

NEWS & VIEWS

Health concerns of tea workers in India

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ABSTRACT: Assessment of health problems of tea workers is an essential pre-requisite for formulating health care system to address health needs of this community in India. One of the great challenges to the health care system of the tea workers has been malnutrition and diseases associated with unhygienic living. Although India is trying to cope with these problems through nutritional improvement, improvement in health infrastructures including eradication, elimination and control of major communicable diseases, the impact of these health-benefits on poor socio-economic groups are still the major concern. Health needs are also changing in tea plantation and tea factory workers of India. This epidemiological transitions will pose health challenge for the tea industry in future. Medical awareness, supplementation of food with nutrients and training of workers for safe work practices are important for reducing disease burden in tea planters and workers.

KEYWORDS: Tea; Health concerns; Tea workers; Malnutrition; Epidemiological transitions; Safe work practices

Introduction

Tea is an important agro-industry of India and it is well known that tea is the world's one of the most popular beverages. Tea planters are a highly labour-intensive sector having many women workers and they are often believed to be more efficient pluckers than men (54% plantation worker in tea and coffee are women) (as per Occupational Wage Survey in 2006). These labourers had remained isolated, marginalized and vulnerable in the past.¹ Tea workers were considered to be amongst the poorest and most deprived section of organized labour in India during pre-independence days; and a large section of them belonged to the scheduled tribe community.² They faced exploitation in the hands of the colonial masters and that resulted in their exclusion from the main stream economy.³ Studies have been attempted to understand the socio-economic development status of the plantation workers during the post-independence period.¹ The reports suggest that there has been a positive change in the structure of this sector of tea industry in terms of productivity, economy and employment pattern.⁴

Health is an essential indicator of the socio-economic well-being of individuals of the community. Although there has been much improvement in the living standards of the workers since independence, over-crowding and

unhygienic conditions in residential colonies of planters persists till date.⁵ Unhygienic living condition contributed to various communicable diseases and malnutrition amongst workers. Health financing policies in India had been designed to ameliorate the disparities between upper and lower socio-economic groups. The Plantations Labour Act, 1951—a national act applicable to all plantations in India and administered by State Governments—brings within its rules a number of health and welfare benefits that plantations must provide. However, there has been changes in living conditions in modern times that is likely to shift the disease burden of this community.⁶ New diseases like hypertension are taking over and are likely to become the more serious medical problem in future for this sector of the tea industry. Moreover, the tribal tea plantation workers who were isolated in the past due to their ethnic status⁷ are mingling with urban population over the recent years, and their societies are trying cope with various shifts in communicable disease burden caused due to this. Apart from unhygienic living condition, workers in the tea manufacturing units are exposed to a variety of occupational health hazards. If health care system of the workers is to be improved, then the shift in the health paradigm needs to be evaluated by examining all of the existing evidence. There is also a need in providing continuous guidance to both plantation and tea industry workers by increasing awareness about the common diseases, enhancing personal and community hygiene and providing training for occupational safety.

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Non-Communicable Diseases

Nutritional deficiency and prevalence of underweight amongst children of tea plantation and factory workers have been observed in some earlier studies.^{8,9} Reports suggest that Vitamin A and B-complex deficiencies among these children were comparable to that found in other lower socio-economic groups. These underweight children often have deficiencies of various vitamins and minerals. The two main causes of vitamin B deficiency are inadequate dietary intake and malabsorption of the vitamin from food. Fortified foods, especially ready-to-eat cereals, and supplements can be important sources of vitamin B-complex. Disorders due to deficiency of Vitamin A include Bitot's spot and corneal scars and night blindness in children. However, it has become evident that Vitamin A deficiency can also lead to the body's growing inability to fight against infections. That will eventually result in many other illnesses and diseases. Children who suffer from it can even die from measles, diarrhea or respiratory infection. Even a slight deficiency can affect them in the development of bones and their overall growth. It is known to cause night blindness in pregnant women and escalates the chances of maternal mortality usually in the third trimester when the nutritional demands of both the mother and the unborn child becomes the highest. A diet which is rich in Vitamin A is usually the treatment and the best prevention method of vitamin A deficiency. Liver, kidney, milk, cheese, cream and butter are rich sources of Vitamin A. Vitamin A can also be absorbed in the body through carotene which is found in vegetables with dark green leaves. Vitamin A is also said to be present in fruits and vegetables that are yellow and orange in colour. Food fortification with Vitamin A is also done to counteract Vitamin A deficiency.

