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MEASURING: *Violence survey takes toll on staff*

Other Statistical Highlights have identified contexts where measurement error, arising from easily-overlooked measurement issues, may impose severe (possibly unacceptable) limitation on an Answer; for instance:

- the process of measuring may *change* the value of the response – see the lower half of page HL38.6 in Statistical Highlight #38;
- measurement *independence* may be compromised – see the middle of page HL38.5;
- measuring *inaccuracy* may meaningfully exceed investigators' assessments – see Statistical Highlight #15.

The article EM9358 reprinted below describes a context where the (unusual) measurement issue is *operators* being affected by the response, possibly compromising measured values and measurement independence; the article EM9357 reprinted on this page and pages HL45.2 and HL45.3 describes the Statscan survey (referred to in EM9358) in more detail.

EM9358: The Globe and Mail, November 19, 1993, page A4

BEHIND THE NUMBERS / *The findings of abuse were so upsetting that some interviewers burned out*

Violence survey takes toll on staff

By ALANNA MITCHELL
Social Trends Reporter

CANADA'S first national survey on violence against women was so harrowing to conduct that the 30 female interviewers had weekly sessions with a psychologist during the five months it went on.

They were also screened by the psychologist before they got the jobs, said Holly Johnson, Statistics Canada project manager for the survey. They had to be able to handle high levels of stress and display excellent coping skills, she said.

Nevertheless, because of the large amount of violence reported, some of the interviewers burned out and many more left for other jobs.

In the survey, 12,300 randomly chosen Canadian women were telephoned and asked whether they had experienced physical or sexual violence as adults. The interviews, ranging from 15 minutes to three hours, took place between February and June after more than a year of testing and consultations with women's rights advocates.

The survey is the first of its type in the world and Canada's most comprehensive on the subject.

However, it has been harshly criticized by women's groups. Many felt that adequate statistics were already available and that the $1.9-million it cost to carry out the survey should have been spent on helping victims of violence.

"The bottom line is, the money's been spent, now will women be believed?" Susan Bazilli, a lawyer with the Metro Action Committee on Public Violence against Women and Children in Toronto, said yesterday.

Activists have also spoken out against a $10-million federal government panel whose report on stories of violence against women was released in July.

Women's groups feared the Statscan survey would produce evidence that a low number of women are assaulted. They were also concerned that the interviews themselves would put women at risk, especially if they were in the company of an abuser when the phone rang.

"It's an extremely traumatic experience. Do they say: 'Thanks for your time', and hang up?" Ms. Bazilli said.

Almost one-quarter of the women surveyed who reported assaults to the interviewer had never told anyone about them.

But Karen Rogers, a senior analyst who worked on the survey, said extensive advance testing indicated that women did not appear to flock to community-service organizations in distress after their interviews.

Some groups were also critical of the survey because it did not capture data from women who do not speak French or English. It also failed to reach women in Canada's North; those who do not own a telephone; or those in shelters for battered women.

However, it is still considered statistically representative of Canadian women.

Statscan will publish more data from the survey in March.

EM9357: The Globe and Mail, November 19, 1993, pages A1, A4

50% of women report assaults

Ground-breaking Statscan survey finds violence pervasive

BY ALANNA MITCHELL
Social Trends Reporter

More than half of Canadian women have been physically or sexually assaulted at least once in their adult lives, the most comprehensive survey ever undertaken of violence against women shows.

Based on telephone interviews with 12,300 women, the Statistics Canada survey found assault of women by men so endemic that it has become the statistical norm: Fifty-one per cent say it has happened to them. Nationwide, that would mean more than five million adult women.

One in 10 said they had been assaulted in the 12 months before they were polled. That would be more than one million women in Canada.

Nearly one attack in five (18 per cent) was violent enough to injure the woman physically. Of these, 28 per cent necessitated medical attention.

The figures were greeted with anger. "It is absolutely unacceptable that women have to live lives of terror – absolutely unacceptable", said Sunera Thobani, president of the National Action Committee on the Status of Women, the country's largest women's group. "This is a national crisis. We need [the government] to take clear action".

