

*HEALTH ON EQUAL TERMS*

# Objective and background of the questions in the national public health survey

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## Summary

This report presents a quality review of the questions in Sweden's national public health survey "Health on equal terms". The questions in the national public health survey cover physical and mental health, consumption of pharmaceuticals, contact with healthcare services, dental health, living habits, financial conditions, work and occupation, work environment, safety and social relationships. The questionnaire includes some 70 questions on a total of 16 pages. The survey has been conducted every year since 2004.

Many questions in the national public health survey originally come from surveys previously conducted by county councils. The questions were chosen and revised in the method group<sup>1</sup> and tested in a pilot study (November 2003).

In the report, the validation of the questions primarily comprises construct validity, the question's metric capacity to differentiate, previous use of the question and the inherent dropout ratio of the question. The objective of a construct validation is to illustrate whether the measure really measures what is intended to be measured. This was done in part through a theoretical review of what is intended to be measured and in part through analyses of whether the question generates expected or meaningful correlations to health status, gender, socio-economic classes and/or ages. The construct validity of each individual question was also tested at Statistics Sweden's measurements laboratory. Test subjects completed the questionnaire and were asked to explain how they perceived the questions and their thought process when they answered each respective question. These tests then resulted in the modification of some questions. The questions regarding eating habits and physical activity were prepared in a validation study conducted by the National Food Administration.

This report will be revised regularly.

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<sup>1</sup> The method group is the workgroup that actively contributed its expertise to formulate this survey in the best possible way. The method group comprises people from the county councils' public health units and researchers tied to these units. Representatives from Statistics Sweden and the National Board of Health and Welfare are also in the group. The group is led by the Swedish National Institute of Public Health.

## Abbreviations used in the report

|                          |   |
|--------------------------|---|
| HET                      | Health on Equal Terms, the National Public Health Survey  |
| SNIPH                    | Swedish National Institute of Public Health   |
| CDUST                    | The so-called CDUST counties comprise the county councils of Uppsala, Värmland, Västmanland, Örebro and Södermanland. |
| SCB                      | Statistics Sweden   |
| SLC                      | Survey of Living Conditions   |
| WHO                      | World Health Organization   |
| EU                       | European Union  |
| CDC                      | Centers for Disease Control   |
| Norrland county councils | The county councils of Västernorrland, Jämtland, Västerbotten and Norrbotten.   |
| SF-36                    | 36-item short-form health survey  |
| EQ5D                     | Euroqol quality of life scale   |
| QALY                     | Quality adjusted life years   |
| DALY                     | Disability Adjusted Life Years  |
| MOA                      | Modern working and living conditions for women and men  |
| HoMo                     | Ombudsman against Discrimination on Grounds of Sexual Orientation   |
| HO                       | Disability Ombudsman  |
| JämO                     | Equal Opportunities Ombudsman   |
| DO                       | Ombudsman against Ethnic Discrimination   |
| Hbt                      | Homosexual, bisexual and transsexual persons  |
| SEI                      | Socioeconomic distribution  |
| SSYK                     | Swedish standard for occupational classification  |

# Introduction

The majority of the questions in the national public health survey “Health on Equal Terms” (HET) originally come from surveys previously conducted by the county councils of Norrland, Stockholm, Region Västra Götaland, Region Skåne and the CDUST<sup>2</sup>-counties and/or from Statistics Sweden’s Survey of Living Conditions (SLC). The questions were chosen and revised in the method group<sup>3</sup> and tested in Statistics Sweden’s measurements laboratory and in a pilot study (November 2003).

Empirical validity tests that provide exact results are difficult to carry out in the psychosocial field, which includes many of the questions in the questionnaire. The validation of the questions in HET primarily comprises construct validity, the question’s metric capacity to differentiate, previous use of the question and the inherent dropout rate in previous surveys.

The objective of a construct validation is to illustrate whether the measure really measures what it is intended to measure. This was done in part through a theoretical review of what is intended to be measured and in part through analyses of whether the question generates expected or meaningful correlations to health status, gender, socioeconomic classes and/or ages. The construct validity of each individual question was also tested at Statistics Sweden’s measurements laboratory. Test subjects completed the questionnaire and were asked to explain how they perceived the questions and their thought process when they answered each respective question. These tests then resulted in the modification of some questions.

Some of the questions comprise very “blunt” measurement instruments for reasons of space. These questions are not expected to generate any major knowledge measured on a single occasion, but rather can only provide rough indications of potential changes over time. The majority of the determinants are multi-dimensional and the battery of questions needed to illustrate all aspects is larger than that possible in a public health survey.

This report will be revised as the questions in the national public health survey are refined.

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<sup>2</sup> The so-called CDUST counties comprise the county councils of Uppsala, Värmland, Västmanland, Örebro and Södermanland.

<sup>3</sup> The method group is the workgroup that actively contributed its expertise to design this survey in the best way. The method group comprises people from the county councils’ public health units and researchers tied to these units. Representatives from Statistics Sweden and the National Board of Health and Welfare are also in the group. The group is led by the Swedish National Institute of Public Health.

# Health

On the basis of the WHO's classical definition that includes physical, mental and social well-being, HET focuses on the following illness indicators: *Self-assessed general health, quality of life, accidents, disease, symptoms/ailments, sleep, stress, overweight/obesity, mental well-being and dental health.*

## *Self-assessed general health*

### How do you rate your general state of health?

- 1  Very good
- 2  Good
- 3  Fair
- 4  Poor
- 5  Very poor

The issue of general state of health is included in HET every year.



**Figure 1.** *Distribution of the responses to the question about general state of health, 2004.* Source: National Public Health Survey *Health on equal terms*, National Institute of Public Health.

Self-reported general state of health has been shown to be a strong predictor of mortality in a number of studies (1-5). The question is of central importance to monitor the health trend in various population groups over time. The current question design has been used since 1996 in SLC and several of the county councils' public health surveys. General health measured on a five-degree scale is also one of the questions agreed upon in the EU. Experience from Skåne's survey where a seven-degree scale was also used has shown that while the five-degree scale generally indicates a unimodal distribution, there are tendencies of a bimodal distribution in the seven-degree scale with a peak among those who are not feeling very well. Consequently, the seven-degree scale may possibly be preferable in studies of various patient groups, for example. The five-degree scale



shows a skewed distribution (skewness = 0.492, standard error = 0.104) towards a predominantly good state of health.

On the basis of the five-degree question design, the variable "less than good" is often found in the literature, in other words the breakpoint is often placed between good and fair. In theory, this is not an obvious breakpoint since the alternative "fair" means neither good or poor. In terms of the response alternatives, a recommended alternative approach is to create three categories: Good health (good + very good), Fair, Poor health (poor + very poor).

### *Health-related quality of life*

Quality of life is a broad term that can refer to a number of different aspects in life and is not a directly measurable variable. There are no major differences between operationalisations of health and quality of life in the healthcare field so it may be difficult to differentiate these terms (6). The term health-related quality of life most often includes factors such as perceived well-being, symptoms and function in daily activities. One of the reasons that quality of life measurements have become increasingly common is that the WHO definition of the term health has been broadened and not only refers to the absence of illness. The diseases and illness of today do not usually entail any threat to life, but can have a negative impact on the person's living situation such as a reduced capacity to work, less social contact, etc.

**Considering your physical health, how many days *in the past 30-day period* would you say that it has not been good (due to illness, physical problems or injuries)?**

State number of days between 0 and 30.

 Days

**Considering your mental health, how many days *in the past 30-day period* would you say that it has not been good (due to stress, depression or anxiety)?**

State number of days between 0 and 30.

 Days

**For how many days *during the past 30-day period* did poor physical or mental health lower your work capacity or hinder you in your daily activities?**

State number of days between 0 and 30.

 Days

In HET, the quality of life measure of “Healthy Days” is used: The number of days of good physical health and good mental health, and the number of days where health was an obstacle to being able to work or conduct daily activities. This measure was developed by the U.S. Centers for Disease Control (CDC) and is intended for a normal population. The measure aims to indicate the number of days of good physical and mental health. It was tested in Gävleborg (6) and was used in 2002 in surveys from the Norrland county councils and Västra Götaland. A report published in May 2008 presents how the measure works in terms of dropout rate and relevant correlations and how the measure can be presented and used.

Other measures of quality of life include, for example, SF-36 (36-Item short-form health survey), EQ5D (The Euroqol Quality of life scale), QALY (Quality Adjusted Life Years), DALY (Disability Adjusted Life Years). Both QALY and DALY are based on various diseases being given different weights and being summed.

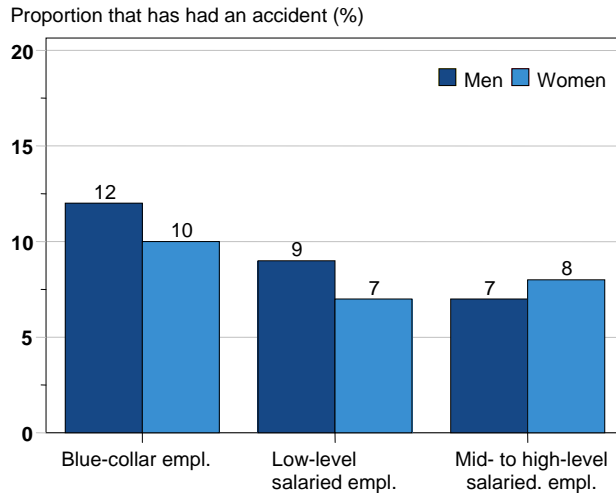
EQ5D is based on the five dimensions of mobility, self-care, usual activities, pain/discomfort and anxiety/depression. These dimensions match what health-related quality of life most often refers to relatively well. The measure can advantageously be used for different patient groups, but is less suited to population studies since it then shows a ceiling effect (7). The measure is very insensitive to variations in the upper region of the scale with regard to relatively good health. An analysis based on Norrland’s survey showed, for example, that 97.5% managed self-care, 1.9% had some problems and 0.6% could not manage it. SF-36 has proven to be more sensitive to relevant differences than EQ5D is (7). However, to use SF-36, some requirements must be met. For example, nothing may be changed either in question designs or in the look of the 36 questions that take up two whole pages in a form. Self-assessed health is measured with predominantly positive response alternatives, for example.

## *Accidents*

**Have you had an accident that has led to you seeking medical or dental care *in the past three months*?**

- 1  No
- 2  Yes, once
- 3  Yes, several times

To-date, the question about accidents has been included in the national public health survey (HET) twice (2004 and 2008). The question is intended to monitor the prevalence of accidents over time. Here, accidents are seen as a part of illness. This question has previously been used in, for example, the CDUST counties’ surveys. In the national public health survey of 2004, the inherent dropout rate was 2% for the question. Accidents (one or more) were equally common among men and women, 9%. The social differences in accidents were minor (figure 2).



**Figure 2.** Proportion of persons who had one or more accidents in the past three months, ages 18-84, 2004. Age standardised. Source: National Public Health Survey *Health on equal terms*, National Institute of Public Health.

## Disease

**Do you have any long-term illness, problems following an accident, any disability or other long-term health problem?**

1  No

2  Yes **→**

**Do these problems mean that your work capacity is diminished or hinder you in your other daily activities?**

1  No, not at all

2  Yes, to some extent

3  Yes, to a great extent

The question of long-term illness, which is included in HET every year, is of central importance both to be able to identify people with long-term illness and as an indicator of healthcare needs, which is a component of analyses of healthcare on equal terms. The question also plays an important role in defining persons with disabilities. The question originates from SLC (a variant) and has been used in several previous public health surveys, although with somewhat different formulations. For example, the question in the Stockholm questionnaire is formulated as “Do you have any long-term illness, problems after an accident, handicap or other weakness?” In cooperation with the National Board of Health and Welfare, we have modified the formulation in HET by replacing handicap with disability and “...other weakness” with “...other long-term health problem”. The latter formulation has previously been used in the CDUST counties’ questionnaire, but there the question was specified by stating “long-term illness that is longer than 6 months”. Considering the formulation of the question, the proportion that indicates a long-term illness should be smaller in the CDUST questionnaire when the time period is specified than when it is unspecified.

However, a comparison between the percentages with long-term illness in both of the regions shows a larger proportion with long-term illness in the CDUST counties than in Stockholm. A comparison between Stockholm and the CDUST counties based on SLC data, in other words where the question is measured in the same way in both of the regions, did not indicate any major regional differences. This may in part indicate that a specification of long-term illness “captures” more disease groups than the unspecified formulation does. These somewhat difficult to interpret results have led us to keep a temporally unspecified formulation of the question.

## *Functional capacity*

### *Vision*

The question about problems seeing was taken from SLC and has been included in HET since 2005.

#### **Can you see and pick out normal text in a daily newspaper without difficulty?**

- 1  Yes, without eye-glasses  
 2  Yes, with eye-glasses  
 3  No

### *Hearing*

#### **Can you hear what is being said in a conversation between several people without difficulty?**

- 1  Yes, without a hearing aid  
 2  Yes, with a hearing aid  
 3  No

### *Mobility*

#### **Can you run a fairly short distance (about 100 metres)?**

- 1  Yes **→** Go to question.  
 2  No

**Are you limited by your state of health in any of the following activities?***Place an X on each line.*

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
|  | 1                        | 2                        |
| a) Can you climb stairs without difficulty?<br><i>e.g. getting onto a bus or train</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Can you take a fairly short walk (about 5 min.) at a fairly brisk pace?             | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Do you need aids or someone's help to move about outdoors?                          | <input type="checkbox"/> | <input type="checkbox"/> |

The questions about mobility have been included in HET since 2005. They originate from Statistics Sweden's SLC survey and the initial question had an inherent dropout rate of 1.7% in 2005. Barely 20% had diminished mobility.

