A Global Disability Indicator: Companion to Self-Rated Health

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Self-rated health is an esteemed and common item in health surveys. Through one short question, a global rating of health is obtained. The indicator is very useful to public health program managers and policymakers, who often need short summaries of population health. Scientifically, it has proved one of the best prospective predictors of dire outcomes such as institutionalization and death.

Survey users often complain that there is no single good-quality question for reporting disability for a population. When survey designers reply "It is a multivariate phenomenon and difficult to condense", they are ignoring the fact that health is no different in its complexity yet does have a successful single-question indicator. The absence of global disability indicators in surveys is due mainly to inattention, not infeasibility.

There is current momentum to conduct in-depth studies of self-rated health —why it is so easily understood by respondents, how they choose a response, and why the item measures health so well. This article recommends that parallel intellectual and methodological effort be applied to self-rated disability. Candidate global items on disability should be chosen and studied by cognitive and statistical procedures to assess their meaning and empirical quality.

The article is organized as follows: (1) We define disability, indicating the scope to be included in and also excluded from a global disability indicator. (2) The need and rationale for a global item are discussed. (3) Desirable characteristics of the item are noted. (4) Examples of single and brief multiple items that measure disability are shown, based on North American and European surveys. We evaluate how well they attain the desirable characteristics. (5) The best items with both broad content and brevity are selected. They are offered for consideration by researchers in survey design and testing. (6) Methodological issues, such as word connotations and response reliability, are noted. (7) Finally, we recommend laboratory and statistical research to be conducted by the National Center for Health Statistics.

Definition of Disability
Disability refers to the impacts of health problems on people's social functioning, that is, their ability to perform roles and activities in their society. "Social" refers to the whole range of typical and personally-desired activities an individual does, ranging from the most basic and universal (such as dressing and eating) to the most discretionary and diverse (such as one's favorite hobby). Disability can be short-term or long-term, and due to acute or chronic conditions. Research and policy interest is typically on long-term consequences of chronic conditions for social function, and that will be our focus.

Current conceptual schemes distinguish physical, mental, and social dysfunctions (Pope and Tarlov, 1991; Verbrugge and Jette, 1994). The first two are called functional limitations, and the third, disability. Physical and mental abilities are the foundation for accomplishing roles and activities; when functional limitations become numerous or severe enough, disability ensues.

The basic causal pathway used in research is called "the disablement process" (Figure 1). It traces the route from chronic conditions through system-specific impairments, next to
functional limitations, and finally to disability. The figure also shows initial risk factors for illness and dysfunction, and the large variety of interventions (intra- and extra-individual factors) tried along the pathway as people encounter symptoms and dysfunctions.

Contemporary health surveys now regularly include measures of physical, mental, and social functioning, but the items are typically numerous and specific rather than unitary and broad.

Our aim is to develop a global indicator of disability. It must refer to protracted, health-related difficulties in a span of roles/activities. The format can be a single item (one question), a branch-and-stem item (main question with essential probes), or multiple brief items combined during analysis into a single variable. All of these approaches yield a single indicator about a person’s disability status. We distinguish this from short-form instruments, which have brief questions for a number of concepts. Instead, we are seeking brief questions (preferably one) for a single concept.

Need and Rationale for a Global Disability Indicator
A global rating of disability serves three purposes: description, explanation, and screening.

First, it documents the "state of functional health" of a population at one time and, if measured repeatedly, over time. Subgroups in a given population can be compared and, when the item is used in various communities or states, the functional health of broad geographic populations can be compared. A global disability indicator can be reported as is (percentage distribution of responses), or it can serve as the basis for calculating active life expectancy (expected years of disability-free life) (Branch, Guralnik, Foley, et al., 1991; Crimmins, Salt, and Ingegneri, 1989; Rogers, Rogers, and Belanger, 1989). The data have good utility for policy and program development; they are readily understood by statistics users ranging from politicians to journalists.

Second, a global disability indicator has scientific utility as both a dependent variable and a predictor. Researchers can identify risk factors and chronic conditions that are most strongly associated with a disability outcome. They can also study how, net of morbidity, disability affects life satisfaction and happiness, acute medical events, hospitalization, institutionalization, and death. There is a growing literature showing that disability does have its own prediction power (Harris, Kovar, Suzman, et al., 1989; Reuben, Siu, and Kimpau, 1992; Tinetti, Williams, and Mayewski, 1986; Williams, 1987; Wolinsky, Callahan, Fitzgerald, et al., 1993). These analyses use multiple detailed indicators of disability. Global indicators are likely to have equal or better prediction ability, in the same manner that self-rated health has proven a better predictor than sets of detailed morbidity items.

Third, a global disability indicator can serve as a screener for "persons with disabilities", who are then asked additional questions in a cross-sectional survey or are targeted for longitudinal followup.

In short, a global disability indicator is a compact and inexpensive device for public health surveillance and scientific study of disablement. Brevity and low cost are its powerful advantages. One disadvantage must be noted: Global indicators provide low precision about function; this results in low utility for clinical monitoring or decision-making about individuals and for reimbursement decisions or disability program participation (e.g., Myers, 1992).
Desirable Characteristics of a Global Disability Indicator

What are desirable characteristics of a global disability indicator? We note ten features.

**Content.** The indicator should fully cover social dysfunctions that are protracted and health-related. (a) The scope of "social" has already been discussed. (b) Duration of disability should be asked directly rather than just implied by question context. Duration refers to the dysfunction, not the underlying condition (its duration can be asked, too, but that's a different question). The time frame should cover both past and expected duration; e.g., if difficulty doing an activity has lasted or is expected to last 12+ months. (c) A probe about health-relatedness is also useful, maybe even necessary, since other reasons (marital distress, boredom, etc.) exist for difficulties doing roles and activities. Further, "health problems" should be qualified to refer to chronic conditions, excluding acute ones. (Chronic conditions are progressive or static physical/mental diseases and permanent or longstanding structural/sensory/communication abnormalities.) Although it is commonly presumed that long-term dysfunctions are caused just by chronic problems, it is wise practice to ask this specifically (unless and until we learn that the presumption is right).

How long a problem must last (3+, 6+, 12+ months) to be called chronic varies among surveys.

**Demographic Scope.** The indicator should be relevant for all ages, both genders, and diverse race/ethnic groups. Age poses the biggest problem: Children's roles and activities differ so much from adults', wording that encompasses all ages may be very difficult to devise. Children may need a separate question. There are problems within adult ages as well: Older adults have a different repertoire of productive and leisure activities than young and middle-aged adults. Indicators for certain activities, such as paid job, have relevance for some older persons but not for many others. The challenge is to develop compact indicators that compass fairly the variety of activities across ages.

**Words.** Question wording should be simple and colloquial. The question should make sense to respondents on first hearing. Specificity and refinement are not the goals here.

