

ORIGINAL ARTICLE

Tuberculosis and HIV Care for Temporary Workers at Cement and Mining Industries, Rajasthan: An Assessment of Policies and Practices

Shruti Singh¹, Srinath Satyanarayana², Pradeep Chaudhary¹, Neeraj Jaiminy³,
Sharath Burugina Nagaraja⁴

ABSTRACT

The policy documents at workplace of any organization or an industry, provides a framework and specific guidelines to protect the health and safety of the human resources associated in it either through fixed term period or on temporary basis. These documents help to reduce the risk of the workplace accidents or diseases (preventive measures). In our current paper, we have emphasized on documents related to the Tuberculosis and HIV/AIDS with a special focus on policy measures available and enforced for the temporary workers at industries. The objective of the review was to analyze the health policy formulation with respect to national legislation and to assess the implementation status at workplace. We conducted this study at large and medium scale cement and mining industry in the state of Rajasthan. Our study findings reveal that nearly 75% of the industries have a defined safety and health workplace policy. However, only 20% of sample industries have set their HIV/AIDS policy for the prevention and care supports to these workers. The gravity of the situation extrapolates due to the sensitivity of HIV/AIDS and TB disease amongst the society. The temporary workers knowledge and understanding about these policies are poor in nature and there exists a striking imbalance between the response of management staff and the temporary workers. The gap of policy implementation vis-a-vis policy set up is well demarcated. The increased scopes of the work by these industries towards implementation of health, safety and environment policies to improvised are required in true spirit especially for the workforce engaged in temporary basis. The support and strict monitoring systems by the Government as well as the Industrial players will definitely help to bridge the gap to curtail the TB and HIV/AIDS disease amongst the temporary workers.

Key words: Temporary worker, workplace policy, safety and health policy, human immunodeficiency virus (hiv), hiv policy, tuberculosis (tb), organization, industry, cement, mining

INTRODUCTION

Tuberculosis (TB) is one of the most important infectious diseases that affected an estimated 10 million people in the world in 2017 and killed nearly 1.6 million people. India is the highest tuberculosis burden country in the world, with an estimated incidence of 2.8 million people.^[1] In 2017, about 37 million people globally were infected with human immunodeficiency virus (HIV) infection and an

estimated 940,000 people died due to HIV-related illness.^[2] In India, 2.14 million people were estimated to be living with HIV in 2017.^[3] Both TB and HIV affect people predominantly during their economically productive age group. People with HIV have a higher risk of TB infection and TB disease.

In India, about 10 million people employed in mining, construction, and various industries are exposed to silica dust. Studies conducted elsewhere reveals that the prevalence

¹Rajasthan State AIDS Control Society, Directorate of Medical and Health Services, Rajasthan, India

²International Union against Tuberculosis and Lung Disease (The Union), New Delhi, India

³Panchayati Raj and Rural Development, Rajasthan, India

⁴Employees State Insurance Corporation, Medical College and Post Graduate Institute of Medical Sciences and Research, Bangalore, India

Correspondence: Shruti Singh, F.N. 202, P.N. 117, Modi Nagar, Panchsheel Colony, Ajmer Road, Jaipur, Rajasthan India. E-mail: shruti.singha@gmail.com

How to cite: Singh S, Satyanarayana S, Chaudhary P, Jaiminy N, Nagaraja SB. Tuberculosis and HIV Care for Temporary Workers at Cement and Mining Industries, Rajasthan: An Assessment of Policies and Practices. Ann Community Health 2021;9(2):272-278.

of silicosis among those chronically exposed to silica dust varies from 18 to 54%.^[4] In India, there is a paucity of data on silicosis among workers due to the lack of systematic surveillance mechanisms in all industries.^[5] Chronic exposure to fine dust (silica) generated through mining and cement-making can compromise lung function, thereby increasing the susceptibility to TB independent of HIV.^[5] It is well documented that silicosis increases the risk of TB by a magnitude similar to that conferred by HIV infection.^[5] A report from National Human Rights Commission suggests that India has 3 million workers with high-risk silicosis, of which 1.7 million workers belong to mining, quarrying, or cement-based industries.^[6]