*Disability*

Based on the questions about long-term illness, vision, hearing and mobility, the group with a disability was defined as follows:

Do you have any long-term illness, problems after an accident, any disability or other long-term health problem? Those who answered yes to this question and also answered "Yes, to a great extent" to the follow-up question: Do these problems mean that your work capacity is diminished or hinder you in your other daily activities?

Can you see and pick out normal text in a daily newspaper without difficulty? Those who answered no to this question (not even with eyeglasses).

Can you hear what is being said in a conversation between several people without difficulty? Those who answered no to this question (not even with a hearing aid).


Those with a motor disability: Those who cannot climb stairs without difficulty, cannot take a short walk (approximately 5 minutes) at a somewhat brisk pace, need aids or the help of another person to move about outdoors.

People who belong to one or more of these four categories are defined as having a disability.

The Swedish National Institute of Public Health (SNIPH) was charged by the Government to describe the health of people with disabilities and the National Board of Health and Welfare (NBHW) is charged by the Government to develop methods to monitor the living conditions of the disabled. In connection with these assignments, the following two questions about functional impairment and disability were tested in HET in 2007.

**Do you have one or more physical, mental or medical disabilities?**

Not including temporary injury or disease.

- 1  Yes, one  
 2  Yes, two  
 3  Yes, three or more  
 4  No  Go to question.

**Does your disability/do your disabilities cause you difficulties when participating in daily activities?**

- 1  Yes, always or nearly always  
 2  Yes, sometimes  
 3  No, never

There were 2.2% that did not respond to the first question about disability. Of those who responded that they had one or more disabilities (1,690 people, 30%), 3% did not respond to the follow-up question whether the disability entails difficulty in participating in daily activities.

The group with a disability can also be defined based on these two questions: Those who answered yes to the first question and to the second question.

When these two different definitions of the group with a disability/functional impairment were compared, it turned out that they agreed very poorly. Agreement was worst with vision and hearing where a small percentage was only included in the group defined according to the new questions. Agreement was somewhat better for motor disability, but far from complete. Since the old, tried questions that all come from Statistics Sweden's SLC survey seemed to work better, we have chosen not to use the questions tested in the 2007 HET study.

*Symptoms***Do you have any of the following disorders or symptoms?**

a) Pain in the shoulders or neck?

- 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort

b) Back pain, backache, hip pains or sciatica?

1.  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort

- c) Aches or pains in hands, elbows, legs or knees?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- d) Headache or migraine?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- e) Anxiety, worry or anguish?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- f) Fatigue?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- g) Sleeping problems?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- h) Eczema or skin rashes?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- i) Ringing in the ears (tinnitus)?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- j) Incontinence (urine leakage)?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- k) Recurrent bowel trouble?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort
- l) Excess weight, obesity?  
 1  No  
 2  Yes, mild discomfort  
 3  Yes, great discomfort

These questions comprised a matrix in 2004, but have looked as above since 2005. This change was made because matrix questions may be difficult for many people to answer and consequently entail a higher inherent dropout rate. The questions are intended to be able to monitor the prevalence of difficulties commonly occurring in the population over time. The questions mainly focus on psychosomatic symptoms and include, for example, problems with the motor organs, anxiety, fatigue, sleeping, eczema, etc. The questions were drafted through discussion in the method group and variants of symptom lists have previously been used by several county councils and are also included in the SLC survey. The questions had an inherent dropout rate of 1-3%.

**Do you have any of the following diseases?***Place an X on each line.*

|                           | No                       | Yes, but no<br>discomfort | Yes, mild<br>discomfort  | Yes, great<br>discomfort |
|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|
|                           | 1                        | 2                         | 3                        | 4                        |
| a) Diabetes               | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Asthma                 | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Allergy                | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> |
| d) High blood<br>pressure | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> |

The question about diseases aims to monitor the prevalence of diabetes, high blood pressure, asthma and allergies over time. The sub-questions had an inherent dropout rate of 3-4% in 2004.

These diseases in particular were chosen because that they cannot be monitored from registry data. The questions comprise very rough measures, especially the question about allergies. Measured on a single occasion, they do not generate any considerable knowledge, but rather should be studied over time for the comparative purposes or expanded with a battery of questions for each individual condition.

*Sleeping*

Good sleep is of central importance to health because sleep is vital to physical and mental recuperation. A number of studies have shown that sleeping too little and sleeping too much are both health risks. For example, studies have shown correlations between how long one sleeps and mortality (8), the risk of cardiovascular disease (9-10) and diabetes (11). This makes it important to trace potential changes in the sleeping habits of various population groups.

The breakpoint for what is counted as adequate sleep varies between different studies and different health outcomes, but is usually estimated to lie between six to eight hours per night. For example, the study of mortality indicated an increased risk among people who slept eight hours or more or six hours or less. However, it is not just the number of hours that is crucial to good sleep, but rather the quality of the sleep as well. One study by Åkerstedt et al (12) showed a strong correlation between quality of sleep and stress as well as the social situation at work. Good sleep is considered to be a long, uninterrupted period of sleep and poor sleep is usually considered to include being awake a minimum of five times.

There are a number of factors including confounders that affect the relationship between sleep and health, such as BMI and various living habits. For example, the diabetes study showed that the extended sleepers (nine hours or more) had higher alcohol consumption and exercised less, and the short sleepers (five hours or less) tended to work in shifts to a higher extent.



In HET, sleep has been measured in part by a question about sleep duration (number of hours) and in part through a question of sleeping difficulties. The question of sleep duration was only included in HET in 2004. The question about sleeping difficulties has been included every year and is included as sub-question g in the question about symptoms and discomfort as described above.

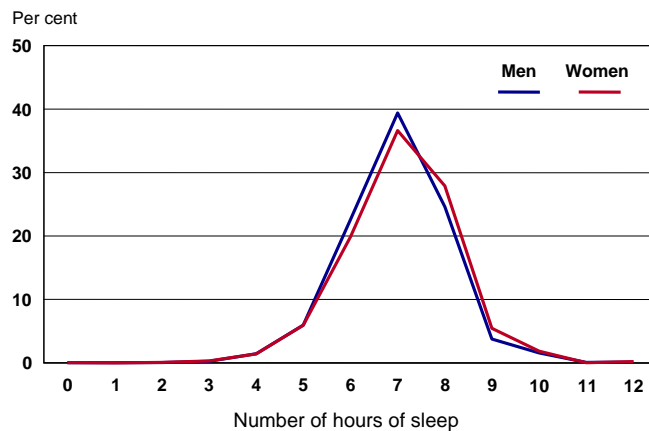
### How many hours do you usually sleep on a normal weekday night?

*If you work night/shifts, enter the average number of hours you usually sleep during a 24-hour period. Answer in whole hours.*

hours

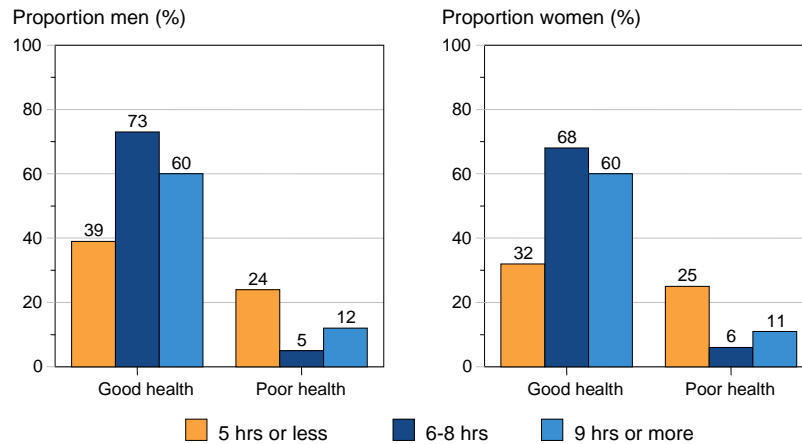
We formulated the question about how many hours one usually sleeps ourselves, which was followed by some refinement in the method group. The question has been tested in Statistics Sweden's measurements laboratory and in the pilot study.

In HET, the responses to the question followed a normal distribution (figure 2).



**Figure 2.** Distribution of the number of hours the respondents usually sleep on a weekday night, 2004. Source: National Public Health Survey *Health on equal terms*, National Institute of Public Health.

In analyses of the question, the number of hours was divided up into three categories: five hours or less, six to eight hours, and nine hours or more. The number of hours showed a significant correlation with self-assessed health among both men and women. A larger proportion of women who usually sleep five hours or less (25%) and nine hours or more (11%) indicated that they had poor health, compared with women who slept six to eight hours (6%). The same pattern also applied to men (figure 3). For the correlation with stress, refer to the section on stress below.



**Figure 3.** Proportion of men and women with good and poor health, respectively, by the number of hours one usually sleeps, 2004. Source: National Public Health Survey *Health on equal terms*, National Institute of Public Health.

## Stress

Stress is discussed a great deal today and considerable significance is often attributed to stress for the onset of poor health, such as cardiovascular diseases and musculoskeletal disorders. However, stress is a non-specific term and has today been given different meanings for different people. In HET, stress has been defined as a condition. We have attempted to minimise the problems with the term's different meanings by defining a number of negative, stress-related conditions in the question. In the medical tradition, stress is defined as a non-specific reaction to something (stressors), which need not be inherently harmful (13-14). Harmful stress arises if the stress reaction is extensively prolonged and the individual is not given the opportunity to recuperate. This definition of harmful stress touches upon the concept of burnout of current interest today. In the psychological tradition, stress arises in the interaction between the individual and his or her surroundings. A central concept in this tradition is the ability to cope, i.e. the individual's way of coping with a strain when resources are expended in connection with stress.

A conceptual model in line with the psychological tradition of how harmful stress arises is that demand exceeds supply (11). In the literature, supply usually refers to skills and resources such as support, control, meaning, good living habits and rewards. As demands, concepts such as responsibility, double-work, performance, long working hours, life events and monotony are often mentioned. A large part of the stress research in Sweden is associated with working life with Karasek's demand-control model (15) as a basis.

Previous Swedish studies (16) have shown that women perceived more stress than men and that fatigue is primarily common among single mothers and among people who are excluded from the labour market (17). In one study, Lundberg and Frankenhaeuser measured hormone levels as an indicator of stress (18). The study showed that the levels were higher among women than men both during and after the work. After the work, women with children showed higher values than anyone else that participated in the

study. Other studies have also indicated socioeconomic (19) and professional (20) differences in health-related stress levels.

#### Do you feel stressed at present?

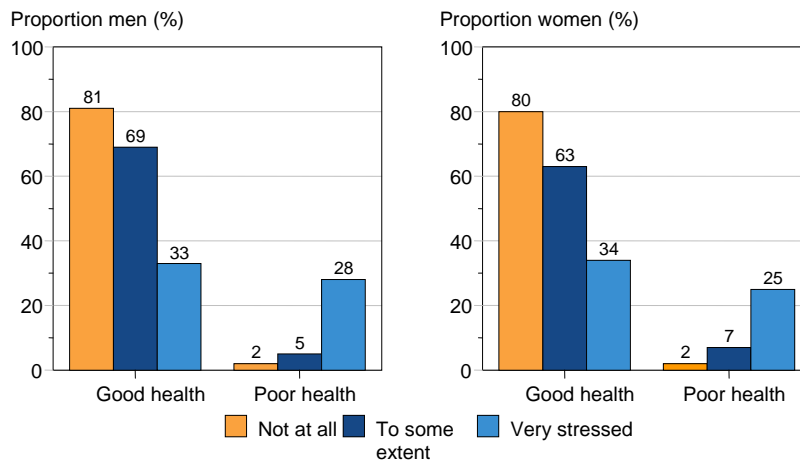
Stressed means a state in which you feel tense, restless, nervous, worried or distracted.

- 1  Not at all  
 2  To some extent  
 3  Fairly much  
 4  Very much

The question about stress has been included in HET every year. The question design originates from and has previously been used in the Norrland survey, where it worked well with regard to inherent dropout rate (1.6%) and relevant correlations. In HET, the question was modified somewhat based on recommendations from Statistics Sweden's measurements laboratory with the aim of differentiating sleeping problems and states of stress.

In analyses of the question, the breakpoint was placed between the response alternatives "not at all", "to some extent" and "fairly much", in other words the response alternatives were combined and comprise three groups. The proportion of people feeling stressed has been defined based on the proportion that indicated that they are fairly or very stressed.

The stress question indicates a significant correlation with self-assessed health (figure 4) among both men and women ( $\text{Chi}^2=558.5$  and  $504.6$ , respectively;  $\text{df}=2$ ;  $p<0.0001$ ).



**Figure 4.** Proportion of men and women with good and poor health, respectively, by stress, 2004. Source: National Public Health Survey *Health on equal terms*, National Institute of Public Health.

More women than men indicated that they were stressed (59% and 41%, respectively). The question also indicated a correlation between age among both men and women ( $\text{Chi}^2=303.4$  and  $355.1$ , respectively;  $\text{df}=6$ ;  $p<0.001$ ). The largest proportion of stressed people was among young women, ages 16-29 (26%). The largest proportion of stressed people among the men was in the age group 30-44 years (16%).

The stress question also showed significant correlations to the level of education for both men ( $\text{Chi}^2=15.7$ ;  $\text{df}=4$ ;  $p=0.003$ ) and women ( $\text{Chi}^2=29.2$ ;  $\text{df}=4$ ;  $p<0.0001$ ).

The question also indicated a correlation to sleeping difficulties among both men and women ( $\text{Chi}^2=533.4$  and  $560.0$ , respectively;  $\text{df}=2$ ;  $p<0.0001$ ). In HET 2004, participants were asked how many hours they sleep, which also showed a significant correlation to perceived state of stress among both men and women ( $\text{Chi}^2=165.4$  and  $142.6$ , respectively;  $\text{df}=4$ ;  $p<0.0001$ ). The largest proportion of stressed people was among those who slept five hours or less (29% among men and 35% among women) and among those who slept nine hours or more (13% among men and 19% among women).