The World Health Organization (WHO) recommends 90 mcg of iodine daily for infants and children up to 5 years, 120 mcg for children 6–12 years, 150 mcg daily for children ≥ 12 years and adults, and 250 mcg daily during pregnancy and lactation. Iodine deficiency is associated with goiter and hypothyroidism. When severe iodine deficiency occurs during pregnancy, it is associated with cretinism and increased neonatal and infant mortality. Earlier studies have shown higher prevalence of endemic goiter and congenital disorders among the tea garden population in Assam.¹⁰ UNICEF had been actively involved in the management of tea garden – hospitals and crèches along with frontline government health workers, in campaigns to raise community awareness of iodine-deficiency disorders, with the active participation

of mothers' groups from the tea gardens and frontline health and nutrition workers, served to complement the training. Iodine can be obtained by consumption of foods that naturally contain it (fish, seafood, dairy products) or is added (table salt).

Anaemia persists as a significant public health problem affecting tea planters community.¹¹ This disease burden is the result of complex interplay of dietary factors, infectious disease, genetics and other factors. Iron-deficiency anaemia contributes to maternal deaths. Several adverse health outcomes associated with anemia includes perinatal and neonatal mortality, low birth weight and poor cognitive development. Women of reproductive age are physiologically more vulnerable to anemia because of recurrent menstrual loss and the demands of pregnancy. Strategies for control of iron-deficiency anemia include school children participating in the mid-day meal programme with fortified foods. Studies have revealed that iron therapy was found beneficial in improving haemoglobin level and productivity among anaemic female pluckers in a tea estate of Dibrugarh, Assam. A nine-month intervention with iron (60 mg of elemental iron) and vitamin A supplementation and iodized salt performed on the Balanoor Plantations in India indicated that iron supplementation could alleviate anemia even when given once or twice a week. The mean haemoglobin level of the women tea-pluckers rose significantly from 11.1 to 12.0 g dl⁻¹ with the twice-weekly dose and from 10.9 to 11.8 g dl⁻¹ with the weekly dose. Common health problems also decreased from 88% to 54%.¹² Implementation of health programmes to reduce anemia amongst women tea-pluckers of tea estate should be specifically targeted to adolescent and pregnant women as iron deficiency anemia continues to be socially patterned disease, being more prevalent in women from low-income group.

A study has revealed that there has been a shift in disease paradigm with non-communicable diseases like hypertension emerging as an important public health problem which may be partly attributed to the excessive use of alcohol, tobacco and change in lifestyle patterns.¹³ High blood pressure (hypertension) is a silent killer as in most cases, it does not present obvious symptoms that compel the sufferer to seek medical attention in time, and yet this disease has serious life-threatening consequences. It is one of the most common causes of heart attacks, heart failure, stroke and other complications. A survey conducted from Regional Medical Research Centre for NE India (ICMR) in 2003–2004 revealed that garden workers suffer from respiratory problems and hypertension.¹⁴ The prevalence of respiratory morbidity is also

quite high among tea plantation workers. More studies are needed to unearth the prevalence of respiratory allergy among workers for taking necessary steps to prevent progression to lung fibrosis. Strategies involving routine health check-up and medical treatment of patients are essential to prevent the consequences of these diseases. The detailed survey on the other non-communicable disease pattern of planters and tea factory workers needs to be evaluated.

