

Women and tobacco: a call for including gender in tobacco control research, policy and practice

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ABSTRACT

Objectives Female smoking is predicted to double between 2005 and 2025. There have been numerous calls for action on women's tobacco use over the past two decades. In the present work, evidence about female tobacco use, progress, challenges and ways forward for developing gendered tobacco control is reviewed.

Methods Literature on girls, women and tobacco was reviewed to identify trends and determinants of tobacco use and exposure, the application of gender analysis, tobacco marketing, the impact of tobacco control on girls and women and ways to address these issues particularly in low-income and middle-income countries.

Results Global female tobacco use is increasingly complex, involving diverse products and factors including tobacco marketing, globalisation and changes in women's status. In high-income countries female smoking is declining but is increasingly concentrated among disadvantaged women. In low-income and middle-income countries the pattern is more complex; in several regions the gap between girls' and boys' smoking is narrow. Gendered analyses and approaches to tobacco control are uncommon, especially in low-income and middle-income countries.

Conclusions Tobacco control has remained largely gender blind, with little recognition of the importance of understanding the context and challenges of girls' and women's smoking and secondhand smoke exposure. There has been little integration of gender considerations in research, policy and programmes. The present work makes a case for gender and diversity analyses in tobacco control to reflect and identify intersecting factors affecting women's tobacco use. This will help animate the WHO Framework Convention on Tobacco Control's concern for gender specificity and women's leadership, and reduce the impact of tobacco on women.

INTRODUCTION

Tobacco use, particularly cigarette smoking, has long been recognised as an important threat to girls' and women's health in high-income countries (HICs) and is increasingly recognised as an important threat to girls' and women's health in low-income and middle-income countries (LMICs) where the epidemic is growing. This health threat has three main facets: tobacco use by women, exposure to secondhand smoke (SHS) from male smokers and the diversion of family resources from food, shelter, healthcare and education to purchase tobacco products.

The past 20 years have seen numerous calls for action on women and tobacco, and for considering the impact of tobacco on maternal and child health and on women's economic well-being.^{1–11}

However, tobacco control in HICs and LMICs has remained largely gender blind. There has been little recognition of the importance of understanding the context and challenges of girls' and women's smoking and exposure to SHS, and the increase in women's smoking in LMICs.^{1 6 12} Thus, many opportunities for knowledge generation and effective responses to women's tobacco use remain lost or overlooked.

While the omission of gender affects our understanding and response to women's and men's tobacco use, this paper focuses on girls and women. We also focus largely on cigarette smoking as accurate data on women's smokeless tobacco use are available for only a minority of countries. In this paper we describe what is known about patterns, trends and determinants of girls' and women's tobacco use and SHS exposure, the importance of gender analysis, the marketing of tobacco to girls and women, the impact of tobacco control and potential future directions in addressing these issues, particularly in LMICs.

GIRLS' AND WOMEN'S TOBACCO USE

The global prevalence of smoking is currently far higher among men than women, 41.1% versus 8.9% in 2005¹³ (table 1). However, global male smoking rates have peaked and are on the decline while women's rates are still rising.¹⁴ Furthermore, the gap between men's and women's smoking prevalence is small in the regions of the Americas and Europe, and in high-income and upper-middle-income countries. In contrast, in the majority of low-income and low-middle-income countries (and in the regions of Africa, Southeast Asia, Eastern Mediterranean and Western Pacific) women's smoking prevalence remains under 5%. However, regional and individual country estimates often mask vast disparities in women's prevalence between and within countries, due to such factors as socioeconomic status (SES), educational attainment, race/ethnicity and geography. Prevalence data show that despite important regional differences, the gap between boys' and girls' cigarette smoking is far narrower than that between adult men and women in all regions (table 2).^{15 16} Accurate data on tobacco use during pregnancy and women's SHS exposure are available for only a minority of countries.^{12 17}

Current global trends indicate that smoking by women is on the rise and is increasingly associated with disadvantage, whether measured by education, income or other indicators of social exclusion.^{18–20} In countries with the longest history of women's smoking such as the USA, Canada, Australia and in Western Europe, smoking

Table 1 Prevalence of smoking any tobacco product, adults ≥ 15 years, 2006

Region/income	Percentage tobacco smoking prevalence, Female ≥ 15 years*	Percentage tobacco smoking prevalence, Male ≥ 15 years*
WHO region:		
Africa	2.8	17.7
Americas	17.0	26.8
South-East Asia	4.6	39.4
Europe	24.3	44.6
Eastern Mediterranean	4.4	32.0
Western Pacific	4.8	56.5
Country income group:		
Low income	4.8	30.9
Low-middle income	4.4	47.7
Upper-middle income	19.1	41.1
High income	19.8	33.1
Global overall	8.9	41.1

Source: World Health Statistics, 2010. WHO.²¹

*Based on WHO report on the global tobacco epidemic, 2009: *Implementing smoke-free environments*. Geneva, WHO, 2009. Appendix VII. Includes smoking at the time of the survey of any form of tobacco, including cigarettes, cigars, pipes, bidis, etc. and excluding smokeless tobacco.

is already concentrated in the most disadvantaged groups. In several European countries, including the UK, Norway and Spain, the highest smoking uptake rates are now seen in disadvantaged girls.²²

A recent analysis of World Health Survey data from 50 countries¹⁹ shows how tobacco use is spreading from HICs to LMICs, particularly among disadvantaged groups, and how these trajectories differ by gender, age and stage of diffusion of smoking in a country (as described in the four-stage cigarette smoking epidemic model of Lopez and colleagues²³). This analysis reveals that the key drivers of the tobacco epidemic such as increasing gross domestic product in LMICs (which increases cigarette purchasing power) and increasing educational status (which increases awareness of health risks) have a differential impact on women and men, and are mediated by gendered social, cultural and economic factors. These factors include social norms and restrictions on women's smoking, as well as shifts in women's social and economic status.