**Dimensions.** There are various dimensions of disability, such as difficulty doing an activity, inability to do it, limitations doing it, performance or nonperformance of an activity, use of personal or equipment assistance, need for such assistance, pain (or fatigue) while doing an activity, or satisfaction with performance. Care must be taken to choose a dimension that suits the survey's scientific or public health purposes.

Some of the dimensions are conceptually problematic, in our view. First, use of personal/equipment assistance (called dependency) really measures use of an intervention for dysfunction, not dysfunction itself. Second, pain during an activity may be descriptively interesting, but it imbeds a prominent risk factor of disability into the disability indicator itself. This inhibits analyses about how pain (predictor variable) is associated with the presence and degree of disability (outcome variable).

**Response Range.** The response scale should cover the full range of best to worst functioning with several gradations between. The polar categories should be readily understood, and the gradations should be well-spaced. These specifications are seldom seen in single disability items; instead, one tends to find dichotomous response scales or ordinal scales with an emphasis on poor-function responses.

**Response Metric.** The response categories should distinguish people by severity of disability. There are many scoring metrics
possible in survey research. The most common ones now used for disability items are degree (e.g., none, some, a lot, unable) and frequency (e.g., never, sometimes, often, always).

**Qualifiers.** The question should be brief and not cluttered with qualifiers. This issue is frequently troublesome to question designers because of the requirements that disability be protracted and health-related. There are three options: (a) a preface statement that tells respondents to think about long-term, health-related things in the following question, (b) embedding the two features into the question itself, and (c) having a branch-and-stem format, with a simple question followed by probes about health-relatedness and duration. The first two options prompt methodological concerns: can respondents remember a preface? can they comprehend the question, inevitably long, that embeds the features? The third option lightens respondent burden but takes more time.

**Comparisons.** The question should be free of comparisons, such as asking the respondent to compare his/her current function to other people the same age, to own prior status, or to own birth cohort. These lengthen and complicate a question, thereby posing a larger cognitive task for the respondent. Without explicit comparisons, people are free to choose their own most important basis(es) for an answer. What kinds of comparisons people use for their response can be studied as a methodological issue.

**Number of Items.** The fewer the items to create the global indicator, the better. One question is best of all.

**Measurement Qualities.** Validity and short-term reliability are desirable. How global indicators fare in these respects is not known intrinsically, without study. Although researchers often assume that global indicators are less valid than multiple-item batteries and that they produce unstable responses, there is no intrinsic reason why these should be true.

Typically, researchers also want high precision (minute gradations) and high sensitivity to change (also called responsiveness) in indicators. These may not be very necessary for the scientific and descriptive uses to which global indicators are put. Global indicators can work very well with ordinal scores (4-6 categories) and insensitivity to small changes. They should, however, be capable of detecting large ("significant") changes in function.

**Summary.** All ten topics should be consciously considered during question design. Readers will agree on their importance, even if they do not agree with certain opinions expressed above. Some of the issues are restated as methodological questions later in the article.

**Global Disability Items Used in Surveys**
Figure 2 shows items used in well-known U.S. and Canadian health surveys.5,6 Each item number (#1-#47) includes an item or brief set as it appears in the survey, modified only by our choice of a uniform format to show skips, emphasis, and response categories. We describe the survey items, then summarize how well they fulfill the desirable characteristics.

**Examples of Global Disability Items**

- **#1-2:** The 1990 U.S. Census of Population (1-in-xx sample) contains disability items about work, mobility, and personal care.

- **#3-6:** The National Health Interview Survey (NHIS) has a set of questions about limitations in principal role (called major activity) and other activities (called secondary activities). Knowing major activity and age of each respondent, a few limitation questions are asked. From this diverse questioning, a single variable with four categories is created that applies to everyone: unable to carry on major activity, limited in kind or amount of major
activity, limited in secondary activities only, not limited in major or secondary activities.

#7: Other surveys have adopted the NHIS concept of activity limitations but abbreviated the questions. The example shown is from the National Health and Nutrition Examination Survey III.

#8-11: The 1984 Survey of Income and Program Participation has compact questions for all age groups. Note the greater emphasis on children than in NHIS.

#12-13: These questions from the National Medical Expenditure Survey have the dual virtues of brevity and scope (combining job, housework, and school).

#14-17: The Centers for Disease Control and Prevention have taken a lead in developing global disability items to be used in the Behavioral Risk Factor Surveillance System (BRFSS) interviews. #17 is closely analogous to the NHIS activity limitation questions.

#18-22: The 1994-95 National Health Interview Survey has a Disability Supplement, conducted in two phases. Phase One has questions about all household members. Those who cross screening thresholds of disability are interviewed in Phase Two with very specific questions about disability status, services, and program participation. The Disability Supplement excels in detailed questions but has few global ones (thus missing an opportunity to study empirically how specific disabilities correlate with a global rating).

#23-26: Canada has used its population census as the sampling frame for a national disability survey. #23-24: The 1986 Canadian Census of Population (1-in-5 household, long-form) included two disability items about (a) limitations in home, work, school, and other activities and (b) presence of long-term "disabilities or handicaps". These were used as screens into the 1986-87 Health and Activity Limitations Survey (HALS1). #25-26: Although HALS1 is a detailed survey about disability, it includes two nicely designed global questions. One asks about limitations due to physical conditions, the other limitations due to mental conditions.

#27-28: In 1991, Canada's Census of Population had the same two disability questions (not repeated in Figure 2), and they were used as the basis for a second Health and Activity Limitation Survey (HALS2). The global questions appear again in HALS2, with minor changes.

#29-30: Canada recently launched a National Population Health Survey that contains two global items. They differ slightly from their predecessors in the Population Censuses and HALS1&2.

#31: The Network on Health Expectancy is working on brief questions about functional domains; we show a proposed disability item.

#32-38: The Medical Outcomes Study is an ongoing survey conducted by researchers with strong commitments to using compact items with demonstrated psychometric quality. Several short-form surveys have been developed to cover physical health, emotional health, functioning, pain, and vitality. #32-34: The 36-item survey (SF-36) has items on role functioning and social functioning (see text footnote 2). #35-36: The 20-item survey (MOS-20) has briefer items for those concepts. #37-38: The 6-item survey is briefest of all, with a single question for each of six concepts; we show the role and social items.

#39-41: The International Center for the Disabled conducted a study of disabled persons in 1986, based on a national telephone sample. #39: The first phase had screening questions to identify persons with current long-term role limitations, certain long-term impairments, or perceived status as a "disabled or handicapped person". #40: Persons who screened in were
called for an interview; to be sure the person was indeed "disabled", a set of check questions were asked at the outset. #41: We also show items about self-perceived disability status from the interview.

