MINISTRY OF HEALTH
MANATŪ HAUORA

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Introduction

This guide describes the content of the New Zealand Health Survey (NZHS) for the year ended 30 June 2021. Due to COVID-19 disruptions, data was collected over the year September 2020 to August 2021. This guide also briefly outlines the history of the NZHS and its development into a continuous survey, describes the process for developing the adult and child questionnaires for 2020/21 and provides an overview of each section of the survey. The questionnaires are available along with this report on the Ministry of Health's (the Ministry's) website: **www.health.govt.nz**.

Background

The NZHS was first undertaken in 1992/93, with further surveys taking place in 1996/97, 2002/03 and 2006/07. The Ministry's wider health survey programme included surveys on adult and child nutrition; tobacco, alcohol and drug use; mental health; and oral health. From 2011, the Ministry integrated the NZHS and these other surveys from its wider survey programme into a single survey, which is now in continuous operation. The rationale for this change is detailed in *The New Zealand Health Survey: Objectives and topic areas* (Ministry of Health 2010).

As a signatory to the *Protocols of Official Statistics* (Statistics New Zealand 1998), the Ministry employs best-practice survey techniques to extract high-quality information from the NZHS. It uses standard frameworks and classifications, with validated questions where possible, so that NZHS data can be integrated with data from other sources.

Survey design and methodology

The target population for the survey is New Zealand's usually resident population of all ages, including those living in non-private accommodation. The NZHS sample is selected using a stratified, multi-stage area design. Respondents are adults aged 15 years and older, as well as children aged 0–14 years, who are interviewed through their parent or legal guardian acting as a proxy respondent. Most of the survey questionnaire is conducted in the respondent's home, through face-to-face interviews, using computer-assisted personal interviewing (CAPI) software. Respondents self-complete some parts of the survey where the questions are potentially sensitive. However, due to COVID-19 restrictions, a small number of interviews for the 2020/21 survey were done via computer-assisted video interviewing (CAVI). The NZHS sample design and methodology will be published online alongside this report, on the Ministry's website: **www.health.govt.nz**.

Goal and objectives

Goal

The goal for the NZHS was reviewed in 2019 as part of a project to ensure the NZHS is fit-for-purpose for the future. The refreshed goal is to monitor and research the health and wellbeing of New Zealanders, including how people experience their own health and health services. The information covers population health, health risk and protective factors, as well as health service utilisation.

Objectives

To achieve this goal, four high-level objectives have been identified for the NZHS. These are to:

1. provide an evidence base to inform health system funding, policy, programmes and advocacy with a focus on long-term priorities
2. monitor and research population health status and the prevalence of key health behaviours and risk factors
3. monitor barriers to access and use of health care services including health service user experience
4. provide ability to carry out robust statistical analysis and enable linkage to other data collections to address wider information needs.

Questionnaire components

To meet the high-level objectives of the NZHS, detailed information is collected across information areas or domains. The NZHS includes a set of questions drawn from these domains. These core questions remain the same each year. The NZHS also includes supplementary questions that examine a topic in more depth. These 'module' questions change each year.

Table 1 summarises the topics included in the core content of the 2020/21 NZHS.

Table 1: New Zealand Health Survey 2020/21 core content

Domain	Topics
Children	
Health conditions	Asthma, eczema, mental health and developmental disorders (depression, anxiety, attention deficit hyperactivity disorder, autism spectrum disorders)
Health status	Parent-rated health
Health behaviours and risk factors	Nutrition, physical activity, screen time, sleep, tooth brushing, child discipline
Health care services: utilisation, barriers and patient experience	General practitioners (GPs), nurses, after hours, medical specialists, allied health (eg, dentists, pharmacists), emergency departments, hospitals, prescriptions
Sociodemographics	Child: gender, age, ethnicity, country of birth, health insurance, Household: housing, household income, household composition (age, gender, and the relationship between all household members) Primary caregiver: education and employment status
Health measurements	Height, weight, waist circumference
Adults	
Health conditions	Heart disease, stroke, high cholesterol, high blood pressure, diabetes, asthma, arthritis, chronic pain, and mental health conditions (psychological distress, depression, anxiety, bipolar disorder)
Health status	General health (physical and mental health), functional difficulties (disability status)
Health behaviours and risk factors	Tobacco smoking, electronic cigarette use, alcohol use, drug use, nutrition, physical activity, sleep, teeth brushing
Health care services: utilisation, barriers, and patient experience	GPs, nurses, after hours, medical specialists, allied health (eg, dentists, pharmacists), emergency departments, hospitals, prescriptions
Sociodemographics	Adult: gender, age, ethnicity, sexual identity, languages spoken, country of birth, education, personal income and income sources, employment status, health insurance Household: housing, household income, household composition (age, gender, and the relationship between all household members)
Health measurements	Height, weight, waist circumference, blood pressure

Because of its size and importance, the health behaviours and risk factors domain has been split into a number of modules, including physical activity, tobacco use, alcohol consumption, drug use, problem gambling, and sexual and reproductive health. Some modules may run together in the same year of the survey (eg, tobacco, drugs and alcohol use ran together in the 2012/13 survey).

The continuous nature of the survey also makes it possible to incorporate shorter (one- to three-minute) 'clip-on' modules. These clip-on modules may address an urgent emerging issue or an important topic where policy development or monitoring requires additional information that can be obtained through a small number of questions.

