

Workplace Environment & Sanitation of Coal Miners among Damini Colliery in Shahdol

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ABSTRACT

Occupational health is a field of health care composed of many disciplines devoted to the well-being and safety of workers in the workplace. Whether the worker gets or not, adequate equipment and suitable environment to do work in coal mines. How much they know about themselves which was related to their health and suitable them for working in the mine. The present study was conducted among 400 male coal mine workers. Out of total a more than 60% of miners point of view have satisfactory temperature, ventilation and lighting arrangements in their workplace. 89% of workers stated that the colliery was not clean. 25.8% of miners think that they have health problems due to their mining job. This naturally exhausts a worker and Working conditions at workplace and environment play vital role in work efficiency, productivity and to maintain good health of the workers.

Keywords: *Health, environment, miners, pollution, individual security.*

Introduction

Every occupation is more or less associated by certain health hazards. Coal mining is no exception. Industrial work is different from normal work. The most important feature of industrial work is the separation of labour from the product and the means of production. As a result, he has no feeling of belonging. Another reason for the feeling of non-belonging is that a large proportion of industrial workers do not enjoy work, especially in the lowest ranks of the industry. Work has become only a means to fulfil other needs. It also creates a feeling of isolation from work.

It is clear now, that the importance of the relationship between men and work in industry has long been recognized. Because, a large part of a man's life is spent at the workplace. Therefore, if the industry has a favourable working environment, then man can do his work effectively. There is no doubt that people usually wish for pleasant to unpleasant surroundings. When attention is paid to creating a work-friendly environment as well as methods of actual job performance, overall happiness prevails (Blum et al, 1968). Overall, happiness for the worker is not only a state of greater satisfaction and higher morale, but it also results in ejecting a sense of non-belongingness from their mind. According to Luthans in 1977, the physical environment, the socio-cultural environment, and the technological environment that constitute the total function will affect people's behaviour and performance in organizations. Physical working conditions such as resources, climate or atmospheric conditions and working conditions will affect workers' performance and job satisfaction.

Material and Method

The present investigation was done in Damini Colliery of South Eastern Coal Limited (SECL) which has located in sohagpur area 20 kilometers approximately from Burahar block of Shahdol district, MP. In this study all the available workers were covered. A semi-structured interview- scheduled for the collection of data from 400 male coal mine workers of different age groups has been made. Demographical data viz. age, education, duration of mining work, any health issues during mining job, cleanliness of environmental etc. were collected in the semi

structured schedule. All examination was done according to the Declaration of Helsinki (2013).

Work Environment - Changing Views

The circumstances in which a person works have a clear impact on his health, efficiency, psychology, and the quality of his work. It has been said that the environment makes a man, and if we improve the environment then we improve the man (Saxena, R.C. 1963). Many countries have realized that measures to improve working conditions and environment are an integral part of any balanced developmental policy on economic and social grounds. This fact four times i.e. in the years 1972, 1974, 1975 and 1976 the International Labor Conference adopted the proposals at work and its atmosphere acknowledges that the world was awakened to the urgency of the issue (Coal Mines Committee Report-I, 1945). In India, this aspect was the point of focus in all the earlier commissions and committees on labor. The Royal Commission on Labor (1931) was the first to bring out the details of the dreaded working conditions prevailing in various industries. Just before independence, the Raje Committee (1946), considering the working conditions under the three main heads., Ventilation, temperature, and lighting, expressed dissatisfaction over the current situation. The workers were indifferent to speculate that was inattentive and satisfied himself by satisfying the letter of the law rather than merely by the spirit of the law (Labour Investigation Committee Report, 1969).

Ventilation, Temperature and lighting

Regulation 130 states that “it shall be the duty of the owner, agent or manager of each mine to take such steps as are necessary to ensure that all parts of the mine below the ground have ventilation that is not closed, ventilation. It is sufficient to dispel clear gases that emit smoke and steam that are flammable or toxic in order to render them harmless, providing a sufficient amount of oxygen-rich air, and at such extreme temperatures. To prevent growth, moisture can be detrimental to a person’s health.

Sun never shines there constant source of problem of lighting in underground coal mine. The prolonged darkness creates a discouraging effect on the worker. It cannot be denied that much headway has been made in lighting in

the recent years. Cap lamps are provided to all workers before entering underground. This consists of a battery tied to the waist belt from where a wire leads to the light. It can be held in hand or be fixed to the helmet. These are helpful for tracking the road. But it does not make the work place a part of the normal world.

