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Canadian Survey on Disability, 2012

A New Survey Measure of Disability: the Disability Screening Questions (DSQ)

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..	not available for a specific reference period
...	not applicable
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0^s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p}	preliminary
^{r}	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E}	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)

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Executive Summary

This report describes the creation of the new Disability Screening Questions (DSQ), which were jointly developed by Statistics Canada (Social and Aboriginal Statistics Division and Social Survey Methods Division), Employment and Social Development Canada, and a Technical Advisory Group made up of experts in the field. The DSQ provide a measure based on the social model of disability which takes into account activity limitations to identify a disability. The intention is to include the DSQ in general population surveys to allow comparisons of people with and without a disability.

Development took place over two years, during which several rounds of qualitative testing were conducted to ensure the validity of each question. This was followed by two major quantitative tests, one with the Labour Force Survey (LFS) and the other with the Canadian Community Health Survey (CCHS), to assess the reliability of the DSQ on surveys with very different contexts. Based on the results of these tests, the DSQ were used on the Canadian Survey on Disability (CSD).

Disability rates by type obtained from the two quantitative tests were very close and are shown in this report. Disability rates from the 2006 Participation and Activity Limitation Survey (PALS) are also presented, mainly to show the impact of taking into account activity limitation to identify disability with the DSQ, which differs from what was done before. Disability rates from the 2012 CSD are also shown, and differences with the LFS estimates are analyzed and explained.

Because the average time required to administer the DSQ might be a serious obstacle to including it on most general population surveys, a shorter version of the DSQ was created and tested—a version that is very similar to the long one, but which provides less detail. This report describes the differences between the long and short versions, and what each version provides. The short version has been used in two general population surveys: cycle 28 of the General Social Survey (GSS) on victimization, and the 2013 Canadian Income Survey (CIS).

The DSQ are based on the social model of disability. This measure is useful in developing programs to help improve social participation for persons with a disability. Inclusion of the DSQ on general population surveys, as well as on the Canadian Survey on Disability, will facilitate analyses, and will shed light on the situation faced by persons with a disability, and more importantly, on those whose daily activities are limited.

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1. Context

The Disability Screening Questions (DSQ) were developed in the context of the New Data and Information Strategy on persons with disabilities (PWD), which is being developed at Employment and Social Development Canada (ESDC) in order to have more efficient, more relevant and more accessible data on PWD. The three main pillars of the Strategy are: survey data, administrative data, and an open data platform to maximize accessibility and usefulness of this information. As part of Pillar 1 (survey data), the new DSQ were developed in partnership with Statistics Canada (STC) and a Technical Advisory Group (TAG) made up of experts in the field of disability. The goal is to include the DSQ in various existing general population surveys, thereby enabling direct comparisons of PWD with the overall population on a more frequent basis.

Until recently, several general population surveys at STC used the "Census filter questions"[1] to identify PWD. These questions, which first appeared on the 1986 Census of Population long form, served as filters to create a survey frame for a **post-censal survey**[2] on disability. However, these questions do not provide a good measure of disability. In fact, early quantitative tests of these questions revealed that although most PWD were concentrated among people who reported at least one positive answer to these filters (true positives), a relatively large number could be found among people who reported "No" to all the filters (false negatives).

The Census filter questions were modified and improved over time, but even those on the latest version (used on the 2011 National Household Survey which replaced the long-form Census) are considered to be a misleading measure of disability because they tend to miss people with non-physical disabilities (false negatives),[3] yet overestimate the rate of disability (false positives).[4] Nonetheless, these questions being the only ones[5] available as a proxy for disability, they were still being used to estimate the prevalence of disability, for example, for subprovincial estimates. Some general population surveys also incorporated these filter questions to obtain an approximate identifier of PWD. However, in 2010, Statistics Canada decided that these questions could no longer be used by surveys to identify disability, and a new set of questions to replace them on general population surveys became a priority.

The objectives of the DSQ were to improve the measure based on the Census filter questions by having: 1) a more inclusive measure for persons with non-physical disabilities (learning and mental health-related disabilities in particular); 2) a more precise measure including type and level of severity; and 3) a consistent way of measuring disability based on the **social model**[6] that defines disability as the relationship between body function and structure, daily activities, and social participation. However, to be implemented in general population surveys, the DSQ could take no more than 2 minutes to administer. This constraint was a main driver in the format of the DSQ, and also, in the decision to have both a long and a short version.

This document describes the creation of the new DSQ, explains why a long and a short version were developed, and shows how these two versions work, how they differ, and how to use each version.

The DSQ continue to undergo changes. The version described in this document was used in the Canadian Survey on Disability (CSD) in 2012. A section at the end of this report describes subsequent changes and future plans for the DSQ.

This report is structured as follows. Section 2 is an overview of how disability has been measured at Statistics Canada over the past 30 years. Section 3 covers the development of the DSQ, starting with a description of the social model of disability on which the new DSQ are based, followed by a general overview of the questions that worked well during qualitative testing. Section 4 describes the goals in creating the DSQ, the disability types covered, and the reasoning behind the use of filter and screener questions, and presents the wording of the questions for each of the 10 disability types. It also presents information about the two major quantitative tests

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[1] Appendix A shows the different versions of the Census filter questions, from the first time they were implemented in the 1986 long-form Census—the Health and Activity Limitation (HAL) questions, to the latest version used in the 2011 National Household Survey—the Activities of Daily Living (ADL) questions. The term "Census filter questions" is used in the text to refer to these questions, as well as the term "NHS filter questions" for 2011 when the National Household Survey replaced the long-form Census.

[2] More information on the post-censal surveys on disability is given in Section 2.1.

[3] See Bizier, 2008.

[4] See Veilleux, 2008.

[5] They were the only ones that had been through numerous qualitative and quantitative tests, and had the advantage of being short and easy to administer under several collection modes.

[6] More information on the social model is given in Section 3.1.

conducted to assess the reliability of the DSQ, definitions of disability that were considered and retained, and the length of time needed to administer the DSQ. Section 5 describes the severity score. Section 6 explains the need for a short version and how it differs from the long version. Section 7 explains how the long and short versions of the DSQ are currently used at Statistics Canada. Section 8 compares DSQ results with those of other health measures used by Statistics Canada surveys. Section 9 contains information on the latest developments of the DSQ, and Section 10 summarizes the discussion.

2. Measuring disability at Statistics Canada

To put the DSQ in perspective, some background is necessary on how Statistics Canada has measured disability over the past 30 years.

2.1. Post-censal disability surveys

In May 1980, the Special Parliamentary Committee on the Disabled and the Handicapped was formed with the mandate to report to the House of Commons on the needs and concerns of persons with disabilities. In February 1981, the Committee published a report entitled *Obstacles*, which included 130 recommendations for action by the Government of Canada.

The lack of national data on persons with disabilities was noted. The Committee directed Statistics Canada, through Recommendation 113, "to give a high priority to the development and implementation of a long-term strategy which will generate comprehensive data on disabled persons in Canada . . . ."[7]

Statistics Canada responded with an action plan which outlined the major activities to be undertaken to build a national database that would include all types of disabilities and all geographic areas.

Representatives from federal, provincial and territorial departments, agencies, crown corporations, and associations of and for persons with a disability were contacted to determine their specific data requirements.

Statistics Canada undertook three major data collection activities:

1. The Canadian Health and Disability Survey (CHDS), which was a supplement to the Labour Force Survey in October 1983 and June 1984;
2. The addition of a question on activity limitation on the 1986 Census of Population questionnaire[8] to assist in designing a sample frame from which to select individuals for participation in the post-censal Health and Activity Limitation Survey (HALS); and
3. The HALS, which was completed for households in the fall of 1986, and for institutions in the spring of 1987.

HALS, Statistics Canada's first post-censal survey on disability, had a household and an institutional component, both of which covered children and adults in all provinces and territories.

The purpose of the question added to the 1986 Census long form was to identify a large part of the potential disabled population among those who had answered affirmatively to this filter question. Before the 1986 Census, a field test was conducted to determine if all disabled persons would answer affirmatively to the filter question; the results indicated that many people with a mild disability, as well as some of the elderly, would not do so. Of the individuals contacted for this field test, 5% had answered negatively to the filter question but were considered to have a disability (based on a longer set of screener questions).

For the household component of the 1986 HALS, the Census filter question was used to divide the population into two groups: those who replied affirmatively to the filter question (the YES population), and the others (the NO population). To ensure complete coverage of PWD, a sample was taken from each population. The HALS was repeated after the 1991 Census, again with household and institutional components covering children and adults in all provinces and territories.

In 1996, the survey was cancelled owing to budget constraints. Although useful, the HALS was costly, with a sample size in households alone of close to 150,000.

In 2001, a new post-censal survey on disability replaced the household component of the HALS: the Participation and Activity Limitation Survey (PALS). A major change in survey design (with a notable impact on the coverage

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[7] *Obstacles*. Report of the Special Parliamentary Committee on the Disabled and the Handicapped, February, 1981, page 131.

[8] This was the first version of the Census filter questions. Appendix A contains the questions for this and all subsequent versions until 2011.

of PWD) was eliminating the NO population from the sample, thereby allowing for major savings and sample size reductions. The sample size was about 50,000 children and adults in the 10 provinces. The territories were dropped, as was the institutional component. However, to limit the impact of eliminating the NO sample,[9] new Census filter questions were developed—Activities of Daily Living (ADL) questions—for the 2001 Census long form. These questions were intended to cast the net more widely to better include false negatives who previously were captured only by the NO sample.

In 2006, the PALS was repeated (household component only), covering children and adults, and the territories were re-introduced.

In 2012, a new “post-NHS”[10] survey replaced the PALS: the Canadian Survey on Disability (CSD). The design was similar to the PALS (covering only the YES population), but used a different definition of disability, requiring that a person reports activity limitations to identify a disability. The CSD did not include children younger than 15. As well, the CSD used the new Disability Screening Questions (DSQ), which are the main topic of this document.

2.2. Other health measures

Other Statistics Canada surveys use different health-related questions. The DSQ are not meant to replace these measures, as each serves its own purpose. An overview of these measures is given here. The goal is to explain why they do not meet the needs addressed by the DSQ. This is by no means a criticism of these other measures, which have their own objectives and uses.

2.2.1. The Health Utilities Index Mark 3 (HUI3)

The Health Utilities Index Mark 3 (HUI3), which was originally developed at McMaster University,[11] is a validated standardized measure used on an international basis to assess overall functional health based on eight attributes: vision, hearing, speech, ambulation, dexterity, emotion, cognition, and pain. Answers are combined into a scoring system that ranks respondents on a scale from -0.36 to 1, where higher numbers mean greater functional health. These questions have been used regularly on cycles of the Canadian Community Health Survey, the Canadian Health Measures Survey and were used extensively on the National Population Health Survey.

The HUI3 is not ideal as a proxy for disability. The major reason is conceptual—the HUI3 measures functional health, not disability. The disability module that was sought had to take into account activity limitations and use the International Classification of Functioning (ICF) framework.[12] HUI3 scores are primarily based on questions pertaining to “usual ability to perform selected tasks.” For example, people who indicate problems with particular tasks related to vision, hearing, speech, ambulation or dexterity can generate HUI3 scores that can lead to them being classified as having moderate or even severe conditions. However, under the social model and ICF framework, impairments and functional difficulties represent only one dimension of disability. The framework considers how those impairments/task difficulties interact with respondents’ environment and affect their ability to participate in and perform day-to-day activities. This can be achieved only through a second step that establishes if an impairment or task-based difficulty is accompanied by a limitation in daily activities.

As well, many people with severe disabilities see themselves as being in good health. Since the goal with the DSQ is to move toward the social model of disability and away from the medical model, this conceptual difference is problematic and results in the identification of somewhat different populations. Despite an expected overlap, a substantial percentage of the population identified by the HUI3 as having poor functional health would not likely be identified as having a disability under the social model. Similarly, the HUI3 would likely not identify a sizeable proportion of the people who would meet the criteria for the social model, particularly those with non-physical disabilities. The HUI3 and the social model of disability measure different things.

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[9] The impact of excluding the NO population from the 2001 PALS was evaluated in a pilot test during the summer and fall of 2000. The majority of PWD among the NO population were mildly limited and had less severe difficulties, compared with the YES population.

[10] In 2011, the long-form Census was replaced by the National Household Survey (NHS). Hence, the term “post-NHS” here replaces the term “post-censal.”

[11] See Feng 2009.

[12] The ICF looks beyond a purely medical or biological conceptualization of dysfunction and takes the impact of the environment and other contextual factors on the functioning of an individual into account.

Another reason why the HUI3 is not ideal as a proxy for disability is that it does not adequately cover the mental health-related disabilities with its use of a "happiness scale". Although the HUI3 has a question about cognition, it combines several disability types. The module sought should, to overcome weaknesses in earlier modules, separately identify memory disabilities, learning disabilities, and intellectual or developmental disabilities (a core requirement for the disability community).

For mobility, the HUI3 focuses solely on walking. Work on the PALS to determine the minimum questions that must be asked to cover most people with potential mobility disabilities identified both walking and going up/down stairs as necessary. More important for DSQ purposes was the follow-up to determine if such difficulties limited daily activities. This is not covered by the HUI3.

Furthermore, past research using the PALS found that basic questions on task functioning often capture people with temporary problems. Disability, however, is long term, although it can be experienced on a cyclical/episodic basis. The DSQ development team sought to ensure that the sense of "long term" was incorporated in the new identification module and that it allowed for cyclical disabilities that occur episodically over a long period. The HUI3 does not accommodate these concerns.

Finally, the basic HUI3 does not meet the time requirements of the new module, which had to average less than 2 minutes to administer. An approach that was initially considered was to use the HUI3 (or a subset or variation) to identify impairments (conditions and task difficulty) and add follow-up questions about limitation of daily activities and about mental health-related disabilities and learning disabilities. However, the HUI3 (30 questions) was already too long for most general population surveys.

The HUI3 questions were initially used to devise wording for some questions of the new module (an effort was made to employ questions in use that had been tested if they could address DSQ needs), but the full HUI3 was not a good fit. Some portions of the HUI3 instrument were tested for use in the DSQ; those that tested poorly were abandoned.

2.2.2. The Washington Group set of questions

The Washington Group (WG) set of questions has been proposed as an international instrument to identify disability. The WG can be traced back to the United Nations International Seminar on Measurement of Disability in New York, June 4 to 6, 2001. Experts in disability measurement for statistical reporting from developed and developing countries reviewed methods currently used to measure disability in national statistical systems, with special attention to questionnaire design, and developed recommendations and priorities. Based on this meeting, the mandate for the WG was established. The first official meeting took place in Washington, D.C., February 18 to 20, 2002.

One of the purposes of the WG was to "identify all those at greater risk than the general population for limitations in participation."[13] This is similar to the use of filter questions to develop a sample frame of people most likely to have a disability. However, like the HUI3, it does not go beyond detection of task difficulty/impairment element of disability, making the WG questions inadequate for DSQ purposes.

There are two sets of WG questions: the short set and the extended set. The extended set, which is still under development, exceeds the 2-minute time target. The short set concentrates on task difficulty using six questions pertaining to seeing, hearing, walking/climbing, remembering/concentrating, washing/dressing, and communicating. Like the HUI3, these questions do not cover the range of disability types required, notably, mental health-related disabilities and learning disabilities. As well, the short set of WG questions does not meet the requirement of including the impact of task difficulty.

Nonetheless, initial module designs for the DSQ attempted to use the WG questions to detect task difficulty/impairment. It was hoped that they could be augmented with follow-up questions to determine the degree of limitation caused by these difficulties/impairments. Some elements of these questions remain in the DSQ; others were abandoned or altered after qualitative testing.

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[13] See http://www.un.org/disabilities/documents/events/washington-group-disability.pdf

3. Developing the DSQ

The first version of the DSQ was developed over two years, beginning in the spring of 2010 with a review of previous disability modules used in Canada (such as HUI3 or WG) and other instruments that might be considered or had been used in other countries, such as the Budapest Initiative (BI) or WHODAS.[14] The DSQ development team included subject matter experts and analysts from ESDC (HRSDC at that time) and subject matter experts and methodologists from Statistics Canada (STC), under the guidance of a Technical Advisory Group (TAG) made up of community and academic experts. Based on that review, options were proposed for approaches and questions that might be used. Efforts were made to employ wording used by instruments such as the HUI3, WG, and BI in order to promote comparability. Qualitative testing was conducted by Statistics Canada's Questionnaire Design Resource Centre (QDRC) in September 2010, March 2011, and May 2011.[15]

A goal in developing the DSQ was to follow the social model of disability and take into account activity limitations to identify disability. Also, because the DSQ were meant for inclusion on general population surveys, it could take no more than 2 minutes, on average, to administer. At the same time, it was hoped that the DSQ should distinguish as many disability types as possible and treat all disability types consistently.

3.1. The social model of disability

The social model of disability recognizes that while disability is linked to an individual and to the degree of difficulty with certain tasks, the level of impairment, or the existence of a health condition, it also considers the individual's environment as a key factor in determining disability.

Medical model versus **social model** of disability[16,17]

The **medical model** of disability focuses on deficiencies, ailments or inabilities. It considers that disability is caused by a physiological disease or injury resulting in a "damaged" body or mind that does not function in a manner considered normal for a human being. It does not explicitly recognize that society is organized based on certain assumptions, one of which is that everyone is able-bodied.

The **social model** views disability as a social disadvantage that an environment imposes on top of an individual's impairment. It looks at ways of removing barriers that restrict life choices for disabled people.

