Figure 2.19d. SURVEY SAMPLING: Illustrative Newspaper Articles 4

EM9512: The Globe and Mail, April 13, 1995, pages A1, A14

Risk-free world within reach, Canadians say

Experts at pains to explain optimism found by survey, which also shows what things people see as scary

BY STEPHEN STRAUSS
Science Reporter

More than 60 per cent of Canadians polled in a Health Canada survey believe that "a risk-free environment is an attainable goal in Canada."

However, in a complementary survey of 150 Canadian toxicologists, only 19 per cent of these poison experts shared their fellow citizens' optimism about a risk-free future world.

Results and comparisons of the two surveys will be published in three scientific papers to appear this year in the *Journal of Risk Analysis and Uncertainty* and in the journal *Risk Analysis.*

In addition to their optimism about humans' ability to cast health risks out of their lives, the 1992 survey of 1,506 Canadians produced a plethora of other data about how we feel about scary things.

For example, with the exception of heart pacemakers, women ranked every one of 38 potential areas of danger as riskier than men. In many areas the differences were dramatic. Women surpassed men by 23 percentage points (64 to 41 per cent) in thinking sunbathing is highly risky.

There was a difference of more than 15 percentage points between men and women in their perception of high risk in areas as diverse as crime and violence, AIDS, motor-vehicle accidents, stress, ozone depletion, malnutrition, nuclear power plants, drinking alcohol, chemical pollution and waste incinerators.

The survey, which is statistically significant, shows in a less surprising vein that the older Canadians get – 55 and up – the more dangerous to their health they perceive the world to be. In particular they think street drugs, crime and violence, breast implants, alcohol and pregnancy, sun tanning, asbestos, video display terminals, drinking alcohol and cigarette smoking are much riskier than do people under 30.

Young people out-fear their elders only when it comes to heart pacemakers, pesticides and various forms of chemical pollution.

People also exhibited marked differences in evaluating threats to them and their families, compared with threats to the Canadian public as a whole. Nuclear power and nuclear waste rank at the top of perceived personal health risks even when respondents live in British Columbia or the Prairies where nary a nuclear generator exists.

There was also one regional difference. Quebec inhabitants find the world significantly riskier in many categories, including street drugs, AIDS and nuclear wastes, than do people in the rest of Canada.

The survey also shows how little Canadians are willing to increase their health risks in order to improve the economy. About 70 per cent of those surveyed disagreed strongly or somewhat with any suggestion that they should accept some risks to health to strengthen the economy.

One of the most striking aspects of the studies was the difference between the risk experts and the lay public. While the toxicologists' study was not as statistically robust as the general survey, attitude differences leaped out.

Nearly 90 per cent of the scientists believe that natural chemicals could be just as harmful as manufactured ones. Almost two-thirds of the men and women on the street believe the opposite.

More than 70 per cent of the toxicologists believe that fruits and vegetables contain natural, cancer-causing substances. Almost an exact number of Canadians at large disbelieve it.

The ranking of dangers also varies significantly. Cigarette smoking is at the top of both lists and recognized as a high danger by close to 60 per cent of both groups. However, the public at large believes ozone depletion is the next biggest risk to them, ranking nearly as high as smoking. But among the experts, diminished ozone is only the 10th most risky thing, and only about 20 per cent think it is highly dangerous.

With the exception of cigarettes and motor-vehicle accidents, Canadians at large find the world a riskier place than do the experts. In addition to ozone, differences of more than 25 per cent show up in risk evaluations of chemical pollution, street drugs, nuclear wastes, food additives, pesticides in food, breast implants, AIDS, stress, PCBs and dioxin.

In an area of significant agreement, more than 60 per cent of the experts, like about 70 per cent of the public, refuse to accept health risks to strengthen the environment.

There are a number of explanations for the wide differences between men and women and between risk experts and amateurs, said Paul Slovic, a psychology professor at the University of Oregon who co-wrote the papers. He believes that the Canadian public's faith in a risk-free future reflects their naiveté.

"My hunch is that they haven't thought out what it would take to achieve zero risk," he said. It is also possible that people skipped right over the word "attainable" when thinking about a goal.

Prof. Slovic said he is not sure what accounts for the difference between men and women in Canada.

However, he pointed to sex and ethnicity data from a similar survey in the United States showing that black women and black men exhibit very little difference in their weightings of risk. And when the white population was looked at more closely, it turned out that a relatively small number of white males – about 30 per cent – have very different attitudes from the rest of the population. It is their enthusiasms that skew

How we view risk

Percentage of Canadians in a 1992 survey who said they considered these a high risk to the public:

	Men	Women
Cigarette smoking	56	65
Street drugs	51	62
Breast implants	51	66
Ozone layer depletion	50	68
Chemical pollution	45	61
Stress	45	63
Crime and violence	43	64
Nuclear waste	42	54
Suntanning	41	64
AIDS	39	58
Motor vehicle accidents	39	57
Food additives	31	42
Pesticides in food	30	44
Drinking alcohol	26	42
Asbestos	25	26
Nuclear power plants	22	39
Food irradiation	17	26
High voltage power lines	16	27
Mercury in dental fillings	11	14
Medical X-rays	10	14
Tap water	9	15
Video display terminals	8	12
Heart pacemakers	7	6
Contraceptives	6	12
Contact lenses	2	5

(*continued overleaf*)

the sex difference.

This group trusts science and industry, thinks experts should make decisions, and doesn't think that the country is better off when people are treated more equally. "I call it the Newt Gingrich syndrome," Prof. Slovic said.

In a contrary vein, other U.S. data show that there are significant risk-assessment differences between men and women scientists, with women finding the world a riskier place. This has led to suggestions either that women are more likely to be taught that the world is a dangerous place, or that as nurturers and protectors of children women have become biologically more fearful than men.

The differences between experts and the public reflect differences in both experiences and in training. The public reacts to the drama of news reports and natural disasters, while the scientists look at the numbers, Prof. Slovic said.

"What this shows in part is that the public point of view won't be changed simply by throwing more numbers at them."

1 Comment critically, from a statistical perspective, on the phrase: *The survey, which is statistically significant,...* in the first sentence of the seventh paragraph of the left-hand column of the article EM9512 reprinted overleaf on page 2.159.

- If appropriate, suggest an improved wording for this sentence.

2 In the light of wording in the fifth paragraph in the left-hand column of the article EM9512 reprinted overleaf on page 2.159, comment on the wording of the phrase in the fourth paragraph of the right-hand column overleaf on page 2.159: *... differences of more than 25 per cent show up ... .*

The article EM9512 reprinted overleaf on page 2.159 and above is also used, together with articles EM9513, EM9511 and EM9508, in Figure 7.15 of the STAT 220 Course Materials