

The Canadian Community Health Survey: Mental Health and Well-Being

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As part of the Canadian Community Health Survey (CCHS) biennial strategy, the provincial survey component of the first CCHS cycle (Cycle 1.2) focused on different aspects of the mental health and well-being of Canadians living in private dwellings. Moreover, the survey collected data on prevalences of specific mental disorders and problems, use of mental health services, and economic and personal costs of having a mental illness. Data collection began in May 2002 and extended over 8 months. More than 85% of all interviews were conducted face-to-face and used a computer-assisted application. The survey obtained a national response rate of 77%. This paper describes several key aspects of the questionnaire content, the sample design, interviewer training, and data collection procedures. A brief overview of the CCHS regional component (Cycle 1.1) is also given.

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Highlights

- The CCHS 1.2 constitutes a comprehensive source of information on the mental health of Canadians.
- This survey provides reliable and comparable data on mental health at the provincial and national levels.

Key Words: *survey, Canada, cross-sectional, mental health, well-being*

The CCHS (1) is funded as part of the Health Information Roadmap Initiative (2), a plan to modernize and standardize health information across the country. Statistics Canada, the CIHI, and Health Canada jointly support the series of projects that make up the Roadmap Initiative. The CCHS has a 2-year collection cycle comprising 2 surveys: a regional survey in the first year (Cycle 1.1) and a province-level survey in the second (Cycle 1.2). Each second year of the survey cycle is designed to focus in depth on a particular topic. During consultations for the development of the CCHS (3), mental health was frequently identified as a high-priority topic to be measured. Consequently, mental health and well-being was the focus of the provincial component of the first CCHS cycle (Cycle 1.2), which took place in 2002.

Because information on mental disorders in Canada was incomplete and fragmented, the major objectives of the CCHS

1.2 were as follows: 1) to determine prevalence rates of selected mental disorders to assess the burden of illness; 2) to examine links between mental health and social, demographic, geographic, and economic variables or characteristics; 3) to juxtapose use of mental health services and perceived needs, and 4) to assess the disability associated with mental health problems in regard to individuals and society.

Content

Consultation Process

Topics for the CCHS 1.2 were selected through extensive consultations with regional, provincial, and federal representatives and the research community. Expert consultation was seen as integral to content development. The selection of priority areas in terms of mental disorders and mental well-being was informed by discussions with the Statistics Canada Population Health Surveys Advisory Committee and with a Mental

Table 1 Questionnaires Module

Administration	Medication use
Agoraphobia	Mental health services
Alcohol dependence	Panic disorder
Alcohol use	Pathological gambling
Chronic conditions	Physical activities
Distress	Psychological well-being manifestation scale
Eating troubles assessment	Restriction of activities
General health	Screening section
Height and weight	Sociodemographic characteristics
Household contact and demographics	Social phobia
Illicit drug use and dependence	Spiritual values
Income	Stress
Labour force	Two-week disability
Major depression	Work stress
Mania	

Health Expert Group assembled to advise on the survey. Consultations also included contacts with representatives of the WHO, academia, international, federal, and provincial governments, consumers, and professional associations.

Mental Health Disorders

Mental health disorders were selected according to the criteria that their 12-month anticipated prevalence rate would be at least 1%, that they could be measured with a widely recognized and validated instrument, and that they were amenable to intervention. The impact of the selected disorder on

response burden (that is, interview length and clarity of concepts and questions) was also considered. The selected disorders were major depression, mania, panic disorder, social phobia, and agoraphobia.

Interview questions for the above disorders were based on the WMH 2000 Project. The WMH 2000 Project is an international initiative responsible for the development of a new version of the CIDI (the WMH-CIDI). The WMH-CIDI is a lay-administered instrument oriented to mental diagnosis that generates a lifetime and past-12-month profile of persons with a disorder defined partly according to both the ICD-10 and the DSM-IV. For the purposes of the CCHS 1.2, mental disorders were partially coded to the DSM-IV only.

The CCHS 1.2 team, with the support of the Mental Health Expert Group and the WMH 2000 Project, made some modifications to the content of the disorder modules to reduce response burden and clarify concepts. Since the end of the CCHS 1.2 data collection, the WMH 2000 Project has adopted some of these changes and has also introduced additional ones. As a result, comparing the CCHS 1.2 and the WMH-CIDI modules is a challenging task.

