Tobacco dependence in the general population in Italy

S. Gallus1*, R. Pacifici2, P. Colombo3, C. La Vecchia1,4, S. Garattini1, G. Apolone1 & P. Zuccaro2

1Istituto di Ricerche Farmacologiche ‘Mario Negri’, Milan; 2Dipartimento del Farmaco, Istituto Superiore di Sanità, Rome; 3Istituto DOXA, Gallup International Association, Milan; 4Istituto di Statistica Medica e Biometria, Università degli Studi di Milano, Milan, Italy

Received 18 May 2004; revised 15 December 2004; accepted 16 December 2004

Background: Measures of tobacco dependence are mainly used in the clinical setting, but limited information is available on tobacco dependence on a population level.

Materials and methods: To obtain estimates of tobacco dependence on a population level, a six-item Fagerström questionnaire was used in two surveys, conducted in 2002–2003 on a sample of 6773 individuals aged 15 years or over, representative of the Italian adult population.

Results: Overall, 27.1% of Italian adults described themselves as current cigarette smokers (32.2% of men, 22.4% of women). Of all smokers, 42.8% were classified as very low dependent, 28.6% as low dependent, 11.0% as intermediate, 13.8% as high and only 3.8% as very high dependent. The proportions of very low/low dependent were 67.4% in men and 76.8% in women. Those of high/very high dependent smokers were 21.4% in men and 12.5% in women, but only 2.8% at age 15–17 years and 8.4% at age 18–24 years. Only 23% of smokers, moreover, found it difficult to avoid smoking in places where smoking was forbidden.

Conclusions: The observation that over two-thirds of smokers on a population level in Italy report low or very low dependence has useful implication for intervention on stopping smoking, particularly in the young, who appear to be low dependent. However, in this age group cessation rates were comparatively low.

Key words: epidemiology, Italy, population surveys, smoking

Introduction

Measures of tobacco dependence are mainly available from stopping smoking clinics and hence from selected groups of smokers [1, 2]. Furthermore, limited information is available on tobacco dependence on a population level [2–5]. A survey of over 10000 smokers from 17 European countries [3] identified severely and less severely dependent smokers on the basis of two questions only, i.e. number of cigarettes smoked (<10; 10–29; ≥30 cigarettes/day) and time between waking and first cigarette (<30 and ≥30 min), and over 55% of smokers were classified as severely dependent. The proportion of dependent/heavy dependent smokers was considerably higher in smoking cessation clinics [6, 7] than in population-based samples [2]. Dependence score also seemed to be higher in countries with low smoking prevalence [2].

To obtain more detailed and valid information on the issue, a six-item Fagerström questionnaire was utilized in two representative surveys of smoking in Italy [4, 5, 8].

Materials and methods

The data were collected by ad hoc trained interviewers, using a structured questionnaire in the context of computer-assisted personal in-house interview, conducted in March–April 2002 and in March–April 2003 [4, 5, 8]. Interviews were conducted on a total sample of 6773 individuals (3255 males, 3518 females) aged 15 or over, representative of the general Italian adult population (about 49 million), in terms of age, sex, geographic area, habitat, education and working status. This sample was defined through a representative multistage sampling of adults from 122 municipalities (the smallest Italian administrative division) in all of the 20 Italian regions (the largest Italian administrative division), identified in order to be representative of the geographical areas sampled. In the municipalities considered, individuals were randomly selected from electoral lists, within strata of sex and age group, in order to be representative of the demographic structure of the population. A random replacement was used for subjects who could not be traced.

Population aged 15–24 years was oversampled by about 400 subjects in the 2003 survey, to produce more stable estimates, in particular when investigating the level of dependence in age subgroups (15–17 and 18–25 years).

Information was collected on general socio-demographic characteristics and on smoking behaviour, including smoking status (never/ex/current smoker) and number of cigarettes smoked per day. A smoker was defined as a subject who had smoked at least an average of one cigarette/day for 1 year. Smokers were also questioned on the number and outcome of
attempts to stop smoking, and on their level of tobacco dependence, using a six-item Fagerström questionnaire [1, 2]. This included the following questions [choices (corresponding weight in brackets)]:

1. ‘How soon after you wake do you smoke?’: within 5 min (3), 6–30 min (2), 31–60 min (1), after 60 min (0).
2. ‘Do you find it difficult to refrain from smoking in places where it is forbidden?’: yes (1), no (0).
3. ‘Which cigarette would you most hate to give up?’: the first one in the morning (1), all others (0).
4. ‘How many cigarettes per day do you smoke?’: 10 or less (0), 11–20 (1), 21–30 (2), 31 or more (3).
5. ‘Do you smoke more frequently during the first hours after waking than during the rest of the day?’: yes (1), no (0).
6. ‘Do you smoke if you are so ill that you are in bed most of the day?’: yes (1), no (0).