Women's emancipation and increases in status have long been associated with increases in smoking. Young urbanised women are often among the first to adopt cigarette smoking in LMICs. The link between gender empowerment (measured by economic and political participation) and smoking has been positively

correlated,²⁴ establishing that as the gender empowerment measure for women rises, so does the gender smoking ratio. While the correlation of women's status with smoking uptake may explain initiation, it may not explain the economic and gendered patterns of smoking once diffusion has occurred.²⁵ For example, Pampel,²⁶ using a complex set of indicators to measure a 'gender-equality' hypothesis that included social and cultural as well as economic independence, concluded that there was no support for a causal relationship between increased equality and increased smoking among women in HICs. Strategies aimed at addressing the smoking epidemic in women therefore need to be grounded in a multifaceted understanding of women's smoking patterns and trends, and how gender intersects with social position, identity, ethnicity and religion.²⁷

THE HEALTH IMPACT OF WOMEN'S TOBACCO USE AND EXPOSURE TO SHS

Although women and men who smoke share excess risks for many diseases, women also experience risks that are unique to them or that are higher in women compared to men.^{4 28 29} Smoking is causally linked to cervical cancer, a leading cause of death from cancer among women in LMICs.³⁰ Some evidence links active smoking and exposure to SHS to increased risk of breast cancer.³¹ A recent systematic review and meta-analysis found that, compared with non-smokers, women smokers have a 25% greater RR of coronary heart disease than male smokers, after controlling for other cardiovascular risk factors.³² The negative health impact of maternal smoking on fetal development has been well documented.³³

LIMITATIONS IN RESEARCH ON GIRLS, WOMEN AND TOBACCO

While there has been an upsurge in research on gender and tobacco over the past two decades, including studies on the health effects of smoking and the determinants of smoking uptake and cessation,^{28 29} this has been limited in several important respects.

Defining gender

To date, studies have been limited in their treatment and understanding of sex and gender. Biological and physiological factors ('sex') and social, economic and cultural influences ('gender') have, when considered at all, been conceptualised and treated as distinct and separate domains. However, recent theoretical arguments have shown that sex and gender are often inseparable concepts and that their effects are interactive and

Table 2 Cigarette smoking and other tobacco product use, girls and boys, aged 13–15 years, 1999–2008

Region	Percentage prevalence cigarette smoking, (susceptibility),* girls	Percentage prevalence cigarette smoking, (susceptibility),* boys	Percentage prevalence other tobacco use, girls†	Percentage prevalence other tobacco use, boys†
WHO region				
Africa	5 (14)	14 (17)	11	12
Americas	15 (25)	14 (23)	7	12
Eastern Mediterranean	2 (14)	7 (20)	9	14
Europe	17 (33)	21 (26)	8	12
South-East Asia	2 (13)	10 (16)	7	13
Western Pacific	8 (13)	19 (15)	6	7
Total	7 (19)	12 (19)	8	12

Source: The Global Tobacco Surveillance System Atlas. CDC Foundation, Atlanta, GA, 2009.³⁴

*Susceptibility: the absence of a firm decision not to smoke.

†Includes pipes, waterpipes, cigar, smokeless tobacco, and bidis.

blended.³⁵ Sex and gender also each exist on continua, making the notion of 'differences' less relevant than developing more nuanced measures of sex/gender factors, particularly in research design.³⁶⁻³⁷ These advances pose theoretical and methodological challenges for gender and diversity analysis in tobacco control. Potential strategies for addressing these challenges include the use of relevant training manuals and texts,³⁶⁻⁴⁰ requiring or providing guidelines for consideration of sex, gender and related factors for research funding, as is done by the Canadian Institutes for Health Research and US National Institutes of Health,⁴¹⁻⁴² or for publication in tobacco control journals. Similar approaches are relevant to practice and programme design—particularly those that engage gender and diversity considerations in assessing better practices or developing clinical or public health guidelines (eg, the WHO report *Gender Analysis in Health: A Review of Selected Tools*⁴³).

Gender and diversity

In addition, relatively few studies of women smokers have explored the ways in which gender intersects with other dimensions of diversity including age, disadvantage, religion, SES, occupation and race/ethnicity to create conditions and complexities that increase the risk of tobacco use and/or SHS exposure.⁴⁴⁻⁴⁵ Some research in HICs has used quantitative and qualitative methods to undertake nuanced and sophisticated analyses which explore tobacco use and exposure in the context of the diversity of girls' and women's lives, circumstances and experiences.⁴⁴⁻⁴⁸ These approaches have shown how women's risks of becoming and remaining smokers relate to gendered and disadvantaged life trajectories and biographies that often include early pregnancy, lone motherhood, deprivation and violence.⁴⁴⁻⁴⁹ In addition, women with the least success in quitting often live in environments where smoking is normative and there is little support for quitting.⁴⁷

Smoking initiation studies have found that the meanings that young people attach to smoking are gendered and smoking may act as a marker of gender and identity.⁵⁰⁻⁵² Gender differences have been found in HICs with regard to the perceived value of smoking in relation to, among other factors, affect control, creating and maintaining social relationships, body image, weight control, enhancing social identity and status (social capital), and as self-medication.⁴⁴⁻⁴⁸⁻⁵³⁻⁵⁴ Some studies have also found that women have greater difficulty quitting compared to men.⁵⁵ Although the mechanisms are not well understood, they are probably related to biological and psychosocial aspects of addiction and dependence.⁵⁶⁻⁵⁷ Several studies have found that nicotine replacement therapy is less effective in women than men.⁵⁸⁻⁶⁰ Non-nicotine cues to smoke appear to be more important for women than for men, and smoking has a perceived functional value in the lives of low-income single mothers, who use smoking to cope and provide care in disadvantaged circumstances, making cessation more difficult.⁴⁸⁻⁶¹