With the social model of disability, it was important to ask not only about difficulties that people may have doing certain tasks, but also about how often these difficulties limit their daily activities. According to the social model, individuals can have a functional impairment without having a disability if their physical and social environments are adapted so that their daily activities are not limited.

The definition of disability used prior to the DSQ did not always take activity limitations into account. For instance, the PALS followed a mix of the functional and social models to identify persons with a disability, depending on the disability type. The PALS asked questions about activity limitations for some disability types, but they were not always considered in the determination of the presence of a disability.

3.2. Content validity of the DSQ

Content validity is the degree to which an instrument measures what it is supposed to measure. With the DSQ, it was assessed with qualitative testing of each question.

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[14] World Health Organization Disability Assessment Schedule.

[15] Later rounds of testing for the DSQ were done as part of CSD questionnaire testing, along with tests of the short version of the DSQ, alone or as part of other surveys' content tests. An EQ version of the short DSQ was also qualitatively tested.

[16] These definitions were taken in part from MacKenzie (2009).

[17] MacKenzie (2013) describes the origins of the social model of disability and the differences between the medical and social models.

Qualitative testing is used to ensure that the questions and answers actually capture the concepts that they were meant to measure. It can uncover problems, even with very simple questions.

The original long version of the DSQ underwent three major rounds of qualitative testing in six locations across Canada. Approximately 125 individual interviews and four focus group discussions were conducted. Recruitment of respondents for the in-depth interviews took several factors into consideration:

- Mix of English and French;
- Mix of males and females;
- Mix of ages (20 or older);[18]
- Mix of educational attainment, household size, and household income;
- Mix of disability types (based on questions asked during recruitment of participants).

The results of each round of qualitative testing were used to improve the questions for the next round. As well, the results from the first location of a given round were often used to improve the questions for the following locations in that round.

The remainder of this section is an overview of the main results of each round of testing. The wording of each question tested is not given; only the general idea and main decisions made in designing the questionnaire are mentioned. The final wording of each question retained for the DSQ is presented in Section 4.3.

When qualitative testing started, the DSQ were called the Disability Identification Questions. Hence, the QDRC reports[19] written for the first two rounds of testing refer to that name, while the last one, to the Disability Screening Questions.

First round of qualitative testing - September 2010

The first round of testing started with 15 English interviews in Vancouver, followed by 15 English interviews in Ottawa, and 16 French interviews in Montréal.

The questions for the first round covered all the disability types that had been included in the 2006 PALS. However, the questions were split into two sections.

The first section asked about difficulty with certain tasks for some of the disability types, and for others, about **difficulties that reduced** the amount or kind of activity that the person can do (for example: “Do you have any learning difficulties that reduce the amount or kind of activities you can do? Examples of learning difficulties include attention problems, hyperactivity and dyslexia.”). It was hoped that the latter questions would save time by not requiring two separate questions—one to ask about the presence of difficulty and another to ask about activity limitation resulting from it. These questions did not work well because respondents were confused by asking about the presence of difficulty, and at the same time, if the difficulty reduced activities.

The second section in the test questionnaire asked if the limitations reported in the first section created difficulties in specific domains: finding or maintaining employment, attending school, transportation, household tasks, self-care, activities outside the home, communicating, getting along with others, and participating in other activities. The aim was to cover domains in the United Nations Convention on the Rights of Persons with Disabilities. The 2006 PALS did make reference to specific domains for selected disability types, but this was done immediately after each question on difficulty for a given disability type, rather than in a separate section after all the questions on difficulty for all disability types were asked. As well, a limited set of domains (home, school or work, and other) was considered in the PALS.

This second section was problematic because respondents were often not sure how to take limitations for several disability types into account when answering the domain-specific questions. For example, if in the first section of

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[18] Although it would be ideal to test the questions on the population aged 15 or older, issues are associated with inviting minors over the telephone to attend a qualitative interview.

[19] See Allard and Lawrence (2010), Allard (2011a) and Allard (2011b).

the questionnaire, an individual reported difficulties due to a mental health-related condition and difficulties with flexibility, by the time he/she got to the second section, it was difficult to report how much difficulty he/she had in each domain (finding employment, maintaining employment, attending school, etc.). The mental health-related condition of that person might give them *some* difficulty in certain domains, but *a lot* in others, while the flexibility issues might affect the same domains or different ones.

The first round of testing yielded several general findings/decisions:

- Certain questions were complex and difficult to answer; interviewers typically found the same questions to be verbose and problematic to administer.
- Participants did not always interpret questions as intended.
- Issues arose with the question framing, such as participants' inability to retain the desired memory cue (6-month/long-term). Also, some participants were uncertain whether to consider factors such as assistive devices (for example, walkers and canes) or medication when answering certain questions.
- Participants did not consistently map their internally generated answers to the response categories given by the survey questions. This was due both to the choice of scale as well as the number of points offered on the scale.
- Inconsistent use and understanding of terminology may cause interpretation problems, for example "difficulty," "condition," "limitations," "disability or disorder."
- To keep the module as short as possible, many of the questions in the first section (and response options) had been selected from other survey instruments and then combined. Subtle question development and design considerations **may** have been overlooked.
- An attempt was made to use questions from other instruments. For example, the question initially proposed to detect a mobility disability was based largely on the WG Short set, which inquired about "difficulty walking or climbing up and down steps." Qualitative testing revealed that the double-barrelled question was difficult to answer in a final screening question. It was recommended that this be split into two questions.
- Particularly for mental health-related disabilities, respondents who experienced episodic difficulty were reluctant to report a condition if it was not experienced continually for six months or more. The question initially tested was directly from the PALS. However, some individuals had histories of being limited by mental health conditions that had lasted longer than six months, which was no longer the case. The wording had to be changed to reflect that the condition had lasted six months or longer, although symptoms had not necessarily lasted that long.
- Some PALS questions gave problematic examples. For instance, the reference to "phobias" for the mental health-related disability question was not interpreted as intended. Respondents tended to interpret "phobia" as something that is disliked intensely rather than a morbid fear or aversion.
- Questions in the second section were frequently misunderstood, particularly by respondents with several mild disabilities.

A major revamping of the questions took place for the second round of testing. The most notable changes were:

1. Elimination of the second section, which asked about difficulties in several contexts.
2. To save interview time, the addition of filter questions at the beginning of the questionnaire to immediately screen out people who are not likely to have a disability.

The wording of questions was revised based on the results of the first round of testing; for instance,"Rarely" was added to the answer categories for the activity limitation questions, which initially had been "No," "Sometimes," "Often," and "Always."

Second round of qualitative testing - March 2011

The second round of testing of the DSQ took place in March, 2011. This round included 17 English interviews in Toronto, 16 French interviews in Montréal, and 16 English interviews in Ottawa. It also involved two focus groups in Montréal and two in Ottawa; one group in each location was for persons with a mental health-related condition, and the other, for persons with a learning disability.

The addition of filter questions at the beginning of the questionnaire distinguished people who are most likely to have a disability from those who are not. Those identified as likely were asked a more detailed set of screening questions to determine if they did, in fact, have a disability and what type it was. This strategy is necessary to reduce average interview time, especially given the relatively low prevalence of disability in the population and the large number of questions required to identify it.

These filter questions had to fulfill several conditions:

- minimal total time, since the questions must be asked of everybody;
- broad enough to include people with all types and levels of disability, but not so broad that the filtered-in rate would be too high;
- properly filter-in people with non-physical disabilities; and
- minimize the number of false negatives to avoid excluding persons with a disability.

These filter questions, like the Census filter questions, were not meant to measure disability. They are deliberately somewhat vague in order to include people who **may** have a disability. It is the role of the follow-up questions (or screening questions) to properly identify persons with a disability.

The questionnaire for this test started with five filter questions; screener questions were then asked of people who said “yes” to at least one filter question.

Two versions of screener questions for vision were tested. The most effective asked about the **ability** to see rather than difficulty seeing. This wording was retained in the final DSQ. To keep the question structure similar, the question on hearing also asked about ability to hear (rather than difficulty hearing). These are the only two disability types in the final DSQ that ask about *ability* instead of *difficulty*.

A decision that emerged from the second round of testing was to replace the filter question that was meant to identify people with a mental health-related condition by the first screener question for this disability type. The tested filter question was too general; it did not identify people with a mental health-related condition, but they were identified by the screener question which offered more precise examples. As a result, respondents are asked the filter question first, and some of them are asked the same question again later as a screener (Section 4.3.4).

After the second round of testing, the “Communication” disability type was dropped from the DSQ. A few variations of question wording were explored, but each elicited diverse interpretations. When interviewers explored the questions with respondents, cultural overtones were apparent in how they interpreted the questions and determined their responses.

The fifth filter question (“Do you have any other health problem or condition that has lasted or you expect to last for six months or more?”) tended to filter in too many false positives. To reduce the number of false positives, a sixth filter question was added: “How often does this health problem or condition limit your daily activities?” Those who reported being “Rarely,” “Sometimes,” “Often” or “Always” limited were filtered in and proceeded to the screeners.

Third round of qualitative testing - May 2011

The third round of qualitative testing of the DSQ was conducted in May, 2011. This round consisted of 22 interviews: 8 English and 6 French in Moncton; 8 English in Vancouver.

According to the QDRC observation report:

- In general, participants were able to answer the questions without difficulty.
- This is by far the most efficient version of the DSQ that has been tested since September 2010.
- In a few rare cases, respondents were unsure whether to report conditions that they had in the past (for example, someone with vision problems three years ago who had surgery and now sees without problems).
    - **Recommendation:** *If respondents are unsure, interviewers should record respondents' present-day conditions and difficulties*.
- The change to "*activités*" (from "*activités quotidiennes*") from the March phase of testing worked well for French respondents. When probed, they gave a broad range of examples from housework, work, shopping, etc., which is close to the English "*daily activities*."

The recommendations made by QDRC after this round of testing had to do with a better use of dynamic text[20] in question wording, slight modification of answer categories, emphasis on certain words in the questions, and better instructions for interviewers.

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[20] Computer-assisted data collection makes it possible to use "dynamic text" to adapt question wording based on respondents' characteristics, or on answers to previous questions. For example, a question asks, "Do you wear glasses or contact lenses to improve your vision?" If a respondent says "Yes," the next question asks, "With your glasses or contact lenses, which of the following best describes your ability to see?" If a respondent did not report wearing glasses or contact lenses, the next question asks only, "Which of the following best describes your ability to see?"

4. The new DSQ

This section presents the questions retained in the final[21] version of the DSQ. The goals of the DSQ are reviewed, followed by a list of disability types covered. The wording of each question and answer category is given.

4.1. Goals of the new DSQ

The DSQ were developed with three main goals:

1. The questions had to cover as many disability types as possible, including questions on activity limitations for each type to follow the social model of disability;
2. The questions had to cover all the information needed to calculate a severity score; and
3. They had to be short enough to be administered in two minutes or less, on average, per respondent in a general population survey.

Development of the DSQ was challenging, as the goals are contradictory—the first two imply that a considerable amount of information must be collected, but the third requires that the number of questions be kept to a minimum.

4.2. Disability types covered

Table 1 lists the 10 disability types covered in the long DSQ. "Other/Unknown" is not counted as one of the 10 types; it is a "catch-all" category for people who reported a health problem or condition that limits their daily activities, but does not fit one of the 10 disability types.

Table 1
Types of disability covered in Disability Screening Questions

Type of disability	Category[1] of disability
Seeing Hearing	Sensory
Mobility Flexibility Dexterity Pain	Physical
Learning Developmental Memory	Cognitive
Mental health-related	Mental health-related
Other/Unknown	Other/Unknown

1. Category of disability is useful in understanding the functioning of the short DSQ. It is a grouping of disability types that are conceptually related.

The DSQ do not cover "Communication" disabilities. Questions to identify persons with a Communication disability were tested during qualitative interviews and did not work as expected,[22] owing largely to the evolving nature of communication, notably, the growing importance and use of social media and technology.

Unlike earlier instruments, the DSQ split Agility into two separate types: Flexibility and Dexterity. This was done at the request of the TAG and was also based on comments from users, noting differences in barriers faced by those with dexterity and flexibility disabilities. Although such disabilities may affect a similar population (mostly older adults), they require different aids and assistive devices.

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[21] The version of the DSQ described in this document was the one used for the Canadian Survey on Disability in 2012. Subsequent changes are described in Section 9.

[22] When asked about communication difficulties during testing, people's responses ranged from difficulty understanding a foreigner's spoken accent to difficulty with their internet connection, or even difficulty communicating with their spouse.

4.3. DSQ filter and screener questions

As described in Section 3.2 (Second round of qualitative testing – March 2011), filter questions were added at the beginning of the DSQ to reduce average interview time. These filters identify people who are not likely to have a disability and allow them to skip all the subsequent screener questions.

4.3.1. Filter questions

The filter questions must be kept to a minimum, as they are asked of every respondent. They must be brief, inclusive enough to avoid filtering out persons who have a disability, and yet not too inclusive to reduce the number of false positives.

The current version of the DSQ contains six filter questions to cover five **categories** of disability types: Sensory, Physical, Cognitive, Mental health-related, and Other/unknown (Table 1). There is one question for each category, with an extra question for the Other/unknown category. The DSQ filter questions are numbered from 1 to 6 with the prefix F (for Filter), which distinguishes them from the screeners presented later.

Filter questions

The following questions are about difficulties you may have doing certain activities. Please tell me only about difficulties or conditions that have lasted or are expected to last for six months or more.

F1. Do you have any diffulty seeing or hearing?

INTERVIEWER: Read categories to respondent.
If respondent indicates that he/she uses glasses, contact lenses, a hearing aid or a cochlear implant, ask for a response based on their ability to see or hear when using their seeing or hearing aid.

- No, Sometimes, Often, Always

F2. Do you have any difficulty walking, using stairs, using your hands or fingers, or doing other physical activities?

- No, Sometimes, Often, Always

Again, please answer for difficulties or conditions that have lasted or are expected to last for six months or more.

F3. Do you have any difficulty learning, remembering or concentrating?

- No, Sometimes, Often, Always

Please remember that your answers will be kept strictly confidential.

F4[23]. Do you have any emotional, psychological or mental health conditions? These may include anxiety, depression, bipolar disorder, substance abuse, anorexia, as well as other conditions.

- No, Sometimes, Often, Always

If No to F1, F2, F3 and F4, Go to F5;
Otherwise, Go to screeners.

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[23] Filter 4 is the same as the Mental health-related screener, as explained in section 3.2 under Second round of qualitative testing – March 2011.

F5. Do you have any other health problem or long-term condition that has lasted or is expected to last for six months or more?

- Yes – Specify, No

If No, End the DSQ: the person is considered not to have a disability;
Otherwise, Go to F6.

F6[24]. How often does this health problem or condition limit your daily activities?

INTERVIEWER: Read categories to respondent.
If respondent indicated more than one health problem or condition in F5, ask for a response that is based on the health problem or condition that most limits his/her daily activities.

- Never, Rarely, Sometimes, Often, Always

If F6 is Never, End the DSQ: the person is considered not to have a disability;
Otherwise, Go to the screeners.

4.3.2. Developing the filter questions

Because the goal of the filter questions is to prevent people who say “No” to all of them from going through the screeners, it would seem that the answer categories “Yes” and “No” would suffice. The choice of answers is meant to give respondents some flexibility by allowing for “softer” responses. This reduces the risk of filtering out persons with a less severe disability who may be hesitant to answer “Yes” if they only have some difficulty sometimes. It might also be argued that answer categories should be related to the intensity of difficulty (“No difficulty,” “Some difficulty,” “A lot of difficulty,” . . .). However, during qualitative testing, many respondents answered before the categories were even read out loud, and the answers tended to be “Well, sometimes.” Testing indicated that people think more of frequency than of intensity when asked these types of question.

To minimize the number of filters, each combines several disability types. For example, Filter 1 combines Seeing and Hearing. In qualitative testing, respondents did not hesitate in replying when the two concepts were together in a single filter question. When asked about this, most respondents indicated that “ideally, the two would be split,” but that they “hadn’t really had any difficulty.” Covering more than one type in a single question is not ideal, because someone who “sometimes” has difficulty with one type and “often” with the other may be unable to say precisely how often they have difficulty. However, the goal is to identify persons who **do not** have difficulty with any of the disability types covered by each question. If difficulty exists, its frequency does not matter at this point.

Previous versions of Filter 1 (about Seeing and Hearing) that were tested included the concept of communication, which was removed from the final version (footnote 22).

Because the filter questions must be short, they are rather vague. For example, no mention is made of the use of aids for seeing and hearing. However, interviewers were instructed to clarify this if need be. The consequence of not being specific in the questions about the use of aids is that some people may report difficulty although they do not have any when using their aids. When they get to the screeners, this is resolved.

The DSQ do not have a specific filter to identify people with pain. Depending on the type and cause, people with pain may be captured as part of mobility, concentration, or even vision difficulties (for example, migraines). During qualitative testing, most people with pain said “Yes” to one of the first four filters, while a few others said “Yes” to the other filter (the “catch-all” question).

Filter 6 is asked only of people who say “Yes” to Filter 5. In previous versions of the DSQ, Filter 5 asked about the presence of any other health problem or condition **that limits** daily activities. The double-barrelled nature of

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[24] Although F6 is a “filter,” it asks about the frequency of activity limitation, and therefore, plays the role of a screener. For this reason, the answer categories differ from those of other filter questions. People who are asked this question will not get the “Other” screeners at the end of the DSQ (see Section 4.3.3).

that question was problematic. Qualitative testing revealed that two separate questions were needed—one to ask about the presence of any other health problem or condition, and another to ask if it limits daily activities. Filter 6 was added to avoid filtering in too many people with minor health problems that do not limit their daily activities.

