

1 Introduction

Conducted in 2004, the Canadian Community Health Survey, Cycle 2.2 (CCHS 2.2) is the first survey to provide national nutrition data since the Nutrition Canada Survey was carried out over 30 years ago. The main objective of CCHS 2.2 was to gather information at the provincial level on the overall nutritional status of the Canadian population. Specifically, the survey was designed to yield estimates of the distribution of usual dietary intake in terms of foods, food groups, dietary supplements, nutrients and eating patterns among a representative sample of Canadians at national and provincial levels using a 24-hour dietary recall; physical measurements for accurate body height and weight assessment; measurement of the prevalence of household food insecurity; and data on selected health conditions and socio-economic and demographic characteristics of respondents. The primary goal of this survey is to provide reliable, timely information about dietary intake, nutritional well-being and their key determinants to inform and guide programs, policies and activities of federal and provincial governments and local health agencies.

This report presents the results of data analysis for the Ontario sample included in the CCHS 2.2. The analysis includes an examination of adults' and children's nutrient and energy intakes, body weight status, and household food security status. This work builds upon the 2004 Chief Medical Officer of Health Report, *Healthy Weights, Healthy Lives* (1), contributing to our understanding of chronic disease risk factors in Ontario.

The Ontario Share File of the CCHS, Cycle 2.2, Nutrition, was the source of data analyzed. Thus all analyses have been restricted to the 96.3% of Ontario respondents who gave permission to share their information. For the nutrient intake analyses, this includes individuals 1 year of age and older, living in Ontario in 2004. For the analysis of weight status and of food security, this includes individuals 2 years of age and older, living in Ontario in 2004.

We begin with a brief overview of the CCHS 2.2 in general, and the Nutrition Survey, in particular. We then outline the methods applied in our examination of the data collected in this survey, including details of the target population and sampling strategy, data collection, response rate, the 24-hour recall component, and the Household Food Security module. Our analysis of the Ontario data is then presented in three discrete sections, followed by a general discussion of key findings and implications.

1.1 Canadian Community Health Survey, Cycle 2.2 – Nutrition: An Overview

The Canadian Community Health Survey (CCHS) initiative began in 2000 with its main goals being the provision of population level information on health determinants, health status and health system utilization. This series of surveys is a joint effort of Health Canada, Statistics Canada and the Canadian Institute for Health Information (CIHI). The CCHS is a sample survey with a cross-sectional design. It operates on a two year data collection cycle that comprises two types of surveys. A general health survey takes place in the first year of the cycle (cycles 1.1, 2.1). It samples approximately 130,000 Canadians and provides information at the level of provincial health regions. A focussed topic survey takes place in the second year of the cycle (cycles 1.2 and 2.2) and samples approximately 35,000 Canadians, providing information at the level of the provinces. Nutrition-related modules that have been included in the common content of the general surveys and some of the focussed surveys include food security, fruit and vegetable consumption, and self-reported height and weight.

The focus of CCHS 2.2, conducted in 2004, was nutrition. What follows is a brief overview of some key features of CCHS 2.2. A full description of the survey design and methodology can be found online (2).

1.1.1 Target population and sampling:

The survey targeted respondents from all age groups living in private occupied dwellings in the 10 provinces in 2004. Residents of the three territories, persons living on Indian reserves or Crown lands, persons living in institutions, full-time members of the Canadian Forces, and residents of some remote regions were excluded from the sampling frame. It is estimated that this sampling strategy covered 98% of the population living in the provinces.

Of the 29,000 responding units originally allocated in CCHS 2.2, 6,740 were assigned to Ontario. In addition, Health Canada, Ontario, Prince Edward Island, and Manitoba bought extra sample which brought the final sample size to more than 35,000 respondents. Of this final number, over 10,500 resided in Ontario.

One person per household was selected, using probabilities of selection that vary by age and by sampling frame. In order to estimate the day-to-day variability in a person's diet, approximately 30% of respondents were invited to participate in a second 24-hour dietary recall interview.

1.1.2 Data Collection:

Data collection was conducted throughout the entire 2004 calendar year in order to eliminate possible seasonal effects. The average interview length was 60 minutes including the 24-hour dietary recall module (30 minutes). Most of the interviews were done face-to-face and conducted using the computer-assisted interviewing method.

All respondents aged 12 and older provided their own information. Children aged 6 to 11 were assisted by their parent(s). Information was collected directly from parents for children under the age of 6. If parents were unable to provide details of food consumption outside of the home, such as meals eaten at a daycare, they were asked to collect that information from the persons responsible for food provision at that location.

Interviewers received 3.5 days of training prior to the actual data collection period. Much of this training was focused around using the computer-assisted interviewing application and practicing many scenarios which may arise in the field. Trained nutritionists were not required to conduct the interviews. Among the challenges encountered by interviewers in this cycle of the CCHS were collection of height and weight measurements, and details of food intake from children.

