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A Study on Deteriorating Health of Workers in Global Industrial Mines

Ms. Asha S[1]., Meeth Jain[2],Siddarth Shah[3],Manvi Bohra[4],Gunjal Jain[5], Manan Kothari[6],
[1]*Assistant professor,* [2,3,4,5,6] *Student,*
Center for Management Studies, Jain (Deemed-to-be-University), Bangalore

Abstract:
This research paper analyzes the worsening health conditions of miners and looks for factors that are linked to this problem. The literature review and data analysis brings out the health challenges that miners suffer from, which include lung disease, musculoskeletal disorders, hearing impairment, and even mental health illnesses. The paper also focuses on the working conditions and the occupational risks miners are faced with like exposure to dust, chemicals, excessive noise, and bodily straining activities. Furthermore, the paper explains the social and economical problems that increase the health risks among miners such as abject poverty, under or no access to medical facilities, and harmful safety standards. In the end, the paper suggests different courses of action to help solve the health problems of miners and their overall wellbeing.

Keywords: *Health, Worker, Mines, Miner, Disorder, Health Concern, Poverty*

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I. Introduction:

Mining is an essential industry, which delivers precious resources for a broad range of sectors including construction, manufacturing, and power generation. However, it is one of the most

Most Dangerous Jobs on Earth. Mining is a major industry that is responsible for a large number of occupational deaths in the world. It is estimated that about 8% of all deaths that occur in the workplace are related to mining. Some of the risks that are associated with mining include. various and diverse. Dust is a major hazard in mining, especially underground, where it can gather in confined spaces and cause respiratory problems. Silica dust is a major concern, in specifically, silicosis is a major concern for miners as it can cause silicosis, a disabling and often fatal lung disease. Other respiratory hazards in mining include coal dust, which can cause black lung.The main diseases are smoking and asbestos, which can cause lung cancer and mesothelioma.

In addition to this danger, the work of mining also involves the danger of accidents, such as the collapse, explosions, and fires, resulting in serious injuries or death.The history of the miners with worsening health can be traced back many centuries. In the early days of mining, the work was extremely difficult, the miners were exposed to many dangers. The work in the mine led to a variety of diseases. Nevertheless, there were no other options.They are the source of employment in their own areas. They cannot avoid this kind of work because of the poverty and lack of alternatives. For this reason, they have to accept the working conditions, which are dangerous, and they have to accept the health consequences of these working conditions.

In time, it was recognised that there was a need for better standards of health and safety and laws were brought in to protect miners. Despite this, many miners continued to suffer from ill health and the effects of working in poor conditions can still be seen in many parts of the world today.

The process of deterioration of the health of the workers in mines is a complex and many-sided issue that can be explained by a number of reasons. In general, it can be said that poor working conditions, the impact of harmful substances, and the lack of access to healthcare are major factors. Poor working conditions, like long working hours, improper ventilation, and lack of protective equipment, can cause both physical and emotional fatigue that will result in weakening of the immune system and will make a worker more susceptible to various diseases. Also, if a person is subjected to harmful substances, this may aggravate the situation.

Substances such as dust chemicals and radiation can lead to respiratory problems skin diseases and cancer. Miners, for instance, are vulnerable to silicosis, which results from inhaling silica dust. Poor workers frequently do not have the opportunity to access healthcare due to financial constraints or geographical barriers, delayed results.Diagnosis and treatment, it exacerbates their health conditions and makes them more difficult to manage.
Overall the process of degradation of health among the poor workers in the mines is a consequence of a.combination of factors, including poor working conditions, exposure to harmful substances, and lack of access to healthcare.

Addressing these issues will require a concerted effort from Government, employers and society have to take measures to improve working conditions, to provide personal protective equipment and adequate medical care, and to protect the rights of workers.

II. Scope of the study:

Scope of Mining in India & Global (Miners Research)

The scope of miners in India & even globally would involve studying the various aspects of mining activities in the country, including their social, economic, environmental, and health impacts. Here are some specific areas of study that are explored.

Mineral resources: This research could delve into the types and location of mineral resources in India, such as coal, iron ore, bauxite, copper, etc., and how they are mined and processed.

In this paper, socio-economic impacts will be the main focus. A study could investigate the social and economic impacts of mining activities on communities in and around mining areas. This could include:examining the impact on employment, income, and quality of life, as well as the distribution of benefits and costs among different groups.