Process for developing the New Zealand Health Survey

The Ministry's Health and Disability Intelligence Group developed the adult and child questionnaires for the NZHS in consultation with key internal stakeholders (eg, policy groups) and external stakeholders (eg, technical experts and data users).

Core component

The NZHS aims to maintain continuity with previous surveys so that time trends can be analysed. To facilitate this approach, the 2006/07 NZHS was used as a 'question bank'; that is, where possible, the wording of the core questions, response options, show-cards and interviewer prompts from the 2006/07 NZHS has been retained in subsequent surveys.

Topics for inclusion in the core component of the NZHS were based on those outlined in ***The New Zealand Health Survey: Objectives and topic areas*** (Ministry of Health 2010). The following four criteria were used to determine the topics that would be included each year as core components.

- Impact – the topic has a large impact on health, health policy or health care costs.
- Measurability – the topic lends itself to robust measurement, including high reliability and validity and responsiveness to change.
- Disaggregation – the data that can be collected on the topic can be analysed by social group or region.
- International comparability – the topic lends itself to meaningful international benchmarking.

Priority was given to questions that related to key indicators or outputs and could be used to monitor important health-related time trends. Results on an indicator or output that were included in ***A Portrait of Health: Key results of the 2006/07 New Zealand Health Survey*** (Ministry of Health 2008) were considered to be important.

Most of the questions selected for the core component of the survey were from the 2006/07 NZHS. The 2006/07 NZHS included a number of questions from validated instruments, such as the Medical Outcomes Study Short Form (SF-36) and the Alcohol Use Disorders Identification Test (AUDIT). For the NZHS core, the SF-36 was replaced by the SF-12, to minimise interview time. Most other questions selected for the NZHS core occurred in at least one previous survey (1992/93, 1996/97 and/or 2002/03).

The need to sustain time series makes it more difficult to update and improve core questions and to add new core questions. Where needed, questions will generally be improved when a topic area covered by a core question is reviewed in depth during the development of a related module.

The core component of the NZHS includes measuring height and weight in respondents aged two years and older, waist circumference in respondents aged five years and older and blood pressure in respondents aged 15 years and older.

Module component

The module topics in the 2020/21 NZHS are:

- racial discrimination, for adults
- COVID-19, for adults
- functional difficulties, for children
- child development, for children
- household food security, for children.

Details of question development are explained in 'Content of the New Zealand Health Survey' below.

All the module topics for the continuous NZHS until 2020/21 are summarised in Table 2.

Table 2: New Zealand Health Survey module topics, 2011/12–2020/21

Year of NZHS	Child module topic(s)	Adult module topic(s)
2011/12	Health service utilisation and patient experience	Health service utilisation and patient experience Problem gambling Racial discrimination
2012/13	Child development Food security Exposure to second-hand smoke	Alcohol use Tobacco use Drug use
2013/14	Long-term conditions Health status Disability status Living standards Housing quality Exposure to second-hand smoke	Long-term conditions Health status Disability status Living standards Housing quality
2014/15	Child development Food security Rheumatic fever	Sexual and reproductive health Biomedical tests Rheumatic fever (under 25 years)
2015/16	Child development Food security Exposure to second-hand smoke Rheumatic fever	Tobacco use Rheumatic fever (under 25 years)
2016/17	Behavioural and developmental problems Rheumatic fever	Mental health and substance use Rheumatic fever (under 25 years) Racial discrimination
2017/18	Health service utilisation and patient experience	Health service utilisation and patient experience Understanding health and health care
2018/19	Dietary habits Functional difficulties	Dietary habits Functional difficulties[1] Alcohol use
2019/20	Household food security Dietary habits Functional difficulties	Household food security Dietary habits Alcohol use
2020/21	Functional difficulties Child development Household food security	COVID-19 Racial discrimination

[1] The functional difficulties (Washington Group Short Set) questions became 'core' for the adult questionnaire in 2019/20 so is not counted as a module for adults after the 2018/19 NZHS.

Cognitive testing

Cognitive testing helps ensure questions are understood as intended and that response options are appropriate. The cognitive testing process includes:

- comprehension – how does the respondent understand the question?
- recall – what knowledge or memory does the respondent select that is relevant to the subject matter?
- judgement and selection – how does the respondent judge what they remember and formulate a response?

In most survey years, researchers cognitively test whether new or changed questions are working as intended and whether respondents have access to all the information they need to answer the questions accurately.

Cognitive testing was not administered for the 2020/21 NZHS. The COVID-19 pandemic impacted resources, interrupting and delaying questionnaire development, which meant there was insufficient time to undertake cognitive testing.

Pilot testing

The purpose of the pilot testing was to mimic the main survey as closely as possible, to ensure that the questionnaire and associated survey processes were robust and functioning correctly. The main objectives of the pilot testing were to:

- ensure that the questionnaires performed as expected, with all routing, edits and consistency checks working correctly
- determine the average duration for each element of the questionnaire as well as the survey process overall
- identify and explore questions with high non-response rates
- identify any problems with new questions
- evaluate whether the training provided was adequate and fully prepared the interviewers to work on the project
- evaluate how respondents engaged with the survey
- evaluate the survey flow
- evaluate the performance of new survey communications (eg, invitation letter and information brochure)
- seek feedback from interviewers and respondents on the enhanced health and safety measures relating to COVID-19
- evaluate the performance of the new survey software and video interview technology.