The score used to classify the dependence was: 0–2, very low; 3–4, low; 5, intermediate; 6–7, high; 8–10, very high dependence.

**Results**

Overall, 27.1% of Italians aged 15 or over described themselves as current cigarette smokers (32.2% of men, 22.4% of women). Table 1 gives the distribution of smokers according to the level of dependence, sex and age group. Of all smokers, 42.8% were classified as very low dependent, 28.6% as low dependent, 11.0% as intermediate, 13.8% as high and only 3.8% as very high dependent. Women and younger smokers tended to be systematically less dependent. Thus, the proportion of high and very high dependent smokers was 21.4% in men and 12.5% in women, but was only 2.8% at age 15–17 years and 8.4% at age 18–24 years. Only 23% of smokers, moreover, found it difficult to avoid smoking in places where smoking was forbidden.

Information was also available on the number of attempts to stop smoking and the outcome of such attempts. Among current smokers, 39.0% reported to have tried at least once. Of these, 26.3% were able to stop for some months and 19.8% for some years. A proportion of 88.5% of those who tried to quit did not use any support. Only 2.8% adopted some forms of psychological support, and 7.8% used pharmacological support (0.9% adopted both). Among younger smokers (15–24 years), 24.1% tried to quit (and only 2% adopted either pharmacological or psychological support).

Table 2 shows the mean values of the Fagerström dependence score by sex and age group in strata of number and outcome of attempts to stop smoking. In all smokers combined, the mean value was 3.14 (3.40 for males and 2.79 for females). The mean score was 2.98 for smokers who never tried to give up smoking (61%) and 3.39 for those who tried at least once (39%). The mean value for those who tried to give up using pharmacological and/or psychological support was 4.02. The mean values for smokers of <20 and ≥20 years are shown in Table 2.

<table>
<thead>
<tr>
<th>Level of dependence</th>
<th>Total</th>
<th>15–24</th>
<th>25–44</th>
<th>45–64</th>
<th>≥65</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low</td>
<td>(1837)</td>
<td>(1048)</td>
<td>(109)</td>
<td>(215)</td>
<td>(482)</td>
<td>42.8</td>
<td>39.1</td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28.6</td>
<td>28.3</td>
</tr>
<tr>
<td>Intermediate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.0</td>
<td>11.2</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13.8</td>
<td>16.9</td>
</tr>
<tr>
<td>Very high</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.8</td>
<td>4.5</td>
</tr>
</tbody>
</table>

*This age group has been oversampled, thus the numbers of the four age groups do not add up to the total.

<table>
<thead>
<tr>
<th>Strata</th>
<th>%</th>
<th>Total</th>
<th>Sex</th>
<th>Age group (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Never tried to give up</td>
<td>61.0</td>
<td>2.98 (2.29)</td>
<td>3.28 (2.42)</td>
<td>3.64 (2.10)</td>
</tr>
<tr>
<td>Tried to give up at least once</td>
<td>39.0</td>
<td>3.39 (2.35)</td>
<td>3.57 (2.40)</td>
<td>3.09 (2.23)</td>
</tr>
<tr>
<td>Without any support</td>
<td>34.5</td>
<td>3.31 (2.35)</td>
<td>3.50 (2.40)</td>
<td>2.96 (2.22)</td>
</tr>
<tr>
<td>Pharmacological and/or psychological support</td>
<td>4.4</td>
<td>4.02 (2.25)</td>
<td>4.26 (2.28)</td>
<td>3.79 (2.22)</td>
</tr>
<tr>
<td>Never gave up</td>
<td>7.7</td>
<td>3.68 (2.34)</td>
<td>3.82 (2.42)</td>
<td>3.52 (2.25)</td>
</tr>
<tr>
<td>Gave up for less than 1 month</td>
<td>13.0</td>
<td>3.63 (2.27)</td>
<td>3.87 (2.32)</td>
<td>3.08 (2.09)</td>
</tr>
<tr>
<td>Gave up at least for 1 month</td>
<td>18.2</td>
<td>3.09 (2.37)</td>
<td>3.22 (2.42)</td>
<td>2.89 (2.30)</td>
</tr>
<tr>
<td>All smokers</td>
<td>100.0</td>
<td>3.14 (2.32)</td>
<td>3.40 (2.41)</td>
<td>2.79 (2.16)</td>
</tr>
</tbody>
</table>
cigarettes/day were 1.99 (standard deviation, SD 1.78) and 4.95 (SD 1.89), respectively.

