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Health*Insider*

**2002 HealthInsider No. 7
Noise
Proprietary Questions for
Health Canada**

Contract No. H1011-010139/001/CY

Noise

Background

Noise is any undesirable sound that annoys people, interferes with communication, disturbs sleep or rest or causes loss of hearing. In Canada, noise pollution has become a serious environmental issue as a result of the increasing number of sources of noise that exist.¹ The effects of noise can include: stress due to interference with conversation, leisure or sleep; decreased efficiency and proficiency in both physical and mental tasks; and potential or actual hearing loss. Like other sources of stress, it can temporarily affect heart rate and blood flow.² Some studies have suggested that it may also affect the immune system and biochemistry of the blood although the results are inconclusive.³

Noise and sound are measured in decibels (dB). An audible whisper registers about 10dB and normal conversation is about 60dB. The noise level on a major road is about 75 dB and 80 to 90dB on a highway. In Canada, all levels of government share responsibility for the control of environmental noise. This includes provincial regulation of the outdoor noise of motor vehicles, municipal control of noise through zoning and traffic management, and federal assessment and control of environmental noise through the *Canadian Environmental Assessment Act*.⁴

We asked Canadians about how much they are bothered by noise and which types of noises annoyed them. Their responses are summarized below.

Findings

How much are Canadians bothered by noise?

Of the sample of Canadians who answered the question “Over the past 12 months or so, when you are at home, how much are you bothered, disturbed or annoyed by noise from outside your home?” 49% responded ‘not at all.’ The remaining 51% of responses ranged from ‘slightly’ to ‘extremely’. Importantly, nearly 8% were either very or extremely bothered, disturbed or annoyed by noise from outside their home in the past 12 months (Fig 1).

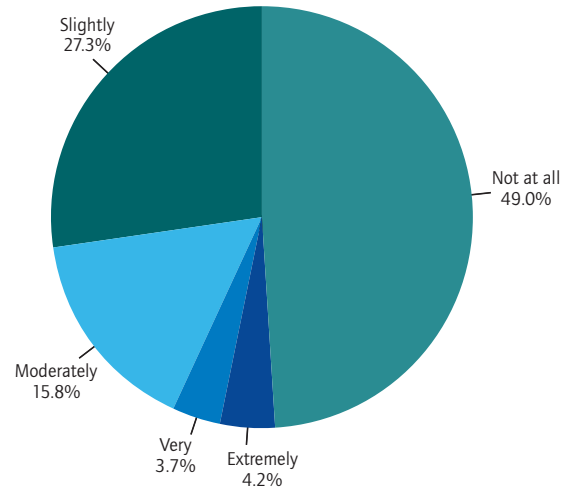


Figure 1. Percentage of Canadians bothered by noise outside their homes

More women reported being bothered by noise than men. Fifty-three percent of women versus 49% of men reported that they were slightly to extremely bothered by noise. Canadians who did not have a partner were also more likely to be bothered by noise. While 47% of people with partners were bothered by noise, almost 54% of people without partners were bothered by noise. This may be because there are a higher proportion of people without a partner living in closer proximity, e.g. apartments.

Individuals over the age of 65 years were least likely to be bothered by noise. Sixty-five percent of Canadians surveyed aged 65 and over were ‘not at all’ bothered by noise compared to 53% of people aged 45 to 64, 44% of people aged 25 to 44, and 46% of people under 25.

Being bothered by noise was also strongly associated with educational status. About seven in ten people with less than a secondary education reported that noise did *not* bother them versus under half of those with a secondary or post secondary education. As well, people who lived in smaller communities were less likely to be bothered by noise than those in larger communities. Residents of communities with populations of 100,000 or more were more likely to be very or extremely bothered by noise. (Fig 2).

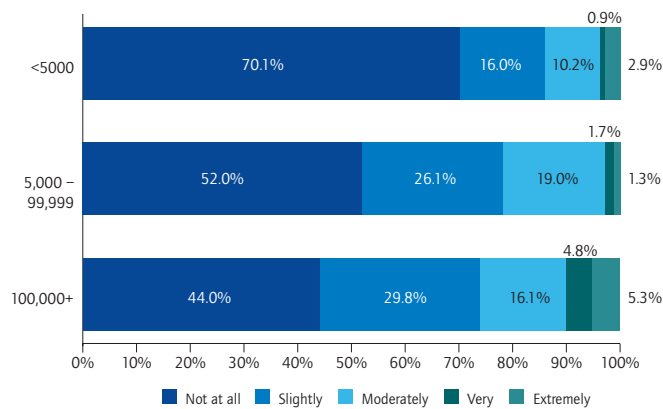


Figure 2. Percentage of Canadians bothered by noise by community size

Being bothered by noise also varied significantly by province. Albertans were most likely to be at least slightly bothered by noise (56%) while people from Saskatchewan were least likely (40%) (Fig 3).

