The Process of Cessation Among Current Tobacco Smokers: A Cross-Sectional Data Analysis From 21 Countries, Global Adult Tobacco Survey, 2009–2013

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Abstract

We analyzed data from the Global Adult Tobacco Survey (GATS) from 21 countries to categorize smokers by stages of cessation and highlight interventions that could be tailored to each stage. GATS is a nationally representative household survey that measures tobacco use and other key indicators by using a standardized protocol. The distribution of smokers into precontemplation, contemplation, and preparation stages varied by country. Using the stages of change model, each country can design and implement effective interventions suitable to its cultural, social, and economic situations to help smokers advance successfully through the stages of cessation.

Objective

Tobacco use is a major cause of preventable diseases. Article 14 of the World Health Organization’s Framework Convention on Tobacco Control (FCTC) shows countries’ interest in implementing support for smoking cessation (1). However, to successfully implement Article 14, countries should identify the stages of cessation among tobacco smokers in their populations. This research attempts to identify those stages on the basis of the stages of change model so that countries can develop stage-specific interventions to help their smoker populations through successful cessation (2,3). Using Global Adult Tobacco Survey (GATS) data, we applied processes and stages of change to characterize the cessation status of smokers in 21 countries and discuss potential cessation interventions.

Methods

GATS is a household survey of adults aged 15 years or older that uses a standardized protocol to collect data in all participating countries. A multistage cluster sampling design is used in all countries to achieve nationally representative samples (4). GATS was conducted from 2009 to 2013 in 21 countries: Argentina (2012), Bangladesh (2009), China (2010), Egypt (2009), Greece (2013), India (2010), Indonesia (2011), Malaysia (2011), Mexico (2009), Nigeria (2012), Panama (2013), Philippines (2009), Poland (2010), Qatar (2013), Romania (2011), Russia Federation (2009), Thailand (2011), Turkey (2012), Ukraine (2010), Uruguay (2009), and Vietnam (2010).

Response rates ranged from 65.1% (Poland) to 97.3% (Egypt), totaling 57,066 adult smokers from all 21 countries. All data (for each country) were weighted and poststratified to the national adult population in the respective countries (4). Details of GATS methods, including sampling design and data quality assurance, are available elsewhere (4).

GATS measures tobacco use and other key tobacco indicators. Current smokers were defined as adults who smoked either daily or less than daily. We focus on the first 3 stages of change (precontemplation, contemplation, and preparation), which were calculated by using responses to questions on last or most recent quit attempts in the past 12 months, duration of recent quit attempts,
and future cessation intentions (2,5,6). The precontemplation stage included smokers who did not make an attempt to quit in the past 12 months and who did not consider quitting in the next 12 months. Although some studies considered only 6 months for intention to quit (2,5), GATS protocol used 12 months for this behavioral aspect. Contemplation included smokers who reported considering quitting within the next 12 months except for those considering quitting in the next month who had made a quit attempt of 24 hours or more in the past 12 months. The preparation stage included smokers who are thinking of quitting smoking within the next month and have made a quit attempt of at least 24 hours over the past 12 months (2,5,6).

Results

Tobacco smoking prevalence among the 21 countries (Table), ranged from 3.9% (Nigeria) to 39.1% (Russia Federation). Across all countries, most smokers were in the precontemplation stage, followed by the contemplation stage and then the preparation stage. On average, 74.8% of smokers were categorized as being in the precontemplation stage, ranging from 61.4% (Qatar) and 61.6% (Bangladesh) to 89.5% (Indonesia).

The percentage of smokers in the contemplation stage was lower than that of smokers in the precontemplation stage. Percentages ranged from 7.1% (Indonesia) to 31.2% (Qatar). The preparation stage yielded the lowest percentage of smokers in all countries at an average of 6.7%. Among the GATS countries, the percentage of smokers in the preparation stage ranged from less than 3.0% (China, Greece, Russia Federation, and Thailand) to 12.9% (Nigeria).