Researchers tested the face-to-face survey on 100 respondents from different age, gender and ethnic groups, and the video interviewing mode with 10 respondents. The respondents were recruited via the usual NZHS process for respondent selection.

The following key changes resulted from the pilot test.

- To produce a cleaner look, the base question text formatting in the survey programme was changed from all bold base text with underline for emphasis, to non-bold base text with bold for emphasis.
- The time for taking measurements that require the respondent to move around was changed to the end of the survey. Leaving it to the end improved survey flow as it did not interrupt the sitting period of the interview.
- Several module questions were removed from the final adult survey because the interview was too long overall. Because of the long pilot interviews, respondent satisfaction ratings decreased from the previous survey years. Questions that were removed following the pilot included:
  - household food security questions (but the questions were retained in the child survey)
  - household functioning questions
  - some questions about anxiety and depression symptoms.

Ethics approval

The Multi-region Ethics Committee (MEC) approved the NZHS 2020/21 (Multi-region Ethics Committee Reference: MEC/10/10/103).

Content of the New Zealand Health Survey

The adult and child questionnaires included the following sections, which are core to the questionnaires unless noted otherwise:

- long-term health conditions
- health service utilisation and patient experience
- health behaviours and risk factors
- health status (including mental health and functional difficulties)
- child development (a module for children only)
- household food security (a module for children only)
- COVID-19 (a module for adults only)
- Sociodemographics (including racial discrimination module for adults only)
- health measurements
- permission details for data linkage and follow up survey participation.

Long-term health conditions

Long-term health conditions cover any ongoing or recurring health problem, including a physical or mental illness, which has a significant impact on a person's life and/or the lives of family, whānau or other carers. Such conditions are generally not cured once acquired. For the purposes of monitoring population health, a long-term health condition is defined in the NZHS as a health condition that has lasted, or is expected to last, for more than six months and is based on a respondent's self-report of what a doctor told them.

This section collects information on the prevalence of major long-term conditions (see Table 3) as well as treatments for these conditions.

In the 2017/18 NZHS, a new core question about self-rated oral health question was included for adults and children aged 1–14 years, asking them to rate the health of their teeth or mouth. This question was also included in the 2009 New Zealand Oral Health Survey and the 2013/14 NZHS long-term conditions module.

In 2018/19 NZHS, the question about having ever had a hysterectomy was added to the core for female respondents aged 20 years and over. It was previously included as a module question in 2006/07, 2013/14, and 2014/15.

Table 3: Long-term health conditions

Adult	Child
Heart disease	Asthma
Stroke	Eczema
Diabetes	Diabetes
Asthma	Rheumatic heart disease
Arthritis	Autism spectrum disorder
Mental health conditions	Depression
Chronic pain	Anxiety disorder
Hysterectomy	Attention deficit hyperactivity disorder
Oral health	Oral health

Health service utilisation and patient experience

The use of appropriate and effective health care services is an important determinant of population health. Areas of interest for the NZHS include the frequency of health care contact; the range and comprehensiveness of health services; their accessibility, availability and affordability; and the continuity and coordination of care they provide.

Patient experience includes the processes or events that occur (or do not occur) in the course of a specific episode of care. It addresses the interpersonal aspects of care: the interaction between health professionals and health care users. Examples include communication skills, the building of trust, the discussion and explanation of symptoms and the involvement of patients in decisions about their own treatment and care.

The NZHS focuses on health service utilisation and patient experience in the primary health care setting, which is often people's first point of contact with the health system. Nearly all New Zealanders (over 90 percent) have a primary health care provider (Ministry of Health 2021), and the NZHS provides a comprehensive source of data on primary health care utilisation. Therefore, a number of questions focus on consultations with GPs and primary health care nurses. To reduce recall bias, many of the patient experience questions about primary health care visits focus on those that occurred in the previous three months.

Questions are also included about the use of and experience with after-hours and emergency department (ED) services. These questions use a 12-month recall period to capture a sufficient number of contacts with these services.

Information on the use of secondary- and tertiary-level health services (public and private hospitals and medical specialists) can generally be captured in more detail from administrative databases and surveys administered immediately following a patient's contact with these services. Therefore, the NZHS collects only a subset of questions on service utilisation and patient experiences related to secondary- and tertiary-level health services.

A small number of questions are also included on prescriptions, dental health care services and visits with other health care workers.

Many of the health service utilisation and patient experience questions originally come from international surveys, such as the United Kingdom's GP Patient Survey, the Commonwealth Fund International Health Policy Survey and Australian patient experience surveys.

In the 2017/18 NZHS, there were some changes to the questions about visits to primary health care nurses. In the survey, the term 'practice nurse' was replaced with 'nurse at GP clinic or medical centre' in case 'practice' could be misinterpreted to mean a nurse who is not fully qualified. New questions were added about primary health care nurse visits that were completed as part of a GP consultation (including seeing the nurse before or after seeing the GP). These questions were also included in the 2006/07 NZHS.

Questions about whether the usual medical centre was informed after the respondent's visit to an after-hours medical centre, ED or a medical specialist were removed from the 2017/18 NZHS because many respondents were unaware whether their usual medical centre was informed or not.

