

# High prevalence of tobacco use and exposure to secondhand tobacco smoke among adolescents in low- and middle-income countries

Liang Wang<sup>1</sup>, Hadii M. Mamudu<sup>2</sup>, Candice Collins<sup>1</sup>, Youfa Wang<sup>3</sup>

<sup>1</sup>Department of Biostatistics and Epidemiology, <sup>2</sup>Department of Health Services Management and Policy, College of Public Health, East Tennessee State University, Johnson City, TN, USA; <sup>3</sup>Fisher Institute of Health and Well-being; Systems-Oriented Global Childhood Obesity Intervention Program; Department of Nutrition and Health Sciences, College of Health, Ball State University, Muncie, IN, USA

*Correspondence to:* Liang Wang, MD, DrPH, MPH. Department of Biostatistics and Epidemiology, East Tennessee State University, PO Box 70259, Johnson City, TN 37614, USA. Email: WANGL2@etsu.edu.

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Although tobacco use remains the leading cause of preventable deaths worldwide, smoking rates continue to increase in many low- and middle-income countries (LMICs) (1,2). The study by Xi *et al.* shows that among 173,144 adolescents aged 12–15 years in the Global School-based Health Survey (GSHS) and 155,117 adolescents aged 13–15 years in the Global Youth Tobacco Survey (GYTS), 13.6% were current tobacco users (3), which is consistent with previous studies (4,5). Thus, this study highlights the need to prevent smoking in young people through measures such as ban on sale of tobacco to minors.

It has been well established that tobacco use and exposure to secondhand smoke can lead to chronic diseases in both youth and adults (6). The World Health Organization (WHO) reports that six million people across the globe died due to tobacco use, including 600,000 from secondhand exposure (1,2). Research efforts are needed to target children and adolescents given that 90% of regular tobacco users began the behavior prior to the age of 18 years (6,7). Estimates show that decreasing adolescent smoking by one-quarter would result in an annual savings of 100,000 lives, in the United States alone (8). Since more than 80% of worldwide smokers reside in LMICs, this number would dramatically increase for a global estimate (1,2).

On September 30, 2016, *Lancet Global Health*

published a paper entitled “Tobacco use and second-hand smoke exposure in young adolescents aged 12–15 years: data from 68 low-income and middle income countries” (3). The authors found that about 55.9% of adolescents reported exposure to secondhand tobacco smoke in the seven days preceding the survey. About 10% of adolescents were cigarette smokers, while 8.1% used other non-cigarette products such as pipe, waterpipe/hookah, chewing tobacco, and smokeless tobacco (3). In a prior study involving students aged 13–15 years that utilized GYTS data collected from 131 countries during 1999–2005, it was found that about 17.3%, 8.9%, and 11.2% of the adolescents were current tobacco users, smoked cigarettes, and used other tobacco products, respectively (4). Although different countries were analyzed in these studies (3,4), and the samples are different, the results show that the use of cigarettes increased and the use of non-cigarette tobacco products decreased. This suggests that at the global level cigarette use is still the dominant tobacco product among youth in LMICs. However, this contradicts the growing evidence in the U.S. that the use of non-cigarette tobacco products is increasing (9).

In addition to estimating the prevalence of tobacco use among youth in LMICs, Xi *et al.* examined the factors associated with tobacco use, and found

that parental tobacco use was associated with their adolescent children's tobacco use (3). While this finding is not novel (6), they reported large differences in the association between mothers [odds ratio (OR) =2.37; 95% confidence interval (CI), 2.26–2.48] and fathers (OR =1.41; 95% CI, 1.36–1.45). Similarly, an earlier study of 564 adolescents aged 12–17 years also showed those who had a mother who smoked were 2.34 times (95% CI, 1.57–3.51) more likely to smoke, while it was 1.67 times (95% CI, 1.12–2.48) for those whose fathers were smokers (10). This evidence has important implications for future programs to prevent tobacco use in LMICs as it suggests the need for gender-based policies and programs to address tobacco use among adolescents in LMICs.

Since current tobacco use was ascertained as having used any tobacco product on at least 1 day in the past 30 days, the rate might include those that experimented with tobacco use, but not regular users; thus, this might have overestimated the rate. However, the addictive nature of the nicotine in tobacco products (11) could lead experimenters to become regular users. Therefore, regardless of the overestimation of the prevalence of the nationally representative data, the results of the study should lead to stronger tobacco control policies. The WHO Framework Convention on Tobacco Control (WHO FCTC), the world tobacco treaty that most LMICs including China, have signed contains evidence-based policies to reduce tobacco use among youth. These policies include the ban on sales of tobacco products to youth, increase in excise tax on tobacco products, and limit marketing of tobacco products to youth. In particular, studies have shown that raising taxes on tobacco has a greater impact on younger users due to their limited amount of income (1,12). Also, tobacco companies continue to target youth in advertisements and eliminating the exposure to advertisements decreases the appeal of smoking among adolescents (13). However, studies suggest that the FCTC has not been adequately implemented in LMICs (1,14). In this respect, Xi *et al.*'s paper reinforces the urgent need to further implement the WHO FCTC in LMICs.

In summary, this is an important study that illuminates the high rates of tobacco use and secondhand smoke exposure among youth in LMICs, despite some limitations in the data. For example, some of the data used are nearly ten years old. Some countries may have made substantial efforts and reduced tobacco use since the 1999–2005 GYTS results were published (15). To account for this, the authors could have conducted a search and

then included this information in the discussion section. In addition, the study did not explain why they used GSHS data instead of just using GYTS data, which will ensure consistency in their results and ensure a better scope of the trajectory of tobacco use among youth in LMICs. Since cross country comparisons have been done in the past using GYTS data, it may be helpful to understand why the authors only used that data for China (16). Moreover, the issue of secondhand smoke was not addressed adequately. Indeed, previous studies (17,18) have examined it using much larger data sets. More efforts and effective policies and programs are needed in many LMICs for tobacco control, including those that specifically target young people.

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### Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

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