A narrow focus on HICs

Most studies have been carried out in HICs where the patterns and trajectories of girls' and women's tobacco use and SHS exposure differ from those in LMICs. Few studies have explored the interaction between gender and smoking uptake and/or cessation in LMICs. While studies conducted in the Philippines and Indonesia found similar reasons for female smoking uptake and continuation as in HICs,⁶²⁻⁶³ few studies have explored protective factors within specific cultural contexts that promote resiliency in women and girls and serve to inhibit smoking.⁶⁴ Studies in HICs have shown how unequal power relationships

and restricted living circumstances can limit women's ability to reduce exposure to SHS for themselves and their children, arising from smoking by others (usually men) in the home and workplace.⁶⁵⁻⁷⁰ In LMICs, where women's social, political and economic power is often limited, women have even less ability to protect themselves and their children from exposure to SHS from male smokers.⁷¹⁻⁷²

MARKETING OF TOBACCO TO GIRLS AND WOMEN

The limited response of the tobacco control community in applying gender and diversity based analyses to tobacco control contrasts starkly with the comprehensive gendered approach of the tobacco industry. Given their low smoking prevalence, women and girls in many countries represent a vast 'untapped market,' and a prime target of the tobacco industry. The tobacco industry appears increasingly focused on LMICs, where it has long been culturally inappropriate for women and girls to smoke. In developing its marketing campaigns, the tobacco industry builds on over 80 years of experience of successful gender sensitive and specific marketing to women in HICs.⁷³ In the early 20th century, cigarette companies in HICs learnt that 'cultural mores may be shifted by design' to 'engineer' the consent of women smokers.⁷⁴ Numerous studies have shown that global advertising to women seeks to link smoking to desirable female attributes such as independence, modernity, glamour, stress relief and weight control.²⁸⁻⁷³⁻⁷⁵⁻⁷⁶

Increasingly in LMICs, upscale young women feature in cigarette advertisements. In Indonesia, recent advertisements for a popular young adult brand feature an affluent, attractive, modern woman using a cell phone. The caption, 'Yesterday is gone, Clas Mild is Today', implies that smoking is a behaviour to which a modern woman should aspire (figure 1).⁷⁶ Depicting women in tobacco advertising in cultures where women do not smoke helps to normalise the association between women and tobacco.⁶²

Brands also employ particular features such as cigarette size, 'taste,' images and packaging to attract women. In recent years in HICs, brands including Vogue, Silk Cut and Virginia Slims have introduced 'purse packs'—small lipstick sized boxes containing 'Superslim Light' cigarettes which are half the size of regular cigarettes (figure 2).⁷⁵⁻⁷⁶ Slim cigarettes in feminised packs are increasing in LMICs.⁷⁵⁻⁷⁷ In Indonesia in 2009, the first superslim clove cigarette was introduced for women (A-Volution), which is packaged in a lipstick tube shape.⁷⁸ More than 100 brands of slim and super slim cigarettes are available in the Russian Federation, some featuring packs designed by fashion designers (figures 3 and 4).⁷⁹

Linkages between modernity and smoking feature prominently in tobacco advertising. In the Philippines and South Korea, modernisation tends to narrow gender differences in youth smoking. Thus, continuing modernisation throughout Asia may increase smoking prevalence among young women, a pattern that is already evident in some countries.⁶³⁻⁶⁴⁻⁷⁶⁻⁸⁰⁻⁸¹ Indeed, tobacco companies adapt their marketing strategies to cultural contexts, including women's social and economic position in particular societies.⁶³⁻⁷⁶⁻⁸²

A recent review of studies largely from HICs documented a causal relationship between tobacco advertising and promotion and increased tobacco use, as well as between exposure to depictions of smoking in movies and youth smoking initiation.⁸³ This emphasises the importance of bans and restrictions on tobacco industry marketing, as required by the WHO Framework Convention on Tobacco Control (FCTC), to constrain the potential for growth in women's and girls' tobacco use in LMICs.

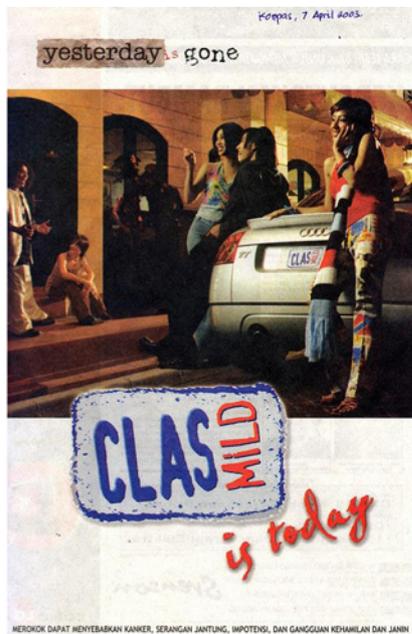


Figure 1 Clas Mild advertisements from Indonesia.

THE IMPACT OF TOBACCO CONTROL POLICIES ON WOMEN AND GIRLS

In HICs tobacco control policies have had a major impact in reducing smoking prevalence, though these declines have not been equitable across population subgroups. There is evidence, mostly from HICs that elements of comprehensive tobacco control policies that reduce overall tobacco use can have different and sometimes more limited impacts among girls and women, particularly those of low SES.⁸⁴

Price and taxation

Price increases reduce smoking prevalence and consumption in young people and adults.^{85 86} No consistent gender differences have been found among adults, however, a systematic review of US studies found young men were more responsive to price than young women.⁸⁵ Studies in HICs find that low SES smokers are more price responsive than those of higher SES.⁸⁶ However, in many LMICs, cigarettes are available by the single stick; thus increases in price and taxation may be less likely to have a significant impact since cost increases may not be as obvious to the user.



Figure 2 Cigarette brands, including slim and superslim versions, aimed at women in Europe.

Smoke-free policies

Studies in HICs have found that where workplace policies are not comprehensive, low SES occupations such as the female-dominated hospitality industry are the least protected from SHS.⁶⁵ In California, a US state which has comprehensive smoke-free legislation, low SES women reported higher workplace exposure to SHS, more exposure to SHS in the home and less control over home smoking policies than high SES women.⁸⁷ Comprehensive smoke-free public places legislation can also encourage home smoking restrictions and reductions in children's exposure to SHS. However, this is not always the case; research in Scotland revealed that following the introduction of comprehensive smoke-free legislation, children's SHS exposure



Figure 3 Advertisement and examples of packaging for Vogue cigarettes in Russia.



