

Project Title:	An analysis of the occupational health hazards of the coal mining workers during post covid: Do their existing health insurance sufficient?
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The COVID-19 pandemic has had a significant impact on the health of workers in many industries, including coal mining. Respiratory health, hearing health, musculoskeletal health, and skin health are some significant aspects of occupational health that are relevant to coal mines. The mining workers may experience long-term health complications after contracting the virus which may result in serious health effects and associated high health costs. It includes hospitalizations, ongoing medical care, lost wages, and other related expenses. However, the specific effects may depend on several factors such as the mining company's health and safety protocols, the prevalence of COVID-19 in the area where the mine operates, and the overall health status of the workforce.

Behind this background, this study attempts to assess the relationship between socioeconomic (age, gender, income, number of dependant members, caste, religion), human capital (education, training, experience), and occupational factors (perception of working conditions, safety environment, risk-taking behavior, emotional instability, negative job involvement, job dissatisfaction, job stress, and poor safety performance of workers) to occupational illness. Hence, this proposed study will support the United Nations agenda of decent work and economic growth- the 8th Sustainable Development Goal. The novelty of this case-control study lies in understanding the differences in occupational illness and associated health expenditure during pre and post covid era across regions. Overall, this study to assess the post-COVID health of coal mining workers has the potential to bring significant benefits to the workers, the coal mining industry, and the wider community which can be replicated to other mining industries.

Research objectives

1. To analyze the differences in the occupational health of the mining workers across regions during the pre and post Covid-19 period.
2. To analyze whether the existing health insurance of the mining workers is enabled to promote a sustainable livelihood.

Methodology

Study area: India's coal mines are typically divided into regions based on their geographic location. The major coal mining regions of India based on their location: Eastern Coalfields Limited (ECL), Central Coalfields Limited (CCL), Northern Coalfields Limited (NCL), Mahanadi Coalfields Limited (MCL), and South Eastern Coalfields Limited (SECL). The study will be conducted in all these regions with an attempt for cross-region analysis.

Sampling: The data for the study will be obtained from both primary and secondary sources. The sample size will be determined by computing the minimum number required for accuracy in estimating proportions by taking a 95 percent confidence level (1.96), the percentage picking a choice or response (50% = 0.5), and the confidence interval (0.5 = +/-5). Face-to-face semi-structured interviews and focus group discussions among the workers will be conducted for an in-depth study.

Data Analysis: The proposed research will conduct quantitative and qualitative data analyses. The study will use a suitable econometrics method to achieve the objectives of the study. Thematic and content analysis will be done for an in-depth analysis.

Value-add and potential impact

The proposed study will provide outputs in the form of working papers and publications in peer-reviewed international journals. It will also publish significant findings through dissemination seminars, project presentations, e-newsletters, internal newsletters, and relevant internet forums. After completion of the project, the present study will also draft policy briefs and recommendations for individuals and organizations interested in the occupational hazards of coal mining workers, and sustainable health development across regions.

Below are the specific potential development impacts that we expect to influence through our research:

- 1- Improved health outcomes: By assessing the health status of coal mining workers post-COVID, health issues can be identified and addressed promptly. This could lead to improved health outcomes for the workers, such as a reduction in the incidence of chronic diseases and other health conditions.

- 2- Improved productivity: A healthier workforce is likely to be more productive and efficient, which could benefit the coal mining industry as a whole. By identifying health issues and providing appropriate treatment, the project could potentially help reduce absenteeism and improve worker productivity.
- 3- The long-run impact of COVID-19 on the coal mining industry: The project could provide insights into the long-term effects of COVID-19 on the health of coal mining workers by assessing the post-COVID health of workers.
- 4- Development of targeted health interventions: The development of targeted health interventions for coal mining workers can be promoted.
- 5- Improved safety protocols: The development of improved safety protocols for coal mining workers, taking into account their health status post-COVID which can ensure a safer working environment for coal mining workers and reduce the risk of future health crises.