## Overweight and obesity

### How tall are you?

Answer in whole centimetres.

### How much do you weigh?

Answer in whole kilograms. If you are pregnant, state how much you normally weigh.

The questions about height and weight have been included in HET every year. These questions are intended to form the basis of calculations of Body Mass Index (BMI) and thereby mainly monitor the prevalence of excess weight and obesity. There are studies where self-reported information about height and weight has been validated against information where the respondent was measured and weighed (21-28). These studies show that short-statured men who are of low weight and the elderly overestimate their height and weight. Among women, it is often more common to underestimate one's weight. Since people in blue-collar professions are on average shorter than those in salaried professions, the erroneous classification that arises in self-reported information about height can conceivably affect social differences in excess weight and obesity. Some studies have also shown this (29-30).

Excess weight and obesity are also measured through question 1) among the questions about disorders or symptoms, which illustrate the more subjective perception. Previous SLC surveys have shown gender differences in discomfort due to being overweight, which can be significant in potential measures.

Being overweight is a significant risk factor for a poor general state of health, morbidity and mortality. People suffering from obesity have symptoms such as fatigue, pains and diminished mobility significantly more often than those of a normal weight (31). If excess weight is concentrated as stomach fat, there is a higher risk of high blood pressure, cardiovascular disease, stroke and type II diabetes (32-33).

Excess weight, and obesity in particular, comprise a growing public health problem in the Western World (34-35). Several studies from various parts of Sweden show that the

proportion of overweight people is steadily increasing (36-39). It is also alarming that weight is increasing more than height among schoolchildren (40).

The methods worked out for direct determination of the amount of body fat are complicated and only available at special laboratories. For clinical and epidemiological studies, a number of indirect methods have been used over the years that are based on the correlation between weight and height. The method that best reflects the amount of body fat is the Body Mass Index, BMI, weight (in kg) divided by height squared ( $m^2$ ).

*Table 1. Distribution of BMI as per the WHO (41).*

|                     | <b>BMI (body mass index)<br/>(<math>kg/m^2</math>)</b> |
|---------------------|--|
| Underweight         | <18.5  |
| Normal weight       | 18.5-24.9  |
| Overweight          | 25-29.9  |
| Obesity, degree I   | 30-34.9  |
| Obesity, degree II  | 35-39.9  |
| Obesity, degree III | 40-  |

A serious weakness of BMI is that the measure cannot differentiate between fat and muscle mass. Changes in waist size are better than BMI at reflecting how the amount of stomach fat varies over time and have a stronger correlation with the onset of type II diabetes (42-44). In an assessment of the risks of obesity, BMI should consequently be supplemented with waist size or waist/hip ratio, especially in the BMI interval 25-30.

### *Mental well-being*

The 12 questions below comprise the survey instrument GHQ12 (General Health Questionnaire), which was validated and described in the book, *Measuring Health* (7). The questions intend to indicate mental well-being and measure mental reactions to strain rather than mental illness. The instrument is focused on interruptions in functioning “normally” rather than life-long characteristics. GHQ is designed to measure two main problems: an inability to cope with one’s “normal” functions and the appearance of new phenomena of a “distressing” nature.

To arrive at a measure of well-being, a summation index is calculated based on the 12 questions. The first two response alternatives to each question provide a value of 0 and the third and fourth alternatives provide a 1. A summation variable is created where the dropout of individual questions does not entail a dropout of the summation variable. The summation variable can have values between 0-12 points. A dichotomic variable is created: if the total < 3, the value is 0 and if the total is 3 or more, the value is 1. Those who have the value of 1 are defined as having diminished mental well-being, in other words, the breakpoint for mental well-being is proposed to be at 3 points.

The breakpoint for diminished mental well-being can be set at various levels and will then affect the magnitude of prevalence, but the measurement instrument’s ability to

discriminate is not affected. If one is interested in comparisons, it is important to use the same breakpoint, however.

This instrument has previously been used in public health surveys in Stockholm, the CDUST counties and Skåne. This measure was used in the Stockholm County Council public health surveys in 1990, 1994, 1998 and 2002. Over time, the studies have shown an increase in diminished mental well-being, primarily between 1998 and 2002, and that diminished mental well-being is more frequent among women, primarily in the age group of 21-24 year-olds and among women born abroad.

The GHQ12 survey instrument that gives a measure of mental well-being has been included in HET every year since 2004. The measure works relatively well with regard to expected correlations with e.g. self-reported health ( $\text{Chi}^2=1593.3$ ;  $\text{df}=4$ ;  $p<0.0001$ ), age ( $\text{Chi}^2=195.0$ ;  $\text{df}=3$ ;  $p<0.0001$ ) and gender ( $\text{Chi}^2=110.3$ ;  $\text{df}=1$ ;  $p<0.0001$ ). The instrument also indicates a strong correlation to the question about anxiety, worry or anguish ( $\text{Chi}^2=2527.8$ ;  $\text{df}=2$ ;  $p<0.0001$ ).

In Stockholm's questionnaire, the instrument's 12 questions showed high inherent dropout rates, up to 12% for each individual question. However, these high inherent dropout rates were not found in the CDUST counties, in Skåne's questionnaire (approximately 5%) or in HET 2004, where the inherent dropout rate was approximately 1%.

**Have you been able to concentrate on all your activities in the past few weeks?**

- 1  Better than usual  
 2  As usual  
 3  Worse than usual  
 4  Much worse than usual

**In the past few weeks have you felt that you can appreciate what you have accomplished during the day?**

- 1  More than usual  
 2  As usual  
 3  Worse than usual  
 4  Much less than usual

**Have you had any trouble sleeping due to worry in the past few weeks?**

- 1  None at all  
 2  Not more than usual  
 3  More than usual  
 4  Much more than usual

**Have you been able to manage your problems in the past few weeks?**

- 1  Better than usual  
 2  As usual  
 3  Worse than usual  
 4  Much worse than usual

**Do you feel that you have accomplished things in the past few weeks?**

- 1  More than usual  
 2  As usual  
 3  Less than usual  
 4  Much less than usual

**Have you felt dejected and depressed in the past few weeks?**

- 1  Not at all  
 2  No more than usual  
 3  More than usual  
 4  Much more than usual

**Have you been able to make various decisions *in the past few weeks?***

- 1  Better than usual  
 2  As usual  
 3  Worse than usual  
 4  Much worse than usual

**Have you lost faith in yourself *in the past few weeks?***

- 1  Not at all  
 2  Not more than usual  
 3  More than usual  
 4  Much more than usual

**Have you felt constant tension *in the past few weeks?***

- 1  Not at all  
 2  Not more than usual  
 3  More than usual  
 4  Much more than usual

**Have you felt worthless *in the past few weeks?***

- 1  Not at all  
 2  Not more than usual  
 3  More than usual  
 4  Much more than usual

**Have you felt that you cannot manage your problems *in the past few weeks?***

- 1  Not at all  
 2  Not more than usual  
 3  More than usual  
 4  Much more than usual

**Have you been relatively happy *in the past few weeks?***

- 1  More than usual  
 2  As usual  
 3  Less than usual  
 4  Much less than usual

*Suicidal thoughts and suicide attempts*

The questions about suicidal thoughts and suicide attempts have been included in HET since 2005.

**Have you at any time found yourself in a situation where you have seriously considered taking your own life?**

- 1  No  
 2  Yes, once  
 3  Yes, several times

**Have you ever tried to take your own life?**

- 1  No  
 2  Yes, once  
 3  Yes, several times

The questions originally come from Stockholm's public health survey and have been prepared at the unit for suicide prevention. In Stockholm, the response alternatives were somewhat differently formulated: No, never. Yes, in the past week. Yes, in the past year. Yes, more than one year ago. Since the questions about thoughts of suicide and suicide attempts were considered to be sensitive, the less sensitive response alternatives were

often chosen in HET. The questions have worked well in HET and have an inherent dropout rate of nearly 1%.

The question about suicidal thoughts works well with regard to expected correlations to e.g. self-reported health ( $\text{Chi}^2=248.9$ ;  $\text{df}=4$ ;  $p<0.0001$ ), age ( $\text{Chi}^2=100.1$ ;  $\text{df}=3$ ;  $p<0.0001$ ) and gender ( $\text{Chi}^2=23.2$ ;  $\text{df}=1$ ;  $p<0.0001$ ). The questions also indicate a strong correlation to the question about anxiety, worry or anguish ( $\text{Chi}^2=602.4$ ;  $\text{df}=2$ ;  $p<0.0001$ ) and GHQ12 ( $\text{Chi}^2=406.5$ ;  $\text{df}=1$ ;  $p<0.0001$ ).

The question about suicidal thoughts also works well with regard to expected correlations to e.g. self-reported health ( $\text{Chi}^2=134.6$ ;  $\text{df}=4$ ;  $p<0.0001$ ), age ( $\text{Chi}^2=39.7$ ;  $\text{df}=3$ ;  $p<0.0001$ ) and gender ( $\text{Chi}^2=16.6$ ;  $\text{df}=1$ ;  $p<0.0001$ ). The questions also indicate a strong correlation with the question about anxiety, worry or anguish ( $\text{Chi}^2=201.7$ ;  $\text{df}=2$ ;  $p<0.0001$ ) and GHQ12 ( $\text{Chi}^2=142.1$ ;  $\text{df}=1$ ;  $p<0.0001$ ).



## Dental health

Dental health comprises an important part of the quality of life and well-being of individuals. The quality of the teeth can be said to have a double correlation with eating habits, in part by the food affecting dental health and in part by tooth quality affecting dietary intake. In the public health policy target area of *good eating habits*, the importance of good dental health is emphasized to be able to assimilate the food. In the past 25 years, dental health has become better in Sweden. This can partially be due to the introduction of generous public dental insurance. The insurance system has, however, become less generous and since the 1990s the patients have themselves had to pay for a larger part of the cost. Even though dental health in the population as a whole has improved considerably, significant socioeconomic differences remain (45). This makes it important to monitor dental care consumption and potential changes in dental health.

The questions about dental health are set-up based on a similar principle as the questions about the general state of health. A global question about general dental health that is supplemented with a symptom list and two questions about care utilisation.

### *General dental health*

#### **What do you think about your dental health?**

- 1  Very good
- 2  Quite good
- 3  Neither good nor bad
- 4  Quite poor
- 5  Very poor

This question was previously used in Norrland's and Västra Götaland's questionnaire. The question has been included in HET since 2004, works well and has an inherent dropout rate of 1%. The question shows an expected correlation with both educational level ( $\text{Chi}^2=196.3$ ;  $\text{df}=16$ ;  $p<0.0001$ ) and age ( $\text{Chi}^2=82.9$ ;  $\text{df}=12$ ;  $p<0.0001$ ).

## Symptom list

### Do you have any of the following problems?

Place an X on every line!

|                                   | No                       | Yes, mild symptoms       | Yes, severe symptoms     |
|-----------------------------------|--------------------------|--------------------------|--------------------------|
| a) Trouble with caries (cavities) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Bleeding gums                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Tooth-loosening                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Chewing difficulties           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Sensitive roots                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) Tooth grinding/clinching       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

The question matrix was included in HET in 2004 and was intended to be able to follow the prevalence of problems commonly occurring in the population over time. The matrix had not been used previously, but rather was worked out by the method group and worked well in Statistics Sweden's measurements laboratory. In the pilot study, the response alternative of "Do not know" was included as an extra check of how the questions worked. The proportion that responded "do not know" was between 0% and 1%, the largest share was found in the question about caries (1.6%). The inherent dropout rate in HET was between 3% and 4%. All symptoms showed a correlation with self-assessed general dental health (table 2).

**Table 2.** Proportion of people with various dental health problems by dental health. ( $n=11,725$ ). Source: National Public Health Survey *Health on equal terms* 2004, National Institute of Public Health.

| Dental health        | Caries | Bleeding | Loosening | Chewing | Roots | Grinding | Total |
|----------------------|--------|----------|-----------|---------|-------|----------|-------|
| Very good            | 5      | 9        | 1         | 1       | 16    | 15       | 27    |
| Fairly good          | 26     | 20       | 4         | 4       | 26    | 21       | 46    |
| Neither good nor bad | 53     | 32       | 11        | 13      | 35    | 25       | 17    |
| Fairly poor          | 75     | 42       | 31        | 39      | 49    | 34       | 8     |
| Very poor            | 78     | 50       | 48        | 68      | 58    | 42       | 2     |
| <b>Total</b>         | 30     | 21       | 7         | 9       | 28    | 22       | 100   |

Of those who said that they had very poor dental health, 78% had caries, 50% had bleeding gums, 48% had tooth-loosening, 68% had chewing difficulty, 58% had problems with roots and 42% ground their teeth. The corresponding proportion of people with these problems in the entire survey were 30%, 21%, 7%, 9%, 28%, and 22%, respectively.

Since the correlation between general dental health and the symptom questions was so clear, we decided that the symptom questions could be left out of future public health surveys.

## *Dental care consumption*

### **When did you last visit a dentist/dental hygienist?**

- 1  Less than a year ago
- 2  Less than two years ago
- 3  Three to five years ago
- 4  More than five years ago
- 5  Have never visited a dentist /dental hygienist
- 6  Don't know/don't remember

### **Have you considered yourself in need of dental care but have refrained from seeking care during the past three months?**

- 1  No      **—————>** *Go to question.*
- 2  Yes

### **What was your reason/were your reasons for not seeking dental care?**

*Several alternatives possible.*

- 1  The problem subsided
- 1  Financial reasons
- 1  Reluctant to go (fear of dentists)
- 1  Had no time
- 1  Other reason

The question about visiting a dentist/dental hygienist was included in HET in 2004, 2006, 2007 and 2008. In 2004, the inherent dropout rate of this question was barely one per cent. The questions about refraining from dental care in spite of a need and the reason(s) for this have been included in HET every year. The question about refraining from dental care had an inherent dropout rate of slightly more than one per cent and of those who refrained from a dentist visit, 4% did not indicate a reason for this.

