

Quantification of Urinary Cotinine Levels among Interstate Migrant Construction Workers in Chennai, South India: A Community Based Pilot Study

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ABSTRACT

Background: In spite of significant improvements in the decline of tobacco consumption in the past three decades at national level, interstate migrant workers emerged as one of high-risk groups with alarmingly high burden of tobacco use. Population surveys such as GATS-2 have to be supplemented with population level estimation of biological markers of tobacco status to gain comprehensive understanding of burden of tobacco in India. Biochemical screening for cotinine, a primary metabolite of nicotine would be useful to validate the smoking status.

Objective: This study was designed to evaluate the urinary cotinine levels among interstate migrant construction workers consuming tobacco using ELISA.

Materials and Methods: Cotinine levels in urine were measured in 78 migrant workers, divided in to three consecutive groups, workers who consume smoke tobacco (n=38), smokeless tobacco (n=31) and non-tobacco consumers in any form (non-users; n=9). The urine cotinine values of tobacco consumers were compared with the non-users. ELISA being rapid and sensitive method was used to quantify urine cotinine.

Results: The mean cotinine levels of urine for smoke tobacco, smokeless tobacco and non-users were 71.18, 72.17 and 59.22 ng/ml, respectively corresponding to their cotinine range, 43.14 to 88.37 ng/ml, 40.63 to 91.02 ng/ml and 48.99 to 61.85 ng/ml.

Conclusion: Analysis of variance showed that urine cotinine levels of smokers were significantly higher than non-users ($P<0.05$). Similarly, smokeless tobacco consumers had increased cotinine levels similar to the smoke tobacco group ($P<0.005$).

Keywords: Nicotine addiction, Cotinine, Migrant workers, GATS-2, Tobacco burden

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