Bob Glossop, co-ordinator of programs and research for the Vanier Institute of the Family in Ottawa, said violence is "so widespread that no one can any longer try to dismiss this as a phenomenon that doesn't touch them. Indeed, it is a phenomenon that is endemic".

In spite of suggestions that the extent of violence against women has been exaggerated, the survey found it more pervasive than previous studies on a smaller scale had done.

"This has to force the government to take this seriously," said Glenda Simms, president

(*continued overleaf*)

of the Canadian Advisory Council on the Status of Women. "We have an epidemic on our hands and no one was listening. People were saying we were overdramatizing."

(Speaking to reporters in Vancouver yesterday afternoon, Prime Minister Jean Chrétien said he could not comment on the survey because he had not been briefed on its contents.)

The women interviewed were 18 years and older and randomly chosen.

They were asked a series of questions designed to elicit whether, since the age of 16, they had suffered an assault that would be considered an offence under the Criminal Code. Women who spoke neither English nor French were not interviewed.

The survey found women were most likely to be assaulted by men they knew. Almost half (45 per cent) of those interviewed said they had been assaulted by dates, boy-friends, husbands, friends, family members or other men familiar to them.

Almost a third (29 per cent) of those who were married or had been married reported being assaulted by a husband. (The figure includes common-law marriages). That would mean a staggering 2.6 million Canadian women have been the victim of wife assault.

"It is a tragic portrait of how, for far too many people, families are possibly the most dangerous place for them to be," Dr. Glossop said.

Violence was reported more or less evenly across every socio-economic group and age category. There was one marked exception: Women aged 18-24 were more than twice as likely to report violence in the previous year as were older women – 27 per cent in the younger group said they had been assaulted.

Many women had experienced violence more than once in their lives. Almost 60 per cent who said they had been sexually assaulted reported more than one attack. Sixty-three per cent of those assaulted by a husband or former husband had been attacked more than once. One third said there had been more than 10 attacks.

The survey showed marriage was a dangerous place for many. Fifteen per cent of married women said their present husband had attacked them.

Almost half – 48 per cent – of women who had been married previously had been attacked by the partner during the marriage. Three-quarters of those said they had been assaulted more than once, and 41 per cent more than 10 times.

"Maybe this is offering us a clue about why marriages are breaking down," said Holly Johnson, Statscan's manager of the survey.

More than a third whose husbands had attacked them had feared for their lives. Weapons were used by 44 per cent of vio- lent husbands.

DEFINITION OF VIOLENCE

The survey defined violence as an experience of physical or sexual assault that is consistent with legal definitions of these offences and could be acted on by a police officer.

Sexual Assault

The survey asked two questions about sexual assault by men other than husbands or common-law husbands:

1. "Has a (male stranger, date or boyfriend, other man known to you) ever forced you or attempted to force you into any sexual activity by threatening you, holding you down or hurting you in some way?"

2. "Has a (male stranger, date or boyfriend, other man known to you) ever touched you against your will in any sexual way, such as unwanted touching, grabbing, kissing or fondling?"

Wife Assault

Women were asked a series of questions about whether their husband or common-law husband had done certain violent things. Violent actions counted included these:

- threatened to hit you with his fist or anything else that could hurt you;
- thrown anything at you that could hurt you;
- pushed, grabbed or shoved you;
- slapped you;
- kicked, bit or hit you with his fist;
- hit you with something that could hurt you;
- beat you up;
- choked you;
- threatened to use or used a gun or knife on you;
- forced you into any sexual activity when you did not want to by threatening you, holding you down, or hurting you in some way.

Physical Assault

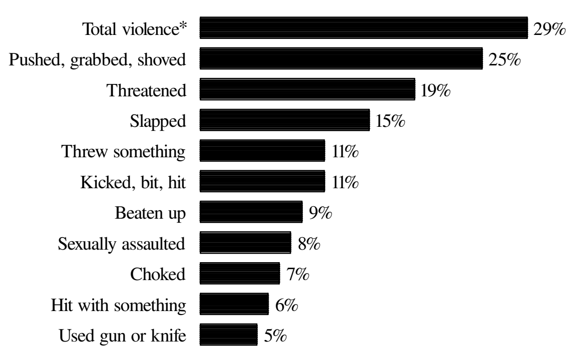
The survey asked two questions about physical assault by men other than husbands or common-law husbands.