The questions intend to monitor consumption of dental care and have previously been used in the public health questionnaires in Norrland and Västra Götaland. The questions primarily aim to monitor potential socioeconomic differences in the consumption of dental care over the long term. Analyses of HET in 2004 showed that 67% indicated that they could not afford it as the reason for them not seeking dental care.

## Healthcare contacts

Questions about care utilisation are important for monitoring healthcare contacts over time and potential differences between different population groups (for example gender, age, socioeconomic groups, regionally/municipally). The objective for healthcare is good health and healthcare on equal terms for the entire population (46). The questions about contact with healthcare and whether one has refrained from doctors' visits in spite of having a need primarily aim to monitor "healthcare on equal terms", together with the question about long-term illness (see page 11). If healthcare is not provided on equal terms, it can contribute to more unequally distributed health. Studies have shown differences in healthcare contacts by gender, municipality, age group and also socioeconomic groups. It is important to show if the differences in care utilisation that exist are matched by differences in healthcare needs (47). Logistical regression analysis with a control for long-term illness is proposed as a method in analyses of differences in healthcare contacts. The first two questions below aim to indicate healthcare contacts and the question about long-term illness aims to indicate healthcare needs.

**Have you had contact with healthcare services in the past three months with regard to a problem or illness of your own?**

1  No

2  Yes

**In the past three months, have you visited or been visited by any of the following for a problem or illness of your own?**

*Place an X on each line.*

|  | No                       | Yes,<br>once             | Yes,<br>several<br>times |
|--|--------------------------|--------------------------|--------------------------|
|  | 1                        | 2                        | 3                        |
| a) Doctor in hospital  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Doctor at health centre, in private practice, company doctor or similar | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) District nurse  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Youth clinic  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Welfare officer   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) Psychologist  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g) Physiotherapist   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h) Naprapath, chiropractor, homeopath or similar                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| i) Have you been admitted to hospital?                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Variants of the question have previously been used in the CDUST counties and in Norrland's and Västra Götaland's questionnaires. The main difference between the question designs is that the questions were in the form of a matrix question in the CDUST questionnaire, which was not the case in Norrland and Västra Götaland. In the pilot study, the matrix design was used and the questions showed large inherent dropout rates (6.3-14.3%), which led to the matrix being replaced by two questions to be able to distinguish those who had not been in contact with healthcare services from the inherent dropout cases. In HET 2004, the response alternatives to the other question above were: Doctor at a hospital ward, local clinic or the like; district nurse; emergency ward or been admitted to hospital. As of 2005, the question has the above response alternatives. In addition, the responses "No; Yes, once; and Yes, several times" have been added since 2005.

The question about healthcare contacts had an inherent dropout rate of 2.6% and slightly more than 10% of those who had contact with healthcare services did not answer the follow-up question.

**In the past three months, have you considered yourself in need of medical care but refrained from seeking care?**

- 1  No      **—————>** Go to question.  
2  Yes

**What was the reason/were the reasons for not seeking medical care?**

*Multiple alternatives possible.*

- 1  The problem subsided  
1  The wait was too long  
1  Difficult to get through on the telephone  
1  Did not get an appointment quickly enough  
1  Negative experience of earlier visits  
1  Financial reasons  
1  Didn't have time  
1  Didn't know where to seek care  
1  Other reason

**In the past three months, have you refrained from buying prescribed medicine?**

- 1  No  
2  Yes  
3  Don't know/can't remember

**What is the main reason that you did not buy the medicine?**

- 1  Became healthy  
2  Could not afford it  
3  Had enough medicine  
4  The pharmacy was too far away  
5  Did not believe the medicine would help  
6  Other reason, state what \_\_\_\_\_

The questions intend to shed light on the groups that have been in need of care or medication, but have refrained from seeking care or buying the medicine. The questions can indicate a possible need for measures in healthcare services. These questions were previously used in other county council questionnaires such as in the CDUST counties, Norrland and Västra Götaland. Dalarna (8) has also used similar questions, but has had open response alternatives for the reasons the person did not seek care. In HET, the given response alternatives to the question about why one did not seek care in spite of needing care were modified based on the open responses that came forth in the Dalarna survey.

The questions about medical care were included in HET in 2004, 2007 and 2008. The first question had a 2% inherent dropout rate and barely 6% of those who had refrained from a doctor's visit indicated no reason for it.

The question about refraining from collecting medicine was included every year except 2007 and had a 2% inherent dropout rate. The first year (2004) did not include the question about reasons for not collecting medicine. Of those who refrained from collecting medicine, 10% did not indicate a reason for this.

# Living habits

## *Physical activity*

Physical activity is a prerequisite for a positive health trend. Regular physical activity has been shown to counteract the onset of a number of diseases, including a reduced risk of cardiovascular disease, type II diabetes, high blood pressure, high lipoprotein levels, colon cancer and depression (49). Physical activity is also of major significance to combating overweight and obesity, it strengthens muscles, joints and the immune system, and alleviates anxiety, worry and sleeping disorders. Physical activity also reduces the risk of death (50).

It is mainly the activity level in leisure time and the quality of leisure time that have been shown to be of significance to how one feels with regard to both physical capacity and general health as well as social skills, and emotional and mental health (51-54). One common recommendation is 30 minutes of physical activity per day. The physical activity should be regular and feel somewhat strenuous. The greatest risk of illness is having largely sedentary leisure time.

The question below is intended to indicate the relative degree of leisure time physical activity. It has previously been used in Stockholm's public health survey and a similar question was used in the SLC study. The question was also tested in a validation study administered by the National Food Administration (55). The results from the validation study showed that those who indicate a higher degree of physical activity are also more active as measured by activity meters called accelerometers ( $p=0.019$ ). In HET, the question has been included every year and the inherent dropout rate was 2%. The question showed expected correlations between the degree of leisure time physical activity and self-assessed health ( $\text{Chi}^2=1265.1$ ;  $\text{df}=12$ ;  $p<0.0001$ ). The question also indicated significant correlations with age, gender and socioeconomic group identity.

**How many times have you exercised and exerted yourself physically in your free time during the past 12 months?**

*If your activity varies between e.g. summer and winter, try and give an average.*

*Note! Mark only one alternative.*

- 1  Sedentary free time (Free time spent sitting down)  
*You spend your free time mostly reading, watching TV, cinema or other sedentary activities. You walk, cycle or exercise in other ways less than 2 hours a week.*
- 2  Moderate exercise in free time  
*You walk, cycle or exercise in other ways at least two hours a week without sweating. This includes cycling to and from work, other walks, normal gardening, fishing, table-tennis, bowling.*
- 3  Moderate regular exercise in free time  
*You exercise regularly 1-2 times a week for at least 30 minutes a time by running, swimming, playing tennis or badminton or doing another activity that makes you sweat.*
- 4  Regular exercise and training

*You spend time running, swimming, playing tennis or badminton, exercise gymnastics or the like at least three times a week. Each time lasts at least 30 minutes.*

The question below was intended to follow up on the public health policy objectives in the policy area of *physical activity*. The shape and accessibility of the local environment is of crucial significance to being physically active, spending time outdoors and pursuing outdoor activities or not (56). One of the public health policy sub-targets is for everyone to have access to safe areas for recreation and physical activity within a walking distance of 5-10 minutes from their home (57).

**Are there any green spaces (large parks or the like) or forested areas within a walking distance of 5-10 minutes from where you live?**

- 1  Yes
- 2  No
- 3  Do not know

This question was included in the 2004 public health survey and its inherent dropout rate was 0.6%. It turned out that 94% of the population had access to a green space within a 5-10 minute walk. The question discriminated poorly and consequently has not been included in later surveys.

**How many hours in a normal week do you do moderately strenuous activities that make you warm?**

*E.g. walks at a brisk pace, gardening, fairly hard housework, cycling, and swimming. This may vary during the year, but try and give some kind of an average. Mark one alternative.*

- 1  5 hours a week or more
- 2  More than 3 hours but less than 5 hours a week
- 3  Between 1 and 3 hours a week
- 4  At most one hour a week
- 5  Not at all

The question above aims to measure how much time is spent on moderately strenuous activities. The objective is to be able to see how large a proportion of the population achieves 30 minutes of activity a day (3.5 hours/week). Physical activity can be reported at 30 or 60 minutes per day. The question design originates from the International Physical Activity Questionnaire (IPAQ), but has been reworked to a more general question about strenuous activities during a normal week with given response alternatives. The question was tested in the aforementioned validation study where it showed a correlation with activity meters. The question was also tested to see how activity was distributed across the days of the week (58). The analysis showed that activity was somewhat evenly distributed across the days of the week among those who were physically active for more than three hours a week.

In 2004, the response alternative *Do not know/cannot say* was also included. Then, 3% did not answer. The response alternatives have been as above since 2005 and the inherent dropout rate has only increased insignificantly and was slightly more than 1% in 2005.



## *Diet*

Good eating habits and safe food are prerequisites for a positive health trend in the population (59) and comprise one of the public health policy target areas. Good eating habits in the form of fruit, vegetable and fat intake have been shown to have correlations to reduced risk of cardiovascular disease and some types of cancer (60). Diet and eating habits are also of significance to type II diabetes, overweight and caries (45).

The National Food Administration's report "The Swedish dietary recommendations translated to food" (61) emphasizes that:

- Consumption of fruit and vegetables should increase
- Consumption of bread should increase
- Total fat consumption should decrease
- Fat quality should be improved
- Consumption of "filler foods" such as sweets and alcohol should decrease.

The report shows that a woman should eat slightly more than 500 grams and a man 700 grams of fruit and vegetables per day to achieve a balanced diet. In terms of the bread intake, 6-8 slices per day are recommended.

In terms of fat intake, Willett (62) recommends that the type of fat rather than the amount is important to health. A study of the relationship between diet and mortality in women (63) indicated that it is more important to increase the regular consumption of healthy food than to reduce unhealthy consumption. In the study, a healthy dietary intake was defined as a varied consumption of fruit, vegetables, wholemeal bread, cereals, fish and dairy products with a low fat content.

Dietary studies are usually based on very extensive questionnaires and include frequency, amount and type of a large number of different foods. For reasons of space, it is difficult to illustrate eating habits in a comprehensive manner in a general public health survey.

In HET, focus has been placed on the consumption of fruits and vegetables, which has been proposed as an indicator in the target area of *good eating habits*. "The proportion of the population that consumes 500 grams of fruits and/or vegetables per day" has been proposed as a measure of the fruit and vegetable indicator (64). The questions about fruits and vegetables only measure the frequency of the intake, but can approximately be translated to a rough amount. One consumption occasion is usually estimated to be approximately 100 grams of fruits or vegetables.

The questions about fruit and vegetable consumption aim to monitor the proportion in various population groups that achieve the objective of approximately 500 grams of fruit and/or vegetables per day. All questions were included in the validation study conducted by the National Food Administration. The questions about fruits and vegetables were tested in the validation study against the more detailed questions that were detailed (65). Analyses showed that the simplified questions used in HET had a strong correlation with the more detailed questions. The validation study also showed that the questions about fruits and vegetables co-varied with fat and fibre intake.

**How often do you eat green vegetables and root vegetables?**

*Including all types of vegetables, legumes and root vegetables (except potatoes). Including fresh, frozen, tinned, stewed, vegetable juices, vegetable soups, etc. This may vary during the year, but try and give some kind of average. Mark one alternative.*

- 1  3 times a day or more  
 2  2 times a day  
 3  1 time a day  
 4  5-6 times a week  
 5  3-4 times a week  
 6  1-2 times a week  
 7  A few times a month or never

**How often do you eat fruits and berries?**

*Including all types of fruits and berries (fresh, frozen, tinned, juices, stewed, etc.). This may vary over the year, but try and give some kind of average. Mark one alternative.*

- 1  3 times a day or more  
 2  2 times a day  
 3  1 time a day  
 4  5-6 times a week  
 5  3-4 times a week  
 6  1-2 times a week  
 7  A few times a month or never

The above questions have been included in HET since 2004. To estimate the approximate proportion that achieves the recommended intake of fruits and/or vegetables (at least 5 times a day), the response alternatives are given different weights and both of the questions are added to a summation index.

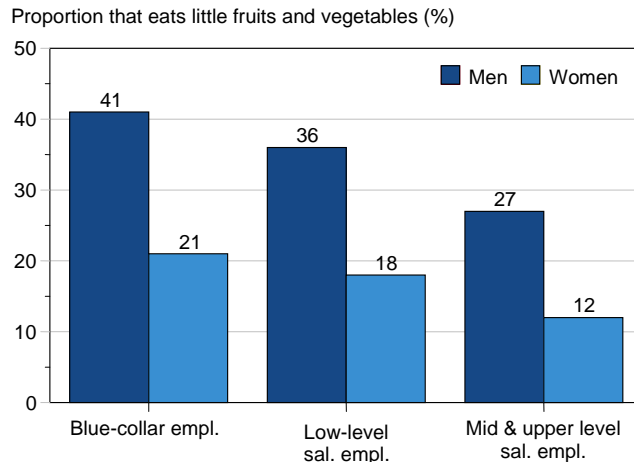
Weights for the respective response alternatives:

- 3.0 = 3 times a day or more  
 2.0 = 2 times a day  
 1.0 = 1 time a day  
 0.8 = 5-6 times a week  
 0.5 = 3-4 times a week  
 0.2 = 1-2 times a week  
 0.07 = A few times a month or never

A summation variable is created where the dropout to one question does not mean that it will be a dropout for the summation variable. The summation variable can have values between 0.07 and 6. Then a dichotomic variable is created: If the total <5, the value is set at 0 and if the total is 5 or more, the value is set at 1. Those who have the value of 1 can be considered to consume a sufficient amount of fruits and vegetables in relation to the national target. However, it turns out that a very small proportion of Sweden's population achieves the national target. Only 4% of the men and 12% of the women did so in 2004. We have therefore also created another variable for fruit and vegetable

consumption. Those who eat fruits and vegetables 1.3 times a day (the 20<sup>th</sup> percentile in 2004) or less are considered to eat little fruits and vegetables and those who eat fruits and vegetables three times a day or more (the 80<sup>th</sup> percentile in 2004) are considered to eat a lot of fruits and vegetables.