4.3.3. Screener questions

The DSQ screeners determine if a respondent has a disability and if so, the type(s) and severity. The screeners are presented for each disability type and in the order used in the questionnaire. They are numbered from 1 to 33 with the prefix S (for Screener) to ensure that they are not confused with the filter questions.

Seeing Screeners

S1. Do you wear glasses or contact lenses to improve your vision?

- Yes, No

S2. [With your glasses or contact lenses] which of the following best describes your ability to see?

- You have no difficulty = > If No difficulty, Go to Hearing screeners
- You have some difficulty (seeing)
- You have a lot of difficulty (seeing)
- You are blind or legally blind

S3. How often does this [difficulty/condition] limit your daily activities?

- Never, Rarely, Sometimes, Often, Always

Hearing Screeners

S4. Do you use a hearing aid or cochlear implant?

- Yes, No

S5. [With your hearing aid or cochlear implant] which of the following best describes your ability to hear?

INTERVIEWER: Read categories to respondent.
Deaf - refers to individuals with a severe to profound hearing loss, with little or no residual hearing.

- You have no difficulty hearing = > If No difficulty, Go to Mobility screeners
- You have some difficulty (hearing)
- You have a lot of difficulty (hearing)
- You cannot hear at all
- You are deaf

S6. How often does this [difficulty/condition] limit your daily activities?

- Never, Rarely, Sometimes, Often, Always

Mobility Screeners[25]

The next questions are about your ability to move around, even when using an aid such as a cane. Again, please answer for any difficulties or conditions that have lasted or are expected to last for six months or more.

S7. How much difficulty do you have walking on a flat surface for 15 minutes without resting?

INTERVIEWER: Read categories to respondent.
This corresponds to the regular walking pace of the respondent.
Respondent should only consider aids that provide minimal support such as a cane, walking stick or crutches.

- No difficulty
- Some (difficulty)
- A lot (of difficulty)
- You cannot do at all

S8. How much difficulty do you have walking up or down a flight of stairs, about 12 steps without resting?

INTERVIEWER: Read categories to respondent.
This corresponds to the regular walking pace of the respondent.
Respondent should only consider aids that provide minimal support such as a cane, walking stick or crutches.

- No difficulty = > If No difficulty to S7 and S8, Go to Flexibility screeners
- Some (difficulty)
- A lot (of difficulty)
- You cannot do at all

S9. How often [does this difficulty walking/does this difficulty using stairs/do these difficulties] limit your daily activities?

- Never, Rarely, Sometimes, Often, Always

Flexibility Screeners

The next questions deal with flexibility and dexterity. (Again, answer for difficulties or conditions that have lasted or are expected to last for 6 months or more.)

S10. How much difficulty do you have bending down and picking up an object from the floor?

- No difficulty
- Some (difficulty)
- A lot (of difficulty)
- You cannot do at all

S11. How much difficulty do you have reaching in any direction, for example, above your head?

- No difficulty = > If No difficulty to S10 and S11, Go to Dexterity screeners

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[25] A previous version of the DSQ contained a question before S7 to assess whether the respondent uses a mobility aid (“Do you use any aids or specialized equipment to help you move around or use stairs?”). Question S7 then referred to these aids for respondents who reported using them (“With your specialized aid or equipment, how much difficulty . . .?”). This question about the use of mobility aids was dropped from the version used in the 2012 CSD.

- Some (difficulty)
- A lot (of difficulty)
- You cannot do at all

S12. How often [does this difficulty bending and picking up an object/does this difficulty reaching/do these difficulties] limit your daily activities?

- Never, Rarely, Sometimes, Often, Always

Dexterity Screeners

S13. How much difficulty do you have using your fingers to grasp small objects like a pencil or scissors?

- No difficulty = > If No difficulty, Go to Pain screeners
- Some (difficulty)
- A lot (of difficulty)
- You cannot do at all

S14. How often does this difficulty using your fingers limit your daily activities?

- Never, Rarely, Sometimes, Often, Always

Pain Screeners

The next questions are about pain due to a condition that has lasted or is expected to last for 6 months or more.

S15. Do you have pain that is **always** present?

- Yes, No

S16. Do you have periods of pain that **reoccur** from time to time?

- Yes, No = > If No to S15 and S16, Go to Learning screeners

S17. How often does this pain limit your daily activities?

INTERVIEWER: Read categories to respondent.
If the respondent has both pain that is always present and pain that re-occurs from time to time, ask them about the pain that bothers them the most. If respondent indicates that pain is controlled by medication or therapy, ask for a response based on when the respondent is using medication or therapy.

- Never, Rarely, Sometimes, Often, Always = > If Never, Go to Learning screeners

S18. When you are experiencing this pain, how much difficulty do you have with your daily activities?

INTERVIEWER: Read categories to respondent.
If the respondent has both pain that is always present and pain that re-occurs from time to time, ask them about the pain that bothers them the most. If respondent indicates that pain is controlled by medication or therapy, ask for a response based on when the respondent is using medication or therapy.

- No difficulty
- Some (difficulty)
- A lot (of difficulty)
- You cannot do most activities

Learning Screeners

S19. Do you think you have a condition that makes it difficult in general for you to learn? This may include learning disabilities such as dyslexia, hyperactivity, attention problems, as well as other conditions.

- Yes, No

S20. Has a teacher, doctor or other health care professional ever said that you had a learning disability?

- Yes, No = > If No to S19 and S20, Go to Developmental screeners

S21. How often are your daily activities limited by this condition?

- Never, Rarely, Sometimes, Often, Always = > If Never, Go to Developmental screeners

S22. How much difficulty do you have with your daily activities because of this condition?

- No difficulty
- Some (difficulty)
- A lot (of difficulty)
- You cannot do most activities

Developmental Screeners

S23. Has a doctor, psychologist or other health care professional ever said that you had a developmental disability or disorder? This may include Down syndrome, autism, Asperger syndrome or mental impairment due to lack of oxygen at birth, etc.

- Yes, No = > If No, Go to Mental health-related screeners

S24. How often are your daily activities limited by this condition?

- Never, Rarely, Sometimes, Often, Always = > If Never, Go to Mental health-related screeners

S25. How much difficulty do you have with your daily activities because of this condition?

- No difficulty
- Some (difficulty)
- A lot (of difficulty)
- You cannot do most activities

Mental health-related Screeners

Again, please answer for any conditions that have lasted or are expected to last for six months or more.

If answer to F4 (mental filter) was No, ask S26;
Otherwise Go to S27 and read what's in brackets.

S26. Do you have any emotional, psychological or mental health conditions? These may include anxiety disorder, depression, bipolar disorder, substance abuse, anorexia as well as other conditions.

- Yes, No = > If No, Go to Memory screeners

S27. [You mentioned earlier that you have an emotional, psychological or mental health condition], how often are your daily activities limited by this condition?

INTERVIEWER: Read categories to respondent.
If respondent indicates that condition is controlled by medication or therapy ask for a response based on when the respondent is using medication or therapy.

- Never, Rarely, Sometimes, Often, Always = > If Never, Go to Memory screeners

S28. When you are experiencing this condition, how much difficulty do you have with your daily activities?

- No difficulty
- Some (difficulty)
- A lot (of difficulty)
- You cannot do most activities

Memory Screeners

S29. Do you have any ongoing memory problems or periods of confusion? Exclude occasional forgetfulness such as not remembering where you put your keys.

INTERVIEWER: These difficulties are often associated with diseases such as Alzheimer's and other dementias or may be the result of a brain injury.

- Yes, No = > If No, Go to Other screeners

S30. How often are your daily activities limited by this problem?

INTERVIEWER: Read categories to respondent.
If respondent indicates that problem is controlled by medication or therapy ask for a response based on when the respondent is using medication or therapy.

- Never, Rarely, Sometimes, Often, Always = > If Never, Go to Other screeners

S31. How much difficulty do you have with your daily activities because of this problem?

- No difficulty
- Some (difficulty)
- A lot (of difficulty)
- You cannot do most activities

Other Screeners

If F5 (Other filter) was asked, End the DSQ;
Otherwise Ask S32.

S32. Do you have any other health problem or condition that has lasted or is expected to last for six months or more?

INTERVIEWER: Ask respondent to specify new conditions only, not conditions already discussed.

- Yes – Specify, No = > If No, End DSQ

S33. How often does this health problem or condition limit your daily activities?

INTERVIEWER: Read categories to respondent.
If respondent indicated more than one health problem or condition in S32, ask for a response that is based on the health problem or condition that most limits his/her daily activities.

- Never, Rarely, Sometimes, Often, Always

4.3.4. Developing the screener questions

The screener questions are structured in one of two ways, depending on the type of disability:

1. For seeing, hearing, mobility, flexibility and dexterity, one (or more) question(s) assess(es) the intensity of difficulty in doing **certain tasks**, followed by one question (if there is difficulty) about how often daily activities are limited by this difficulty.
2. For pain, learning, developmental, mental health-related and memory, one (or more) question(s) assess(es) the **presence of a health problem or condition**, followed by one question (if there is a problem or condition) about how often daily activities are limited by this problem or condition, and then followed by one question (if daily activities are limited) on the intensity of difficulty.

The reason for structuring the questions differently according to the disability type is that in the first case (seeing, hearing, mobility, flexibility, and dexterity), difficulty is assessed by asking about certain tasks. For the other types (pain, learning, developmental, mental health-related, and memory), the questions are not task-oriented, so it was not possible to ask about the amount of difficulty. A question was needed to assess whether the respondent had a certain health problem or condition, then another question was needed to verify if it limited their daily activities, and if so, another question was asked to assess the amount of difficulty.

This subtle distinction between how questions are asked depending on the disability type implies that for the second group, the question on intensity of difficulty was not asked of those who reported that their health problem or condition never limited their daily activities. This is not a problem for the DSQ, because the focus is on people whose activities are limited. However, this complicates analyses of the level of difficulty that people with a health problem or condition have, whether or not they are limited by it.[26]

The questions on frequency of activity limitation are similar from one disability type to another, but types differ in the assessment of difficulty or presence of a problem or condition. This is discussed in more detail for each set of screeners.

The answer categories for the activity limitation questions (“Never,” “Rarely,” “Sometimes,” “Often,” “Always”) differ from the categories used for the filters (“No,” “Sometimes,” “Often,” “Always”). “Rarely” was inserted between “Never” and “Sometimes” in the DSQ screening questions early in the process. It allowed greater precision and was useful for people who are hesitant to say that they are “Never” limited.

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[26] For example, this may pose a challenge in comparisons of the DSQ with other health measures (Section 8).

Seeing and hearing screeners

Seeing and hearing are the only two disability types that ask about **ability** rather than difficulty (although the response categories refer to the amount of difficulty). Testing revealed that the ability question was the most effective. To be consistent, a similar approach was used for hearing.

Questions combining the use of an aid **and** ability to see/hear were tested (for example, “Do you have difficulty seeing, even when wearing glasses or contact lenses?”), but respondents did not always give the answer that would be expected based on their situation. Such wording made the questions too long; respondents would sometimes remember only “even with your glasses or contact lenses” and would answer as if the question was “Do you wear glasses or contact lenses?”

Testing that used the contexts of seeing up close versus at a distance to try to capture level of difficulty indicated that seeing up close was not always well interpreted. For example, a respondent said that he did not need glasses to see up close, but he did need them to read. To avoid such confusion, seeing up close versus at a distance was not used in the final question wording.

The increasing use of cochlear implants in Canada[27] influenced the decision to refer to them in the hearing screeners. People who wear one know what it is, while others answer that they do not wear one, and it does not pose a problem.

Mobility screeners

The preamble to the mobility screeners mentions the ability to move around even when using an aid such as a cane. Other aids such as crutches or a walker were tested, but people misinterpreted the question thinking of such things as wheeling around and using elevators. For this reason, only the use of a cane is mentioned.

The mobility screeners comprise two separate questions to assess difficulty: one about difficulty walking, and the other, difficulty with stairs. Combining the two concepts in the same question did not work well. Also, context was needed for each task—respondents requested more precision, for example, how many stairs? “Climbing stairs” was changed to walking up or down a flight of stairs. Various iterations of distance for the walking question were tested; football fields (often used in other instruments) meant very little to most respondents; city blocks vary greatly; and measures of distance in both yards and metres are necessary because many older people conceptualize in yards. The most consistent measure was time, which worked well.

Flexibility and dexterity screeners

The flexibility screeners comprise two separate questions to assess difficulty: difficulty bending down and difficulty reaching in any direction. The dexterity screeners use only one question to assess difficulty: difficulty grasping small objects. The PALS questionnaire used seven questions to assess difficulty with agility (which corresponded to the combination of flexibility and dexterity). PALS data showed that the questions chosen for the DSQ captured the vast majority of people with agility issues.

A question long used to measure agility was dropped during qualitative testing of the DSQ—difficulty cutting one’s own toenails. This question aimed to measure flexibility and dexterity, but some people reported that they had diabetes and had been instructed not to do it owing to risks of cuts and bleeding. Others reported that because of their weight, they could not bend down far enough to cut their toenails.

For dexterity, a question about difficulty pressing buttons on an electronic device was tested, but functioned poorly, as it depended on the device, some having larger buttons than others. Also, the “pliers” example from the PALS was dropped. It was not something to which most people could relate, and was associated with gender.

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[27] See Fitzpatrick and Brewster (2010).

Pain screeners

The preamble to the pain screeners explains that the questions are about pain due to a condition that has lasted or is expected to last for six months or more. Specifying pain **due to a condition** ensures that respondents will not report pain caused by a recent injury. Also, to say "*pain* that has lasted or is expected to last for six months or more" would be misleading, because respondents might think that they have to be in pain every day for that period.

Two questions assess the presence of pain: one asks about pain that is always present; the other asks about recurring periods of pain in order to capture cyclical or episodic pain. These two questions are similar to those used in the PALS, but the concept of "discomfort" used in the PALS was dropped for the DSQ. The variation of responses during qualitative testing suggested that "discomfort" is too vague to yield accurate data.

Another difference between the DSQ and the PALS is that in the latter, people who reported pain that is always present were not asked about recurring pain. The DSQ ask both. These questions were further improved in the short DSQ version[28] (created after the 2012 CSD) with the use of dynamic text.[29] This is explained in Section 9.

Learning screeners

Two questions determine if respondents have a learning disability. The first pertains to a condition that respondents think they might have and gives examples. The second asks if respondents were ever told by a teacher, doctor or other health care professional that they have a learning disability. The two questions are needed to take generational differences into account. As part of qualitative testing, people with a learning disability participated in focus groups, during which they were asked how they found out that they had a learning disability. Most "younger" participants had an assessment or diagnosis during their early school years. Older participants found out either by accident, or because of another event (for example, seeking help for depression, job loss, diagnosis of child exhibiting similar characteristics). A learning **impairment** is identified with a positive response to either of the two questions. The combination of these questions works as expected. Although the first uses medical terms, the question tested very well. Respondents are identified as having a learning disability only if it limits their daily activities.

Developmental screeners

One question determines the presence of a developmental disability—the same question that was used in the PALS. The question is designed to identify those with significant developmental conditions, the prevalence of which is fairly low among people aged 15 or older living outside of institutions. Despite the use of technical terms, the question was well understood in qualitative testing and functioned as expected.

The DSQ have two other screeners for developmental disability, one about the frequency of activity limitations, and the other about the intensity of difficulty due to the condition. However, reporting an activity limitation is not necessary to identify developmental disability. Developmental disabilities are, by definition, very limiting. Interviews for people with a developmental disability are often by proxy because they are often unable to answer on their own. This is the only disability type that does not require the reporting of activity limitations to identify disability.

Mental health-related screeners

The screening question used to assess the presence of a mental health-related condition is the same as the fourth filter question at the beginning of the DSQ, except for the answer categories. Other versions of the mental health-related filter were tested and did not work well: respondents would reply "No" to the filter, but would ultimately report a mental health-related condition to the screener. It seemed that the examples in the screener question (but not in older versions of the filter) helped identify them. Thus, to increase the chances that people would report their mental health-related condition, the screener was also used as a filter.

Several examples are provided with this question. They were taken from the PALS screeners, but slightly changed. Phobias were removed because the term tends to be used to refer to something that one really dislikes rather than

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[28] The short DSQ is described in Section 6.

[29] See footnote number 20.

something that provokes morbid fear or aversion. Schizophrenia was removed because respondents said that depression and anxiety did not belong in the same category. People with more serious mental illnesses would still see themselves in the list of examples, which contained the most prevalent mental health-related issues.

When this mental health-related screener is used as a filter, the answer categories are the same as those of other filters (“No,” “Sometimes,” “Often” and “Always”), but as a screener, the answer categories are “Yes” or “No.” Also, if respondents gave a positive answer to the filter, the same question would not be asked again as a screener. Instead, the question on frequency of activity limitations would be asked, but starting with: “You mentioned earlier that you have an emotional, psychological or mental health condition . . . .” For people who said “No” to the mental health-related filter, the question is asked again as a screener. A certain number of respondents who said “No” to the filter said “Yes” to the screener.

The use of technical and medical terms in this question did not seem to pose a problem, regardless of respondents’ socioeconomic backgrounds. No complaints about wording or sensitivity emerged.

