

DOI: 10.5455/2320-1770.ijrcog20140929

Letter to the Editor

Possibility of increased general health related problems in women involved in beedi rolling

Sir,

Beedis is an indigenous cigarette filled with tobacco flake and wrapped in a tendu leaf, tied with a string at one end. Beedis accounted for about 73% of Indian tobacco consumption (Chaudhry K, Rath GK. Multisectoral and intersectoral approach to national tobacco control. Paper commissioned by the World Health Organization on the occasion of the WHO international conference on global tobacco control law: towards a WHO framework convention on tobacco control. 2000 Jan 7-9, New Delhi, India). Over three million Indians of whom are women are employed as beedi rollers as a cottage industry (<http://en.wikipedia.org/wiki/Beedi>). A single woman on an average rolls 1000 beedies per day, using around 500 grams of tobacco flake. A beedi roller may in the process inhale tobacco dust and other volatile components.^{1,2} India tops in beedi consumption, followed by other south East Asian countries.⁶ Beedis are also exported to western countries where they are marketed in various flavors and are popular among middle school and high school students.⁷ The popular belief among teenagers in the west is that beedi is herbal and hence cannot cause cancer.⁸

The procedure of beedi rolling involves curing of the tendu leaves drying them for 3 to 6 days and using them to wrap powdered tobacco.^{3,4} Furthermore, it has been reported that though beedi rolling have been classified as a hazardous work under the child labour prohibition and regulation act by the government of India 1.7 million children work as beedi rollers.¹ According to report by the directorate general factory advice service and labour institutes (Government of India) health hazards among beedi rollers were due to two important reasons- hygienic and ergonomic factors.⁵

The hypothesis

A number of studies have been conducted in the past to evaluate the general health status of beedi rollers. One such study involving 91 beedi rollers showed that 56.04 % had callosities on the dorsum of their fingers and feet, 72.72% had nail changes and infectious/non-infectious dermatoses in nearly 75% of the cases.⁹

Another study conducted in north Indian state of Bihar involving 197 female beedi rollers revealed that around 70% of them suffered from ophthalmological,

neurological and gastrointestinal problems. More than 75% of them faced osteological problems. The total RBC, WBC and platelet counts of the beedi rollers were significantly lower when compared to control subjects. They also showed significantly high lymphocyte and eosinophil counts. They also showed lowered hemoglobin and elevated SGPT enzyme. The researchers concluded that beedi rolling may cause health hazards.¹⁰

In an Indian study involving beedi factory workers biological monitoring of tobacco processors exposed to tobacco particulate via nasopharyngeal and cutaneous routes, the researchers observed that the inspirable dust concentration was 150 times higher in such an environment. Increased levels of promutagens and direct acting mutagens was detected in workers' urine. A significant increase in chromosomal damage was noted in target and non-target cells of tobacco processors.¹¹

In a cohort study on Italian involving cigarette factory worker the researchers concluded that the potential for exposure to pesticides should be carefully accounted for during tobacco manufacturing.¹²

Beedi rollers on an average handle 225-450 g of beedi tobacco per day and inhale tobacco dust and volatile components present in the work environment.¹³ A significant increase in DNA damage was observed in the beedi rollers working in confined environment as compared to those who worked in open and mixed kind of working conditions.¹⁴

A recent study on the socio economic aspect of the beedi rollers revealed that most beedi worker families earn about \$6.40 per 7-day work week, leaving them below the poverty line. The study also revealed that a vast majority of beedi workers are women and children, classified as unpaid assistants, who toil long hours in toxic environments.¹⁴

CONCLUSION

From the data available from all these studies we believe that health status of the beedi rollers could be relatively poorer when compared to that of non-exposed individuals. Adding to the above problems are factors like poor nutrition and illiteracy indirectly leading to further deterioration of health.

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DOI: 10.5455/2320-1770.ijrcog20140929

Cite this article as: Hegde D, Kamath P. Possibility of increased general health related problems in women involved in beedi rolling. *Int J Reprod Contracept Obstet Gynecol* 2014;3:870-1.