The workers working at mining, quarrying, or cement-based industries are especially vulnerable to the syndemic of TB and HIV infections.^[7] These industries are usually located in remote areas and miners, predominantly male, have to spend long periods away from their families, living in crowded settlements, placing them at increased risk for HIV due to unprotected sex.^[7,8]

These industries employ the workers either on permanent or temporary basis based on the nature of their work. The permanent or regular employees have secured job and are entitled for various financial and health benefits. While the workers employed on a temporary basis are deprived of certain entitlements, including health services and are at higher risk of developing these diseases. It is estimated that nearly 50% of the workers are engaged on a contractual basis in cement and miners association, according to their national federation.^[9]

The vulnerability of workers at workplace to these diseases necessitates having health policies that encompass overall health safety and promotion toward the diseases. It is of paramount importance for the industries to strictly adhere to these policies. There is sparse information whether these policies have been formulated and followed in cement and mining industries in the country. We conducted a study at cement and mining industries in the State of Rajasthan to explore the prevailing TB and HIV policies pertaining to pre-placement screening, periodic screening, early diagnosis, and linkage to care.

METHODS

Settings

We conducted this study during October 2016–May 2017. Rajasthan is the country's second-largest mineral producer and employs approximately 2.4 million people in mineral-based industries. The state has 21 major cement plants, 2 white cement plants, and more than 8000 industries established on other mineral resources.

Study Design

We first conducted exploratory literature research to identify the prevailing national/state policies that may be applicable for mining and cement industries. Thereafter, we conducted a cross-sectional study by visiting a sample of 31 purposively selected industries in Rajasthan to assess their health policies, knowledge, and practices pertaining to TB and HIV.

Identification of prevailing National policies related-TB and HIV at workplaces

We physically visited each of these industries/companies to request a copy of their workplace health and safety policy as well as HIV/AIDS policy. In addition, we also conducted an internet search using Google search engine to identify the appropriate acts, policies, laws, and legislation enacted toward the safety of health of the workers both at the level of the state and country. The keywords for the search included (1) "National policy on safety, health and environment at workplace," (2) "National Health Policy," (3) "National policy on HIV/AIDS," (4) "Factories act, Mines act, Industrial Disputes act," (5) "The Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (Prevention and Control) Act," (6) "WHO report on policy of TB and world of work," (7) "workplace health," (8) "workplace safety," (9) "workplace safety and health," (10) "industry policies on health and safety" (11) "contractual workers," (12) "industry policy for temporary workers," (13) "industrial safety and industrial health," (14) "manufacturing safety," (15) "cement industry," (16) "mining industry," and (17) "temporary workers."

Selection of industries and assessment of their TB HIV-related policies

A list of all the large and medium scale mining and cement-based industries in the state was obtained from the Office of the Commissioner Industries and Secretary, Government of Rajasthan, formed the sampling frame. A convenient sample of 10% was chosen to assess the promotive, preventive, and curative components of HIV/TB health care services practices in the industries. We reviewed the available health policies of the industries, and interviewed personnel in charge of human resource, medical officer, and a sample of temporary workers using a semi-structured questionnaire. The questionnaire contained questions on knowledge about the TB and HIV policies and the corresponding practices.

Ethics

The study was reviewed and approved by the Ethics advisory group of The Union, Paris, France. The administrative approval from Rajasthan State AIDS Control Society was also obtained and letters were sent to all industries included in our sample to the concerned industries requesting to participate and cooperate in this survey in providing necessary information. We obtained informed written consent from all respondents.

Table 1: Summary on brief content of national policies for workplace and their applicability to HIV and tuberculosis