Memory screeners

The memory screeners start with a question about the presence of ongoing memory problems or periods of confusion; it specifies that occasional forgetfulness, such as not remembering where you put your keys, is excluded. This example helped to distinguish between real cognition difficulties and common memory lapses. Previous versions of the question included examples such as Alzheimer’s and dementia, but respondents tended to focus on these examples and reported that they did not have a memory problem. The version of the question that was retained worked well in qualitative testing.

Other screeners

Like the “Other” filters (F5 and F6), the “Other” screeners (S32 and S33) are a catch-all category. Respondents are asked either filter 5 and 6 (if they said “No” to all previous filters), or the “Other” screeners, but not both.

For the Other screeners, the reference to six months’ duration is included to ensure that respondents do not report a recent injury from which they will recover in a short time.

The Other filter and screeners are used to define the Unknown type of disability. If respondents do not report any of the 10 disability types, but report that their activities are limited by another health problem or condition (to either the “Other” filter or screener), they are identified as having a disability of an unknown type.

4.4. Reliability of the DSQ

After the qualitative testing to ensure that the questions were valid, the questions were tested for reliability to see the extent to which they give consistent results.

The DSQ were used as a supplement to the Labour Force Survey (LFS) for September and October 2011,[30] and in the Canadian Community Health Survey (CCHS) for the same months. This made it possible to examine disability rates by type of disability which take into account activity limitations and allowed a comparison of results for the same population in different contexts: an employment survey and a health survey. The results were analyzed recognizing that CCHS tends to yield higher disability rates,[31] regardless of the questions used.

The total number of respondents to the September and October LFS supplements was 13,500. The DSQ module was asked after the LFS interview was completed. For the CCHS, the number of respondents in September and October was 21,000. The DSQ were asked part way through the CCHS questionnaire, after questions on general health, mental health, self-reported height and weight, chronic conditions, pain and discomfort, health care utilization, flu shots, fruit and vegetable consumption, physical activities, neighbourhood environment, and sedentary activities. Because the CCHS already included questions on pain (from the HUI3 module), the DSQ

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[30] A test was also done for November 2011, but the goals and target population were slightly different. Because the results for that month are not comparable to those of the CCHS, they are not presented here.

[31] See MacKenzie and Rietschlin (2004).

pain screeners were not asked. Therefore, analysis of the pain questions from the CCHS is based on the HUI3 questions, not those from the DSQ. The Pain questions in the CCHS were asked well before the DSQ module and did not replace the pain questions in the DSQ module.

For each survey, weights were produced to allow inference to the entire population aged 15 or older. The results from the LFS and CCHS quantitative tests in this report are all weighted, thereby taking differences in survey designs and respondents' characteristics into account.

Two reports[32] with in-depth analyses of the results of these quantitative tests were prepared. Only summary results and main conclusions of these analyses are presented in this document.

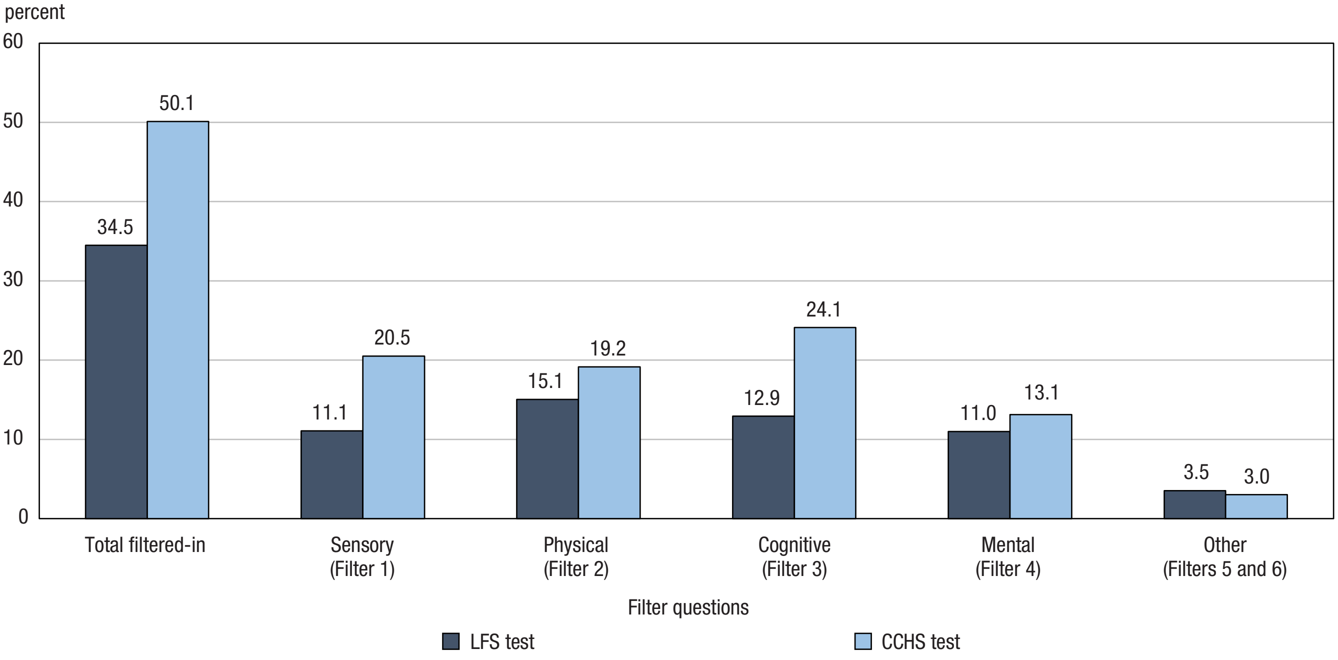
4.4.1. Analysis of the quantitative tests

4.4.1.1. Filter-in rates

The purpose of the filter questions[33] is to ensure that people not likely to have a disability are filtered out of the DSQ in order to save interview time. These questions are not intended to measure disability. The LFS and CCHS tests were the first occasions to calculate filter-in rates for the DSQ. Chart 1 shows the overall filter-in rates for the LFS and CCHS, and filter-in rates by filter question. Filters 5 and 6 (the "Other" filters) were grouped together because it takes both to determine if the filter is positive.

As expected, overall filter-in rates and rates for each filter were higher for the CCHS than for the LFS (except for the catch-all category "Other" where rates are similar). Experience with the Census filter questions when used in general population surveys has shown that filter-in rates on a health survey tend to be higher than those of other surveys. The LFS filtered-out two thirds of its respondents, while the CCHS filtered-out half of them. The main consequence is that the average CCHS interview time exceeded that of the LFS.

Chart 1
Filter-in rates for Disability Screening Questions filters, Canada excluding the Territories, 2011



Sources: Statistics Canada, Labour Force Survey (LFS) and Canadian Community Health Survey (CCHS), September and October 2011.

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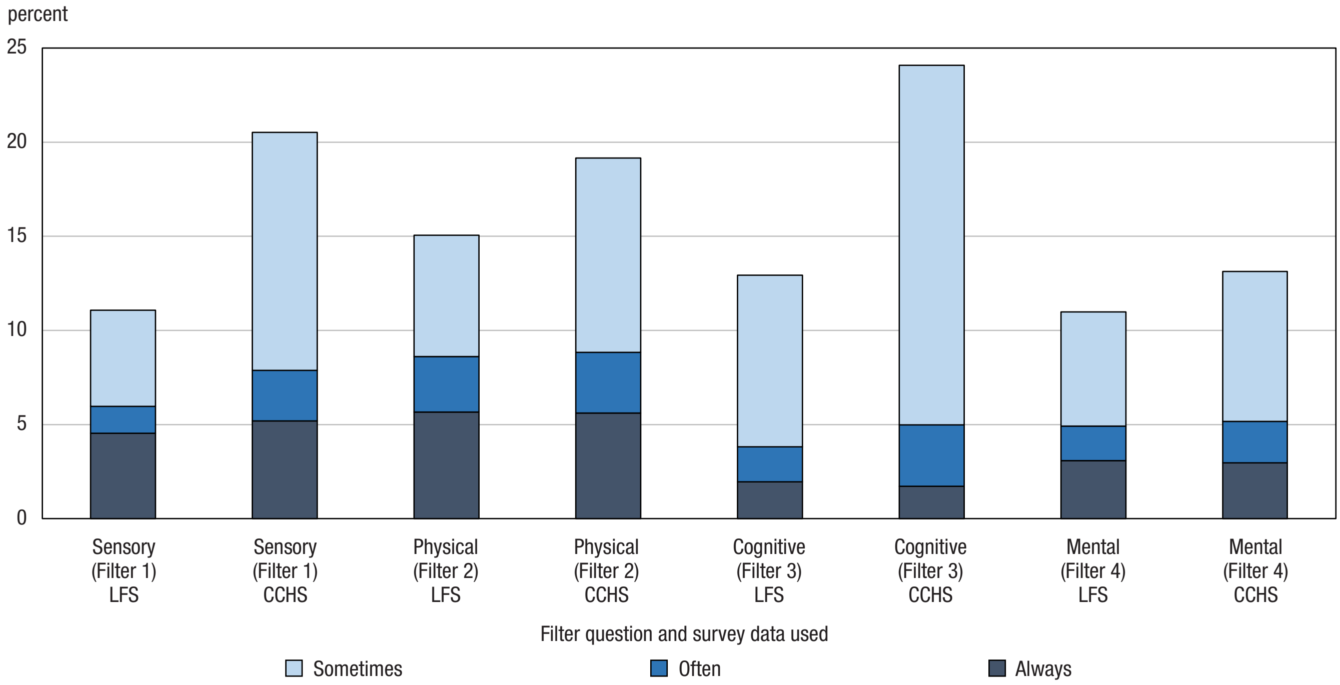
[32] See Fawcett (2012) and Furrie (2012).

[33] The filter questions are described in Section 4.3.1.

In Chart 2, the filter-in rates for each filter question in the LFS and the CCHS, by answer category (“Sometimes,” “Often,” and “Always”), show what the filter-in rate would have been if only “Often” and “Always” had been considered positive answers.

Chart 2
Filter-in rates for Disability Screening Questions filters, by answer category, Canada excluding the Territories, 2011



Sources: Statistics Canada, Labour Force Survey (LFS) and Canadian Community Health Survey (CCHS), September and October 2011.

Most of the difference in the filter-in rates between the two surveys is attributable to the softer answer (“Sometimes”); percentages reporting “Often” or “Always” having difficulty were very similar in the LFS and CCHS. The exception was the third filter on Cognitive disabilities, for which the percentage of “Often” responses on the CCHS was almost double that for the LFS.

Because these are filter questions and not screeners, a difference in filter-in rates affects only average interview time. What is most important to assess reliability is a comparison of disability rates, using the screener questions on both surveys.

4.4.1.2. Disability rates

According to the social model of disability, an individual has a disability if daily activities are limited because of a long-term condition or health problem. The DSQ include questions on the frequency of daily activity limitations for each disability type, with the answer categories “Never,” “Rarely,” “Sometimes,” “Often” or “Always.” Because “Rarely” was a new answer category compared with previous disability instruments, it was not clear if it should be included in the definition of disability. The reason for introducing this category was to set apart people with very minor problems and ensure that “Sometimes” would be reserved for more significant issues.

Several definitions of disability were compared with the data from the quantitative tests. The only constant in all definitions is in developmental disability, where receiving a diagnosis alone is enough to be considered as having a disability.

Because the pain screeners on the CCHS came from the HUI3, not the DSQ, an attempt was made for this analysis to mimic the DSQ definitions of a pain disability using the HUI3 questions. The HUI3 pain definitions used for this comparison were based on two questions, one about intensity of the pain (“Mild,” “Moderate” or “Severe”), and the other about the number of activities that were limited by the pain (“None,” “Some,” “Several” or “Most”).

Since the HUI3 pain questions were asked before the DSQ, for this comparison, if respondents said “No” to all DSQ filters, their disability status (and that for each type) would be set to “No,” even if the HUI3 pain questions indicated otherwise. This was done for consistency with other disability types, which are set to “No” when all filters are negative.

Disability Definition #1: Include all “Rarely” answers

For this definition, if daily activities were at least “Rarely” limited, this counted as a disability (except for Developmental). Table 2A illustrates this first definition. For the CCHS, the pain definition comprised people for whom “Some,” “Several” or “Most” activities were limited.

Table 2A
Disability Definition #1, using the Disability Screening Questions

	How often are your daily activities limited by...?				
How much difficulty do you have...?	Never	Rarely	Sometimes	Often	Always
No difficulty	No disability	Disability	Disability	Disability	Disability
Some difficulty	No disability	Disability	Disability	Disability	Disability
A lot of difficulty	No disability	Disability	Disability	Disability	Disability
Cannot do	No disability	Disability	Disability	Disability	Disability

Source: Statistics Canada, Canadian Survey on Disability, 2012.

Disability Definition #2: Exclude all “Rarely” answers

For this definition, if daily activities were “Sometimes,” “Often” or “Always” limited, this counted as a disability (except for Developmental). Table 2B illustrates this second definition. For the CCHS, the pain definition comprised people for whom “Several” or “Most” activities were limited.

Table 2B
Disability Definition #2, using the Disability Screening Questions

	How often are your daily activities limited by...?				
How much difficulty do you have...?	Never	Rarely	Sometimes	Often	Always
No difficulty	No disability	No disability	Disability	Disability	Disability
Some difficulty	No disability	No disability	Disability	Disability	Disability
A lot of difficulty	No disability	No disability	Disability	Disability	Disability
Cannot do	No disability	No disability	Disability	Disability	Disability

Source: Statistics Canada, Canadian Survey on Disability, 2012.

Disability Definition #3: Include some “Rarely” answers

This definition falls between definitions 1 and 2. If respondents reported that their activities were “Rarely” limited, the intensity of difficulty was taken into account; if it was “A lot of difficulty” or “Cannot do it at all,” this counted as a disability. If it was “No difficulty” or “Some difficulty,” it was not considered a disability. Table 2C illustrates this third definition. Again, the definition for Developmental remained the same. To mimic this definition for the pain questions in the CCHS, respondents for whom “Several” or “Most” activities were limited, and those for whom “Some” activities were limited and who also reported that the pain was “Moderate” or “Severe,” were included.

Table 2C
Disability Definition #3, using the Disability Screening Questions

	How often are your daily activities limited by...?				
How much difficulty do you have...?	Never	Rarely	Sometimes	Often	Always
No difficulty	No disability	No disability	Disability	Disability	Disability
Some difficulty	No disability	No disability	Disability	Disability	Disability
A lot of difficulty	No disability	Disability	Disability	Disability	Disability
Cannot do	No disability	Disability	Disability	Disability	Disability

Source: Statistics Canada, Canadian Survey on Disability, 2012.

This third definition could not be used for the Other type, because no question was asked about the intensity of difficulty for that type. Therefore, only respondents who reported that their activities were “Sometimes,” “Often” or “Always” limited were included (as in definition 2).

Comparisons of the 3 definitions

Table 3 shows disability rates for each of the 10 disability types according to the three definitions, based on the LFS and CCHS quantitative test data. Except for the pain questions, which differed on the two surveys, both used the DSQ and data were collected in September and October of 2011.

Table 3 also shows disability rates from the 2006 PALS (15 or older rates excluding the territories and collective dwellings[34]). When the DSQ quantitative tests were conducted, the 2006 PALS was the most recent benchmark survey to measure disability at Statistics Canada. The 2006 PALS results are not directly comparable to those of the LFS and CCHS: they used a different set of questions; the PALS was administered to a pre-filtered population; and data were collected in 2006. The PALS rates are presented to help understand the impact of the DSQ. The PALS rates were however age-standardized to account for aging of the population.

Table 3
Disability rates from different surveys using three definitions, by type of disability, Canada excluding the Territories, 2011 and 2006

	Labour Force Survey 2011			Canadian Community Health Survey 2011			Participation and Activity Limitation Survey 2006
	Include all rarely[1]	Exclude all rarely[2]	Include some rarely[3]	Include all rarely[1]	Exclude all rarely[2]	Include some rarely[3]	2006 definition[4]
Type of disability	disability rates (%)						
Seeing	5.7	3.6	3.7	7.5	3.9	4.0	3.3
Hearing	6.6	3.5	3.6	8.3	4.0	4.2	5.2
Mobility	10.2	8.1	8.3	10.2	7.6	8.0	11.8
Agility (i.e. Flexibility or Dexterity)	13.6	10.2	10.4	15.0	10.5	11.0	11.4
Pain	19.7	14.3	14.8	13.4	8.3	11.6	12.0
Learning	4.3	3.3	3.4	5.0	3.4	3.5	2.5
Developmental	0.8	0.8	0.8	0.7	0.7	0.7	0.5
Mental health-related	8.7	5.6	5.9	10.2	6.2	6.6	2.3
Memory	4.2	3.1	3.2	4.3	3.0	3.0	2.0
Unknown	1.4	1.5	1.4	2.6	2.2	1.9	0.5
Total disability	29.0	22.5	22.8	35.6	25.6	27.3	17.0

1. Corresponds to the first definition of disability shown in Table 2A.
2. Corresponds to the second definition of disability shown in Table 2B.
3. Corresponds to the third definition of disability shown in Table 2C.
4. This survey uses its own definition of disability. Territories and collective dwellings were excluded and data was age-standardized.

Sources: Statistics Canada, Labour Force Survey and Canadian Community Health Survey 2011, and Participation and Activity Limitation Survey 2006.