Mental Health Problems and Correlates

Other CCHS content areas include eating troubles and behaviours, gambling problems, suicidal ideation and behaviours, and alcohol or illicit drug use and dependence. Instruments used to measure these mental health problems were based on instruments used in Statistics Canada surveys such as the NPHS, the CCHS 1.1, and the HPS. Table 4.2 of the CCHS 1.2 User Guide (4) gives a detailed breakdown of sources and changes from earlier use in the CCHS and NPHS.

Abbreviations used in this article

CAI	computer-assisted interviewing
CAMH	Centre for Addiction and Mental Health
CAMIMH	Canadian Alliance on Mental Illness and Mental Health
CAPI	Computer-Assisted Personal Interviewing
CCHS	Canadian Community Health Survey
CIDI	Composite International Diagnostic Interview
CIHI	Canadian Institute for Health Information
CMA	Canadian Medical Association
CMHA	Canadian Mental Health Association
HPS	Health Promotion Survey
HR	Health region
LFS	Canadian Labour Force Survey
NPHS	National Population Health Survey
RDD	random digit dialing
WMH 2000	World Mental Health 2000 Project

Table 2 Provincial sample sizes and response rates			
Province	Targeted sample <i>n</i>	Response rate %	Observed sample <i>n</i>
NL	1525	82.3	1562
PEI	1000	81.7	1002
NS	2765	70.1	2785
NB	1750	78.1	1706
Que	5500	78.1	5332
Ont	14 427	73.4	13 184
Man	2150	82.4	2230
Sask	2050	80.1	2045
Alta	3375	77.1	3236
BC	3950	77.7	3902
Canada	38 492	77.0	36 984

Note: Prior to data collection, the targeted sample sizes were inflated to account for nonresponse and vacant dwellings. Response rate includes both household and person level response rates.

Regardless of their answers to the modules on mental disorders and mental health problems, all survey respondents were asked questions on mental health service use, medication, and mental health correlates or determinants. To address mental health issues, many questions on mental health correlates, such as 2-week disability or restricted activity, were adapted from material used in the former CCHS and NPHS. For example, in the CCHS 1.2, data collected on 2-week disability identified whether the disability was attributed to a mental or to a physical cause. Questions pertaining to the impact or cost of mental health problems were not addressed in relation to the specific surveyed mental disorders or problems. Rather, the survey used the generic terminology of “mental health, problems with emotions, drugs, and alcohol” to refer to any mental disorders or problems experienced by the respondent. Table 1 presents in alphabetical order the list of all modules included in the CCHS 1.2.

Qualitative Testing

The CCHS 1.2 questionnaire was developed in consultation with Statistics Canada’s Questionnaire Design Resource Centre. It was reviewed and tested in the field in pretests and focus groups, in both English and French. The qualitative testing aimed to evaluate respondent reactions with regard to the sensitivity of the subject matter and their ability to understand and willingness to respond to the questions. Cognitive testing and focus-group testing took place during the summer of 2001. The focus groups were convened in Ottawa, Ontario; Montreal, Quebec; and Edmonton and Red Deer, Alberta.

In the qualitative testing, both individuals with known mental disorders and participants from the general population responded to the survey and provided feedback on their

experience. As part of the qualitative testing, 50 face-to-face interviews were conducted. Mental health experts at St Joseph’s Hospital in Hamilton, Ontario, and L’Hôpital L-H Lafontaine in Montreal, Quebec, conducted cognitive tests with target groups of participants diagnosed with a mental disorder. The ethical review bodies within each host organization reviewed and approved these tests.

Qualitative testing identified general acceptance and support of the study. “It’s about time” was a phrase commonly stated. We found the interview to be too long, specific questions too verbose, and some screening criteria too broad. All these findings were addressed, and as a result, a much more respondent-friendly questionnaire emerged.

Sample Design

Target Population

This CCHS component covered only persons aged 15 years or over and living in private dwellings in the 10 Canadian provinces. Excluded from the target population were those living in the 3 territories, on Indian Reserves and Crown lands, clientele of institutions, the full-time members of the Canadian Forces, and residents of some remote areas. Members of the Canadian Forces were part of a separate survey component conducted parallel to the CCHS 1.2.

Sample Size and Allocation

To satisfy reliability criteria for the key mental disorders for specified subpopulations, a total sample size of 30 000 responding sample units was targeted. To balance the reliability for provincial estimates with the national estimates, the sample of 30 000 units was allocated to the provinces using

the root-N approach (5), with the exception that 1000 sample units were allocated to the province of Prince Edward Island.