Brief content of the policies	HIV	TB
The Factory Act (1948)		
Ensure the health, safety, and welfare of all workers while they are at work in the factory		
Provide information, instruction, training, and supervision to ensure the health and safety of all workers at work		
Prepare a written statement of the general policy with respect to health and safety of all workers		
Prepare for arrangements needed to carry out this policy		
Bring written policy to the notice of all workers		
Take measures to prevent inhalation of any dust/fumes that result from manufacturing process and might be injurious to workers' health		X
For workers exposed to any harmful substance that is manufactured, stored, or transported from the factory, workers should have accessible, updated health records and be provided medical examination		
Provide notification of silicosis		X
Mines Act 1952		
Workers should be re-assigned duties, if they are no longer medically fit to continue their prior duties. If alternative employment in the mine is not possible, the worker should be paid disability allowance in accordance with rates prescribed in this behalf	X	X
If worker decides to leave his/her employment after being declared medically unfit for his prior duties, the worker should be paid disability compensation in accordance with rates prescribed on this behalf.		
National Policy on Safety, Health, and Environment at Work Place (2009)		
Goal: "Eliminate incidence of work-related...diseases... and ensure a high level of occupational safety, health, and environment performance for the wellbeing of employees..."		
Ensure stakeholder awareness of and accessibility to applicable policy, documents, codes, regulations and Standards		
Focus on occupational diseases like pneumoconiosis and silicosis; develop a framework for its prevention and control as well as develop technical standards and guidelines for the same		X
Providing medical criteria to ensure that no employee will suffer diminished health, functional capacity, or life expectancy as a result of his workplace activities and that in the event of such occupational diseases having been contracted, is suitably compensated		
National Health Policy (2017)		
The policy calls for more active case detection, with a greater involvement of private sector, supplemented by preventive and promotive action in the workplace and in living conditions.		X
The Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (Prevention and Control) Act (2017)		

(Contd...)

Table 1: (Continued)

Brief content of the policies	HIV	TB
Prohibits HIV testing as a pre-requisite for obtaining employment	X	
Every establishment keeping records of HIV-related information shall adopt data protection measures to ensure that such information is protected from disclosure	X	
National Policy on HIV/AIDS and the World of Work (2009)		
No screening for the purpose of employment	X	
Confidentiality	X	
Continuation of employment relationship (i.e., HIV is not a cause for termination)	X	
Care and support (entitlement of affordable health services including access to counseling and voluntary testing, ART and treatment of STI and opportunistic infections and benefits from the statutory and occupational scheme)	X	

RESULTS

Prevailing Policies on HIV/TB for Workplace Interventions at Industries

Our search resulted in identifying Six "Acts" which would form the basis for formulating TB and HIV policies at these industries. The Six "Acts" are as follows: (a) The factories Act 1948;^[10] (b) the mines Act 1952;^[11] (c) national policy on safety, health, and environment at workplace 2009;^[12] (d) National Health Policy 2017;^[13] (e) The Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome prevention and control Act 2017;^[14] and (f) National Policy on HIV/AIDS and the World of Work 2009.^[15]

The summary on brief content of the policies and their applicability to HIV and TB are shown in Table 1. Broadly, all the policies emphasized over health workers safety and betterment in an occupational environment. In relation of HIV and TB, the policies state-specific preventive and promotive measures such as preventing inhalation of dust using personal protective equipment, developing awareness and preventive guidelines at workstations, safeguarding and maintaining the confidentiality of the diseases, and discouraging HIV test as a pre-requisite for employment.

Workplace health policy and service delivery

Of the 316 large and medium scale cement and mining industries that were listed with the Commissioner Industries, we selected 31 (10%) for the study. These 31 industries belonged to 16 companies and the policies of the companies were obtained for review; it was found that only 75% ($n = 12$) companies had written health policies. In these companies, we conducted interviews with Head/members of the human resource

Table 2: Knowledge about industrial policies among the members of the human resource department, medical officer, and temporary workers in mining and cement industries in Rajasthan

Knowledge measures	Members/Heads of Human Resource Department (n=15)	Medical Officer (n=13)	Temporary Workers (n=56)
	n (%)	n (%)	n (%)
Awareness of health and safety policies			
Does the organization have a Health and Safety Policy? (Yes response)	12 (80)	12 (92)	18 (23)
Does the policy apply to temporary workers? (No response)	12 (80)	12 (92)	13 (23)
Is this policy made known and available to temporary workers? (Yes response)	10 (67)	11 (85)	9 (16)
Access to health care facilities (Yes response)			
Is an Occupational Health Centre available in the industry?	12 (80)	12 (92)	46 (82)
Are temporary workers allowed to receive care and treatment at this center?	12 (80)	12 (92)	46 (82)
Has your industry established a contract with a nearby hospital where your employees can seek care?	12 (80)	10 (77)	29 (52)
Are temporary workers allowed to receive care and treatment at this hospital?	12 (80)	10 (77)	28 (50)
Training on health and safety (Yes Response)			
Do new temporary workers receive induction training on health and safety?	13 (87)	12 (92)	40 (72)
What topics are covered during this training?			
Safety at the workplace	13 (87)	11 (85)	40 (72)
Access to health care services	10 (67)	10 (77)	3 (6)
TB	0 (0)	0 (0)	3 (6)
HIV	2 (13)	2 (15)	4 (7)