Environmental impacts: Mining operations result in considerable environmental effects. Soil erosion is a common problem, and it takes years to recover from it. Water pollution is another issue that results from the use of chemical reagents.

Mining activities can expose miners to health hazards, as mentioned before. A health study may be acceptable.

Research the incidence of occupational diseases among Indian miners and the efficiency of health and safety laws and rules.

Policy analysis: The study could assess the current policies and regulations governing the process of mining in India including those on environmental protection, labor standards, and community engagement.

Technology and Innovation: A study could focus on technology and innovation in the mining sector in India. It could consider the potential of technology, such as automation and digitalization, in the mining sector in India. Also, the study could explore the possibility of using renewable

III. Objective Of Study:

The purpose of the study on the declining health of mineworkers is to:

1. Determine the frequency of health issues among mineworkers. This refers to gathering data on the different health issues that mine workers face. This comprises illnesses such as respiratory conditions, musculoskeletal conditions, back issue,hearing loss.
2. Determine the elements that lead to mine workers' poor health outcomes. This entails applying environmental, morphological, social, economic, and physical criteria and aspects that affect their health.
3. Additionally, to assess the efficacy of current regulations meant to enhance the well-being of mine employees.

Growth Trends:

In many large-scale mines, the automation trend will continue for as long as someone can figure out a way to turn hard rock into something manageable.

Parts of the production process that still can't be automated are going to be monitored from the surface to a great extent.

With the improved working conditions and the new set of qualification requirements that are more based on abstract knowledge, many "blue collar jobs" will be changed into "white collar jobs" during this process.

Another trend is the growing gender parity in mining firms as more women are employed as engineers or miners.

One more tendency is the organization of mining companies based on modern management concepts, such as lean production, total productive maintenance, total quality management, knowledge management, etc.

IV. Literature Review:

Sky News Investigates Kids Working in DRC Cobalt Mines. The Sky News investigation found that children of age four are working in dangerous surroundings in cobalt mines in the Democratic Republic of the Congo for as little as 8p a day. An amount that is not sufficient for their food needs. A Boy named Dawson, 11 year old is been starving from 2 days. They are been asked to even dig tunnels by their bare hand. The rainfall also increases the difficulty of mining. Sky's special correspondent Alex Crawford reports. (Crawfordp. 2025).

Indeed, in the period of 1986-2004, 91% of all Philippine provinces were affected by the ideology-based armed conflicts. This article has explored how non-ferrous metals mining by multinational corporations in the situation of armed conflict can lead to conflicts in the Philippines. This article discusses how mining can interrupt the peace process with the Moro Islamic Liberation Front and how mines are accompanied by the militarization

of the area where they are placed. (Matamala Pizarro J, 2021)

This article furnishes the information about the ills that can be caused by the mining industry to human beings. In mining industry, different materials have to be extracted from the

In light of these negative consequences, it has been highlighted in the literature that mine workers are susceptible to a variety of physical and mental ailments and health complications. This gives us an understanding of the risks associated with mining.The world study has outlined some standard specifications in relation to the labor of a person. Occupational diseases, for instance respiratory illnesses, such as silicosis, tuberculosis, asthma, such as heart disease, high blood pressure; musculoskeletal disorders; some types of cancer. (HOLDEN, 2007)

The study demonstrates some negative health externalities of coal mining activities in the Odisha coal field. It shows that though the region has the potential to grow economically, the people who live close to mining areas might suffer the environmental health effects of deterioration due to coal mining activities. On the other hand, mining workers in coal fields are daily exposed to various chemical hazards, high temperatures & relative humidity, which may cause too many health conditions as we know under the occupational health risk factors.

(Senapati, 2024)

Objectives of this paper was to give an account and analyze the scientific production in the field of mental health of workers in mining. The main results showed that evidence in the last 12 years on the issue were mainly focused on four themes (1) Psychological problems & personal factors (38.2%) (2) Psychosocial problems & health related factor (23.6%); (3) Well-being (21.1%) and (4) Physical problems & organization factors (17.1%). In this way, several affectations, symptoms, characteristics or disorders on the mental health of miners were studied, such as job strain, unsafety experiences, poor sleep quality, non-subjective well-being, non-satisfaction job, social-relations conflict, risk of accidents and injuries, among others (Pizarro, 2021)

