

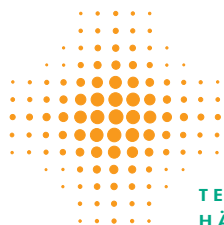


Kansanterveyslaitos
Folkhälsoinstitutet
National Public Health Institute

Kansanterveyslaitoksen julkaisuja

B12 / 2004

Publications of the National Public Health Institute



TERVEYS
HÄLSA
HEALTH
2000

HEALTH AND FUNCTIONAL CAPACITY IN FINLAND

Baseline Results of the Health 2000
Health Examination Survey

Helsinki
2004



Kansanterveyslaitos
Folkhälsöinstitutet
National Public Health Institute

Kansanterveyslaitoksen julkaisuja

B12/2004

Publications of the National Public Health Institute

HEALTH AND FUNCTIONAL CAPACITY IN FINLAND

Baseline Results of the Health 2000 Health Examination Survey

Arpo Aromaa and Seppo Koskinen, ed.

Kansanterveyslaitos
Terveiden ja toimintakyvyn osasto

KTL-National Public Health Institute, Finland
Department of Health and Functional Capacity

Helsinki 2004

Copyright National Public Health Institute

Julkaisija - Utgivare - Publisher

Kansanterveyslaitos (KTL)

Mannerheimintie 166

00300 Helsinki

Puh. vaihde (09) 47 441, telefaksi (09) 4744 8408

Folkhälsoinstitutet

Mannerheimvägen 166

00300 Helsingfors

Tel. växel (09) 47 441, telefax (09) 4744 8408

National Public Health Institute

Mannerheimintie 166

00300 Helsinki

Telephone + 358 9 47 441, telefax + 358 9 4744 8408

Publications of the National Public Health Institute, KTL B12/2004

ISBN 951-740-299-6 (print)

ISBN 951-740-300-6 (pdf)

ISSN 0359-3576

Layout Riitta Nieminen

Hakapaino Oy, Helsinki 2004

◆ ABSTRACT

Aromaa A, Koskinen S, ed. *Health and functional capacity in Finland. Baseline Results of the Health 2000 Health Examination Survey*. Publications of the National Public Health Institute B12/2004. Helsinki 2004

In the nationally representative sample including 8 028 persons aged 30 or over 88% were interviewed, 80% attended a comprehensive health examination and 5% attended a condensed examination at home in the Health 2000 Survey carried out in 2000–2001. The most essential information on health and functional capacity was obtained from more than 93% of the subjects. A large national network, coordinated by KTL, was responsible for the planning and execution of the study. This baseline report contains the first comprehensive presentation of results on the most important topics.

Two thirds of the working-aged subjects, and one third of those aged 65 or over, rated their health as good or fairly good. 44% of persons aged 30–64 had at least one longstanding illness, and among persons aged 65 or more the corresponding proportion was 82%. In comparison with data collected 20 years earlier in the Mini-Finland Survey, self-rated health of the population has improved. The prevalence of many common diseases, including coronary heart disease and many important musculoskeletal diseases, and edentulousness as well as caries, has decreased. Mental health problems were as common as 20 years earlier. Overweight has increased, smoking has increased among women and alcohol consumption has increased. On the other hand, most other central risk factors have decreased. Self-rated working capacity has improved, especially in men. Functional capacity of the elderly has improved markedly, except in the oldest old aged 85 or more.

Level of education is strongly and consistently associated with nearly all indicators of health and functional capacity. Married persons tend to be significantly healthier than single, cohabiting, divorced and widowed persons. Regional variation in health and functional capacity is also observed but its direction is different for different indicators.

◆ PREFACE

Health 2000 is an important study both nationally and internationally. It is of major importance for the planning and development of Finnish health policy, health care and social security at large. Combined with the findings from the Mini-Finland Health Examination Survey in 1978–1980, this internationally unprecedented data source provides a more in-depth picture of the development of health in Finland than any data set so far. This is the first time so many different organisations have joined forces to finance and implement such a major undertaking.

Work to first plan and execute Health 2000 and then to prepare this baseline report, got in full speed in 1999. Planning got under way in earnest in spring 1999, and the field examinations were carried out between September 2000 and June 2001. Data editing began in summer 2001, and the data sets for this report were finalised in spring 2002. An unpublished preliminary report was prepared in January 2002 for those executing and directing the study and for various interest groups.

A total of some 130 researchers and experts from different organisations were involved in planning and coordinating the project, headquartered at the National Public Health Institute KTL. To implement the field survey, the project worked closely with local authorities and obtained services from a number of companies. About 160 interviewers from Statistics Finland and some 80 nurses, dentists and physicians comprising five KTL field units carried out the field survey.

The research groups gained access to the basic tabulations in April 2002, right after implementing the statistical methods that take into account the structure of the sample. On the basis of these figures the topic specific research groups, in particular their chairmen, secretaries and other key members, proceeded to draft the manuscripts for the different parts of this report. Members of the executive committee and the editors wrote the text for the general parts of this book and edited the whole report. Many staff members from the KTL Department of Health and Functional Capacity have contributed significantly to this work: they have edited the data, created the data sets, conducted the statistical analyses, prepared the tables and compiled the manuscript.

Special thanks are due to all those who have worked so hard for the Health 2000 project and this report in particular. From the outset the atmosphere has been one of great enthusiasm and good cooperation, promising a successful future for the project. The researchers hope that the results that are made available here will serve to promote health in Finland and support the efforts of all those working towards this goal. It is also hoped that this national example will provide useful clues for the development of health monitoring in Europe. The report is also available on the KTL website at www.ktl.fi/health2000.

Arpo Aromaa

CONTENTS

1	Introduction	9
2	Population and methods	11
	2.1 Implementation of the study	11
	2.2 Population	14
	2.3 Methods	16
	2.4 Commentary on population and methods	22
3	Sociodemographic factors and living conditions	24
4	Health behaviour	33
5	Risk factors	39
6	Perceived health and chronic illness	45
7	Diseases and symptoms	47
	7.1 Cardiovascular diseases and diabetes	47
	7.2 Respiratory and skin diseases	52
	7.3 Musculoskeletal diseases	55
	7.4 Psychological symptoms and mental disorders	59
	7.5 Oral health	62
	7.6 Communicable diseases	67
8	Disabilities and permanent injuries due to accidents	70
9	Health promotion	71
10	Use of medical care	73
11	Met and unmet need for care	78
12	Functional capacity and working capacity	79
	12.1 Self-reported functional capacity	80
	12.2 Measured functional capacity	83
	12.3 Working capacity	90
13	Need for and use of help and rehabilitation	95
	13.1 Help	95
	13.2 Rehabilitation	98

14	Variation of health and functional capacity according to region, education and marital status	100
	14.1 Regional differences	100
	14.2 Differences between educational groups	103
	14.3 Differences between marital status groups	105
15	Development of health, functional and working capacity	108
16	Summary and discussion	128
	16.1 Population and methods	128
	16.2 Population health, functional capacity and their determinants at the beginning of the 21st century.....	131
	16.3 Health, functional capacity and their determinants 1980–2000.....	139
	16.4 Social and health care services and social insurance	142
17	Conclusions	146
	Literature	148

APPENDICES

	Appendix 1. Contents of the health interview	152
	Appendix 2. Contents of Questionnaires 1–3, the Symptom Interview and the Dietary Questionnaire	154
	Appendix 3. Health 2000 organisation during the planning and data collection phases	156
	Appendix 4. Research localities, periods and sample sizes by field group	160
	Appendix table 1. Age-adjusted prevalence of selected indicators of health and functional capacity and risk factors by university hospital region	164
	Appendix table 2. Age-adjusted prevalence of selected indicators of health and functional capacity and risk factors by level of education	166
	Appendix table 3. Age-adjusted prevalence of selected indicators of health and functional capacity and risk factors by marital status	168

1 INTRODUCTION

Arpo Aromaa and Seppo Koskinen

In order to promote health, to plan health care services and health and social security in general, and in order to develop health policy, we need to have a clear picture of the status and development of the population's health. To this end many countries, including Finland (Aromaa et al. 1997; Aromaa et al 1999), prepare national health reports, drawing on data from statistics, registers and population surveys, usually health interview surveys. National health examination surveys are carried out in only a few countries, such as the United States, the United Kingdom, Germany and the Netherlands. In 2000, France, Italy and Norway were also preparing health examination surveys (Koponen and Aromaa 2000), and in 2002 plans were being prepared in Portugal. The comprehensiveness of national health examinations varies widely.

In Finland, the Social Insurance Institution has since 1964 conducted national interview surveys of health security at more or less irregular intervals (Purola et al. 1967; Arinen et al. 1998). From 1965 through to the 1970s, the SII also implemented mobile clinic health examination surveys in different parts of the country (Heinonen 1966). KTL, for its part, conducts so-called Finrisk surveys in several parts of the country at five-year intervals (Vartiainen et al. 1998 and 2000), concentrating mainly on cardiovascular diseases and their risk factors. The first comprehensive combination of a health interview and health examination was the national Mini-Finland Health Examination Survey that was carried out between 1978 and 1980 (Aromaa et al. 1989). As this was the most recent source on many major public health problems such as mental disorders, musculoskeletal disorders, functional limitations and oral health problems, it was necessary urgently to start collecting such data. The 1997 Finrisk survey included a study focusing on the population aged 65 to 74 (Koskinen et al. 2003). One of its aims was to develop and try out methods for a national health examination survey. Planning for the Health 2000 survey began in autumn 1998 and its project organisation began work in March 1999.

The main aim of Health 2000 was to obtain up-to-date information on the most important public health problems in the country, their causes and treatment as well as on the population's functional capacity and working capacity. Comparisons of these new data with those from the Mini-Finland Health Examination Survey were to shed light on the development of health and functional capacity in Finland and to provide a solid foundation for forecasts of future trends in development.

The project organisation created for the study involved a large number of partners, including the Finnish Centre for Pensions, the Social Insurance Institution, the National Public Health Institute KTL, the Local Government Pensions Institution, the National Research and Development Centre for Welfare and Health STAKES, the Finnish Dental Society and the Finnish Dental Association, Statistics Finland, the Finnish Work Environment Fund, the Finnish Institute of Occupational Health, the UKK Institute for Health Promotion, the State Pensions Office and the State Work Environment Fund. Project coordination was the responsibility of the National Public Health Institute. Statistics Finland was responsible for the home interviews and the National Public Health Institute for the health examinations. After two pilot studies, personnel was recruited for five field units in June 2000. The health interviews began at the end of August 2000 and the health examinations in September 2000. The field survey proper was completed by the end of June 2001 with an interview survey of young adults. Data cleaning and editing began immediately.

The purpose of this report is to make available as soon as possible some of the main findings of the Health 2000 survey. In order to facilitate health planning the report also presents some data on the development of the population's health and on the health differences between population groups. Over the next few years a large number of thorough analyses should result in further useful information being made available.

2 POPULATION AND METHODS

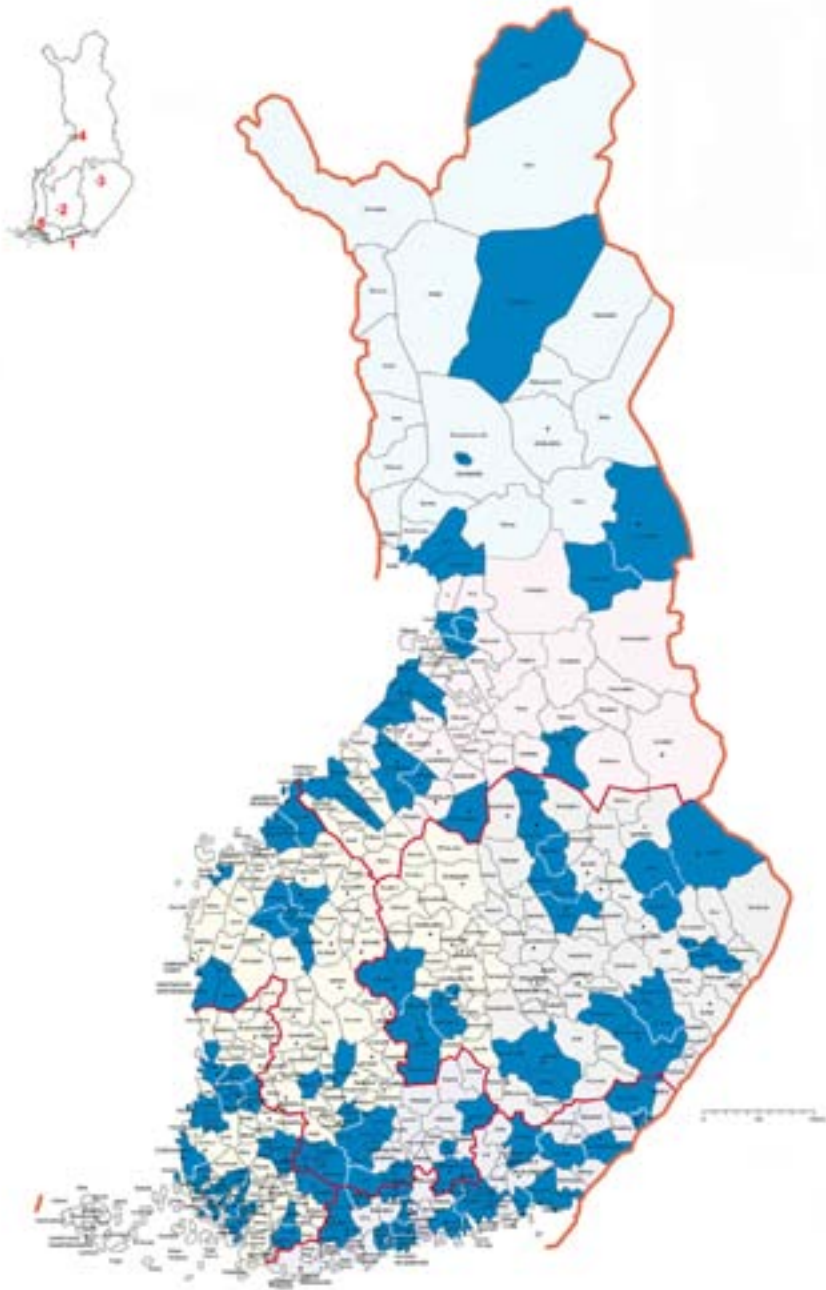
Arpo Aromaa, Seppo Koskinen and the project group, the working group for sampling, survey execution, data processing and analysis, the working group for the field health examination and other key persons in the respective organisations (see Appendix 3)

2.1 Implementation of the study

The two-stage stratified cluster sampling design was planned by Statistics Finland. The sampling frame comprised adults aged 30 years and over living in mainland Finland. This frame was regionally stratified according to the five university hospital regions, each containing roughly one million inhabitants. From each university hospital region 16 health care districts were sampled as clusters (altogether 80 health care districts in the whole country, including 160 municipalities, Fig. 2.1). The 15 largest health centre districts in the country were all selected in the sample with probability 1, and the remaining 65 health centre districts were selected by systematic PPS sampling in each stratum. Thus the 80 health centre districts were the primary sampling units. The ultimate sampling units were persons who were selected by systematic sampling from the health centre districts. Persons aged 80 years and over were oversampled by doubling the sampling fraction. For the 15 largest health centre districts, the sample sizes were proportional to population size. In the 65 PPS sampled clusters the sample sizes were equal within each university hospital region so that the total number of persons drawn from a university hospital region was proportional to the corresponding population size. The Social Insurance Institution selected the sample that comprised 8028 persons aged 30 or over. The smallest sample size in the 65 small health centre districts was 50 and the largest 100.

In addition, there were two other health studies linked to the main study described in this report. A sample of 1894 persons aged 18 to 29 years was drawn using the sampling design described above. Their study protocol was a modified and condensed version of the one used for those aged 30 or over. In order to obtain good follow-up data for the previous corresponding large health examination survey, seven municipalities were selected where all survivors from the Mini-Finland Health Examination Survey in 1978 to 1980 were invited to take part in the study (N = 1 260, aged 50 years or over).

Figure 2.1. Study locations of Health 2000.



The field survey thus comprised three parts:

1. The study of persons aged 30 years or over comprising the health interview and the health examination;
2. The follow-up survey of persons participating 20 years ago in the Mini-Finland Health Examination Survey; and
3. The survey of young adults (persons aged 18–29 years).

This report deals with the survey of those aged 30 years or over. The first phase was the health interview conducted by Statistics Finland's interview staff of more than 160. This was followed a few weeks later by a health examination that was carried out by five KTL field units comprising nurses, dentists and physicians. Each unit had a staff of 16 to 17. Suitable premises were obtained in each municipality ahead of the examinations. Transportation of all the equipment needed for the examinations (about 25 m³ per group) was organised by Kaukokiito, a private Finnish transportation system. All forms and samples were transported to KTL by delivery companies, KTL cars and by air. Blood samples were analysed in part by KTL and in part by the laboratory of the Social Insurance Institution. Results were sent back to the central database at KTL via ISDN and GSM connections, which were also used for updating programs and for e-mail contact.

Two pilot studies were carried out seven and three months before the field work started, in order to test and improve methods. All staff members attended a three-week training course in August 2000. Quality assurance and quality control measures included training, written instructions, observation, video recording and repeated and parallel measurements. In separate sub-samples observers from the five field units were compared with each other.

An ongoing information campaign prior to and during the field survey proper ensured maximum visibility for the project through both national and local media. Every possible method was used to ensure that participation was as high as possible. The interviewers from Statistics Finland played a key role in this respect. First of all, they retrieved addresses for persons who had moved from their last known address and second, they asked all interviewees to attend the health examination. Next, during the home health interview, they made an appointment for the examination. Whenever feasible an abbreviated health examination was carried out for non-respondents at home or in hospital. If this was not possible, first nurses from the field unit and then head office tried to conduct a telephone survey. Finally, a questionnaire was sent to persons not otherwise contacted. This helped to further improve the already high rate of participation. Altogether, information is now available on a larger proportion of the sample than in other studies in Finland,

and on a much larger proportion than in national health interview surveys or health examination surveys in other European countries (HIS/HES data base 2002).

Both the interviews and the results of the health examination were fed directly into laptops. In KTL's field units all computers were linked together in a wireless network. The data were encoded and sent at regular intervals to Statistics Finland or to KTL. All these technical solutions were aimed at making analysable data available much faster than is ordinarily the case in large surveys.

The fieldwork was carried out between September 2000 and July 2001. During early summer 2001, before the fieldwork was completed, work was started to clean and edit the data, to feed it into the data base and to produce additional classifications. Data cleaning was first implemented on the data needed for this baseline report.

2.2 Population

The sample of persons aged 30 years or over comprised 8 028 persons, of whom 6 986 (87%) were interviewed in their home or in an institution. The number participating in the health examination proper was 6 354, while 416 took part in the health examination at home or in an institution (Table 2.1). Overall then, 79% of the whole sample participated in the health examination proper, 84% participated either in the health examination proper or in the examination at home. Table 2.2 describes the breakdown of the sample and the participants by region. The final participation rates will be slightly higher once those who had died prior to the examination have been removed (Table 2.3). The proportion of persons for whom at least some data are available is even larger since both the telephone interviews and the final questionnaire produced a considerable number of responses.

Table 2.1. Sample and persons interviewed and examined during different phases of the survey by age group.

	Sample	Interview		Health examination		Home health examination	
	N	N	%	N	%	N	%
Men							
30–44	1316	1095	83	1018	77	31	2.4
45–54	963	833	87	789	82	26	2.7
55–64	612	541	88	512	84	11	1.8
65–74	422	378	90	345	82	22	5.2
75–84	244	212	87	172	70	32	13.1
85–	80	67	84	40	50	13	16.3
Total	3637	3126	86	2876	79	135	3.7
Women							
30–44	1353	1198	89	1137	84	36	2.7
45–54	957	872	91	838	88	18	1.9
55–64	670	613	91	592	88	14	2.1
65–74	571	497	87	461	81	25	4.4
75–84	554	459	83	341	62	100	18.1
85–	286	221	77	109	38	88	30.8
Total	4391	3860	88	3480	79	281	6.4

Table 2.2. Sample, persons interviewed and examined by university hospital region.

University hospital region ¹	Sample	Interview		Health examination		Home health examination	
	N	N	%	N	%	N	%
HUS (Helsinki)	2616	2190	83.7	2001	76.5	119	4.5
TYKS (Turku)	1101	985	89.5	911	82.7	37	3.4
TaYS (Tampere)	1851	1580	85.4	1434	77.5	117	6.3
KYS (Kuopio)	1379	1232	89.3	1103	80.0	82	5.9
OYS (Oulu)	1081	999	92.4	905	83.7	61	5.6
Total	8028	6986	87.0	6354	79.1	416	5.2

¹ the whole country was regionally stratified according to the five university hospital regions

Table 2.3. Original sample, final sample (those deceased before interview excluded), participation in different phases of data collection and non-attendants.

	Number	%
Sample	8028	
deceased before interview	51	
Final sample	7977	100.0
Participants		
home interview	6986	87.6
health examination	6354	79.7
home health examination	416	5.2
only questionnaire 1	9	0.1
telephone interview	454	5.7
final questionnaire	63	0.8
at least one of the previous	7419	93.0
Non-participants	558	7.0
refused	416	5.2
abroad	32	0.4
not contacted	110	1.4

2.3 Methods

This chapter describes the methods of the field survey as a whole; more detailed information about equipment and procedures is given in the respective chapters where results are presented. A separate report to be published later will provide more detailed information about all the methods used and about the instructions given to field workers.

Health interview

The interviewer first checked that the address was correct and then contacted the interviewee by letter, proposing a time for the interview. All Statistics Finland interviewers attended training sessions on the specific themes that were to be covered in the computer assisted interviews (CAPI). During the interviews the respondents were handed an information leaflet and an informed consent form that was returned after signing. Many replies were semi automatically classified during

the interview. There were several classification schemes supported by a complete list of municipalities, occupations, diseases, medicines, surgical operations, etc. The interviewers also made arrangements for the health examination by communicating both with the interviewee and head office. They also left a questionnaire (Questionnaire 1) that interviewees were asked to fill in and bring along to the health examination. The mean duration of the home interview was 90 minutes.

The interview was used to gather basic background and sociodemographic information, information about health and illnesses as well as use of medicines, use of health services, living habits, environment, functional capacity, work and work capacity as well as need for help and rehabilitation. The titles and subtitles describing the contents of the interview are listed in Appendix 1; the complete forms are available on KTL's website at www.ktl.fi/health2000.

Health examination

The health examination comprised nine phases (Fig. 2.2). The examinees had been asked to come to the examination at 15 minute intervals. Measurements and other data were entered directly into laptops, these were backed up on server machines and sent at regular intervals to KTL over ISDN connections.

First, the participant's personal data were checked and recorded, then Questionnaire 1 was checked for completeness and the examination procedure was explained. Questionnaire 1 retrieved information on functional capacity, symptoms, use of time and leisure activities, physical activity, alcohol consumption, mental health as well as perceived strain at work and burnout (Appendix 2). The Symptom Interview was also usually carried out in this first part of the examination: this covered respiratory and cardiovascular symptoms, atopy and allergies and musculoskeletal symptoms (Appendix 2). A card and folder were given to the examinees with their personalised examination programme as well as Questionnaire 2, which mainly contained questions on infections and vaccinations (Appendix 2) and which was to be filled in during the examination. At this stage the examinees received an information leaflet and an informed consent form for signing.

At the second station a 12-lead resting ECG was recorded both on paper and in digital format and blood pressure was measured. The ECG was sent for automated interpretation to the Social Insurance Institution's Research Centre. After a five minute rest blood pressure was measured twice from the right upper arm with the person sitting. Height was measured using a tape measure fastened to the wall.

Figure 2.2 Phases of data collection and field personnel in the Health 2000 survey.