1. "Now, I'm going to ask you some questions about physical attacks you may have had since the age of 16. By this I mean any use of force such such as being hit, slapped, kicked or grabbed, to being beaten, knifed or shot. Has a (male stranger, date or boyfriend, other man known to you) ever physically attacked you?"

2. "The next few questions are about face-to-face threats you may have experienced. By threats I mean any time you have been threatened with physical harm, since you were 16. Has a (male stranger, date or boyfriend, other man known to you) ever threatened to harm you? Did you believe he would do it?"

HOW MARRIED WOMEN ARE HURT

Proportion of Canada's 9 million women who have ever been married or lived common-law, who reported assault by a partner (18 years and over)



*Figures do not add to 100% because of multiple responses

Source: Statistics Canada

WHO GETS HURT IN JUST ONE YEAR

Number of women 18 years and over who have experienced violence in the past 12 months

	Total female population	Total women victimized (past 12 months)	
Total:	10,498,000	1,016,000	10%
Age group: 18-24	1,315,000	353,000	27
25-34	2,338,000	331,000	14
35-44	2,256,000	191,000	8
45-54	1,628,000	91,000	6
55 and over	2,961,000	49,000	2
Household income:			
Less than $15,000	1,324,000	166,000	13
$15,000-$29,999	1,860,000	198,000	11
$30,000-59,999	3,580,000	312,000	9
$60,000 or more	2,036,000	197,000	10
Not stated/Don't know	1,698,000	142,000	8
Education:			
Less than high school diploma	2,747,000	207,000	8
High school diploma	2,805,000	260,000	9
Some post secondary education	3,299,000	401,000	12
University degree	1,628,000	148,000	9

Source: Statistics Canada

(*continued*)

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MEASURING: *50% of women report assaults* (continued 1)

Pregnancy did not protect women. More than one in five (21 per cent) of those attacked by a husband had been attacked while pregnant.

The survey also found that alcohol played a huge part in violence. Men had been drinking before more than 40 per cent of attacks. Women whose husbands drank at least four times a week ran triple the risk of assault of those whose husbands did not drink. Those whose husbands drank heavily were at six times the risk.

Just 14 per cent of all the incidents catalogued by the survey were reported to police. In only 9 per cent did the women contact a social-service agency. Roughly 22 per cent of woman who had been assaulted said they had told no one about it before the Statscan questioner asked.

The survey also documented a cycle of violence between generations. Women whose fathers-in-law were violent were three times as likely to be assaulted by their husbands as those whose fathers-in-law were not violent. The survey also found that 39 per cent of women in violent marriages said their children had witnessed an assault.

The statistics led observers to call for immediate action from the newly elected Liberal government.

Dr. Simms of the advisory council said Mr. Chrétien must formally appoint a minister of women's issues, to sit at the cabinet table. She said the results of the survey have implications for the departments of justice, health and finance.

Ms. Thobani said the fact that so few women are reporting assault means that there ought to be changes in the justice system. She also called for more money to be given to anti-violence groups.

"I think we need to be way beyond convincing people that the problem exists," she said.

Sheila Finestone, secretary of state for the status of women, issued a statement saying that the Liberal government is committed to "safe homes and safe streets" and to finding solutions to violence.

The survey results were statistically likely to be accurate within 1.2 percentage points upward or downward, 19 times in 20.

Highlights

- 51 per cent of Canadian women have experienced violence since the age of 16.
- 29 per cent of married or formerly married women were assaulted by their husbands.
- Almost 60 per cent who said they had been sexually assaulted were attacked more than once.
- 48 per cent of those who had been married previously had been attacked during marriage by the husbands.
- Women with violent fathers-in-law were three times more likely to be assaulted than other women.
- 18 per cent of the attacks were violent enough to cause physical injury.

