1121-1126.
- [12] Ong TM, Whong WZ, Ames RG, Gastric cancer in coal miners: An hypothesis of coal mine dust causation, Medical Hypothesis 1983, 12, 159-165.
- [13] Carreck GC, Eye injuries in coal mining, Injury 1989, 20, 145-148.
- [14] Becklake MR, The mineral dust disease, Tubercle and Lung Disease 1992, 73, 13-20.
- [15] Ngoan LT, Yoshimura T, Work, Salt intake and the development of stomach cancer, Medical Hypothesis 2003, 60, 552-556.
- [16] Rempel DM, Evanoff BA, Hagberg M, Cherniack M, Evanoff BA, Darby PS et al., Text book of Clinical Occupational and Environmental Medicine, second edition 2005, 495-548.
- [17] Punnett L, Wegman DH, Work related musculoskeletal disorder: the epidemiologic evidence and the debate, J Electromyography and Kinesiology 2004, 14, 13-23.
- [18] Hendryx M, Donnel KO, Horn K, Lung cancer mortality is elevated in coal mining areas of Appalachia, Lung Cancer 2008, 62, 1-7.
- [19] Morgolis KA, Underground coal mining injury: A look at how age and experience relate to days lost from work following an injury, Safety Science 2010, 48, 417-421.
- [20] Saadia Ashraf, Mukhtiar Zaman, Amber Ashraf, Knowledge, attitude, perception of coal mine workers of Shangla district regarding occupational safety measures, Pak J Chest Med 2005;11(1):11-7.
- [21] Simon HD Mamuya, Magne Bratviet, Yohana Mashalla, Bente E Moen, High prevalence of respiratory symptoms among workers in development section of a manually operated coal mine in a developing country, BMC Public Health 2007, 7:17.
- [22] Mukhtiar Zaman, Saadia Ashraf, Amber Ashraf, Pulmonary function test and chest finding in coal mine workers with respiratory symptoms, Pak J Chest Med 2006;12(1):3-10.