AT HOME:	
90 minutes	INTERVIEW (by Statistics Finland's interview organisation)
30 minutes	FILLING IN QUESTIONNAIRE 1
AT HEALTH CENTRE ETC.:	
15 minutes	1 RECEPTION (observer 1) - information, informed consent, Symptom Interview - handing Questionnaire 2 and the urine sample container
15 minutes	2 MEASUREMENTS: height, body circumference, ecg, blood pressure (observer 2)
15 minutes	3 MEASUREMENTS: spirometry, bioimpedance, heel bone density (observer 3)
15 minutes	4 LABORATORY (observers 4 and 5) - drawing blood samples (100 ml), handling of samples
15 minutes	5 ORAL EXAMINATION (observers 6 and 7) - clinical oral examination, orthopantomography
15 minutes	SNACK, FILLING IN QUESTIONNAIRE 2
30 minutes	6a FUNCTIONAL CAPACITY TESTS (observer 8) - physical and cognitive capacity, vision and hearing
	6b FUNCTIONAL CAPACITY TESTS (observer 9)
30 minutes	7a CLINICAL EXAMINATION (observer 10)
	7b CLINICAL EXAMINATION (observer 11)
30 minutes	8a MENTAL HEALTH INTERVIEW (observer 12)
	8b MENTAL HEALTH INTERVIEW (observer 13)
15 minutes	9 FINAL INTERVIEW (observer 14) - checking that all examinations and questionnaires have been completed - handing Questionnaire 3 and Dietary Questionnaire - information about the previous and possible further examinations
altogether about 3 hours and 15 minutes	
AT HOME:	
(100 minutes)	(HEALTH EXAMINATION FOR THOSE NOT ATTENDING THE HEALTH EXAMINATION PROPER AT THE HEALTH CENTRE ETC.) (observers 15 and 16)
40 minutes	FILLING IN QUESTIONNAIRE 3 AND DIETARY QUESTIONNAIRE
AT UNIVERSITY HOSPITALS AND RESEARCH INSTITUTES:	
FURTHER EXAMINATIONS FOR SUBSAMPLES	
FROM REGISTERS:	
REGISTER DATA	

The third station comprised an examination of respiratory function, i.e. spirometry (two measurements), bioimpedance and heel bone density. During bioimpedance measurement the person was also weighed. Bioimpedance measurement provided a wide range of data on body fat content and other consistency.

All examinees had been asked to come to the examination fasting and without drinking on the same day. In the laboratory the nurse recorded how these instructions had been followed and then took the blood samples. Most of them were intended as serum or plasma samples, two were used for DNA separation. The samples were centrifuged at the examination site and placed into deep freezers at -20°C before they were transferred within one week to the National Public Health Institute and stored in deep freezers at -70°C .

The fifth station was manned by a dentist and dental nurse. The dental nurse recorded the results of the oral examination according to the dentist's dictation. Finally, digital orthopantomography of the jaws was carried out, with a picture generated on a PC screen and a printout produced for the examinee.

After the oral examination, light snacks and refreshments were served comprising juice, coffee, rolls and fruit. During this break the examinees were asked to complete Questionnaire 2.

Examinations of functional capacity comprised tests of near and distant vision as well as vision in dim light, a hearing test with an audiometer at three different frequencies, as well as a test of reaction time, word memory, verbal fluency, hand grip strength of the dominating hand, and balance using force platform posturography. Those aged 55 or over furthermore underwent a test for walking speed, chair rise speed and function of joints in the lower and upper limbs. Persons under 55 took an isometric endurance test of the back.

Next, the physician took a history and performed a standard clinical examination that additionally comprised a large number of tests related to joint function and joint movements. The doctor was also expected to assess and explain the previous findings and to give advice to the examinee concerning possible future treatment.

The last examination station proper was the computer assisted mental health interview (CIDI). Its main concerns were with anxiety and depression, alcohol and drug dependence and psychoses.

At the final interview station a nurse checked that the examinee had visited all the stations in the programme and that the questionnaires had been filled in. Furthermore, the examinee was handed the Dietary Questionnaire and Questionnaire 3 (Appendix 2): these were to be filled in at home and mailed to the National Public Health Institute. In this connection the examinees were also

asked whether they had any questions, and they were given further advice related to the findings or otherwise to their health. Finally, the nurse informed the examinee about further examinations that would be carried out at central university hospitals, and to which an invitation would later be mailed to people aged 45 to 74 years.

The examinees were given immediate feedback on many test results, including blood pressure, ECG recordings, respiratory function, the bioimpedance results, the orthopantomography pictures, the results of vision and hearing tests as well as the field personnel's assessments of the findings and their possible implications.

Home health examination

Our aim was to examine at home all those persons who did not participate in the health examination proper. The home examination comprised many of the same measurements as the examination proper, and an abbreviated health interview was conducted if the main health interview had not been carried out.

Telephone interview and final questionnaire

If a person had not been contacted or had not participated in the survey, he or she was called and those consenting were interviewed by phone. The Telephone Interview was based upon the home health interview and Questionnaire 1, but for obvious reasons it was much shorter. For those who had not participated in any of the previous stages, a Final Questionnaire was sent by mail, covering the same topics as the Telephone Interview.

Further feedback to the examinees

The examinees were also informed about the results of many further measurements and the analyses of serum samples. The aim was to provide this feedback within two to three months of the field examination, but unfortunately this target was often missed by a long way.

Data cleaning and editing

Much of the data were collected using computerised forms and were therefore formally correct. The questionnaire forms were checked and then sent out for recording to an outside company. All data were tested for formal correctness, starting with the variables needed for this baseline report. A limited number of checks between variables and logical corrections were also made. Finally, the original variables were combined and transformed as necessary for the tabulations, and the research databases were formed. Data cleaning was supervised by experienced personnel and much of the practical work was done by staff with a college or university degree in health science.

Statistical methods

For this report the results were tabulated as means or prevalences using SUDAAN procedures that take into account the sampling design (Research Triangle Institute 2001). A logistic or a linear model, based on REGRESS, LOGISTIC and MULTILOG procedures was used to estimate adjusted indicators. For adjustment, predictive marginals were calculated by fixing the values of the confounding factors (Lee 1981). The F-value with Satterthwaite corrected degrees of freedom was used in testing since it takes into account the possible instability of the test that is due to the small number of health centre districts (Lehtonen & Pahkinen 1995; Research Triangle Institute 2001). Directly adjusted rates for 1980 were obtained by using the 1980 population as weights so that the results could directly be compared with the results of the Mini-Finland Survey (Aromaa et al. 1989). Standardised means were obtained by averaging individual cell means weighted by age group proportions of the population in each of the cells for different values of the determinant (Research Triangle Institute 2001).

Writing and editing the report

The contents of this baseline report were planned by the project group and its executive committee. The plan for tabulations was in turn based upon this outline. It was felt that a series of tables containing results for ten-year age groups and age-adjusted results for the age ranges 30–64, 65+ and 30+ would suffice. The age-adjusted results were also calculated by direct standardisation using weights based on the 1980 Finnish population structure. Researchers involved in the project work in various different organisations. Therefore the tables were made available on the

project website so that they could be accessed regardless of where the researchers were based. The manuscripts were e-mailed to the editors for checking and revision. In addition to chapters presenting the results on specific topics, the report contains general parts such as the Introduction, Population and Methods and Discussion and Conclusions, written by the editors.

2.4 Commentary on population and methods

Although time pressure did create some problems, the field survey was a success. Health interview data were obtained from almost 90% and the majority of the health examination data from nearly 85% of the persons in the sample. Participation in Health 2000 was exceptionally good: counted on the basis of all persons for whom at least part of the information was obtained, the rate of participation was 93%. Although people in Finland, as elsewhere, have been less keen to participate over the past few decades, the current results are close to those achieved 20 years ago in the Mini-Finland Health Survey. Indeed, the participation figures were markedly higher than in any other recent Finnish survey, not to mention comparable surveys in Europe. High participation is crucially important in that it reduces the major biases otherwise caused by non-response. It also means we can confidently make comparisons with the Mini-Finland Health Survey and in this way assess developments over time.

The success of the interviews was mainly attributable to Statistics Finland's well-established and experienced interview organisation, which performed excellently in spite of the interview being longer than usual and in spite of there not being enough time for extensive training. Another contributing factor was obviously the interesting theme of the survey as well as the opportunity to have a comprehensive health examination. The possible effects of the differences between interviewers will be discussed later.

After the first few days the four-hour health examination usually went smoothly and all measurements and examinations were carried out with good quality. There were, however, occasional problems with some of the instruments used, which did not always perform reliably in the mobile and sometimes freezing cold conditions. That resulted in some loss of measurement results.

The methods applied in the survey were chosen from amongst those widely used in clinical and population studies and various steps were taken to ensure good quality. Some methods were developed specifically for this survey, but they too were applied in standard ways. Specific quality assurance and quality control methods were used in a number of measurements. Written instructions (standard operating procedures)

were available for all parts of the fieldwork. Much attention was also paid to the repeatability of measurements in future surveys: examples include ECG and blood pressure, spirometry, the bioimpedance and heel bone density measurements, biochemical laboratory measurements, standardised clinical examinations, orthopantomography, and the measurements of joint movements in connection with the physician's examination as well as the measurements of functional capacity. By using these measurements in the future alongside questionnaires and interviews, it will be possible to obtain comprehensive evidence on possible changes in health and functional capacity from several independent sources.

Both interviewers and health examination personnel would have benefited from more extensive training. There should also have been more time so that feedback days could have been arranged during the health examination. Furthermore, a third, final pilot study would have been useful before the fieldwork proper and after the first training period: that would have provided an opportunity to finalise the methods and retrain personnel before moving out into the field. Quality control would also have required more time. All this would have made the field survey 4 to 8 weeks longer, which would have increased the costs of the project by at least 10%, or some 500,000 euros.

Even though measurements were standardised, it is possible that there remained differences between observers and field teams. These differences may affect regional comparisons in particular. This will be discussed in closer detail in further analyses of the data. Specific quality control data were collected during the study for this purpose.

The tight schedule also meant it was not possible fully to test all the computer-based data collection methods before the field survey started. As it turned out, some changes had to be made after the fieldwork had already begun. However, as a whole, data collection was successful.

3 SOCIODEMOGRAPHIC FACTORS AND LIVING CONDITIONS

Tuija Martelin, Tarja Nieminen and the working group for living conditions

Working group for living conditions: Tuija Martelin (chair), Tarja Nieminen (secretary), Matti Heikkilä, Sakari Kainulainen, Timo Kauppinen, Eero Lahelma, Simo Mannila and Veijo Notkola

Information on the subjects' demographic background and socio-economic status was collected during the health interview. The following demographic information was collected: mother tongue, marital status and earlier relationships, household size and age structure, number of children and history of moving between municipalities. Questions related to socio-economic position dealt with education, main activity and occupation, unemployment, weekly working hours, permanent and temporary jobs, household income and owner occupation/tenancy status. The socio-economic status of the subject's parental home was inquired with questions concerning parents' education and occupation.

Information on living conditions was obtained both through the health interview and the questionnaires. The health interview included questions about disadvantages and exposures at the workplace and about the main disadvantages related to housing. Questionnaires inquired about the perceived adequacy of income, work-related psychological stress factors, disadvantages of housing, security of the living area and perceived social and economic problems in parental home. This chapter describes the distribution of some of these factors by gender and age.

Demographic background factors

Finnish was the mother tongue of over 92% of the population. Over 5% were Swedish speaking; in the age group 85 or over, almost 10% were Swedish speaking, whereas the figure for those under 55 was only 4.4%. In this survey the proportion of Swedish speakers was half a percentage point smaller than in the population statistics describing the situation at year-end 2000 (Väestörakenne 2000). Russian was the mother tongue for 0.5% and Estonian for 0.2% of the respondents, corresponding to the figures for the whole population aged 30 or over in the population statistics 2000.

The higher mortality of men as compared to women is also reflected in the gender differences in the marital status distribution. Some two thirds of men aged 30 to 84 were married, even among those 85 or over almost one third of men had a spouse, whereas the proportion of married women declined sharply after 65 years of age (Fig. 3.1 and Table 3.1). The proportion of widows, on the other hand, was higher in women than in men in all age groups, and it also increased quickly with age. In each age group the proportion of divorced women was also higher than that of divorced men. About one fifth of men and women aged 30 to 44 years were cohabiting, and the prevalence of cohabitation decreased towards older age groups. Comparisons with official statistics are hampered by the category of cohabiting persons, which is not recorded in the statistics on marital status. In Health 2000, all persons reporting that they lived in a common-law relationship were classified as cohabiting, irrespective of their official marital status. The proportion of married persons in Health 2000 comes quite close to the official year-end figures for 2000; the only marked difference is found for the proportion of married among men aged 85 or over, which is clearly higher (44.5%) in the population statistics than in this survey (31.7%) (Statistical Yearbook of Finland 2001).

The gender differences in mortality and the phases of the family life cycle are also reflected in the size of the household. The older the age group, the smaller the size of the household: among those aged 30 to 44, the most common household size was 3 to 4 persons, whereas among men and women aged 55 to 64 about 60% lived in two-person households. One fifth of men and one quarter of women lived alone. The proportion of women living alone increased with age: in the age group 30 to 44 only one in ten lived alone, but among women aged 65 to 74 almost half and among older women 60% lived alone. In contrast the proportion of men living alone was about 20% in all age groups under 85, whereas in the age group 85 or over the figure was more than 50%. The proportion living in institutions was very small under the age of 65, and in the age group 65 to 74 only about 1% lived in institutions. In the oldest age groups living in an institution was clearly more common, particularly among women: at the age of 85 or over 16% of men and 25% of women were institutionalised.

Figure 3.1. Marital status distribution.

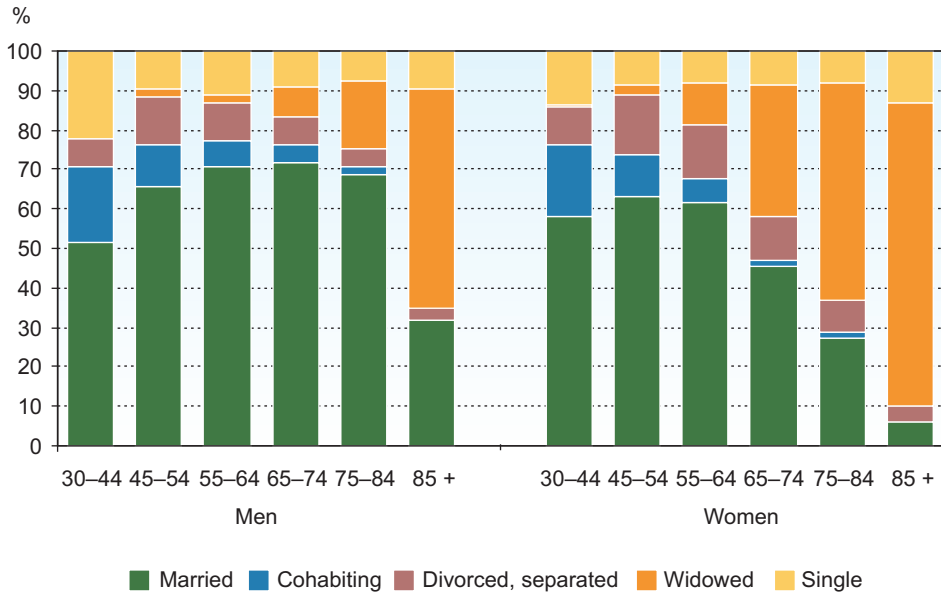


Table 3.1. Distribution (%) of marital status.

	30-44	45-54	55-64	65-74	75-84	85+	30+ ¹	(N) ²
Men								
Married	51.3	65.7	70.5	71.8	68.6	31.7	61.5	(1950)
Cohabiting	19.5	10.5	6.8	4.5	2.1	0.0	11.3	(363)
Divorced, separated	7.1	12.2	9.5	7.3	4.8	2.9	8.8	(276)
Widowed	0.1	1.8	2.2	7.6	17.1	55.9	4.5	(134)
Single	22.0	9.7	11.0	9.0	7.4	9.4	13.9	(438)
Total	100	100	100	100	100	100	100	(3161)
Women								
Married	58.1	63.2	61.7	45.3	27.5	6.1	54.7	(2004)
Cohabiting	18.3	10.6	5.9	1.8	1.6	0.0	10.4	(365)
Divorced, separated	9.6	15.4	13.7	10.9	7.8	4.2	11.7	(436)
Widowed	0.5	2.4	10.4	33.3	55.0	76.4	12.6	(711)
Single	13.6	8.5	8.3	8.7	8.2	13.3	10.6	(408)
Total	100	100	100	100	100	100	100	(3924)

¹ age-adjusted

² non-weighted number of observations

Education, work and income

Younger age groups had a longer general education than older age groups. For example, in the age group 65 or over around 6% of men and 5% of women had taken the matriculation examination, whereas the figures in the age group 30 to 44 were 28% and close on 50%, respectively.

The information on general education and on higher and vocational education was combined into a variable describing level of education. This composite variable with three categories – basic, secondary and higher education – will also be used in this report to illustrate health differences between educational groups (Chapter 14). Persons who had no vocational training beyond a vocational course or on the job training and who had not taken the matriculation examination, were classified as having a basic education. Completion of vocational school was defined as secondary education regardless of basic education. Also those who had passed the matriculation examination but who had no vocational training beyond a vocational course or on the job training were also classified into this intermediate group. Higher education comprised degrees from higher vocational institutions, polytechnics and universities.

Older age groups had larger proportions of those with no more than a basic education. In the age group 30 to 44 years, less than 14% of women and 18% of men belonged to this group, among persons aged 85 or over the figure was 80% (Fig. 3.2 and Table 3.2). In all groups secondary education was more common in men than in women, whereas in the age group 30 to 54 higher education was more common among women than among men. Official statistics on level of education are quite closely in line with the information from this survey, particularly regarding the prevalence of basic education (Statistical Yearbook of Finland 2001). The proportion of men under 65 with a secondary and higher education also came close to the corresponding figures in the official statistics. However, the proportion of women under 55 with a secondary education was 6 to 8 percentage points smaller than in the statistics, while higher education was more common than in the statistics. This difference may have to do with the differences in the classifications used.

Figure 3.2. Distribution of level of education.

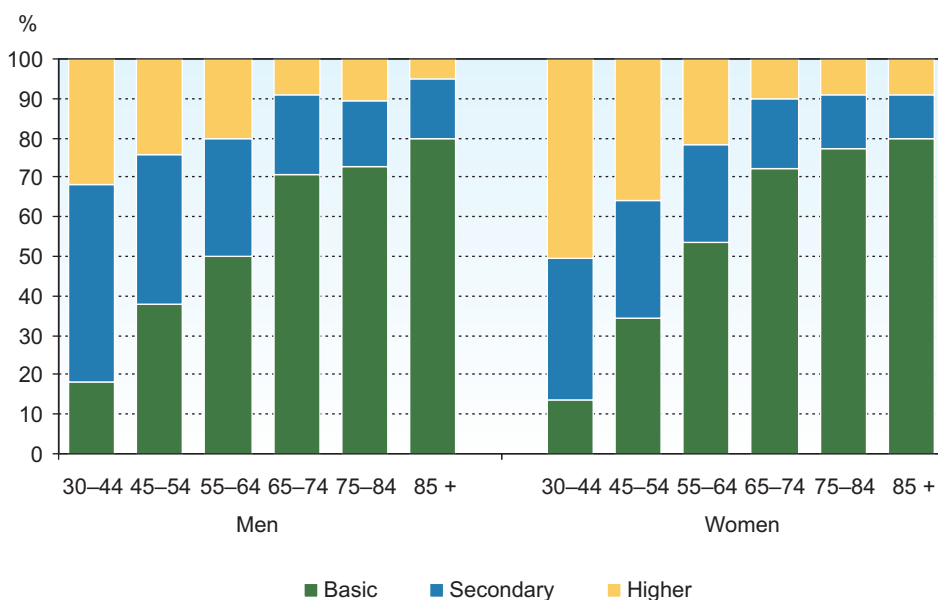


Table 3.2. Distribution (%) of level of education.

	30-44	45-54	55-64	65-74	75-84	85+	30+ ¹	(N) ²
Men								
Basic	18.2	38.2	50.0	70.6	72.7	80.0	41.5	(1273)
Secondary	50.2	37.6	29.7	20.5	16.7	14.8	36.0	(1157)
Higher	31.7	24.3	20.4	8.9	10.6	5.2	22.4	(728)
Total	100	100	100	100	100	100	100	(3158)
Women								
Basic	13.8	34.3	53.5	72.4	77.2	79.8	39.5	(1710)
Secondary	35.7	29.9	24.6	17.6	13.9	11.0	28.0	(1028)
Higher	50.5	35.7	21.8	10.0	8.9	9.1	32.7	(1171)
Total	100	100	100	100	100	100	100	(3909)

¹ age-adjusted

² non-weighted number of observations

Over 85% of men aged 30 to 44 were employed full time or part time, the corresponding figure for women was 75%. In the older age groups men and women were equally often employed: among those aged 45 to 54 about 80% and among those aged 55 to 64 about 40% were employed either full or part time. Part time employment was clearly more common among women than among men (Table 3.3).

The proportion of pensioners grew steeply with age: in the age group 55 to 64 almost half of the men and women were retired. Among all persons in the labour force, i.e. those employed or unemployed, 11% of men and 13% of women were unemployed or laid off at the time of the survey. In the age group 30 to 54 the proportion was 10%, slightly higher among women than among men, and in the age group 55 to 64 it was about 20%. During the past five years, about 20% of persons aged 30 to 64 who were not retired or who had retired less than five years ago had been out of work once or more often for a total period of more than 12 months. According to Statistics Finland, the unemployment rate in 2000 was about 8% in this age group, i.e. slightly lower than in the Health 2000 survey (Statistical Yearbook of Finland 2001). One likely explanation for this difference lies in the definition of unemployment: in this survey the category of unemployed also comprises those who are temporarily laid off, and unemployment has been determined only on the basis of the main activity reported at the time of the interview.

Table 3.3. Distribution (%) of main activity in the age group 30–64 years.

	30–44	45–54	55–64	30–64 ¹	(N) ²
Men					
Full time employed	84.2	78.2	33.2	71.0	(1768)
Part time employed	1.9	2.2	6.4	2.9	(74)
Unemployed, laid off	8.2	9.1	11.0	9.0	(225)
Retired	2.5	9.2	47.9	14.8	(372)
Homemaker	0.3	0.2	0.4	0.3	(7)
Student	1.9	0.5	0.0	1.0	(26)
Other	1.1	0.7	1.1	0.9	(24)
Total	100	100	100	100	(2496)
Women					
Full-time employed	66.8	72.7	29.9	60.6	(1636)
Part-time employed	8.3	7.5	8.8	8.2	(219)
Unemployed, laid off	9.9	11.5	10.2	10.5	(278)
Retired	1.6	5.1	47.8	12.9	(361)
Homemaker	9.0	1.5	2.3	5.0	(134)
Student	3.8	1.1	0.0	2.1	(55)
Other	0.6	0.7	1.0	0.7	(19)
Total	100	100	100	100	(2702)

¹ age-adjusted

² non-weighted number of observations

Virtually all respondents had at least sometimes been engaged full time in some occupation. In women the proportion decreased with age, but even among women

aged 85 or over 90% had sometimes been economically active. Among men the proportion of those who had never worked was highest in the age group 30 to 44 years (1.2%). Classified according to their current or latest previous job, 80% of men and 84% of women were salaried employees, with the figures rising towards younger age groups. The change in the occupational structure is clearly seen in the variation of the proportion of farmers by age. Over one third of men and one quarter of women aged 85 or over had been farmers, whereas in the age group 30 to 44 the corresponding proportion was only a few per cent. The proportion of other entrepreneurs was about 10% in men and 5% in women, in all age groups.

Among male wage earners over 64% were or had been employed in the private sector. Among men aged 85 or over, more than half had worked in the municipal or state sector, whereas the figure for men aged 30 to 44 was only about 20%. Among women, by contrast, employment in the municipal or state sector was quite common: about 50% of all salaried women were or had been employed by local or central government, 44% worked or had worked for a private business. The job was or had been temporary for 10% of the men and 20% of the salaried women aged 30 to 64 who had been working during the past 12 months. The proportion increased linearly with decreasing age: among women aged 30 to 44 years, over 26% were in or had last been in a temporary job.

In response to the questionnaire item concerning perceived adequacy of income, about 40% said they had to make at least some compromises in their personal consumption. Persons aged 85 or over were more satisfied with their financial situation than younger people.

Work environment

Over two thirds of the men employed during the past 12 months said there was at least some external disadvantage in their work, such as noise, dust etc. (Table 3.4). The proportion of women reporting such problems was slightly lower. The youngest women perceived the fewest disadvantages, but there were only minor differences between age groups. The most common external disadvantages among both men and women were noise (42% of men, 30% of women), dust (42% of men, 25% of women) and draught (37% of men, 27% of women). Seven per cent of men and five per cent of women suffered from tobacco smoke; in the age group 30 to 44 this problem was more common among men (7%) than among women (3%), whereas in older age groups there were no gender differences. The findings of the survey are quite closely in line with those of the Work and Health Survey (2000).

Table 3.4. Prevalence (%) of selected perceived disadvantages or threats in work (those aged 30–64-years and in gainful employment currently or within the past 12 months).