Prior to data collection, the provinces of Ontario and Nova Scotia provided extra funds so that a larger sample of dwellings could be selected. The purpose of these “buy-ins” was to obtain a sample size that would provide reliable estimates for subprovincial geographic areas. Ontario added 7702 sample units, and Nova Scotia added 790 units, bringing the total target sample to 38 492.

Table 2 gives the details of the targeted and observed sample sizes, as well as observed response rates by province, for the CCHS 1.2.

Sample Frame and Household Sampling

The CCHS 1.2 sample was randomly selected from an area probability frame. As designed for the LFS, this area frame covered almost the entire country, from which a sample of dwellings was selected under a multistage stratified cluster design (6). For areas selected in the first stage of the design, a list of dwellings was prepared and maintained in the field. At the second stage, a sample of dwellings was then selected from each list. The households in the selected dwellings then formed the sample of households. To get a base sample of 38 492 responding households, approximately 48 000 dwellings were selected from the area frame to account for anticipated vacant dwellings and nonresponse (15% and 20%, respectively).

Sampling of Persons

To accommodate user needs, cost, efficiency of the design, response burden, and operational constraints, it was decided to select one person per household, but with unequal probability. The selection of the individual was designed to ensure overrepresentation of those aged 15 to 24 years. To improve the representativeness of this age group, the rule for selection was determined as follows: Those aged 15 to 24 years had a probability of $2.6 / (2.6 * n + m)$ of being selected, and the others had a probability of $1 / (2.6 * n + m)$, where n is the number of those aged 15 to 24 years and m represents the number of persons aged 25 years or over.

Interviewer Training and Data Collection

Interviewer Training

CCHS 1.2 respondents were asked to share their thoughts, feelings, and experiences about issues that might be perceived as sensitive and personal. Therefore, special attention was given to collection strategies that would minimize negative public reaction, address privacy concerns, and ensure greater security of information.

The 2 key elements of the CCHS 1.2 interviewer training and support program were related to sensitivity training and

ongoing support for the interviewers. Statistics Canada interviewer training addressed specific requirements that focused on 3 elements: CAPI application; survey content; and sensitivity to, and awareness of, mental health issues.

Training on the awareness and sensitivity aspect of the survey was developed by the CAMH and was integrated into Statistics Canada's training. Through the collaboration of 5 regional experts in mental health, the CAMH also provided ongoing support for interviewers during the collection period. Sensitivity training was intended to raise interviewer awareness about mental illness and to ensure that interviews were conducted in a sensitive, yet professional, manner. The CMHA supported Statistics Canada by offering helpful information that included general material on mental health and resources and the identification of local help numbers for anyone asking for immediate help. Statistics Canada also sought the support and advice of the following associations in regard to adequately addressing respondents' needs for information and help: the CMA, the Canadian Psychiatric Association, the Canadian Psychological Association, the CMHA, and CAMIMH.

Pilot Test

Because this survey was complex and sensitive, a pilot test was conducted prior to the decision to launch the study. The pilot test objectives were, once again, to measure public reaction, to determine the effectiveness of the training and communication strategies, to test the pacing and timing of the training, to provide a preliminary indication of the response rates, and to test the computer application. To meet these criteria, a sample of 600 households was planned. To avoid any bias, the pilot (carried out in February 2002) was conducted in both English and French throughout the provinces of Quebec and Saskatchewan.

Data Collection

To balance interviewer workload, the initial sample of dwellings was equally and randomly allocated within each region over 3 collection periods. The first collection period covered 3 months (Q1 covered May to July 2002), and the other 2 collection periods covered 2 months each (Q2 covered August and September 2002; and Q3 covered October and November 2002). More time was allowed for the first collection period, compared with the other 2 periods, to allow interviewers to become more familiar with the survey. Owing to operational constraints, all the dwellings in a primary sampling unit were assigned to the same collection period. It is also important to mention that data collection continued until the end of December to improve response rates. Final combined provincial response rates (that is, household and person-level rates) ranged from 73.4% in Ontario to 82.4% in Manitoba. The overall combined response rate for Canada was 77.0%.