In the 2020/21 NZHS, questions about visits to primary care were changed to include video or phone appointments, which became more common ways of accessing primary care due to restrictions during COVID-19 Alert Levels. New questions were also added to the 2020/21 adult and child questionnaires about barriers to accessing health care due to COVID-19. Respondents were asked if in the past 12 months, because of COVID-19, there was a time when they:

- had a medical problem but did not visit or talk to a GP
- did not collect one or more prescription items from the pharmacy or chemist
- had a medical problem outside regular office hours but did not visit an after-hours medical centre.

The question topics included in this section of the NZHS are summarised in Table 4. Most of the topics listed were included in both the adult and child survey, but some were in the adult survey only.

Table 4: Health service utilisation and patient experience

Health service setting	Topics
Usual primary health care provider	Type of service, timely access, health checks, health discussions
General practitioners	Visits (including video and phone appointments) in last 12 months, visit cost, patient experience, unmet need / barriers to access
Prescription medicines	Unmet need / barriers to access
Primary health care nurses	Visits (including video and phone appointments) in last 12 months, visit cost
Other health care workers	Visits (including video and phone appointments) in last 12 months
After-hours medical services	Visits in last 12 months, visit cost, patient experience, unmet need / barriers to access
Hospitals	Visits in last 12 months
Emergency departments	Visits in last 12 months, reason for last visit, patient experience / continuity of care
Medical specialists	Visits (video and phone appointments) in last 12 months, patient experience / continuity of care
Dental health care workers	Visits in last 12 months, unmet need / barriers to access

Health behaviours and risk factors

Health behaviours and risk factors can have a direct or indirect impact on health and wellbeing. For example, smoking has a direct impact on health, while education has an indirect impact by informing and influencing our ability to make better health choices. Health behaviours that have a negative effect on health are referred to as risk factors (eg, smoking), while health behaviours that have a positive effect on health are referred to as protective factors (eg, eating healthy foods such as vegetables and fruit).

Monitoring trends in exposure to risk and protective factors informs the development and evaluation of health policy, especially policy related to health promotion, disease prevention and primary health care. The measurement of risk and protective factors is part of the internationally recognised minimum standards for health surveys. These standards, developed by the World Health Organization (WHO), comprise the STEPwise approach to surveillance of risk factors for non-communicable diseases (STEPS) (WHO 2005).

The core health risk and protective factor questions are based on a subset of questions from the 2006/07 NZHS, some of which were also included in earlier surveys. This provides important time-series information on topics such as smoking.

Substance use risk factors

Alcohol

The questions about alcohol use come from the Alcohol Use Disorders Test (AUDIT). The AUDIT is a 10-item questionnaire that covers three aspects of alcohol use: alcohol consumption, dependence and adverse consequences. A score of eight or more indicates a hazardous drinking pattern. A respondent can reach a score of eight from the alcohol consumption items of the questionnaire alone, for example, by drinking six or more drinks on one occasion, twice a week (Babor et al 2001).

In 2015/16, two alcohol questions were changed in the AUDIT section of the NZHS. Before 2015/16, the NZHS did not define 'drinks' in the two AUDIT questions covering typical quantity and frequency of heavy drinking. To ensure respondents interpreted the meaning of 'drinks' in the same way, the authors of the AUDIT recommended that each country apply its own definition of a standard drink (which, in New Zealand, is 10 g pure alcohol), with illustrations of standard drinks in local beverages. For this reason, for the 2015/16 survey, the two AUDIT alcohol consumption questions were changed from 'drinks' to 'standard drinks' and included a show-card illustrating the number of standard drinks in various common beverages. The changes were only made for half the survey sample (selected randomly) in order to assess their impact. From 2016/17, the NZHS only uses the standard drinks show-card version of AUDIT, creating a break in the time series.

Illicit drugs

In the 2017/18 NZHS, the question about drug use was changed from interviewer-administered to self-completed to encourage more honest responses. Respondents who were taking part in the interview with cognitive or language assistance from a family member, caregiver or friend were not asked this question. This was to ensure these confidential responses were not revealed to people with whom the respondent has a personal relationship.

In the 2017/18 NZHS the drug use question was moved to the end of the survey so the self-completed questions were asked together. In the 2018/19 NZHS it was moved to the health behaviours and risk factors section to be asked alongside other self-completed questions relevant to that section of the questionnaire. In 2020/21 the drug use questions were changed back to being interviewer-administered. This was to encourage all respondents to answer the questions as respondents were less inclined to self-complete them. Survey results indicated prevalence did not change markedly with administration mode.

In 2020/21 the drug categories and the drug section introduction were updated to align with the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). This included capturing drug use other than as prescribed. Because the nature of the drug use question has changed, data collected is unlikely to be comparable with previous years.

Questions on cannabis from the ASSIST question set were added to the 2020/21 NZHS. The ASSIST question set is a validated screening tool developed by the World Health Organization, which can be used to monitor the harmful effects of cannabis use. It has previously been used in the mental health and substance use module in the 2016/17 NZHS.