Disadvantage or threat		30–44	45–54	55–64	30–64 ¹
Some external disadvantage (dust, noise, etc.)	Men	70.1	68.0	65.5	68.9
	Women	56.5	62.1	62.1	59.3
	p ²				<0.001*
Threat of layoff, redundancy or long term unemployment	Men	20.6	24.9	23.8	22.5
	Women	21.8	22.4	12.2	20.8
	p ²				0.195*
Threat of mental cruelty or bullying	Men	7.4	7.6	6.5	7.4
	Women	12.6	14.1	13.1	13.2
	p ²				<0.001

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Just over one fifth of all those aged 30 to 64 who had been working during the past 12 months perceived a threat of layoff, redundancy, or long term unemployment (Table 3.4). The proportion was particularly large among men aged 45 to 54 (25%) and small among women aged 55 to 64 (12%). Women (13%) perceived a threat of mental cruelty or bullying in the workplace far more often than men (7%) (Table 3.4). These perceptions hardly varied with age. According to the Work and Health Survey (2000), about 7% of men aged 25 to 64 years and over 15% of women felt that they were currently or had earlier been subjected to mental cruelty or bullying. Also, in line with our findings, in each age group this experience was more common in women than in men.

Living conditions and living environment

About 10% of all people aged 30 or over lived in overcrowded dwellings, defined as housing where there were more inhabitants than rooms (the kitchen was not counted as a room; however those living alone were never classified as living in overcrowded dwellings) (Table 3.5). The proportion of persons living in overcrowded dwellings was highest in the age group 30 to 44 at about 20%.

Table 3.5. Prevalence (%) of selected perceived disadvantages or threats in the home or living environment.

Disadvantage		30–44	45–54	55–64	65–74	75–84	85+	30+ ¹
Overcrowded dwelling	Men	18.6	10.2	2.7	2.1	9.0	0.0	10.4
	Women	22.3	6.4	2.3	2.5	1.2	2.9	10.3
	p ²							0.883*
Obstacles to movement in the dwelling	Men	3.3	3.4	4.7	8.2	14.1	32.9	5.4
	Women	3.7	5.0	8.3	12.4	22.3	24.5	7.7
	p ²							<0.001
Inadequate facilities for washing	Men	1.9	2.5	2.6	5.7	5.1	9.4	3.0
	Women	1.9	2.5	2.2	3.8	4.6	4.1	2.6
	p ²							0.283
Inadequate facilities for storing or preparing food	Men	2.6	1.2	1.3	1.6	1.3	0.0	1.8
	Women	2.6	2.0	1.8	1.9	2.5	1.8	2.2
	p ²							0.162
Insecurity of living environment ³	Men	3.7	4.7	4.6	5.0	5.2	6.5	4.4
	Women	11.8	10.5	9.9	12.4	14.7	19.2	11.6
	p ²							<0.001

¹ age-adjusted

² difference between genders

³ feeling of insecurity in the living environment quite rarely, quite often or very often (vs. never or very rarely)

* interaction between age and gender is statistically significant (p<0.05)

Older age groups reported more perceived obstacles to movement in one's dwelling: over 20% of women aged 75 or over and living in their own homes and one third of men aged 85 or over reported such obstacles. Inadequate facilities for washing oneself or for preparing or storing food were mentioned less frequently (Table 3.5).

In all age groups a higher proportion of women than men felt insecure when moving around their living environment. Among men 96% said they had felt insecure very rarely if at all, whereas only 88% of women felt so secure. The feeling of insecurity was most common among those aged 85 or over (Table 3.5). This corresponds to the results of the 1998 Inhabitant barometer (Strandell 1999) according to which feelings of insecurity were most common among the young, the old and among women.

4 HEALTH BEHAVIOUR

Antti Uutela and the working group for health behaviour and psychosocial factors

Working group for health behaviour and psychosocial factors: Antti Uutela (chair), Ritva Prättälä (secretary), Anna-Mari Aalto, Hannu Alho, Arja R. Aro, Markku Heliövaara, Sari Isotupa, Paul Knekt, Päivikki Koponen, Marjaana Lahti-Koski, Esko Mälkiä, Satu Männistö, Pekka Oja, Pirjo Pietinen, Raimo Raitasalo, Antti Reunanen, Sakari Suominen, Jussi Vahtera, Liisa Valsta, Miira Vehkalahti and Eira Viikari-Juntura

This chapter deals with five health related living habits: daily smoking, the use of fat spreads on bread, the daily intake of raw vegetables, the occurrence of hangovers and sufficient health promoting physical activity. Information was collected either in the health interview or in Questionnaire 1.

The validity of the questions used has been established in Finnish health surveys over the past three decades (North Karelia Project, FinMonica, Finrisk, and Adult Health Behaviour Surveys, see Puska et al. 1995; Vartiainen et al. 1998 and 2000; Helakorpi et al. 2000). The definition of daily smoking is the same as the World Health Organization's recommendation: it is defined as regular smoking during which the person has smoked at least 100 cigarettes, has smoked for at least one year and smoked during the day of the interview or the day before (Helakorpi et al. 2000).

The use of fat spreads on bread and raw vegetables during the past week was measured with standard questions (Helakorpi et al. 2000). Heavy alcohol use on single occasions was estimated by a question on the frequency of hangovers during the past year. Sufficient health promoting physical activity was defined as self-reported leisure time activity at least four times a week and at least half an hour a time, leading to at least moderate breathlessness and perspiration (Helakorpi et al. 2000).

Smoking

The frequency of daily smoking showed a dependency upon age and sex that was consistent with our expectations (Fig. 4.1 and Table 4.1). The prevalence of smoking in both men (29%) and women (18%) is relatively low compared to most other European countries. The frequency of smoking decreases with age in both men and women.

Figure 4.1. Prevalence of daily smoking.

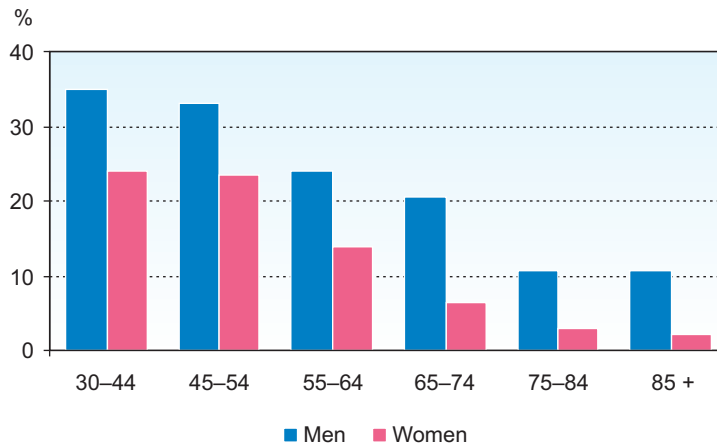


Table 4.1. Prevalence (%) of daily smoking.

	30-44	45-54	55-64	65-74	75-84	85+	30-64 ¹	65+ ¹	30+ ¹
Men	35.0	33.1	24.0	20.5	10.7	10.8	32.0	16.1	28.5
Women	24.0	23.6	13.8	6.5	3.0	2.2	21.6	5.0	17.6
p ²							<0.001	<0.001	<0.001*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

The traditional gender difference in smoking continues to prevail in Finland (Puska et al. 1997). The decrease in the prevalence of smoking with increasing age in men is mainly due to the growing number of middle-aged and elderly men who have quit smoking since the 1970s, but also to the higher number of premature deaths in smokers. The figures for women are influenced by the fact that a large proportion of women born after the Second World War started smoking, whereas much fewer women born before the war ever picked up the habit.

Fat spread used on bread

Table 4.2 describes the differences between age groups in the type of fat spread used on bread and, at the same time, the secular change in the use of fat. The use

of butter as the principal type of fat spread has dropped to no more than 10% in the whole population. In all age groups a slightly larger proportion of men than women used butter. Generational differences are considerable: the use of butter became increasingly common with age, with the proportion of users in the oldest age group standing at one third. Among women, a marked increase in the use of butter was not seen until after the age of 75.

Table 4.2. Proportion (%) of persons using butter as bread spread.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	6.8	9.2	10.4	18.4	23.7	34.4	8.4	22.0	11.4
Women	3.1	5.8	9.1	11.3	16.5	28.4	5.3	14.5	7.4
p ²							<0.001	<0.001	<0.001

¹ age-adjusted

² difference between genders

Consumption of raw vegetables

The proportion of women (63%) who ate raw vegetables every day was higher than that of men (51%) (Table 4.3). Compared to southern Europe the use of raw vegetables is still relatively rare in Finland, although it has steadily increased over the past decades. Looking at the results by sex and age, we see that the use of raw vegetables is a relatively recently adopted habit in Finland. It is more common in those of working age than in the retired population, and more common in women than in men.

Table 4.3. Proportion (%) of persons eating raw vegetables on a daily basis.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	47.1	52.8	58.0	48.4	51.4	49.0	51.3	49.0	50.9
Women	62.9	67.6	67.0	59.1	55.1	52.2	65.3	57.1	63.2
p ²							<0.001	0.002	<0.001*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Hangovers

Although alcohol use has increased quite sharply among women during the past decade, the results on the frequency of hangovers clearly demonstrate that drinking to inebriation is much more common in men (hangovers in 63%) than in women (hangovers in 36%) (Fig. 4.2 and Table 4.4). The frequency of those experiencing hangovers declines markedly with age, more dramatically so in women than in men. Overall alcohol consumption in Finland is currently at the same level as in Europe on average. However, distinctive features of drinking in Finland are the large quantities consumed on single occasions, the relatively frequent occurrence of hangovers (Simpura and Karlsson 2001) and the social and health problems associated with these features.

Figure 4.2. Prevalence of hangover during the past year.

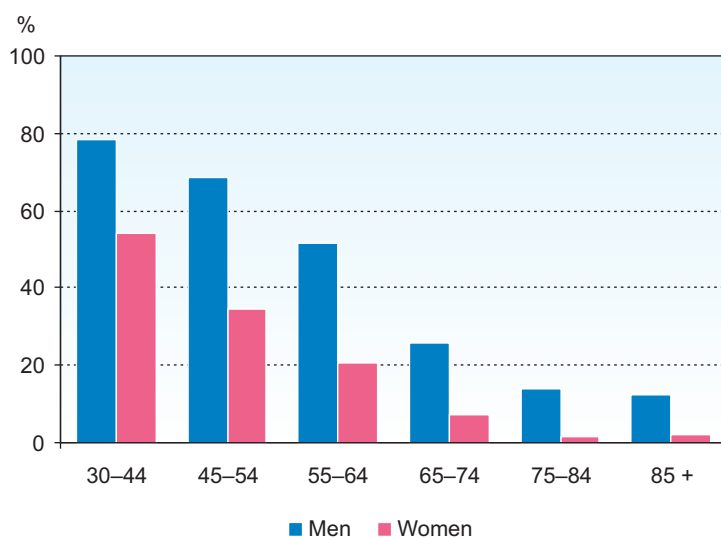


Table 4.4. Prevalence (%) of hangover during the past year.

	30-44	45-54	55-64	65-74	75-84	85+	30-64 ¹	65+ ¹	30+ ¹
Men	78.3	68.5	51.5	25.6	13.9	12.5	69.8	22.0	62.7
Women	54.1	34.7	20.8	7.2	1.7	2.3	41.1	5.6	35.8
p ²							<0.001	<0.001	<0.001

¹ age-adjusted

² difference between genders

Health promoting physical activity

Health promoting physical activity is most common in the youngest ten-year age group of those who have reached retirement age (Table 4.5). The gender differences in the occurrence of health promoting physical activity were quite small and not consistent across the different age groups. Women under 55 were keener to take physical exercise than men in this age group, but nearer to retirement age men increased their physical activity.

In a European comparison health promoting physical activity is common in Finland, both among men and women. In Sweden, too, people are physically quite active. In a comparison with American results our attention is drawn to the fact that health promoting activity remains common with advancing age and actually increases – with the exception of the oldest old. However, since these results are based upon self-report, it is possible that this information and actual physical activity depend in different ways on age and sex.

Table 4.5. Prevalence (%) of regular and sufficient physical activity¹.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ²	65+ ²	30+ ²
Men	18.7	19.9	34.3	42.6	37.0	24.4	22.4	38.9	25.9
Women	22.5	27.2	30.0	37.6	26.7	14.9	25.7	32.4	26.8
p ³							0.005	0.015	0.455*

¹ exercise at least four times a week, at least half an hour at a time, causing at least slight shortness of breath and sweating

² age-adjusted

³ difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

Discussion

The high rate of participation in the Health 2000 survey means that the people who took part represent the Finnish population exceptionally well. Another factor contributing to the reliability of our results is that they have been obtained by questionnaire and interview methods that have proved useful in long term use. The results also correspond quite closely with those from other studies (Helakorpi et al. 2000; Sulander et al. 2000). Since the coverage of Health 2000 is much better than usual, there is reason to believe that the results are exceptionally valid.

All five indicators of living habits are based upon the interviewees' own assessments. In surveys of this size it is not possible to use more intensive methods of data collection than questionnaires and interviews. Besides, given the nature of the information collected, these are the only methods that can be used (if diaries are not considered). There are, however, at least two important potential sources of error with self-report. First of all, respondents will need to assess oft-recurring, automatic activities (such as smoking), and the validity of such assessments may be poor. Reporting itself may also be biased since many living habits (particularly hangovers) are tied to quite strictly sanctioned norms, which may tempt people to replying with a view to social desirability, causing under- or overreporting. Furthermore, such pressures may be greater in women and older respondents than in youngish men. According to previous Finnish studies self-reported smoking is quite a valid indicator when compared to biochemical determinations. However considerations of social desirability may in this survey have meant that some daily smokers in fact classified themselves as irregular smokers, for instance. Social desirability may also give rise to overreporting with regard to the consumption of raw vegetables and health promoting physical activity. These validity problems are possibly the most pronounced for the hangover reports, first of all because the time period covered is the longest possible and secondly because reporting hangovers in the connection of a health survey might be regarded as socially most undesirable. However, the questionnaire approach probably reduced this bias. As a whole the measurements of living habits in Health 2000 are as valid and reliable as is practicably possible.

5 RISK FACTORS

Antti Reunanen, Anna Kattainen, Paul Knekt, Jukka Marniemi, Jouko Sundvall and the working group for cardiovascular diseases

Working group for cardiovascular diseases: Antti Reunanen (chair), Anna Kattainen (secretary), Matti Jauhiainen, Antti Jula, Risto Kaaja, Antero Kesäniemi, Katriina Kukkonen-Harjula, Mika Kähönen, Markku Laakso, Riitta Luoto, Silja Majahalme, Leena Mykkänen, Markku S. Nieminen, Janne Rapola, Veikko Salomaa, Marja-Riitta Taskinen, Jaakko Tuomilehto, Marjut Varpula and Erkki Vartiainen

High blood pressure

Blood pressure was measured from the sitting person's right arm after a five-minute rest using a Mercurio 300 mercury manometer. The cuff size was 15 x 43 cm; a larger cuff was used where necessary. Diastolic pressure was recorded at the fifth phase of the Korotkoff sounds. One quarter of men and almost one fifth of women had a systolic blood pressure higher than 160 mmHg or a diastolic pressure higher than 95 mmHg. High blood pressure was more common in working age men than in working age women. In older persons the situation seemed to be reversed, but the gender difference was not statistically significant (Fig. 5.1 and Tables 5.1 and 5.2).

Figure 5.1. Prevalence of high blood pressure (systolic ≥ 160 mmHg or diastolic ≥ 95) mmHg.

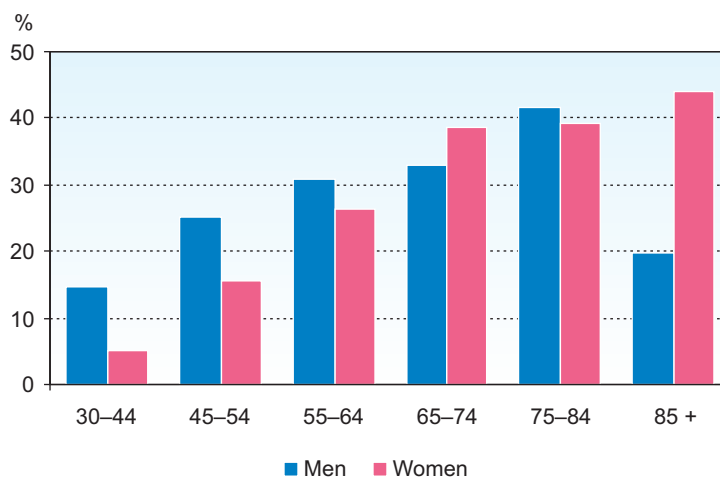


Table 5.1. Age-adjusted prevalence (%) of selected risk factors.

	30–64			65+			30+		
	Men	Women	p ¹	Men	Women	p ¹	Men	Women	p ¹
High blood pressure ²	21.8	13.3	<0.001 *	34.8	39.1	0.102	25.0	18.7	<0.001 *
Obesity ³	20.7	21.6	0.473 *	21.2	31.3	<0.001	21.2	23.5	0.039 *
Large waist circumference ⁴	31.9	41.7	<0.001	40.0	66.1	<0.001	34.1	46.7	0.001 *
Large waist-hip ratio ⁵	30.6	47.3	<0.001	34.2	67.7	<0.001	31.8	51.6	<0.001 *
Slightly increased serum cholesterol concentration ⁶	51.4	51.4	0.964	51.4	49.1	0.379	51.3	50.9	0.807
Increased serum cholesterol concentration ⁷	31.6	26.1	<0.001 *	24.8	39.4	<0.001	31.0	28.9	0.106 *
High LDL ⁸	85.1	79.9	<0.001 *	81.6	86.7	0.014	84.9	81.2	<0.001 *
Low HDL ⁹	27.1	9.0	<0.001	36.7	18.3	<0.001	29.2	11.3	<0.001 *
Increased triglyceride concentration ¹⁰	31.1	13.5	<0.001 *	28.7	29.3	0.840 *	31.1	17.3	<0.001 *
Increased gamma-glutamyl-transferase ¹¹	13.2	2.9	<0.001 *	9.2	5.0	<0.001 *	12.5	3.4	<0.001 *

¹ difference between genders

² systolic blood pressure at least 160 mmHg or diastolic blood pressure at least 95 mmHg (possible blood pressure medication not taken into account)

³ BMI at least 30 kg/m²

⁴ waist circumference at least 102 cm in men, at least 88 cm in women

⁵ waist-hip ratio >1 in men and >0.85 in women

⁶ serum total cholesterol concentration at least 5 mmol/l, but below 6.5 mmol/l

⁷ serum total cholesterol concentration at least 6.5 mmol/l

⁸ LDL cholesterol at least 3.0 mmol/l

⁹ HDL cholesterol <1.0 mmol/l

¹⁰ triglyceride concentration at least 2.0 mmol/l

¹¹ gamma-glutamyltransferase at least 80 U/l

* interaction between age and gender is statistically significant (p<0.05)

Table 5.2. Prevalence (%) of high blood pressure (systolic 160 mmHg or over or diastolic 95 mmHg or over).

	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹
Men	14.7	25.1	30.7	33.0	41.6	19.7	25.0
Women	5.0	15.7	26.4	38.5	39.2	44.1	18.7

¹ age-adjusted

Obesity

Weight was measured as part of the bioimpedance examination with a spring scale (Biospace, Inbody 3.0). The machine automatically calculated the body mass index (kg/m²) after measured height was entered. In subjects examined at home, body mass index was calculated on the basis of measured height and the weight measured on a portable spring scale. Persons whose body mass index was 30 or over were classified as obese. About one fifth of working age men and women were obese. In older age groups obesity was more common in women than in men. Almost one third of women and about one fifth of men aged 65 or over had a body mass index of 30 or over (Fig. 5.2 and Tables 5.1 and 5.3).

Figure 5.2. Prevalence of obesity (BMI ≥ 30 kg/m²).

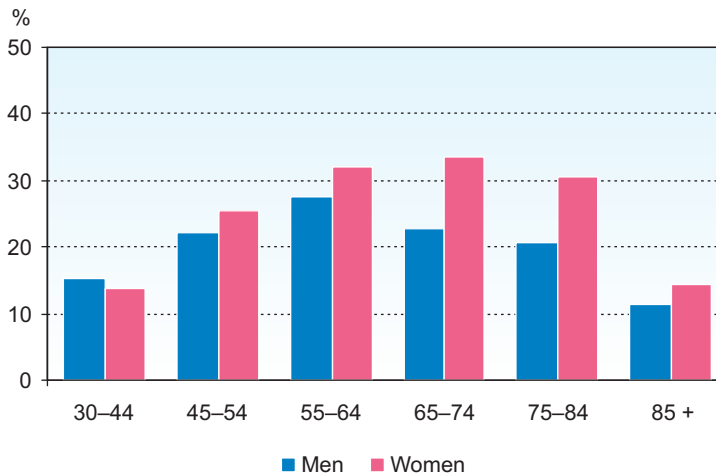


Table 5.3. Prevalence (%) of obesity (BMI 30 kg/m² or over).

	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹
Men	15.4	23.3	27.5	22.7	20.6	11.3	21.2
Women	13.7	25.4	31.9	33.5	30.4	14.5	23.5

¹age-adjusted

Measures of body circumference

Waist circumference was measured on the naked waist at the end of light expiration while the examinee was standing. The measurement was taken half way between the iliac crest and the lowest rib. Pelvic circumference was measured at the broadest point of the pelvis. According to the WHO criteria a waist circumference of 102 cm or more in men and 88 cm or more in women means a considerably increased risk of metabolic complications caused by obesity. In men a waist-hip ratio of over 1.0 and in women over 0.85 is considered an indication of excessive accumulation of fat in the abdominal area (WHO 1998). In all age groups a large waist circumference and a large waist-hip ratio were more common in women than in men. About one third of working age men and 40% of older men had a large waist circumference; the proportions for women were over 40% and two thirds, respectively. One third of working age and older men had a large waist-hip ratio, almost half of working age women and two thirds of older women had high values (Table 5.1).

Serum lipids

Serum total cholesterol and triglycerides were determined by commercial automated enzymatic methods (Olympus system reagent, Germany). Direct enzymatic methods were used for LDL and HDL cholesterol determinations (Roche Diagnostics, Mannheim, Germany). The analyses were performed on an Olympus AU400 (Germany) clinical chemistry autoanalyser. Women of working age recorded a total cholesterol value within the recommended range (< 5.0 mmol/l) more often than men, but at older ages the situation was reversed. About half of working age and older men and women had slightly increased serum total cholesterol concentrations (5.0–6.4 mmol/l). A markedly increased total cholesterol level (6.5 mmol/l or more) was found in one third of working age and one quarter of elderly men. One quarter of working age women and about 40% of older women had a clearly increased total cholesterol level. At ages under 55 years, an increased total cholesterol concentration was more common in men than in women, but beyond that age a larger proportion of women than men had high values (Fig. 5.3 and Tables 5.1 and 5.4).

LDL cholesterol concentration was 3 mmol/l or over in 85% of men and 81% of women. With regard to LDL cholesterol the situation was worse for working age men than women, but in older persons a high LDL cholesterol value was more common in women. A low HDL cholesterol concentration was more common in men than women in all age groups. In working age a high triglyceride concentration was more common in men than women, but at older ages the gender difference evened out (Table 5.1).

Figure 5.3. Prevalence of high serum cholesterol concentration (≥ 6.5 mmol/l).

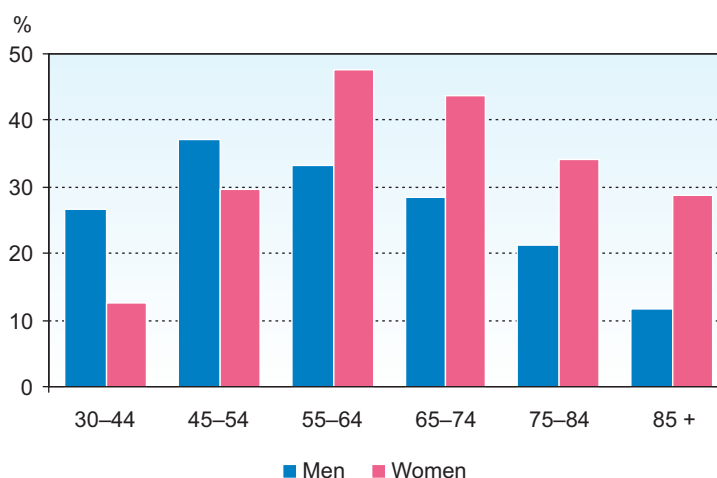


Table 5.4. Prevalence (%) of high serum cholesterol concentration (6.5 mmol/l or over).

	30-44	45-54	55-64	65-74	75-84	85 +	30 + ¹
Men	26.5	37.0	33.2	28.5	21.2	11.6	31.0
Women	12.5	29.7	47.5	43.8	34.1	28.8	28.9

¹ age-adjusted

Gamma-glutamyltransferase

Gamma-glutamyltransferase was determined from a serum sample by a Kone Optima clinical chemistry analyser (Finland) using the kinetic method (Labsystems, Espoo, Finland) according to the European recommendation (ECCLS). Gamma-glutamyltransferase concentrations were 80 U/l or higher in 13% of working age men and 3% of working age women. In older age groups the proportions were 9% and 5%, respectively (Table 5.1).