#42-44: The Baltimore Longitudinal Study of Aging (BLSA) is an open-panel study (new participants added as others drop out or die) conducted continuously since 1958 by the federal government, currently by the National Institute on Aging. Participants have regular medical exams and questionnaires at two-year intervals. The questions shown appeared in a telephone followup of dropouts. The items combine broad scope with extreme brevity.

#45: This item comes from a 1975 pilot study "Subjective Health: Perceptions of Health Status and Health Care" conducted by Charles Cannell and colleagues, with funding from the National Center for Health Statistics (no publication).

#46-47: The series finishes with two questions developed by the author. They compass all social activities, health-relatedness, and extended duration.

Desirable Characteristics
Overall, how do the survey items fare with regard to the ten desirable characteristics?

Content. Most items concentrate on particular roles: job, housework, school, and play. Occasionally, they stretch to include "other activities" (stated as a nonspecific residual). All have explicit or implicit health-relatedness. There is a good deal of variation about duration: not asked; asked about the condition causing disability; asked about disability.

Demographic Scope. The surveys attend closely to issues of age and gender, and tailor questions quite well to their sample. But improvements are needed for older persons (ages 65+); there is a tendency to focus on ADL/IADLs (ADL: personal care, IADL: household management) and nothing else that older persons do.

Words. Questionnaires have largely built upon language used in preceding ones rather than testing various wordings in laboratory studies.

Dimensions. The most common dimensions used are "limitation", "difficulty", and "dependency". We noted earlier the problematic meaning of dependency.

Response Range. Response categories emphasize negative functioning, with few if any gradations of positive functioning. This stems from the public health orientation behind surveys (the need to know what's wrong with the population) and also from greater ease of asking people about dysfunction than "eufunction".

Response Metric. Many studies use Yes/No responses to each question, but they achieve scaled variables by combining questions (applying a presumed hierarchy to them or simply adding the number of Yes responses). The Yes/No format is more common than ordinal responses, which require the respondent to subjectively grade their dysfunction (thus, to think more).

Qualifiers. There is great variation in location of qualifiers and length of questions. Placement, wording, and syntax of qualifiers is an issue that needs dedicated study.

Comparisons. Most questions have no explicit comparisons, leaving respondents free to think about their functioning relative to anyone, anything, anytime.

Number of Items. We have chosen the briefest available items. There are few instances of extreme brevity, that is, of single items. Sometimes, what seems like one question on paper is really several (e.g., #2, #23, #32).
Measurement Qualities. Few items have had psychometric scrutiny, with the exception of those in the Medical Outcomes Study.

**Good Candidates**

Figure 3 shows the author's favorite items. Four are derived from existing surveys, and one is new. They are good candidates for discussion, redrafting, and inclusion in pilot and larger-scale studies.

#1: This is modified slightly from the original in the "other activities" wording. The item asks about condition duration rather than disability duration; this can be altered in the initial clause or by a probe. #2: This new item achieves breadth through examples ("personal hygiene, house or yard care,..."). Since that lengthens the item, there is a separate probe for disability duration. #3: The lead question and duration probe are the crucial aspects; the two further questions identify affected activities and measure severity. #4: These are excellent examples of single items that include health-relatedness and protracted duration. #5: This comes closest to self-rated health item in its wording. Respecting its simplicity, I would not include any duration or health-related qualifiers.

**Methodological Issues**

Good items can be crafted with common sense and strong survey research skills, but their merits are increased by formal methodological scrutiny. What are some central issues for methodological research whose answers will guide choice of global disability indicators?

**Operationalizing the Content.** The definition of disability is "long-term, health-related social dysfunctions". Can this be captured with brevity? Consider the three features in turn: First, can a short question bring to mind the whole range of included activities? Do examples of activities (as in #17b, #21) help? Can they also subtly harm by excluding from a person's mind the unstated activities? Second, can health-relatedness be left implicit because the whole questionnaire is about health, or is a qualifier needed stating that reported difficulties be due to health problems? Is a further query about chronicity of the health problem needed? Third, short-term disability must be excluded. To do this, where should the duration qualifier be placed and should it be numeric (number of months) or general ("long-term")? If numeric, should just retrospective duration (e.g., "has lasted six months or more") or also prospective duration (e.g., "has lasted or is expected to last six months or longer") be queried?

**Demographic Scope.** Truly global questions must take population subgroups into account, encompassing their diverse experience. Age is the biggest issue for disability questions, and gender next. First, what are suitable questions for older adults? Their roles are not so limited as public perceptions imply, and many persons are engaged in paid and unpaid productive activity. Disability items that focus on ADLs and IADLs (e.g., #6) do disservice to the pursuits and commitments of older persons. Second, gender must also be closely considered since roles and activities still do systematically differ for men and women (Allen, Mor, Raveis, et al., 1993).

**Meanings of Words.** Words make a difference (Schuman and Presser, 1981). What are the meanings of "limited", "difficulty", "disabled", and "functioning" to various age and race/ethnic groups? After researchers have used terms awhile, they may readily think the words are in the public lexicon and have universal meaning (i.e., the researchers'). What seems commonplace in scientific discourse may not be colloquial, but instead esoteric or differently construed. Pilot-testing of wordings is imperative.

**Dimensions.** What dimensions (degree of difficulty, frequency of difficulty, etc.) convey best the experience of disability? How do
individual responses vary on different scale dimensions?

Response Range. How can response categories that cover the full range of excellent to poor function be crafted? Are "disability" and "dysfunction" questions destined to measure degrees of negative functioning, leaving out gradations of positive function? Can "ability" and "functioning" questions be designed, and if so, will they end up with the opposite problem of positively-oriented response categories but few negative ones? Are the implicit spaces between ordinal categories equal or not?

Comparisons. An especially intriguing topic for study is how people use internal (own life) or external (other people) comparisons for their responses. What are the time frames for internal comparison? And what are the groups used for external comparison? This can be readily studied by having a base question that is modified by various comparisons, or by lab-based cognitive studies of how people answer an unmodified base question.

Reliability and Sensitivity to Change. What constitutes a reliable disability score? Disability is a dynamic phenomenon, so change must be expected over the long run of months or years. But in a short time frame (several days, a week), one would like the same responses on an indicator that concerns a long-term status. How to craft questions that have both short-term response stability and sensitivity to long-term change is a crucial, and very difficult, issue. Especially problematic for this goal is episodic disability, such as the genuine sharp fluctuations in abilities experienced by persons with rheumatoid arthritis. Finally, how global items compare for reliability to indexes based on detailed questions is not certain (e.g., Katz, Larson, Phillips, et al., 1992).

Validity. What types and degrees of validity are desirable? There are many forms of validity: criterion ("gold standard"), predictive, content, construct, face, discriminant, and more. Just how much evidence must be assembled for scientists to say that a disability indicator measures disability well? Is high reliability possibly a more important feature than high validity?