In HET, the inherent dropout rate to the question was nearly one per cent. The questions also showed the expected correlation with self-assessed health ( $\text{Chi}^2=102.9$ ;  $\text{df}=8$ ;  $p<0.0001$ ). The questions also indicated significant correlations with age, gender and socioeconomic group identity (see figure 5).



**Figure 5.** Proportion of women and men who eat little fruits and vegetables (1.3 times a day or less) by socioeconomic, 2004. Source: National Public Health Survey *Health on equal terms*, National Institute of Public Health.

In terms of fat intake, focus was placed on the fat content in the form of edible fat on a sandwich. The question about sandwich fat was included in HET in 2004 (see below).

**What type of edible fat do you usually use on a sandwich?**

Mark one alternative, the most common!

- 1  Butter / Table margarine 80 % fat, e.g. *Bregott, Flora, Linnéa*
- 2  Cooking margarine (margarine in foil), e.g. *Milda, HushållsEve, Ädel*
- 3  Medium margarine 60 % fat e.g. *Bregott Mellan, Runda Bords,*
- 4  Light margarine 30-40 % fat, e.g. *Lätta, Lätt&Lagom, Becel, LättLätt, Gaio,*
- 5  Do not use edible fat on sandwiches

The question about sandwich fat was intended to indicate the fat content of the diet and dietary awareness. In the National Board of Health and Welfare's public health report, production and sales of light margarine are presented. The question was intended as a supplement to these figures since sales figures do not allow any division into different population groups. The question added nothing in addition to the questions about fruits and vegetables, which meant that only these questions have been used in the survey as an indicator of good eating habits.

## *Smoking/moist snuff use*

Many diseases are caused or exacerbated by smoking. This is true of various types of cancer, pulmonary disease, cardiovascular disease, stomach ulcers, and so on (45).

The questions about smoking and moist snuff use aim to measure the prevalence of never having smoked or used moist snuff, smoking or using moist snuff daily, smoking or using moist snuff now and then, former smokers or moist snuff users and exposure to passive smoking. The questions originate from SLC, but have been adapted to the questionnaire method. The questions have been prepared by the workgroup for tobacco questions in the scope of the project “*Health-related living habits*” (66) and have previously been used in Norrland’s and Västra Götaland’s surveys in 2003.

The questions below have been included in HET since 2004. The questions *Do you smoke daily* and *Do you use moist snuff daily* had the response alternative *No* first in 2004. Since 2005, the response alternatives have been as below. The questions about smoking had an inherent dropout rate of barely 1% and the questions about moist snuff 1.5%. The question about passive smoking had a dropout rate of barely 2%.

### **Do you smoke daily?**

- 1  Yes    **—————>** *Go to question.*  
 2  No

### **Do you ever smoke occasionally?**

- 1  No  
 2  Yes

### **Have you previously smoked daily for at least 6 months?**

- 1  No  
 2  Yes

### **Do you use snuff daily?**

- 1  Yes    **—————>** *Go to question..*  
 2  No

### **Do you ever use snuff occasionally?**

- 1  No  
 2  Yes

### **Have you previously used snuff daily for at least 6 months?**

- 1  No  
 2  Yes

**How often do you spend time indoors in premises where other people are smoking or have just done so?  
Place an X on every line.**

|  | Every day                | One or more times a week | One or more times a week | More seldom or never     |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
|  | 1                        | 2                        | 3                        | 4                        |
| a) In your home  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) At work   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) In a cafe, bar or restaurant                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) In another place indoors, e.g. in friends' homes, in cars | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

### *Narcotics*

This question aims to indicate the prevalence and potential changes over time in the use of narcotics. Previous validation studies (67) have shown that the question about first-time use of marijuana is the most reliable compared with questions about the use of crack, cocaine, tobacco and alcohol. The question has previously been used in Stockholm's and Skåne's public health surveys. In HET, we have however included marijuana in the question. Analyses of HET 2004 indicated an inherent dropout rate of 1% and an expected correlation with age ( $\text{Chi}^2=870.9$ ;  $\text{df}=9$ ;  $p<0.0001$ ).

**Have you ever used hash or marijuana?**


- 1  No
- 2  Yes, more than a year ago
- 3  Yes, in the past year
- 4  Yes, in the past month

### *Alcohol*

High alcohol consumption can cause or contribute to a number of different negative health effects such as cirrhosis of the liver, gastritis, alcohol psychosis, alcohol poisoning and accidents. High consumption can also have a number of negative social consequences that affect the state of health and contribute to overweight and obesity.

The first three questions about alcohol originate from the Alcohol Use Disorder Identification Test (AUDIT) and have been developed by the workgroup for alcohol questions within the scope of the project "*Health-related living habits*". The questions have been tested (68). AUDIT was developed by the World Health Organization (WHO) with the aim of identifying persons whose alcohol consumption can damage their health (69). The fourth question identifies drinking for intoxication.

**How often have you drunk alcohol in the past 12 months?**

- 1  4 times a week or more  
 2  2-3 times a week  
 3  2-4 times a month  
 4  Once a month or more seldom  
 5  Never  Go to question.

**How many “glasses” (see example) do you drink on a typical day when you drink alcohol?**

- 1  1-2  
 2  3-4  
 3  5-6  
 4  7-9  
 5  10 or more  
 6  Don't know

**How often do you drink six “glasses” or more on the same occasion?**

- 1  Daily or almost every day  
 2  Every week  
 3  Every month  
 4  More seldom than once a month  
 5  Never

**How often during the past 12 months have you drunk so much alcohol that you have become drunk?**

- 1  Daily or almost daily  
 2  A few times a week  
 3  Once a week  
 4  2-3 times a month  
 5  Once a month  
 6  Once or a few times in six months  
 7  More seldom or never

With the aim of identifying risk consumers, a summation index is calculated based on the first three questions. The response alternatives of the questions are given points and then form an index based on the total points the questions provide. The first and third questions have the points 4, 3, 2, 1, 0 and the second question has 0, 1, 2, 3, 4 and the response alternative *Do not know* is counted as inherent dropout. The points from the three questions are summed so that dropout to one of the questions does not mean that it will be dropout for the summation index. The index can have a value of 0-12. Men with a total of 8-12 points are counted as risk consumers of alcohol. The corresponding boundary for women is the sum of 6-12 points. In calculating risk consumption, the question about intoxicative drinking (the fourth question) can also be included so that those who have been intoxicated 2-3 times a month or more (response alternative 1-4) are included in the group of those who have risky alcohol habits. Risky alcohol habits were calculated this way when SNIPH reports the results. In HET, the questions have been shown to have a small inherent dropout rate (1.5%, 2.5%, 0.5% and 1%, respectively).

## Gambling

The questions about gambling are mainly intended to measure the prevalence of problematic gambling. The questions were designed in cooperation with the consultants Jakob Jonsson and Ingrid Munck. The prevalence of gambling addiction was previously investigated through comprehensive batteries of questions such as the gambling addiction measures of the South Oaks Gambling Screen (SOGS-R) (70) and the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (71). An overriding problem with the use of a few screening questions is that various combinations of questions generate false positive and false negative responses to varying degrees. Based on a nationally representative prevalence study (72), Jonsson and Munch have analysed how individual sub-questions in the gambling addiction indexes and the combination of various questions affect the prevalence of problematic gambling. It is these analyses that form the basis for the choice of questions on gambling.

### Have you bought lottery tickets or placed bets at any time during the past 12 months?

Gambling means scrape-cards, bingo, casino, football pools, betting on horses, games of chance or the like and Internet games such as poker or betting.

- 1  No      **—————>** Go to question.  
2  Yes

The question above aims to distinguish those who never gamble and thereby constitutes a very rough measure of the prevalence of gambling.

### How much money have you spent on gambling in the past 7 days?

I have spent  Swedish crowns.

- 1  I have not placed any bets in the past 7 days.

The question above is intended to measure gambling consumption. Consumption is usually measured by the stakes (how much money the person bets) and the frequency of the gambling (number of times the person has played in the past 30 days). The consultants' analyses showed that the measure of the stake distinguished well between problem gamblers and other gamblers ( $F=242$ ;  $df=1$ ;  $p<0.01$  for stake in games of chance/DSM-IV).

The question has also been compared with the gambling measures of SOGS-R and DSM-IV and showed moderate correlations (0.33 and 0.29). The question will be analysed against disposable income and is thereby expected to generate more information about problematic gambling.

**How many times in the past 12 months have you ...***Put an X on each line.*

|   | Never                    | 1-2<br>times             | 3 times<br>or more       |
|---|--------------------------|--------------------------|--------------------------|
|   | 1                        | 2                        | 3                        |
| a) ... tried to reduce your gambling?                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) ... felt restless and irritated if you have been unable to gamble? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) ... lied about how much you have gambled?                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

To achieve a measure of gambling problems and gambling addiction, a summation index is calculated based on the sub-questions above. The first response alternative of “never” results in a value of 0, the second (1-2 times) results in a 1 and the third in a 2. The maximum number of points for the three questions is accordingly 6 points. This index aims to distinguish between those who have risky gambling habits (1-6 points) and other gamblers (0 points).

**Table 3.** Point distribution on the summation scale of 0-6 calculated on data material from the nationally representative prevalence study “Gambling and gambling addiction in Sweden”.

| Points                  | Frequency distribution |          |
|-------------------------|------------------------|----------|
|                         | Number                 | Per cent |
| 0                       | 6605                   | 98.0     |
| 1                       | 46                     | 0.7      |
| 2                       | 56                     | 0.8      |
| 3                       | 12                     | 0.2      |
| 4                       | 11                     | 0.2      |
| 5                       | 5                      | 0.07     |
| 6                       | 7                      | 0.1      |
| <i>Total</i>            | 6742                   | 100      |
| <i>Inherent dropout</i> | 398                    | 5.6      |

The sub-questions originate from DSM-IV, but have been adapted to a population survey through cooperation between gambling experts at SNIPH and the consultants. Statistical analyses have shown that the proportion of false positives was 1.3%, in other words 1.3% of the respondents that had at least 1 point on the summation index had no problems as per DSM-IV. The proportion of false negatives was 23.6% of the problem gamblers and 0% of those addicted to gambling according to DSM-IV.

The consultants conducted a confirming factor analysis of a general factor through structure equation modelling (SEM), which gave relatively strong support for the questions measuring what they are intended to measure. Sub-question c) “lied about



how much you have gambled” showed a factor loading of 0.75 and the question “felt restless and irritated if you have tried to cut back on your gambling...” showed a factor loading of 0.63.

The questions about gambling have been included in HET every year since 2004.

## Financial circumstances

The questions regarding financial conditions intend to measure financial margin and financial crisis, respectively. The objective of the questions is to generate a basis for follow-up of the target area of financial and social security and its significance to health. The questions originally come from SLC and have been used in the majority of the county council surveys.

### *Cash margin*

**Should you suddenly find yourself in an unforeseen situation in which you had to get hold of 15,000 Swedish crowns *in a week*, could you manage this?**

- 1  Yes  
2  No

The question regarding cash margins has been included in HET every year since 2004. Up to 2005 the sum was SEK 14,000. The sum of Swedish kronor included in the question about cash margins is calculated by Statistics Sweden and should correspond to a regular worker's salary. This question has previously been used in Skåne, Stockholm, CDUST, Norrland and Västra Götaland. However, the latter four had more response alternatives than in the national survey where we base the structure on the response alternatives in SLC. Analyses of the question in HET 2004 showed a low inherent dropout rate (1.5%) and expected correlation with socioeconomic group identity ( $\text{Chi}^2=485.8$ ;  $\text{df}=2$ ;  $p<0.0001$ ). The question showed a correlation with general state of health ( $\text{Chi}^2=161.2$ ;  $\text{df}=1$ ;  $p<0.0001$ ) and age ( $\text{Chi}^2=286.9$ ;  $\text{df}=3$ ;  $p<0.0001$ ).

### *Financial crisis*

**Have you had difficulty in managing your current expenses for food, rent, bills, etc. *in the past 12 months*?**

- 1  No  
2  Yes, once  
3  Yes, on several occasions

**Have you had difficulty in managing your current expenses for food, rent, bills, etc. *in the past 12 months*?**

- 1  No  
2  Yes, once  
3  Yes, several times

***In the past 12 months, has your salary/money run out and forced you to***

***.....***

***Place an X on every line!***

|  | No                       | Yes                      |
|--|--------------------------|--------------------------|
|  | 1                        | 2                        |
| a) borrow from family or friends to be able to buy food or pay the rent? | <input type="checkbox"/> | <input type="checkbox"/> |
| b) request social welfare to be able to buy food or pay the rent?        | <input type="checkbox"/> | <input type="checkbox"/> |
| c) refrain from paying the rent in time?                                 | <input type="checkbox"/> | <input type="checkbox"/> |

The two questions about financial crisis were included in the 2004 national public health survey (HET). Since 2005, only the first of the two questions has been included. The questions originally come from Statistics Sweden's SLC survey. The questions about financial crisis have previously been used in Skåne, CDUST, the northern county councils and Västra Götaland, but with slightly more specific response alternatives. Analyses of the first question in HET indicated a low inherent dropout rate (1.2%) and a correlation with general state of health ( $\text{Chi}^2=135.6$ ;  $\text{df}=1$ ;  $p=0.0001$ ), age ( $\text{Chi}^2=664.2$ ;  $\text{df}=3$ ;  $p<0.0001$ ) and socioeconomic identity ( $\text{Chi}^2=154.6$ ;  $\text{df}=2$ ;  $p<0.0001$ ).