1 In light of information in the third-last paragraph of the article EM9358 reprinted on page HL45.1, give an explanation suited to a *non*-statistical reader of the article's second-last paragraph: *[The answers from the survey are] still considered statistically representative of Canadian women.*

- Compare and contrast, again for a non-statistical reader, this statement with the last paragraph above of the article EM9357: *The survey results were statistically likely to be accurate within 1.2 percentage points upward or downward, 19 times in 20.* Make it clear how *measurement* error/measuring inaccuracy is taken into account in this statement.

2 Comment briefly on the *statistical* issue(s) involved in the statement in the third paragraph of the left-hand column above: *Men had been drinking before more than 40 per cent of attacks.*

The articles EM9358 and EM9357 used in this Highlight #45 are also used in Figure 2.2b of the STAT 332 Course Materials and in Statistical Highlight #86; in both these cases, two other articles EM9331 and EM9608 provide additional information. A related article is EM9422, which is reprinted overleaf on page HL45.4 and which is also used in Chapter 4 of the STAT 231 Course Materials.

An extreme instance, not primarily statistical, of emphasis on *measuring* is the claim by the astronomer Arthur S. Eddington that the universe's (apparent) nature, as recognized by an observer, is *imposed* not so much from the fact that (s)he *perceives* it as from the fact that, in so far as (s)he is acting as a physical scientist, (s)he *measures* it. According to Eddington, this claim makes it a *necessity of thought* that:

- the 'cosmical number' (which is roughly identified with the number of particles in the universe) should have a value 1.4×10^{79},
- the mass-ratio of the proton to the electron should have a value 1,834.34 (which is about 1 part in 1,000 below the current 'best' value of 1,836.1526 7343),
- the ratio of the electric to the gravitational force between a proton and an electron should have the value 22.7×10^{39} (a number of order of magnitude of the *square root* of the cosmical number),
- the reciprocal of the fine structure constant should be 137 (a number of dimensions and, hence, an integer); its 'best' current values is 137.035998, somewhat lower than in Eddington's day but still (seemingly) *not* 137.

Unsurprisingly, this claim and its consequences have been disputed (even ridiculed); regardless, the importance of measuring *to statistics* should never be underestimated.

Interested readers can pursue discussion of Eddington's claim in, for example, *Christian Theology and Natural Science* by E.L. Mascall, Longmans, Green and Co, London, 1957, Chapter 3, Sections 3 and 4; this source also has statistically-interesting discussion of (scientific) *models* in Chaper 2, Section 3.

(*continued overleaf*)

EM0422: University Affairs, Association of University and Colleges of Canada, June-July, 2004, page 36