Figure 4 Russian advertisements for Glamour Superslims on Moscow Metro, and advertising free gifts.

decreased in families where only the father smoked but not in families where only the mother smoked.⁸⁸

Cessation support

In the UK, which offers free, comprehensive local cessation services including counselling and pharmacotherapy, women are more likely to use these services but have lower success rates than men.⁸⁹ Quit rates are lowest in women who are younger, live in deprived areas and/or are from ethnic minorities.⁹⁰ Local cessation services are generally unavailable in LMICs and access to pharmacotherapy is typically very costly.⁹¹

The lower smoking rates among women in LMICs are widely attributed to women's relatively poorer social and economic status and cultural factors rather than to the success of tobacco control.²⁵ Indeed, tobacco control measures and policies vary enormously between LMICs and are generally poorly resourced.⁹¹ For example, tobacco control educational campaigns, typically underfunded—if available at all—in LMICs, rarely target sex or gender specific harms of tobacco use.

Notably, strong evidence from several LMICs documents that women have low awareness of the health risks of smoking and have misconceptions about the harm of 'light/low tar' cigarettes. Studies in China, India, Indonesia and the Dominican Republic have found that while people (including health professionals) were generally aware that smoking is harmful they were less aware of specific health risks beyond cancer, particularly for those smoking at relatively low levels.^{90–95} One study in China found that over two-thirds of female smokers thought that 'light' or low tar cigarettes were less harmful than regular cigarettes,⁹⁶ while another Chinese study found that awareness of 'cigarettes made for women' (women's brands) and believing that they were less harmful to health predicted smoking experimentation in female students.⁹⁷ With regards to smoking during pregnancy, a study in Pakistan found that only 7% of women knew that smoking could lead to low birth weight; only one third of women knew that smoking caused lung disease.⁹⁸ Similarly, a study in Zambia and the Democratic Republic of Congo found that pregnant women's knowledge of the health risks of smoking and SHS exposure was very limited.⁹⁹ A study in South Africa found that over 45% of pregnant women who were smokers at the beginning of their pregnancy continued to smoke while pregnant. While most had some knowledge that smoking was harmful to their own health, they knew little about the impact of smoking during pregnancy.¹⁰⁰ Additionally, in HICs and LMICs, insufficient attention has been paid to women's indigenous beliefs about smoking. In particular, the risk of having a low birthweight baby is often not a major concern for women, who may be unaware of the importance of normal birth weight, and may view quitting smoking as more stressful for the fetus than continuing to smoke.^{47 100}

INCORPORATING GENDER AND DIVERSITY-BASED APPROACHES TO TOBACCO CONTROL

In light of these analyses and trends, tobacco control strategies aimed at stopping and ultimately reversing the smoking epidemic in women need to be grounded in a multifaceted understanding of women's smoking patterns. This would take into account accelerated diffusion of cigarette smoking, gender inequities and gender relations, disadvantage and vulnerability to tobacco use. It would require more nuanced indicators of women's empowerment and emancipation and understanding of how gender intersects with other aspects of diversity such as social position, identity, ethnicity and religion.²⁸ Given the lack of understanding of the harm of tobacco (particularly in LMICs), women-specific tobacco prevention education and cessation programmes need to be developed which clearly address misconceptions and local concerns.

Tobacco control therefore urgently needs to develop a more robust research base for developing such interventions for girls and women. In HICs, considerable research has focused on preventing and reducing tobacco use by women, especially pregnant women. In contrast, in LMICs, few studies have addressed women's tobacco use and SHS exposure.¹² While it has been established that protective factors that operated in many LMICs, including cultural and economic constraints on women's smoking, are eroding because of globalisation and modernisation, little documentation exists on the woman-specific effects of these changes.

There is a need for quantitative and qualitative research at the individual, the community and the healthcare settings levels. Qualitative research methods, informed by gender and diversity considerations, such as participant observation, interviews and

focus groups, would generate a deeper understanding of the complexity of social contextual forces which contribute to reported changes in women's tobacco use and SHS exposure in LMICs.¹² Additionally, community-based participatory research in which community members work side by side with researchers to develop theory-based, culturally relevant tobacco control strategies, including policy approaches, would be useful. Community engagement fosters research and capacity building and has the potential to promote ownership and sustainability by mobilising communities to be active participants in tobacco control.

Applying a sex, gender and diversity based analysis to tobacco control research will enable measures, policies and programmes to be developed which are more salient to girls and women's lives, experiences and circumstances.^{1 4 6 28 101} For example, gender sensitive smoking prevention could help girls develop positive self-images and peer approval without cigarettes. Reassessing nicotine dependence measures such as the Fagerstrom test to take sex, gender, ethnic and 'race'-related factors into account will improve treatment options for women and diverse populations.¹⁰² Multiple approaches are needed to denormalise tobacco use for women and girls. Health professionals in LMICs need training on the sex and gender specific health harms of tobacco, as well as gender sensitive skills training for approaching women about their tobacco use or exposure to SHS in every clinical encounter. In all countries, programmes should aim to empower women to reduce their exposure to SHS which may largely be from men's smoking.^{71 103} A smoke-free household initiative movement has begun in India and Indonesia. Although women in these countries involved in this movement initially expressed little self-efficacy to change smoking behaviour among men, they recognised, following culturally and gender sensitive health education on the harm of SHS, that a community-wide ban on household smoking might be effective. Now, Project Quit Tobacco International¹⁰⁴ is fostering smoke-free homes, framing household smoking bans as an expression of collective responsibility and cultural pride. SHS is framed as a family health issue and an act of caring and being responsible for one's family.⁶⁸