As a general principle, assessments of reliability and validity are valuable, but their extent must be reasonable and suitable. How much these features matter depends on the indicator's purpose (population description, screening, clinical decision-making, etc.) In many cases, reliability and validity do not matter as much as purists claim. Professional preferences and conventions have great influence on the extent of psychometric evaluation considered sufficient. In sum, both how one chooses to study on these topics and how the results are interpreted are matters of judgment, not canon.

Clusters and Hierarchy. In surveys with numerous specific disability items, psychometric assessments of correlation, clustering, factors, and hierarchy help researchers identify key concepts to be covered. Once concepts are identified, researchers can develop global indicators (single items) that have both good internal coverage and conceptual distinctness. If hierarchy is strong, researchers can adopt interview devices that efficiently place an individual along the scale. There is excellent literature on the structure of health and function concepts (e.g., Bergner, Bobbitt, Carter, et al., 1981; Brook, Ware, Davies-Avery, et al., 1979; Johnson and Wolinsky, 1993; Whitelaw and Liang, 1991) and more limited study of hierarchical aspects of function (Fitzgerald, Smith, Martin, et al., 1993; Kempen and Suurmeijer, 1990; Spector, Katz, Murphy, and Fulton, 1987).

Placement. Item placement in a survey and the survey's overall bulk of can influence responses (Sudman and Bradburn, 1974). Do
responses about self-perceived disability (#18, #41) differ if asked at the interview’s outset versus its end? Do respondents with mild disabilities tire or become angry during a questionnaire with some appropriate questions but many others pertinent to moderately/severely disabled persons? If so, what response strategies do they use to speed up and finish the interview?

Nonverbal Strategies. Questionnaires have become longer and more cognitively complex in the past two decades. Whether interviewer-administered or self-administered, they are devices that depend on strong verbal and literacy skills—something the researchers have mastered well, but not all the respondents. Nonverbal strategies such as performance-based protocols and visual ones are attractive for that reason, and also because they are fun and give diversity to an interview situation. Performance-based protocols are becoming commonplace for measuring physical function, but they are too difficult to adapt to social function (one has to observe and score a person doing his/her roles) for large-scale surveys. An example of a fine visual protocol is the six COOP charts (Nelson, Landgraf, Hays, et al., 1990; Nelson, Wasson, Kirk, et al., 1987). Figure 4 shows the COOP chart with a global disability indicator.

Methodological Research at the National Center for Health Statistics

Both cognitive and statistical approaches are valuable for evaluating the content and quality of global health and disability indicators. Cognitive techniques are especially suited to studying the process of thinking about the question and choosing answers; for example, meanings of words, unclear and aggravating terms, respondent upset and uncertainty, and the impact of comparisons, duration and health-relatedness qualifiers, and included examples. Statistical techniques help to find structure (correlations, clusters, hierarchy) of items, evaluate reliability, and assess concurrent and predictive validity in large multivariate data sets. Statistics also come to the service of cognitive studies that have moderate-size samples. A methodological program that uses both cognitive and statistical approaches is desirable since they yield different but complementary information.

The National Center for Health Statistics has good opportunities for methodological analyses of self-rated disability. The Questionnaire Design Research Laboratory, Office of Research and Methodology, pilots survey questions and helps redesign them based on the results. Other units, such as the Division of Health Interview Statistics and Office of Analysis and Epidemiology, have large data sets with health and disability items, some with longitudinal format. Most promising for statistical analyses of disability items are the National Health Interview Survey (NHIS), the 1994-95 NHIS Disability Supplement, the Longitudinal Study of Aging, and the National Health and Nutrition Examination Survey III. Currently, these contain few global disability indicators, so analyses must concentrate on finding structure within detailed items.

We recommend that joint methodological work be designed and conducted in two respects: First, efforts to understand the content of self-rated health should be accompanied by parallel efforts on self-rated disability. Second, a program that combines cognitive (pilot study) and statistical (secondary analysis) approaches should be developed, with opportunities for mutual discussion and collaborative reports by involved staff. Altogether, this work will winnow candidate items for global disability, arriving at a few high quality, commonly understood items for large-scale surveys.

References


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Physical and Mental Health Constructs." 
Medical Care 31:247-263.


**Endnotes**

1. All domains of activity, ranging from personal care to hobbies, housework to job, yard care to shopping, active recreation to childcare, are included (Verbrugge, 1991:Tab.19). They are all genuinely social activities—things that individuals do as a member of their society—whether done in public or private, frequently or infrequently.

Some researchers use the term "social" (e.g., social functioning) in a very limited way, referring just to frequency of or difficulty having pleasurable interactions with friends, family, and other acquaintances. We call that "socializing".

2. Sometimes the term "disability" is used for all consequences—physical, mental, social—of chronic conditions. That may be useful in general discussions, but it is not very useful in empirical research; increasingly researchers use the terms and distinctions noted in the text.

3. Two further points: First, the word "disablement" connotes dynamics. This urges researchers to regularly consider functional changes over time and study causes of those changes. Second, disability is not a measure of the severity of morbidity. That conceptual confusion comes from clinical practice where functioning is often used to indicate "how sick" a patient is. Although morbidity and disability are correlated, they are distinct
things. Scientifically, a concept should not be measured by its consequences, but always in and of itself.

4. These have been developed for physical function (mobility, seeing, hearing, communication, manual dexterity) and mental function (feelings, memory, thinking). These domains were addressed in a CDC conference (Centers for Disease Control and Prevention, 1993), inspiring development of short-form instruments for the Behavioral Risk Factor Surveillance System. Other short-form instruments for them are in the Ontario Health Survey, the COOP charts (discussed near the end of this article), and the Medical Outcomes Study. In the author's view, single items are probably not feasible for the two domains.

Short-form instruments for social dysfunction have had little attention. They would distinguish difficulties in key domains (personal care, house and yard chores, shopping and errands, sleep, childcare and care for others who need it, socializing, religious services or activities, and the like).

5. European colleagues helped the author review items currently used or proposed for European surveys. Extensive work has gone into developing short-form instruments for physical, mental, and social dysfunction (the initiation of this effort was the OECD disability index; McWhinnie, 1981), but little on global indicators. The World Health Organization sponsors a cross-national effort to develop common methods and instruments for health interview surveys (Netherlands Central Bureau of Statistics, 1993). In addition, the Network on Health Expectancy (an international group of researchers) has a committee working on harmonization of indicators and concepts (Chamie, 1990). Its suggested item for "occupation" (role) disability is in Figure 2.