Table 3: Screening, diagnosis, and treatment of HIV as described by human resource personnel, medical officer, and temporary workers in mining and cement industries in Rajasthan

Screening, diagnosis, and treatment of HIV	Members/Heads of Human Resource Department	Medical officer (n=13)	Temporary workers (n=56)
	n (%)	n (%)	n (%)
HIV/AIDS screening practices			
Are temporary workers counseled and tested for HIV/AIDS before employment? (Yes Response)	2 (13)	2 (16)	4 (7)
If tested positive for HIV before employment are such persons employed? (Yes response)	5 (33)	4 (31)	5 (9)
Once employed, how frequently are temporary workers screened for HIV			
Never	9 (60)	8 (61)	32 (57)
Not sure	6 (40)	5 (39)	14 (43)
If a worker is diagnosed with HIV			
Is there a policy to safeguard workers' job? (Yes response)	5 (33)	3 (23)	3 (5)
Is confidentiality maintained? (Yes response)	7 (47)	9 (69)	0
Payment for antiretroviral therapy (ART)			
Temporary workers pay for their own ART (Yes response)	1 (7)	1 (8)	23 (41)
ART Center/ESI/Employer (Yes response)	10 (67)	10 (77)	17 (31)
Paid medical leave for HIV			
Yes	10 (67)	9 (70)	50 (89)
Do not know/No	5 (33)	4 (30)	4 (11)

department ($n = 15$), 13 medical officers and a convenient sample of 56 temporary workers to ascertain the practices followed for health safety and HIV and TB health care services.

Awareness, accessibility, and training on health services

Majority (80%) of the members of the human resource departments and medical officers were aware of health policies,

while only 20% of the workers were aware of the existence of such policies. With regards to accessibility of health care services, all were aware of the presence of the health center in the industry; only 50% of the health workers were aware of the linkages of these health centers to other specialist hospitals for the management of diseases (of any kind, in case of need) [Table 2].

Provision of HIV care, support, and treatment services

Majority (85%) of interviewees (human resource personnel, medical officer, and temporary workers) opined that there was no counseling or HIV testing as a pre-requisite before employment for temporary workers. Lesser proportion of personnel was aware of the policies that safeguard worker's job and nearly half of them believed that confidentiality of HIV personnel was being maintained [Table 3].

Provision of TB screening and treatment services

Majority (60%) of doctors said that the workers were periodically screened for TB, while <10% of workers knew about the screening for TB disease. There were no records maintained for regular screening of the workers and the frequency/timing of screening was not clearly defined. It was told that by the medical doctors and members of the human resource department that temporary workers with TB disease were re-assigned jobs (and not terminated). Most of the patients were given anti-TB drugs free of cost and they were entitled for paid leave for a shorter duration [Table 4].

DISCUSSION

This is one of the first studies conducted in the state of Rajasthan to explore the workplace policies at cement and mining industries and the extent of their implementation. Our search resulted in six National health Acts or policies that form the basis for providing safety to the workers and promoting their health toward prevention and control of occupational-related diseases. Our study findings reveal that three out of four industries had health-related workplace policies in place but did not have any mention about HIV and TB disease. About 80% of the policy implementers such as the human resource personnel and the medical officers were aware and had undergone training on health and safety-related policies, while 1 in 4 workers was aware of the existence of any health and safety policy. The workers were ignorant about HIV screening and confidentiality. The implementation of TB screening and treatment services was sub-optimal. Only 1 in 10 temporary workers mentioned that they were screened for tuberculosis and only 1 in 2 implementers knew about the policy of periodic screening.