Discussion

The findings of Health 2000 on the occurrence of risk factors can, with some reservations, be compared with the results of the Finrisk-97 investigation on middle-aged persons (Vartiainen et al. 2000). High blood pressure was slightly more common in 1997 than in this study, while the opposite was true for obesity. Elevated cholesterol concentrations were clearly more common in this study than in Finrisk-97. However, at least part of the differences in cholesterol levels are due to differences in the methods used, although part can be attributed to the differences in the study samples and participation rates. Further evaluation of the reasons for these differences will be published later.

6 PERCEIVED HEALTH AND CHRONIC ILLNESS

Seppo Koskinen and Arpo Aromaa

In the health interview the respondents were asked to assess their own health on a five-class scale (good, fairly good, average, fairly poor, poor) in line with the WHO recommendation for perceived health. Perceived health deteriorated with increasing age (Table 6.1). In the age group 30 to 44 years, over 80% regarded their health as good or fairly good, among those close to retirement age about half felt their health was at least fairly good. By contrast only one quarter of persons aged 75 or over said that their health was good or fairly good. Among respondents of working age, a slightly larger proportion of women than men described their health as fairly good or good.

Figure 6.1. Prevalence of good or fairly good self-reported health.

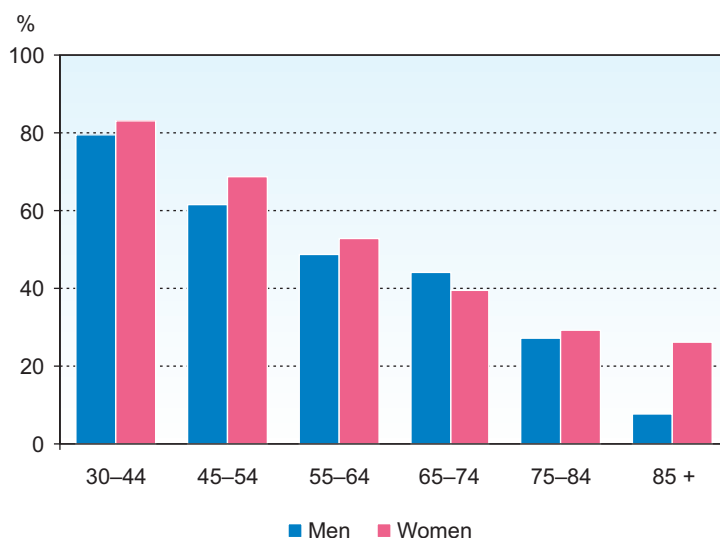


Table 6.1. Prevalence (%) of good or fairly good self-reported health.

	30-44	45-54	55-64	65-74	75-84	85 +	30-64 ¹	65 + ¹	30 + ¹
Men	79.4	61.5	48.7	44.2	27.1	7.5	66.7	35.6	59.5
Women	82.9	68.7	52.8	39.7	29.1	25.9	71.5	35.4	63.3
p ²							< 0.001	0.912	< 0.001

¹ age-adjusted

² difference between genders

The numbers who regarded their health as poor or fairly poor increased sharply with age. In the age group 30 to 44, about 3% reported that their health was either poor or fairly poor. The figure was still fairly low at 15% among those aged 55 to 64 years, but in those aged 85 or over no less than 45% reported that their health was poor or fairly poor. Particularly in the population of working age women felt more rarely than men that their health was poor or fairly poor.

The results for perceived health in Health 2000, particularly in the working age population, were better than those reported in the postal health behaviour surveys in 1999 and 2000 (Helakorpi et al. 2000; Sulander et al 2000) and in the national health interview survey of 1995 to 1996 (Arinen et al. 1998), which all used an identically phrased question. Moreover, in the present study persons rated their health as slightly better than in Statistics Finland's Living Conditions Survey in 1994 (Huuhka et al. 1996), where the question was phrased somewhat differently.

The proportion of adults reporting at least one chronic illness increased steeply from younger to older age groups. One third of the respondents in the age group 30 to 44 as compared to 80 to 90% of those 65 or over reported that they suffered from at least one chronic illness. The prevalence of chronic illness was about the same among men and women in all age groups (Table 6.2). Data from the Living Conditions Survey (Huuhka et al. 1996) and the National Health Interview Survey (Arinen et al. 1998) gathered in the mid-1990s suggested that chronic illnesses were somewhat more common, particularly among people of working age, than in the Health 2000 survey.

Table 6.2. Proportion (%) of persons reporting at least one chronic illness.

	30–44	45–54	55–64	65–74	75–84	85 +	30–64 ¹	65 + ¹	30 + ¹
Men	29.7	45.1	66.0	76.9	86.1	92.5	42.7	81.5	51.5
Women	33.4	46.6	66.2	77.0	86.8	87.8	45.0	81.0	53.2
p ²							0.089	0.794	0.121

¹ age-adjusted

² difference between genders

7 DISEASES AND SYMPTOMS

7.1 Cardiovascular diseases and diabetes

Antti Reunanen, Anna Kattainen and the working group for cardiovascular diseases

Working group for cardiovascular diseases: Antti Reunanen (chair), Anna Kattainen (secretary), Matti Jauhiainen, Antti Jula, Risto Kaaja, Antero Kesäniemi, Katriina Kukkonen-Harjula, Mika Kähönen, Markku Laakso, Riitta Luoto, Silja Majahalme, Leena Mykkänen, Markku S. Nieminen, Janne Rapola, Veikko Salomaa, Marja-Riitta Taskinen, Jaakko Tuomilehto, Marjut Varpula and Erkki Vartiainen

The information on diseases is based upon replies to the interview question, “Have you ever been diagnosed with any of the following diseases?” and upon clinical diagnoses made by the field physicians. The field physicians were introduced to their work during a three-week training period and they followed written instructions. The diagnostic criteria were based upon current clinical practice. Clinical diagnoses by the field physicians are available only for subjects who took part in the health examination proper. The description below draws primarily on the interview information since it is available on the largest group of participants.

Coronary heart disease

Among respondents in working age, 3% of men and 0.5% of women answered affirmatively to the question, “Have you ever been diagnosed with myocardial infarction?” The figures for men and women aged 65 or over were 19% and 8%, respectively. According to the interview 23% of men and 19% of women aged 65 or over suffered from angina pectoris. Among older men close to one third and among older women over one fifth reported that they had experienced a myocardial infarction or were currently suffering from angina pectoris (Table 7.1.1). The field physician’s clinical examination yielded a slightly lower prevalence of past myocardial infarction than self-report results. However, in persons aged 65 or over angina pectoris was slightly more common according to the physician’s examination than according to the person’s own report (Table 7.1.2). Persons reporting that a doctor had ever diagnosed myocardial infarction or angina pectoris were further asked whether they had had a by-pass operation or angioplasty of coronary arteries.

One or the other revascularisation procedure had been performed on almost one third of these men, but only on about 11% of these women. The procedures were most common in the age group 45 to 74 in men (about 40%) and 45 to 54 in women (48%). The gender difference in the occurrence of these procedures was most pronounced in older age groups (Fig. 7.1.3 and Table 7.1.3).

Table 7.1.1. Age-adjusted prevalence (%) of selected self-reported diseases.

	30–64			65 +			30 +		
	Men	Women	p ¹	Men	Women	p ¹	Men	Women	p ¹
Myocardial infarction	2.8	0.5	< 0.001	19.2	8.3	< 0.001	6.8	2.3	< 0.001
Angina pectoris	3.1	1.3	< 0.001*	22.9	18.8	0.053	8.0	5.1	0.001
Myocardial infarction or angina pectoris	4.4	1.6	< 0.001	31.2	22.0	< 0.001	10.8	6.1	< 0.001
Hypertension	27.7	24.3	0.008	41.0	48.9	< 0.001	31.5	29.7	0.094
Heart failure	1.4	1.1	0.386	14.1	15.5	0.413	4.4	4.4	0.992
Stroke	1.5	0.8	0.005	9.6	6.7	0.019	3.4	2.1	< 0.001
Diabetes	4.4	3.0	0.022	12.1	12.6	0.740	6.3	5.2	0.072

¹ difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

Table 7.1.2. Age-adjusted prevalence (%) of selected chronic diseases according to the examining physician's clinical assessment.

	30–64			65 +			30 +		
	Men	Women	p ¹	Men	Women	p ¹	Men	Women	p ¹
Myocardial infarction	2.2	0.3	< 0.001	15.4	6.8	< 0.001	5.0	1.7	< 0.001
Angina pectoris	3.1	1.1	< 0.001*	27.9	20.3	0.001	8.3	5.0	< 0.001
Myocardial infarction or angina pectoris	3.8	1.3	< 0.001*	30.1	21.3	< 0.001	9.4	5.4	< 0.001
Heart failure	0.5	0.2	0.162	4.8	8.7	0.007	1.4	2.0	0.096*
Stroke	1.2	0.6	0.035	6.4	4.1	0.054	2.3	1.3	0.002
Type 1 diabetes	0.7	0.4	0.068	0.8	0.2	0.217*	0.7	0.3	0.027
Type 2 diabetes	3.0	1.5	0.002	9.4	8.9	0.805	4.4	3.0	0.008

¹ difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

Figure 7.1.1. Prevalence of coronary bypass operation or angioplasty among persons reporting coronary heart disease.

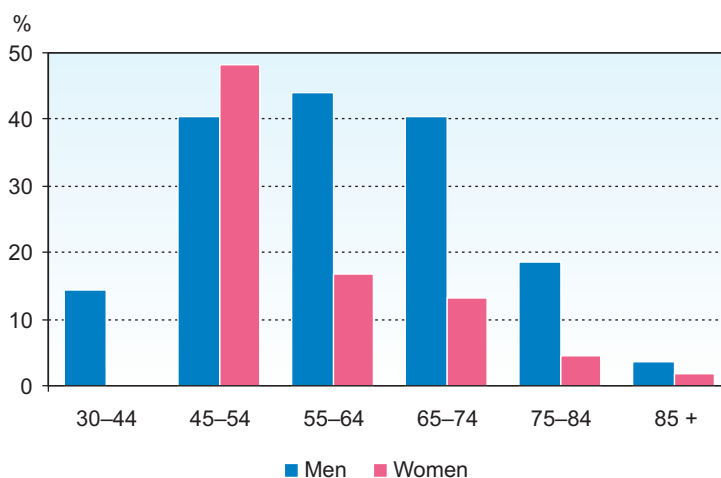


Table 7.1.3. Prevalence (%) of coronary bypass operation or angioplasty among persons reporting coronary heart disease.

	30-44	45-54	55-64	65-74	75-84	85 +	30 + ¹
Men	14.5	40.3	44.1	40.5	18.5	3.6	31.6
Women	0	48.1	16.7	13.2	4.4	1.7	11.4
p ²							<0.001*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Other cardiovascular diseases

Close to one third of men and women stated in the interview that they had sometimes been diagnosed with high blood pressure or hypertension. According to the interview 4% of all men and women suffered from heart failure. Among respondents of retirement age, 14% of men and 16% of women stated that they suffered from heart failure (Table 7.1.1). According to the field physician's clinical assessment 5% of men and 9% of women aged 65 or over suffered from heart failure (Table 7.1.2). The lower prevalence figure obtained in the clinical examination is explained by the improved accuracy of diagnostic practices, which further accentuates this common difference between self-report and diagnosed

disease prevalence. Among respondents aged 65 or over 10% of men and 7% of women reported a stroke (cerebral haemorrhage, cerebral thrombosis).

Diabetes

The proportion of men who reported that they had diabetes was 6%, for women the figure was 5%. In working age diabetes was more common in men than in women, but after 65 years of age there was no significant gender difference (Table 7.1.1). According to the field physician's clinical assessment 0.5% of persons aged 30 or over suffered from type 1 diabetes. In addition, 4% of men and 3% of women had type 2 diabetes. Among working age men 3% and among women 1.5% suffered from type 2 diabetes. In the age group 65 or over, about 9% of both men and women had type 2 diabetes (Table 7.1.2). Of the men and women who in the interview reported that they suffered from diabetes, about one fifth used only insulin, close to one quarter of men and almost 40% of women did not use any medication. The remainder used either tablets or a combined tablet and insulin treatment (Table 7.1.4). In an examination of the distribution of treatment by age group, we must bear in mind that in many age groups the number of cases was relatively small and that therefore the results may have been affected by chance, even though the total number of diabetics in the interview material was over 400. As expected the proportion of sufferers using insulin was highest in the youngest age group and declined steadily with age, until it started to grow slightly again in the age group 65 to 74. The increasing use of insulin in older age groups is probably due to the fact that type 2 diabetes is more and more commonly treated by so called night insulin only.

Discussion

The closest point of comparison for these results in the population under 65 is the 1997 Finrisk survey (Vartiainen et al. 2000). Self-reported myocardial infarction and especially angina pectoris were slightly less common in this survey than in the Finrisk-97 study. Known heart failure and stroke were also slightly less frequent in this study than in Finrisk-97. Known hypertension, however, was clearly more common in this survey than in the Finrisk-97 study. Known diabetes was also more frequent in this survey than in 1997. The differences may in part be due to changes in real occurrences, but differences in study designs, methods and populations no doubt also come into play.

Table 7.1.4. Prevalence (%) of diabetes medication in diabetic persons (self-reported diabetes).

	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹
Men							
Insulin	62.5	32.6	10.6	22.5	8.6	27.2	21.2
Tablets or insulin and tablets	20.9	37.1	64.2	48.9	79.3	45.3	56.0
No medication	16.6	30.2	25.2	28.7	12.2	27.5	22.8
Women							
Insulin	35.6	11.0	14.5	24.2	13.1	10.7	19.2
Tablets or insulin and tablets	5.6	33.8	53.2	45.7	64.1	40.7	43.3
No medication	58.8	55.2	32.3	30.2	22.8	48.7	37.5
p ²							0.004

¹ age-adjusted

² difference between genders

7.2 Respiratory and skin diseases

Pekka Jousilahti, Markku Heliövaara and the working group for respiratory and skin diseases

Working group for respiratory and skin diseases: Pekka Jousilahti (chair), Tari Haahtela, Sami Heistaro (secretary), Markku Heliövaara, Jussi Karjalainen, Kaj Koskela, Henrik Nordman, Timo Palosuo, Juha Pekkanen, Tuula Petäys, Kari Reijula and Päivikki Susitaival

The following describes the prevalence of the self-reported cough symptom of chronic bronchitis, measured airway obstruction, diagnosed asthma and diagnosed chronic hand eczema.

The symptom interview in the health examination included the following question: Have you had almost daily phlegm production for a total of at least three months during a year? Spirometry (Vitalograph 2150) was performed and the degree of bronchial obstruction was assessed (FEV% < 70). The field physician diagnosed possible asthma and chronic hand eczema.

The cough symptom of chronic bronchitis was reported by 12% of men and 11% of women. Its prevalence increased with age, rising from 7% in the age group 30 to 44 years through to 18% in the age group 75 to 84 years (Table 7.2.1). It was slightly unexpected that the prevalence of the cough symptom was at roughly the same level in men and women. In men under 75, the cough symptom was less frequent than in the Mini-Finland Health Survey (Aromaa et al. 1989). In women, the cough symptom was much more common than 20 years ago in all age groups. These findings can be interpreted as direct consequences of the changes in smoking habits among both men and women (Vartiainen et al. 1998).

Table 7.2.1. Prevalence (%) of the cough symptom of chronic bronchitis.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	6.2	12.1	14.0	16.6	18.9	21.1	9.9	17.8	11.7
Women	7.9	10.3	11.5	14.2	17.0	14.6	9.5	15.1	10.7
p ²							0.589	0.112	0.166*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

A spirometry finding suggesting airway obstruction was observed in 11% of men and 6% of women. The prevalence of the finding increased clearly with age. A finding suggestive of obstruction was observed in 2% of persons aged 30 to 44 years and in one quarter of those aged 75 or over (Fig. 7.2.1 and Table 7.2.2).

Figure 7.2.1. Prevalence of bronchial obstruction (FEV% < 70).

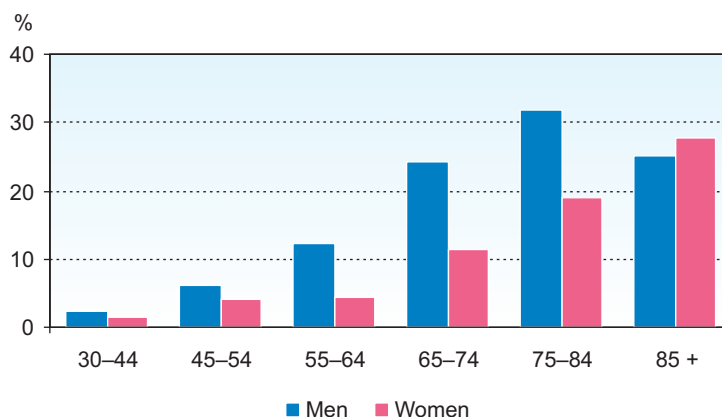


Table 7.2.2. Prevalence (%) of bronchial obstruction (FEV% < 70).

	30-44	45-54	55-64	65-74	75-84	85+	30-64 ¹	65+ ¹	30+ ¹
Men	2.4	6.1	12.4	24.3	31.9	25.0	5.9	26.8	10.0
Women	1.5	4.0	4.3	11.4	19.0	27.6	2.9	14.4	5.2
p ²							<0.001	<0.001	<0.001

¹ age-adjusted

² difference between genders

The much higher prevalence of bronchial obstruction in men than in women is due to corresponding differences in smoking (Vartiainen et al. 2000). The relative gender difference was largest in the age group 55 to 74. In the youngest age group smoking has not yet damaged the bronchi to such an extent that obstruction would be present. In the oldest age group, the gender differences have probably been reduced due to selection since a larger proportion of smokers than of non-smokers die before their 75th birthday. Bronchial obstruction was less frequent in men in all age groups than in the Mini-Finland Health Survey (Aromaa et al. 1989). In women the finding had become less frequent only among persons aged 55 or over.

Asthma was observed in 4% of men and 7% of women (Table 7.2.3). Especially among men the prevalence of asthma increased with age. In persons aged 65 or over, the prevalence of asthma was about 9%. Previously the lifetime probability of asthma in Finland has been estimated to be between 5 and 10%. The figures for asthma have clearly increased since the Mini-Finland Health Survey (Aromaa et al. 1989).

Table 7.2.3. Prevalence (%) of asthma according to the examining physician's diagnosis.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	2.5	3.2	4.9	6.7	9.1	9.1	3.3	7.4	4.1
Women	4.9	5.7	7.2	12.2	7.8	8.3	5.7	10.6	6.6
p ²							<0.001	0.039*	<0.001

¹ age-adjusted

² difference between genders

*interaction between age and gender is statistically significant (p<0.05)

Chronic hand eczema was found in 1% of men and 2% of women (Table 7.2.4). Its prevalence decreased with age and it was much more frequent among women than among men. Eczemas and allergies will be dealt with in more detail in future studies.

Table 7.2.4. Prevalence (%) of chronic hand eczema according to the examining physician's diagnosis.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	1.6	2.0	1.4	0.6	0.0	0.0	1.7	0.4	1.4
Women	3.4	2.5	1.9	1.6	0.8	0.0	2.8	1.3	2.5
p ²							0.016	0.058	0.007

¹ age-adjusted

² difference between genders

7.3 Musculoskeletal diseases

Hilkka Riihimäki, Markku Heliövaara and the working group for musculoskeletal diseases

Working group for musculoskeletal diseases: Hilkka Riihimäki (chair), Markku Heliövaara, Sami Heistaro (secretary), Olli Impivaara, Tuula Jokiniemi, Satu Luoto, Pirjo Manninen, Matti Mäkelä, Simo Taimela, Esa-Pekka Takala and Eira Viikari-Juntura

Musculoskeletal diseases and disorders are major causes of early retirement and work absenteeism. During the past ten years the prevalence of disability pensions awarded on grounds of musculoskeletal disorders has declined to some extent (Hytti et al. 2002). To describe the prevalence of musculoskeletal disorders and their trends, we will be using indicators based, first, on a standard interview regarding symptoms in the back, neck, hip and knee (Table 7.3.1); and second, on the physician's clinical examinations concerning the occurrence of four chronic diseases, i.e. low back syndrome, neck syndrome and osteoarthritis of the hip and knee joints (Table 7.3.2). The symptom interview was conducted by a trained nurse in connection with the health examination or a home visit. The questions concerning symptoms were similar to those used in the Mini-Finland Health Survey from 1978 to 1980 (Heliövaara et al. 1993). The diagnoses in the clinical examination were based upon disease history, symptom history and findings. A specially trained physician diagnosed the syndromes using the same criteria that had been used in the Mini-Finland Health Survey, allowing for direct comparisons. The results of these comparisons will be commented on both in this chapter and in chapter 15. No other comparable national data are available either from Finland or any other countries.

Chronic low back syndrome and back pain

The prevalence of chronic low back syndrome in men was 10% and in women 11%. In the Mini-Finland Health Survey such a condition was diagnosed in 18% of men and 16% of women. Chronic low back syndrome has thus become less frequent over the past 20 years. The age specific results show that the syndrome has decreased in men in all age groups below 75 and in women until age 65. Back pain experienced during the past month has not decreased, in the oldest age groups it has in fact increased.

Table 7.3.1. Prevalence (%) of musculoskeletal symptoms.

	Health 2000							Mini-Finland
	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹	30+ ¹
Back pain ever								
Men	79.1	80.4	76.9	81.1	82.3	70.8	79.4	76.3
Women	75.1	79.0	83.0	81.0	79.2	61.0	78.3	73.3
Sciatica pain ever								
Men	25.6	41.1	41.5	40.0	37.9	32.1	34.5	34.6
Women	37.0	48.8	56.6	47.8	37.4	27.4	44.4	38.8
Back pain during past month								
Men	27.4	29.9	29.1	32.9	38.6	29.3	29.6	19.4
Women	30.7	35.4	40.2	42.4	43.5	36.8	35.9	23.3
Neck pain during past month								
Men	21.4	26.7	28.4	30.6	30.3	35.8	25.8	26.8
Women	38.0	40.7	43.9	40.8	37.3	28.4	39.9	34.7
Shoulder pain during past month								
Men	20.1	24.0	27.1	22.8	21.5	24.0	22.6	22.1
Women	40.3	40.8	41.5	38.6	32.0	16.4	39.6	32.7
Hip pain, ache, soreness during past month								
Men	3.2	8.0	10.7	17.5	19.6	25.8	8.9	12.1
Women	6.2	13.4	19.9	17.6	20.8	22.3	12.9	15.8
Walking difficulties or limping because of hip disorder during past month								
Men	2.6	7.4	12.4	20.5	25.5	27.6	9.6	8.7
Women	5.4	11.3	16.4	19.0	21.9	26.2	11.8	10.6
Knee pain, ache or soreness during past month								
Men	14.3	17.4	28.0	25.3	27.9	36.8	20.1	13.8
Women	14.9	22.2	32.0	31.5	41.9	30.6	23.7	23.9
Walking difficulties or limping because of knee disorder during past month								
Men	7.9	11.3	18.7	17.3	26.9	36.9	13.4	11.4
Women	7.5	13.5	19.9	26.6	33.6	32.0	15.6	16.1

¹ age-adjusted: direct standardisation, with the 1980 population of Finland as the standard

Chronic neck syndrome and neck pain

A chronic neck syndrome was diagnosed in 5% of men and 7% of women. The figures in the Mini-Finland Health Survey were 10% and 14%, respectively. The prevalence of the neck syndrome has thus been reduced by one half in 20 years, most clearly in persons aged under 65. A corresponding decrease was not observed in the prevalence of neck pain, which on the contrary has increased particularly in older women.

Table 7.3.2. Prevalence (%) of musculoskeletal syndromes according to the examining physician's diagnosis.

	Health 2000							Mini-Finland
	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹	30+ ¹
Low back syndrome								
Men	6.0	11.4	12.8	14.7	18.1	13.9	10.4	17.5
Women	4.4	10.3	17.1	18.1	15.1	13.0	10.6	16.3
Neck syndrome								
Men	1.6	4.1	6.9	11.8	12.7	5.8	5.3	9.5
Women	3.2	8.0	10.2	10.7	9.3	10.2	7.0	13.5
Hip osteoarthritis								
Men	0.5	1.8	5.2	12.1	20.3	41.8	4.9	4.6
Women	0.4	0.7	3.1	11.6	20.0	24.6	4.0	5.5
Knee osteoarthritis								
Men	0.3	2.6	9.2	10.6	16.3	45.8	5.3	5.5
Women	0.4	2.2	8.1	18.4	31.7	35.3	7.1	14.5

¹ age-adjusted: direct standardisation, with the 1980 population of Finland as the standard

Hip osteoarthritis

Hip osteoarthritis was diagnosed in 5% of men and 4% of women. The corresponding figures in the Mini-Finland Health Survey were 5% and 6%, i.e. there has been hardly any change in its prevalence. In men under 75 the prevalence of hip osteoarthritis has remained more or less unchanged, but in older age groups it seems the figures have increased. In older women the prevalence of hip osteoarthritis has either remained unchanged or marginally increased, but in younger women it has decreased. Hip complaints and related walking difficulties were experienced by every tenth subject, which is the same result as recorded in the Mini-Finland Health Survey.