Gender sensitive approaches to reducing SHS in the home would recognise that in HICs exposure is greatest in low SES households, often led by women. Rather than increasing women's guilt and shame about exposing their children to SHS, a gender-sensitive approach would acknowledge women's desire to protect their children's health, and support them in coping with caring for their families in restricted circumstances while reducing SHS in the home.^{65 67 103}

CONCLUSIONS

Increased female tobacco use poses serious threats to women's health, maternal and child health, and family health and economic well-being. The global picture of female tobacco use is increasingly complex, involving a range of tobacco products and responding to diverse factors including tobacco marketing, globalisation, urbanisation, modernisation and shifts in women's status and roles.¹⁰⁵ The challenge for the 21st century is to prevent a further rise and reduce currently high levels of tobacco use by women, while ensuring that women's status continues to improve,^{1 101} requiring the WHO Framework Convention on Tobacco Control (FCTC) to animate its preamble's concerns with about women and tobacco, women's leadership in tobacco control and the importance of including gender analyses in tobacco control.⁷ Cultural constraints on women that might be protective against tobacco use should not be

What this paper adds

- ▶ Tobacco companies are using gendered approaches to target girls and women.
- ▶ However, gendered analyses and approaches to tobacco control research, policy and practice are uncommon, especially in low-income and middle-income countries.
- ▶ This paper argues for gender and diversity analyses in tobacco control and illustrates how this should be used to reduce the impact of tobacco on women.

exploited or accommodated by tobacco control efforts, but rather transformed so that women's tobacco use can be reduced, and women's status improved at the same time.^{1 7 28} Organisations such as the International Network of Women Against Tobacco (<http://inwat.org>) are committed to these dual goals. Numerous reports and treaties such as The UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)¹¹ and the WHO FCTC support this dual approach to reaching their goals, which merits immediate adoption by the broader tobacco control movement.

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REFERENCES

1. **Greaves L**, Jategaonkar N, Sanchez S. *Turning a New Leaf: Women, Tobacco and the Future*. Vancouver: BC Centre of Excellence for Women's Health and INWAT, 2006.
2. **Chollat-Traquet C**, Bloch M, Estrelle-Gust D, *et al*, eds. *Women and Tobacco*. Geneva: World Health Organisation, 1992.
3. *Report of the WHO International Conference on Tobacco or Health, Kobe—Making a Difference in Tobacco or Health*. Geneva, World Health Organization, 1999.
4. **Samet JM**, Yoon SY, eds. *Gender, Women and the Tobacco Epidemic*. Geneva: WHO, 2010.
5. *Gender and Tobacco Control: A Policy Brief*. Geneva: World Health Organization, 2007.
6. **Greaves L**. *Sifting the Evidence: Gender and Global Tobacco Control*. Geneva: WHO-Tobacco Free Initiative, IDRC, 2007.
7. **Greaves L**, Tungohan E. Engendering tobacco control: using an international public health treaty to reduce smoking and empower women. *Tob Control* 2007;**16**:148–50.
8. **United Nations**. *United Nations Millennium Declaration*. Geneva, General Assembly, United Nations, 2000.
9. **Lopez-Claros A**, Sahidi S. *Women's Empowerment: Measuring the Global Gender Gap*. Geneva: World Economic Forum, 2005.
10. **World Health Organization**. *Global Status Report on Non-Communicable Diseases*. Geneva: WHO, 2010.
11. *United Nations Convention on the Elimination of All Forms of Discrimination against Women*. New York, NY: United Nations, 1979.
12. **Nichter M**, Greaves L, Bloch M, *et al*. Tobacco use and secondhand smoke exposure during pregnancy in low-and middle-income countries: the need for social and cultural research. *Acta Obstet Gynecol Scand* 2010;**89**:465–77.
13. **World Health Organisation**. *World Health Statistics, 2010*. Geneva: WHO, 2010.
14. **Mackay J**. Preface. In: Samet JM, Yoon SY, eds. *Women and the Tobacco Epidemic—Challenges for the 21st Century*. Geneva: World Health Organization, 2001: v1–vii.
15. **CDC Foundation**. *The Global Tobacco Surveillance System Atlas*. Atlanta, GA: CDC Foundation, 2009.
16. **Warren CW**, Jones NR, Eriksen MP, *et al*. Patterns of global tobacco use in young people and implications for future chronic disease burden in adults. *Lancet* 2006;**367**:749–53.