6. Items are shown for all age groups; but most are for adult ages since disability is more common with increasing age. Readers interested in children are encouraged to review the several surveys with extensive items: 1994-1995 National Health Interview Survey: Disability Supplement, 1988 NHIS: Child Health Supplement, 1979-1980 NHIS: Home Care Supplement, 1991 Health and Activity Limitation Survey: Children Under 15 and Institutionalized Children Under 15 questionnaires, the new Survey of Program Dynamics (successor to the Survey of Income and Program Participation), the new Adolescent Health Survey (funded by the National Institute of Child Health and Human Development), and the health screen used in the National Child Health and Assessment Planning Project.

7. An empirical problem arises, too: The National Health Interview Survey estimates disability prevalence from job/housework limitations for adults ages < 65 and from ADL/IADL limitations for adults ages 65+. This produces odd patterns of age differentials in disability, namely, a drop in prevalence when the estimates shift from job/housework to dependency.

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Figure 1. A Model of the Disablement Process

EXTRA-INDIVIDUAL FACTORS

MEDICAL CARE & REHABILITATION
(surgery, physical therapy, speech therapy, counseling, health education, job retraining, etc.)

MEDICATIONS & OTHER THERAPEUTIC REGIMENS
(drugs, recreational therapy/aquatic exercise, biofeedback/meditation, rest/energy conservation, etc.)

EXTERNAL SUPPORTS
(personal assistance, special equipment and devices, standby assistance/supervision, day care, respite care, meals-on-wheels, etc.)

BUILT, PHYSICAL, & SOCIAL ENVIRONMENT
(structural modifications at job/home, access to buildings and to public transportation, improvement of air quality, reduction of noise and glare, health insurance & access to medical care, laws & regulations, employment discrimination, etc.)

THE MAIN PATHWAY

PATHOLOGY → IMPAIRMENTS → FUNCTIONAL LIMITATIONS → DISABILITY

(diseases of disease, injury, congenital/developmental condition)

(dysfunctions and structural abnormalities in specific body systems: musculoskeletal, cardiovascular, neurological, etc.)

(restrictions in basic physical and mental actions: ambulate, reach, stoop, climb stairs, produce intelligible speech, see standard print, etc.)

(difficulty doing activities of daily life: job, household management, active recreation, hobbies, personal care, clubs, socializing w/friends and kin, childcare, errands, sleep, trips, etc.)

RISK FACTORS
(predisposing characteristics: demographic, social, lifestyle, behavioral, psychological, environmental, biological)

INTRA-INDIVIDUAL FACTORS

LIFESTYLE & BEHAVIOR CHANGES
(overt changes to alter disease activity and impact)

PSYCHOSOCIAL ATTRIBUTES & COPING
(positive affect, emotional vigor, prayer, locus of control, cognitive adaptation to one's situation, confidant, peer support groups, etc.)

ACTIVITY ACCOMMODATIONS
(changes in kinds of activities, procedures for doing them, frequency or length of time doing them)

GENERAL NOTES
AGES: The majority of questions shown are for adults (ages 18+). Those for children (ages <18) and all ages are so indicated.

RESPONSE CATEGORIES: Categories for informative responses (e.g., Yes, No) are shown. Those for noninformative responses (e.g., Don't know, Refused) are not shown.

HEALTH-RELATEDNESS: All questions are about health-related disability. "Health relatedness" is sometimes implicit by questionnaire context, sometimes explicit.

PROTRACTED: Most questions do not check that disability is long-term; they are about current status. When prefaces or probes exist for disability duration, we shown them.

PROBES: Some questions have additional probes about condition(s) causing disability and condition duration (or age at onset). In most cases, these are not shown below.

ITALICS: Emphasis is shown by italics.

... : Interviewer states person's name or "you" (respondent).

U.S. Census of Population, 1990

1. "Does ... have a physical, mental, or other health condition that has lasted for 6 or more months and which:
   Limits the kind or amount of work ... can do at a job?"
   Prevents ... from working at a job?"
   For each: Yes, No.

2. "Because of a health condition that has lasted for 6 or more months, does ... have any difficulty:
   Going outside the home alone, for example, to shop or visit a doctor's office?"
   Taking care of his or her own personal needs, such as bathing, dressing, or getting around inside the home?"
   For each: Yes, No.

National Health Interview Survey, U.S. (NHIS)
These are the activity limitation questions used annually in the NHIS. We have condensed the question series here (see copy of NHIS for actual sequence). The survey is being redesigned (new format 1996) and the questions may change.

MAIN ACTIVITY: Persons ages 18+ are asked "What was ... doing most of the past 12 months: working at a job or business, keeping house, going to school, or something else?" This is called the person's major activity. It determines which limitation questions are asked and their sequence. For children ages <5, major activity is assumed to be play; for children ages 5-17, school.
SECONDARY ACTIVITIES: Persons all ages who report no limitation in major activity are then asked about limitation in any other activities. These are called "secondary activities".

3. [For Ages 18-69:]
   IF KEEPING HOUSE: "Does any impairment or health problem now keep you from doing any housework at all?" Yes, No.
   IF NO: "Are you limited in the kind or amount of housework you can do because of any impairment or health problem?" Yes, No.
   IF WORKING: "Does any impairment or health problem now keep ... from working at a job or business?" Yes, No.
   IF NO: "Is ... limited in the kind or amount of work ... can do because of any impairment or health problem?" Yes, No.
   IF KEEPING HOUSE, GOING TO SCHOOL, SOMETHING ELSE: "Does any impairment or health problem keep you from working at a job or business?" Yes, No.
   IF NO: "Are you limited in the kind or amount of work you could do because of any impairment or health problem?" Yes, No.
   IF NO TO ALL QUESTIONS ASKED: "Are you limited in any way in any activities because of an impairment or health problem?" Yes, No.

[NOTE: "an impairment or health problem" instead of "any"; same in all instances of this Q below.]

4. [For Ages <5:]
   "Is ... able to take part at all in the usual kinds of play activities done by most children ... age?" Yes, No.
   IF YES: Is ... limited in the kind or amount of play activities ... can do because of any impairment or health problem?" Yes, No.
   IF NO: "Is ... limited in any way in any activities because of an impairment or health problem?" Yes, No.

5. [For Ages 5-17:]
   "Does any impairment or health problem now keep ... from attending school?" Yes, No.
   IF NO: [There are three further Qs about attending special school, needing to attend special school, or limited in school attendance.]
   IF NO TO ALL FOUR QUESTIONS: "Is ... limited in any way in any activities because of an impairment or health problem?" Yes, No.
6. [For All Persons Ages 60+ AND Persons Ages 5-59 Who Are Limited in Main or Secondary Activity:]
"Because of any impairment or health problem, does ... need the help of other persons with personal care needs, such as eating, bathing, dressing, or getting around this home?" Yes, No.

IF NO AND ALSO AGE 18+: "Because of any impairment or health problem, does ... need the help of other persons in handling routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?" Yes, No.

IF NO AND ALSO AGE 70+: "Is ... limited in any way in any activities because of an impairment or health problem?" Yes, No.