Knee osteoarthritis

Knee osteoarthritis was diagnosed in 5% of men and 7% of women, whereas the corresponding figures in the Mini-Finland Health Survey were 6% and 15%. Among women the prevalence of knee osteoarthritis has thus dropped by more than one half, which is mainly attributable to changes in the age groups under 75. However, among men aged 85 or over the prevalence of knee osteoarthritis has

increased. Pain symptoms of the knee during the past month had been experienced by 14% of men and 24% of women, related walking difficulties by 11% of men and 16% of women. A clear change compared to the Mini-Finland Health Survey was the increase in the occurrence of knee trouble in elderly men, an observation that supports the findings of the clinical examination.

Discussion

These early findings suggest that the health of the musculoskeletal system in the Finnish population has improved over the past 20 years. This is mainly attributable to the reduced prevalence of chronic low back and neck syndromes among both men and women, and to the lower prevalence of knee osteoarthritis among women. There is no previous information on changes in the prevalence of these diseases in Finland or elsewhere in the world.

In all syndromes the change in prevalence over the past 20 years was similarly related to age: in the oldest age groups health had not improved to the same extent as it had in the youngest. It is clear that known risk factors for these syndromes and diseases such as physical strain, accidents and many living habits have developed in a positive direction, but the health of the oldest age groups is also influenced by risk factors much earlier in life. Recently there has been a marked increase in men's obesity, which may explain why the prevalence of knee osteoarthritis is decreasing much more slowly in men than in women and also why the prevalence of osteoarthritis and complaints in the knee joints have increased in elderly men.

It seems that self-reported symptoms and troubles of the back, neck and weight-bearing joints are equally frequent in Finns of working age today as they were 20 years ago. In the older population these complaints have continued to increase. These results contradict recent questionnaire and interview studies, according to which both low back pain and joint pain have become less common in the working-aged population (Leino et al. 1994; Manninen et al. 1996; Heistaro et al. 1998).

Great efforts were made to ensure the comparability of the syndrome diagnoses and the symptoms reported in the interview with those from the Mini-Finland Health Survey. However, before we draw any final conclusions it is important that we look at an even wider range of symptoms, morbidity indicators and indicators describing the function of the musculoskeletal system as well as their interrelationships.

7.4 Psychological symptoms and mental disorders

Sami Pirkola, Jouko Lönnqvist and the working group for mental health

Working group for mental health: Jouko Lönnqvist (chair), Sami Pirkola (secretary), Kirsi Ahola, Martti Heikkinen, Teija Honkonen, Erkki Isometsä, Matti Joukamaa, Raija Kalimo, Olli Kiviruusu, Teemu Kärnä, Eero Lahtinen, Ville Lehtinen, Kari Poikolainen, Raimo Raitasalo, Jouko Salminen and Jaana Suvisaari

A wide variety of methods were used to assess psychological symptoms and mental disorders in the population. During the home interview the respondents were asked about the use of mental health services. They were also handed Questionnaire 1 which included numerous items on psychological symptoms and alcohol use. During the health examination the subjects were interviewed using CIDI (Composite International Diagnostic Interview, WHO 1990; WHO 1997a; Wittchen et al. 1998) developed by the WHO to identify possible mental disorders.

Perceived psychological well-being

The 12-item version of the General Health Questionnaire (GHQ-12) was used to evaluate the examinees' own assessment of their psychological well-being. GHQ-12 is a valid measure of the population's psychological symptoms, especially in the areas of anxiety and depression (Goldberg 1972; Pevalin 2000). In previous studies sum scores in excess of 2 or 3 points have been regarded as indicative of psychological ill health. According to Health 2000 the majority of the Finnish population feels psychologically quite well regardless of the threshold value (2 or 3) that is taken to indicate ill health. The worse and more disabling the symptoms, the less frequent they are (Fig. 7.4.1). These early results from the Health 2000 survey are in many respects similar to those from the Mini-Finland Health Survey and other countries.

Burnout

The questionnaire also contained the Maslach Burnout Inventory – General Scale (MBI-GS) for interviewees who had been in gainful employment during the past 12 months. According to the weighted sum of the replies, 25% of all respondents suffered from mild and 2.5% from severe burnout (Table 7.4.1). These figures are considerably lower than those reported in a study from 1997 in which mild burnout was observed in 48% and severe in 7% of the respondents (Kalimo and Toppinen 1997). Differences in study populations and research designs probably lie behind these differences.

Figure 7.4.1. Perceived psychological well-being according to the GHQ-12 measure among persons aged 30 or over.

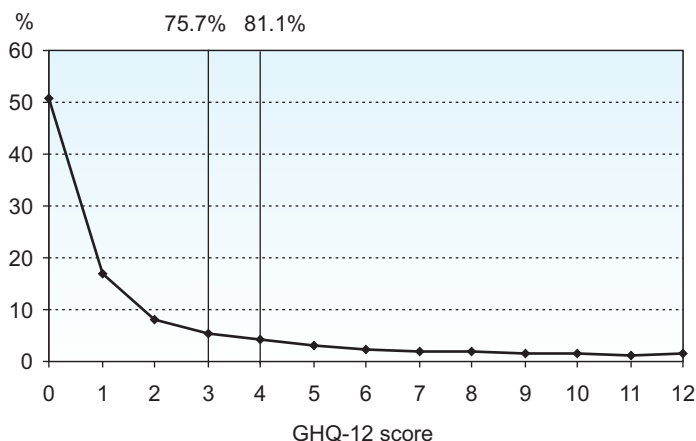


Table 7.4.1. Prevalence (%) of burnout in persons in gainful employment during the past 12 months.

	30–44	45–54	55–64	30–64 ¹
Mild burnout				
Men	23.1	27.1	27.7	25.1
Women	22.1	25.5	37.3	25.2
Severe burnout				
Men	1.9	2.0	3.6	2.2
Women	2.1	2.9	6.6	2.9

¹ age-adjusted

Major depression and alcohol dependence

The occurrence of many psychiatric syndromes defined in the DSM-IV disease classification can be estimated on the basis of the symptom data collected in the CIDI interview. In the age groups 30 or over 5% had suffered from a major depressive episode during the past 12 months. The corresponding figure for those who met the criteria of alcohol dependence was 4% (Table 7.4.2 and 7.4.3). Major depressive episodes were clearly more common among women (7%) than among men (4%). In contrast, alcohol dependence was clearly more frequent among men (7%) than among women (2%). Both disorders were most common among people of working age. These results are very much in line with those in several other countries.

Table 7.4.2. Prevalence (%) of an episode of major depression during the past 12 months.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	4.2	4.7	2.9	0.9	1.7	0.0	4.1	1.1	3.5
Women	8.8	7.2	5.9	3.2	1.8	1.4	7.7	2.7	6.7
p ²							<0.001	0.059	<0.001

¹ age-adjusted

² difference between genders

Table 7.4.3. Prevalence (%) of alcohol dependence during the past 12 months.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	8.5	7.2	7.9	0.9	0.0	0.0	7.9	0.7	6.5
Women	2.7	1.3	0.8	0.3	0.3	1.1	1.8	0.3	1.5
p ²							<0.001*	0.350	<0.001

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Use of mental health services

The health interview also enquired about the use of health services because of mental health problems. In the adult population aged 30 or over, 6% had used health services because of mental problems during the past 12 months (Table 7.4.4). The use of mental health services was more common among women (7%) than among men (4%) and use was most common in the age group 45 to 54 years among both women and men.

Table 7.4.4. Prevalence (%) of use of mental health care services during the past 12 months.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	4.2	6.7	3.5	1.3	2.8	3.1	4.9	1.8	4.2
Women	7.8	9.9	6.3	3.3	1.8	1.7	8.1	2.6	6.8
p ²							<0.001	0.297	<0.001

¹ age-adjusted

² difference between genders

7.5 Oral health

Anne Nordblad, Miira Vehkalahti and the working group for oral health

Working group for oral health: Anne Nordblad (chair), Sinikka Varsio (secretary), Sirkkasisko Arinen, Dorrit Hallikainen, Hannu Hausen, Matti Knuuttila, Liisa Suominen-Taipale, Anna-Lisa Söderholm and Miira Vehkalahti

The data on oral health and the use of dental services were collected in the health interview and the questionnaires as well as in the clinical oral examination that was part of the health examination. The aim was to achieve good comparability with the Mini-Finland Health Survey (Vehkalahti et al. 1991). However, the information collected here was far more comprehensive (Arimen et al. 1998; Drury et al. 1996; Kelly et al. 2000; WHO 1997b).

Conducted by a specially trained dentist, the results of the clinical oral examination were recorded on PC by a dental nurse according to the dentist's dictation. The examination was carried out in a standard dental unit comprising a dental chair, saliva suction, syringe and a headlamp as light source, using a mouth mirror and the WHO periodontal probe. The examination included assessment of biting function, dentures, changes in oral mucosa, dental plaque, the number and location of remaining teeth and health status of the teeth and periodontium. All surfaces of all teeth were examined and the findings were recorded by tooth. Images of oral mucosal lesions were recorded with an intraoral video camera (Intracam, Planmeca Ltd). Finally, a panoramic x-ray image was taken of the jaws and condyles (Planmeca 2002 CC Proline). Those not attending the health examination proper were given a short oral examination by a nurse: this examination at the subject's home yielded information on dentures, edentulousness and number of teeth.

This chapter describes the subjects' own assessments of oral health, their need for dental care as well as on the number of dental visits. The findings of the clinical examination will also be shown for edentulousness, number of teeth and the occurrence of caries and periodontal diseases.

Perceived oral health

Two thirds of the subjects regarded their oral health as good or fairly good. This assessment was similar among those using full dentures (64%) and those who had their own teeth (65%). Among working-aged dentate respondents, a larger proportion of women (71%) than men (62%) assessed their oral health as good

or fairly good. In the age groups over 65, a smaller proportion of dentate people (52%) than in younger persons (67%) rated their oral health as good or fairly good. Dentate persons with a longer education were more likely to describe their oral health as good or fairly good than those with a shorter education.

Perceived need for dental care

53% of dentate people in working age and 42% of those in older age groups thought they needed dental care. The corresponding figure for those with full dentures was 26%. There was no difference between men and women in the perceived need for care (Table 7.5.1).

Table 7.5.1. Age-adjusted proportion (%) of persons reporting need for dental care among dentate persons and among those with full dentures.

	Dentate persons			Persons with full dentures	
	30–64	65+	30+	65+	30+
Men	53.5	44.4	52.3	23.9	25.1
Women	51.7	40.8	50.1	26.0	27.2
p ¹	0.215*	0.299	0.100	0.535	0.458

¹ difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

Dental visits

Working-aged people had been to the dentist on average 1.5 times during the past 12 months, women more often than men. Those aged 65 or over reported a mean of 0.9 visits, and there was no gender difference in this frequency (Table 7.5.2). Both men and women reported the more visits the longer their education.

Table 7.5.2. Average number of visits to the dentist per year.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	1.3	1.2	1.4	1.0	0.9	0.7	1.3	0.9	1.2
Women	1.7	1.8	1.5	1.0	0.7	0.5	1.7	0.9	1.5
p ²							<0.001	0.735	<0.001*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

Edentulousness and number of teeth

Persons without any natural teeth were defined as edentulous: 13% of all respondents had no teeth of their own. In the age group 30 to 44 there were hardly any edentulous persons, but in the age group 65 to 74 one in three and among those 75 or over one half were edentulous. The proportion of edentulous persons was the same in men and women up to the age group 45 to 54, but in older age groups a larger proportion of women than men had lost all their natural teeth (Table 7.5.3). The proportion of edentulous persons decreased with increasing levels of education. For example, among those aged 55 to 64 with no more than basic education, 20% of men and 25% of women were edentulous, whereas the figures for those with a university education were 1% and 2%, respectively. In those aged 65 or over, edentulousness was twice as common in northern Finland as in southern Finland.

Table 7.5.3. Prevalence (%) of edentulousness.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	0.6	6.1	12.6	29.9	44.6	51.1	5.1	36.6	12.1
Women	0.1	5.7	17.8	37.6	52.0	60.4	5.8	43.5	13.9
p ²							0.171*	0.003	0.006

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

The whole population aged 30 or over, including edentulous persons, had an average of almost 20 teeth. Those aged 30 to 44 had on average 28 teeth, those aged 55 to 64 years 16 teeth, whereas persons aged 85 or over had only five teeth. Men and women had an equal number of teeth in all age groups (Table 7.5.4 and Fig. 7.5.1). In both men and women the number of teeth increased linearly with level of education.

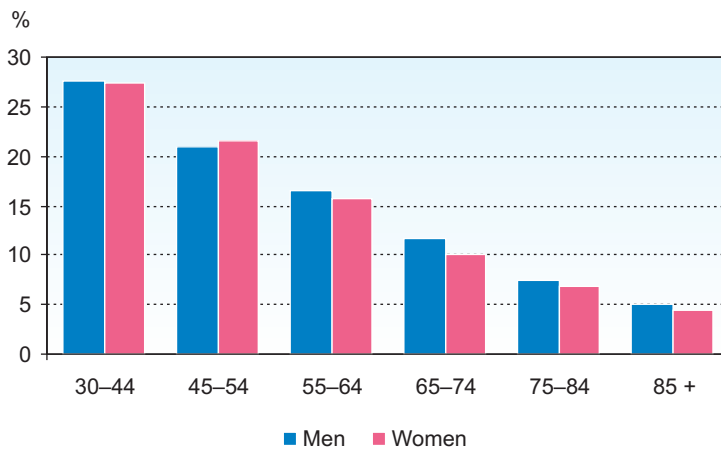
Table 7.5.4. Average number of teeth.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	27.6	21.0	16.6	11.7	7.4	5.0	23.0	9.8	20.1
Women	27.3	21.5	15.8	10.0	6.8	4.5	22.8	8.6	19.8
p ²							0.433	0.024	0.064

¹ age-adjusted

² difference between genders

Figure 7.5.1. Average number of teeth.



Caries

Examinees with at least one untreated caries lesion in their teeth were defined as suffering from caries. Every fourth dentate person had untreated caries. Caries was more prevalent among men (32%) than among women (20%) and more common among people aged 65 or over than among those aged under 65. Almost every other man aged 65 or over and one in four women in that age group had untreated caries (Table 7.5.5). Untreated caries was more common in people with a lower level of education.

Table 7.5.5. Prevalence (%) of dental caries in the dentate population.

	30-44	45-54	55-64	30-64 ¹	65+ ¹	30+ ¹
Men	29.0	31.3	32.2	30.4	43.1	32.0
Women	17.3	19.7	24.8	19.6	24.1	20.2
p ²				<0.001	<0.001	<0.001

¹ age-adjusted

² difference between genders

Periodontal diseases

Examinees with at least one deepened (= 4 mm or deeper) periodontal pocket were defined as having periodontal disease. Periodontal disease was more frequent among men than among women (Table 7.5.6). Among those aged 45 or over, 70% of men and over 60% of women had periodontal disease. In the age group 30 to 44, one in two women and two in three men had periodontal disease.

Table 7.5.6. Prevalence (%) of periodontal diseases in the dentate population.

	30–44	45–54	55–64	30–64 ¹	65+ ¹	30+ ¹
Men	65.1	76.2	75.8	70.8	76.2	71.6
Women	48.4	62.2	62.5	55.7	64.8	56.8
p ²				<0.001	<0.001	<0.001

¹ age-adjusted

² difference between genders

Discussion

The majority of the population rated their oral health as good or fairly good, this proportion being smaller in those aged 65 or over than in younger age groups. Edentulous persons with full dentures did not regard their oral health as worse than dentate subjects. Half of the dentate subjects and one third of those with full dentures thought they needed dental care.

On average the respondents had been to see the dentist once a year. Those aged 65 or over used less dental services than younger persons. Both oral health and the use of dental services were inversely correlated with educational level.

Adult oral health has considerably improved since the Mini-Finland Health Survey (Vehkalahti et al. 1991, see also chapter 15 in this report). Even so edentulousness remains a serious problem for those aged 65 or over. Up to the age of 54 the majority of the population seem to have a sufficient number of teeth for adequate chewing. In dentate people caries and especially periodontal disease are still a major oral health problem, particularly in men and older women.

7.6 Communicable diseases

Petri Ruutu, Markku Kuusi, Pekka Nuorti, Seppo Koskinen and the working group for communicable diseases

Working group for communicable diseases: Petri Ruutu (chair), Markku Kuusi (secretary), Juhani Eskola, Pentti Huovinen, Hannele Jousimies-Somer, Ilkka Julkunen, Eija Könönen, Pauli Leinikki, Tuija Leino, Anja Siitonen and Martti Vaara

Information on the occurrence, symptoms and care of communicable diseases as well as on vaccinations, was collected by Questionnaire 2 that was handed to the examinees at the beginning of the health examination and returned and checked at the last station. Those who only took part in the home health examination filled in a slightly abbreviated version of Questionnaire 2. This chapter provides some early results on the coverage of influenza vaccinations and pneumococcal polysaccharide vaccinations, the occurrence of respiratory infections and their care, and acute gastrointestinal diseases. In addition to the questionnaire information, we will later examine the findings from blood, saliva and faecal samples.

Influenza and pneumococcal vaccinations

Persons in long term medical care suffering from chronic heart disease, chronic pulmonary disease, diabetes, renal insufficiency, immune deficiency and on immunosuppressive treatment, HIV infected persons, those on cortisone supplementation and children and young persons in long term salicylate treatment have been defined as the target group for free influenza vaccinations. It is estimated that the total number of such persons in the country stands at around 510,000. On the basis of the health interview it was possible quite accurately to identify who belonged to this target group. Table 7.6.1 shows the proportion of persons suffering from asthma, COPD, chronic bronchitis, coronary heart disease, heart failure, arrhythmias, diabetes, lymphoma or leukaemia or myocardial infarction who had received an influenza vaccination during the past 12 months. Altogether 2 186 people, approximately one third of all examinees, belonged to the target group thus defined. Just over one quarter of them had received an influenza vaccination during the 12 months preceding the study. Coverage of the vaccination increased with age so that in the age group 30 to 44 years, only 7% of the target group had received a vaccination, whereas in the oldest age group of 85 or over the proportion was about half. The coverage of influenza vaccination in persons aged 65 or over was 45%, and in persons aged 30 to 64 it was 14%. The coverage was slightly higher among men than among women.

Table 7.6.1. Prevalence (%) of influenza vaccination during the past 12 months among persons belonging to the target group.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	6.0	14.1	25.2	47.6	52.2	56.4	15.6	50.3	29.8
Women	7.5	10.7	20.5	41.7	42.0	46.9	13.2	42.1	24.6
p ²							0.241	0.023	0.006

¹ age-adjusted

² difference between genders

The target group for pneumococcal vaccination is largely the same as the target group for influenza vaccination. However, asthma, coronary heart disease and arrhythmias are not indications for pneumococcal vaccination and therefore these illnesses were not used in defining the target group. On the other hand, alcoholism is an indication for pneumococcal vaccination. Therefore, people stating in Questionnaire 1 that they had used health or social services because of a drinking problem during the past 12 months were included in the target group. This definition yielded a target group of 1005 persons, i.e. about 15% of the examinees. The coverage of pneumococcal vaccination was very low in all age groups, only 3% of those in the target group had ever been vaccinated against pneumococcal infection.

Respiratory infections

Close on one fifth or 19% of all subjects said that they had suffered a respiratory infection during the past two months. Respiratory infections were slightly more common among women (21%) than among men (16%). The proportion of persons who had suffered a respiratory infection during the previous two months decreased with age and was 11% in persons aged 65 years or over (Table 7.6.2). Respiratory infections were most common in southwestern Finland (22%) and least frequent in northern Finland (16%). Respiratory infections were also more common among those with a tertiary education than those with a shorter education.

Almost 40% of the persons who had suffered a respiratory infection during the past two months had either been in hospital, visited a physician or contacted a doctor or a nurse by phone because of their illness. There was no gender difference in the use of care and very little variation with age (Table 7.6.3). Almost 3% of men and only 1% of women with a respiratory infection had been in hospital care.

Table 7.6.2. Prevalence (%) of respiratory infection during the past two months.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	22.3	13.7	15.0	10.2	12.6	11.6	17.8	10.9	16.2
Women	28.0	22.0	17.4	12.8	9.1	12.9	23.7	11.5	20.9
p ²							<0.001	0.716	<0.001

¹ age-adjusted

² difference between genders

Table 7.6.3. Prevalence (%) of hospitalisation, visits to a physician and phone contacts with a doctor or nurse due to respiratory infection among those having had a respiratory infection during the past two months.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	30+ ¹
Men	36.0	38.7	27.9	31.6	49.4	84.4	35.2	35.9
Women	42.4	40.8	36.7	42.3	35.1	49.0	41.0	41.0
p ²							0.072	0.083

¹ age-adjusted

² difference between genders

Acute gastrointestinal diseases

Close to 10% of all persons aged 30 or over said that they had suffered an acute gastrointestinal disease (diarrhoea at least three times during 24 hours or vomiting at least once) during the past two weeks. There was no major difference between men and women and little variation with age (Table 7.6.4). Acute gastrointestinal conditions were most common in northern Finland and least common in southwestern Finland. Of those who had suffered from a gastrointestinal disease during the past two weeks, 8% had used medical services due to the infection. There was no gender difference in the use of services.

Table 7.6.4. Prevalence (%) of acute gastrointestinal disease during the past two weeks.

	30–64 ¹	65+ ¹	30+ ¹
Men	9.7	9.8	9.7
Women	10.1	9.5	9.9
p ²	0.685	0.857	0.759

¹ age-adjusted

² difference between genders

8 DISABILITIES AND PERMANENT INJURIES DUE TO ACCIDENTS

Seppo Koskinen and Arpo Aromaa

The respondents were asked in the health interview whether they had any disability or permanent injury due to an accident. Those reporting such a disability or injury were further inquired about the nature, causes and the conditions in which the accident happened as well as about their need for care and aids used. A permanent injury or disability caused by an accident was reported by 19% of men and 9% of women. The proportion of persons with such a disability increased steadily with age (Table 8.1.). Permanent injuries or disabilities were two to three times as common in men as in women in all age groups. Over one third of all men aged 75 or over had suffered a permanent injury. The permanent injury or disability affected the upper limbs in 37% and the lower limbs in 34% of all cases.

Table 8.1. Prevalence (%) of self-reported permanent injury or disability caused by an accident.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	13.3	17.5	20.6	22.2	34.4	38.2	16.3	27.4	18.8
Women	5.4	7.8	12.5	11.5	14.2	16.6	7.8	12.7	8.8
p ²							<0.001	<0.001	<0.001

¹ age-adjusted

² difference between genders

The high prevalence of permanent injuries and disabilities caused by accidents particularly among men goes to show that accidents are a major cause of ill health and loss of well-being. Future studies will shed more light on the causes of these injuries and disabilities as well as on their current nature and impact on functional capacity.

9 HEALTH PROMOTION

Pirkko Alha, Ilmo Keskimäki, Päivikki Koponen and the working group for health services use

Working group for health services use: Unto Häkkinen (chair), Pirkko Alha (secretary), Ilmo Keskimäki, Timo Klaukka, Päivikki Koponen and Kimmo Räsänen

Group activities for health promotion are organised by various associations and companies, local authorities, health centres and parishes. There are no previous studies on participation in such group activities on the population level. Questionnaire 1 inquired about the respondents' participation in health promoting group activities during the past 12 months and during the past five years. It was required that participation should have been more or less continuous, i.e. attendance of a single lecture or discussion did not count. During the past year 30% of the respondents (women 39%, men 20%) had participated in at least one health promoting group. The most common types of groups were those promoting musculoskeletal health or general physical health (women 19%, men 9%). Working age women were the most active participants, men aged 65 or over were least active (Table 9.1).

Table 9.1. Proportion (%) of persons having participated in health promoting group activities during the past 12 months.

	30–64		65+		30+
	Men	Women	Men	Women	Total
Physical exercise or fitness group	8.4	22.7	10.8	10.5	14.6
Dieting group or course	0.6	5.9	0.3	0.5	2.7
Mental well-being group (e.g. grief, divorce or other discussion group)	1.0	1.8	0.7	0.6	1.2
Self-care group or group for the patients' relatives	0.7	1.3	1.6	0.9	1.0
A group aiming at giving up alcohol use (e.g. AA)	0.2	0.5	0.1	0.1	0.6
A group aiming at giving up smoking	0.2	0.1	0.1	0.1	0.3

When we also include those reporting participation in health promoting group activities during the past five years, the proportion of participants in most groups is doubled or tripled. Group activities are nonetheless still quite rare in health care. Health promotion or counselling at the individual level was not inquired in the survey. Health promoting services and practices also include various different types of screening and self-examinations (e.g. breast examination in women). These observations will be reported later.

