Ann Ibd. Pg. Med 2021. Vol.19, No.2 161-164

DENTISTS IN AFRICA SHOULD COMMIT TO IDENTIFYING AND ASSISTING PATIENTS EXPOSED TO SECONDHAND TOBACCO SMOKE

O.F. Fagbule[1], O.G. Uti[2], O. Sofola[2], O.A. Ayo-Yusuf[3]

1. Department of Periodontology and Community Dentistry, University College Hospital (UCH) and College of Medicine, University of Ibadan (COMUI), Nigeria
2. Department of Preventive Dentistry, Lagos University Teaching Hospital (LUTH) and College of Medicine, University of Lagos (CMUL), Nigeria
3. School of Health Systems and Public Health, University of Pretoria, South Africa

Correspondence:
Dr. O.F. Fagbule
Department of Periodontology
and Community Dentistry,
University College Hospital,
Ibadan

Globally, it is estimated that the tobacco epidemic results in the death of over 8 million people yearly, and exposure of non-smokers to secondhand tobacco smoke (SHS) is responsible for about 1.2 million of these deaths.[1] Non-smokers' exposure to SHS is a public health problem globally;[2,3] and dentists have the unique opportunity to contribute to solving this problem by identifying and assisting those affected during their dental consultations.[4] The dentist's role in tobacco cessation among smokers has been emphasized and widely advocated.[5] Considering that non-smokers' exposure to SHS causes similar health effects as smoking,[4] dentists should also identify and assist this group of people.

Secondhand smoke exposure (SHS) is also referred to as environmental tobacco smoke exposure, secondhand smoking, involuntary smoking, and passive smoking.[6] It occurs when a person inhales smoke from the burning end of a tobacco product (side-stream smoke) and the smoke exhaled by an active smoker (mainstream smoke).[7] Thus, a passive smoker is exposed to the same tobacco smoke as the active smoker.[7] Tobacco smoke contains over 4,000 chemicals, and over 40 are carcinogenic.[8] These chemicals include tobacco-specific nitrosamines (N-nitrosamines), carbon monoxide, hydrogen cyanide, formaldehyde, and ammonia.[8] These chemicals cause similar health problems to both active and passive smokers.[8]

Exposure to SHS has been associated with several health problems in adults and children. These health problems include; sudden infant death syndrome, asthma, upper and lower respiratory tract infections, middle ear infections, and impaired cardiac autonomic.[5,7,9,10] Other health problems are eye and nose irritation,[5] obesity,[11] depressive symptoms,[12] lower cognitive performance,[13] and mental health problems.[14] Besides the general health problems, passive smoking also heightens the risk of oral health problems in children. Children exposed to SHS are at a higher risk of having dental caries, gum diseases, tooth loss, and oral pigmentation (melanosis).[4,5,15–17] Apart from these health problems, exposure to SHS is also associated with the risk of initiating tobacco smoking among never tobacco users. Children and adolescents exposed to SHS are also more likely than those who are not exposed to become susceptible to tobacco use and eventually commence the habit.[3,18]

The prevalence of SHS exposure is generally high across developed[7,19–22] and developing countries,[3,11,23] ranging from 16·4% to 85·4%.[3,11,19–23] Several studies across sub-Saharan Africa in the last decade have shown that passive smoking is now a public health problem. The prevalence of passive smoking among the vulnerable never-smoking children and adolescents ranged from 23.9% to 97.0%,[18,24–28] and was equally high among adults (38.8% to 69.4%).[28–31] Tobacco smoking is increasing in the African region,[32] and without a strong or effectively-implemented smoke-free legislation in most African countries, the prevalence of exposure to SHS will continue to increase unless deliberate steps are taken to address this trend.[22,33]

Comprehensive implementation of smoke-free legislation, as specified in Article 8 of the WHO Framework Convention on Tobacco Control (WHO FCTC),[34] is an effective intervention to reduce exposure to SHS.[35] Hence, the government of African countries must ensure they effectively implement a comprehensive ban on smoking in public places. However, many non-smokers, especially children, are

exposed to SHS in their homes.[20,23] Thus, there is a need for other stakeholders to complement the smoke-free legislation in addressing the exposure to SHS. Healthcare professionals, including dentists, are stakeholders who can and should play significant roles in this regard.