National Health and Nutrition Examination Survey III (NHANES III)
An increasing number of surveys take the NHIS limitations questions as a model, but recraft them into shorter versions. Here are the questions for NHANES III:

7. "What were you doing most of the past 12 months, working at a job or business, retired, keeping house, going to school, or something else?"

IF WORKING: "Are you limited in the kind or amount of work you can do because of any impairment or health problem?" Yes, No.

IF KEEPING HOUSE OR RETIRED: "Are you limited in the kind or amount of housework you can do because of any impairment or health problem?" Yes, No.

IF GOING TO SCHOOL OR SOMETHING ELSE OR IF NO TO ABOVE Q ABOUT WORK/HOUSEWORK: "Are you limited in any way in any activities because of an impairment or health problem?" Yes, No.

IF YES TO ANY OF ABOVE Q'S: "Have you ever changed your job, stopped working, or made any changes in your housework because of a disability or health problem?" Yes, No.

Survey of Income and Program Participation 1984 (SIPP)
There are complex checkpoints for these questions; we show their basic format.

8. [For Ages 16+:]
FOR AGES 16-67: "Does ... have a physical, mental, or other health condition which limits the kind or amount of work ... can do?" Yes, No.

IF YES: "Does ...'s health or condition prevent ... from working at a job or business?" Yes, No.

FOR AGES 68+ OR IF NO TO INITIAL QUESTION (Ages 16-67):
"Does ... have a physical, mental, or other health condition which limits the kind or amount of work ... can do around the house?" Yes, No.

IF YES: "Does ...'s health or condition completely prevent ... from doing work around the house?" Yes, No.

9. [For Ages <6:]
"Because of a physical, learning, or mental health condition, do any of ...'s children under 6 years of age have any limitations at all in the usual kind of activities done by most children their age?" Yes, No.
[For No, there is a followup Q about receipt of medical services for developmental needs.]

10. [For Ages 6-21:]
"Because of a physical, learning, or mental health condition, do any of ...'s children between the ages of 6 and 21 have limitations in their ability to do regular school work?" Yes, No.
[For No, there are two followup questions about ever use and current use of special education services.]

11. [For Ages 3-14:]
"Do any of ...'s children between the ages of 3 and 14 have a long lasting condition that limits their ability to walk, run, or use stairs?" Yes, No.

National Medical Expenditure Survey, 1987 (NMES)
From the self-administered questionnaire. Both Qs are asked of all persons.

12. "Does your health keep you from working at a job, doing work around the house, or going to school?" Yes, No.

13. "Are you unable to do certain kinds or amounts of work, housework, or schoolwork because of your health?" Yes, No.

Behavioral Risk Factor Surveillance System (BRFSS), CDC
The BRFSS is a telephone interview conducted by States. It has a Core questionnaire and optional modules. Reference for Core item: Centers for Disease Control and Prevention, 1994.

14. [In 1993 Core]
"During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?" Interviewer records number of days, or None.

15. [In Quality of Life/Functional Status (QOL/FS) Module pretested in 1993-94]
"Are you limited in any way in any activities because of any impairment or health problem?" Yes, No [no further Qs].
IF YES: "Because of any impairment or health problem, do you need the help of other persons with your personal care needs, such as eating, bathing, dressing, or getting around the house?" Yes, No.

IF NO: "Because of any impairment or health problem, do you need the help of other persons in handling your routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?" Yes, No.

IF YES TO ANY OF THE THREE QUESTIONS: "For how long have your activities been limited because of an impairment or health problem?" Interviewer records respondent's statement of years/months/day.

16. [Other QOL/FS Questions drafted and considered by CDC staff]
"Now thinking about your health, do you have any physical or mental condition that limits you in any way, and that has lasted for 6 or more months?" Yes, No.

17. [In Activity Limitation Module developed in 1993-94. Questions are worded closely to the NHIS activity limitations items.]

a. [For Ages 18-69:]
"What were you doing most of the past 12 months: working at a job or business, keeping house, going to school, or something else?" Working at a job or business, Keeping house, Going to school, Something else.

IF KEEPING HOUSE: "Does any impairment or health problem now keep you from doing any housework at all?" Yes, No.

IF NO: "Are you limited in the kind or amount of housework you can do because of any impairment or health problem?" Yes, No.

IF WORKING: "Does any impairment or health problem now keep you from working at a job or business?" Yes, No.

IF NO: "Are you limited in the kind or amount of work you can do because of any impairment or health problem?" Yes, No.

IF KEEPING HOUSE, GOING TO SCHOOL, SOMETHING ELSE: "Does any impairment or health problem keep you from working at a job or business?" Yes, No.

IF NO: "Are you limited in the kind or amount of work you could do because of any impairment or health problem?" Yes, No.

IF NO TO ALL QUESTIONS ASKED: "Are you limited in any way in any activities because of any impairment or health problem?" Yes, No.

[NOTE: Uses "any impairment or health problem", whereas NHIS uses "an". Same in all instances of this Q below.]
b. [For Ages 60+:
"Because of any impairment or health problem, do you need the help of other persons with personal care needs, such as eating, bathing, dressing, or getting around this home?"
Yes, No.

IF NO: "Because of any impairment or health problem, do you need the help of other persons in handling routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?" Yes, No.

IF NO AND ALSO AGE 70+: "Are you limited in any way in any activities because of any impairment or health problem?" Yes, No.

Disability Supplement, 1994-95 National Health Interview Survey
This supplement is attached to the 1994-95 NHIS. It has two phases: Phase One has questions asked about all household members; it is conducted at the same time as the NHIS core questionnaire. Phase Two is for persons who screen-in as having disabilities; it is conducted several months later.

All items shown here are in Phase One. They are for All ages except where stated. Note there are several global questions related to mental (emotional&cognitive) problems, but none related to physical problems. Phase Two contains very detailed questions about disability and no global ones.

18. "Do you consider yourself (or anyone in your family) to have a disability?"
Yes, No.

"Would other people consider you (or anyone in the family) to have a disability?"
Yes, No.

19. [After specific questions about emotional/cognitive problems:] IF YES TO ANY: "During the past 12 months, did any of these problems seriously interfere with ... ability to work or attend school or to manage ... day-to-day activities?" Yes, No.

20. [After specific questions about emotional/cognitive problems and mental conditions:] IF YES TO ANY AND ALSO AGE 18+: "Because of (this/these) mental or emotional problem(s), is ... unable to work or limited in the kind or amount of work ... can do?" Yes, No.

IF NO: Because of (this/these) mental or emotional problem(s), does ... have trouble finding or keeping a job or doing job tasks?" Yes, No.

21. [For Ages 2-17:] "Because of a physical, mental, or emotional problem, do(es) ... now have any difficulty participating in strenuous activity, such as running or swimming, compared to other children their age?" Yes, No.