17. **Bloch M**, Althabe F, Onyamboko M, *et al*. Tobacco Use and Secondhand smoke exposure during pregnancy: an investigative survey of women in 9 developing nations. *Am J Public Health* 2008;**10**:1833–40.
18. **Graham H**. Women and smoking; understanding socioeconomic influences. *Drug Alcohol Depend* 2009;**104S**:S11–16.
19. **Pampel FC**, Denney JT. Cross-national sources of health inequality: education and tobacco use in the World Health Survey. *Demography* 2011;**48**:653–74.
20. **Mackenbach JP**, Stirbu I, Roskam AJ, *et al*. Socioeconomic inequalities in health in 22 European countries. *N Engl J Med* 2008;**358**:2468–81.
21. **WHO**. *World Health Statistics, 2010*. Geneva: World Health Organization, 2010.
22. **Currie C**, Gabhainn S N, Godeau E, *et al*. *Inequalities in Young People's Health: HBSC International Report from the 2005/2006 Survey*. Copenhagen: WHO Europe, 2008.
23. **Lopez AD**, Collishaw NE, Pihl T. A descriptive model of the cigarette epidemic in developed countries. *Tob Control* 1994;**3**:242–7.
24. **Hitchman SC**, Fong GT. Gender empowerment and female-to-male cigarette smoking prevalence ratios. *Bull World Health Organ* 2011;**89**:195–202.
25. **Ferreira R**. Diffusion theory and drug use. *Addiction* 2001;**96**:165–73.
26. **Pampel FC**. Age and education patterns of smoking among women in high-income nations. *Soc Sci Med* 2003;**57**:1505–14.
27. **Greaves L**. Gender, equity and tobacco control. *Health Social Rev* 2007b;**16**:115–29.
28. **Surgeon General**. *The Health Consequences of Smoking: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.
29. **Surgeon General**. *Exposure to Tobacco Smoke: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.
30. **Parkin DM**, Bray F, Ferlay J, *et al*. Global cancer statistics, 2002. *CA Cancer J Clin* 2005;**55**:74–108.
31. **Johnson KC**, Miller AB, Collishaw NE, *et al*. Active smoking and secondhand smoke increase breast cancer risk: the report of the Canadian Expert Panel on Tobacco Smoke and Breast Cancer Risk (2009). *Tob Control* 2011;**20**:e2.
32. **Huxley RR**, Woodward M. Cigarette smoking as a risk factor for coronary heart disease in women compared with men: a systematic review and meta-analysis of prospective cohort studies. *Lancet* 2011;**378**:1297–305.
33. **Surgeon General**. *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2010.
34. **Warren CW**, Asma S, Lee J, *et al*. *Global tobacco surveillance system atlas: the GTSS atlas*. Atlanta, GA: CDC Foundation, 2009.
35. **Springer KW**, Stellman JM, Jordan-Young RM. Beyond a catalogue of difference: a theoretical frame and good practice guidelines for researching sex/gender in human health. *Soc Sci Med*. Published Online First: 15 June 2011. <http://dx.doi.org/10.1016/j.socscimed.2011.05.033>
36. **Johnson J**, Greaves L, Repta R. *Better Science with Sex and Gender; a Primer for Health Research*. Women's Health Research Network, 2007. <http://www.whrn.ca>
37. **Oliffe J**, Greaves L, eds. *Designing and Conducting Gender, Sex & Health Research*. USA, UK, India, Singapore: SAGE, 2012.
38. **Crow B**, Pederson A, Haworth-Brockman M, *et al*. *Rising to the Challenge: Sex- and Gender-based Analysis for Health Planning, Policy and Research in Canada*. Halifax, Canada: Atlantic Centre of Excellence for Women's Health, 2009.
39. **Health Canada**. *Exploring Concepts of Gender and Health*. Ottawa: Health Canada, 2003.
40. **World Health Organization**. *Strategy for Integrating Gender Analysis and Actions into the Work of WHO*. WHO Gender Strategy. Geneva: WHO, 2009.
41. **Canadian Institutes for Health Research**. *Gender, Sex and Health Research Guide: A Tool for CIHR Applicants*. <http://www.cihr-irsc.gc.ca/e/32019.html> (accessed 22 Sep 2011).
42. **National Institutes of Health**. *NIH Policy and Guidelines on the Inclusion of Women and Minorities as Subjects in Clinical Research*. 2001. http://grants.nih.gov/grants/funding/women_min/guidelines_amended_10_2001.htm (accessed 22 Sep 2011).
43. **World Health Organization**. *Gender Analysis in Health: A Review of Selected Tools*. Geneva: World Health Organization, 2002.
44. **Greaves L**. *Smoke Screen: Women's Smoking and Social Control*. Halifax: Fernwood Books, London: Scarlet Press, 1996.
45. **McLellan DL**, Kaufman NJ. Examining the effects of tobacco control policy on low socioeconomic status women and girls: an initiative of the Tobacco Research Network on Disparities (TReND). *J Epidemiol Community Health* 2006;**60**(Suppl 2):5–6.
46. **Lambert M**, Hublet A, Verduyck, *et al*. *Gender Differences in Smoking in Young People*. Brussels: Flemish Institute for Health Promotion, 2002.
47. **Nichter M**, Nichter M, Muramoto M, *et al*. Smoking among low-income pregnant women: an ethnographic analysis. *Health Educ Behav* 2007;**34**:748–64.
48. **Graham H**. *When Life's a Drag: Women, Smoking and Disadvantage*. London: HMSO, 1993.
49. **Graham H**, Francis B, Insip HM, *et al*; SWS Study Team. Socioeconomic lifecycle influences on women's smoking status in early adulthood. *J Epidemiol Community Health* 2006;**60**:228–33.
50. **Amos A**, Bostock Y. Young people, smoking and gender—a qualitative exploration. *Health Educ Res* 2007;**22**:770–81.
51. **Stjerna M-L**, Lauritzen SO, Tillgren P. 'Social thinking' and cultural images: teenagers' notions of tobacco use. *Soc Sci Med* 2001;**59**:573–83.
52. **Nichter M**, Nichter M, Richardson E, *et al*. Gendered dimensions of smoking among college students. *J Adolesc* 2006;**21**:215–43.
53. **Amos A**, Angus K, Fidler J, *et al*. *A Review of Young People and Smoking in England*. York: Public Health Research Consortium, 2009. <http://www.york.ac.uk/phrc/papers.htm>
54. **Michell L**, Amos A. Girls, pecking order and smoking. *Soc Sci Med* 1997;**44**:1861–9.
55. **Perkins KA**, Donny E, Caggiola A. Sex differences in nicotine effects and self administration: review of human and animal evidence. *Nicotine Tob Res* 1999;**1**:301–15.
56. **Perkins KA**, Gerlach D, Vender J, *et al*. Sex differences in the subjective and reinforcing effects of visual and olfactory cigarette smoke stimuli. *Nicotine Tob Res* 2001;**3**:141–50.
57. **Perkins KA**. Sex differences in nicotine versus non-nicotine reinforcement as determinants of tobacco smoking. *Exp Clin Psychopharmacol* 1996;**4**:166–77.
58. **Cepeda-Benito A**, Reynoso JT, Erath S. Meta-analysis of the efficacy of nicotine replacement therapy for smoking cessation: differences between men and women. *J Consult Clin Psychol* 2004;**72**:712–22.
59. **West R**, Hajek P, Nilsson F, *et al*. Individual differences in preferences for and responses to four nicotine replacement products. *Psychopharmacol* 2001;**153**:225–30.
60. **Perkins KA**, Scott J. Sex differences in long term smoking cessation rates due to nicotine patch. *Nicotine Tob Res* 2008;**10**:1245–51.
61. **Perkins KA**. Smoking cessation in women: special considerations. *CNS Drugs* 2001;**15**:391–411.
62. **Kaufman N**, Nichter M. The marketing of tobacco to women: global perspectives. In: Samet J, Yoon SY, eds. *Gender and Tobacco: Challenges for the 21st Century*. Geneva: World Health Organization, 2010:69–98.
63. **Choe M**, Thapa S, Podhisita C, *et al*. The teen tobacco epidemic in Asia: Indonesia, Nepal, Philippines, Taiwan and Thailand. *J Youth Stud* 2004;**7**:73–87.
64. **Nichter M**, Nichter M, Van Sickle D. Popular perceptions of tobacco products and patterns of use among male college students in India. *Soc Sci Med* 2004;**59**:415–31.
65. **Amos A**, Sanchez S, Skar M, *et al*. *Exposing the Evidence—Women and Secondhand Smoke in Europe*. Brussels: INWAT/ENSP, 2008.
66. **Bottoff JL**, Oliffe JL, Kelly MT, *et al*. Men's business, women's work: gender influences and fathers' smoking. *Social Health Illn* 2010;**32**:583–96.
67. **Robinson J**, Kirkcaldy A. Disadvantaged mothers, young children and smoking in the home: mothers' use of space within their homes. *Health Place* 2007;**13**:894–903.
68. **Bottoff JL**, Kalaw C, Johnson JL, *et al*. Couple dynamics during women's tobacco reduction in pregnancy and postpartum. *Nicotine Tob Res* 2006;**8**:499–509.
69. **Greaves L**, Kalaw C, Bottoff J. Case studies of power and control related to tobacco use during pregnancy. *Womens Health Issues* 2007;**17**:325–32.
70. **Greaves L**, Vallone D, Velicer W. Special effects: tobacco policies and low socioeconomic status girls and women. *J Epidemiol Community Health* 2006;**60**:1–2.
71. **Koisir M**, Gutierrez K. *Lessons Learned Globally: Secondhand Smoke Mass Media Campaigns*. St Paul, Minnesota: Global Dialogue for Effective Stop Smoking Campaigns, 2009.
72. **Nichter M**, Nichter M, Padmawati R, *et al*. Developing a smoke free household initiative: an Indonesian case study. *Acta Obstet Gynecol Scand* 2010;**89**:578–81.
73. **Amos A**, Haglund M. From social tobacco to "torch of freedom": the marketing of cigarettes to women. *Tob Control* 2000;**9**:3–8.
74. **Brandt AM**. Recruiting women smokers: the engineering of consent. *J Am Med Womens Assoc* 1996;**51**:63–6.
75. **WHO European Region**. *Empower Women—Combating Tobacco Industry Marketing in the WHO European Region*. Copenhagen: World Health Organisation, 2010. http://www.euro.who.int/__data/assets/pdf_file/0014/128120/e93852.pdf
76. **Nichter M**, Padmawati S, Danardon M, *et al*. Reading culture from tobacco advertisements in Indonesia. *Tob Control* 2009;**18**:98–107.
77. **Campaign for Tobacco Free Kids**. *Deadly in Pink: Big Tobacco Steps Up its Targeting of Women and Girls*. Campaign for Tobacco Free Kids, 2009.
78. **Hurt RD**, Ebbert JO, Anhari A, *et al*. Roadmap to a tobacco epidemic: transnational tobacco companies invade Indonesia. *Tob Control*. Published Online First: 2011. doi:10.1136/tc.2010.03681.
79. **Anon**. *JTI Profit Report: Super Slim Cigarettes Saved the Day*. <http://www.tobaccopub.com/articles/jti-profit-report-super-slim-cigarettes-saved-the-day> (accessed 8 Apr 2011).
80. **Han S**, Choe MK, Lee M, *et al*. Risk taking behavior among high school students in South Korea. *J Adolesc* 2001;**24**:571–4.
81. **Morrow M**, Barraclough S. Tobacco control and gender in Southeast Asia: Part 1: Malaysia and the Philippines. *Health Promot Int* 2003;**18**:255–64.