Infectious Diseases

Prevalence of tuberculosis has been very high amongst tea planters.¹⁵ The bacterium that causes tuberculosis is *Mycobacterium tuberculosis*. Although this bacteria can infect any organ (e.g. kidney, lymph nodes, bones, joints) in the body, the disease commonly occurs in the lungs. To prevent spreading of this disease, it is important to get treatment quickly and to follow the treatment regime thoroughly in consultation with medical experts. Even though most of the cost for the treatment is borne by government, this disease is considered an expensive disease, in low-income groups, to which most of the tea factory workers and plantation workers belong. The most successful method for ensuring treatment of tuberculosis in the planters and workers community requires an adequate supply of antibiotics as well as intensive participation of health staff to monitor the administration of treatment, which is likely to enhance the cost and involvement of workforce. The antibiotics most commonly used include isoniazid, rifampin, pyrazinamide, and ethambutol. Long-term medical treatment can not only stop transmission of the bacteria, but decrease the appearance of antibiotic-resistant strains also, which are more difficult to treat.

Intestinal parasitism is also a priority health problem.¹⁶ As worm infestation is seldom the direct cause of death, they are often ignored. However, worm infestation is probably more significant than specific vitamin and mineral deficiencies where awareness of the problem is lacking in the population. Intestinal worms cause stunted growth, and contribute to student absenteeism in schools. The problem is likely to be more common for planters and workers of tea industry because of bad hygiene, poor awareness, misbeliefs, poverty and variety of allied factors.¹⁷ Amongst the intervention measures, it is important to ensure sustained health education amongst tea factory and plantation workers, provision of safe drinking water and improvement in environmental sanitation. It would be also be useful to teach the adults in the family about personal hygiene and conduct health

education at schools for youngsters through "Health Projects". Routine health check-ups should be performed in the schools, and periodic screening for intestinal parasites through clinical pathology at regular intervals is important.

There are also reports indicating higher prevalence of infectious diseases like filariasis in planters and tea factory workers.¹⁸ The disease was more prevalent in tea labourers as compared to indigenous population. Filariasis is a vector-borne disease that has become endemic among tea labourers due to abundance of disease vectors, availability of *mf* carriers acting as reservoir and abundant mosquito breeding places in peri-domestic surroundings (presence of stagnant water bodies).¹⁹ While medicines are available to treat filaria, the gross swelling of the leg makes a person look noticeable and ugly. Hence, it is better to protect from the bites of filaria mosquitoes. Use of aerosols; mosquito repellent creams, mats, coils; nets and prevention of breeding of mosquitoes with better practice of hygiene and sanitation can help prevent filariasis. To combat the problem of filariasis, National Filariasis Control Programme (NFCP) was launched in India in 1955. The control strategy was selective chemotherapy with Diethylcarbamazine citrate (DEC) for 12 days at 6 mg kg⁻¹ body wt. for parasite carriers detected from the night blood survey, and larval control by control of mosquito breeding. The major constraint of the NFCP was that it did not cover the vast majority of the population as the strategy demanded detection of parasite carriers by night blood survey, which is less sensitive, expensive, time-consuming and poorly accepted by the community.²⁰ The World Health Assembly had made a resolution in 1997 (WHA 50.29), calling for Elimination of filariasis as a public health problem by the year 2020. Following this, a global programme for elimination of filariasis has been launched in 1999, and this has facilitated initiation of National Programmes in endemic countries including India and is likely to benefit planter tea factory workers community. Apart from medicine, good hygiene of the affected part in patients with filariasis prevents the worsening of the lymphedema and secondary bacterial skin infections. The affected limb should be kept elevated, and regular exercises should be done to improve the lymph flow.