This question matrix is intended as a follow-up question to the first question. The questions aim to identify level differences between financially disadvantaged groups. The sub-questions (a-c) originate from SLC and questions a and b have previously been used in Stockholm's survey. Analyses of the questions in HET 2004 showed inherent dropout rates of 2.1%, 6.5% and 6.7%, respectively.

# Work/occupation

The questions regarding occupation, profession and duties intend to measure labour-market status and socioeconomic identity. They have previously been used in SLC and the majority of the county council surveys.

In HET, the question regarding occupation is supplemented with the follow-up question regarding percentage of full time. The question aims to mainly be able to identify the groups of gainfully employed, unemployed and those on sick leave. The question regarding profession and duties forms the basis of SEI (73) and possible coding of SSKYK.

**What is your present occupation?**

*Several alternatives may be given.*

1  Gainfully employed → 

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

 % of full-time

1  Leave of absence or parental leave

1  Studying or training

1  Labour-market measure

1  Unemployed

1  Old-age pensioner

1  Sick leave/activity support (early-retirement pension, sickness pension)

1  Long-term sick-listed (more than 3 months)

1  Managing own household

1  Other, write in box 

|  |
|--|
|  |
|--|

**What is/was your occupation or what are/were your main duties?**

*If you are not gainfully employed at present, state the occupation/duties you have mainly had.*

*Try to give a job description that accurately describes your main duty. Instead of teacher write, e.g. pre-school teacher, elementary school teacher etc.*

Example: Instead of driver write e.g.:

|   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|
| B | U | S | D | R | I | V | E | R |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|

**Profession:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

**Describe your main job task**


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The questions above were used in HET 2008. In 2004-2007, the first question regarding occupation was not divided into working as an employee and as self-employed. During these years, the sub-question was b) *Describe your main job task*, but has been developed since 2008 to facilitate coding of SSYK (the new Swedish standard for occupational classification).

*Work*

There are large health discrepancies between those who are employed and those who are outside the labour market, as well as between various professional groups. For municipal and county council employees, both the work environment and well-being had a particularly negative trend in the 1990s (74).

**What is your primary employer?**

Choose one alternative!

- 1  Privately owned company
- 2  National authority/state-owned company or public utility
- 3  County council/region/county council-owned company
- 4  Municipality/municipal utility
- 5  Self-employed
- 6  Other. What? \_\_\_\_\_

The question regarding employer aims to monitor health differences over time between employees in the private sector and the national, county council and municipal public sectors. The question was included in the 2004 national public health survey (HET) and had an inherent dropout rate of 3.1%. This question has also been used in the public health surveys in Stockholm, CDUST, Norrland and Västra Götaland.

Analyses of HET 2004 showed no significant differences in self-assessed health between private and public employees. In Norrland, a significantly higher percentage of the municipal female employees rated their health as poor than the county council employees. This difference was not found among the men. In HET, 3.1% chose the "Other" alternative. Among those who specified "Other", the majority worked in some type of association.



**What is your main form of employment?***Choose one alternative!*

- 1  Self-employed
- 2  Permanent employee (employed until-further-notice)
- 3  Employed through a temp or staffing agency
- 4  Substitute employee
- 5  Project employee
- 6  Hourly employee
- 7  Trial employee
- 8  Other employment

Insecurity and a lack of control were able to be identified as significant conditions underlying people's stress reactions and illness. A Western European study (75) has shown that muscle pain and fatigue were more common among those with more insecure forms of employment (temporary and staffing employees) than among those with permanent employment. However, stress was more common among those with permanent employment, the self-employed and small business owners than among those with insecure jobs. A study by the National Institute for Working Life (NIWL) (76) showed results similar to those of the Western European study in terms of symptom occurrence. The NIWL study also emphasized an equality aspect, namely that women were overrepresented in the two forms of employment that were most problematic (needs-based and substitute employment) and underrepresented in the more advantaged forms of project and objective employment. In Sweden, the proportion of people with various types of temporary employment increased from 10% to 16% in the 1990s.

The question regarding employment type aims to monitor the significance of the type of employment (permanent or temporary employment) to health. The question was included in the 2004 national public health survey (HET) and has previously been used in Stockholm, Skåne, Norrland and Västra Götaland, although with somewhat varying response alternatives.

The response alternatives in HET have been worked out based on analyses of Stockholm's data material where the question was designed with multiple-choice alternatives. The analysis showed a number of combinations of different types of employment that were difficult to define, which may in part be due to some respondents appearing to have difficulty with the definition of "employed until further notice". In HET, we have therefore emphasized "permanent employment" and added the instruction that only one option may be chosen.

Among those who are gainfully employed (employees, entrepreneurs, ages 18-64), the inherent dropout rate was 2.8% in HET in 2004. Women were overrepresented among substitute employees (5.4% compared to 1.9% among men) and men were overrepresented among the self-employed (11.6% compared to 4.9% among women).

*Work environment*

In the population, there are major professional and socioeconomic differences in both morbidity and mortality (77). A large part of these differences can be associated in various ways to ergonomic and psychosocial (78) conditions in the work environment. Mainly three psychosocial exposure dimensions have been shown to be relevant to

health, namely social support, psychological demands and control (79). It has long been known that the combination of high psychological demands and little control at the workplace are associated with worse physical and mental health (80). Several studies indicate that support from workmates and/or management also impacts the effect of demands and control (81). The results from the 1999 MOA study (Modern Working and Living Conditions for Women and Men, Annika Härenstam) indicate that there are other aspects that are important to the correlation between work environment and health such as type of employment, possibility of recuperation and the possibility to combine gainful employment with family and free time (82).

### *Support*

The questions about support originate from SLC and are intended to measure horizontal and vertical support at the workplace. The questions have previously been used in Skåne's survey and have indicated differences relevant to health between men and women in terms of various types of support. In HET 2004, the inherent dropout rate among the gainfully employed was 5.3% for the question about support from workmates and 9.3% about support from management. Those that answered "Don't know" accounted for 1.2% and 2.8%, respectively.

**Do you receive support and help in your work from your workmates if you need it?**

- 1  Yes, usually
- 2  Yes, to some extent
- 3  No
- 4  Don't know
- 5  Have no workmates

**Do you receive support and help in your work from your boss if you need it?**

- 1  Yes, usually
- 2  Yes, to some extent
- 3  No
- 4  Don't know
- 5  Do not have a boss

### *Demand and control*

Karasek-Thorell's demand-control model (see below) is a battery of questions intended to measure the extent of demands (a-e) and personal control (decision latitude) (f-k) at work. The battery is intended to distinguish four groups with different work characteristics: 1) High demands/high control, 2) High demands/low control, 3) Low demands/high control and 4) Low demands/low control. It is mainly the interaction between high demands and low control that has been shown to be of significance to health. Psychological demands are registered with the first five questions in the battery and control is registered with the last six questions. There are various variations of how the four dimensions are distinguished. Perhaps the easiest way often used is to first create one index for demands and one for control, by adding the responses to the five and the six respective questions. The demand-control variables are then dichotomised. The breakpoints for high and low can be set with the lowest and highest quartile, respectively, or at the median value.

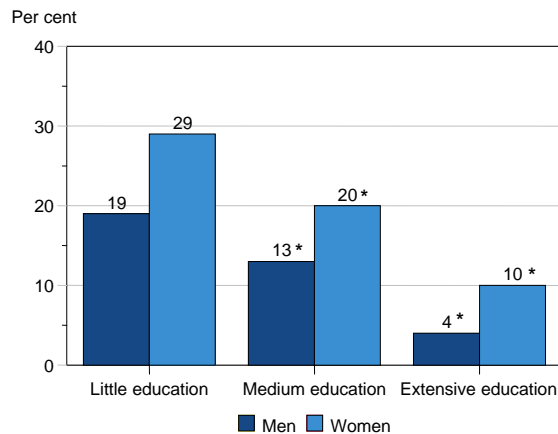


Previous validity studies (79) have shown a high degree of inherent validity for the demands index. The dimension of decision latitude has shown a high inherent agreement (high alpha values) in studies of mixed professional groups with lower values for specific professional groups. Studies have also shown differences in the correlation between demands and control for men and women. Demands being “matched” by control possibilities on the male labour market, but not on the female labour market has been described by Karasek and Theorell (83), among others. This battery of questions was previously used in Norrland’s and Västra Götaland’s surveys. HET 2004 showed an inherent dropout rate for the questions about demand-control between 3.2-4.1% among those who are gainfully employed.

**Questions about your work.** *Place an X on every line!*

|   | No,<br>virtually<br>never | No, rarely               | Yes,<br>sometimes        | Yes,<br>often            |
|---|---------------------------|--------------------------|--------------------------|--------------------------|
| a) Does your job require you to work very fast?                               | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Does your job require you to work very hard?                               | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Does your job require too much effort?                                     | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Are you given enough time to do your work?                                 | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Are there contradictory requirements in your work?                         | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) Are you given the chance to learn new things in your work?                 | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g) Does your work require skill?  | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h) Does your work require ingenuity?  | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| i) Does your work mean that you do the same thing over and over again?        | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| j) Do you have the freedom to decide <i>how</i> your work should be done?     | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| k) Do you have the freedom to decide <i>what</i> should be done in your work? | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

The questions about demand-control were included in HET 2004.



**Figure 6.** Proportion reporting that they have a work situation with high demands and low control by education, ages 18-64, 2004. Age standardised. \* involves a significant deviation from those with little education. Source: National Public Health Survey 2004 *Health on equal terms*, National Institute of Public Health.

High demands and low control were approximately evenly distributed by age, but were more common among blue-collar employees than among salaried employees and were more common among those with little education than those with extensive education (figure 6).

### *Physical work environment*

The questions regarding characteristics of the work were used in SLC and in the CDUST counties' surveys as a measure of the physical work environment. The results from CDUST (84) analyses indicated an occurrence of problems with the motor organs that was three to four times higher among those with a bad work environment than those with a good work environment. In HET, we have also added psychosocial factors such as harassment/bullying to the question.

#### **How often do the following occur in your work?**

*Place an X on every line!*

|  | Daily                    | A few days a<br>week     | Less often               | Never                    |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
|  | <b>1</b>                 | <b>2</b>                 | <b>3</b>                 | <b>4</b>                 |
| <b>a)</b> Noise (have to raise your voice to talk) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>b)</b> Chemical compounds, fumes, gases         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>c)</b> Repeated and uniform movements           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>d)</b> Heavy lifting (more than 20 kg/lift)     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>e)</b> Bullying or harassment                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Questions a-e above were included in HET in 2004. The inherent dropout rate to the questions was between 3.3% and 3.8%.

### *Satisfaction*

#### **How satisfied are you with your duties?**

- 1  Very satisfied  
 2  Fairly satisfied  
 3  Neither satisfied nor unsatisfied  
 4  Fairly unsatisfied  
 5  Very unsatisfied

The question as to whether one is satisfied with his or her duties is intended to measure perceived job satisfaction. This question has previously been used in the majority of the county council surveys (including in the CDUST counties and in Norrland). Analyses from HET 2004 showed a correlation between job satisfaction and self-assessed health ( $\text{Chi}^2=543.5$ ;  $\text{df}=12$ ;  $p<0.0001$ ). Of the women who were satisfied with their duties, 9% indicated that they were in poor health, in contrast to 2% of the women who were somewhat satisfied with their duties. The corresponding figures for men were 13% and 2%, respectively.

The question of whether one is satisfied with one's duties was included in 2004 and every year since 2006. Among those who were gainfully employed (employees, entrepreneurs, those on sick leave, those on a leave of absence/parental leave, ages 18-64), the inherent dropout rate was 3.2%.

### *Job security*

#### **Are you worried about losing your job within a year from now?**

- 1  Yes  
 2  No

The question about concern for losing one's job is intended to measure perceived job security. The question was previously used in the CDUST counties and has been shown to be a relatively strong determinant of health (84). Those who were very worried about losing their jobs were those who said that they felt good to the least extent. In HET, we have response alternatives that are different from those used by the CDUST counties, based on recommendations from Statistics Sweden's measurements laboratory. A similar question was also used in Norrland's survey, but there the respondent is asked about the risk of losing his or her job rather than his or her perceived worry.

The question regarding a worry of losing one's job was in HET in 2004 and every year since 2006. Analyses of HET 2004 showed a correlation between worry for losing one's job and self-assessed health ( $\text{Chi}^2=73.6$ ;  $\text{df}=4$ ;  $p<0.0001$ ).

### Prevention

**Does your employer offer any type of compensation for exercise or training?**

*You can mark multiple options!*

- 1  No, there is no such possibility
- 1  Not currently applicable
- 1  Possibility of training/exercising during working hours, e.g. a keep-fit hour
- 1  Subsidised gym membership, free swimming or the like
- 1  Other possibilities of training. What?

**Do you take advantage of this benefit?**

- 1  Yes, often
- 1  Yes, sometimes
- 1  No, never

The questions about employer support for preventative healthcare have previously been used in Norrland and Västra Götaland, but comprised a single question there. In HET, we have divided up the response alternatives into two questions since the pilot study in 2003 showed that several respondents marked contradicting response alternatives. The questions are associated with the public health policy target area of *physical activity*.

An analysis of HET indicated an inherent fallout rate of 8.4%. The analysis also showed a higher proportion of mid to upper-level salaried employees has access to preventative healthcare than among those who do not have access to this (48% and 28%, respectively).