Discussion

Italian smokers have a mean value of dependence score of 3.14. This result is in broad agreement with the findings by Fagerström et al. [2], who, reviewing data from the USA and several European countries, showed a mean score of 3.59. This study, moreover, confirms that countries where stopping smoking has been less extensive, such as Italy, seemed to have smokers with lower dependence scores compared with countries with low smoking prevalence, such as the USA (mean score 4.30) [2].

The mean scores of smokers who tried to give up at least once were systematically higher than those of who never tried. This is likely to be explained by the fact that, among smokers who tried to give up, more severely addicted ones selectively failed to quit. Table 2 shows that differences in terms of mean scores between those who never tried and those who tried at least once are not totally explained by age or sex. This is even more evident in current smokers who failed to give up with the help of a pharmacological and/or psychological support. Fagerström et al. [2] had noticed that smokers who seek help in stopping smoking are much more dependent than the average smoker.

Smokers of ≥20 cigarettes/day had a 2.5-fold mean dependence score than smokers of <20 cigarettes/day. This is, however, due to the fact that the definition of the score is influenced by the number of cigarettes/day itself.

The observation that more than two-thirds of Italian smokers reported low or very low dependence levels indicates the large scope for counselling and intervention on stopping smoking on a population level. Also of interest is the extremely low proportion of smokers aged 15–24 years reporting high dependence to tobacco, whereas more than 60% of this age group reported very low, and another 25% low dependence. This indicates that, in most regular smokers, tobacco dependence is not yet established in adolescents and the young, who are also a key target of the tobacco industry promotion [9–11]. Thus, focus of antismoking intervention in adolescents and the young is a clear priority. In a study on young adults from the USA, the Fagerström test for nicotine dependence predicted cessation, with non-dependent smokers being four times more likely to quit [12, 13]. The issue of nicotine dependence in the young, and especially in adolescents is, however, still open to discussion, since the classic measures of nicotine dependence (using the Fagerström questionnaire) showed that dependence develops only after several years of regular smoking [14–16]. However, recent evidence suggests that symptoms of dependence occur even with the irregular, sporadic smoking that characterises the early stages of smoking onset [14, 17, 18]. Moreover, compared with adults, young smokers absorb more nicotine per cigarette, even with their first few cigarettes [15, 19, 20]. Along this line, data from North America showed that although substantial proportions of young smokers tried to quit, smoking cessation success rates were comparatively low [15]. Thus, there is still a lack of a widely accepted tool to measure nicotine dependence in the youth [14, 15, 17].

A few additional aspects of these surveys deserve comment. Despite the large proportion of subjects reporting low dependence, only a minority (39.0%) of current smokers had made attempts to stop. This underlines the importance of extending information on the benefits of quitting smoking, since subjects who stop smoking, even well into middle age, avoid most of their subsequent risk of lung cancer, myocardial infarction and other tobacco-related diseases [21, 22].

Sixteen per cent of Italian adults described themselves as ex-smokers, and most of them (87%) had quit without any support. This reflects the low proportion of smokers describing themselves as highly or very highly dependent. Still, an extremely low proportion, around 3%, of ex-smokers had used psychological (2.4%) or pharmacological support (0.8%). This indicates the potential larger scope for intervention using valid supports on a selected proportion of highly dependent smokers [23–26].

Acknowledgements

This work was supported by a grant of the Italian Minister of Health, and by the contributions of the Italian League against Tumors and the Italian Association for Research on Cancer (AIRC). The authors thank Mrs M. Paola Bonifacino for editorial assistance.

References