10 USE OF MEDICAL CARE

Unto Häkkinen, Pirkko Alha, Ilmo Keskimäki, Timo Klaukka, Päivikki Koponen and Kimmo Räsänen

Information on the use of health care services was collected in the health interview with the same technique previously applied in national health interview surveys. Some of the main results are described below: these deal with hospital care, physician visits in ambulatory care, use of medicines and the family doctor system.

Use of services and medicines

The question on in-hospital care related to the past 12 months. In the age group 30 or over 13% reported that they had been an inpatient in a hospital during the past 12 months. The proportion of hospitalised persons was larger in women than in men (Table 10.1). There were also regional differences so that the proportion of hospitalised women was largest in eastern and northern Finland (18%) and smallest in southern and southwestern Finland (13%). The pattern of regional differences was quite similar in men, but less pronounced. The use of hospital care did not depend upon education. The proportion hospitalised was about the same as in the national health interview survey of 1995/96 (Arinen et al. 1998).

Ambulatory physician visits were also inquired for the past 12 months. The average annual number of physician visits due to an illness stood at 3.1. Women (3.5 visits per year) went to see the doctor more often than men (2.6 visits per year); the gender difference was particularly clear in those aged 30 to 64 (Table 10.1). Women had most visits in southern Finland and southwestern Finland and men in southwestern Finland. There were no differences between educational groups.

Health centres accounted for 41% of all visits to the doctor, hospital out-patient departments for 18%, occupational health care for 17% and private practice for 17%. The remaining 9% of the visits were contacts with doctor acquaintances, relatives or other doctors. Older people primarily used the services of health centres and hospital out-patient departments, whereas persons of working age mainly used occupational health care and private sector services. In particular, working-aged women visited private doctors much more often than working-aged men (Table 10.1 and Fig. 10.1).

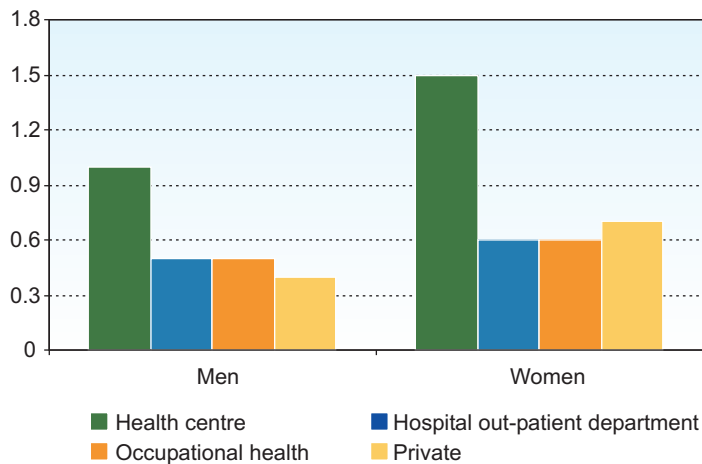
Table 10.1. Age-adjusted use (% or number of visits) of health care services.

	30–64			65+			30+		
	Men	Women	p ¹	Men	Women	p ¹	Men	Women	p ¹
Hospital care / 12 months (%)	8.8	10.6	0.064	23.4	25.4	0.347	11.9	14.1	0.012
Visiting a physician / 12 months (%)	65.0	78.9	<0.001	74.4	81.2	0.003	67.0	79.3	<0.001*
No. of visits to a physician / 12 months	2.4	3.6	<0.001*	3.2	3.4	0.578	2.6	3.5	<0.001*
Having a nominated family doctor at health centre (%)	46.1	55.1	<0.001	55.4	58.7	0.179	48.1	55.8	<0.001*
Having another primary physician (%)	44.5	43.8	0.664	28.6	27.2	0.543	40.9	40.0	0.482
Primary physician is another health centre physician (%)	6.0	7.4	0.054	13.9	16.2	0.234	7.8	9.4	0.018
Primary physician is an occupational health care physician (%)	28.9	27.3	0.202*	1.0	0.4	0.138*	22.8	21.0	0.061
No. of visits to a health centre physician / 12 months	0.9	1.3	<0.001*	1.6	1.9	0.009	1.0	1.5	<0.001*
No. of visits to a physician at hospital out-patient department / 12 months	0.5	0.6	0.003*	0.6	0.7	0.840	0.5	0.6	0.006*
No. of visits to an occupational health care physician / 12 months	0.6	0.8	0.003	0.0	0.0	0.387	0.5	0.6	0.003
No. of visits to a private physician / 12 months	0.4	0.7	<0.001	0.5	0.6	0.003	0.4	0.7	<0.001*
Prescription medicines / 12 months (%)	67.0	81.3	<0.001	88.5	92.1	0.006*	71.7	83.7	<0.001
Using a prescription medicine at present (%)	44.0	62.9	<0.001	83.8	88.2	0.009*	52.8	68.5	<0.001*
Non-prescription medicines / 12 months (%)	76.2	88.4	<0.001	58.6	75.7	<0.001*	72.3	85.4	<0.001
Having a primary nurse or health visitor (%)	36.4	41.2	<0.001	27.2	29.4	0.312	34.1	38.6	<0.001
Visiting an occupational health nurse / 12 months (%)	21.2	21.7	0.692	1.7	2.0	0.605	16.9	17.2	0.715
Visiting another health visitor or nurse / 12 months (%)	14.4	21.5	<0.001*	34.0	35.7	0.480	18.8	24.3	<0.001*
Home visit by a nurse / 12 months (%)	1.4	2.0	0.097*	10.1	13.0	0.034	3.1	4.7	<0.001*

¹ difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Figure 10.1. Average number of visits to a physician during the past 12 months among persons aged 30 or over.



A sectoral examination of physician visits revealed marked differences by region and educational level. Men visited health centre physicians almost 50% more often in eastern Finland (1.2 times) than in southern Finland (0.8 times). The number of health centre physician visits decreased in both men and women with increasing educational level. The positive correlation with educational level was quite strong in visits to occupational health care doctors and to private sector doctors. The use of these services was most frequent in southern Finland, but for private physician visits also in southwestern Finland.

Compared to the previous national health interview survey of 1995/96 (Arinen et al. 1998), the total number of visits to the doctor was smaller particularly in those aged 65 or over. However, this is probably due in the first place to methodological differences: in Health 2000 the recall period was 12 months, whereas in the 1995 to 1996 survey it was shorter, i.e. from the beginning of the year to the interview in May. Due to the long recall period, Health 2000 results may slightly underestimate the true frequency of visits. Part of the difference may also be attributable to the fact that in Health 2000, the interviews were carried out in all seasons except summer, whereas in the 1995/96 survey the interviews took place in the spring.

During the past 12 months 22% of working-aged women and 21% of working-aged men had visited an occupational health nurse. Visits to some other health visitor or nurse were recorded for 22% of the respondents, and persons aged 65 or over had visited a nurse more often than other persons (36% of women and 34% of men).

Only 4% of all respondents had been visited by a health visitor or nurse in their own home, but in the age group 85 or over the proportion was almost one third (31%).

Altogether 84% of women and 72% of men had used at least one prescription drug during the year preceding the interview. The frequency of medicine use increased from the younger age groups to the age group 65 or over, where the figures were 92% for women and 89% for men. These figures are in line with the proportion of people who during the past year had received reimbursements for their medication.

The use of other than prescription medication (OTC drugs) was equally common as the use of prescription medicines, i.e. 79% of all respondents aged 30 or over had used OTC drugs. The figure for women was 85%, for men 72%. In contrast to the findings concerning prescription medicines, the use of OTC drugs was less frequent among the aged than among people of working age.

Close on two thirds or 61% of the subjects had at least one prescription medicine at the time of the interview (women 69% and men 53%). Comparing this with the figures reported in the national health interview survey of 1995/96, we find that the use of prescription medicines was slightly more common in Health 2000 participants, particularly among the aged.

Family doctor system

The respondents were asked whether they had their own family doctor at the community health centre. Over half or 52% of the respondents said they did. The figure was higher among women (56%) than men (48%), but this gender difference was only observed among working-aged people. Among those who had their own family doctor at the health centre, 68% visited primarily this doctor, among those aged 65 or over almost 90%. The proportion of respondents reporting their own family doctor ranged from 74% among women in southern Finland to 38% in northern Finland. The corresponding proportions for men were lower and varied between 60% and 34%. The differences between educational levels were less pronounced than those between regions.

It was also common most particularly for people of working age to have some other primary (personal) doctor: 44% of the respondents reported having such a doctor. Close on one third or 29% of working-aged men and 27% of women said their primary doctor was a physician from occupational health care services. Some other health centre GP than their named family doctor was mentioned by 7% of working-

aged persons, a private doctor by 6%. Two out of three persons who said they had a family doctor primarily went to see them when they needed medical help or advice.

Comparing these results with those from the 1995/96 survey (Arinen et al. 1998), it is clear that advances have been made with the family doctor system. This applies both to family doctors appointed by a health centre and other primary doctors.

Over one third or 37% of the respondents reported that they had a certain health visitor or nurse whom they would primarily contact when they needed help or advice regarding their health. A slightly larger proportion of women (39%) than of men (34%) reported such a primary nurse. In those of working age this primary nurse was usually in occupational health care (27% of all respondents of working age, one third of those aged 45 to 54). The reported primary nurse was quite rarely employed at a municipal health centre (10% of all respondents). However, among those aged 75 or over nearly one quarter (24%) had a primary nurse in a municipal health centre. The proportion reporting that they had a primary nurse somewhere else (e.g. in a hospital) was 5%, but among those aged 85 or over the proportion was nearly one fifth.

11 MET AND UNMET NEED FOR CARE

Arpo Aromaa and Seppo Koskinen

After the questions on chronic illnesses the respondents in the health interview were asked whether they needed continuous physician care for any illness, whether they received that care and whether the care they received was sufficient. Just over half of all persons aged 30 or over had at least one chronic illness or disability. The great majority of them, 80% of women and 70% of men, reported that they needed continuous physician care. In the whole population a slightly larger proportion of women (43%) than men (36%) reported that they needed physician care (Table 11.1). Self-reported need for physician care increased steeply with age: in the age group 30 to 44 years about one fifth but in the age group 75 or over more than 70% said they needed continuous physician care. Not only the reported need for care but also the use of care increased sharply with age. In all age groups the proportion of both men and women who received physician care was the same or slightly larger than the proportion of those reporting that they needed physician care.

Table 11.1. Age-adjusted prevalence (%) of at least one self-reported chronic illness, need for physician care and unmet need of physician care.

	30–64			65+			30+		
	Men	Women	p ¹	Men	Women	p ¹	Men	Women	p ¹
Chronic illness	42.7	45.0	0.089	81.5	81.0	0.794	51.5	53.2	0.121
Need for physician care	26.9	36.1	<0.001	64.6	65.9	0.587	35.8	43.0	<0.001*
Unmet need for physician care	13.0	13.9	0.296	16.2	19.0	0.169	13.9	15.0	0.172

¹ difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

Although morbidity increases sharply with age this does not seem to apply to unmet need for medical care, particularly when we move from age group 45 to 54 upwards to older age groups. About one in six persons aged 45 or over reported that they needed continuous physician care because of a chronic illness but did not receive that care. In the age group 30 to 44 the corresponding proportion was smaller at 11%. 14% of all men and 15% of all women, i.e. about one third of those perceiving a need for physician care, felt that their treatment was insufficient at least in some respect. The corresponding proportion in the Mini-Finland Health Survey was larger, standing at 40 to 45% of those needing care (Aromaa et al. 1989). So although people are receiving care, there are still problems and shortcomings with regard to how it is provided – although those problems and shortcomings are less pronounced than they were at the time of the Mini-Finland Health Survey.

12 FUNCTIONAL CAPACITY AND WORKING CAPACITY

Seppo Koskinen, Päivi Sainio, Raija Gould, Timo Suutama, Arpo Aromaa and the working group for functional capacity

Working group for functional capacity: Seppo Koskinen (chair), Päivi Sainio (secretary), Arpo Aromaa, Pertti Era, Pauli Forma, Raija Gould, Päivi Haavisto, Jukka-Pekka Halonen, Kaj Husman, Juhani Ilmarinen, Jorma Järvisalo, Sirkka-Liisa Karppi, Jarmo Malmberg, Simo Mannila, Timo Marttila, Seppo Miilunpalo, Matti Ojamo, Sirkka-Liisa Rudanko, Sanna Rätty, Raimo Sulkava, Timo Suutama, Reijo Tilvis and Mariitta Vaara

Health 2000 included quite comprehensive measurements of functional capacity. In addition to usual interview and questionnaire methods, the survey comprised a number of tests measuring various different functions. Tests were carried out to measure mobility, the function of lower and upper limbs and back, vision, hearing, balance, psychomotor speed, cognitive capacity, competence in social functions, ability to manage everyday tasks, working capacity and need and use of aids and rehabilitation services.

The health interview and the various questionnaires administered during different phases of the survey aimed to find out how the examinees themselves assessed their ability to manage various tasks. At the station devoted to measurements of functional capacity, the participants spent a total of more than half an hour in different measurements of physical and psychological capacity. The doctor's clinical examination also included some measurements of physical functional capacity. In addition, a short cognitive test was carried out in connection with the health interview at home. The self-reported measures as well as the objective measures were complemented by assessments made by the interviewer at home and by the examining doctor. Questions concerning functional capacity were prominent in the home health examination and in the telephone interview with persons who had not participated in the health interview proper, or in the health examination proper.

12.1 Self-reported functional capacity

Comprehensive series of questions were included in the health interview to describe mobility, vision, hearing and ability to manage basic activities of daily living (ADL), such as dressing and undressing and washing oneself, as well as instrumental activities of daily living (IADL), such as shopping and cleaning. The series was based on the ADL and IADL measures developed by Katz et al. (1963; 1970), Lawton and Brody (1969) and OECD (McWhinnie 1981). These were modified and complemented on the basis of experiences from the Mini-Finland Health Examination Survey (Aromaa et al. 1989) and the Finrisk-97 senior survey (Koskinen et al. 2004).

As examples of ADL functions we will here present results on dressing, washing and cutting toenails (Table 12.1.1). The vast majority or 97% of working-aged persons and more than 90% of those aged 65 to 74 stated that they had no difficulties in dressing and undressing. However, among those aged 85 or over only about half said they were able to dress and undress without difficulty. In the age group 30 years or over, 6% had at least some difficulties in dressing, but less than 2% stated that they could not manage at all. Washing difficulties were roughly as common as dressing difficulties. Over 95% of people of working age had no difficulty in cutting their toenails, but of those aged 65 or over one third and of those aged 85 or over five out of six said they had at least some difficulties in cutting their toenails. There were no statistically significant gender differences in managing these basic ADL activities.

Table 12.1.1. Proportion (%) of persons managing selected basic (ADL) activities without difficulties.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Dressing									
Men	99.0	96.9	96.3	90.7	74.5	51.6	97.7	81.1	94.2
Women	98.7	96.8	93.8	91.9	77.2	45.7	97.0	82.8	93.7
p ²							0.131	0.327	0.412
Washing									
Men	99.1	98.5	98.4	94.5	76.8	54.3	98.8	84.1	95.6
Women	99.2	98.6	97.5	95.9	77.0	41.0	98.7	84.6	95.4
p ²							0.735	0.756*	0.591
Cutting toenails									
Men	98.1	95.3	91.9	80.2	51.2	16.8	95.8	64.3	88.8
Women	98.4	96.0	89.4	78.0	48.6	17.6	95.6	63.1	88.1
p ²							0.769	0.575	0.315

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Mobility was charted with several questions on moving about at home, walking, climbing stairs, running, using public transport and driving a bicycle and a car. Difficulties in moving about in their own dwelling were reported by 4% of the population (Table 12.1.2), less than 1% said they were not able to move about in their own dwelling at all. Climbing one flight of stairs was difficult for 4% of those of working age, but to about four in five persons aged 85 or over. About 6% of people aged 30 or over were unable to walk half a kilometre, 12% reported that they either could not walk such a long distance or that it caused at least some difficulty. Among the respondents of working age only 4% had difficulties in walking half a kilometre, but in the age group 85 or over more than 80% reported that they were unable to walk such a distance without difficulty. The figures for those who said it was hard for them to carry a 5 kg shopping bag for 100 metres were slightly higher than the proportion who had difficulties walking half a kilometre: among working-aged persons close to 7% and among those aged 85 or over 85% stated that they had difficulty in carrying out such a task. According to all the indicators discussed here, mobility problems were clearly more common in elderly women than in men. Among persons of working age the only task causing more difficulties to women than to men was carrying a 5 kg bag for 100 metres. Other indicators of mobility were not associated with gender in working-aged persons.

Table 12.1.2. Proportion (%) of persons managing various mobility functions without difficulties.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Moving about at home									
Men	99.5	99.1	98.7	95.3	82.9	62.2	99.2	87.5	96.6
Women	99.8	99.4	98.2	94.0	77.6	42.4	99.3	83.8	95.8
p ²							0.573	0.026	0.042*
Climbing stairs (one flight)									
Men	99.0	96.9	91.2	85.1	63.3	25.1	96.6	72.1	91.0
Women	99.0	96.3	89.3	75.1	48.8	21.6	96.0	61.9	88.2
p ²							0.224	<0.001	<0.001*
Walking half a kilometre									
Men	99.0	95.1	91.7	81.7	59.1	17.1	96.1	67.7	89.6
Women	99.4	95.9	91.9	76.9	47.2	18.3	96.6	62.0	88.6
p ²							0.349	0.012	0.119*
Carrying a 5 kg shopping bag for 100 metres									
Men	98.7	96.2	91.7	83.4	57.8	24.8	96.3	69.0	90.3
Women	96.7	89.8	79.1	64.9	31.7	10.3	90.5	49.3	81.1
p ²							<0.001	<0.001	<0.001

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Shopping and heavy cleaning are examples of more complex functions that can be limited for instance by difficulties in moving about or impaired vision or hearing and reduced cognitive abilities. Altogether 93% of persons aged 30 or over felt that they had no difficulties in shopping. Among persons of working age no less than 98% managed shopping without difficulties, but in the age group 65 or over only 75% and in the age group 85 or over only slightly more than one in four had no difficulties in shopping (Table 12.1.3). In the age group 65 or over a larger proportion of women than of men felt that shopping was difficult or impossible.

Table 12.1.3. Proportion (%) of persons managing selected common (IADL) activities without difficulties.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Shopping									
Men	98.5	97.6	97.2	91.1	70.8	39.7	97.9	78.9	93.8
Women	99.0	97.5	94.6	87.6	61.8	23.5	97.5	73.3	91.9
p ²							0.295*	0.002	<0.001*
Heavy cleaning									
Men	96.9	93.0	85.0	72.5	41.5	5.9	93.0	55.6	84.7
Women	94.8	85.4	73.2	54.1	23.9	5.0	86.9	40.0	76.2
p ²							<0.001	<0.001	<0.001

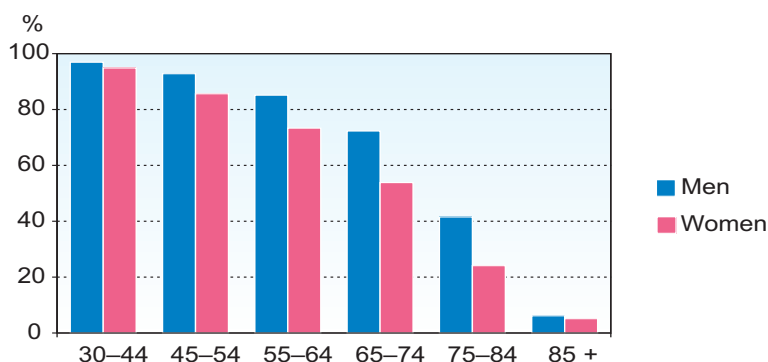
¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Heavy cleaning, such as carrying and beating rugs or washing windows, caused difficulties or was impossible to one in five persons (Table 12.1.3 and Fig. 12.1.1). In the age group 30 to 44, 96% said that they managed these tasks without difficulty. However, in the age group 55 to 64 heavy cleaning was difficult for more than one in five persons, and in the age group 85 or over only 5% said that they managed heavy cleaning without difficulty. Beyond age 45 difficulties in heavy cleaning were clearly more common among women than among men.

Figure 12.1.1. Proportion of persons managing heavy cleaning without difficulty



12.2 Measured functional capacity

Vision

Binocular visual acuity was examined by using well-lit charts for near and distant vision provided by Oriola (Precision Vision). Visual acuity was tested with glasses if the examinee used to wear them for reading or for distant viewing.

In the near vision test the examinee held the test chart at the distance where they could best detect the small letters. Near vision acuity was classified according to the size of the letters recognised: normal = discerns letters 1 mm or less in size (corresponds to VA lines >0.4 on the near vision chart), reduced = discerns letters 1.5–1.8 mm in size (VA lines 0.32–0.4), weak sighted = discerns letters 2.4–11.5 mm in size (the VA lines 0.05–0.25), blind or nearly blind = discerns only letters larger than 11.5 mm if at all (VA lines <0.05). Over 98% of the examinees of working age had normal near vision acuity (Table 12.2.1). The frequency of near vision problems increased after the age of 75. Among those aged 85 or over, only just over half had normal near vision, and 12% of men and 5% of women were blind or nearly blind. In the age group under 85, less than 1% were blind or nearly blind. Near vision was reduced more frequently in men than in women. This may be due at least in part to the fact that men had left their reading glasses at home more often than women. It is also possible that men do not look after their eyes and get new glasses when they need them as readily as women do. However, when the examinees were asked about difficulties in reading newspapers, the gender difference pointed in the exact opposite direction: in the age group 65 or over, the proportion of persons expressing no difficulties in reading newspapers was slightly higher in men than in women.

Table 12.2.1. Prevalence (%) of normal and impaired near vision.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men									
Normal	99.5	95.7	96.3	94.1	81.0	47.6	97.5	85.6	94.9
Reduced	0.2	2.7	2.9	3.1	8.7	18.0	1.6	6.3	2.6
Weak sighted	0.4	1.5	0.8	2.8	9.5	22.5	0.8	6.9	2.2
Blind or nearly blind	0.0	0.1	0.0	0.0	0.8	11.9	0.0	1.2	0.3
Women									
Normal	99.6	97.6	97.4	95.9	84.5	57.4	98.4	89.0	96.3
Reduced	0.4	1.9	1.8	2.6	9.4	13.2	1.2	5.6	2.2
Weak sighted	0.0	0.4	0.5	1.5	5.8	24.9	0.2	4.9	1.3
Blind or nearly blind	0.0	0.1	0.3	0.0	0.4	4.5	0.1	0.5	0.2
p ²							0.019	0.070	0.011*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

Figure 12.2.1. Prevalence of normal and impaired distant vision.

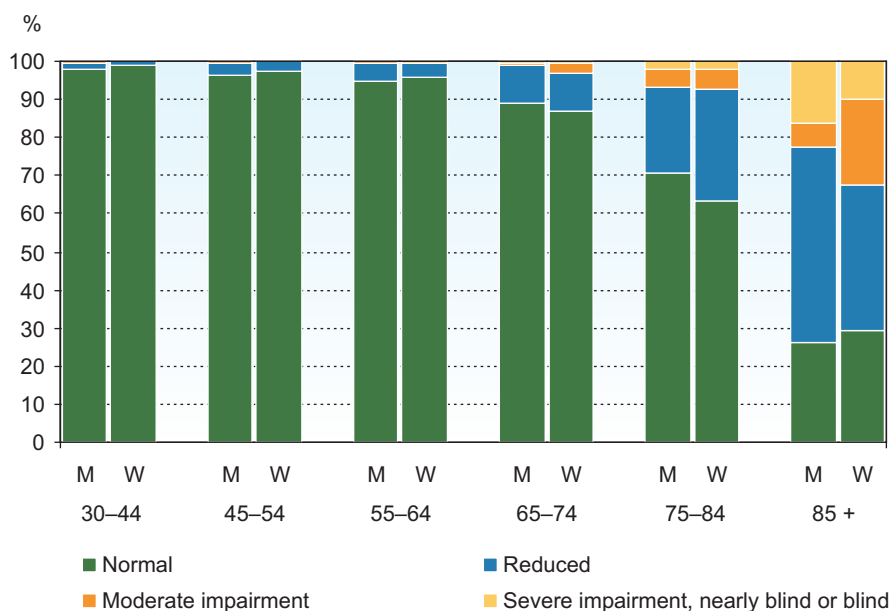


Table 12.2.2. Prevalence (%) of normal and impaired distant vision.