For both the LFS and CCHS, a large difference between the overall disability rates based on the first and second definitions is apparent: about 7 and 10 percentage points, respectively. Examination of the data revealed that a substantial number of respondents indicated that they had “Some” difficulty with a particular task, which “Rarely” limited their daily activities; it is unlikely that these people actually had a disability. For this reason, from the outset, the second definition (which excludes “Rarely” answers) was preferred over the first one.

However, some respondents who reported being “Rarely” limited, also reported having “A lot of difficulty” or “Cannot do at all.” These people likely had cyclical or episodic disability which, when experienced, had a strong impact. In the LFS data, this group is proportionally larger among those with mental health-related disabilities, pain disabilities, memory disabilities, and learning disabilities. Many underlying conditions for pain disabilities and mental health-related disabilities are cyclical—for example, migraines, depression, anxiety, etc. As well, some people may always have an underlying condition that limits them only in certain environments. For example, people with learning disabilities who are no longer in school or other learning-focused situations may only be limited in certain situations. These people are included among the population with disabilities, which is why the third definition is proposed. In some DSQ documentation and in this report, the third definition is called the **RACXR** definition (R for “Rarely,” A for “A lot,” C for “Cannot,” and XR for exclude “Rarely” for the type “Other”).

Based on the third definition, the disability rate was 22.8% for the LFS, and 27.3% for the CCHS. Disability rates by type for this definition were similar for the LFS and CCHS, except for pain because of the use of different questions.

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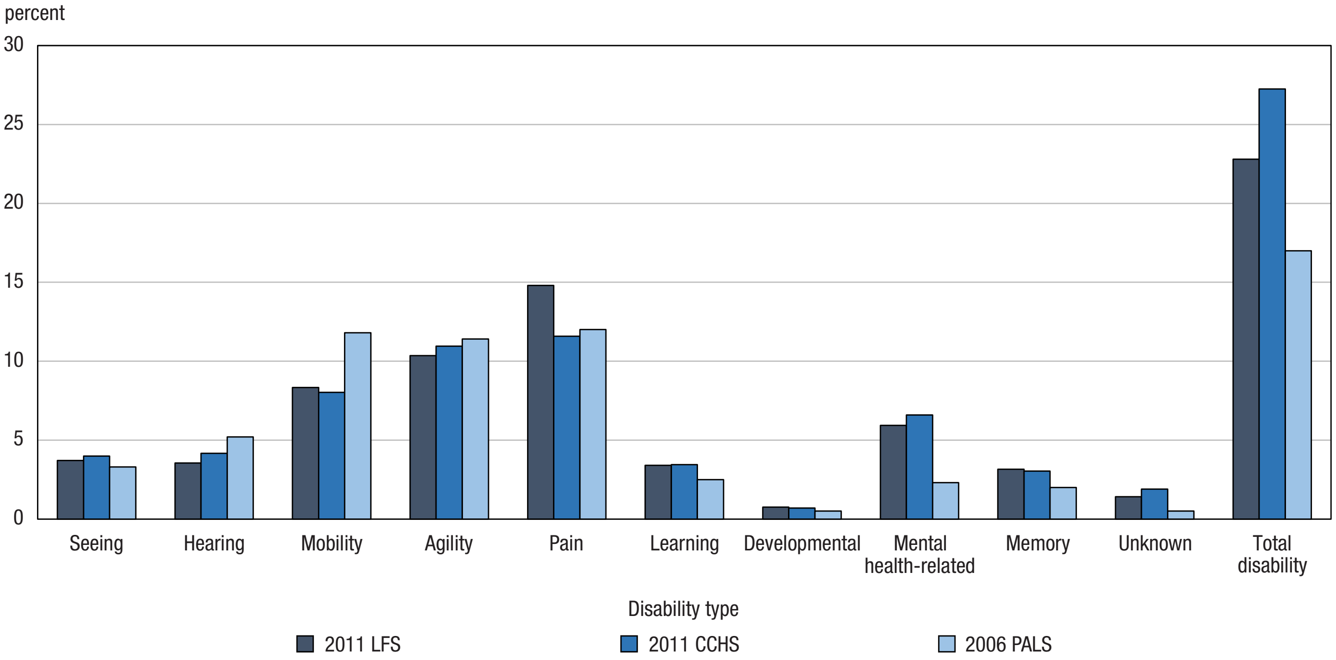
[34] In the 2006 Census, some nursing homes received the long-form questionnaire, making them eligible to be selected for the PALS. To be comparable with LFS and CCHS results, these cases were excluded from the 2006 PALS data in this analysis.

The results from the LFS and CCHS tests were compared with those of the 2006 PALS to determine if the differences were as expected. It was anticipated that DSQ rates would be lower for some disability types because of the requirement for activity limitations, while for other types, DSQ rates would be higher because the population was not pre-filtered by the Census questions.

The rates of most disability types are close (Chart 3). Flexibility and Dexterity for the DSQ were combined into Agility to allow comparison with the PALS.

Chart 3
Disability rates from different surveys using the third definition, by type of disability, Canada excluding the Territories, 2011 and 2006



Sources: Statistics Canada, Labour Force Survey (LFS) and Community Health Survey (CCHS) 2011, and Participation and Activity Limitation Survey (PALS) 2006.

Mobility

The prevalence rates of mobility disability in the LFS and CCHS (8.3% and 8.0%, respectively) are much lower than in the PALS (11.5%), mainly because the PALS did not require activity limitations to identify mobility disability. If the requirement for activity limitations is removed from the DSQ definition, the prevalence of having at least some difficulty with a mobility task is 12.1% and 12.9%, respectively, for the LFS and CCHS.

Pain

The prevalence rate for pain from the DSQ (only the LFS used the DSQ for pain) is higher than that from the PALS. This may be surprising because the questions are very similar, and the PALS required activity limitations to identify pain disabilities. The main reason for the difference is that the PALS was administered to a pre-filtered population based on the 2006 Census filter questions. The Census questions are not effective in filtering-in people with less visible disabilities. Consequently, people whose pain affects only their cognitive abilities (difficulty concentrating, for example) may not have been covered by the PALS. This could also be the case for people who experience migraines.

Learning

As anticipated, the learning disability rate from the DSQ is higher than that from the PALS. The PALS pre-filtered population tended to exclude people with non-physical disabilities. The PALS disability definition for learning did not require activity limitations; if it had, the PALS rate would have been even lower.

Mental health-related

The DSQ rate for mental health-related disability is much higher than the PALS rate. Although the PALS required activity limitations for this disability type, it relied on a pre-filtered population, and the filters are inefficient in capturing people with non-physical disabilities.

4.4.2. The DSQ on the Canadian Survey on Disability

Based on the analysis of the quantitative tests results, the DSQ module was considered ready for use in the 2012 Canadian Survey on Disability (CSD).

The CSD underwent qualitative testing that included the DSQ. To ensure that the choice of the DSQ over the PALS screeners was the right one, the PALS screeners were also tested for some interviews. The DSQ flow was superior; the DSQ were clearer and easier to understand, and they raised few queries. Only minor wording changes were made to the DSQ after this qualitative testing.

Including the DSQ on the CSD was an improvement over the PALS screeners, but the CSD suffered from the same drawback: it used a population that was pre-filtered based on the Census filter questions that were put on the National Household Survey (NHS).[35] Consequently, people with non-physical disabilities would continue to be underrepresented. For this reason, although the DSQ would be used on the CSD, the DSQ filter questions would be “turned off”; that is, everyone would be asked the screeners regardless of their responses to the DSQ filters. Given that the population was already pre-filtered, it was not necessary to filter it again.

During collection, the CSD used the most inclusive definition of disability to identify people who would go through the entire survey questionnaire. Hence, respondents who reported being at least “Rarely” limited in their daily activities (definition 1 described previously) were flagged to continue with the full CSD interview. During data processing, further analysis using the different definitions of disability facilitated a decision about whether people who are “Rarely” limited should be considered persons with a disability. Based on the CSD data and feedback from interviewers,[36] the third definition (RACXR) was chosen—people who were “Rarely” limited were considered to have a disability only if they also said they had “A lot of difficulty” or “Cannot do at all.”

Chart 4, which displays disability rates from the 2011 LFS and the 2012 CSD based on the third definition, shows the impact of administering the DSQ to a pre-filtered population using the NHS filter questions, as well as the impact of doing a post-censal survey 18 months after the NHS. It is likely that some persons who had a disability at the time of the NHS no longer had it when they were interviewed for the CSD, due to surgery, medication or other reasons.

The CCHS results are not shown[37] because the pain questions were from the HUI3 and not the DSQ.

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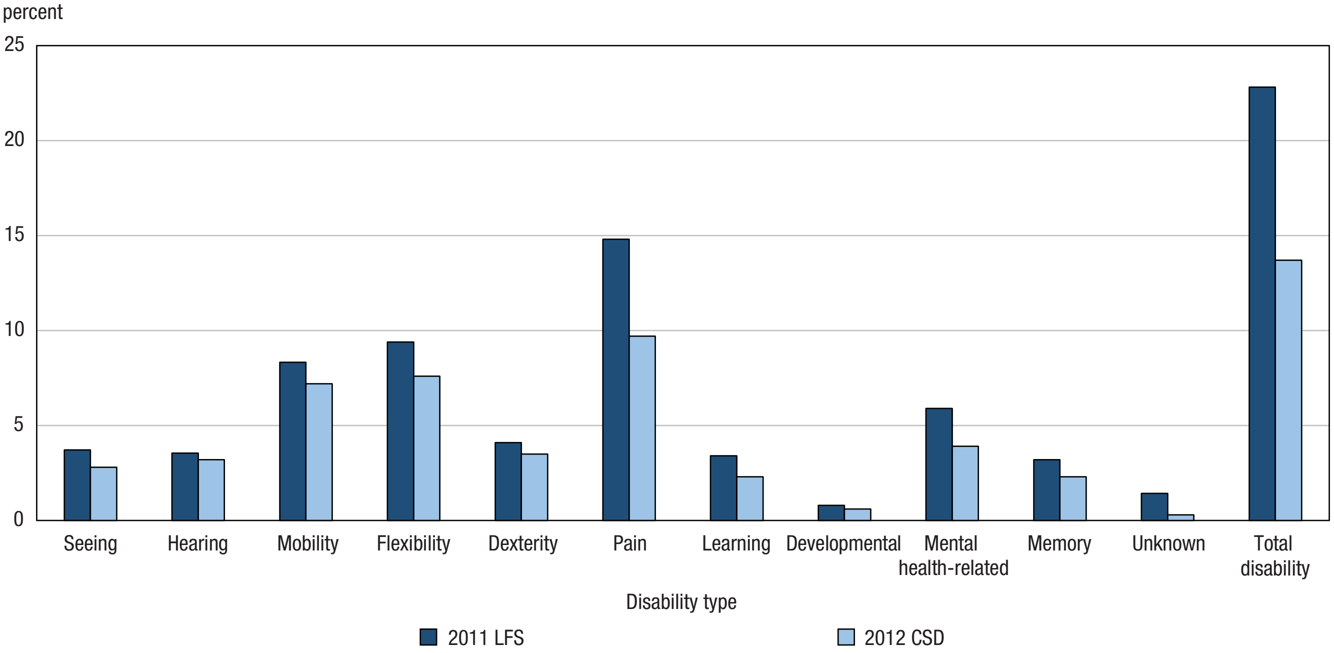
[35] The National Household Survey (NHS) replaced the long-form Census in 2011. The 2006 Census filter questions were used on the 2011 NHS to identify people likely to have a disability, and thereby, create the sampling frame for the CSD. This is why the term NHS filter questions is used. By the time the DSQ was created, it was too late to change the NHS filter questions.

[36] Interviewers reported that people who were only “rarely limited” complained about having to answer the entire questionnaire, which, they said, did not apply to them.

[37] Chart 3 shows the CCHS results.

Chart 4
Disability rates from different surveys using the third definition, by type of disability, Canada excluding the Territories, 2011 and 2012



Sources: Statistics Canada, Labour Force Survey (LFS) 2011 and Canadian Survey on Disability (CSD) 2012.

The consequence of working with a population that was pre-filtered by the NHS filter questions is substantial. These questions tend to exclude people with very mild disabilities of any type, and those with non-physical disabilities. Hence, for all disability types, the CSD rates are lower than the LFS rates. The disability types most affected by pre-filtering (highest relative differences between LFS and CSD) are pain, mental health-related, and learning.

This comparison demonstrates the need for better filter questions on the next NHS, a topic that will be discussed in Section 7.

4.5. Official definition of disability using the long DSQ[38]

Analysis of the entire CSD content made it possible to select the proper definition of disability for use with the DSQ. As mentioned previously, for each disability type, the DSQ include at least one question on the associated level of difficulty (“No difficulty,” “Some difficulty,” “A lot of difficulty,” or “Cannot do”) and a question on the frequency of the limitation of daily activities (“Never,” “Rarely,” “Sometimes,” “Often,” or “Always”). To consider someone as having a disability for a given type, the frequency of limitation of daily activities must be “Sometimes,” “Often” or “Always,” or it must be “Rarely” combined with a difficulty level of “A lot” or “Cannot do” (Table 4). The exception is Developmental disability, for which a diagnosis is sufficient to be considered as having a disability. Also, for the Other type, disability requires being limited “Sometimes,” “Often” or “Always.” This corresponds to the third definition (Section 4.4.1.2).

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[38] This definition was used in the 2012 CSD with the long DSQ. For operational reasons, a different definition must be used with the short DSQ, as explained in Section 6.

Table 4
Official definition of disability using long Disability Screening Questions

	How often are your daily activities limited by...?				
How much difficulty do you have...?	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**
No difficulty	No disability	No disability	Disability	Disability	Disability
Some difficulty	No disability	No disability	Disability	Disability	Disability
A lot of difficulty	No disability	Disability	Disability	Disability	Disability
Cannot do	No disability	Disability	Disability	Disability	Disability

Source: Statistics Canada, Canadian Survey on Disability, 2012.

4.6. Length of the DSQ

One of the goals was to have a DSQ module that would take an average of 2 minutes to administer. The “Audit Trail” files from the LFS and CCHS quantitative tests showed that the average time to administer the DSQ on the LFS was around 3 minutes, and on the CCHS, closer to 4 minutes. As noted, the CCHS had a much higher filter-in rate because respondents were more likely to report difficulties to the DSQ filter questions, which increased the average interview time.

Three to four minutes may be too long for inclusion on general population surveys, which prefer to devote more interview time to specific subject matter. As a result, a shorter version of the DSQ was developed. The short DSQ version averages less than two minutes per respondent and identifies five broad disability types: Seeing, Hearing, Physical (combining Mobility, Flexibility, Dexterity, and Pain), Cognitive (combining Learning, Developmental, and Memory), and Mental health-related, plus an Unknown category. Because the short version combines some disability types, it does not allow calculation of a severity score.

The short DSQ version is described in Section 6.

5. Severity score[39]

One of the goals of the DSQ was to make it possible to calculate a severity score. For each disability type, data are collected on the intensity of the difficulty and on the frequency of activity limitations, which can be combined to compute a global score. The score had to satisfy the following three criteria: it had to increase with the number of disability types; increase with the level of difficulty associated with the disability; and increase with the frequency of activity limitation.

The method used to calculate a severity score for each disability type and the global score that takes all types into account, is described below. The score was developed with the data from the 2012 CSD.

5.1. Score for each disability type

Using a scoring grid that takes into account both the frequency of activity limitations ("Never," "Rarely," "Sometimes," "Often," or "Always") and the intensity of difficulties ("No difficulty," "Some difficulty," "A lot of difficulty," or "Cannot do"), a score is assigned to each disability type (Table 5A). The score increases with the frequency of the limitation and the level of difficulty. Hence, someone who reports always being limited in his or her activities and being unable to do an activity will have the maximum score for that disability type.[40] In the grid, the most severe responses have higher scores, moderate responses have mid-range scores, and mild responses have lower scores. The designation of severe, moderate and mild responses is not the same as the overall severity class description in Section 5.4; this is only a way of qualifying the combination of answers for a given type.

Table 5A
Scoring grid based on intensity of difficulty and frequency of daily activity limitations

	How often are your daily activities limited by...?				
How much difficulty do you have...?	Never	Rarely	Sometimes	Often	Always
No difficulty	0	0	2[1]	3[1]	4[2]
Some difficulty	0	0	4[2]	6[2]	12[3]
A lot of difficulty	0	3[1]	6[2]	18[3]	20[3]
Cannot do	0	4[2]	12[3]	20[3]	24[3]

1. Mild responses
2. Moderate responses
3. Severe responses

Source: Statistics Canada, Canadian Survey on Disability, 2012.

The score for each disability type is then normalized to a value between 0 and 1 by dividing the score in each cell by the maximum score, which is 24 (Table 5B).

Table 5B
Normalized score based on intensity of difficulty and frequency of daily activity limitations

	How often are your daily activities limited by...?				
How much difficulty do you have...?	Never	Rarely	Sometimes	Often	Always
No difficulty	0.0000	0.0000	0.0833[1]	0.1250[1]	0.1667[2]
Some difficulty	0.0000	0.0000	0.1667[2]	0.2500[2]	0.5000[3]
A lot of difficulty	0.0000	0.1250[1]	0.2500[2]	0.7500[3]	0.8333[3]
Cannot do	0.0000	0.1667[2]	0.5000[3]	0.8333[3]	1.0000[3]

1. Mild responses
2. Moderate responses
3. Severe responses

Source: Statistics Canada, Canadian Survey on Disability, 2012.