82. **Williams CT**, Grier SA, Marks A. "Coming to Town": the impact of urbanicity, cigarette advertising, and network norms on the smoking attitudes of black women in Cape Town, South Africa. *J Urban Health* 2008;**85**:472–85.
83. **National Cancer Institute**. *The Role of the Media in Promoting and Reducing Tobacco Use. Tobacco Control Monograph No. 19*. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, NIH Pub. No. 07–6242, 2008.
84. **Greaves L**, Johnson J, Bottorff J, *et al*. What are the effects of tobacco policies on vulnerable populations? A better practices review. *Can J Public Health* 2006b;**97**:310–15.
85. **Godfrey C**, Rice N, Slack R, *et al*. *A Systematic Review of the Effects of Prices on the Smoking Behaviour of Young People*. Public Health Research Consortium, 2010. <http://www.york.ac.uk/phrc/papers.htm>
86. **Chaloupka FJ**, Straif K, Leon ME. Effectiveness of tax and price policies in tobacco control. *Tob Control* 2010;**20**:235–8.
87. **Tong EK**, Tang H, Tsoh J, *et al*. Smoke-free policies among Asian-American women: comparisons by education status. *Am J Prev Med* 2009;**37**(Suppl 2):S144–50.
88. **Akhtar P**, Currie D, Currie C, *et al*. Changes in child exposure to environmental tobacco smoke (CHETS) study after implementation of smoke-free legislation in Scotland: national cross sectional survey. *Br Med J* 2007;**335**:545.
89. **NHS Information Centre**. *Statistics on NHS Stop Smoking Services: England, April 2009-March 2010*. NHS Information Centre, 2010. http://www.ic.nhs.uk/webfiles/publications/Health%20and%20Lifestyles/SSS2009_10_revised.pdf
90. **Nichter M**, Nichter M, Padmawati S, *et al*; Project Quit Tobacco International Group. Anthropological contributions to the development of culturally appropriate tobacco cessation programs: a global health priority. In: Hahn R, Inhorn M, eds. *Anthropology and Public Health: Bridging Differences in Culture & Society*. Oxford: Oxford University Press, 2009.
91. **WHO**. *WHO Report on the Global Tobacco Epidemic, 2009: Implementing smoke-free environments*. Geneva: World Health Organisation, 2009.
92. **Ng N**, Prabandari YS, Padmawati RS, *et al*. Physician assessment of patient smoking in Indonesia: a public health priority. *Tob Control* 2007;**16**:190–6.
93. **Mohan S**, Pradeepkumar AS, Thresia CU, *et al*. Tobacco use among medical professionals in Kerala, India: the need for enhanced tobacco cessation and control efforts. *Addict Behav* 2006;**31**:2313–18.
94. **Dozier AM**, Ossip-Klein DJ, Diaz S, *et al*. Tobacco use in the Dominican Republic: understanding the culture first. *Tob Control* 2006;**15**:30–6.
95. **Yang G**, Fan L, Tan J, *et al*. Smoking in China. Findings of the 1996 National Prevalence Survey. *JAMA* 1999;**282**:1247–53.
96. **Elton-Marshall T**, Fong GT, Zanna MP, *et al*. Beliefs about the relative harm of 'light' and 'low tar' cigarettes: findings from the International Tobacco Control (ITC) China Survey. *Tob Control* 2010;**19**(Suppl 2):i54–62.
97. **Ho MG**, Ma S, Chai W, *et al*. Smoking among rural and urban young women in China. *Tob Control* 2010;**19**:13–18.
98. **Bhanji S**, Andrades M, Taj F, *et al*. Factors relating to knowledge and perception of women about smoking: a cross sectional study from a developing country. *BMC Womens Health* 2011;**11**:16.
99. **Chomba E**, Tshetu A, Onyamboko M, *et al*. Tobacco use and secondhand smoke exposure during pregnancy in two African countries: Zambia and the Democratic Republic of the Congo. *Acta Obstet Gynecol Scand* 2010;**89**:531–9.
100. **Petersen Z**. *Smoking Cessation During Pregnancy: A Person-centred Approach Among Disadvantaged Women in South Africa [Ph.D. dissertation]*. Sweden, Department of Public Health and Clinical Medicine, Epidemiology and Global Health, Umea University, 2011.
101. **Greaves L**, Jateagaonkar N. Tobacco policies and vulnerable girls and women: toward a framework for gender sensitive policy development. *J Epidemiol Community Health* 2006;**60**:i57–65.
102. **Richardson L**, Greaves L, Jateagaonkar N, *et al*. Rethinking an assessment of nicotine dependence: a sex, gender and diversity analysis of the Fagerstrom test for nicotine dependence. *J Smok Cessat* 2007;**2**:59–67.
103. **Greaves L**, Hemsing N. Sex, gender, diversity and second-hand smoke policies: implications for disadvantaged women. *Am J Prev Med* 2009;**37**(Suppl 2):S131–7.
104. **Nichter M**. Introducing tobacco cessation in developing countries: an overview of Project Quit Tobacco International. *Tob Control* 2006;**15**(Suppl 1):12–17.
105. **Pathania VS**. Women and the smoking epidemic: turning the tide. *Bull World Health Organ* 2011;**89**:162.