Scoring involves calculating a risk score for cannabis, and respondents are categorised into low-, moderate- and high-risk categories. A score of 4–26 is considered moderate risk and 27 or more high risk. Scores should be interpreted as estimating the risk of problematic use, not actual disorder prevalence, although studies indicate the instrument is reasonably good at discriminating between non-problematic use and substance abuse.

For the ASSIST manual, which covers the scoring system, go to: **https://www.who.int/publications/i/item/978924159938-2**.

Electronic cigarettes

Vaping products have the potential to improve the health of people who choose to switch from tobacco smoking. Although less harmful than smoking, vaping is not harmless, and schoolteachers and professional bodies have expressed concerns about young people vaping. It is therefore important to monitor the uptake of electronic cigarettes in New Zealand. The NZHS includes questions for adults about whether they have ever tried an electronic cigarette and how often they now use them. These questions were also included in the 2015/16 NZHS tobacco use module. In the 2018/19 NZHS, the words 'or vaping devices' were added to these questions because this is an alternative name for electronic cigarettes.

Nutrition and physical activity

Poor diet and excess body weight are leading causes of potentially avoidable health loss in New Zealand. In 2017, dietary risks accounted for 8.6 percent of health loss from all causes, closely followed by high body mass index (BMI) (8.3 percent) (Institute for Health Metrics and Evaluation 2018).

The 2016/17 NZHS included two new questions about screen time for children aged 2–14 years. The Ministry developed these questions to measure the amount of time children spend watching television or looking at a screen (excluding time spent looking at screens at school or for homework). From 2017/18, the questions about screen time were also asked for children aged 6 months to 2 years to measure screen time in the younger age group as well.

Sleep

Getting enough quality sleep is important for brain functioning, emotional wellbeing and physical health. The NZHS for adults and children asks how much sleep the respondent usually gets in a 24-hour period. This question originally came from the United States' National Health Interview Survey and was also included in the 2013/14 NZHS long-term conditions module. For the 2017/18 NZHS, an interviewer note was added to ensure interviewers use a consistent method of rounding to a whole number.

Oral health

The Ministry recommends brushing teeth twice a day with standard fluoride toothpaste. The NZHS for adults and children asks how often the respondent brushes their teeth and what type of toothpaste they usually use. The show-card for the question on type of toothpaste used includes pictures to help respondents differentiate between categories, particularly between standard and low-fluoride toothpaste. In 2020/21 the show-card pictures changed slightly to reflect products available on the market. Similar questions on teeth brushing were included in the 2013/14 NZHS long-term conditions module.

Table 5 shows the topics included in the core NZHS component of the health behaviours and risk factors section.

Table 5: Health behaviours and risk factors

Adult	Child
High blood pressure	Perceptions of child's weight
High blood cholesterol	Infant feeding
Dietary habits	Dietary habits
Physical activity	Physical activity (sedentary behaviour)
Sleep	Sleep
Teeth brushing	Teeth brushing
Preventing spread of COVID-19	Response to child's misbehaviour
Tobacco use	
Electronic cigarette use	
Alcohol use	
Drug use	

Health status

Monitoring the health status of the population provides useful information to evaluate the performance of the health system, identify unmet need for health services, evaluate the impact of the determinants of health and uncover health problems that require further investigation.

Self-reported health measures are based on an individual's own perception of their health status and functioning. These measures provide an alternative source of data to objective measures of health, such as hospital rates and disease prevalence.

The WHO defines a 'health state' as a multi-dimensional attribute of an individual that indicates his or her level of functioning across all important physiological, psychological and psychosocial dimensions of life. The relevant dimensions are those defined in the International Classification of Functioning, Disability and Health (WHO 2001).

Various survey instruments have been developed to assess these dimensions. For adults, instruments included in the core NZHS are the SF-12 and the K10.

SF-12

The SF-12 is an internationally validated instrument comprising a subset of the SF-36 questions included in the NZHS since 1996/97. The SF-12 includes at least one item for all eight SF-36 domains: physical functioning, role limitation (physical), bodily pain, general health perceptions, vitality, social functioning, role limitation (emotional) and mental health.

The SF-12 is considered to be an appropriate substitute for the SF-36 when a briefer instrument is required and the summary scales are of interest. The SF-12 physical component summary scale and a mental health component summary scale have been shown to explain approximately 90 percent of the variance in the SF-36 summary scales (Ware et al 1996). An analysis of the 2006/07 NZHS showed that the correlation between the SF-12 and SF-36 was 0.95 for the physical summary scales and 0.93 for the mental summary scales.

SF-12 scoring

Responses to each of the SF-12 items are scored and expressed on a scale of 0–100 for each of the eight health domains. Interpretation of the SF-12 is based on the mean average scores (see Table 6). A physical component summary score and mental health component summary score can also be derived.

Table 6: Scoring for the SF-12

Code	Domain	Low score interpretation	High score interpretation
PF	Physical functioning	Limited a lot in performing all physical activities, including self-care, due to health	Performs all types of physical activities, including the most vigorous, without limitations due to health
RP	Role limitation – physical	Limited a lot in work or other daily activities as a result of physical health	No problems with work or other daily activities as a result of physical health
BP	Bodily pain	Very severe and extremely limiting bodily pain	No pain or limitations due to pain
GH	General health perceptions	Evaluates own health as poor and believes it is likely to get worse	Evaluates own health as excellent
VT	Vitality	Feels tired and worn out all of the time	Feels full of energy all of the time
SF	Social functioning	Extreme and frequent interference with normal social activities due to physical or emotional problems	Performs normal social activities without interference due to physical or emotional problems
RE	Role limitation – emotional	Problems with work or other daily activities as a result of emotional problems	No problems with work or other daily activities as a result of emotional problems
MH	Mental health	Has feelings of nervousness and depression all the time	Feels peaceful, happy and calm all the time

K10

The K10 is an internationally validated instrument for measuring non-specific psychological distress in a population, and scores of 12 or more on the K10 are strongly correlated with having an anxiety or depressive disorder (Kessler et al 2003).