IF YES: "Has the problem or condition which causes ... to have difficulty participating in strenuous activity been going on or is it expected to go on for at least 12 months?" Yes, No.
22. [For Ages 2-17:]
"Because of a physical, mental, or emotional problem, do(es) ... now have any difficulty playing or getting along with others their age?" Yes, No.

IF YES: "Has the problem or condition which causes ... to have difficulty getting along with others been going on or is it expected to do on for at least 12 months?"

Canadian Census of Population, 1986
These items were used as screeners for the 1986-87 Health and Activity Limitation Survey (HALS1; see below). Persons with Yes on either item were chosen for HALS1. A subsample of persons with No were also chosen, on the premise that the Census questions might miss some individuals who were genuinely disabled.

23. "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:
   At home?"
   At school or at work?"
   In other activities, e.g., transportation to or from work, leisure time activities?"

   For each: No, Yes.

24. "Do you have any long-term disabilities or handicaps?" No, Yes.

Canadian Health and Activity Limitation Survey, 1986-87 (HALS1)
See notes above for Canadian Census. At the start of the HALS1 interview, there are about 20 questions to ascertain the disability status of the sampled person. Some persons are screened out at that point (some were Yes on Census, some were No). There are separate HALS1 questionnaires for adults (ages 15+), children (<15), institutionalized adults, and institutionalized children. No global questions appear in the children or institutionalized persons questionnaires.

25. [For Ages 15+:
"Because of a long-term physical condition or health problem, that is, one that is expected to last 6 months or more, are you limited in the kind or amount of activity you can do:
   At home?"
   At school or at work?"
   In other activities such as travel, sports, or leisure?"

   For each: Yes, No.

26. [For Ages 15+:
"Because of a long-term emotional, psychological, nervous, or mental health condition or problem, are you limited in the kind or amount of activity you can do:
   At home?"
   At school or at work?"
   In other activities such as travel, sports, or leisure?"

   For each: Yes, No.
Canadian Health and Activity Limitation Survey, 1991 (HALS2)
Similar to the format of the HALS1. The identical initial screen Qs were used in the 1991 Canadian Census. HALS2 took the persons with Yes on a Census item and a subsample of persons with No. At the start of the HALS2 interview, about 20 questions ascertain the disability status of the sampled person. Some are screened out at that point. There are separate HALS2 questionnaires for adults (ages 15+), children (<15), institutionalized adults, and institutionalized children.

27. [For Ages 15+:]  
"Because of a long-term physical condition or health problem, that is one that has lasted or is expected to last 6 months or more, are you limited in the kind or amount of activity you can do:  
At home?"  
At school?"  
At work?"  
In other activities such as travel, sport or leisure?" [NOTE: no 's' on sport.] 
For each: Yes, No.

28. [For Ages 15+:]  
"Because of a long term emotional, psychological, nervous or psychiatric condition, that is one that has lasted or is expected to last six months or more, are you limited in the kind or amount of activity you can do:  
At home?"  
At school?"  
At work?"  
In other activities such as travel, sport or leisure?"  
For each: Yes, No.

[NOTE: Here, no hyphen for "long term".]

National Population Health Survey, Canada, 1994-1995

29. "The next few questions deal with any health limitations which affect ...'s daily activities. In these questions, 'long-term conditions' refer to conditions that have lasted or are expected to last 6 months or more."

"Because of a long-term physical or mental condition or a health problem, are/is ... limited in the kind or amount of activity ... can do:  
At home?"  
At school?"  
At work?"  
In other activities such as transportation to or from work or leisure time activities?"  
For each: Yes, No.

30. "Do(es) ... have any long term disabilities or handicaps?" Yes, No.
REVES Harmonization Committee
Two forms of the proposed question on "occupation" (role) disability are shown (Chamie, 1990). See discussion of European work in text footnote.

31. [Option 1:]
"Because of your health, are you usually limited in your daily activities, apart from personal care?" Fully able to perform any activity (apart from personal care), Severely limited in daily activities, Slightly limited in daily activities, Not limited in daily activities.

[Option 2:]
"Because of a health-related problem are you limited/restricted in the amount of time you spend each day in regular activities other than personal care? By that, I mean: Not occupied with work at home, school, or at a job; Limited occupation at home, school, or at a job; Fully occupied/no limitation?".

Responses already noted.

Medical Outcomes Study Short-form Health Survey (SF-36)
There are three short-form instruments for the MOS: 36 items (SF-36), 20 items (MOS-20), and 6 items (6-Item General Health Survey; called global items). We show the disability items from all three. Reference for Medical Outcomes Study (MOS): Stewart and Ware (Eds.), 1992. Reference comparing the instruments: McHorney, Ware, Rogers, et al., 1992.

Shown here are the SF-36 items for the concepts "role functioning" (#32-33) and "social functioning" (#34; cf. text note that we call this "socializing"). References for SF-36: McHorney, Ware, and Raczek, 1993; Ware and Sherbourne, 1992.

32. "During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?"
Cut down on the amount of time you spent on work or other activities?"
Accomplished less than you would like?"
Were limited in the kind of work or other activities?"
Had difficulty performing the work or other activities (for example, it took extra effort)?"
For each: Yes, No.

33. "During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?"
Cut down the amount of time you spent on work or other activities?"
Accomplished less than you would like?"
Didn't do work or other activities as carefully as usual?"
For each: Yes, No.

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34. "During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?" Not at all, Slightly, Moderately, Quite a bit, Extremely.

Medical Outcomes Study Short-form Health Survey (MOS-20)
Shown here are the MOS-20 items for the concepts "role functioning" (#35; no skip pattern; both Qs asked of all persons) and "social functioning" (#36). References for MOS-20: Stewart, Hays, and Ware, 1988; Ware, Sherbourne, and Davies, 1992.

35. "Does your health keep you from working at a job, doing work around the house or going to school?" Yes for more than 3 months; Yes for 3 months or less; No.

"Have you been unable to do certain kinds or amounts of work, housework or schoolwork because of your health?" Yes for more than 3 months; Yes for 3 months or less; No.

36. "How much of the time, during the past month, has your health limited your social activities (like visiting with friends or close relatives)?"
All of the time, Most of the time, A good bit of the time, Some of the time, A little of the time, None of the time.

Medical Outcomes Study 6-Item General Health Survey Measures
Shown here are items for the concepts "role functioning" (#37) and "social functioning" (#38). Reference for 6-Item Format: Ware, Nelson, Sherbourne, et al., 1992.

37. "During the past 4 weeks, how much difficulty did you have doing your daily work, both inside and outside the house, because of your physical health or emotional problems?" None at all, A little bit, Some, Quite a bit, Could not do daily work.

38. "During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?" Not at all, Slightly, Moderately, Quite a bit, Extremely.