A CAI application was used to administer the CCHS 1.2 questionnaire. This method offers several data quality advantages over other collection methods. With CAI, the interview can be controlled according to the respondent's answers. On-screen prompts are shown when an invalid entry is recorded, and thus, immediate feedback is available. Another enhancement is the automatic insertion of reference periods based on current dates. Prefilling of text- or data-based information gathered during the interview allows one to proceed without having to search for previous answers. This type of prefill includes such data as correct name or sex within the questions themselves. Allowable ranges or answers based on data collected during interviews can also be programmed. In other words, questionnaires can be customized to respondents according to data collected at that time or during a previous interview. Finally, questions that are not applicable to the respondent are automatically skipped.

Interviewing

The CAPI was used to interview respondents in English and French (see Note). In all selected dwellings, a knowledgeable household member was asked to supply basic demographic information for all residents. Depending on the household's composition, one member aged 15 years or over was then selected for a more in-depth interview. CAPI interviewers were trained to make an initial personal contact with each sampled dwelling. When this initial visit resulted in nonresponse, telephone follow-ups were permitted. Every effort was made to conduct face-to-face interviews. Data collection by telephone was authorized only when travel was prohibitive or the respondent refused to conduct the interview in person. Household contact and respondent selection by telephone were also allowed after an initial in-person contact was attempted unsuccessfully. Ultimately, 14% of the interviews nationally were completed by telephone (with a slightly higher rate in Ontario). No proxy interviews were permitted for this survey. The average length for all interviews was a little less than 70 minutes.

Special Circumstances During CCHS 1.2 Collection

For the CCHS 1.2, the total workload imposed by the lengthy interview, complex content, and difficult respondent burden in some cases was expected to pose a potential challenge for the data collection infrastructure. To ensure successful collection, several strategies were put in place. In addition to customized interviewer training and special support vis-à-vis mental health issues, a monitoring system was created to ensure that data quality was maintained during collection. Various aspects related to the interview process, such as average interview time and item nonresponse, were monitored at the interviewer level. Regular weekly feedback from the head office to the regional offices helped to maintain good quality

data and to correct problems as they occurred. A validation process was also put in place in the field to monitor the quality of the interviewers' work.

The various strategies adopted by Statistics Canada were proven successful. Item nonresponse was not found to be higher for this study. Share and link rates were also comparable to other health surveys: observed rates were 94.2% and 87.3%, respectively.

Data Computation and Coding

Creation of Derived and Grouped Variables

To facilitate data analysis, several variables on the data files were derived from items found on the CCHS 1.2 questionnaire. In some cases, the derived variables are straightforward, involving collapsing of response categories. In other cases, several variables have been combined to create a new variable.

For the mental disorders and problems, well over 200 derived variables were created. The process of creating, reviewing, and testing the algorithms for these derived variables was complex. In addition to the questionnaire differences between the CCHS 1.2 and the WMH-CIDI, there were also variations in the way the derived variables for each of the WMH disorders were computed, which represents an additional challenge for data comparison.

The differences between the CCHS and the WMH-CIDI were inevitable. Interpreting and employing mental health concepts is challenging in any environment. For this reason, complete survey data as well as interim and final derived variables are available on the data files. The available documentation also provides the specifications for each derived variable created.

While the derived variables for the 5 selected disorders have been employed to partly meet the DSM-IV classification criteria, alcohol and illicit drug dependencies are both coded to partly meet DSM-III-R criteria. The algorithms for the selected 5 disorders were reviewed and tested by the CCHS analysts; by several mental health experts familiar with this subject matter, including the Ontario Mental Health Survey team; and by the WMH 2000 Project team. The CCHS analysts also reviewed the algorithms for the other mental health problems and correlates. Feedback from the authors of specific instruments was also obtained.

Imputation

Owing to some technical problems in certain skip patterns associated with the suicide questions, some respondents were not asked the questions required for the calculation of the derived variables "12-month suicidal thought" and "12-month suicidal attempt." Consequently, important information is missing for these individuals (about 5% of all respondents for the 12-month suicidal thought and about 1%

of all respondents for the 12-month suicidal attempt). Because of their profiles, these individuals are more likely to have had a 12-month suicidal thought or a 12-month suicidal attempt; therefore, the lack of this information will have resulted in an underestimation of the prevalence. To fill in these missing responses, the following approaches were used to impute values. Two methods of imputation were used: a deterministic method and one based on a logistic regression model. For some respondents, it was possible to derive the missing value directly from other responses, and therefore, a deterministic imputation method was first used. This was the case for all missing values for the variable 12-month suicidal attempt and for about one-fourth of the missing values for the variable 12-month suicidal thought. To derive the missing values of the variable 12-month suicidal thought, a logistic regression imputation method was used. To impute the variable 12-month suicidal thought, a logistic regression model was fitted with correlated characteristics drawn from respondents without missing values who were similar to those requiring imputation. From the fitted model, a probability of response (yes or no) was calculated for each respondent who needed imputation; a response based on that probability was then imputed.