The K10 was included for the first time in the 2006/07 NZHS.

K10 scoring

Each question in the K10 has five possible responses: 'all of the time', 'most of the time', 'some of the time', 'a little of the time' or 'none of the time'. For the NZHS, the response to each question was coded to allow scoring as follows: 'all of the time' was set to 4; 'most of the time' was set to 3; 'some of the time' was set to 2; 'a little of the time' was set to 1; 'none of the time' was set to 0; and all other values were set to missing. The possible range of scores is 0–40, with higher scores indicating higher psychological distress.

For NZHS reporting, psychological distress means having high or very high levels of psychological distress on the K10 scale, that is, a score of 12 or more (see Table 7).

Table 7: Scoring for the K10

Score	Interpretation
0–5	None or low psychological distress
6–11	Moderate psychological distress
12–19	High psychological distress
20–40	Very high psychological distress

Loneliness

Loneliness was included as a module question in the 2020/21 NZHS because of growing concerns that COVID-19 restrictions would lead to an increase in loneliness.

Loneliness is a feeling that most people will experience at some point in their lives. However, prolonged and extreme exposure to loneliness can seriously impact an individual's wellbeing and their ability to function in society. Research shows loneliness is linked to poor physical and mental health, and poor personal wellbeing (Office for National Statistics 2018). In the 2020/21 NZHS, a question about loneliness was administered during the main survey, after the K10 questions, rather than as part of the section that the respondents self-completed. This question was sourced from the New Zealand General Social Survey (NZGSS) conducted by Stats NZ and has previously been asked in the 2016/17 NZHS.

Functional difficulties

A set of six questions, known as the Washington Group Short Set (WGSS), on functional difficulties and activity limitations was first included as a module in the 2018/19 NZHS for adults and children aged 5–14 years. In 2019/20 the WGSS was added to the core component of the adult survey so the information can be collected every year. These questions were developed by the Washington Group on Disability Statistics (WG), a United Nations city group established to address the need for internationally comparable population-based statistics on disability.

The WGSS identifies respondents who are more likely to experience restrictions in social participation because of difficulties undertaking basic functional activities (Washington Group on Disability Statistics 2016a). These activities are seeing (even with their glasses), hearing (even with their hearing aid), walking or climbing stairs, remembering or concentrating, self-care and communicating.

The WGSS was developed for inclusion in population surveys and will allow comparisons of NZHS results for disabled people with the rest of the population. Several New Zealand population surveys have included the question set, including the NZGSS and 2018 New Zealand Census of Population and Dwellings. The WGSS identifies disabled people as those who have a lot of difficulty with, or cannot do at all, at least one of the six specified activities.

The WGSS does not cover all types of disability and should not be used to determine overall disability prevalence. The WG states that the WGSS can be used for children aged 5–17 years but acknowledges that disability among children is not adequately covered, and that it will miss many children with learning and psychological impairments. The NZHS did not have enough survey space for the longer (and preferable) WG Module on Child Functioning (Washington Group on Disability Statistics 2016b).

Child development

The 2020/21 NZHS marks the fifth year that the NZHS has included specific instruments for monitoring children's development. The module includes the Strengths and Difficulties Questionnaire (SDQ) and questions about parental stress. Parental stress deserves attention as it can relate to children's emotional and behavioural problems. The COVID-19 pandemic has caused multiple challenges for many families in New Zealand, and these demands have likely impacted on children's wellbeing and parents' stress levels.

Strengths and Difficulties Questionnaire

The SDQ is a brief emotional and behavioural screening questionnaire developed specifically for use with children and adolescents. It consists of 25 questions and has five subscales: emotional symptoms, conduct problems, hyperactivity, peer problems and prosocial behaviour (Goodman 1997), as Table 8 shows. It has been used in over 40 countries and, in New Zealand, it has been a part of the B4 School Check programme for four-year-olds since 2009. It has also been used as an outcome measure in mental health services, so including this instrument in the NZHS provides population norms. The Strengths and Difficulties Questionnaire was previously included in the child development module in 2012/13, 2014/15 and 2015/16 and also in the behavioural and developmental problems module in 2016/17. It has been validated internationally to screen for child and adolescent psychiatric disorders.