Table 1: workers outlook on ventilation, temperature and lighting

S.No.	Workers outlook	Ventilation		Temperature		Lighting	
		N	%	N	%	N	%
1	Good	50	12.5	36	09	60	15
2	Satisfactory	242	60.5	260	65	268	67
3	Poor	108	27	104	26	72	18
	Total	400	100.0	400	100.0	400	100.0

Workers outlook on ventilation, temperature and lighting at workplace

Workers' opinions about ventilation are given in Table 1. A good majority (i.e. 60.5 percent in underground mine) have felt that it is 'satisfactory' and one-eighth of them (i.e. 12.5 percent) have acknowledged that it is good. It is observed that one-third of the workers (i.e. 27 percent) are not satisfied with ventilation.

The table 1 shows that a significant majority of overall respondents (i.e., 65.0 percent) in the underground mines consider the degree of temperature as alright. It is quite disheartening to note that only a few workers (i.e., 09 percent) have regarded the temperature as good. Those who perceived temperature to be bad constituted a little more than one-fourth (i.e., 26 percent).

The opinions of workers with regards to lighting facilities available to them in work places are computed in table. As seen from the table, a significant majority (i.e., 67 percent) of workers in underground mine express the lighting arrangements as satisfactory. One-sixth of them (15 percent) have felt that the lighting arrangements are good. But poor lighting is reported by equal number of the respondents from underground mine i.e., 18 percent.

Table 2: Occupational hygiene related questions

SN	Occupational hygiene related questions	Yes		No		Total	
		N	%	N	%	N	%
1	Colliery near cleanness found	44	11.0	356	89.0		
2	Clean Toilet	84	21.0	316	79.0	400	100.0
3	Spraying water for remove dust	24	6.0	376	94.0		

Cleanliness- It is believed that the cleanliness is next to godliness. As such, an enquiry has been made into this aspect and the opinions of respondents in underground mine are provided in Table 2. Majority of the respondents (i.e., 89 percent) hold the view that there is no cleanliness in the mine. Only a few workers said yes, there have cleanliness (i.e., 11 percent).

Dust- As per the National Coal Wage Agreement-IV, dust masks should be provided to every worker who is heavily exposed to dust conditions. The agreement also mentions that a dust allowance also must be provided by the management. Interestingly, it is found that neither the workers nor trade union leaders are aware of the dust masks required by the Wage Agreement. However, it is observed that the trade union leaders are interested in dust allowance, although they never raised the issue of dust masks with the management. It shows that they are interested in the monetary benefits of the workers rather than their health condition. For removing dust particles, most workers believe that spraying of water is necessary, but majority of the workers (94 percent) said that there is no water spraying. Only a few workers said yes (06 percent) there have spraying water for remove dust.

Toilet- Most of the working time miners lives in an underground colliery so they do not have proper toilet facility there. Washrooms which have been made outside, no water and due to excessive stink, workers have also risk of health problems. There have too smelly and unhygienic toilets. Most of the workers said there have no clean toilet (i.e., 79 percent) and only few of workers answered that there have clean toilet provide (i.e., 21 percent).

Health problems

Table number 3 shows health problems of workers during mining job. A one fourth part (i.e. 25.8 percent) of workers feels that they have health problems during

their mining job, but majority of workers (i.e. 74.2 percent) stated that they do not have any health problem during their job.

S.No.	Health Problems (During mining job)	N	%
1	Yes	103	25.8
2	No	297	74.2
	Total	400	100.0

Occupational Hazards

Every modern industrial occupation includes some quantity of hazard, but the risk faced in underground coal mining has exceeded that of many other industries. Taking frequency of fatal accidents as the yard stick coal industry stands out as the most hazardous one next only to galena, copper, gold and chemical industries during 1980. The hazards that a coal miner faces can be broadly grouped under two heads viz., accidents and occupational diseases.