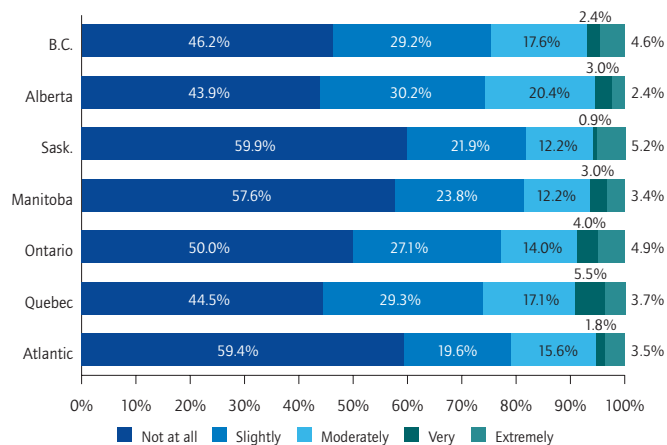


Figure 3. Percentage of Canadians bothered by noise by region

When asked specifically about the types of noises from outside their home that bothered them the most, half of Canadians reported being bothered by one type of noise. Another 15% were bothered by two or more noises. For this question, only 34% of respondents reported they were not bothered by noise, compared to 49% who answered “not at all” to the first question.

Overwhelmingly the most bothersome type of noise was road traffic. After road traffic, the most prevalent sources of noise annoyance were animals outside, other people outside, off road traffic and children outside. The following table shows the proportion of people who were bothered by each types of noise by the extent to which they were bothered by noise in general (Table 1).

Closing Comments

When Canadians were asked whether they were bothered, disturbed or annoyed by noise outside your home, about half indicated that they were bothered by noise and half were not.

When asked which type of noises bothered them most, two-thirds of respondents identified a noise from outside their home that bothered them. More than 51% of those sampled were bothered by one type of noise. Another 15% were bothered by two or more types of noise. The most common noises that bothered Canadians were road traffic, animals outside, other people, off road traffic and children outside.

These findings indicate that between half and two-thirds of Canadians are bothered by noises outside their homes. Differences in the extent that they were bothered by noise were found by community size, age, education and whether or not they had a partner.

References

- 1 Environment Canada, *Health and the Environment*, 2001
- 2 World Health Organization, <http://www.who.int/pch/noise/guidelines2.html>
- 3 Health Canada, *health and the environment – The Built Environment*, 1997.
- 4 Health Canada, *health and the environment – The Built Environment*, 1997.

Table 1. Types of noises that bothered Canadians by the extent to which they were bothered by noise in general

Over the past 12 months, how much are you bothered by noise outside your home?

	Extremely (%)	Very (%)	Moderately (%)	Slightly (%)	Not at all (%)
Total response	4.2	3.7	15.8	27.3	49.0
Type of noise	Percent of extremely	Percent of very	Percent of moderately	Percent of slightly	Percent of not at all
Road traffic	39.9	37.6	51.8	44.9	17.9
Animals outside	25.8	3.5	10.0	11.1	6.6
Other people outside	16.2	23.0	12.4	9.8	2.2
Off road traffic (including dirt bikes, ATVs and skidoos)	7.0	13.2	4.2	7.6	2.5
Children outside	5.9	13.8	9.7	5.0	2.2
Trains	4.4	0.8	7.2	6.9	1.5
Music or televisions (inside or outside a neighbour's home)	10.1	15.1	6.9	2.9	2.0
Construction work	7.3	11.0	3.5	4.1	2.6
Social events (including parties, sporting events, concerts)	6.6	9.3	5.0	5.3	0.7
People or animals from inside another dwelling	12.3	8.6	3.9	2.7	1.6
Aircraft	7.2	1.7	1.9	3.9	1.7
Snow removal	0.4	3.3	3.9	3.1	1.2
Alarms	1.9	3.9	2.3	0.6	2.7
Factories/machinery	5.6	0.2	2.5	3.4	0.8
Garden equipment (includes leaf blowers, lawn mowers, etc)	0.0	5.1	1.0	1.8	1.4
Farming machinery	8.9	0.1	0.3	0.0	0.3
Power tools	0.6	1.7	0.2	0.5	0.5
Subways	0.0	1.7	0.3	0.0	0.3
Other	7.7	17.1	5.9	5.8	12.0
Noise doesn't bother me	0.3	0.0	0.8	2.9	47.2

Methodology

Interviewing Dates, Sample Size and Margin of Error

The *HealthInsider* survey was carried out by PwC Consulting National Survey Centre in Ottawa, Canada. The results are based on a probability sample of 2,565 Canadians, 15 years of age and older. The survey was conducted by telephone between March 13, 2002 and March 26, 2002.