Street et al. (2007) found that job stress leads to a 33.6% average of work impairment. This high percentage is because of the health impacts that the mental problems have on the individuals. The fatigue and sleep deprivation that are associated with the mental health problems also reduce the focus and attention of the individuals to the tasks at hand. These conditions also increase the risks of accidents that occur in individuals working over long hours, e.g., the accidents that occur in the mining sector. If such accidents occur, they can be fatal. (Matamala Pizarro J.,2021)

V. Methodology

This is a Secondary Research where the data is collected from the existing articles

1.Advanced technology usage: decreasing the number of injuries and impact on the body through the usage of advanced technology such as wearables, sensors, and data analytics has been on the rise. environment and also provides real-time monitoring of workers' health and environmental conditions in mines.

2. The area of study necessitates an interdisciplinary approach which combines knowledge from fields like public health, occupational health, social sciences, and engineering.

Combining specialists can give a complete understanding of the factors, which make the health of mine workers become worse, and solutions can be found accordingly.

3. Study of the deteriorating health of poor workers in mines sheds light on the health impacts faced by marginalized populations often overlooked in research. By focusing on this population especially the poor can help to understand the unique challenges of poor people in the mines and can be used to develop policies that will address their health needs.

4.Assess the Prevalence of Health Problems among Poor Workers in Mines This Means To

gather information on different health conditions that affect people in mines. These may be diseases like hearing loss, respiratory diseases, musculoskeletal disorders, back problems and more.

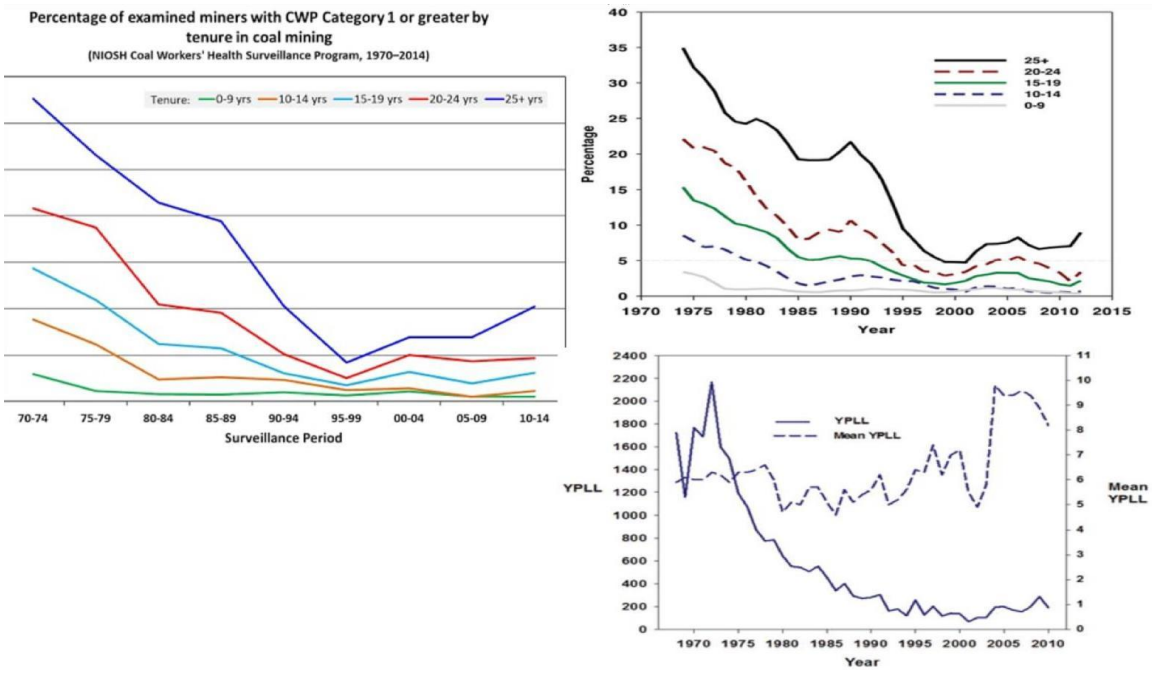
5.Identify factors that contribute to poor health outcomes among mine workers. This

It involves the usage of social, economic, physical morphological and environmental criteria and factors. They affect our health.

6. Furthermore to assess the effectiveness of the present policies that are designed to improve the health of mine workers.Mental health is an important concern for mine workers, and several studies have been carried out to analyse scientific literature concerning the mental health of miners.