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[39] The information in this section was taken in large part from: Canadian Survey on Disability, 2012: Concepts and Methods Guide (product number 89-654-X2014001).

[40] The score in each cell was obtained by multiplying the score given to the Intensity of difficulty (No difficulty = 1 point, Some difficulty = 2 points, A lot of difficulty = 3 points, and Cannot do = 4 points) and the score given to the Frequency of limitations (Never = 0 point, Rarely = 1 point, Sometimes = 2 points, Often = 3 points, and Always = 4 points). For the more severe responses, the scores were further increased because these answers reflected situations substantially more severe than the other responses. Scores for the non-disabled (Never limited or Rarely limited with No difficulty or Some difficulty) were set to 0.

Special cases

The scoring grid was used for most disability types, but was adapted in three special situations.

First, the DSQ had no questions on the intensity of the difficulty for the “Unknown” type. Consequently, only those who reported being limited “Sometimes,” “Often” or “Always” were considered to have a disability. Because, by definition, respondents with an “Unknown” type have only one type of disability, the intensity distribution for other respondents who had only one of the 10 disability types was examined. In most cases, the intensity level was “Some difficulty.” Hence for the “Unknown” type, the scoring grid (Table 5B) was used, and the intensity level was set at “Some difficulty.” “Sometimes” responses were given 0.1667 points; “Often” responses, 0.25 points; and “Always” responses, 0.50 points.

The second special case was developmental disorders. Someone reporting this disorder is automatically deemed to have a disability, regardless of the level of difficulty and frequency of limitations. To avoid situations where people with a developmental disorder have a score that is very low or 0, a minimum score was assigned based on the grid. If the reported frequency of the limitation was “Never,” or “Rarely” combined with “No difficulty” or “Some difficulty,” the score was set to 0.0833 (the minimum for any other disability type). A minimum score was assigned in about one of every five cases of developmental disorders.

The third special case pertains to the “mobility” and “flexibility” disability types, for which two questions are asked about the intensity of the difficulty, rather than one. To calculate the severity score for these two types, the higher intensity reported on the two questions was used, combined with the frequency of the limitation. The higher intensity for the two questions (rather than an average) was chosen because it was preferable for each of the 10 disability types to have the same importance in the calculation of the overall score. The need for two questions to establish if a respondent has mobility or flexibility difficulty should not lower that person’s score when the answer to one question is “No difficulty” and the answer to the other is “Cannot do,” for example.

5.2. Severity class for each disability type

For **each disability type**, two severity classes were defined: less severe and more severe. People with a score of 0.5 or more for a disability type are assigned to the more severe class for this type; others are assigned to the less severe class. People scoring 0 for a type are classified as not having that disability type.

In the CSD analytical file, variables for the severity class of each disability type were created (**DVIS_CL** for seeing, **DHEA_CL** for hearing, **DMOB_CL** for mobility, **DFLE_CL** for flexibility, **DDEX_CL** for dexterity, **DPAI_CL** for pain, **DLEA_CL** for learning, **DDEV_CL** for developmental, **DEMO_CL** for mental health-related, **DMEM_CL** for memory, and **DUNK_CL** for unknown). Each variable takes one of the following values:

0 = no disability

1 = less severe

2 = more severe

5.3. Overall severity score

The **overall severity score** takes into account every disability type that a person has. It is the average of the scores computed for the 10 disability types. Consequently, the more types of disability a person has, the higher the score. By definition, the overall score is also a number between 0 and 1. People who report no disability for the 10 types but report another health problem or condition (“unknown” type) have an overall score equal to the score for the “Unknown” type divided by 10.

In the CSD analytical file, a variable for the overall score was created: **DSCORE**.

5.4. Overall severity class

To make the severity score easier to use, severity classes were established. The name assigned to each class is intended to facilitate its use; it is not a label or judgment about an individual's level of disability. People in class 1 have a less severe disability than people in class 2; the latter have a less severe disability than people in class 3; and so on. In the CSD analytical file, a variable, **DCLASS**, was created for overall severity class:

1 = mild

2 = moderate

3 = severe

4 = very severe

The cut-off point between classes 2 and 3 was first determined graphically. A natural discontinuity in the distribution of the overall score is apparent near the value of 0.1. This value corresponds to the score of a person who received the maximum number of points for a **single** disability type, which puts the person in the *severe* class. To be classified as *very severe*, a person has to have double that score, or 0.2, which corresponds to the score of a person who would have received the maximum number of points for two disability types, for example. The cut-off point between class 1 and class 2 is half the score required for class 3 (0.05), which is the score of a person in one of the most severe cells for one disability type, for example.

The distribution of persons with a disability across the four severity classes in the 2012 CSD is shown in Table 6.

Table 6
Distribution of persons with a disability, by severity class, Canada, 2012

	Persons with a disability	
Severity class	**(number)**	**(percent)**
Class 1 = mild	1,195,590	31.7
Class 2 = moderate	747,980	19.8
Class 3 = severe	849,540	22.5
Class 4 = very severe	982,810	26.0

Source: Statistics Canada, Canadian Survey on Disability, 2012.

5.5. Overall score for persons without a disability (2012 CSD only)

Typically, persons without a disability would have an overall severity score of 0, but an exception was made for the 2012 CSD. As noted previously, when the CSD was sent to the field for collection, the final decision on who would be considered a person with a disability (should the "Rarely" answers be included?) based on the DSQ had not been made. Therefore, people who were only rarely limited had to complete the entire CSD interview even though they might ultimately be considered not to have a disability.

A score was computed for these respondents so that their characteristics could be studied. This group is called "Soft Rarely"—they reported being limited "Rarely" with "No" or "Some" difficulty. Respondents who reported "Never" being limited (except those with a developmental disability) have a score of 0.

The number of points used to calculate the scores for the "Soft Rarely" was deliberately set very low to ensure that people who reported being "Rarely" limited with "No" or "Some" difficulty for several disability types would not receive a higher score than someone considered to have a disability under the CSD definition. The points assigned to these responses are shown in Table 7A.

Table 7A
Scores for persons reporting “Soft Rarely” disabilities

	How often are your daily activities limited by...?				
How much difficulty do you have...?	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**
No difficulty	...	0.1	...	...	...
Some difficulty	...	0.2	...	...	...
A lot of difficulty	...	...	...	...	...
Cannot do	...	...	...	...	...

... not applicable
Source: Statistics Canada, Canadian Survey on Disability, 2012.

The score for each disability type is normalized to a value between 0 and 1 by dividing it by the maximum score of 24 (as shown in Table 5A). Table 7B shows the normalized scores for persons reporting “Soft Rarely” disabilities.

Table 7B
Normalized scores for persons reporting “Soft Rarely” disabilities

	How often are your daily activities limited by...?				
How much difficulty do you have...?	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**
No difficulty	...	0.0042	...	...	...
Some difficulty	...	0.0083	...	...	...
A lot of difficulty	...	...	...	...	...
Cannot do	...	...	...	...	...

... not applicable
Source: Statistics Canada, Canadian Survey on Disability, 2012.

For the “Soft Rarely” group, even though a score for each disability type had to be calculated to obtain the global score, the score for each type was reset to 0 in the final file. The number of disability types was also set to 0. This is to avoid confusion when examining a specific disability type, since the “Soft Rarely” should not be considered as having a disability.

6. The short DSQ

This section explains the need for a shorter version of the DSQ and the stages involved in its development.

6.1. Why a short DSQ?

The DSQ have several advantages: 1) they are entirely based on the social model of disability and take into account activity limitations to identify disability (except developmental, which is by design); 2) they cover 10 disability types; 3) they provide better coverage of non-physical disability types with filter questions at the beginning of the questionnaire that are more inclusive than the NHS filter questions; 4) they contain all the information needed to compute a severity score based on the intensity of difficulty and frequency of activity limitation for each disability type.

As well, qualitative tests and quantitative tests showed that the DSQ yield a valid and reliable measure of disability. People respond to the DSQ as expected. Quantitative tests with the LFS and CCHS revealed that the DSQ provide very comparable measures of disability, even when administered in surveys with different contexts.

The main drawback of the DSQ is length. Based on the two major quantitative tests, it takes 3 and 4 minutes on average to administer. Most general population surveys cannot afford to add an extra 3 or 4 minutes of content, especially if the main topic is not directly related to disability.

Several ideas that were proposed for shortening the DSQ would have required dropping questions and combining others, which would confuse respondents. Extensive qualitative testing would have been needed to evaluate respondents' ability to understand these new questions.

6.2. Minimum requirements of the short DSQ

One of the motivations for developing the DSQ was Statistics Canada's decision to remove the Census filter questions from general population surveys because the questions, on one hand, included too many people who did not have a disability (false positives), and on the other hand, did not adequately capture the full range of PWD (false negatives). General population surveys that used these questions were reporting very different rates of disability. Part of the research strategy at ESDC was to make better use of all survey data on PWD. This meant that general population surveys that focussed on specific themes would need a short module to identify PWD to replace the old Census filter questions.

If the only goal is to replace the old Census filters, the minimum requirement for the short DSQ is to identify only PWD and not type of disability or severity.

6.3. A preliminary version of the short DSQ

The aim was to create a short version of the DSQ similar to and compatible with the long version. The same questions could be used, but the way they were administered had to change to reduce the time.

6.3.1. Identifying disability only (IDO version of the short DSQ)

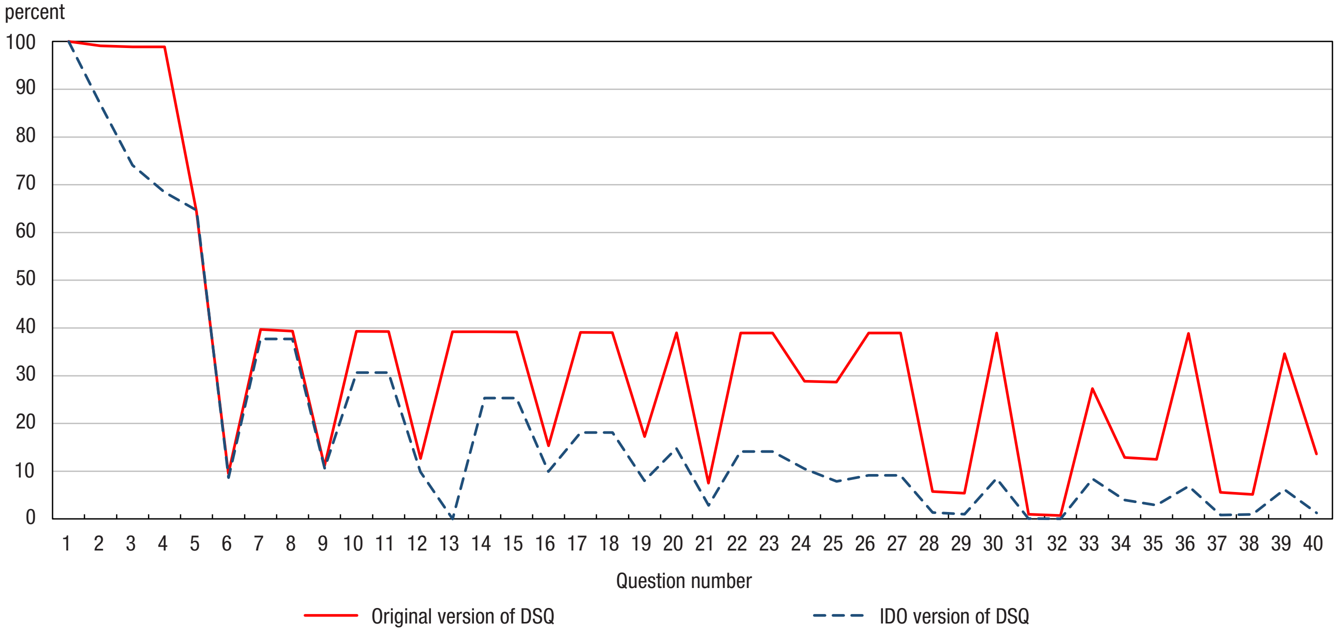
If the only goal of the short DSQ was to identify PWD without details on disability type, the DSQ could be administered as is, and when the first disability type was identified, the module could stop because the respondent was identified as having a disability. This would reduce average interview time because many people have more than one disability type, and it would not be necessary to go through all the screeners to find them all. To save even more time, the same could be done with the filter questions: as soon as a first filter was "Yes," the other filters could be skipped because the screeners would be asked. The main advantage is that this yields the **same disability rate** as the long version of the DSQ. The only difference is that this short version would not generate information on all disability types, and consequently, would not provide the information needed to compute a severity score.

This **was not** the final version of the short DSQ, but it triggered ideas that culminated in the creation of the short DSQ. This first prototype was called the "Identify Disability Only" version (IDO).

To determine if this change would be sufficient to reduce the average interview time, the "Audit Trail" files from the LFS quantitative test of the long DSQ were used. A simulation was performed to discover which questions would have been skipped if the IDO version had been used, and how much time would have been saved. The time to administer the IDO version would average 1 minute 54 seconds.

Chart 5 illustrates how the IDO version affects the proportion of people who are asked each question, compared with the long version. The numerous questions that are skipped in the IDO version make the proportion of people asked each subsequent question smaller and smaller, compared with the original DSQ.

Chart 5
Percentage of respondents asked each question in the original Disability Screening Questions and the Identify Disability Only version



Source: Statistics Canada, Labour Force Survey, 2011.

6.3.2. Synchronizing the IDO version of the short DSQ

Given that the IDO version still required nearly 2 minutes to administer and yielded so little information (only the presence of a disability), additional options were sought. To reduce the interview time of the IDO version, it was proposed that the answers to the filter questions be used to decide which screeners would be asked. In the original DSQ, if one filter is positive, all screeners are asked. The proposal was to "synchronize" the screeners with the filters based on their conceptual relationship. Each disability type is related to a category of disability, and each category of disability is associated with one filter question (Table 8).

Table 8
Relationship between filter questions and disability types in Disability Screening Questions

Filter question and category of disability	Types of disability
F1 - Sensory	Seeing, Hearing
F2 - Physical	Mobility, Flexibility, Dexterity, Pain[1]
F3 - Cognitive	Learning, Developmental, Memory
F4 - Mental health-related	Mental health-related
F5 and F6 - Other/Unknown	Other/Unknown

1. Pain is treated differently than other types in the synchronization, as is explained later on in the document.

Synchronizing the screeners with the filters means that if the answer to a given filter is “No,” all screeners for the disability types associated with that filter are skipped, because no disability is assumed for these types. This saves time, but yields a different disability rate than the long version. Based on results of the LFS or CCHS quantitative tests, respondents can reply “No” to a given filter, be filtered into the screener section on the basis of another filter question, and go on to report a disability for a type associated with the filter to which they had originally answered “No.” With synchronization, these people would be considered not to have the disability type since the associated filter is negative.

If the order of the questions remains the same, synchronizing requires that everyone be asked the first four filters; it is no longer possible to skip to the screener if a filter is positive. Therefore, although synchronizing saves time, time is added by asking all filters to everyone. However, a feature of this synchronized option is that instead of asking *all filters* at the beginning of the DSQ, followed by *all* the screeners, filters and screeners can be alternated. This improves the flow of the questionnaire by keeping questions on a related topic together. Hence, the first filter on Seeing and Hearing is asked. If it is negative, all screeners on Seeing and Hearing are skipped, and the second filter is asked. But if the first filter is positive, the Seeing screeners are asked, followed by, if no Seeing disability is found, the Hearing screeners. If no Hearing disability is found, the second filter question on physical disabilities is asked, and so on. With the IDO version, the process ceases as soon as a first disability is found.

To further reduce interview time, “Rarely” answers were excluded from the definition of disability (the second definition of disability described in Section 4.4.1.2 is used). Excluding “Rarely” means skipping the questions on intensity of difficulty for the Pain, Learning, Mental health-related and Memory disability types, since these questions come after those on frequency of activity limitations, which serve to identify disability. This change has a small impact on the disability rate derived from the short synchronized IDO version of the DSQ, compared with the long DSQ.

Using data from the LFS and CCHS quantitative tests, the impact on the disability rate of synchronizing the DSQ was assessed.[41] The relationship between each disability type indicator and its corresponding filter question was examined to determine how often a disability was present when the filter question was negative. These are the cases that are lost in the synchronized version. The impact of excluding all “Rarely” answers from the definition of disability was also evaluated.

For Pain, several options were tested. Although pain is considered a physical disability, it does not necessarily trigger the physical filter question (F2). Pain can affect concentration (F3), or even vision (F1). Therefore, it was decided that the Pain screeners should be asked if any of Filters 1 through 4 was positive.

With this option for the short DSQ (synchronized and excluding “Rarely” answers), the overall disability rate would be underestimated by 1.4 (LFS) to 3.4 (CCHS) percentage points, compared with the original long DSQ and its RACXR definition.[42]

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[41] The details of this analysis are documented in an internal working document (Grondin, 2013).

[42] Only part of the underestimation is due to synchronizing; the rest is due to excluding “Rarely.” The effect of synchronizing alone accounts for 1.1 (LFS) and 1.7 (CCHS) percentage points of the differences.

The majority (70% to 98%, depending on the disability type) of people excluded from the synchronized short DSQ reported either “No difficulty” or “Some difficulty,” and most (76% to 86%) were “Sometimes” limited. Therefore, although the disability rate is underestimated, the short DSQ exclude people with milder disabilities. Ideally, the disability rate would not be underestimated, but the aim is to create a version of the DSQ short enough for inclusion on surveys.