The national margin of error for this research is plus or minus 1.9 percentage points in 19 samples out of 20. The margins of error are correspondingly higher for regional (i.e., provincial), demographic and other subgroups.

Questionnaire Design

PwC Consulting prepared the questionnaire. The instrument was pre-tested among 25 respondents. The final questionnaire required, on average, 25 minutes to administer. Respondents were interviewed in their official language of choice, with both French and English surveys available simultaneously on the Computer Assisted Telephone Interviewing (CATI) system.

Telephone Interviewing

Experienced, professional telephone interviewers administered this survey. Prior to the field work, each interviewer was briefed thoroughly about the nature of the study. Field supervisors were present at all times to ensure accurate and consistent interviewing and recording of responses. All responses obtained during the conduct of interviews were entered directly into the CATI system, which is programmed to automatically check responses for appropriateness of range and logical consistency at the time of data entry.

Upon completion, each interview was checked for any possible interviewer error. This procedure is equivalent to 100% keypunch verification when traditional paper and pencil methods are employed.

In addition, more than 10% of each interviewer's work was unobtrusively monitored in accordance with the verification standards of the Canadian Association of Marketing Research Organizations (CAMRO). Field operation supervisors monitored the interview over a one-way telephone while watching a terminal that showed the interviewer's keystrokes.

Sample Design

Table 1 shows the sample design for *HealthInsider* No. 7.

Table 1. Sample design by province

Province	Percentage of Canadian population	Sample size	MOE (95% CI, 70% Prop)
Newfoundland	1.92%	85	9.8%
Prince Edward Island	0.47%	85	9.8%
Nova Scotia	3.16%	213	6.2%
New Brunswick	2.57%	213	6.2%
Quebec	24.83%	328	5.0%
Ontario	37.40%	328	5.0%
Manitoba	3.87%	328	5.0%
Saskatchewan	3.44%	328	5.0%
Alberta	9.38%	328	5.0%
British Columbia	12.95%	328	5.0%

Sample Selection

The sample for HealthInsider was generated using a stratified two-stage random sampling technique. Each of the ten provinces in Canada was allocated a quota. This quota was treated independently in the sampling process of the survey.

Each of the provinces was stratified into five community sizes:

- 100,000 to 999,999 residents
- 30,000 to 99,999 residents
- 10,000 to 29,999 residents
- 5,000 to 9,999 residents
- less than 5,000 residents

The provincial quota was then distributed among community strata according to their contributions to the provincial population. In addition, separate strata were created for Montreal, Toronto and Vancouver. As a result, Quebec, Ontario and British Columbia had a total of six strata.

At the first stage of sampling, households were selected from a stratum using random digit dialling (RDD). Each sampled number has been checked against published phone lists and categorized as either "Directory Listed" (DL) or "Directory Not Listed" (DNL). The full RDD sample is composed of both the DL and DNL components. In total 17,240 telephone numbers were generated through this method.

At the second stage of sampling, one eligible respondent was chosen from each household identified by a selected telephone number using the Trolldahl-Carter technique. This technique ensures that the sample accurately represents the eligible population according to its age and sex structures. Once a potential respondent was chosen using the Trolldahl-Carter technique, no other person in the household could be substituted as a respondent.

Table 2. Report on telephone interviewing

<i>Total telephone numbers dialled</i>	17,240
Ineligible numbers	3,986
Non-residential / duplicate	622
Not in service / fax	3,364
Total eligible phone numbers	13,254
No answer/busy	1,734
Answering machine	1,400
Interview not completed	7,555
Call-backs	1,523
Refusal (screening / introduction)	5,048
Refusal (incomplete interview)	252
Language barrier	293
Mental or physical disabilities / age	172
Respondent not available / quota filled	267
Completed interviews	2,565

Table 3. Report on valid interview attempts

Number of interviews required	2,564
Number of valid interview attempts	7,865
Refusals	5,300
Refused to participate (screening / introduction)	5,048
Refused to participate (incomplete interview)	252
Number of interviews completed	2,565
<i>Completion rate</i> <i>(completed interviews/number of valid attempts)</i>	32.61%

Weighting

At the conclusion of the survey and prior to the analysis, the data for the *HealthInsider* were weighted and verified against 1996 Statistics Canada census information.

PwC Consulting generated three sets of weights for within province weighting: community size, sex and age. A composite provincial level weight was derived from these weights for each case, which was used for provincial comparisons. A national weight was also generated from the combination of the composite provincial weight with a national population weight for each province reflecting each province's contribution to the national total.

These weights were used for the purposes of analysis to adjust for any differences in response rates.