Table 8: SDQ questions

Scale	Not true	Somewhat true	Certainly true
Emotional symptoms scale			
Often complains of headaches, stomach aches ...	0	1	2
Many worries, often seems worried	0	1	2
Often unhappy, downhearted or tearful	0	1	2
Nervous or clingy in new situations ...	0	1	2
Many fears, easily scared	0	1	2
Conduct problems scale			
Often has temper tantrums or hot tempers	0	1	2
Generally obedient, usually does what ...	2	1	0
Often fights with other children or bullies them	0	1	2
Often lies or cheats	0	1	2
Steals from home, school or elsewhere	0	1	2
Hyperactivity scale			
Restless, overactive, cannot stay still for long	0	1	2
Constantly fidgeting or squirming	0	1	2
Easily distracted, concentration wanders	0	1	2
Thinks things out before acting	2	1	0
Sees tasks through to the end, good attention span	2	1	0
Peer problems scale			
Rather solitary, tends to play alone	0	1	2
Has at least one good friend	2	1	0
Generally liked by other children	2	1	0
Picked on or bullied by other children	0	1	2
Gets on better with adults than with other children	0	1	2
Prosocial scale			
Considerate of other people's feelings	0	1	2
Shares readily with other children	0	1	2
Helpful if someone is hurt, upset or feeling ill	0	1	2
Kind to younger children	0	1	2
Often volunteers to help others	0	1	2

Source: (c) Robert Goodman 2005

Scoring of SDQ

A total difficulties score can be calculated by totalling the emotional symptoms, conduct problems, hyperactivity, and peer problems scales, which can indicate the overall risk of mental health problems. Approximately 10 percent of a community sample scores in the abnormal band on any given score, with a further 10 percent scoring in the borderline band (www.sdqinfo.org). Exact proportions vary according to country, age and gender.

Parental stress

The parental stress section contains five questions for the parent or caregiver on how they felt while caring for their child and whether they have access to day-to-day emotional support for raising children. The questions were included in the NZHS for 2012/13, 2014/15, 2015/16 and 2016/17.

These questions are originally taken from the National Survey of America's Families, 1997, revised for the United States National Study of Children's Health in 2007.

Household food security

The household food security module was included in the child survey in 2020/21. This comprises an eight-item food security questionnaire developed by Winsome Parnell from the Department of Human Nutrition at the University of Otago. The items were developed from both a review of the literature and focus group research. The focus groups aimed to ensure the statements reflected the experience of Māori, Pacific and low-income households faced with difficulties accessing appropriate food (Parnell et al 2001).

These questions measure the extent to which New Zealand households have access to nutritionally adequate and safe foods. The questionnaire has internal and external validity (Parnell 2005) and was previously used in the child NZHS for 2012/13, 2014/15 and 2015/16, the adult and child NZHS for 2019/20, as well as the:

- 1997 National Nutrition Survey
- 2002 National Children's Nutrition Survey
- 2008/09 New Zealand Adult Nutrition Survey.

Household food security scoring

A summary index can be derived from answers to the items, providing an estimate of the severity of food insecurity a household is experiencing. Respondents can be categorised, based on this summary index, as one of the following: mostly to fully food-secure; moderately food-insecure; or severely food-insecure (Ministry of Health 2019).

COVID-19

COVID-19 is a disease caused by the coronavirus SARS-CoV-2. The virus has had a major impact on life in New Zealand since the four-level COVID-19 Alert System was introduced in March 2020.

A COVID-19 module was added to the 2020/21 NZHS to better understand the impacts COVID-19 has had on people in New Zealand. The COVID-19 module questions were interspersed throughout the survey, fitting into the section that was most relevant to ensure the survey flowed. Many of these questions had also been included in the **COVID-19 Health and Wellbeing Survey**, a phone-administered survey that was regularly collecting survey information during COVID-19 Alert Levels 3 and 4.

See the 2020/21 Methodology Report for information about any methodology changes made to the 2020/21 NZHS as a result of COVID-19.

Preventing the spread of COVID-19

The threat of COVID-19 from early 2020 saw a greater public education focus on behaviours, such as hand washing and mask wearing, that people can do to slow the spread of COVID-19. The 2020/21 NZHS included some new questions in the health behaviours and risk factors section to help assess compliance with some of the key public health measures for preventing COVID-19. These questions, which the Health Surveys team developed, asked adult respondents how often, over the past seven days, they had:

- washed their hands before eating or handling food
- washed their hands after touching surfaces outside of the home
- covered their mouth and nose with a tissue, their sleeve or elbow when they've coughed or sneezed
- recorded the places they've been and who they were with (eg, in a diary or app)
- worn a face covering or face mask when on a public bus, train or ferry.

In addition, two questions about COVID-19 vaccinations were included in the 2020/21 NZHS from March 2021. These questions asked respondents if they had received a COVID-19 vaccine and, if not, how likely they would be to get vaccinated when a COVID-19 vaccine is offered to them.

COVID-19 information

Providing clear and engaging information to the general public has been an important part of the Government's response to COVID-19.

To collect data about the information people have received about COVID-19, the 2020/21 NZHS asked adult respondents:

- what their main source of information on COVID-19 had been over the past seven days
- how worried the information from this source made them feel
- to what extent they agree with the statements 'I can get information about COVID-19 in words I understand' and 'I feel I have good information about COVID-19'.

Worries relating to COVID-19

To understand the extent that people were worrying about COVID-19, some questions were included in the 2020/21 NZHS asking adult respondents about the extent to which they are:

- worried about the risk of getting COVID-19
- worried about the health of their family members
- stressed about leaving home.

Sociodemographics

Health status, health risks and health service utilisation are strongly influenced by socioeconomic, cultural and demographic forces. Understanding the sociodemographic structure of a population is essential for interpreting survey data and using this evidence to inform policy.