	30-44	45-54	55-64	65-74	75-84	85+	30-64 ¹	65+ ¹	30+ ¹
Men									
Normal	97.8	96.5	94.6	88.8	70.9	26.0	96.7	77.3	92.5
Reduced	1.9	3.2	4.8	10.1	22.4	51.7	2.9	17.9	6.2
Moderate impairment	0.3	0.1	0.6	0.8	4.8	6.0	0.3	2.7	0.9
Severe impairment, nearly blind or blind	0.0	0.2	0.0	0.3	2.0	16.4	0.1	2.1	0.5
Women									
Normal	98.8	97.4	95.7	87.0	63.6	29.5	97.6	75.1	92.4
Reduced	1.2	2.4	3.9	9.7	28.9	38.2	2.2	18.0	5.8
Moderate impairment	0.0	0.1	0.2	2.6	5.2	22.3	0.1	5.0	1.2
Severe impairment, nearly blind or blind	0.0	0.1	0.3	0.6	2.3	10.0	0.1	1.9	0.5
p ²							0.117	0.154	0.508*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

In the distant vision test the examinee looked at the test chart from a distance of four metres. Distant vision acuity was classified on the basis of the visus acuity scores: normal = over 0.5; reduced = 0.32–0.5; moderately impaired = 0.25–0.1; severely impaired, nearly blind or blind = under 0.1. Distant vision was reduced in only a few per cent of working-aged persons, but one quarter of persons aged 65 or over had difficulties in long distance viewing (Fig. 12.2.1 and Table 12.2.2). Both mild and more severe vision difficulties were rare in working age, but especially the rate of mild difficulties was clearly higher in persons aged 65 or over. Among those aged 85 or over, less than 30% had normal distant vision. There was no difference between men and women in distant vision acuity. Severely impaired distant vision or blindness occurred in less than 1% of those under 75 years, but in 16% of men and 10% of women 85 or over.

Hearing

Air conduction hearing threshold was measured by a screening audiometer (Micromate 304, Madsen Electronics) in both ears at three frequencies – 0.5, 1 and 2 kHz – in a silent room. The lowest stimulation level was 5 dB. The average hearing threshold of the ear with better hearing at the mentioned frequencies was classified according to the recommendation of the WHO (1991): normal = 25 dB or better; mild impairment = 26–40 dB; moderate impairment = 41–60 dB; severe impairment = 61–80 dB; deaf or nearly deaf = over 80 dB.

Hearing was normal in 97% of all working age persons, but in the age group 65 or over the prevalence of normal hearing was clearly lower at less than 60% (Table 12.2.3). Over 50% of those aged 75 to 84 and over 90% of those aged 85 or over had reduced hearing. Mild hearing problems were thus rare in working age but quite common in those aged 65 or over. Hardly any of the examinees of working age were deaf or almost deaf, but in the oldest age group (85 or over) the prevalence of deafness was 5%. At working age men had poorer hearing than women, but the difference levelled off after the age of 65.

A larger proportion of men than women said that they had difficulty listening to a conversation. The gender difference began as early as age 45, but evened out at age 85. This may suggest that slight noise induced injuries making it difficult to discriminate speech in noisy and resounding environments are more common among men than among women.

Table 12.2.3. Prevalence (%) of normal and impaired hearing. The mean of the results obtained for the ear with better hearing (0.5, 1 and 2 kHz frequencies).

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men									
Normal	98.8	97.0	90.2	71.4	44.2	10.1	96.3	56.7	87.5
Mild impairment	0.7	2.0	7.5	19.3	32.7	37.8	2.7	25.3	7.8
Moderate impairment	0.4	0.8	2.1	7.1	19.6	37.7	0.9	14.2	3.7
Severe impairment	0.1	0.1	0.2	1.7	1.7	12.5	0.1	2.7	0.7
Deaf or nearly deaf	0.1	0.1	0.0	0.6	1.7	2.1	0.1	1.1	0.3
Women									
Normal	99.0	98.8	93.5	74.3	41.1	8.5	97.7	58.6	89.0
Mild impairment	0.5	1.1	4.9	20.1	35.6	36.9	1.7	26.2	7.1
Moderate impairment	0.5	0.1	1.2	4.3	20.4	40.0	0.5	12.3	3.2
Severy impairment	0.0	0.0	0.2	0.2	2.2	8.6	0.0	1.6	0.4
Deaf or nearly deaf	0.0	0.0	0.2	1.1	0.7	6.0	0.0	1.3	0.3
p ²							0.053	0.403	0.101*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

Cognitive function

Cognitive functioning was examined by selected tasks from the CERAD neuropsychological test battery, originally developed for assessing early phases of dementia and memory disturbances (Morris et al.1989; Hänninen et al. 1999; Pulliainen et al. 1999). The cognitive functions assessed were speech production and encoding and retaining verbal material. In addition, during the home interview an abbreviated version of the Mini-Mental State Examination (MMSE) (Folstein et al. 1975) was administered to respondents aged 55 or over, providing a rough overall estimate of cognitive functioning.

In the CERAD test of verbal fluency, the examinees were requested to list as many animals as possible in one minute. In this test, performance deteriorates due to difficulties in verbal ability, semantic memory and executive functions (Pulliainen et al. 1999). These difficulties were found to increase with age: the performance of older age groups was significantly worse than that of younger age groups (Table 12.2.4 and Fig. 12.2.2). In working age the mean number of words produced was 24.8, slightly higher in women than in men. There was no gender difference after age 65, but performance deteriorated quickly with age: those aged 65 to 74 produced on average 20.5 words, those aged 85 or over only 13.7 words. About 1% of the examinees were unable to do the test because of severe dementia or other diseases affecting cognitive performance.

Table 12.2.4. Results of selected cognitive tasks (means).

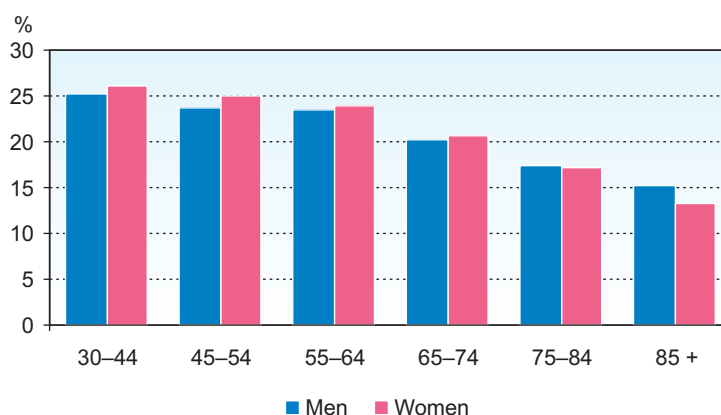
	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Verbal fluency, average number of words produced									
Men	25.2	23.8	23.4	20.3	17.4	15.2	24.3	18.8	23.2
Women	26.0	25.0	24.0	20.6	17.1	13.2	25.2	18.9	23.8
p ²							<0.001	0.760*	0.003*
Average number of words recalled on the third time									
Men	8.5	8.0	7.6	6.7	5.8	5.1	8.1	6.3	7.7
Women	9.0	8.6	8.2	7.4	6.5	5.0	8.7	7.0	8.3
p ²							<0.001	<0.001	<0.001
Delayed memory, recall rate (%)									
Men	89.1	85.8	82.4	75.8	68.5	60.0	86.5	71.9	83.5
Women	90.5	86.9	85.3	77.8	70.1	55.0	88.2	73.8	84.9
p ²							<0.001	0.160	0.001

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Figure 12.2.2. Verbal fluency, average number of produced words.



In the memory test, the examinees learned a list of ten words by reading the words aloud three times. After each time they were asked to say which words they remembered. A reduced ability to learn a list of words is often seen in early dementia, but there are also other reasons for learning difficulties such as mood problems, tiredness and poor motivation. The mean number of words recalled on the third time is shown in Table 12.2.4. Performance deteriorated from younger to older age groups: the mean was 8.8 words in the age group 30 to 44, 7.1 in the

age group 65 to 74 and 5.0 in the age group 85 or over. The results were better in women than in men both in working age and among those aged 65 or over.

Retention and recall was tested by asking the respondents to repeat the same list after about five minutes. Delayed memory is described by the recall rate which related the number of recalled words to the number of learned words. A rate lower than 80% should raise suspicions of memory problems (Pulliainen et al. 1999). The examinees' performance deteriorated slightly with age even in working age (from 90 to 84%), but particularly after age 65, the average recall rate being 77% in examinees aged 65 to 74 and 56% in those aged 85 or over (Table 12.2.4). In working age the percentage was higher among women than men, but at ages beyond 65 there was no gender difference.

Other tests

In addition to the tests described above, measurement of functional capacity involved various tests of muscle strength, speed, balance, endurance, co-ordination and mobility of the joints. By way of an example we will show the results for handgrip strength and walking speed. Handgrip strength was measured twice (a third squeeze was carried out if the difference between the first two results exceeded 10%) from the dominating hand with a strain gauge transducer and an attached amplifier (Good Strength, Metitur Oy, Jyväskylä). The best value was recorded as the result. Grip strength decreased with age. Women's handgrip strength was about 40% lower than men's (Table 12.2.5).

Table 12.2.5. Mean grip strength (Newton) of the dominant hand.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	527.0	506.4	454.2	393.8	315.7	231.3	504.4	356.7	474.2
Women	310.6	291.7	258.6	228.6	179.8	139.5	292.8	207.4	274.1
p ²							<0.001*	<0.001*	<0.001*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

The walking test was taken by those aged 55 or over. Maximal walking speed was based on a walking test over a distance of 6.1 meters (Fiatarone et al. 1994). Figure

12.2.3 and Table 12.2.6 show the proportion of subjects walking slower than 1.2 m/s and 0.8 m/s. These speeds are relevant in regard of traffic light timing. Pedestrians walking at a speed of 1.2 m/s have enough time to cross the road before the lights for cars turn green even if they start crossing at the moment when the green light for pedestrians goes out (pedestrian protection time) (Planning of traffic light series LIVASU-78 1978). Pedestrians walking at a speed of 0.8 m/s, in turn, will have enough time to cross the road if they start as soon as lights for pedestrians turn green. As expected, walking speed decreased with age. Only 2% of those aged 55 to 64 did not reach a walking speed of 0.8 m/s, but one in four persons aged 75 to 84 and two in three persons aged 85 or over could not walk this fast. In the oldest age group, 85 years or over, less than half of men and only one third of women would have been able to cross the road before the light for cars turned green. If the oldest old started to cross the road at the end of the green light for pedestrians, only 10% would manage to get to the other side in time. The mean walking speed for men was 1.58 m/s, for women 1.38 m/s; this gender difference was statistically significant.

Figure 12.2.3. Proportion of persons walking slower than 1.2 m/s and 0.8 m/s.

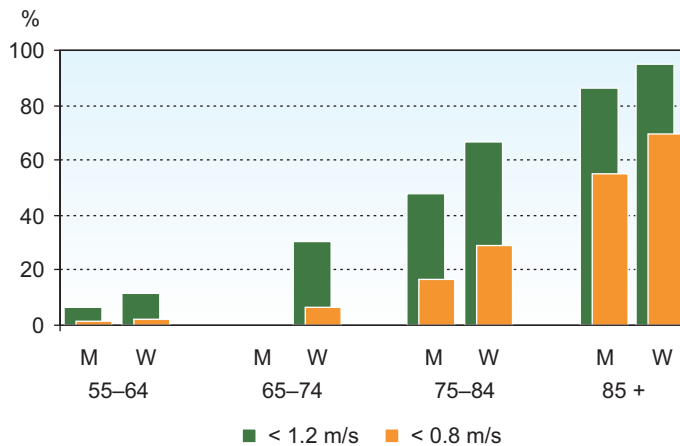


Table 12.2.6. Proportion (%) of persons walking slower than 1.2 m/s and 0.8 m/s.

	<1.2 m/s					<0.8 m/s				
	55-64	65-74	75-84	85+	55+ ¹	55-64	65-74	75-84	85+	55+ ¹
Men	6.4	16.0	47.7	86.1	21.3	1.6	5.6	16.7	55.2	8.6
Women	11.4	30.6	66.6	94.7	31.8	2.4	6.5	29.3	69.3	11.9
p ²	<0.001									0.001

¹ age-adjusted

² difference between genders

According to the results most people aged 30 or over have quite good functional capacity and they manage usual ADL and IADL activities without difficulty. However, after age 65 or 75 both sensory functions and performance in other functions tend to deteriorate to such an extent that some older people begin to have difficulty with a number of usual activities. A very large part of those aged 85 or over have difficulties even in basic activities. Valid data on functional performance in different age groups are needed so that we can properly assess and foresee what kind of challenge the ageing population represents to the social and health care system. In addition, the goal of preserving and promoting the mobility and independence of the ageing population will require information on the whole adult population's functional capacity and related factors. This information is also crucially important with a view to creating such living and traffic environments in which reduced functional capacity does not restrict the possibility for independent living.

12.3 Working capacity

Information on working capacity was collected in the health interview and in Questionnaire 1. The items included the working capacity index developed at the Finnish Institute of Occupational Health (Tuomi et al. 1998), part of the questions used in the Mini-Finland Health Survey (Aromaa et al. 1989) and many items related to work, the workplace community and skills. In addition the examining doctor assessed how the examinee would manage in a number of sample occupations. The demands of these occupations had been described in the instructions.

Self-assessments of working capacity were asked from all working-aged people regardless of whether they were working. Among all persons aged 30 to 64 years, 81% stated that they were completely fit for work, 13% that they were partially disabled for work and 6% that they were completely disabled for work. Over 90% of persons aged 30 to 44 said that they were completely fit for work, but of those aged 55 to 64 only just over 50%. A larger proportion of men than women estimated that they were completely disabled for work, but otherwise there were no gender differences (Fig. 12.3.1 and Table 12.3.1).

The proportion of respondents aged 30 to 64 stating that they were completely or partially disabled for work was twice as high as the proportion of persons on disability pensions (Table 12.3.1). Consequently, there are a large number of persons in the work force who are at least partially disabled. Among those aged 30 to 64 years and employed, over 90% said they were completely fit for work, whereas among the unemployed the figure was only about 70%. In particular the

oldest unemployed persons felt that their working capacity was reduced: only slightly more than half of the unemployed persons aged 55 to 64 estimated that they were completely fit for work, whereas 84% of those working felt that they were completely fit for work (Fig. 12.3.2 and Table 12.3.2).

Figure 12.3.1. Self-reported working capacity in age group 30–64 years

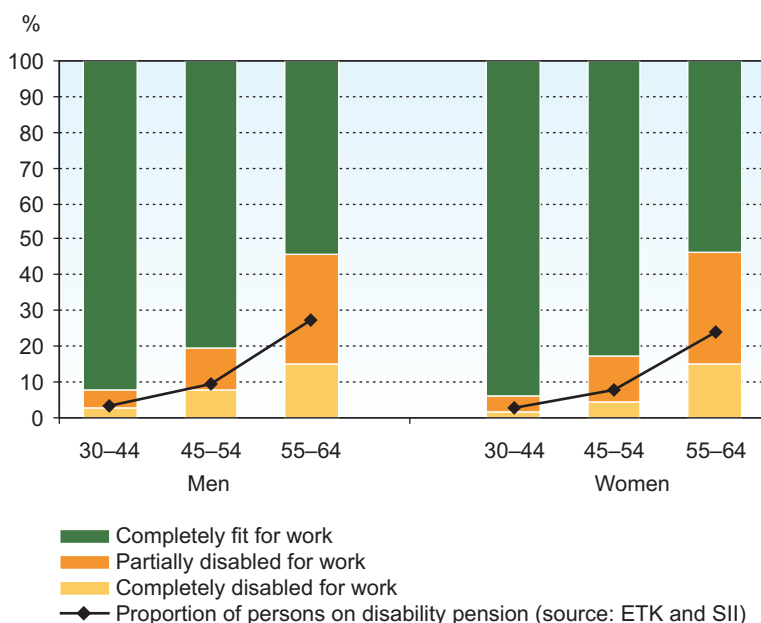


Table 12.3.1. Self-reported working capacity in age group 30–64 years (%).

	Men				Women			
	30-44	45-54	55-64	30-64 ¹	30-44	45-54	55-64	30-64 ¹
Completely fit for work	92.3	80.5	54.3	80.0	93.6	82.9	53.6	81.2
Partially disabled for work	4.9	11.4	30.8	12.8	4.8	12.8	31.3	13.3
Completely disabled for work	2.8	8.1	14.9	7.2	1.6	4.3	15.1	5.5
Proportion of persons on disability pension ²	3.4	9.3	27.2	10.6	2.7	7.8	24.3	9.5

¹ age-adjusted

² source: Statistics produced in collaboration by the Finnish Centre for Pensions (ETK) and the Social Insurance Institution (SII).

Figure 12.3.2. Proportion of employed and unemployed persons aged 30–64 reporting that they are completely fit for work

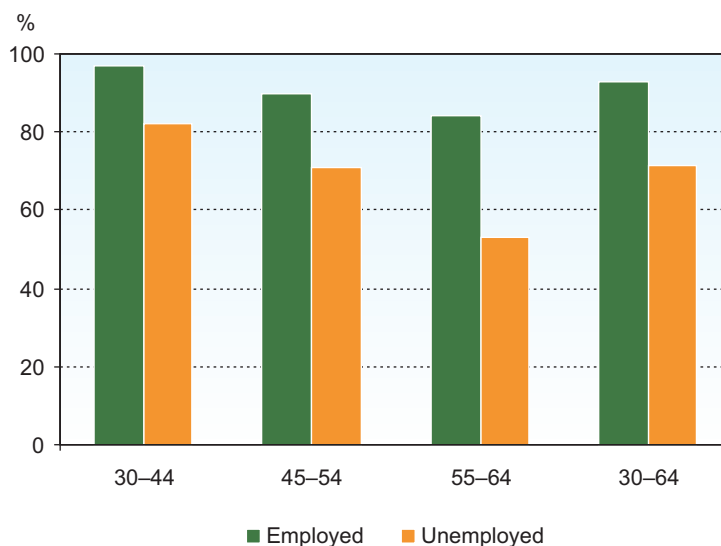


Table 12.3.2. Proportion (%) of employed and unemployed persons aged 30–64 and reporting that they are completely fit for work.

	30–44	45–54	55–64	30–64
Employed	96.7	90.0	84.2	92.7
Unemployed	82.0	70.7	53.3	71.6

In addition to the general estimate of working capacity, we also inquired about current working capacity in relation to the physical and mental demands of the job. Among respondents aged 30 to 44 who had been working within the past year, more than 90% said that their working capacity was quite good or very good in regard of both the physical and mental demands of their job. Working capacity in relation to the physical demands of the job decreased more quickly with age than that related to the mental demands of the job (Table 12.3.3). The Finnish Working Life Barometer for the year 2000 provides a rather similar picture of employees' estimates concerning physical and mental working conditions (Ylöstalo 2001).

Table 12.3.3. Prevalence (%) of good self-reported physical and mental working capacity among persons aged 30–64 and in gainful employment currently or within the past 12 months.

	30–44	45–54	55–64	30–64
Good working capacity in relation to the physical demands of the job	91.6	80.1	66.4	84.3
Good working capacity in relation to the mental demands of the job	91.0	84.0	74.9	86.4

Perceived current working capacity was also assessed by relating it to the best working capacity ever. All respondents were asked to give their current working capacity a score from 0 to 10 so that 10 points corresponded to the person’s working capacity at its best. Employed respondents aged 30 to 44 years gave their working capacity on average 9 points, those aged 55 to 64 years one point less. Thus, older employed persons estimated that their current working capacity averaged 80% of their best working capacity. In all age groups women considered their current working capacity to be slightly closer to the maximum level than men (Table 12.3.4). The working capacity scores were slightly higher than those reported in Statistic Finland’s Working Conditions Survey in 1997. The mean working capacity score (8.1) was almost exactly the same as the corresponding score for persons aged 25 to 64 in the Work and Health Survey in 2000 (Pirainen et al. 2000).

Table 12.3.4. Self-reported current working capacity in comparison to personal best ever (=10) working capacity, age group 30–64 years.

	Employed				All			
	30–44	45–54	55–64	30–64 ¹	30–44	45–54	55–64	30–64 ¹
Men	8.9	8.3	7.9	8.5	8.7	7.8	6.5	7.9
Women	9.0	8.5	8.1	8.6	8.9	8.2	6.8	8.2

¹ age-adjusted

The respondents who had been employed at least at some time during the past 12 months were also inquired how they thought they would manage work in the future. In the age group 30 to 44 years, almost everyone thought that – as far as their health was concerned – they would still be able to continue in their current job in two years’ time. However this confidence was eroded with increasing age: in the age group 55 to 64 only three in four thought they would still be able to manage their job two years on (Table 12.3.5). In Health 2000 a slightly lower percentage

than in the Ministry of Labour's Working Life Barometer in 2000 thought that they would manage in their current job after two years (Kansallisen Ikäohjelman seurantaraportti 2001).

Table 12.3.5. Proportion (%) of persons who believe they will be able to work in their current/latest job in two years' time. Includes persons aged 30–64 in gainful employment during the past year.

	30–44	45–54	55–64	30–64 ¹
Men	96.4	90.8	78.7	92.1
Women	96.9	90.9	69.2	91.3
p ²				0.329*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

The results show that the majority of people aged 30 to 64 years have a good working capacity. However, both in the employed population and particularly among the unemployed, there is a large proportion of persons who are either completely or partially disabled for work. Particularly in the age group 55 to 64 years, work disability and self-assessed decline in working ability are still common.

13 NEED FOR AND USE OF HELP AND REHABILITATION

Seppo Koskinen, Päivi Sainio, Arpo Aromaa and the working group for functional capacity

Working group for functional capacity: Seppo Koskinen (chair), Päivi Sainio (secretary), Arpo Aromaa, Pertti Era, Pauli Forma, Raija Gould, Päivi Haavisto, Jukka-Pekka Halonen, Kaj Husman, Juhani Ilmarinen, Jorma Järvisalo, Sirkka-Liisa Karppi, Jarmo Malmberg, Simo Mannila, Timo Marttila, Seppo Miilunpalo, Matti Ojamo, Sirkka-Liisa Rudanko, Sanna Rätty, Raimo Sulkava, Timo Suutama, Reijo Tilvis and Mariitta Vaara

The health interview included a large number of questions about the need and use of help and rehabilitation. The information was mainly obtained by asking the person's own assessments of need and use. In addition, the examining doctor estimated the person's need for rehabilitation.

13.1 Help

In the non-institutionalised population, only about 1% of those aged 30 to 44 but over four in five of those aged 85 or over received help because of their reduced functional capacity (Fig. 13.1.1 and Table 13.1.1). About 75% of the persons reporting need for help thought the help they received was sufficient, about 10% received help but felt it was insufficient. Some 15% did not receive any help at all even though they felt that they needed it.

In the whole non-institutionalised population aged 30 or over, 9% received help at least from time to time because of reduced functional capacity, 4% at least once a day and 1% around the clock or almost around the clock (Table 13.1.2). In addition, about 1% of adults lived in social and health care institutions where they typically received help at least every day. In all age groups a much larger proportion of women than of men received help.

Figure 13.1.1. Need and use of help.

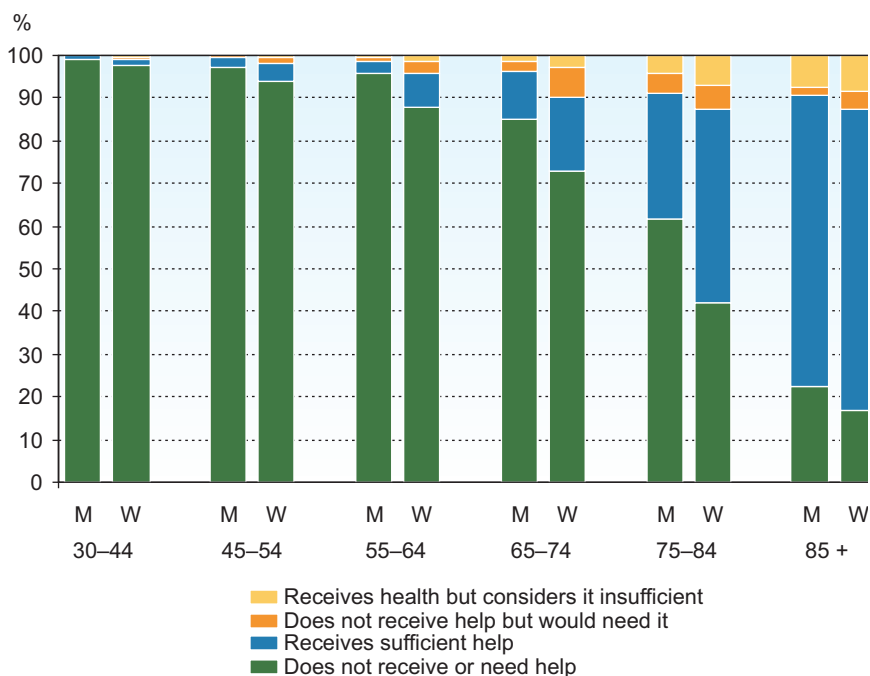


Table 13.1.1. Need and use of help (%).