Height and weight measures of all respondents aged 2 and older were to have been collected at the end of the interview, with 10% of respondents aged 18 and older giving self-reported height and weight as well. However, 42.5% of adult respondents who participated in the CCHS 2.2 survey did not have their weight and height directly measured (3). Reasons given for not measuring a respondent's height and/or weight were: refusal (13.6%); no measuring equipment (9.0%); too tall for interviewer to measure (7.1%); telephone interview (4.5%); interview setting problematic (3.5%); physical condition of respondent (1.8%); and other (3.0%). Men had a lower response rate (54%) than women (61%). Scales used to measure body weight were accurate to within 50 grams and did not require calibration. The accuracy of the scales was assessed at the beginning and end of the survey, and weight estimates were monitored throughout the data collection period to ensure that further interviewer training was not required. Due to the constraint that interviewer staff were not trained health professionals, a non-technical and non-invasive procedure for height measurement was developed with experts in the field. A training video was developed, and to measure inter-interviewer variability, a test requiring interviewers to measure the same test subject was conducted before and after collection. Data were also monitored throughout collection to assess the need for further training.

1.1.3 Response Rate:

The targeted response rate for this survey was 80%. The overall national response rate at the end of the survey was 76.5%. The response rate ranged from 72.7% in Ontario to 83.3% in Newfoundland and Labrador. Of the 30% of all CCHS 2.2 respondents that were selected to do a second 24-hour dietary recall, 72.8% agreed to participate, so second recalls were available for 21.8% of respondents in the national data-set. As noted earlier, all of the analyses presented in this report were restricted to the Ontario Share File of the CCHS, Cycle 2.2. The proportion of respondents in the Ontario Share sample for which second recalls were collected is 14.8%, with less than 13% of respondents providing a second recall for children 4 to 8 years old and men from 31 to 50 years old.

All respondents aged 2 and older were asked for their permission to have their

height and weight measured by the interviewer. Overall, a total of 63% of respondents aged 2 and older granted permission and had both their height and weight measured. In adults aged 18 and older, 57.5% had both their height and weight measured. For the Ontario sample, these data are available for 53.5% of respondents 2 years of age and older, and BMI is available for 53.1%. (BMI is not calculated for pregnant women).

1.1.4 24-Hour Dietary Intake Recall:

The 24-hr dietary recall was the first component in the CCHS 2.2 questionnaire. The method of administration was based on the United States Department of Agriculture (USDA) Automated Multiple-Pass Method (AMPM), an automated questionnaire designed to assist the interviewer in maximizing respondents' opportunities for recalling and reporting foods eaten in the previous 24 hours (4). The USDA-AMPM was modified for use in the CCHS 2.2 by reviewing the food categories to reflect the Canadian food supply, incorporating metric measures, and translating it into French.

The AMPM was administered in the CCHS 2.2 in a five step process:

1. Quick list. Respondents are first asked to list all foods and beverages consumed on the previous day (midnight to midnight). Foods and beverages do not have to be listed in the order in which they were consumed.
2. Forgotten Foods. In order to prompt the recall of foods that are commonly forgotten (e.g. snack foods, certain beverages) a series of specific questions is asked.
3. Time and Occasion. Respondents were asked to report the time at which they began consumption of each item, and what they considered the eating occasion (e.g. snack, brunch, dinner, etc).
4. Detail Cycle. The next step is to obtain a specific description of each food and beverage reported. Details include descriptions of each item, preparation methods, food additions, amounts consumed, and the location of preparation. Description of the size or amount of food consumed was aided by use of a Food Model Booklet. Each eating/drinking occasion and the periods between occasions were reviewed to ensure that no items had been forgotten.
5. Final Review. The last step probes for any missed items or details.

Step 4 of the AMPM administration process was also modified. In the USDA version, respondents are asked where each item in the meal or snack was obtained and whether it was eaten at home or not. These questions were not included in the CCHS 2.2 version.

All survey participants completed one 24-hour recall, with parents or guardians providing data for children 5 years of age and younger and assisting with the provision of

data for children 6 to 11 years old. A second 24-hour recall was conducted by telephone with approximately one-third of the sample, 3 to 10 days after the initial interview. The purpose of this second recall was to enable the estimation of distributions of usual intake – a critical step in the assessment of nutrient adequacy among population groups.

1.1.5 The Household Food Security Survey Module (HFSSM):

The Household Food Security Survey Module (HFSSM) used in the CCHS 2.2 and the approach to scaling survey responses were adapted from methods developed to measure and monitor household food security in the United States (5). The focus of the HFSSM is on self-reported uncertain, insufficient or inadequate food access, availability and utilization due to financial constraints, and the compromised eating patterns and food consumption that this may bring about. The HFSSM is a household measure, designed to assess the food security situation of adults and children as separate groups within a household. The HFSSM is not designed to determine the food security status of each individual member of a household. Therefore, it cannot be assumed that all members of a given household share the same food security status on an individual basis

The HFSSM consists of 18 questions pertaining to the food security situation in the household over the previous 12 months. The HFSSM questionnaire is presented in Appendix A. It is designed to capture a range of severity from worrying about running out of food, to children not eating for an entire day. Ten of the questions are specific to the experiences of adults in the household or the household in general. Eight of the questions are specific to the experiences of children under the age of 18 years in the household. Each question specifies a lack of money or the ability to afford food as the reason for the behaviour or condition.