Technical Support

As part of its commitment to support data analysis, Statistics Canada provides a complete set of documentation, including a data dictionary and derived variable document, to all Public Use Microdata File users to help explain the survey content and sampling strategy.

Further information about this survey, in addition to summary results, can be found on Statistics Canada's Web site at www.statcan.ca. Survey information is also available from cchs-esc@statcan.ca.

Canadian Community Health Survey Cycle 1.1

While most of the articles referred to in this CAPE special issue are based on CCHS 1.2, the article by Starkes and colleagues (7) is based on data from CCHS 1.1.

CCHS 1.1 aimed primarily to provide timely cross-sectional estimates of health determinants, health status, and health system use at a subprovincial level (that is, health region or combination of health regions). Unlike CCHS 1.2, this survey collected information pertaining to both physical and mental health.

Despite the differences in survey content, there are many similarities between CCHS 1.1 and 1.2. Questionnaire development, field operations and procedures, interviewer training, and the use of CAI were all developed and tested through a similar rigorous approach that aimed to ensure the high quality expected from Statistics Canada.

CCHS 1.1 took place between September 2000 and November 2001. Through both computer-assisted personal and telephone interviews, the CCHS collected information on the health of the Canadian population, covering 136 health regions across the country. The sample comprised 131 535 respondents aged 12 years or over and living in households in all provinces and territories, weighted to represent almost 26 million Canadians. The overall combined response rate for this cycle was 84.7%. Similar to CCHS 1.2, CCHS 1.1 excluded populations on Indian Reserves, members of the Canadian Forces, and some remote areas. There was usually one randomly selected respondent per household. For almost 18% of the households, a second member was interviewed.

In addition to the major difference in sample size, the use of a different sampling strategy and sampling frame constitutes another important distinction between the surveys. Unlike CCHS 1.2, the CCHS 1.1 used 3 sampling frames to select the sample of households. Most of the sample of households (83%) came from an area frame (the LFS). In some HRs, an RDD sampling frame or a list frame of telephone numbers was also used. Approximately 7% of the sample of households came from the RDD frame, and the list frame generated almost 10% of the sample.

Additional information on CCHS 1.1 is also available at www.statcan.ca or by contacting cchs-esc@statcan.ca.

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Note

To reduce the impact of language as a barrier to conducting interviews, each of the Statistics Canada Regional Offices has recruited interviewers with a wide range of language competencies. To help these interviewers, an "official" translation of key terms was created in Chinese and Punjabi, the 2 most prevalent nonofficial languages in CCHS 1.1. Interviewers able to speak those languages used the guide to translate questions and complete the interview. Because question concepts are complex, interviewers were restricted from conducting interviews in any other language.

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Résumé : L'enquête sur la santé dans les collectivités canadiennes : santé mentale et bien-être

Dans le cadre de la stratégie biennale de l'Enquête sur la santé dans les collectivités canadiennes (ESCC), le volet provincial du premier cycle de l'ESCC (Cycle 1.2) portait sur différents aspects de la santé mentale et du bien-être des Canadiens habitant des logements privés. En outre, l'enquête recueillait des données sur les prévalences de troubles mentaux et problèmes de santé mentale spécifiques, l'utilisation des services de santé mentale, et les coûts personnels et économiques d'avoir une maladie mentale. La collecte de données a débuté en mai 2002 et s'est déroulée sur plus de 8 mois. Plus de 85 % de toutes les entrevues ont été menées en personne et utilisaient une application assistée par ordinateur. L'enquête a obtenu un taux de réponse national de 77 %. Cet article décrit plusieurs aspects clés du contenu du questionnaire, de la méthode de l'échantillon, de la formation de l'interviewer et des procédures de collecte de données. Un bref aperçu du volet régional de l'ESCC (Cycle 1.1) est également présenté.