Statistics New Zealand has developed standard sociodemographic questions for use in all household social surveys that are part of the official statistics system. The sociodemographic domain in the NZHS closely follows the Statistics New Zealand model, including questions from the New Zealand Census of Population and Dwellings and the NZGSS. In addition to self-reported variables (eg, age, gender, ethnicity, education, employment status, income, housing and household composition), the NZHS records variables derived from the census area unit/ primary sampling unit of the household (eg, area deprivation and rurality). Questions on health insurance are also included in the sociodemographic section of the adult questionnaire.

A question on sexual identity was added in the 2015/16 NZHS. This question is self-completed by the respondent because of its sensitive nature. From 2016/17, the sexual identity question was not asked for respondents whose interview was being conducted with cognitive or language assistance from a family member, caregiver or one of their friends. This was to ensure these confidential responses were not revealed to people with whom the respondent has a personal relationship.

Racial discrimination

Racial discrimination is increasingly recognised as an important health determinant and driver of ethnic inequalities. It is associated with many risk factors and health outcomes. The 2020/21 NZHS included a racial discrimination clip-on module for adults.

'Racial discrimination' in the NZHS relates to a respondent experiencing an ethnically motivated personal attack (physical or verbal) and/or unfair treatment on the basis of their ethnicity in any of three situations: health care, housing or work. Previous research using the NZHS results has shown that racial discrimination experienced across a range of settings has the potential to impact on a wide range of health outcomes and risk factors (Harris et al 2012). It has been linked to negative outcomes for mental and physical health, health risk factors and health service use and experience. Data about racial discrimination in New Zealand will contribute to monitoring equity in Māori health outcomes and racial discrimination within the health and disability system, housing and work sectors.

The racial discrimination questions were included in the NZHS for 2002/03, 2006/07, 2011/12 and 2016/17. The questions were originally developed from items in the United Kingdom Fourth National Survey of Ethnic Minorities, 1993–1994 (Modood et al 1997) and the Behavioral Risk Factor Surveillance System (BRFSS) (Centers for Disease Control and Prevention 2002).

Health measurements

The WHO STEPS approach to monitoring chronic diseases and their risk factors covers three levels of data collection:

- Step 1 – questionnaires
- Step 2 – physical measurements (eg, height, weight, blood pressure)
- Step 3 – biomedical measurements (eg, blood and urine samples).

The NZHS questionnaires have always collected data on chronic diseases and their risk factors. Up until 2002/03, physical and biochemical measurements were only included in nutrition surveys, but these objective measurements have gradually been added to the NZHS.

The measurement of adults' body size was added to the NZHS core content in 2002/03 and extended to include children in 2006/07. The measurement of adults' blood pressure was added to the NZHS core content in 2012/13 and may be extended to children in the future.

Biomedical measurements (adults only) were included as a module in the 2014/15 NZHS.

Body size

A healthy body size is recognised as being important for good health and wellbeing. There is strong evidence that obese children and adults are at greater risk of short- and long-term health consequences (WHO 2000).

Self-reporting height and weight is unreliable compared with measuring these factors (Gorber et al 2007). Overall, people underestimate their weight and overestimate their height (resulting in a lower BMI), and they are more likely to do so if they are overweight or obese.

For the NZHS, height and weight are measured for respondents from the age of two years and over, and waist measurements are taken for respondents from the age of five years and over. Measurements are not taken for pregnant women. Measurements are collected following a standardised protocol and using the same professional anthropometric equipment as for the 2011/12 NZHS – apart from the introduction of laser height measurement in 2012/13.

Data on height and weight are used to calculate body mass index (BMI), which is used to classify people as underweight, a healthy weight, overweight and obese according to international cut-off points. BMI cut-offs points are intended to identify people or populations at increased risk of health conditions, such as type 2 diabetes, associated with increasing BMI rather than being a measure of body fat.

Blood pressure

High blood pressure (often referred to as hypertension) is a risk factor for ischaemic heart disease, stroke, hypertensive heart disease, kidney failure and dementia.

Usually, no symptoms are associated with high blood pressure, so self-reporting will underestimate its prevalence. The best way to monitor population blood pressure is to take actual blood pressure measurements. By combining data on self-reported and measured high blood pressure, we can also estimate levels of hypertension awareness, treatment and control. Measurement of blood pressure in adults was introduced into the annual core content of the NZHS in 2012/13. It was removed during the 2017/18 survey year (to allow more time for the questionnaire portion of the survey) and reintroduced in 2018/19.

Measurements of blood pressure and heart rate are made using standardised protocol and an OMRON HEM-907 device, which automatically records heart rate, systolic and diastolic blood pressure three times, with a 1-minute pause between measurements.

Permission details after completing the survey

At the end of the interview, the interviewer seeks the respondent's permission for:

- the survey supervisor to contact them again for audit purposes
- NZHS researchers to contact them again within the next two years about the possibility of answering other health-related questions of importance to the Ministry
- their survey data to be combined with other information already routinely collected by government agencies – the respondent would sign an electronic consent form to authorise their consent to this data being linked.

Respondents are also asked if they were a Christchurch resident at the time of the 22 February 2011 earthquake, to assist with monitoring the earthquake's impact on population health.

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