The World Health Organization (WHO) recommends that dentists participate in tobacco cessation by identifying current smokers and advising them to quit.[36] The "5As" model of brief cessation intervention involves asking all patients if they smoke, advising them to quit, assessing their willingness to quit, assisting those ready to quit, and arranging follow-up visits with those who quit.[36] This model has resulted in increased quit attempts and successful cessation among smoking patients.[5] Though the "5As" model is estimated to last about 3-5 minutes,[36] even shorter modifications have been recently introduced. These include the "3A Model" (Ask–Advice– Assist) and the "ABC Model" (Ask–provide Brief advice–Cessation support).[5]

When dentists successfully advise, assist, and follow up with their patients, studies have shown that they are more likely to quit smoking successfully.[37] However, dentists who only ask about tobacco use exclude critical, often vulnerable groups of people, such as nonsmoking children and adolescents exposed to SHS. Thus, the current models of brief cessation advice that focus on identifying and assisting smokers are insufficient as they do not identify patients who are passive smokers.[38]

Therefore, while dentists must continue asking and assisting active smokers in quitting tobacco use, they should also establish if their nonsmoking patients are passive smokers. We urge all dentists, especially those in Africa, to ask if their patients are exposed to SHS. Adding a simple question: "*Is there anyone in your family who regularly used tobacco?*" to the brief cessation model has been advised.[5] Other experts have suggested that the question should be based on whether the patient is responding for themselves (adolescents and adults) - "*Are you exposed to smoke from cigarettes or other tobacco products?"* or responding on behalf of a child (parent/informant) - *"Does the child spend time or live with anyone who smokes/uses any kind of tobacco product?".*[38] If the patient or the parent/informant responds affirmatively to the initial question, then it should be followed up with questions about *when, where, how much, and by whom.*[38] This valuable information should be used while counselling the patient and accompanying parent/informant about the need to avoid passive and active smoking.

Dentists must educate their patients about the dangers of exposure to SHS and teach them the required skills to avoid such exposure. For example, they should be informed of the prevailing regulations on smoke-free public places in their countries and how to calmly but firmly request that offenders desist. Apart from directly counselling victims of SHS exposure, dentists should consider utilizing nonsmoking patients as change agents to convince smokers around them to quit. One of the biggest motivations for smoking parents to quit is being educated about the potential harm of SHS exposure to their children.[39,40] Thus, identifying children exposed to SHS in the dental office allows dentists to speak directly to accompanying smoking parents about the potential harm to the children.

Based on the potential impact that dentists can have on tobacco control, we recommend that dentists who are yet to commence routine cessation advice (5As model) for all their patients should start immediately. In addition, with non-smokers' exposure being a public health problem, all dentists, especially those in Africa, are encouraged to identify patients exposed to SHS for appropriate intervention. By identifying and counselling these vulnerable children and their parents/guardians against the dangers of SHS, dentists will broaden their impact in the battle against active and passive tobacco smoking in Africa and across the globe.

REFERENCES:

1. World Health Organization. Tobacco. Fact sheets. 2020. Available from: https://www.who.int/news-room/fact-sheets/detail/tobacco
2. **Mbulo L,** Palipudi KM, Andes L, *et al.* Secondhand smoke exposure at home among one billion children in 21 countries: Findings from the global adult tobacco survey (GATS). Tob Control. 2016 Dec 1;25(e2):e95–100.
3. **Xi B,** Liang Y, Liu Y, *et al.* Tobacco use and second-hand smoke exposure in young adolescents aged 12-15 years: data from 68 low-income and middle-income countries. Lancet Glob Heal. 2016 Nov 1;4(11):e795–805.
4. World Health Organization. Toolkit for Oral Health Professionals to Deliver Brief Tobacco Interventions in Primary Care. Geneva; 2017. Available from: https://www.who.int/publication/i/item/toolkit-for-oral-health-professional-to-deliver-brief-tobacco-interventions-in-primary-care
5. World Health Organization. Helping People Quit Tobacco: A Manual for Doctors and Dentists. New Delhi, India; 2010.
6. IARC. Tobacco smoke and involuntary smoking. International Agency for Research on Cancer (IARC), editor. Vol. 83, IARC Monographs on