Discussion

Distribution of smokers in stages of change varied by country. Six countries had more than 80% of smokers at the precontemplation stage, 8 countries had between 70% and 80%, and 7 countries had 60% to 69%. This variation may be attributable to 2 sets of factors: 1) environmental, social, economic, and culture conditions within each country (7); and 2) intercountry variations in adopting cessation interventions. For example, the 6 countries with a high proportion of smokers in precontemplation could consider adopting intervention strategies to target this population with specific goals to increase the awareness of the risk to self and others, the quality of life associated with cessation, and how the power of cessation is intrinsically motivated. Such intervention strategies should be developed within the population’s cultural milieu so that smokers in precontemplation will accept the messages and be motivated to consider quitting (3,6). Strategies may also include public education activities and media campaigns to motivate smokers at this stage to think of quitting (3,6). Similarly, adoption of strategies such as the use of graphic health warnings on cigarette packs and in conspicuous public places (eg, billboards) have increased smokers’ awareness of the health risks of smoking (8).

Consciousness raising and dramatic relief strategies, combined with recognizing the need to quit, making the decision to quit, learning to be a nonsmoker, and sustaining the quit attempt could also help motivate smokers to pass from the contemplation stage to the preparation stage (3,6,9). Thus, countries with a high proportion of smokers in the contemplation stage, such as Bangladesh, Qatar, Turkey, and Uruguay, could benefit from adopting both strategies to target this group.

Despite the low proportion of smokers in the preparation stage, countries should strategically target smokers at this stage to move them into action. For example, Bangladesh and Nigeria, each with more than 10% of smokers in the preparation stage, could adopt strategies that motivate this group to take action and avoid relapses into earlier stages. Processes of change strategies could include self-evaluation that allows smokers to reflect on their self-image in relation to their behavior (2,6). Use of health care providers with brief interventions or extensive intervention could be one strategy to help smokers reflect on their smoking behavior (10). Additionally, communities can organize “smoker cessation clubs,” wherein past smokers congregate and exchange their success stories, thereby influencing people in the stages of contemplation and precontemplation to move into the preparation stage.

We also found that countries with high smoking rates had high precontemplation rates, except for Panama, which is experiencing a decline in smoking rates but still has smokers who are having difficulty quitting (11). Particularly evident is the decline in the youth smoking rate from 13.2% (2002) to 4.3% (2008) (12).

Although the stages of change theory (13) has limitations, this study is the first to apply the model to data from 21 GATS countries and provide strategies anchored in experiential processes of the social cognitive model that help move smokers from precontemplation through action stages. Interventions suggested are broad in nature with built-in flexibility for each country to design interventions that are suitable to its culture, environment, and socioeconomic situation.

Study limitations also include the use of self-reported data, which is subject to possible recall or social desirability biases. Furthermore, differences in cessation stages across countries may reflect not only country-specific differences but also differences in survey timing. Overall, the stages of change model provides a useful framework for country-level cessation support, which remains critical to reduce tobacco use and its consequences.
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Table

Table. Weighted Estimates of Tobacco Smoking Prevalence and Stages of Cessation, by Country, Global Adult Tobacco Survey