A simulation of this short synchronized IDO version using the LFS “Audit Trail” files showed that it averages 1 minute 33 seconds to administer.

6.4. Can the short DSQ do more?

The utility of the short DSQ would be increased if groups of disability types, instead of just the presence of a disability, could be identified. Operationally, this means that instead of skipping all screeners when a first disability type is identified, skipping would be done within broad categories or groups of disability types. Hence, when a first disability is found **in a given category**, the other screeners **in this category** are skipped, and the interview proceeds to the next category (given that the associated filter is positive).

Different groupings of disability types and their impact on average interview time were evaluated. The goal was to keep the average interview time of the short DSQ below 2 minutes, but obtain information on as many disability categories as possible.

6.5. Final version of the short DSQ

The final[43] version of the short DSQ can identify disabilities in five areas: Seeing, Hearing, Physical (including pain), Cognitive, and Mental health-related, plus Other. This final version of the short DSQ is estimated to have an average interview time just below 2 minutes, and has greater analytical value than the IDO version.

Figure 1 shows a flow chart of this version of the short DSQ.

Qualitative testing of this short version ensured that the new question order and flow did not create difficulties for respondents. One concern was switching between filters and screeners, particularly the slight difference in the answer categories (for the filter questions, “No,” “Sometimes,” “Often,” “Always”; for the screeners, “Never,” “Rarely,” “Sometimes,” “Often,” “Always”). However, the flow of questions was good; questions were clear; and interviews went smoothly.

An electronic version (EQ) of this short DSQ was also qualitatively tested in preparation for its use on the General Social Survey, which collects data using both Computer-Assisted Telephone Interviews (CATI) and EQ. The EQ version tested well. The main change (to both the EQ and CATI versions) was splitting the first filter question (F1) about seeing and hearing into two (F1S and F1H), which improved the flow.

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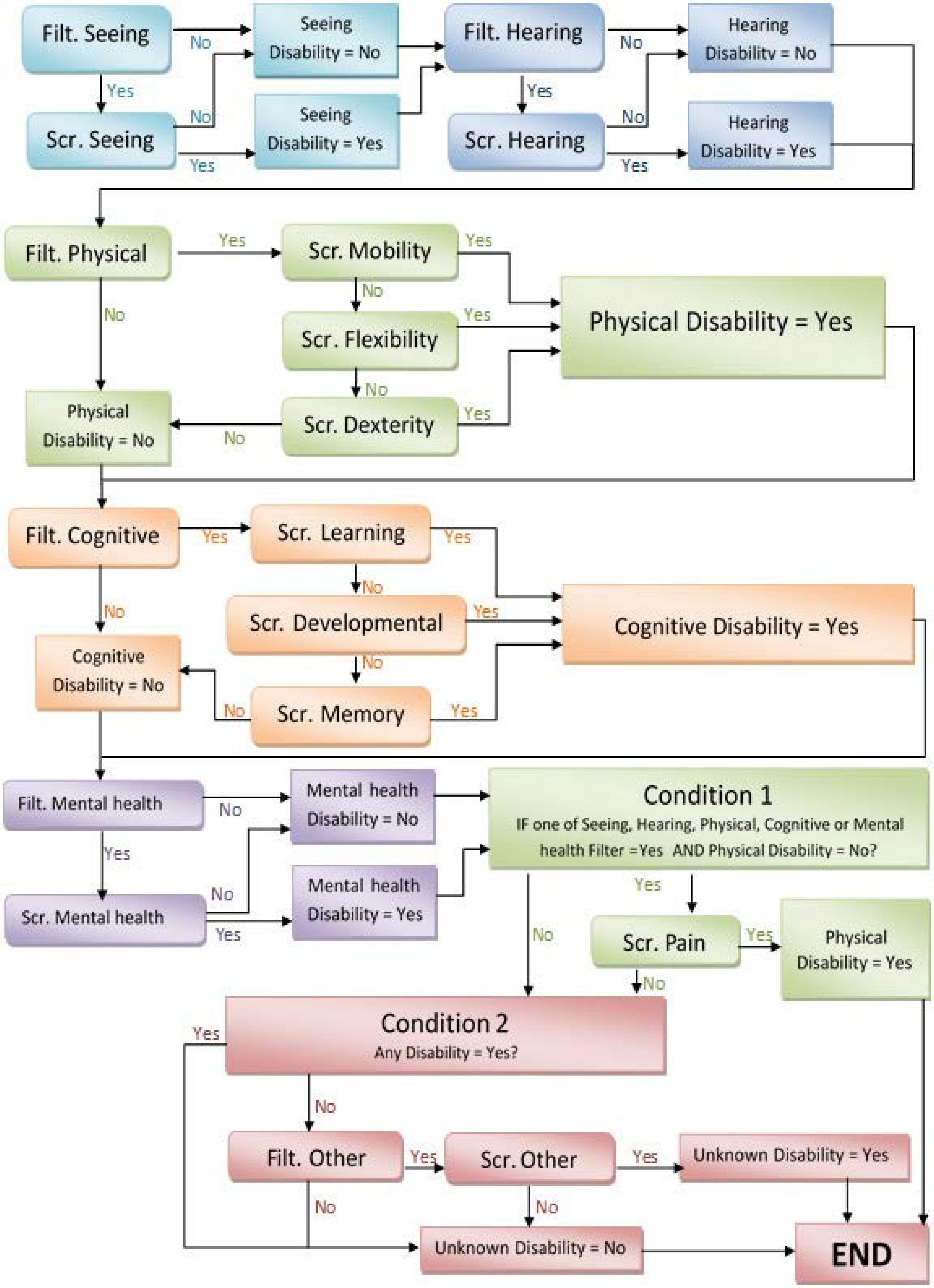
[43] This is the March 2015 version of the short DSQ; subsequent changes are documented in Section 9.

Figure 1
Flow chart for short version of Disability Screening Questions



6.6. Official definition of disability using short DSQ

For two reasons, the definition of what constitutes a disability in the short version of the DSQ is not exactly the same as in the long version. The first is synchronizing of the filters and screeners, which results in some screeners not being asked in the short DSQ (implying a negative response) if the corresponding filter is negative. The other reason is that to save interview time with the short version, people who are “Rarely” limited are excluded from the definition of disability (Definition 2 in Section 4.4.1.2). Table 9 summarizes the definition of disability in the short DSQ for all types including Other. For the Developmental type, the definition is based solely on having received a diagnosis.

Table 9
Official definition of disability using short version of Disability Screening Questions

	How often are your daily activities limited by...?				
How much difficulty do you have...?	Never	Rarely	Sometimes	Often	Always
No difficulty	No disability	No disability	Disability	Disability	Disability
Some difficulty	No disability	No disability	Disability	Disability	Disability
A lot of difficulty	No disability	No disability	Disability	Disability	Disability
Cannot do	No disability	No disability	Disability	Disability	Disability

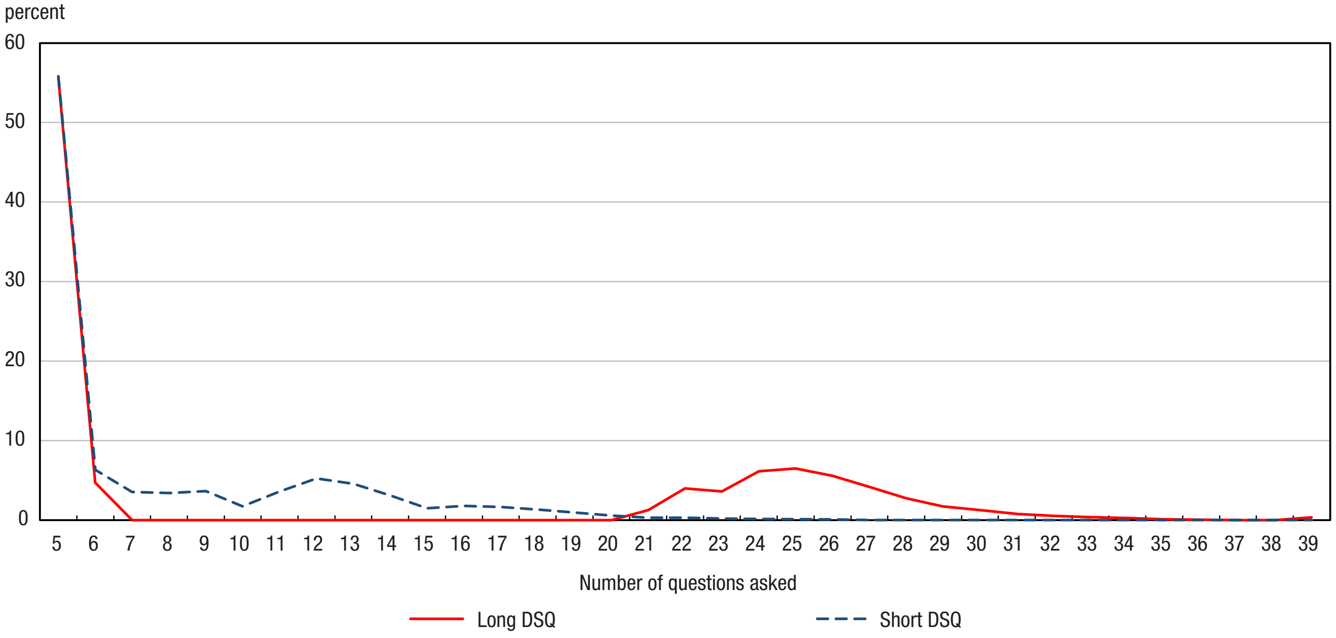
Source: Statistics Canada, Canadian Survey on Disability, 2012.

6.7. Differences between long and short DSQ

The long and short versions of the DSQ are essentially composed of the same questions, although a few questions were not included in the short DSQ. The main differences between the two versions are the question flow and skip patterns.

Chart 6 shows the distribution of the number of questions asked of respondents to the long and short versions,[44] based on the LFS 2011 test data. Because this test used the long DSQ, it was possible to determine the number of questions asked of each respondent. To estimate the number for the short version, the LFS data were modified according to the flow patterns of the short DSQ.

Chart 6
Distribution of respondents, by number of questions asked, long vs short version of Disability Screening Questions



Source: Statistics Canada, Labour Force Survey, 2011.

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[44] Because the data for this chart are from the 2011 LFS test, filter 1 is the original question combining Seeing and Hearing. In the final version of the short DSQ, filter 1 was split into two questions.

For both the long and short versions, respondents answer a minimum of 5 questions (first five filters). In fact, the majority of respondents answer only the first 5 or 6 filters. The long DSQ ask all filter questions first, and if one is positive, all screeners are asked. For this reason, the number of long DSQ respondents answering 7 to 20 questions is 0. By contrast, the short DSQ start with the first filter question, and if positive, goes on to the corresponding screeners. But if negative, the second filter is asked, and so on.

On average, respondents to the long DSQ answer 13.2 questions versus 7.9 questions for respondents to the short DSQ (Table 10).

Table 10
Percentiles of distribution of number of questions asked, long and short versions of Disability Screening Questions

	Long DSQ	Short DSQ
Percentile	number of questions asked	
Maximum	39	27
P99	33	21
P95	29	17
P90	27	14
P75	24	11
Median	5	5
Average	13.2	7.9
P25	5	5
P10	5	5
P05	5	5
P01	5	5
Minimum	5	5

Source: Statistics Canada, Labour Force Survey, 2011.

Thus, 95% of the respondents to the short version answer no more than 17 questions; for the long version, 95% of respondents answer no more than 29 questions. For both versions, more than half of respondents answer only 5 questions.

In the long DSQ, all screeners for all 10 disability types are asked if at least one filter question is positive. In the short DSQ, only the screeners associated with the positive filters are asked. Within categories of disability types, when a first disability type is identified, the screeners for the other types within this category are skipped. Also in the short DSQ, questions on the intensity of difficulty for Pain, Learning, Developmental, Mental health-related, and Memory were removed from the module, because they are not needed to identify disability. For Developmental, the question on activity limitation was also removed from the module in the short DSQ, because it is not needed to identify disability. In the long DSQ, it is not used to identify disability, but is needed to compute the severity score.

The differences between the two versions affect the results. With the long DSQ, 10 disability types can be identified, and for each one, a severity score can be computed, plus a global severity score that takes all disability types into account. For the short DSQ, only five disability categories (Seeing, Hearing, Physical, Cognitive, Mental health-related) can be identified. Since some of these categories include more than one disability type, all the information on each type required to evaluate the severity of an individual's disability is not available. For example, a respondent might have a mild disability related to Dexterity due to arthritis, and also a severe disability related to Pain due to migraines. All this information is collected with the long DSQ, but with the short DSQ, only Dexterity is asked because Dexterity and Pain are in the same category (Physical disability), and Dexterity comes first. It would be misleading if only Dexterity was considered in evaluating severity for that person. Thus, the short DSQ do not allow computation of a severity score.

Based on the long DSQ, it is possible to estimate the disability rate that the short version would yield, but the inverse is not true.

Because of the strong relationship between the two versions of the DSQ, future enhancements of one can potentially be implemented in the other. For example, the next version of the long DSQ will split the first filter (F1) into two (F1S and F1H), as in the short DSQ.

7. Current and future uses of the DSQ

The 2011 LFS and CCHS were the first opportunities to collect disability data with the long DSQ. Since then, the long and short versions have been included in several other surveys.

Canadian Survey on Disability (CSD)

The long DSQ were officially used for the first time in the Canadian Survey on Disability (CSD) in the fall of 2012, with results released in December 2013. The plans are to use the long DSQ for the next cycle in 2017.

In 2016, the DSQ filter questions[45] will replace the old filter questions on the Census long-form questionnaire.[46] A test of the DSQ filter questions compared with the old NHS filter questions in the summer of 2014 showed[47] that the DSQ filters were more inclusive; that they were more likely to include people with non-physical disabilities; and that they yielded filter-in rates similar to those observed in the quantitative tests on the LFS and CCHS.

Inclusion of the DSQ filters on the 2016 long-form Census means that they will not be put on the 2017 CSD, so the DSQ screeners will be asked of every respondent. This is comparable to the approach of the 2012 CSD—the DSQ filters were asked but not used as such because every CSD respondent had to answer all the screeners.

With the use of these new filters on the long-form Census, coverage of PWD on the next CSD will improve, because a larger number of people with non-physical disabilities will be included on the survey frame.

Longitudinal International Study of Adults (LISA)

The long DSQ were used in cycle 2 of the Longitudinal International Study of Adults (LISA), which was conducted from January through May 2014. The results have not yet been released. The plan for cycle 3 is to use the short DSQ to reduce interview time. Although the long and short DSQ do not use the same definition of disability, based on the long DSQ, the disability definition that the short DSQ would yield can be simulated. Therefore, cycle 2 results can be made comparable to those of cycle 3. Because the survey is longitudinal, it will be possible to compare the disability status of respondents from one cycle to the next.

General Social Survey (GSS)

The first official use of the short DSQ was on the 2014 GSS on Victimization (Cycle 28). Interviews for this cycle were conducted using CATI only. The short DSQ were also included in the Pilot test for the GSS on Time Use (Cycle 29) in July 2014 and in the main collection in 2015, which employed both CATI and EQ collection modes. Data for cycle 28 was released in the fall of 2015. It is planned that other GSS cycles will contain the short DSQ, including the 2016 Canadians at Work and at Home Survey (Cycle 30).

The “Audit Trail” files from cycle 28 show that the short DSQ averaged 1 minute 53 seconds to administer, which is slightly shorter than the anticipated 2-minute duration.

Canadian Income Survey (CIS)

The CIS used the short DSQ for its January to April 2014 collection. For the CIS, every member of a selected household completes the survey. In order not to increase total household interview time, only one randomly selected member was asked the DSQ. A special survey weight ensures that the sample of DSQ respondents is representative of the population aged 15 or older.

The CIS “Audit Trail” files show that the short DSQ took on average 1 minute 59 seconds to administer for the first month of collection, 1 minute 58 seconds for the second month, and 1 minute 53 seconds for the last two months.

The results were released in July, 2015. The DSQ will be used for the next survey.

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[45] All DSQ filter questions, except F6.

[46] In 2016, the Census of population will have a long-form questionnaire like it used to have in years prior to 2011.

[47] The results were documented in Grondin (2016).