Focal outbreaks due to malaria are of frequent occurrence, and morbidity and mortality associated with the disease are alarming (ICMR Annual 1999–2000). Despite the National Anti-malaria Programme (NAMAP), transmission of the disease occurs due to major vectors *viz.*, *A. minimus*, *A. fluviatilis* and *A. dirus*. Chloroquine is drug

of choice in treatment of malaria. Resistance to chloroquine (the commonly used antimalarial) is a widespread phenomenon in southeast Asia. For resistant and/or complicated cases, quinine or Sulfadoxine + Pyrimethamine are used depending upon the clinical presentation of the patients. This method of vector control in integrated manner is required to prevent this menace. The strategy should be simple, cost-effective, environment-friendly, sustainable and involving the much needed community participation which is vital to the success of health programme in combating malaria.

Despite widespread decline in HIV/AIDS mortality, after year 2006 HIV/AIDS remains a global issue. HIV infection is an emerging infectious disease that has been reported in tea plantation workers. Female migrant workers, in particular, are more prone to HIV as they are employed in relatively unskilled jobs often without legal status and are often susceptible to exploitation and physical and sexual abuse. They may also be at risk if their husband returns infected with HIV.²¹ The incidence of this disease shall rapidly increase in the near future if not tackled properly. Stigma associated with this disease is a social phenomenon and needs to be addressed at both individual and social levels.

Measures of HIV/AIDS counseling and testing services for the prevention of HIV infection should be made mandatory to prevent the spread of this disease.

Although diarrhea has been a major problem, presence of sanitary toilet has been found to reduce this disease. However, prevalence of the disease even among toilet holders may be because of contaminations of surroundings due to open-field defecation by large numbers of other community members and poor maintenance of toilets facilities. Unfavourable housing and use of biomass cooking fuel may be attributable to higher rate of respiratory diseases including pneumonia. Most of the above-mentioned diseases appear to be emanated from poor personal and household hygiene, unsatisfactory sanitation and housing coupled with ignorance due to lack of education. Poor nutrition among them also probably makes them vulnerable to infectious diseases and *vice versa*.

Occupational Health Hazards

Recently a study was conducted on the pulmonary function parameters of tea factory workers who are chronically exposed to tea dust, compared with those of plantation workers.²² The values of vital capacity (VC), forced vital capacity (FVC), forced expiratory volume in one

second (FEV1), forced expiratory volume in first 0.75 second (FEV0.75), FEV1/FVC%, peak expiratory flow rate (PEFR) were found to be significantly lower ($P < 0.001$) than those of tea garden plantation workers. This indicates that pulmonary functions are more affected in tea factory workers than those of tea plantation workers.

As tea plantation sector has been considered to be a major source of livelihood and employment for the population of the regional economies,⁴ human resource development is also important. Training for motivation, annual performance evaluation and rewards to workers and supervisors are suggested measures.

Discussion

As disease burdens have shifted, health systems are needed to adapt to the expanding disease phenomenon. This shall narrow the scope and scale up the services provided by integrating new technologies and approaches for combating malaise associated with the emerging diseases. Education along with health awareness and preventive measures for common diseases prevalent in the community needs to be strengthened. The improvement in treatment facility and preventive measures are likely to have positive impact of individuals' education on health and nutrition. Awareness of the diseases is also likely to contribute to decreased disease rate and shall benefit tea industry as the production of the industry is dependent on the planters and workers health. As parental occupation adversely affects child health and nutrition with parents remaining busy in tea gardens neglecting timely feeding of children or taking sick children to hospital, it is important that day care facility exists at tea garden and factories. Exclusive breast-feeding is a positive health practice that is already existing in tea workers, however transition from breast milk or formula milk to solid foods must be an important factor for prevention of undernutrition among infants.

Adequate fortified dietary supplements are required for the workers engaged in occupation, which demands for continuous physical labour. However, as there has been many emerging diseases which were previously not reported in details, a further population-based study on tea plantation workers to ascertain their changing health needs and for all-round development of their living conditions is highly required to address the health issues of tea plantation and factory workers.

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