The study findings have the following implications: First, the HIV/AIDS (prevention and control) Act 2017^[14] enforces provision for the safety and protection of the employees affected by HIV/AIDS. The act prohibits HIV testing as a pre-requisite for obtaining employment and every establishment should maintain and protect the records of HIV-related

Table 4: Screening and treatment practices for tuberculosis disease at industries as described by human resource personnel, medical officer, and temporary workers in mining and cement industries in Rajasthan

Tuberculosis screening and treatment practices	Members/Heads of Human Resource Department	Medical officer (n=13)	Temporary workers (n=56)
	n (%)	n (%)	n (%)
Are temporary workers screened for TB before employment? (Yes response)	4 (27)	8 (61)	4 (7)
Once employed, how frequently are temporary workers screened for TB			
Never	5 (33)	2 (15)	41 (73)
Every 6 months	4 (27)	4 (31)	6 (11)
Every year	4 (27)	4 (31)	6 (11)
Other time periods	0	2 (15)	1 (2)
Not applicable/Do not know	2 (13)	1 (8)	2 (4)
What monitoring mechanisms are in place for TB screening of temporary workers? [Yes response to the presence of TB screening register]	1 (7)	2 (15)	2 (4)
If a worker is diagnosed with TB			
Is he reassigned to work that would prevent exacerbation of the disease? (Yes, response)	10 (67)	10 (77)	24 (43)
Is there a policy to safeguard workers' job? (Yes response)	8 (53)	7 (54)	1 (2)
Is confidentiality maintained? (Yes, response)	9 (60)	11 (85)	0
Payment for TB medication			
Temporary workers pay for their own TB medication	2 (13)	2 (15)	20 (36)
RNTCP/ESI/Employer	13 (87)	11 (85)	26 (47)
Paid medical leave for TB disease			
Yes	11 (73)	10 (77)	54 (96)
Do not know	4 (27)	3 (23)	2 (4)

information. Fortunately, none of the industries that we visited were conducting any pre-placement screening for temporary workers and denying employment opportunities to them. This is perhaps due to the intensive sensitization and monitoring of industry practices by the Rajasthan SACS. These may have to be continued in the future as well.

Second, despite the goal of National policy on safety, health, and environment in the industry 2019,^[12] the prevention, detection, and management of the occupational disease has subtle representation in their legal documents. There is an urgent need to develop a strategic framework and operational guidelines for prevention, early diagnosis, and management of occupational diseases such as silicosis, tuberculosis, and pneumoconiosis. The RNTCP should devise strategies for the periodic screening of workers at regular intervals either using sputum smear microscopy or chest radiography or Xpert MTB/Rif assay test similar to the active case finding strategy implemented in the high-risk population and as recommended by the National Strategic Plan (2017–2025) of the RNTCP of the Government of India.^[7,16] All diagnosed TB cases should be screened for drug-resistant TB. There is a dire need to educate the workers on cough etiquette and adaptation of air-borne infection control practices at their workplace.

Third, the predominant distinguishable gaps in industry health policies are the non-inclusion of the term temporary/contract “worker” for the entitlements of benefits. These workers constitute nearly 50% of the workforce who are deprived of health benefits and are left out on the mercy of the contractor to face any health or work-related disease. Enforcement to make the management responsible to ensure good health and well-being of the workers is urgently needed.

One of the major limitations of the study was that a convenient sampling was made to select the industries and only 56 of the several thousand temporary workers were interviewed. Hence, the study findings have to be interpreted cautiously, especially with respect to the generalizability of the study findings.

CONCLUSIONS

To conclude, workplace health policies for HIV/TB are limited at industries. The health care services rendered for prevention and management of HIV and TB are sub-optimal. There is an urgent need for the National AIDS Control Program and the RNTCP to formulate appropriate strategies that will further strengthen early case detection and prompt treatment among cement and mining industry workers.

ACKNOWLEDGMENTS

The study was conducted as a part of the “TB Operations Research Training Project” aimed to build operational research capacity within the Government of India’s Revised

National Tuberculosis Control Program (RNTCP). This training project was conceived and implemented jointly by the Central Tuberculosis Division (Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India), the National Tuberculosis Institute (Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India Bangalore, India), the World Health Organization (WHO, India Country Office), the International Union Against Tuberculosis and Lung Disease (The Union, South-East Asia Regional Office, New Delhi, India), and the US Centers for Disease Control and Prevention (CDC; Division of Tuberculosis Elimination, Atlanta, USA).

SOURCE OF THE SUPPORT

The expenditure was incurred with the help of the planned field visit to the industries as a part of the job responsibility. The submission of the paper to an open-access journal with no publication cost was sought.

CONFLICTS OF INTEREST

None of the authors have any conflicts of interest to declare.

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