| Country                | GATS Country Sample | Current Tobacco Smokers, % (95% CI) | Sample Size For Stages | Precontemplation, b % (95% CI) | Contemplation, c % (95% CI) | Preparation, d % (95% CI) |
|------------------------|---------------------|------------------------------------|------------------------|---------------------------------|-----------------------------|---------------------------|
| Argentina 2012         | 6,645               | 22.1 (19.3–25.3)                   | 1,648                  | 75.4 (68.4–81.2)                | 16.2 (12.0–21.6)            | 8.4 (3.8–17.8)            |
| Bangladesh 2009        | 9,629               | 23.0 (21.9–24.2)                   | 2,217                  | 61.6 (57.8–65.3)                | 26.3 (23.5–29.3)            | 12.1 (10.1–14.3)          |
| China 2010             | 13,354              | 28.1 (26.7–29.7)                   | 4,010                  | 83.9 (80.3–87.0)                | 14.0 (11.2–17.4)            | 2.1 (1.4–3.1)             |
| Egypt 2009             | 20,946              | 19.4 (18.8–20.1)                   | 4,150                  | 72.9 (70.7–75.0)                | 21.0 (19.1–22.9)            | 6.2 (5.1–7.4)             |
| Greece 2013            | 4,359               | 38.2 (35.7–40.8)                   | 1,664                  | 86.2 (82.8–89.0)                | 13.2 (10.5–16.4)            | 0.7 (0.3–1.7)             |
| India 2010             | 69,296              | 14.0 (13.4–14.6)                   | 11,488                 | 74.5 (72.7–76.3)                | 18.6 (17.1–20.1)            | 6.9 (6.0–7.9)             |
| Indonesia 2011         | 8,994               | 34.8 (33.2–36.4)                   | 2,853                  | 89.5 (86.7–91.8)                | 7.1 (5.4–9.3)               | 3.3 (2.4–4.6)             |
| Malaysia 2011          | 4,250               | 23.1 (21.2–25.2)                   | 978                    | 85.5 (81.3–88.8)                | 9.3 (6.6–13.0)              | 5.2 (3.5–7.6)             |
| Mexico 2009            | 13,627              | 15.9 (14.8–17.1)                   | 1,817                  | 64.9 (61.8–67.9)                | 24.1 (21.4–27.0)            | 11.0 (9.1–13.2)           |
| Nigeria 2012           | 9,765               | 3.9 (3.3–4.5)                      | 424                    | 63.8 (56.9–70.2)                | 23.3 (17.8–30.0)            | 12.9 (8.9–18.2)           |
| Panama 2013            | 16,962              | 6.1 (4.9–7.5)                      | 962                    | 79.6 (73.2–84.9)                | 12.1 (7.4–19.0)             | 8.3 (5.8–11.8)            |
| Philippines 2009       | 9,705               | 28.2 (27.0–29.5)                   | 2,769                  | 79.5 (77.3–81.5)                | 12.3 (10.7–14.1)            | 8.2 (7.0–9.7)             |
| Poland 2010            | 7,840               | 30.3 (29.0–31.7)                   | 2,416                  | 68.5 (65.9–70.9)                | 24.2 (22.0–26.5)            | 7.3 (6.1–8.7)             |
| Qatar 2013             | 8,571               | 12.1 (11.1–13.1)                   | 1,073                  | 61.4 (56.8–65.9)                | 31.2 (27.2–35.5)            | 7.4 (5.7–9.6)             |
| Romania 2011           | 5,629               | 26.7 (25.0–28.4)                   | 1,053                  | 76.5 (73.7–79.2)                | 18.4 (16.0–21.1)            | 5.1 (4.0–6.4)             |
| Russia Federation 2009 | 11,406              | 39.1 (37.8–40.5)                   | 4,798                  | 85.6 (83.7–87.4)                | 11.7 (10.1–13.6)            | 2.6 (2.1–3.4)             |
| Thailand 2011          | 20,606              | 24.0 (22.8–25.1)                   | 4,290                  | 85.4 (83.4–87.2)                | 12.0 (10.3–13.9)            | 2.6 (2.0–3.5)             |

Abbreviation: CI, confidence interval; GATS, Global Adult Tobacco Survey.

a Tobacco smoking prevalence is the proportion of adults who currently smoke tobacco daily or less than daily.

b Precontemplation included smokers who did not make an attempt to quit in the past 12 months and were not considering quitting in the next 12 months.

c Contemplation included smokers who consider quitting within the next month to 12 months except those considering quitting within next month who made a quit attempt of 24 hours or more in the past 12 months.

d Preparation included smokers who have made a quit attempt of 24 hours or more in the past 12 months and were considering quitting in the next month.

e Total number of smokers in the sample.
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|---------------|---------------------|-------------------------------------|------------------------|-------------------------------|-----------------------------|---------------------------|
| Turkey 2012   | 9,851               | 27.1 (25.8–28.3)                    | 2,412                  | 64.6 (61.8–67.3)              | 26.9 (24.6–29.4)            | 8.5 (7.2–10.0)            |
| Ukraine 2010  | 8,173               | 28.9 (27.7–30.1)                    | 2,392                  | 74.1 (71.7–76.4)              | 20.7 (18.6–22.9)            | 5.3 (4.1–6.7)             |
| Uruguay 2009  | 5,581               | 25.0 (23.3–26.6)                    | 1,394                  | 66.5 (63.1–69.7)              | 25.1 (22.2–28.3)            | 8.4 (6.5–10.7)            |
| Vietnam 2010  | 9,925               | 23.8 (22.7–24.9)                    | 2,258                  | 70.8 (68.1–73.3)              | 21.6 (19.4–24.0)            | 7.6 (6.4–9.0)             |
| Average       | 23.9                | 57,066e                            | 74.8                   | 18.5                          | 6.7                         |                           |

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