7. Industrial mining has been observed to pose health hazards to communities in its vicinity, manifesting in respiratory tract infections, skin diseases, and other illnesses.

Mining waste is one of the major causes of ill health, and it is the poor and deprived sections of the society who are most affected by these health impacts.



Research Gap:

While technology has come a long way and more attention is paid to the health of workers, there are still considerable gaps in research.The Holistic Well-Being of Mine Workers, Especially the Marginalized and Impoverished It is important to persist in addressing theBackgrounds Physical Ailments and Environment Impacts are prevalent in the studies.

Comprehensive Insight into Interplay between Socioeconomic Factors Mental Health and Effectiveness.Introduction to this paper focuses on understanding Interplay requires a thorough understanding to gain success.The Need for Policy Change in Longitudinal Studies on Mining Practices and Health.The issue of existing policies is not established. In particular, more comprehensive longitudinal studies beyond simple prevalence surveys are needed to investigate the pathways that connect mining practices to long-term health problems. The role of the affect heuristic in shaping perceptions of the benefits of mining and its potential effects on the adoption and execution of policies should be further researched. Lastly, the research effectively uses an interdisciplinary approach to develop and evaluate interventions tailored to meet the specific health requirements of vulnerable mining populations to ensure that the benefits of
technological advancements translate into better quality of life.

VI. Findings & Suggestions

Findings:

1. Respiratory issues are one of the most frequent health-related issues encountered by industrial miners. Silicosis is especially common among sandstone miners in India, and numerous workers in this sector experience respiratory issues owing to the dangerous
conditions they work in.
2. Musculoskeletal injuries are also a major health issue for industrial miners. Mining jobs tend to be physically strenuous, including heavy lifting, bending, and working with heavy equipment. These types of injuries can be serious and result in long-term disability or chronic pain, which can impact an employee's quality of life and capacity to work.
3. Hearing loss is also prevalent among industrial miners as a health issue. Miners are usually subjected to high levels of noise from heavy equipment and machinery, leading to permanent hearing loss.
4. Another industrial miner concern is skin disorders, especially for those working with chemicals. The exposure to toxic chemicals results in skin irritation, rashes, and other dermal issues.
5.Industrial miners are also beset with mental health issues. Work in the mines can be strenuous and lonely, and employees could suffer from anxiety, stress, and depression. In other instances, employees also suffer from post-traumatic stress disorder (PTSD) following traumatic events or accidents at work. Mental health issues can affect an employee's quality of life and work capacity.

Suggestions:

1. Enhance safety regulations: Governments ought to establish and enforce safety regulations to ensure the health and safety of industrial miners. Such regulations should address matters like protective equipment, air quality, noise levels, and other dangerous conditions.
2. Give access to healthcare: Employees ought to have access to health services, such as routine health screening and treatment of work-related diseases and accidents. This may assist in the early detection of health issues before they worsen.
3.Minimize exposure to harmful substances: This can be done by the employment of ventilation systems, protective equipment, and other steps. Governments may also offer incentives to mining operators to adopt cleaner technologies and techniques.
4.Enhance physical and mental health: This may involve provision of fitness facilities, healthy diets, and mental health facilities. Employees should also be motivated to take rest and breaks as and when necessary to avoid burnout and fatigue.
5. Offer education and training: Employees ought to be offered education and training on how to recognize and deal with health-related issues. This can assist in avoiding the development of health issues and make employees aware of how to get treatment when needed.
6. Enhance labor protections: Governments must enhance labor protections to ensure that workers are treated with fairness and are not compelled to work in dangerous conditions. This can involve enhancing labor laws and regulations, as well as enhancing enforcement mechanisms.

VII. Conclusion

The finding on the poor health of miners working in mines is that it is a critical concern that needs to be addressed with all speed. Miners, especially those in low-income nations, are frequently exposed to dangerous working conditions, such as exposure to harmful chemicals, physical overexertion, and unsafe air. These contribute to a host of health issues, including respiratory illness, musculoskeletal disorders, and psychological problems.

In order to combat this problem, there needs to be more regulation and control over mining operations, including ensuring safety regulations and the distribution of protective gear.

Employers should also offer healthcare services to their employees and make sure they are able to access medical care when necessary. Governments and other interested parties should also try to enhance the living and working standards of miners, such as by making education and training programs available that can open up better-paying, safer jobs.

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