8. Comparing the DSQ with other health measures

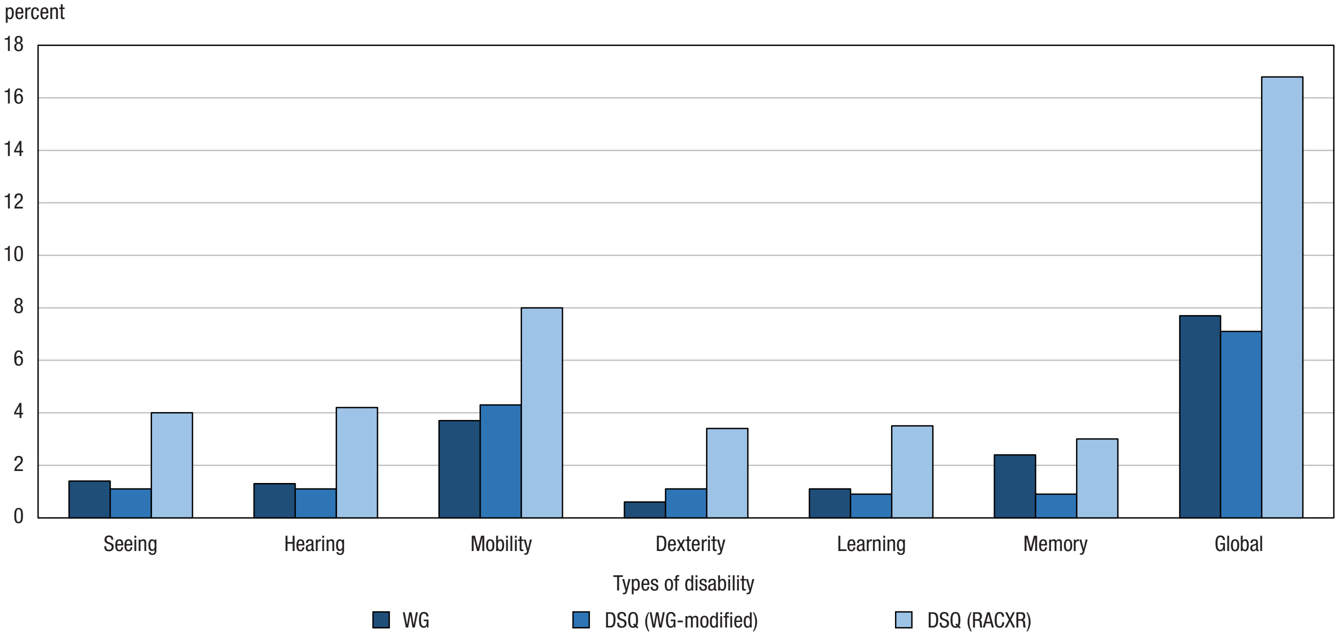
Section 2.2 described two other health measures: the Health Utilities Index Mark 3 (HUI3) and the Washington Group questions (WG). Since these three measures were all included on the Canadian Community Health Survey (CCHS) either in 2010 or 2011, a study was done to compare them.[48] It was known that these three constructs measured different concepts, but still, it was of interest to see to what extent they compared. The study showed that the DSQ and HUI3 yielded a similar overall prevalence rate (27% to 29%), but prevalence rates by disability type were higher for the DSQ. The overall WG prevalence rate was much lower[49] (about 8%), and prevalence rates for some disability types were closer to the HUI3 than the DSQ.

A follow-up study[50] was conducted to better understand the differences between the DSQ and the two other measures, the results of which are summarized below.

Comparing DSQ with WG

In terms of concepts and question wording, the most comparable DSQ and WG disability types were Seeing, Hearing, Mobility, and to some extent, Dexterity; the less comparable were Learning and Memory. For each type, the question and answer categories from the DSQ module that were the most comparable to those of the WG were used to compute a "WG-modified" DSQ rate. Chart 7 shows the WG rate, the WG-modified DSQ rate, and the original DSQ rate (RACXR definition). A global rate was also computed. For the DSQ, it was computed based on only the disability types shown on the graph. For the WG, the global rate was taken directly from Bernier's study. The Learning and Memory types are less comparable, owing to differences in concepts and question wording.

Chart 7
Disability rates based on the Washington Group and Disability Screening Questions (WG-modified[1] and RACXR[2])



1. For this rate, answers to the DSQ were used differently to yield a definition comparable to that of the WG.
2. RACXR is the name of the usual definition of disability with the DSQ.

Note: Learning and Memory are the two less comparable disability types between the WG and DSQ.
Source: Statistics Canada, Canadian Community Health Survey, 2011.

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[48] See Bernier and al. (2013)
[49] The low prevalence with the WG questions is because respondents who reported "Some difficulty" were not considered to have a disability; only those who reported "A lot of difficulty" or "Cannot do at all" were included. Prevalence rates including "Some difficulty" would have been much higher, even exceeding the HUI3 and DSQ estimates for some types. This confirms that there is more variability in who is identified with softer responses than with more severe ones.
[50] See Grondin (2014)

The WG rate and WG-modified DSQ rates are quite close, except for Memory, which is one of the less comparable types in terms of question wording.

The conclusion of the follow-up study is that if, from the DSQ module, only the questions on level of difficulty (questions on activity limitations are ignored) and the most severe levels of difficulty ("A lot" or "Cannot do") are considered, DSQ disability rates by type and overall are much closer to WG rates.

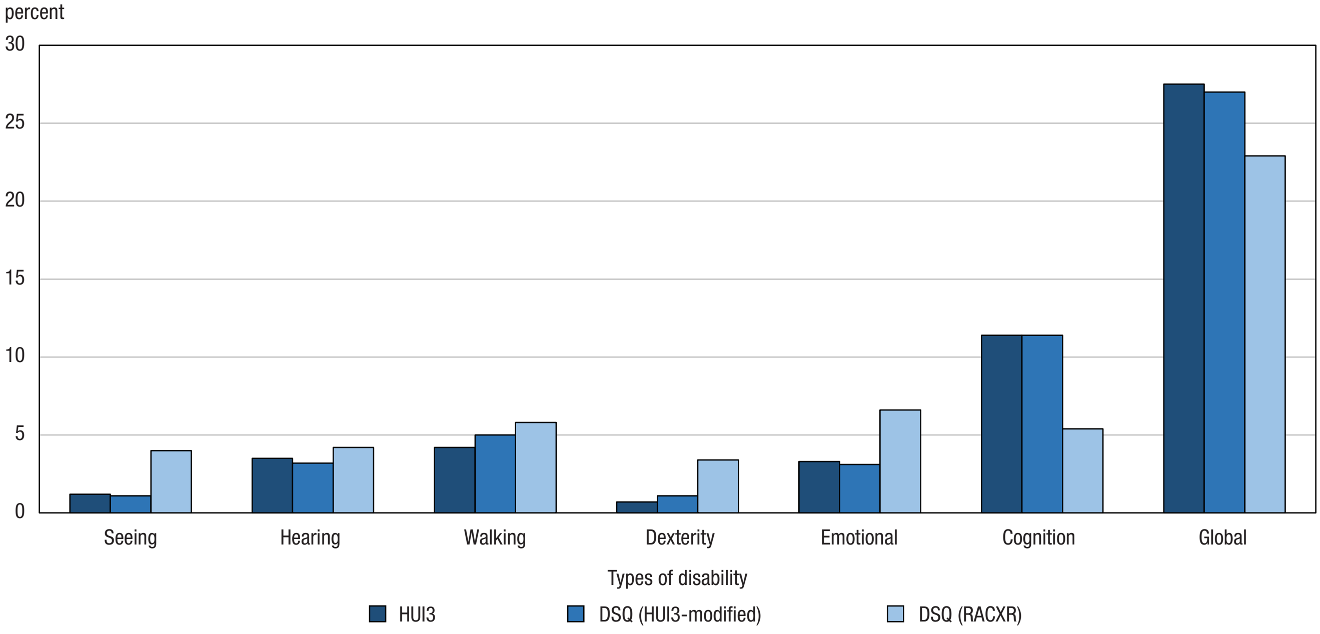
Comparing DSQ with HUI3

The DSQ and HUI3 questionnaires differ substantially. To mimic the HUI3 for some disability types, answers to several questions from the DSQ module were grouped. For example, in the HUI3, use of a Hearing or Mobility aid is considered when identifying PWD, but not in the DSQ. Thus, for the DSQ to conform to the HUI3 definition, respondents who reported using an aid had to be included among PWD, even if, according to the DSQ definition, this did not necessarily qualify them as PWD.

The most comparable disability types between the DSQ and HUI3, in terms of concepts and question wording, were Seeing, Hearing, Walking (although different from the DSQ Mobility, which also considers using stairs), and Dexterity; the less comparable were Emotional (HUI3 uses a Happy scale) and Cognition (including Learning, Memory and Developmental).

Chart 8 presents disability rates based on the HUI3, the HUI3-modified DSQ rates, and the original DSQ rates (RACXR definition). The DSQ rate for "Walking" shown in this chart is based on those people who reported difficulty walking in the DSQ (ignoring those who reported only difficulty using stairs), and whose daily activities are limited. For the DSQ, the global rate is based on the disability types in the graph plus pain. For the HUI3, the global rate was taken directly from Bernier's study. The Emotional and Cognition types are less comparable, owing to differences in concepts and question wording.

Chart 8
Disability rates based on the Health Utility Index Mark 3 and Disability Screening Questions (HUI3-modified[1] and RACXR[2])



1. For this rate, answers to the DSQ were used differently to yield a definition comparable to that of the HUI3.
2. RACXR is the name of the usual definition of disability with the DSQ.

Note: Emotional and Cognition are the two less comparable disability types between the HUI3 and DSQ.

Source: Statistics Canada, Canadian Community Health Survey, 2011.

Using the questions and answer categories from the DSQ module that are most similar to the HUI3 yields similar disability rates from both instruments. Hence, if only questions on level of difficulty are used from the DSQ module, ignoring the ones on activity limitations (as is the case in the HUI3), and if only the most severe levels of difficulty are considered ("A lot" or "Cannot do"), prevalence rates by type are close in the two instruments, and so is the global rate. To be more comparable with the HUI3 for Hearing and Walking, the DSQ must take into account the use[51] of aids. For Mobility, the HUI3 does not consider difficulty using stairs, which is taken into account in the DSQ; if only difficulty Walking is considered in the DSQ, the prevalence rate is closer to that of the HUI3. For Cognition, the DSQ definition that considers only the presence of a condition gives a closer estimate to the HUI3.

Different measures, different purposes

This follow-up study showed that the DSQ can yield results similar to those of the WG or HUI3 when comparable question and answer categories are used to define disability. Generally, a definition based on the two most severe levels of difficulty with the DSQ will produce rates similar to the WG. For the HUI3, the comparison is less direct because of the different nature of questions. Nonetheless, using a definition based on the two most severe levels of difficulty and considering the use of aids for Hearing and Walking as an indicator of disability with the DSQ will yield similar results. However, for the cognitive types, only the presence of a condition should be taken into account in the DSQ to obtain similar disability rates. (The DSQ use this definition for Developmental disability.)

The DSQ, the HUI3 and the WG each has its own purpose. The DSQ were not created to replace any of the other measures. This study only served to better understand the difference in the results from each measure. Thus, when estimates from the three measures are compared, it is expected that rates of disability will differ.

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[51] If those who report using an aid (whether or not they reported difficulty or being limited with hearing or mobility) are included among PWD, the DSQ estimate is closer to that of the HUI3.

9. Recent developments

9.1. Changes after the 2012 CSD

The 2012 Canadian Survey on Disability (CSD) long version of the DSQ is the one presented here. After the CSD, the short version was created, which incorporated changes that could benefit the long version.

Since cycle 28 of the GSS and the 2013 CIS, one change was made to the *short version*:

- To determine if the Pain screeners should be asked, at least one filter question should be positive, that is, it also considers the Other filter. To be able to do this, the Pain screeners were moved to the end of the short DSQ, after the Other filters are asked. An updated diagram of the flow of this version of the short DSQ is given in Appendix B.

Since the 2012 CSD, two changes were made to the long version:

- Filter 1 was split into two—Seeing and Hearing.
- The dynamic text for one of the Pain screeners (question S16) was changed so that respondents who said "Yes" to having pain that is always present (question S15) would then be asked (S16): "Do you **also** have periods of pain that reoccur from time to time?" The word "also" does not appear in S16 for people who said "No" to S15.

9.2. Using the long DSQ on the CSD

As mentioned in Section 7, the long version of the DSQ that will be used on the next CSD will no longer include filter questions. The DSQ filters (except Filter 6) will replace the old filter questions on the 2016 long form Census, and the survey frame for the CSD will include only people who have given at least one positive answer to these filters. The DSQ version on the next CSD will be similar to that used for the 2012 CSD (version described in this report) except that all filter questions have been removed.

The definition of disability in the next CSD will be the same as that in the 2012 CSD:[52] anyone who reports being "Sometimes," "Often" or "Always" limited will be considered to have a disability, along with those who report being "Rarely" limited if they also report having "A lot" of difficulty, or "Cannot do at all." This is the RACXR definition (definition 3 in Section 4.4.1.2).

9.3. Using the long DSQ on general population surveys

In recent months, STC and ESDC discussed the possibility of creating a modified version of the long DSQ for general population surveys willing to include the long version on some cycles. If two different versions (short and long) of the DSQ are used on general population surveys, they must use the same definition of disability so that the estimates from all general population surveys are comparable.

Because the short version definition of disability is more restrictive, this new long version would have to be adapted to yield the same definition.[53] This involves synchronizing the long DSQ and excluding all Rarely answers from the definition of disability.

Advantages of a long DSQ on general population surveys

There are two advantages of including a long DSQ on general population surveys. The first is that the long version allows identification of all 10 disability types, not just the five broad categories (Seeing, Hearing, Physical, Cognitive and Mental health-related). However, identifying the 10 types does not guarantee that estimates for each type will be reliable enough to be released. Although some surveys have considerable sample sizes, the percentage of the

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[52] Section 4.5 contains the official definition of disability using the long DSQ.

[53] Table 10 contains the definition of disability used by the short DSQ. Section 6.3.2 describes the impact of the short DSQ definition on the overall disability rate.

sample that represents PWD can be small. Moreover, because the prevalence of some disability types is very low, the sample size for each type may be insufficient.

The second advantage of including a long DSQ on general surveys is that a severity score could be computed. Severity of disability is linked to key factors in the lives of PWD (income, labour market participation, etc.); having a severity score for every respondent is a major value for analysis.

Timing of long DSQ on general population surveys

Using data from the 2011 LFS quantitative test of the long DSQ, a simulation was performed to determine the impact of these changes to the long version on average interview time. The simulation estimated how many respondents would have had to answer each question if the filters and screeners had been synchronized and the “Rarely” answers had been excluded from the definition of disability. With information from the “Audit Trail” files of the LFS test, it was estimated that this new version of the long DSQ would take 2 minutes 10 seconds, that is, 10 seconds more than the short DSQ. The average number of questions asked with this new version would be 8.7, slightly above the 7.9 average for the short DSQ (Section 6.7).

Therefore, for an extra 10 seconds of the DSQ, it would be possible to obtain information about 10 disability types and compute a severity score for each respondent.

Next steps

The modified version of the long DSQ for general population surveys, using the short version definition of disability, will be available for inclusion on surveys in the next few months. It is unclear if the short DSQ is still needed, given that the new long version has much more to offer at a low cost—an average of 10 extra seconds.

Moving from the short version to the new long DSQ version should be transparent for users.

10. Conclusion

The DSQ is the first instrument to measure disability based on the social model while at the same time taking into account activity limitations in the identification of disability. As a result, the DSQ yields prevalence rates that are not directly comparable with previously released estimates for Canada or other countries. It may take some time for users to become familiar with the DSQ concepts and definitions.

The DSQ can also, although they were not created for that purpose, produce a measure of functional health—estimates of the prevalence of difficulties related to vision, hearing, mobility, flexibility, dexterity, pain, learning, memory, mental health, and development. But most importantly, it can determine how many people are limited in their daily activities owing to these difficulties or health problems. These are people who face barriers and may not have the help they need to fully participate in society.

Inclusion of the DSQ on general population surveys, as well as on the Canadian Survey on Disability, will make more frequent and thorough analyses possible and will shed light on the situation of people with a disability, particularly, those whose daily activities are limited.

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http://www.who.int/classifications/icf/en/

The HUI3 attributes levels and scoring function:
http://www.healthutilities.com/hui3.htm

Washington group on Disability Statistics Website:
http://www.cdc.gov/nchs/washington_group.htm

Appendix A

Census filter questions from 1986 until 2011

1986: Health and Activity Limitation questions on the long form Census

Question 20a. Are you limited in the kind or amount of activity that you can do because of a long-term physical condition, mental condition or health problem: (See Guide)

At home?
- No, I am not limited
- Yes, I am limited

At school or at work?
- No, I am not limited
- Yes, I am limited
- Not applicable

In other activities, e.g., transportation to or from work, leisure time activities?
- No, I am not limited
- Yes, I am limited

Question 20b. Do you have any long-term disabilities or handicaps?

- No
- Yes

1991: Activity Limitations questions on the long form Census

Question 18. Is this person limited in the kind or amount of activity that he/she can do because of a long-term physical condition, mental condition or health problem: See Guide.

At home?
- No, not limited
- Yes, limited

At school or at work?
- No, not limited
- Yes, limited
- Not applicable

In other activities, e.g., transportation to or from work, leisure time activities?
- No, not limited
- Yes, limited

Question 19. Does this person have **any long-term** disabilities or handicaps? See Guide.

- No
- Yes

1996: Activity Limitations questions on the long form Census

Question 7. Is this person limited in the kind or amount of activity that he/she can do because of a long-term physical condition, mental condition or health problem:

a. at home?

No, not limited
Yes, limited

b. at school or at work?

No, not limited
Yes, limited
Not applicable

c. in other activities, e.g., transportation to or from work, leisure time activities?

No, not limited
Yes, limited

Question 8. Does this person have **any long-term** disabilities or handicaps?

No
Yes

2001, 2006 and 2011: Activities of Daily Living questions on the long form Census (2001 and 2006) and on the National Household Survey (2011)

Question 7. Does this person have any difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning or doing any similar activities?

Yes, sometimes
Yes, often
No

Question 8. Does a physical condition or mental condition or health problem reduce the amount or the kind of activity this person can do:

a. at home?

Yes, sometimes
Yes, often
No

b. at work or at school?

Yes, sometimes
Yes, often
No
Not applicable

c. in other activities, for example, transportation or leisure?

Yes, sometimes
Yes, often
No

Appendix B

Flow chart of latest version of short Disability Screening Questions