Women and tobacco: part of the bigger picture

The article on women and tobacco by Amos *et al* provides a comprehensive overview of issues relating to the use of tobacco and the problems of tobacco control in girls and women.¹ The authors highlight the problem of the more disadvantaged women in high income countries and the more complex situation with girls' smoking rates in low and middle income countries (LMICs).

However, the solutions suggested to the women's problems that are highlighted raise issues particularly in LMICs of where the often sparse tobacco control money should be preferentially spent. The authors state that the smoking rates in some developing nations are less than 5%, but given that the regions mentioned where the estimated rates in women are Africa 2.8%, Western Pacific 4.8%, South East Asia 4.6% and Eastern Mediterranean 4.4%, and these are just a fraction of the male smoking rates, would it not be prudent in LMICs with limited resources to implement population-wide smoking measures rather than target a lower prevalence group?

The authors highlight the problem of targeting girls and women in marketing tobacco and rightly recommend implementation of the restrictions on industry marketing required by the Framework Convention on Tobacco Control (FCTC).² They could have gone further and recommended wide implementation of plain packaging, which has just been passed by the Australian parliament and will not only prevent attractive packaging but prohibit small pack sizes with slim cigarettes

(FCTC Article 11).³ Also, over 40 countries are applying graphic health warnings on packs. These can be used to warn of the health risks of smoking, secondhand smoke and specific areas of concern about the risks of smoking during pregnancy and may be the most affordable way low income countries can embark on education, while spending their limited resources on more cost-effective measures such as advertising bans.

The importance of price increases in reducing smoking prevalence is acknowledged by the authors but they indicate that the sale of single sticks can reduce the impact of this measure. Article 16.3 of the FCTC prohibits this and what needs to be stressed is the importance of multiple measures being introduced simultaneously rather than one measure at a time. With children at younger ages starting to smoke, less affordable cigarettes and plain packs with graphic warnings will be required together to address this issue.

In LMICs prioritising anti-tobacco measures to first implement those which will have the greatest impact is vital. While gender-sensitive measures to reduce secondhand smoke and achieve smoke-free homes is an important goal, the issue is whether in countries which have not yet fully implemented FCTC Article 8 to ensure public and work places are smoke-free, emphasis on smoke-free homes may provide a convenient excuse for governments to transfer the responsibility to individual smokers, when increasing numbers of women are in the workforce and protection of work and public places may be initially more effective for them.

Finally, the paper makes a strong case for more research: both quantitative and qualitative research at the individual, community and healthcare settings level. There is no doubt that this would be useful. However, this type of research is expensive