Occupational Diseases

Some major health problems are lung diseases known as pneumoconiosis, tuberculosis (T.B.) etc. The other common diseases that arise out of a poor working environment are bronchitis, tropical eosinophilia, ankylostomiasis (hookworm diseases), dermatomycosis (serious skin diseases), beat knee etc. Out of these the most predominant and serious disease is still pneumoconiosis. It is common knowledge that in industries like cement, refractory coal etc. where dust concentration is high at the work place, incidence of tuberculosis is also high. But it is astonishing that it does not yet find place among the list of occupational diseases appended to the compensation law at SECL. The usual counter argument is that T.B. can also be caused even if a person is not engaged in such occupations. Such an explanation sounds ridiculous and irrational in the light of Indian conception of welfare state, but only a few workers have found tuberculosis in Damini colliery in SECL. No serious health problems like pneumoconiosis, bronchitis, dermatomycosis, eosinophilia and so on were found in the coal mine.

Loss of hearing caused by constant exposure of ears to loud noise is relatively a newer element in the list of occupational health hazards. Depending on the degree of exposure it may cause annoyance, headache, loss of productivity and temporary shift of threshold limit of hearing to permanent loss of hearing. In the United States, steps are being taken to safeguard workers hearing including provisions for monitoring employees' exposure, audiometric testing and the use of hearing protectors. This is made available to all the workers who are exposed to work-place noise at or above, on eight hour time-weighted average (TWA), sound level of 85 decibels (85 dB)(Coal Mines Committee Report, 1982). A study of CMRS shows that T.W.A. of the mechanised faces is more than 95 dB in India but the usage of safeguards as found in the USA are still afar cry in the Indian coal mines.

Coal mine workers are facing many occupational hazards which are directly and indirectly affecting their health status. Workers suffering not only hearing loss, they also faced body pain problem due to their hard working job. Workers express their problems related with their job as follows allergy, injury, gas problem, kidney problem, heart problem, weakness, eye operation and so on. Table 4 shows the occupational hazards of mine workers. A worker was injured as feet injuring during heavy machines operating, sometimes his thumb injured when loading the drill machine. Loader workers work in all situations and carry heavy coal vessels & kept them on their head. Miners engaged in transportation leads to many cases of injury and strain in their body. The molder workers working position is very stressful. They sit on the feet for long time till they mold the coal from whole raw material a lot of stress on lower region of body. Workers show repetitive bending and sitting actions causing stress and pain in the body. Molders mix the powdered coal causing itching and roughness in their hand. Workers faced skin problems due to dehydration at working environment. The workers eat tobacco, drink liquored and smoke after they were tired.

Table 4: Health problems that occurred due to mining job

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S No.	Health problems that occurred due to mining job	N	%
1	Body Pain	194	48.5
2	Allergy	26	6.5
3	Injury	12	3.0
4	Gas problem	23	5.75
5	Less hearing	86	21.5
6	Migraines	7	1.75
7	kidney problem	4	1.00
8	Tuberculosis	1	.25
9	Heart problems	6	1.5
10	Weakness	27	6.75
11	Cancer/ tumor	2	0.5
12	Eye operation	12	03
	Total	400	100.0

Workers outlook on Occupational Diseases- The opinions of workers in regard to the tendency to contact occupational diseases are shown in table 5. The half part of miners have felt that their work is 'highly prone' to occupational diseases (i.e. 47.5 percent). Whereas

roughly the same percentage of them, were express the similar feelings (i.e. 45.5 percent prone to some extent). A very insignificant percentage (only 7.0 percent) of them have felt that it is not so. It is true that the nature of work in coal mines adversely affects the health of workers. Presently the measures against the occupational diseases are inclusive of only medical treatment and medical leave on pay.

Mesures to prevent the Occupational Diseases

Table 5 : Workers outlook on occupational diseases

S.No	Workers outlook on occupational diseases	N	%
1	Prone to some extent	182	45.5
2	Highly prone	190	47.5
3	Not prone	28	07
	Total	400	100.0

Workers views on the steps taken by the management for the prevention of occupational diseases are ascertained and shown in Table6. It may be noted from the table that almost half workers in mine (i.e. 47.75percent) have expressed they were satisfied. Similarly equal percentage of workers (i.e. 47.25percent) stated that they were not satisfied. An insignificant percentage of respondents (i.e.5 percent) in the coal mine have stated that they were highly satisfied to prevent the occupational diseases.

