

Occupational risk factors in manual coal mining industry in Eastern India – a perspective



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It is an opportunity for me to share my beliefs, vision and concern about this journal which has embarked onto its second issue in its second year. All new ventures in publishing are tiresome; risk prone and challenging and our heartfelt thanks go to some passionate core colleagues for nurturing this upcoming journal through its vital early developmental periods. It is the outcome of their flair and imagination that has established the journal in its new set up that manages to combine an attractive readable style with the quality of content that busy academicians are looking for. In this issue it includes original articles in several areas like psychosocial perception of medical students while going through their professional course, effect of advancing age on pulmonary functions in petrol pump workers etc. I personally believe that the journal now has a strong base on which it could further build up and we thank sincerely to the core committee members of the editorial team again for their commitment and skill they demonstrated in achieving this position.

Now I would like to share some areas of my research activities in occupational health which mainly pivoted around the underground coal mining sector. Like all other developing countries, mining plays an important role in developing and strengthening social and economic infrastructure of India. Though increasingly stringent health, safety, and environmental regulations, together with rapid technological advances, have resulted in enormous improvements in man-machine and environmental domains, loopholes in implementing regulation keep millions of miners at severe risk.

Although, occupational health practice is gaining momentum in India, but still it is the miner's plight that proper systematic health care services are lacking. Studies on workload and energy expenditure in different mining operations particularly for manually operated underground haulage mines are still very sketchy and will be useful to utilize miner's potential more effectively in different working scenario. The scope that I had come across working in this field highlighted some fact that cardiac responses and aerobic strain in some mining activities during their actual



course of work had been really beyond the permissible limits—a fact well supported by previous investigators in different mining sector across the world [1-3]. Usually underground miners were inclined to have a lower than average aerobic capacity compared with general population and to other occupational groups. A similar decrease in VO₂max between miners of different age group was observed and the older group showed a greater degree of decline as compared to the younger miners. This finding corroborated to their declining capacity in attaining the maximal heart rates and the falling efficiency of circulatory regulation during exercise in concert with deterioration of the respiratory functional capacity.

The workload on the basis of several cardiac indices and recovery of the miners in Indian scenario was categorized as 'very heavy' to 'extremely heavy' for some important mining activities. The unaffordable sustained and slow recovery pattern of the miners after their completion of respective work not only substantiated to their insufficient capacity but also implied overexertion of their cardiovascular system. This becomes a big challenge to overcome for the mining workforce especially to the aged miners as the cardiovascular system get doubly burdened which is a common occurrence in mining industry and thereby enhancing early sensation of fatigue and deterioration in their performances[4]. Moreover environmental status encountered in most manual mines in terms of heat stress indices(Effective temperature and Wet bulb globe temperature)were well above the different recommended criteria for heavy work load and as well as for continuous work as suggested by WHO and American Conference of Governmental Industrial Hygienists[5, 6]. From this view point it can be stated that the exacerbated environmental condition together with job nature were likely to cause a detrimental effect on the health of the miners and bound to reduce their overall performances.

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