



Title : Caring Occupational Stress of Coal Bikers in Eastern India Coal-belt – a Debatable Issue

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Introduction: Hundreds of people in Eastern India Coal belt are engaged in a strenuous occupation of carrying sacks of raw coal or coal dust weighing 250 to 400 kilograms and travel 30 to 40 Kilometers with the load through the ups & downs road of Chotanagpur Plateau. A journey of 60-80 kilometers and carrying heavy loads on a Bicycle in a day under scorching sun or in chilled air can challenge any severe manual occupation in India, demanding high calorie expenditure along with severe occupational stress. The people engaged in such decades old manual occupation earn only 300 to 400 INR in a single trip and can manage only 10-15 such trips in a month. Though this very occupation is known to everyone, yet neither any change has been brought in this occupation nor has someone thought about the welfare of this unfortunate work force. The present paper has attempted to unveil information regarding the occupation as well as the occupational stress to the coal carrying bikers including several ergonomic stresses. This paper will also try to highlight the mechanical disadvantages during carrying the huge load on a bicycle in the uneven terrain and the bikers' way of carrying.

Methodology: 78 (seventy eight) coal bikers were evaluated between March'09 to July'12 through a simplified survey format with pictorial presentation of body parts. Few simple & portable diagnostic types of equipment like Pulse Oxymeter, Electronic BP Monitor, Oxylog, Glucometer and standard height & weighing machines were used during the survey. Clinical examinations were done at the different resting places of their journey. The Heart rate was recorded at rest and during coal carrying and indirect energy expenditure was calculated. Analyses of the cycles as well as load arrangements were done for ergonomics evaluation.

Results: The bicycle, which a biker uses for the occupation, is a modified version of common bicycle. The wheels are replaced with cycle rickshaws' stouter wheel, spokes are twice or thrice the diameter of conventional cycle and the hubs are stronger. They use tough tyres which are generally used in cycle van. Some cycles have stronger frames with welded additional metal plates. The art of the occupation lies with the balancing the load on the frame. The load may range from 2-4 plastic or jute bags with a varied load of 60-100 kgs each or 8-12 bags loading 20-25 kgs per bag. All the bags are stacked in such a manner, that the cycle can move with optimum CG balance and with less frictional resistance. Some times the experienced older bikers help the new entrants for stacking the load on the cycle. Detailed physical and physiological data of present study has opened a new area of interest on such occupation. Two different types of population engaged in the occupation, one regular and other seasonal group, involved in coal biking only during jobless period. The two groups differ significantly, both in physical and physiological status. Generally the seasonal group of workers is engaged in agricultural work or in building job. They join the coal biking occupation as and when they are job less. Author has succeeded to contact eight persons who left the occupations due to their ailments are all belonging to seasonal group. Five of them are now physically challenged due to acute Musculo-skeletal disorders (two cases of Slip disc, one disc prolapsed, one cervical spondylocis and one knee join osteoarthritis), two of them are suffering from IHD and one with abscess in Varicose vein. It is evident that except IHD, all other diseases have a close association with the said occupation.

Conclusions: The present paper concludes that coal-biking is a severe strenuous and hazardous occupation in eastern India coal belt. Acute MSD and abscess in varicose vein are the main occupational diseases which forced them for self termination of this occupation in early fifties. Less muscle mass and unduly heavy workload for pushing on uneven terrain is the prime factors for the onset of MSD. The treatment facilities are insufficient to those occupational disorders in local health centres. As they can not afford higher medical facilities, the bikers spend a miserable life at home. The intention behind the pilot research is to initiate a debate whether our developing society can keep a blind eye on the poor health conditions of the coal bikers or start a medical welfare scheme to prevent them from immature disability due to the very strenuous occupation. The paper has emphasized on academic interest only.