Measuring university participation

When students start university affects comparisons among countries

by Léo Charbonneau

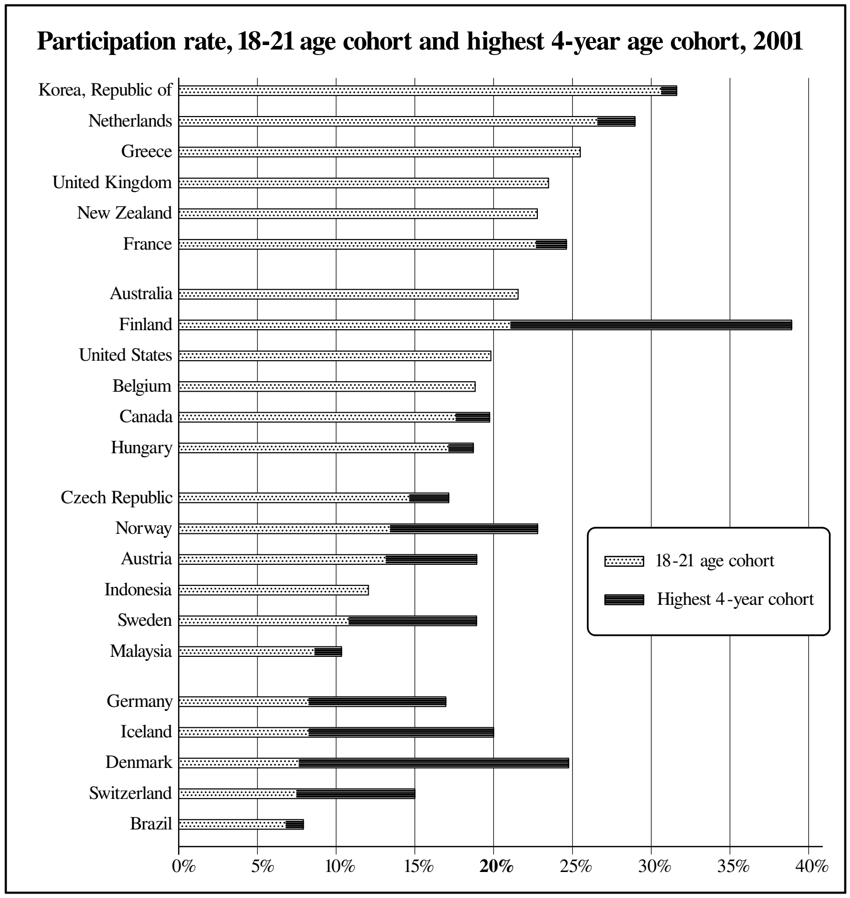
It sounds simple enough, but it has important implications for comparing university participation rates in different countries: not everybody goes to university at the same age.

To get around this, Herb O'Heron, senior adviser for national affairs at the Association of Universities and Colleges of Canada, has come up with a new, flexible measure that he believes more accurately reflects university access.

The measure significantly alters how some countries compare to others in terms of their university participation rates. Canada's rate would increase somewhat, but our relative position would fall as several countries leapfrog over us.

Mr. O'Heron devised the new measure to fill a statistical void. The Organization for Economic Co-operation and Development, which represents most of the world's major industrialized countries, stopped publishing member countries' university participation rates six years ago, precisely because of comparability problems with the data.

The OECD traditionally measured participation rates in three discrete age groups, starting with the 18 to 21 cohort. However, the problem with using any fixed age cohort is that you'll miss university students not in that age range, said Mr. O'Heron. As well, if you have very few university students in part of that cohort, this could badly skew the ratio.



The OECD ..... stopped publishing member countries' university participation rates six years ago, precisely because of comparability problems with the data.

To compensate for this, Mr. O'Heron has proposed that, for each country, you choose the four years where there are most students enrolled, irrespective of age. This method could also be used for inter-provincial comparisons within Canada. Using the highest four-year age cohort, he explained, helps to adjust for system differences, such as the length of time it takes to complete secondary school.

For example, in Germany and many Scandinavian countries, there are far more students in university in their early to mid-20s than there are in their late teens, partly because they finish secondary school later. In Denmark, for example, using 2001 data, there were only 121 students in university at age 18 and just 1,500 at age 19, versus more than 19,000 at age 24 and 18,000 at age 25.

"As a result, when using the highest four-year age cohort, which for Denmark turns out to be 22 to 25, the university participation rate triples compared to the 18 to 21 cohort," said Mr. O'Heron. "Furthermore, rather than trailing Canada by a wide margin, the participation rate for Denmark actually surpasses the Canadian rate in the 19 to 22 age range – our highest four-year cohort." For some countries, such as the U.S. and U.K., the 18 to 21 cohort continues to be most accurate.

Shown the new measure, Scott Murray, director general of institutions and social statistics at Statistics Canada, said he finds it "a very useful innovation. It overcomes some of the comparability problems."

Walter Sudmant, director of planning and institutional research at the University of British Columbia, said Mr. O'Heron's work illustrates the "fundamental weakness" of relying on a single indicator to illustrate a complex situation. "We crave a simple measure to feed into policy and advocacy, while Mr. O'Heron had shown that one thoughtful improvement in an indicator ..... can create huge swings in interpretation."

It's always good to refine the measures, said Dr. Sudmant, but "there is no substitute for understanding the real nature of different systems by looking at lots of information and indicators together."