The Evaluation of Carcinogenic Risks to Humans. Lyon, France: IARC, Distributed for the International Agency for Research on Cancer by the Secretariat of the World Health Organization; 2004. 1–1438.
7. **Raghuveer G,** White DA, Hayman LL, *et al.* Cardiovascular Consequences of Childhood Secondhand Tobacco Smoke Exposure: Prevailing Evidence, Burden, and Racial and Socioeconomic Disparities: A Scientific Statement from the American Heart Association. Circulation. 2016 Oct 18;134(16):e336–359.
8. **Geiss O,** Kotzias D. Tobacco, cigarettes and cigarette smoke. Institute for health and consumer protection. Luxembourg, Italy: European Communities; 2007. 73.
9. U.S. Department of Health and Human Services. The Health Consequences of Involuntary Exposure to Tobacco Smoke. Atlanta; 2006. Available from: https://www.cdc.gov/tobacco/data_statistics/sgr/2006/index.htm
10. **Öberg M,** Woodward A, Jaakkola MS, *et al.* Global estimate of the burden of disease from second-hand smoke. 2010.
11. **Koyanagi A,** Smith L, Oh H, *et al.* Secondhand Smoking and Obesity among Nonsmoking Adolescents Aged 12-15 Years from 38 Low- And Middle-Income Countries. Nicotine Tob Res. 2020 Nov 1;22(11):2014–2021.
12. **Jacob L,** Smith L, Jackson SE, *et al.* Secondhand Smoking and Depressive Symptoms Among In-School Adolescents. Am J Prev Med. 2020 May 1;58(5):613–621.
13. **Ellis-Suriani Z,** Norsa'adah B, Othman A, Siti-Azrin AH. Association between secondhand smoke exposure at home and cognitive performance among rural primary school children in Malaysia. Tob Induc Dis. 2021;19 (April):27. Available from: https://pubmed.ncbi.nlm.nih.gov/33867904/
14. **Farrell KR,** Weitzman M, Karey E, *et al.* Passive exposure to e-cigarette emissions is associated with worsened mental health. BMC Public Health. 2022 Dec.7; 22(1):1138. Available from: https://pubmed.ncbi.nlm.nih.gov/35672813/
15. World Health Organization. A guide for oral disease patients to quit tobacco use. Geneva; 2017.
16. **Hajifattahi F,** Azarshab M, Haghgoo R, Lesan S. Evaluation of the Relationship between Passive Smoking and Oral Pigmentation in Children. J Dent (Tehran). 2010;7(3):119–123.
17. **Aligne CA,** Moss ME, Auinger P, Weitzman M. Association of Pediatric Dental Caries with Passive Smoking. J Am Med Assoc. 2003 Mar 12;289(10): 1258–1264.
18. **Lee KA,** Palipudi KM, English LM, *et al.* Secondhand smoke exposure and susceptibility to initiating cigarette smoking among never-smoking students in selected African countries: Findings from the Global Youth Tobacco Survey. Prev Med (Baltim). 2016;91:S2–8.
19. **Yousuf H,** Hofstra M, Tijssen J, *et al.* Estimated Worldwide Mortality Attributed to Secondhand Tobacco Smoke Exposure, 1990-2016. JAMA Netw Open. 2020 Mar 2;3(3):e201177.
20. **Tsai J,** Homa DM, Gentzke AS, *et al.* Exposure to Secondhand Smoke Among Nonsmokers - United States, 1988-2014. MMWR Morb Mortal Wkly Rep. 2018 Dec 7;67(48):1342–1346.
21. **Brody DJ,** Lu Z, Tsai J. Secondhand Smoke Exposure Among Nonsmoking Youth: United States, 2013-2016. NCHS Data Brief, no 348. Hyattsville, MD: National Center for Health Statistics; 2019.
22. **Öberg M,** Jaakkola MS, Woodward A, *et al.* Worldwide burden of disease from exposure to second-hand smoke: A retrospective analysis of data from 192 countries. Lancet. 2011; 377 (9760): 139–146.
23. **Phetphum C,** Noosorn N. Prevalence of secondhand smoke exposure at home and associated factors among middle school students in Northern Thailand. Tob Induc Dis. 2020 Feb 18; 18 (February).
24. **Fagbule O,** Osuh M. Predictors of exposure to secondhand tobacco smoke among non-smoking in-school adolescents in Ibadan, Nigeria. Popul Med. 2020 Jul 27;2(July).
25. **Jallow IK,** Britton J, Langley T. Prevalence and factors associated with exposure to secondhand smoke (SHS) among young people: A cross-sectional study from the Gambia. BMJ Open. 2018 Mar 1;8(3):e019524.
26. **Ababulgu SA,** Dereje N, Girma A. Secondhand tobacco smoke exposure among adolescents in an Ethiopian school. Healthc Low-resource Settings. 2016 May 30;4(5584).
27. **Owusu D,** Mamudu HM, John RM, *et al.* Never-Smoking Adolescents' Exposure to Secondhand Smoke in Africa. Am J Prev Med. 2016 Dec 1;51 (6):983–998.
28. CDC Foundation. The Global Tobacco Surveillance System (GTSS) African Region Atlas. Atlanta, GA; 2018.
29. **Ngobese SP,** Egbe CO, Londani M, Ayo-Yusuf OA. Non-Smoker's Exposure to Second-Hand Smoke in South Africa during 2017. Int J Environ Res Public Health. 2020 Nov 1;17(21):8112. Available from: https://pubmed.ncbi.nlm.nih.gov/33153154/

