

- veys: an experimental study. *Am J Public Health*. 1989;79:638-639.
3. Sallis JF, Fortmann SP, Solomon DS, Farquhar JW. Increasing returns of physician surveys. *Am J Public Health*. 1984;74:1043. Letter to the Editor.
 4. Linsky AS. Stimulating responses to mailed questionnaires: a review. *Public Opin Q*. 1975;39:82-101.
 5. Spry VM, Hovell MF, Sallis JG, Hofstetter CR, Elder JP, Molgaard CA. Recruiting survey respondents to mailed surveys: Controlled trials of incentives and prompts. *Am J Epidemiol*. 1989;130:166-172.

Habits and Attitudes of Public Health Students

Medical students are under constant scrutiny. Index Medicus lists more than a hundred articles per year concerning their knowledge, beliefs, and conduct. By contrast, public health students have remained relatively free from inquiry. We discovered fewer than a dozen studies in the past 2 decades focusing on public health students. We decided to investigate the habits and attitudes of students at the Harvard School of Public Health (HSPH).

In May of 1990 an anonymous two-page questionnaire was sent to all students at HSPH. Questions, taken verbatim from various national polls were asked concerning (1) individual health-related behavior and (2) views on public health issues. Students also rated the quality of their educational experience and indicated whether, if they had it to do over, they would again seek public health training.

The response rate was 64%. Reflecting school enrollment, 27% of the respondents were physicians, and about 33% were foreign nationals.

It might be argued that, because of their interest and training, the conduct of public health students represents an upper limit to what might be expected from health education interventions. Fortunately, these students seem to have incorporated much public health wisdom into their life-styles. Of US students, 89% claimed to wear their seatbelt all the time and 97% said they did not smoke. This level of cigarette consumption is below the very low rates found among US medical students. On the other hand, US public health students tended to drink more often than the average citizen although less often than medical students.

US public health students at Harvard are politically "liberal" regarding public health issues. They overwhelmingly supported legal abortions (96%), seatbelt laws

(87%), national health insurance (76%), and handgun bans (75%); they opposed the death penalty.

Compared with the US students, those from abroad were more likely to smoke and less likely to wear a seatbelt. They were more likely to favor national health insurance and handgun restrictions. Overall, however, US and foreign HSPH students were found to be more similar to each other than to the general or college-educated US population.

In terms of their health attitudes and behavior, there was little to distinguish physician from nonphysician HSPH students except that physician students were (a) somewhat more likely to oppose national health insurance and (b) somewhat less likely to believe that abortion should be legal under all circumstances.

If they had it to do over, 92% of the students would again seek public health training.

The findings indicate that public health students have clear common interests although are a disparate group. Widespread agreement exists among them on many health-related policy issues, and compared even with American medical students, their personal behavior seems very healthy. Few appear to regret their decision to seek a public health education. □

David Hemenway, PhD

Sara J. Solnick, MA

Douglas S. Weil, MS

Christian M. Koeck, MD, MPH

The authors are with the Harvard School of Public Health. Requests for reprints should be sent to David Hemenway, PhD, Department of Health Policy and Management, Harvard School of Public Health, 677 Huntington Avenue, Boston, MA 02115.

Readability of Health Warnings on Alcohol and Tobacco Products

The United States government requires specific health warnings on alcohol and tobacco products, some of which include complex sentences and unusual terms like "carbon monoxide." Because adolescents and other individuals with limited reading skills often have problems with alcohol and tobacco, the readability of the warnings may be crucial to their effectiveness in preventing these problems. Although the federal government started requiring some warnings more than 20 years ago, it appears that no one has ever determined the reading ability needed to understand them. Hence, we

decided to evaluate the readability of government-required warnings on alcohol, cigarette, and smokeless tobacco containers.

We assessed the readability of the warnings with three standard tests called the Flesch,¹ Gunning's Fog,² and Dale/Chall³ methods. These methods focus on length of sentences, average number of syllables per word, and the unfamiliarity of the words. Higher scores on the Flesch indicate that material is easier to read; lower scores on the Gunning and Dale/Chall indicate that material is easier to read.

All three methods produced similar results, indicating that the single alcohol warning and each of the four cigarette warnings require a reading level typical of college students or college graduates. Flesch formula scores ranged from 8.4 to 47.6; Gunning formula scores from 13.9 to 31.6; and Dale/Chall formula scores from 10.0 to 12.2. These findings are unfortunate for the many Americans with lower reading ability.

The three smokeless tobacco warnings require more appropriate reading levels typical of middle school or high school students. For them Flesch scores ranged from 52.9 to 86.7; Gunning scores from 2.8 to 12.0; and Dale/Chall scores from 7.3 to 8.5.

The results persuade us that the federal government should consider (a) modifying existing alcohol and cigarette warnings to make them more readable and (b) using readability analyses in developing new warnings. □

John Malouff, PhD, JD

Debbie Gabrilowitz

Nicola Schutte, PhD

The authors are with Nova College in Fort Lauderdale, Fla. Requests for reprints should be sent to John Malouff, PhD, JD, Nova College, 3301 College Avenue, Fort Lauderdale, FL 33314.

References

1. Flesch R. *How to Write Plain English*. New York, NY: Harper & Row Publishers, Inc.; 1979.
2. Gunning R. *The Technique of Clear Writing*. New York, NY: McGraw-Hill International Book Co.
3. Dale E, Chall J. A formula for predicting readability. *Educ Res Bull*. 1948;27:11-20, 37-54.

Lead Exposure in Sandblasting

With respect to the discussion of exposure to lead in sandblasting and the possibility that this exposure may have