International Center for the Disabled Survey, 1985 (ICDS)
A survey of disabled persons ages 16+. A first-stage screen for disability was done in a national telephone sample (#39). Screened-in persons were then contacted for an interview; this second-stage began with a check for disability status (#40; some persons screened out at that point). #41 is three questions asked later in the second-stage interview. Reference: Louis Harris and Associates, Inc., 1986.

39. [First-stage Screening Qs]
"Does a health problem, disability, or handicap currently keep you or anyone in your household from participating fully in work, school, housework, or other activities?" Yes (screens in), No.
IF NO: "Have you, or has anyone in your household ever been limited in any way for a year or more because of a handicap, impairment or health problem?" Yes, No.

IF YES: "Are you (Is that person) limited in any way now, or was that in the past?"
Limited now (screens in), Limited in past.

IF LIMITED IN PAST: "Do you (Does that person) still have an impairment or health problem, or not?"
No longer have it (screens out), Still have it (screens in).

IF NO: "Is there anyone in your household, including yourself, who:
Has any learning disability of any kind?"
Has any emotional or mental disability or condition?"
Has any physical handicap or disability?"
Has any talking, hearing, or visual disability, except for ordinary eyeglasses?"
Considers themselves a disabled or handicapped person, or not?"
Most other people would consider a disabled or handicapped person, or not?"
For each: Yes (screens in on first item with Yes; questions stop), No (screens out if No to all).

40. [Second-Stage Screening Qs; at start of interview for sampled persons]
"Does a health problem, handicap or disability now keep you from participating fully in school, work, housework, or other activities?" Yes, No.

IF NO: "Have you ever been limited in any way in your activities for a year or more because of a handicap, impairment, or health problem?" Yes - limited now, Yes - limited in past, No.

IF LIMITED IN PAST: "Do you still have a disability or health problem, or not?"
No longer have it (screens out), Still have it.

IF NO: "Do you:
Have any learning disability of any kind, or not?"
Have an emotional or mental disability, or developmental disability, or not?"
Have a physical disability or handicap, or not?"
Have any talking, hearing, or visual disability, except for ordinary eyeglasses, or not?"
For each: Yes (questions stop at first Yes), No (screens out if No to all).

41. "Do you consider yourself a disabled or handicapped person, or not?" Yes, No.

"Do you think most other people would consider you a disabled or handicapped person when they first meet you, or not?" Yes, No.
"Do you think most people who get to know you fairly well consider you a disabled or handicapped person, or not?" Yes, No.

Baltimore Longitudinal Study of Aging Followup 1
BLSA is a life-long study of adults who have medical exams and questionnaires every two years. It is conducted by the Gerontology Research Center, National Institute on Aging.
Reference: Shock et al., 1984. The followup was conducted in 1989 on dropouts (had not returned for biennial exam).

42. "Would you describe your overall level of functioning as: excellent, good, fair, poor, don't know?" Excellent, Good, Fair, Poor.

43. "Has your ability to function or take care of yourself changed in the last 2 years?" No, Yes.

IF YES: "Has your ability to function or take care of yourself improved or declined?"
Improved, Declined.

44. "Does your health allow you to do everything you would like to do?" No, Yes, Uncertain.

IF NO OR UNCERTAIN: "What are you unable to do for yourself that you would like to do?" [Interviewer writes respondent's description.]

Pilot Study on Subjective Health
The items come from a small-scale pilot study conducted by Charles Cannell and colleagues for the National Center for Health Statistics in 1975.

45. "Is there anything about your physical condition—that is, your health and the amount of energy you have—that makes it hard for you to do your usual (work/activities)?" Yes, No.

IF YES (ASK BOTH BELOW):
"Would you say it is hard or very hard for you to do your usual (work/activities)?"
Hard, Very hard.

"What are some of the things you have trouble with?" [Interviewer writes responses.]

New Questions Developed By the Author

46. "Do you have difficulty doing your daily activities because of a physical, mental, or emotional condition?" Yes, No.

IF YES: Has that difficulty lasted 6 months or more, or do you expect it to last that long?" Yes, No.
"Considering the past six months, have you been limited in your daily activities for that time or longer because of physical, mental, or emotional health problems?" Yes, No.

[See also Figure 3 for new questions.]

Figure 3. Good Candidates

"The next few questions deal with any health limitations which affect ...'s daily activities. In these questions, 'long-term conditions' refer to conditions that have lasted or are expected to last 6 months or more."

"Because of a long-term physical or mental condition or a health problem, are/is ... limited in the kind or amount of activity ... can do: At home?" At school?" At work?" In other activities such as local travel, sports, or leisure?" [slight change from original]
For each: Yes, No.

2. New
"Because of a physical, mental, or emotional condition, are you limited in doing your daily activities like personal hygiene, house or yard care, shopping, your work, or other things you need to do?" Yes, No.
 IF YES: "Has the limitation lasted for at least 6 months or is it expected to last that long?"
 Yes, No.
 IF YES TO 6+ MONTHS: "Are you limited just a little, somewhat, or a great deal in your daily activities? Just a little, Somewhat, A great deal.

3. Modified from Pilot Study on Subjective Health
"Is there anything about your health that makes it hard for you to do your usual activities?" Yes, No.
 IF YES: Has the difficulty with your activities lasted 6 months or more, or do you expect it to last that long?" Yes, No.

 IF YES TO 6+ MONTHS: "What are the activities you have trouble doing because of health?"
[Interviewer records responses.]
 "Would you say your difficulty doing these activities is a little, some, or a lot?" A little, Some, A lot.
4. **Modified from NHIS Disability Supplement, United States, 1994-1995**

[After specific questions about physical conditions, IF YES TO ANY:]
"During the past 12 months, did any of these problems seriously interfere with ... ability to work or attend school or to manage ... day-to-day activities?" Yes, No.

[After specific questions about cognitive and emotional problems, IF YES TO ANY:]
"During the past 12 months, did any of these problems seriously interfere with ... ability to work or attend school or to manage ... day-to-day activities?" Yes, No.

5. **Modified from the Baltimore Longitudinal Study of Aging Followup 1**
"Would you describe your overall level of functioning in your home, work, and leisure activities as: excellent, very good, good, fair, poor, don't know?" Excellent, Very good, Good, Fair, Poor.

For #1,3,4,5: See items 29, 45, 19, and 42 in Figure 2.
During the past 4 weeks . . .
How much difficulty have you had doing your usual activities or task, both inside and outside the house because of your physical and emotional health?

<table>
<thead>
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<th>Difficulty Level</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>No difficulty at all</td>
<td>1</td>
</tr>
<tr>
<td>A little bit of difficulty</td>
<td>2</td>
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<tr>
<td>Some difficulty</td>
<td>3</td>
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<td>Much difficulty</td>
<td>4</td>
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