30. **Kaoje AU,** Ismaila AM, Abdulhafiz O, *et al.* Secondhand Cigarette Smoke Exposure Pattern, Knowledge, Attitude and Perception of Harm amongst Non-Smokers in Sokoto Metropolis, Nigeria. J Environ Sci Public Heal. 2021;5(2):281–295.
31. **Reda AA,** Kotz D, Biadgilign S. Adult tobacco use practice and its correlates in eastern Ethiopia: A cross-sectional study. Harm Reduct J. 2013 Oct 31;10(28). Available from: https://harmreductionjournal.biomedcentral.com/articles/10.1186/1477-7517-10-28
32. WHO Regional office for Africa. Tobacco Control. World Health Organizaion. 2017. Available from: https://www.afro.who.int/health-topics/tobacco-control
33. **Baleta A.** Africa's struggle to be smoke free. Lancet. 2010 Jan 9;375(9709):107–108.
34. WHO FCTC. Guidelines for implementation of Article 8. WHO Framework Convention on Tobacco Control. 2013. p. 1–20. Available from: https://fctc.who.int/publications/m/item/protection-from-exposure-to-tobacco-smoke
35. **Frazer K,** Callinan JE, Mchugh J, *et al.* Legislative smoking bans for reducing harms from secondhand smoke exposure, smoking prevalence and tobacco consumption. Cochrane Database Syst Rev. 2016 Feb 4;2016(2).
36. World Health Organization. WHO report on the global tobacco epidemic 2019: offer help to quit tobacco use. World Health Organization. 2020. Available from: https://www.who.int/teams/health-promotion/tobacco-control/who-report-on-the-global-tobacco-epidemic-2019
37. **Yahya NA,** Saub R, Nor MM. A randomized control trial of smoking cessation interventions conducted by dentists. Sains Malaysiana. 2018 Jan 1;47(1):131–140.
38. **Klein JD,** Chamberlin ME, Kress EA, *et al.* Asking the Right Questions about Secondhand Smoke. Nicotine Tob Res. 2021 Jan 1;23(1):57–62.
39. **Myers V,** Rosen LJ, Zucker DM, Shiloh S. Parental Perceptions of Children's Exposure to Tobacco Smoke and Parental Smoking Behaviour. Int J Environ Res Public Health. 2020;17:3397.
40. **Robin RC,** Noosorn N. Reducing Harm of Passive Smoking Exposure among Children. Int J Heal Sci Res. 2018 Feb;8(2):288–296.