## Work in the home

**Have you an ill or old relative or friend whom you help with daily activities, see to or nurse?**

1  Yes

2  No  Go to question.

**How many hours a week on average does this involve for you?**



hours a week

The question regarding care of an elderly relative has been included in HET every year since 2004. It was previously used in Skåne's survey and may become an important indicator to see potential consequences of austerity measures in healthcare. A similar question in matrix form was used in Norrland's survey, but then showed a large inherent dropout rate (14-17%). Question a) showed an inherent dropout rate of 2.3% in HET in 2004. A somewhat larger proportion of women answered "yes" to the question ( $\chi^2=7.6$ ;  $df=1$ ;  $p=0.006$ ) than men.

Studies have shown that women with children showed higher stress levels than others after the end of work (see the section on stress). In analyses of correlations between work environment and health, it is of major importance to take into consideration the extent of work in the home in the form of housework, childcare and the care of other relatives.

The question below has been included every year since 2004 and it has an inherent dropout rate of barely one per cent.

**How many hours a week do you spend working at home?** *for example, grocery shopping, preparing food, taking care of your finances, doing laundry, cleaning, taking care of children, or maintaining a car, house or garden.*

*Excluding professional work.*

1  0-2 hours/week

2  3-10 hours/week

3  11-20 hours/week

4  21-30 hours/week

5  31 hours/week or more

6  Don't know

The question of how much time is spent on work in the home is intended to measure the extent of unpaid housework and can indicate the possibility of recuperation after gainful employment and was included in HET 2004-2006. The question originates from SLC 2002:1. In HET 2004, the inherent dropout rate was 2.3% and 6.8% marked the response "Don't know". A larger proportion of women than men spent 21 hours or more per week on housework ( $\chi^2=478,7$ ;  $df=2$ ,  $p=0,0001$ ).

**Do you feel that the housework is burdensome?**

*Housework refers to taking care of the household, children or other relatives, etc.*

- 1  Never
- 2  Seldom
- 3  Sometimes
- 4  Usually
- 5  Always

The question as to whether housework feels burdensome supplements the questions about housework and the care of elderly relatives with a subjective dimension of the unpaid work. The question is intended to indicate the perceived strain from housework, which can impact recuperation after professional work. The question is also of importance to analyses of gender differences in health. The question was included in HET in 2004. It was previously used in Stockholm's public health survey in 1990, but was then used to form an index together with three other questions. In HET, we made the assessment that perceived burdensome housework should suffice as an indicator of subjective strain. According to HET 2004, the question's inherent dropout rate was 3.9%. A larger proportion of women than men perceived housework as burdensome ( $\chi^2=66.7$ ;  $df=1$ ;  $p<0.0001$ ). Among both men and women who worked professionally, the largest proportion of stressed people was among those who always or usually perceived housework as burdensome ( $\chi^2=196.8$  and  $227.1$ , respectively;  $df=4$ ;  $p=0.0001$ ). In the analyses, the response alternatives were divided into three categories: "Never/seldom", "Sometimes" and "Always/usually".

*Home and household***What type of home do you live in?**

- 1  Private house/terrace house
- 2  Co-operative flat/condominium
- 3  Rented accommodation
- 4  Lodgings/student flat/room
- 5  Other

The question of how one lives has been included in HET every year and is primarily intended to be of help in analyses of different housing areas in a municipality or key code area. The question is also a relatively strong indicator of socioeconomic group identity, but on a national level should preferably not be used as such because of marked regional variations in housing.

**Whom do you share a home with?**

*in other words, who you live with during most of the week.*

*You can mark multiple options.*

- 1  Nobody
- 1  Parents/siblings
- 1  Spouse/co-habitant/partner
- 1  Other adult
- 1  Children → How old are they?
  - 1  0-6 years old
  - 1  7-12 years old
  - 1  13-17 years old
  - 1  18 years old or older

The question about whom one shares a home with, the household composition, is a background variable that is intended to be able to distinguish groups such as single adults with or without children and co-habiting adults with or without children. The question is in the majority of county council surveys. In HET, the question has been supplemented with the follow-up question about the age of the children with the aim of being able to describe the group of single parents with small children.

## Security

### How safe and secure do you feel when you are walking alone in your residential area when it is dark?

- 1  Very safe  
 2  Fairly safe  
 3  Pretty unsafe  
 4  Very unsafe  
 5  Am never out alone when it is dark

The question about security is intended to indicate a feeling of safety and security in the residential area. In studies by the National Board of Housing, Building and Planning, safety and security in association with the property was considered by the vast majority (85%) to be the absolutely most important characteristic of a good housing area. The question was previously used in the Stockholm survey where it had an inherent dropout rate of 2.2%. The question was included in HET in 2004 and the inherent dropout rate was one per cent and 6.7% indicated that they did not go out alone when it was dark. The largest proportion that did not go out alone was in the age group of 65-84 years. The question showed expected correlations with gender and age. A larger proportion of women than men felt unsafe ( $\text{Chi}^2=1315.4$ ;  $\text{df}=4$ ;  $p<0.0001$ ) and a larger proportion in the ages 18-29 and 65-84 felt unsafe compared with those ages 30-64 ( $\text{Chi}^2=1256.7$ ;  $\text{df}=12$ ;  $p<0.0001$ ). The question also showed a correlation with self-assessed health ( $\text{Chi}^2=877.9$ ;  $\text{df}=16$ ;  $p<0.0001$ ). The same pattern was found in Stockholm's data material.

Since 2005, the question about security in the residential area has been changed to better reflect insecurity in Sweden in general. As the question was formulated in 2004, it was more applicable to those who live in cities and metropolitan suburbs and less applicable to people who live in rural areas. Since 2005, the question has been as follows.

### Do you ever refrain from going out alone for fear of being attacked, robbed or otherwise molested?

- 1  No  
 2  Yes, sometimes  
 3  Yes, often

The question has been included in HET since 2005 and the inherent dropout rate was 1.4%. The largest proportion that refrained from going out alone was in the age group of 65-84 years. The question showed expected correlations with gender and age. A significantly larger proportion of women than men had refrained from going out alone ( $\text{Chi}^2=613.2$ ;  $\text{df}=1$ ;  $p<0.0001$ ) and a larger proportion in the age groups 18-29 and 65-84 years had refrained from going out compared with those ages 30-64 ( $\text{Chi}^2=30.9$ ;  $\text{df}=3$ ;  $p<0.0001$ ). The question also showed a correlation with self-assessed health ( $\text{Chi}^2=66.2$ ;  $\text{df}=4$ ;  $p<0.0001$ ).

### Have you been subjected to physical violence in the past 12 months?

- 1  Yes  
 2  No  Go to question.



**Where did the violence take place?***Multiple alternatives possible.*

- 1  At my workplace/at work/at school  
 1  In my home  
 1  In another person's home/residential area  
 1  In a public place/at a place of entertainment/on a train, bus, underground train  
 1  Somewhere else

**Have you been subjected to threats of physical violence so that you became frightened in the past 12 months?**

- 1  Yes  
 2  No

The questions about violence are intended to indicate the prevalence of violence and were previously used in Skåne's survey. In HET, some of the response alternatives were combined for those who answered yes to question a, due to the low proportion of the population that was subjected to violence. The same question, although with a more specific design, was used in Stockholm's survey. There, the questions showed a small inherent dropout rate (0.8% and 1.7%, respectively). The questions about threats of violence and violence have been included in HET every year. In 2004, question a) showed a small inherent dropout rate (1.2%), but the inherent dropout rate was higher (3.8%) for the question about threats of violence. A somewhat larger proportion of men than women had been subjected to physical violence ( $\text{Chi}^2=17.6$ ;  $\text{df}=1$ ;  $p=0.0001$ ), but an equally large proportion of men and women had been subjected to threats. The question showed an expected correlation with age, where the largest proportion that was subjected to violence and threats of violence was in the age group of 18-29 years ( $\text{Chi}^2=282.1$  and  $177.1$ , respectively;  $\text{df}=3$ ;  $p=0.0001$ ).

## Social relationships

There are a large number of studies that support the health-enhancing effect of social relationships, primarily in terms of social networks (85), social support (86), social participation (87), trust (88), social context (89), integration (90), social capital (91-93), etc. For example, several epidemiological studies have shown that integrated individuals with strong ties to family or their surroundings live longer and are in better health than socially isolated individuals (94). Well-integrated individuals can also show a greater capacity to recover from illness. Kawachi et al (95) have shown convincing correlations between indicators of social capital (such as trust and participation) and mortality. Social participation has also been shown to have an indirect effect on health through its impact on various living habits, which in turn are of significance to health (96).

It has not been established exactly which mechanisms underlie the correlations between social relationships and health. In recent decades, the so-called stress-disease hypothesis has become a main theory, where psychosocial factors are considered to have a direct impact on health through psycho-physiological stress reactions. However, studies have shown that social relationships do not necessarily have a health-enhancing effect that is uniform to all groups in society. For example, Kawachi and Berkman have shown that for women some types of social relationships can even increase mental illness (97).

“To achieve the overall national public health target (good health on equal terms for the entire population), particular weight shall be placed in strengthening the capacity and possibility of social and cultural participation for financially and socially challenged persons and the possibility for children, young people and the elderly to have an influence on and participate in society. For the first public health policy target area “Participation and influence in society”, SNIPH has proposed three main groups of determinants: accessibility, participation and influence. Social participation and trust are sometimes used as indicators of social capital. Kawachi et al had defined social capital as the resources that are available to the individual and the group through social contacts and social relationships with others (99). The target area “Participation and influence in society” as well as the term social capital often refer to the structural, societal level rather than to the individual’s social relationships. The social climate at a structural level and its impact on health have not been as thoroughly researched and are relatively difficult to measure. Many studies that address the correlation between social capital and health are based on aggregated individual data, in other words, the actual relationships of individuals.

In HET, there are questions that indicate social support, social participation, horizontal and vertical trust and violation (perceived discrimination).

### *Social support*

A positive relationship between social support and health is generally accepted in the literature, but the dimensions used to define social support are inconsistent. The dimensions of social support most used in the literature have proved to be: emotional, instrumental and informative support and appreciation (100). Many studies have operationalised social support through the extent of social contacts (number of friends,

etc.). This quantitative aspect of social contacts can, however, be difficult to interpret, considering that not all social contacts have a health-enhancing effect. In HET, we have focused on the more qualitative aspects: emotional and instrumental (practical) support. The first question is intended to indicate emotional support and the second question indicates instrumental support.

**Do you have anyone you can share your innermost feelings with and confide in?**

- 1  Yes  
2  No

**Can you get help from another person/other persons if you have practical problems or are ill?**

E.g. get advice, borrow things, help with grocery shopping, repairs, etc.

- 1  Yes, always  
2  Yes, most of the time  
3  No, mostly not  
4  No, never

These questions were previously used by several county councils, although with slightly varying formulations. The question as to whether one has somebody to share one's inner-most feelings with was taken from Norrland's and Västra Götaland's surveys. The question originates from the larger measurement instrument SS-13, which was worked out by Undén and Orth-Gomer (101). SS-13 differentiates between two main dimensions of social support: Availability of Social Interaction (AVSI) and Availability of Social Attachment (AVAT). AVSI refers to the more quantitative aspect of social networks and consists of six questions. AVAT refers to the more qualitative emotional aspect (loyalty) and consists of six questions. SS-13 is in turn an abbreviated and simplified version of the measurement instrument, Interview Schedule for Social Interaction (ISSI) (102).

The question as to whether one has anybody who can help out with practical problems is based on questions used in Stockholm's and Skåne's questionnaires, but has been modified on recommendation by Statistics Sweden to indicate instrumental support as uniformly as possible.

In HET 2004, the inherent dropout rate on the question about emotional support was 1.4% and for the question about instrumental (practical) support, it was 1.2%. Both the question about emotional support and the question about instrumental support showed clear correlations with self-assessed health ( $\text{Chi}^2=197.0$  and  $305.7$ , respectively;  $\text{df}=4$ ;  $p<0.0001$ ). These correlations were also found in Stockholm's data material ( $\text{Chi}^2=179.6$  and  $153.6$ , respectively;  $\text{df}=1$ ;  $p<0.01$ ).

The northern county councils' questionnaire included another two questions that touched on the emotional support dimension and one question that indicates the dimension of appreciation (the questions based on AVAT). All of the questions showed significant correlations with self-assessed health (table 4).

**Table 4.** Correlation between self-assessed health and four indicators\* of support as used in the Norrland survey 2003.

|                                | Self-assessed health |    |              |
|--------------------------------|----------------------|----|--------------|
|                                | Chi <sup>2</sup>     | df | Asymp. Sign. |
| Confide <sup>1</sup>           | 17.6                 | 1  | <0.001       |
| Comfort & support <sup>2</sup> | 6.1                  | 1  | 0.014        |
| Difficulties <sup>3</sup>      | 48.1                 | 1  | <0.001       |
| Appreciation <sup>4</sup>      | 49.9                 | 1  | <0.001       |

\* Question formulations: 1. Do you have anyone with whom you can share your inner-most thoughts and feelings? 2. Does somebody ever hug you for comfort and support? 3. Besides your family, is there somebody you can turn to if you are having difficulties? Is there anyone you can easily meet, whom you trust and can receive real help from when you are having a hard time? 4. Do you believe that your family or anybody else really appreciates what you do for them?

These four indicators also showed a high inherent dependence between them. It is worth noting that the question used to indicate emotional support primarily agrees with the indicator of appreciation (table 5). In the literature, emotional support is sometimes brought up as a special dimension relative to appreciation.