Other health related questions

Table 6 : Measures to prevent occupational diseases

S.No.	Measures to prevent occupational diseases	N	%
1	Satisfied	191	47.75
2	Highly satisfied	20	05
3	Not satisfied	189	47.25
	Total	400	100.0

Table number 7 shows important health related questions that answered by workers. Overall miners (i.e. 100 percent) stated that they were followed health security rules. 97.75 percent of workers saying yes they have Primary Health care Centre available. 98.75 percent workers adopt individual security care only 1.25 percent of workers that do not have care about their individual security.

According to mine workers they answered the question of five arrangement availability, only a few workers saying yes (i.e. 08 percent) and majority of workers (i.e. 92 percent) saying they have no fire arrangement available.

Every colliery have a registered physician for health checkups of workers but only a few workers stated (i.e. 4.5 percent) that they have routine checkup facility available in the mine. The majority of workers (i.e. 95.9 percent) answering that they do not have the same facility. If they have any health issue they go for private doctor. It shows that workers sharing their health issues with the doctor. The workers were take medicines recommended by the doctor.

The environment of coal industry is polluted, so if they want to escape this problem they have a pollution control device in their colliery to control pollution. In the

Damini colliery only 6.5 percent workers agreed they have the pollution control device but the maximum workers i.e. 93.5percent have stated they don't have this device.

SN	Other health related questions	Yes				No		Total	
		N	%	N	%	N	%		
1	Followed Health security rules	400	100.0	0	0.0	400	100.0		
2	Primary health care Centre available	391	97.75	9	2.25				
3	Individual security care	395	98.75	5	1.25				
4	Fire arrangement available	32	8.0	368	92.0				
5	Routine checkup facility	18	4.5	382	95.5				
6	Pollution control device	26	6.5	374	93.5				

Conclusion

The coal industry working environment is polluted. Toxic chemical, dust particle are all thrown into the open working environment of mine industry and the workers also live in the same place. These possess harmful effect on their body working system. They wearing gloves, footwear and mask but when worker while performing job of drilling, coal particles are not seen. These particulate matters are inhaled by the workers and skin exposed to such dust gives rise to complication of skin allergies and rashes. The following conclusions are found in this chapter-

- A good majority of coal miners have felt that they have satisfactory ventilation facility.
- Most of the workers answering they have alright temperature in their colliery
- A little more than one-fourth part of workers perceived temperature to be bad constituted
- A significant majority of workers in underground mine express the lighting arrangements are satisfactory.
- Maximum respondents hold the view that there is no cleanliness in the mine.
- No proper sanitation or hygienic surrounding is provided to them.

- Most of the workers believed that spraying of water is necessary for removing dust particles, but majority of the workers said that there is no water spraying.
- In the colliery have too smelly and unhygienic toilets.
- A one fourth part of workers feels that they have health problems during their mining job, but majority of workers stated that they do not have any health problem during the job.
- Loss of hearing caused by constant exposure of ears to loud noise is relatively a newer element in the list of occupational health hazards.
- Workers suffering not only hearing loss, they also faced body pain problem due to their hard working job.
- Workers express their problems related with their job as follows allergy, injury, gas problem, kidney problem, heart problem, weakness, eye operation and so on.
- The half part of miners have felt that their work is 'highly prone' to occupational diseases
- Workers views on the steps taken by the management for the prevention of occupational diseases that almost half workers in mine have expressed they were satisfied by prevention
- All of the miners stated that they were followed health security rules.
- Maximum number of workers saying yes they have Primary Health care Centre available.
- Majority of workers saying they have no fire arrangement available.
- The majority of workers answering that they do not have the routine check-up facility available.
- Only a few workers agreed with that they have pollution control device.

This naturally exhausts a worker and Working conditions at workplace and environment play vital role in work efficiency, productivity and to maintain good health of the workers. According to the World Health Organization (WHO, 2001) if the design of workplace environment of an industry is according to the good principles of occupational health and safety and ergonomics it is most sustainable and productive. Environmental factors like heat, temperature, humidity, ventilation, illumination, clean air, dust free environment should not cross normal limit.

Every modern industrial occupation has some quantity of hazard. But the risks involved in underground coal mining have higher than many other industries. The hazards that a coal miner faces can be generally grouped under two type's viz., accidents and occupational diseases. These can be overcome by occupational health care and sanitation at the workplace. Musculoskeletal discomfort, occupational stress and poor sanitation condition affect their health status badly. That is why the coal industry management should get them routine check-ups at appropriate time and provide them proper medical facilities.

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