**Table 5.** Proportion (%) with matching responses (yes and no, respectively) for the four indicators of support as used in the Norrland survey in 2003.

|                   | Proportion of matching responses |                   |              |              |
|-------------------|----------------------------------|-------------------|--------------|--------------|
|                   | Confide                          | Comfort & support | Difficulties | Appreciation |
| Confide           | -                                | 80                | 82           | 85           |
| Comfort & support | 80                               | -                 | 73           | 74           |
| Difficulties      | 82                               | 73                | -            | 77           |
| Appreciation      | 85                               | 74                | 77           | -            |

Among those who answered yes to the indicator question used in HET, a whole 99% had also answered yes to one or more of the other indicator questions and 65% had answered yes to all three of the other questions (table 6).

**Table 6.** Proportion (%) that answered yes to another question that indicates support among those who answered yes to the question of whether they have somebody to share their feelings with and confide in..

Source: Norrland's questionnaire 2003.

| Do you have anyone to share your feelings with and confide in? |             |
|--|-------------|
| Answered "yes" to 1 other indicator                            | 6.7         |
| Answered "yes" to 2 other indicators                           | 27.7        |
| Answered "yes" to 3 other indicators                           | 64.8        |
| <i>Total</i>   | <i>99.2</i> |

## *Social participation*

There are diverse terms related to social participation such as social integration, social context, social capital and social quality. Social participation, in terms of social relationships or the opposite, social isolation, is sometimes viewed as the core of the concept of social exclusion. Social isolation is an accepted, but little understood risk factor for morbidity and mortality (103). It has not been established exactly which mechanisms underlie the correlations between social isolation and health, which is also true of social participation.

The types of social participation can vary between various age groups, various levels of education and between various socioeconomic groups. Individuals with a high social status tend, for example, to participate in activities and contexts that demand more material resources and they also have greater access to and opportunities of participating in various activities. In his studies, Lindström (96) has shown significant socioeconomic differences in free-time physical activity. This correlation was explained almost entirely by differences in social participation in various socioeconomic groups. Social participation also explained part of the socioeconomic differences in having stopped smoking. The major socioeconomic differences in vegetable consumption also had a strong correlation with social participation.

The question below, which has been included in HET every year, is intended to measure social participation. The question was previously used in Skåne's questionnaire as an indicator of social capital. A measure of participation is calculated by adding the number of activities in which the respondents have participated. The breakpoint for low participation is usually set at one (1) activity.

**Have you taken part in any of the following activities during the past 12 months:** Multiple alternatives possible.

- Study circle/course at your workplace
- Study circle/course in free time
- Trade/professional union meeting
- Other association meeting
- Theatre/cinema
- Art exhibition
- Religious meeting
- Sports event
- Writing letters to the press
- Demonstration of any kind
- Public place of entertainment, e.g. night club, dance or similar
- Large family gathering
- Private party at somebody's home
- None of the above

Analyses based on Skåne's data material have shown clear socioeconomic differences in social participation relevant to health. The national public health survey (HET) in 2004 had an inherent dropout rate of 2.8% and expected correlation with self-assessed health ( $\text{Chi}^2=713.3$ ;  $\text{df}=4$ ;  $p<0.0001$ ) and an expected correlation with socioeconomic group identity ( $\text{Chi}^2=477.7$ ;  $\text{df}=2$ ,  $p<0.0001$ ).

In the pilot study from 2003, a question about association membership was also included as a measure of social participation. The analyses showed that everyone, except two people, who said they were active in an association, group or organisation were among those that had been classed as socially participative in the question above. For specific interest in association membership, refer to Statistics Sweden, which monitors association participation in a thorough manner.

### *Trust*

Inter-individual trust has been shown to have a correlation with self-assessed health, satisfaction with life, functional health and mortality (104). Inter-individual trust is also often an important sub-component in operationalisations of social capital (105). Wilkinson (106) has shown that in areas with large income differences individuals are less inclined to trust in each other, violence is more common and the social relationships are weaker. Wilkinson discusses this by emphasizing the effect of social status on health rather than the direct effect of social relationships. For example, low social status can entail feelings of inferiority and insecurity, which interact with other important health variables.

In HET, focus was on horizontal trust (inter-individual) and vertical or public trust.

#### **Do you believe in general that one can trust most people?**

- 1  Yes  
2  No

The question as to whether one can trust most people is intended to indicate horizontal trust and has been in HET every year since 2004. The majority of county councils include similar questions about trust, but with varying formulations and response alternatives. The formulation of the question originates from the questionnaires in Norrland, Västra Götaland and Skåne, which however has had four response alternatives. In HET, the question design has been modified according to recommendations by Statistics Sweden's measurements laboratory. In Norrland's data material, the question showed a relatively low inherent dropout rate (2.2%) and a significant correlation with self-assessed health ( $\text{Chi}^2=36.0$ ;  $\text{df}=1$ ;  $p<0.001$ ). In HET 2004, the inherent dropout rate was 2.9% and the question indicated expected correlations with both self-assessed health ( $\text{Chi}^2=360.0$ ;  $\text{df}=4$ ;  $p<0.0001$ ) and socioeconomic group identity ( $\text{Chi}^2=233.5$ ;  $\text{df}=2$ ;  $p<0.0001$ ).

**How much do you trust the following social institutions/politicians?***Place an X on each line.*

|   | Very<br>much             | Fairly<br>much           | Not all<br>that much     | Not at<br>all            | Have<br>no<br>opinion    |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|   | 1                        | 2                        | 3                        | 4                        | 5                        |
| a) Medical services                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Educational system                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Police                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Social services                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Employment services                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) National insurance service                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g) Courts of law                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h) Parliament                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| i) Politicians in your county<br>council/region | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| j) Politicians in your<br>municipality          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| k) Trade and professional<br>unions             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

The question regarding trust in social institutions is intended to indicate vertical trust. One of the advantages of this indicator is that it can be influenced more than the others above. The question was used in Stockholm's 2003 survey, but in HET the matrix was supplemented with the "Educational system" and "Courts of law". The response alternative "Trade and professional unions" (k) has also been included as of 2005.

In HET, the sub-questions in the matrix showed relatively low inherent dropout rates (between 2.8% and 6.1%). The questions about trust in the social services, the employment services and the national insurance service showed high proportions of respondents that did not have any opinion about these institutions (42%, 39% and 29%, respectively). A large proportion also answered question g) about courts of law that they had no opinion (36%). However, these sub-questions remain in HET with the aim of monitoring potential differences over time.

## Offensive treatment

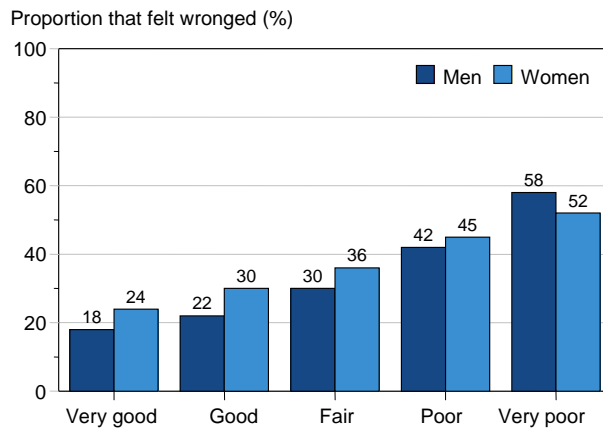
In HET, the intent has been to find some kind of indicator of discrimination/violation, but no previously used questions for general application have yet been found. There is a number of previously conducted surveys in the area, but these are most often directed at specific groups' experiences, such as those of various immigrant groups.

The three questions below have not previously been used and have been formulated in consultation with representatives from various social medicine units, SNIPH and representatives from the various ombudsmen: HoMO, HO, JämO and the DO. SNIPH has initiated an ongoing cooperation project that aims to generate knowledge and develop a common approach with regard to the concept of discrimination. Within the project, appropriate methods for measuring discrimination have been developed and the relationship between discrimination and health has been studied (107-108).

**Have you been treated in such a way that you felt wronged in the past three months?**

- 1  No      **—————>** *Go to question..*  
 2  Yes, occasionally  
 3  Yes, several times

The question regarding offensive treatment has been included in HET every year since 2004 and had an inherent dropout rate of 2.3%. Feeling wronged was more common among women than among men ( $\text{Chi}^2=89.1$ ;  $\text{df}=1$ ;  $p<0.0001$ ). The question also showed an expected correlation with self-assessed health ( $\text{Chi}^2=224.6$ ;  $\text{df}=4$ ;  $p<0.0001$ ).



**Figure 7.** Proportion of people who felt wronged by general state of health, ages 18-84, 2004. Source: National Public Health Survey, *Health on equal terms* National Institute of Public Health.

**Who treated you in such a way that you felt wronged?**

*Multiple alternatives are possible.*

- Medical services  
 School/work  
 Employment services  
 Police/legal system  
 Social services  
 National insurance service  
 Stores/restaurants



- Bank/insurance company
- Landlord/housing agency
- Close relative
- Unknown person in a public place
- Other \_\_\_\_\_

The question about who treated the respondent in an offensive manner was included in HET in 2004 and 2005. A problem with this question is that in order to have been able to be treated in an offensive manner presupposes that one has actually had contact and we do not have this information.

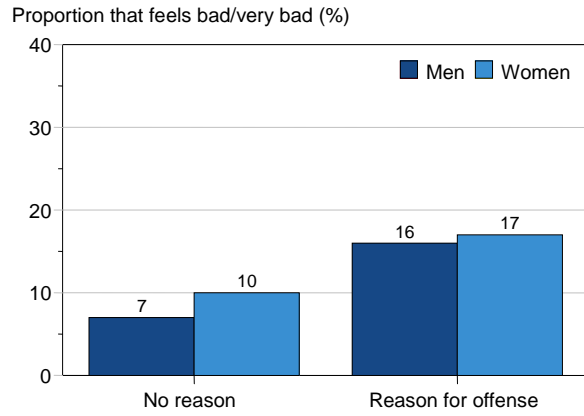
The question about what the offensive treatment was associated with has been included since 2007 when it was changed to the form below (109) after testing in Statistics Sweden's measurements laboratory. In 2004 and 2006, the question was formulated: *Why were you treated so that you felt wronged?*, these years, the response alternatives of skin colour and appearance were not included.

**Was the wrongful treatment associated with any of the following?**

*Multiple alternatives possible.*

- 1  Ethnic affiliation
- 1  Gender (sex)
- 1  Sexual disposition (preference)
- 1  Age
- 1  Disability
- 1  Religion
- 1  Skin colour
- 1  Appearance
- 1  Other
- 1  Don't know

In 2004, the inherent dropout rate for the question about the cause of the offense was 2.9%. In 2007, when skin colour and appearance were added as response alternatives, the dropout rate was 1.8%. When the new response alternatives were added, the proportion that gave a specific cause increased from 23.8% to 35.3% and the proportion that responded "other" or "don't know" decreased. Those that indicated a reason for the offensive treatment had worse health than those who did not (figure 8).



**Figure 8.** Proportion of people who had a poor or very poor general state of health by reason for offense, ages 16-84, 2007. Source: National Public Health Survey, *Health on equal terms* National Institute of Public Health.

## Background questions

### Age

**What year were you born?**

Year:

|   |   |  |  |
|---|---|--|--|
| 1 | 9 |  |  |
|---|---|--|--|

This question is posed based on year of birth, which has the advantage of the age not being affected by what time of year the person is born. An open question about age is preferable to fixed response alternatives because afterwards one can make desired age groupings and compare with other studies.

### Gender

**Are you a man or a woman?**

1  Man

2  Woman

### Education

**What is the highest level of education you have?**

If you are studying, mark the education level you are attending. Mark only one.

- 1  Primary or compulsory school
- 2  Junior secondary school or girls' school
- 3  2-year upper secondary school or vocational school
- 4  3-4-year upper secondary school
- 5  University. 2.5 years or less (less than 120 credits)
- 6  University. 3 years or more (120 credits or more)
- 7  Other education, which? \_\_\_\_\_

This question differs somewhat from the information obtained from the educational registry, which only includes completed educational programmes. In HET, respondents are asked about the highest level of their education and more focus is placed on the number of years of education to better agree with EU standards. The question design used in HET is a modification of a question that was previously used in Skåne's public health survey in 1999.

## *Sexual orientation*

In spring 2004, SNIPH conducted a pilot study that included a question about sexual orientation as a background question in the "Health on equal terms" questionnaire. The objective of the pilot study was primarily to find out if such a question would affect participation in the survey. It turned out that the question did not affect the dropout rate. The reason that we wanted to have a question about sexual orientation was a Government assignment where the Swedish National Institute of Public Health should report on the health of homosexual, bisexual and transsexual persons. By including a question about sexual orientation in HET, the health of homosexuals and bisexuals is compared with the health of the entire population. Transsexuals were assessed to be difficult to distinguish with a simple question since in this case it is not a question of sexual orientation, but rather gender identity. The Government assignment was reported in December 2005 (110-111).

The questions about sexual orientation were included in HET 2005.

### **What is your sexual orientation?**

- 1  Heterosexual
- 2  Heterosexual with some homosexual elements
- 3  Bisexual
- 4  Homosexual with some heterosexual elements
- 5  Homosexual
- 6  Uncertain of my sexual orientation

The question above about sexual orientation was included in HET in 2005 and the question then had a 5% inherent dropout rate. There were 96% who were heterosexual, barely 3% were homosexual or bisexual and 1% were uncertain of their sexual orientation.

The question about sexual orientation is also included in a simplified form in the 2008 survey (see below).

### **What is your sexual orientation?**

- 1  Heterosexual
- 2  Bisexual
- 3  Homosexual
- 4  Uncertain of my sexual orientation

## Registry data

Registry data regarding *country of birth, year of immigration, age, gender and education* have been added with the aim of being able to analyse dropout and calculate calibration weights. With the aim of being able to differentiate low and high income earners, information from the *income and property registry* has also been added to the study. This includes information regarding disposable income and how it is distributed by work income, sickness allowance, sickness or activity benefits, unemployment benefits and social welfare.

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