	30-44	45-54	55-64	65-74	75-84	85+	30-64 ¹	65+ ¹	30+ ¹
Men									
Does not receive or need help	99.0	97.1	95.9	84.9	61.6	22.3	97.7	72.2	92.4
Receives sufficient help	1.0	2.3	2.7	11.4	29.6	68.2	1.8	22.0	6.0
Does not receive help but would need it	0.0	0.6	1.1	2.2	4.5	1.8	0.4	2.8	1.0
Receives help but considers it insufficient	0.0	0.0	0.4	1.6	4.3	7.8	0.1	2.9	0.7
Women									
Does not receive or need help	97.6	93.9	87.7	73.1	42.2	16.6	94.2	59.3	86.5
Receives sufficient help	1.6	4.1	8.2	17.1	45.2	70.8	3.9	29.8	9.6
Does not receive help, but would need it	0.5	1.6	2.6	7.0	5.8	4.2	1.3	6.3	2.4
Receives help but considers it insufficient	0.3	0.4	1.5	2.9	6.9	8.4	0.6	4.6	1.4
p ²							<0.001*	<0.001	<0.001

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant (p<0.05)

Table 13.1.2. Age-adjusted frequency of help received (%).

	30–64		65+		30+	
	Men	Women	Men	Women	Men	Women
Never	98.1	95.5	74.8	65.5	93.3	88.9
Once a month or less often	0.1	0.4	2.6	5.6	0.6	1.5
2 to 4 times a month	0.6	0.9	4.5	7.8	1.4	2.5
A few times a week	0.1	0.9	3.9	7.4	0.9	2.3
Daily	0.8	1.8	10.6	10.6	2.8	3.8
Around the clock or almost around the clock	0.3	0.4	3.6	3.1	1.0	1.0
p ¹	<0.001		<0.001		<0.001	

¹ difference between genders

Among non-institutionalised persons aged 30 or over, 1.8% said they needed help but did not receive it, 1.1% thought they did not get enough help. Not only met needs but also unmet needs for help were more common among women than men. However, the amount of help needed by those whose need for help was unmet, was usually relatively limited. About 90% of persons receiving no help even though they needed it, assessed that they would need help a few times a month or less often.

The health interview also included questions about the use of aids. At working age almost 6% of both men and women had some other vision aid than glasses or contact lenses, but only 0.6% had a hearing aid and 1.4% a mobility aid (Table 13.1.3). The use of aids was far more common among persons aged 65 or over: every fifth older person had a vision aid (excluding glasses) and mobility aids were equally common. One in ten of those aged 65 or over had hearing aids, with men reporting hearing aids slightly more often than women.

Table 13.1.3. Age-adjusted proportion (%) of persons with access to aids.

	30–64			65+		
	Men	Women	p ¹	Men	Women	p ¹
Other vision aid than glasses or contact lenses	5.6	5.7	0.839	17.2	18.0	0.670
Hearing aid	0.6	0.6	0.891	11.1	7.8	0.007
Mobility aid	1.7	1.1	0.068	20.5	22.7	0.237

¹ difference between genders

Most needs for major help seem to be met, although there were also some indications of unmet needs. From these results we cannot yet establish to what extent the relatively good situation is attributable to publicly funded services and/or to care provided by family members and other unofficial care.

13.2 Rehabilitation

Approximately 4% of people in the labour force had during the past 12 months participated in rehabilitation programmes designed to promote their ability to manage in their current job (e.g. TYK or ASLAK), or received retraining because of illness or injury. Almost one fifth of the labour force aged 30 to 64 felt they needed rehabilitation to improve their working ability, among those aged 45 to 54 the corresponding proportion was one in four. A clearly larger percentage of women than men said that they needed vocational rehabilitation (Table 13.2.1).

Table 13.2.1. Proportion (%) of the work force aged 30–64 years reporting need for vocational rehabilitation on account of an illness or handicap and aimed at helping them manage in their current job.

	30–44	45–54	55–64	30–64 ¹
Men	12.2	20.4	14.2	15.4
Women	17.1	28.5	24.2	22.1
p ²				<0.001

¹ age-adjusted

² difference between genders

Almost one in ten of all those aged 30 or over had during the past 12 months participated in other than vocational rehabilitation. Among women the occurrence of this type of rehabilitation did not vary very much with age: in the age group 30 to 44 years 7% and in the age group 75 to 84 about 15% had participated in rehabilitation. In men the variation with age was much more marked. In all age groups under 75, just under 10% of men had received rehabilitation, whereas in those aged 75 or over – the majority of them are entitled to free rehabilitation for veterans – over one third had been in rehabilitation. One quarter of all persons aged 30 years or over estimated that they needed other than vocational rehabilitation (Table 13.2.2).

Table 13.2.2. Prevalence (%) of self-reported need for other than vocational rehabilitation among all persons aged 30 or over.

	30–44	45–54	55–64	65–74	75–84	85+	30–64 ¹	65+ ¹	30+ ¹
Men	14.4	24.0	29.9	33.3	40.9	26.6	21.0	34.8	24.2
Women	15.8	27.4	37.4	35.1	32.6	23.3	24.4	33.0	26.0
p ²							0.004	0.495*	0.080*

¹ age-adjusted

² difference between genders

* interaction between age and gender is statistically significant ($p < 0.05$)

The expressed need for rehabilitation at working age was unexpectedly high. Although it is unlikely all the respondents had a clear picture of the various types of vocational rehabilitation available, the high perceived need for such rehabilitation is noteworthy. This no doubt has to do with the relatively high average age of the work force, the major changes that took place in working life in the 1990s and the increase in structural unemployment in Finland. The active participation of older men in rehabilitation probably reflects the major role of rehabilitation specially organised for veterans.

14 VARIATION OF HEALTH AND FUNCTIONAL CAPACITY ACCORDING TO REGION, EDUCATION AND MARITAL STATUS

Tuija Martelin, Seppo Koskinen and Arpo Aromaa

The population's health varies not only according to age and gender, but also many other sociodemographic factors. Traditionally, the focus in research has been on regional differences, in Finland particularly on differences in the occurrence of cardiovascular diseases between eastern and western Finland. According to many health indicators, socioeconomic differences are wider in Finland than in many other European countries. Less attention has been paid to differences between marital status groups, even though it is known that these are remarkable in mortality, for example.

This chapter describes health differences between regions, educational groups and marital status groups. In addition to diseases and symptoms, we will examine functional capacity and the use of health services. We will also demonstrate the differences in some indicators of health behaviour as well as in risk factors and protective factors.

We will be looking in this chapter primarily at the age-adjusted prevalences and means shown in Appendix tables 1–3. In the text, we mainly comment on those differences between population groups that are at least suggestive ($p < 0.10$). In some cases the difference between population groups varies from one age group to another. These cases can be distinguished in the Appendix tables which show when the interaction between the determinant (i.e. region, level of education or marital status) and age is statistically significant ($p < 0.05$). The possible relevance of these interactions will be examined later.

14.1 Regional differences

The regional analysis in Health 2000 is based upon a division of the country into five so called million regions, i.e. regions served by the university hospitals. Geographically they correspond roughly to South Finland (HUS), West Finland (TYKS), Central Finland (TaYS), East Finland (KYS) and North Finland (OYS). In most indicators we observed statistically at least suggestive regional differences in men or women or both. In mental health indicators no regional differences were observed, except for alcohol dependence, and the same was true for airway obstruction, vision and hearing problems and walking difficulties. In addition, the

prevalence of elevated cholesterol and gamma-GT values did not vary much between different parts of the country, and the same was true for regular physical activity.

The pattern of regional differences was not the same for all indicators: each of the five regions came out on top for some indicators, for others it was in the poorest position. According to many indicators, the HUS million region of **South Finland** was in the most favourable position or at least close to the average in both genders (Appendix Table 1). For example, rating one's health as good or fairly good was more common (Table 14.1), reporting at least one chronic illness was less frequent, the self-reported score of working capacity related to best ever working capacity was higher, verbal fluency was better and edentulousness was less frequent than in other areas.

Table 14.1. Age-adjusted¹ prevalence (%) of good or fairly good self-reported health among persons aged 30 or over by university hospital region.

	HUS (South Finland)	TYKS (West Finland)	TaYS (Central Finland)	KYS (East Finland)	OYS (North Finland)	Whole country	p ²
Men	65.6	61.5	60.3	55.9	61.2	61.5	0.006
Women	63.2	61.2	63.2	57.5	59.9	61.5	0.083

¹ age-adjusted using separate models for men and women

² difference between university hospital regions

In contrast, the situation in South Finland was not quite as favourable in the light of many health behaviour indicators and risk factors. Smoking in women was more common than average (Table 14.2), and women also consumed more alcohol per week than in other areas.

Table 14.2. Age-adjusted¹ prevalence (%) of daily smoking among persons aged 30 or over by university hospital region.

	HUS (South Finland)	TYKS (West Finland)	TaYS (Central Finland)	KYS (East Finland)	OYS (North Finland)	Whole country	p ²
Men	29.0	27.9	32.4	28.7	27.4	29.3	0.353 ³
Women	19.7	14.1	16.4	13.8	18.9	17.1	0.008 ³

¹ age-adjusted using separate models for men and women

² difference between university hospital regions

³ interaction between age and region is statistically significant (p<0.05)

In men, alcohol dependence was more frequent in South Finland than in other areas. On the other hand, high consumption of vegetables was more common in South Finland and obesity was less common than in other areas. Furthermore, the proportion of those who for financial reasons had to make at least some

compromises in their personal consumption was lower than in the other parts of the country.

Many health problems were particularly frequent in **East Finland** (KYS million region). For example, the proportion of persons stating that their health was good or fairly good was smaller than in the other regions, and self-assessed working capacity as well as the results of the memory tests were poorer than average. In men, self-reported myocardial infarction, high blood pressure, clinically diagnosed hip osteoarthritis and perceived poor oral health were all more common in East Finland than in the other regions. In East Finland, women suffered from asthma more often than elsewhere. As far as health behaviour is concerned, the ranking of this region depends upon the specific indicator examined: vegetable consumption was lower than in other regions but on the other hand so too were drinking in men and smoking in women. A much larger proportion of men in this region than elsewhere were forced to make compromises in their personal consumption.

On most indicators both **West** and **Central Finland** were close to the average scores for the whole country. Low back syndrome, and in men also hip osteoarthritis and knee osteoarthritis, were slightly more common in West Finland than in the country as a whole. On the other hand, men in West Finland recorded slightly better handgrip strength than men in other areas. Men in West Finland consumed more alcohol per week than men in any other area. Central Finland had a lower than average proportion of men with alcohol dependence.

North Finland differed from the mean levels for the whole country most clearly because of the low prevalence of musculoskeletal disorders and, on the other hand, because of the high prevalence of poor dental health, particularly edentulousness. Regular consumption of fresh vegetables was also reported by a smaller than average proportion of people, and obesity in women was more frequent than elsewhere. On the other hand, particularly alcohol consumption by women was at a lower level than in other areas.

For many health indicators Health 2000 provides the first reliable source of data on regional variation. However, other recent materials have also highlighted poorer than average health of those living in East Finland (e.g. Arinen et al.1998; Helakorpi et al. 2000; Vartiainen et al. 2000). The high prevalence of smoking and alcohol use in South Finland and particularly in the metropolitan area in and around Helsinki is also clearly seen in analyses of health behaviour (e.g. Helakorpi et al. 2000) and mortality (e.g. Koskinen and Martelin 1998). However the division into so called million regions is, quite crude a tool for purposes of examining regional variations in health, and it is possible that within each of these five regions there are pockets of good and poor health (see e.g. Valkonen and Kauppinen 2001).

14.2 Differences between educational groups

Level of education was classified into three categories – basic, secondary and higher – on the basis of health interview information concerning general and vocational education as described in Chapter 3. For most indicators the differences between educational groups were quite similar. Most health problems occurred most frequently among persons who had received basic education or less and least frequently among those with the highest level of education (Appendix Table 2). For instance, over 70% of those with a higher education stated that their health was good or fairly good, while the proportion among those with no more than basic education was about 50% (Fig. 14.1 and Table 14.3).

Figure 14.1. Age-adjusted prevalence of good or fairly good self-reported health among persons aged 30 or over according to level of education.

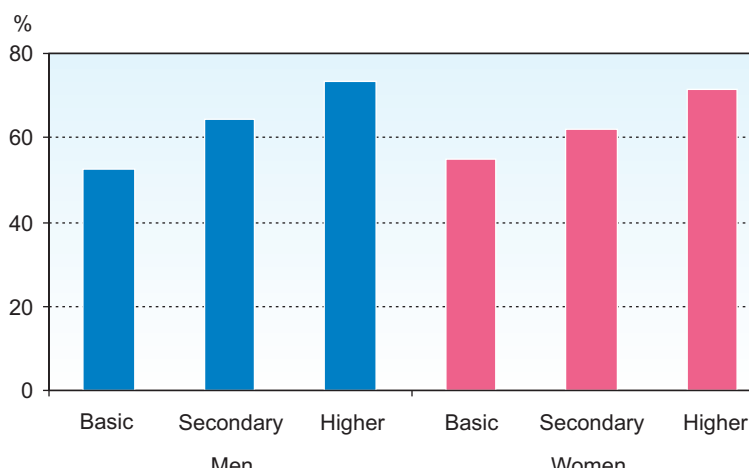


Table 14.3. Age-adjusted¹ prevalence (%) of good or fairly good self-reported health among persons aged 30 or over according to level of education.

	Basic	Secondary	Higher	Total	p ²
Men	52.4	64.4	73.5	61.6	<0.001
Women	55.0	62.1	71.4	61.6	<0.001

¹ age-adjusted using separate models for men and women

² difference between educational groups

There were also clear educational differences in many indicators of health behaviour and risk factors. The prevalence of smoking among men with a basic education or less was about twice as high as among those with the highest level of education; in women this relative difference was even greater (Fig. 14.2. and Table 14.4). Obesity, high blood pressure and high cholesterol levels were also more common among persons with a short than a long education.

Figure 14.2. Age-adjusted prevalence of daily smoking among persons aged 30 or over according to level of education.

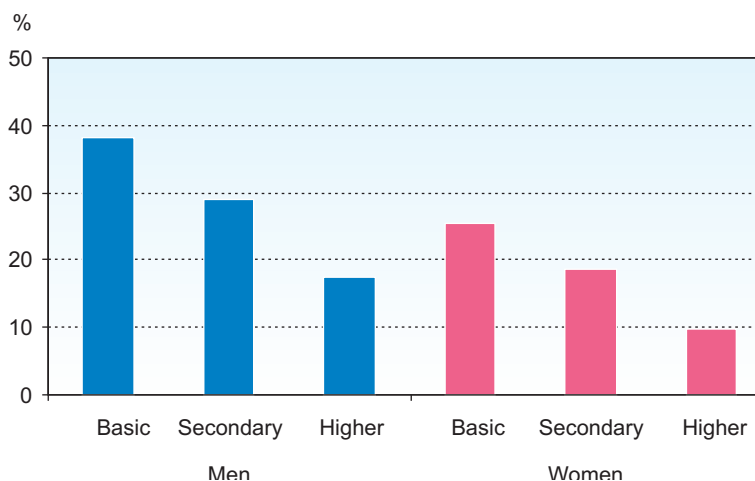


Table 14.4. Age-adjusted¹ proportion (%) of daily smoking among persons aged 30 or over according to level of education.

	Basic	Secondary	Higher	Total	p ²
Men	38.2	29.1	17.6	29.3	<0.001 ³
Women	25.4	18.5	9.7	17.1	<0.001 ³

¹ age-adjusted using separate models for men and women

² difference between educational groups

³ interaction between age and level of education is statistically significant ($p < 0.05$)

In a few instances the health difference between educational groups diverted from the general pattern. Respiratory infections during the past two months were reported most frequently by persons with a long education, and reported alcohol consumption was lowest among persons with no more than a basic education. In some health indicators the educational differences were small or non-existent:

examples include asthma, certain mental health problems (psychological symptoms, alcohol dependence, major depression), impaired distant vision, the proportion of persons who had received in-hospital treatment and the number of visits to a physician. Likewise, there were no statistically significant differences in the proportion of the physically active and those reporting hangovers during the past 12 months.

Overall, our national results concerning differences between educational groups correspond to those reported in other recent studies (see e.g. Lahelma and Koskinen 2002; Rahkonen and Lahelma 2002).

14.3 Differences between marital status groups

The five-class marital status classification was based upon information given in the health interview (see Chapter 3). There were large differences between marital status groups; only a few of the health related indicators were not associated with marital status (Appendix Table 3). In general, health and functional capacity problems were least prevalent among married persons, which supports the findings of earlier studies (e.g. Koskinen et al. 1999; Martelin et al. 2002). However, the relative situation of other marital status groups was different in men and women. Among men, many health problems were concentrated in the divorced and the single, while cohabiting men and widowers had average health. In contrast, cohabiting women, divorced women and widows were more or less equally often in an unfavourable position, whereas on most indicators the health of single women appeared to be quite good.

The differences between marital status groups were greater among men than women. For example, good or fairly good self-rated health was much less frequent among divorced and single men than among other men, whereas among women these differences were small (Table 14.5).

Table 14.5. Age-adjusted¹ prevalence (%) of good or fairly good self-reported health among persons aged 30 or over according to marital status.

	Married	Cohabiting	Divorced, separated	Widowed	Single	Total	p ²
Men	63.5	63.2	54.5	62.4	55.5	61.5	0.003
Women	62.3	60.4	59.2	62.3	59.7	61.5	0.658 ³

¹ age-adjusted using separate models for men and women

² difference between marital status groups

³ interaction between age and marital status is statistically significant ($p < 0.05$)

Among **married** persons reported working capacity was better than in other marital status groups, and they had also been in hospital less often than the average. Compared with the other groups, married people had fewer problems with walking and with their eyesight, their mean hand grip strength was better and the proportion feeling that their oral health was good was larger (Fig. 14.3 and Table 14.6). Moreover, smoking was less common, while regular consumption of raw vegetables was more common than in the other marital status groups.

Figure 14.3. Age-adjusted prevalence of daily smoking among persons aged 30 or over according to marital status.

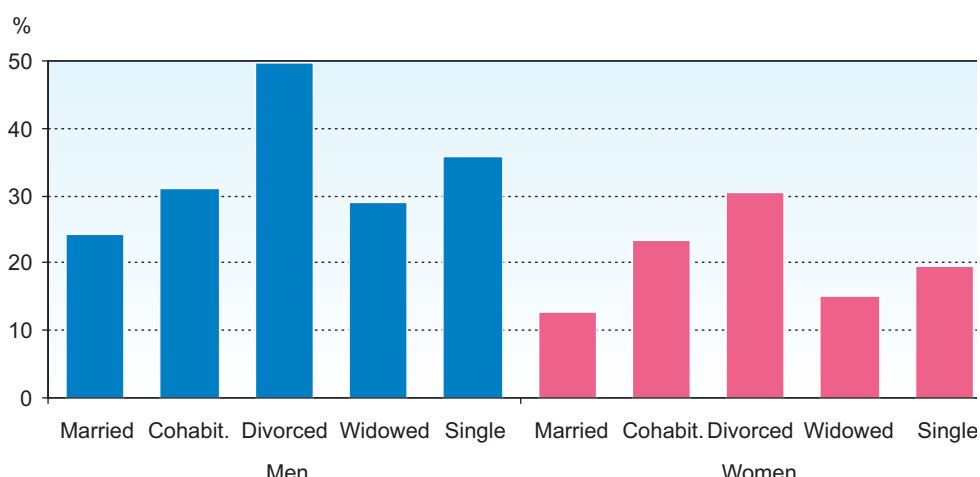


Table 14.6. Age-adjusted¹ prevalence (%) of daily smoking among persons aged 30 or over according to marital status.

	Married	Cohabiting	Divorced, separated	Widowed	Single	Total	p ²
Men	24.4	31.2	49.8	29.1	35.9	29.4	<0.001
Women	12.8	23.5	30.5	15.0	19.6	17.1	<0.001 ³

¹ age-adjusted using separate models for men and women

² difference between marital status groups

³ interaction between age and marital status is statistically significant (p<0.05)

Among **cohabiting** persons, depression was less frequent than in other groups, but otherwise the findings were different in men and women. The health of cohabiting men resembled that of married men, although hearing difficulties and hangover experiences were more frequent among cohabiting men. The health behaviour of

cohabiting women, however, deviated in many respects from that of other groups: frequent use of vegetables as well as regular physical exercise were less common among cohabiting women than in other marital status groups, whereas their alcohol consumption was highest.

Major depression was more common among the **divorced** and the widowed than in the other marital status groups, both among women and men. Among men psychological symptoms (GHQ) and alcohol dependence were also more common among the divorced than among the other groups. Signs of airway obstruction were most common among divorced men and women, which fits in with the finding that the proportion of daily smokers was highest in this group. Alcohol consumption among divorced persons was also higher than average. Divorced men rated their working capacity as poorer than others did, and a larger proportion of them had walking difficulties and high blood pressure. Among divorced women low back syndrome and poor oral health were common. On the other hand, difficulties in verbal fluency were less frequent among divorced women than in other marital status groups, and the proportion engaging in physical activity was also larger than in other marital status groups.

Widowers suffered not only from more depression than other groups but also had poor perceived oral health. On the other hand, their situation was rather favourable in the light of many other indicators: for instance, they drank quite moderately and rarely had high blood pressure when compared with men in the other marital status groups. **Widows** were also characterised by low alcohol use, and high cholesterol values were less frequent than in other women. However, depression was more common among widows than among married or co-habiting or single women, and self-assessed working capacity was poorer among widows than in other women. In addition, walking difficulties and knee osteoarthritis were particularly common among widows.

Difficulties in verbal fluency were typical of **single** men and women. In addition, impaired distant vision was particularly common among the single and their handgrip strength was below average. Otherwise single men and women differed quite clearly in regard to their health. In addition to those mentioned above, a wide range of other health problems were clustered among single men: their perceived health was poorer than average, chronic illness was more common and problems in hearing and memory were more common than in the other marital status groups. In comparison, single women were according to many indicators close to the average, or their health was even better than average.

15 DEVELOPMENT OF HEALTH, FUNCTIONAL AND WORKING CAPACITY

Arpo Aromaa, Seppo Koskinen and the project group

Project group: Arpo Aromaa (chair), Terhi Saarinen (secretary), Sami Heistaro, Markku Heliövaara, Unto Häkkinen, Olli Impivaara, Pekka Jousilahti, Paul Knekt, Seppo Koskinen, Jouko Lönnqvist, Tuija Martelin, Anne Nordblad, Veijo Notkola, Antti Reunanen, Hilikka Riihimäki, Petri Ruutu, Jouko Sundvall, Antti Uutela and Erkki Vartiainen

Valid information about the development over time of people's health is needed for various purposes. First, we need to have a clear picture of how public health is changing in order to be able to evaluate the impact of factors affecting health and the achievements of health policy. The same goes for forecasting the population's future health, functional capacity, need for care and need for social security. Without informed assessments of the future development of public health, we will not have a sound enough foundation for evidence-based planning of health care and social security. Information from two different time points provides a basis for estimating the direction and speed of developments over time.

This chapter gives a preliminary answer to the question of whether public health in Finland has changed from the time of the Mini-Finland survey in 1978 to 1980 (Aromaa et al. 1989) through to the time of the Health 2000 survey in 2000 to 2001. It is as yet too early to make any detailed assessments of the magnitude of these changes and particularly of their causes, but for some of the changes observed we can suggest some likely reasons.

Although we have an almost ideal setting for comparisons over time, with two population samples representing the whole country and a very high rate of participation in both samples, it is possible that some of the differences observed between the two sets of results are due to differences in design and in the composition of the participating populations. The methods applied were in many respects similar, so that in that sense too the results should be comparable. However, it is well known that the standardisation of measurements, assessments and interpretations is extremely difficult – particularly so in view of the 20-year time difference between the two surveys and the recruitment of an entirely new field staff. We have learned to observe new health problems and their risk factors, and old problems have given way to new ones with the accumulation of new research information. Today's living environment and services are different from those 20

years ago, which may well have changed the impact of reported health problems. It is also possible that people's own assessments have changed with time. For all these reasons our comparisons below of the results of the Health 2000 survey and those of the Mini-Finland Health Survey will only highlight clear, major changes.

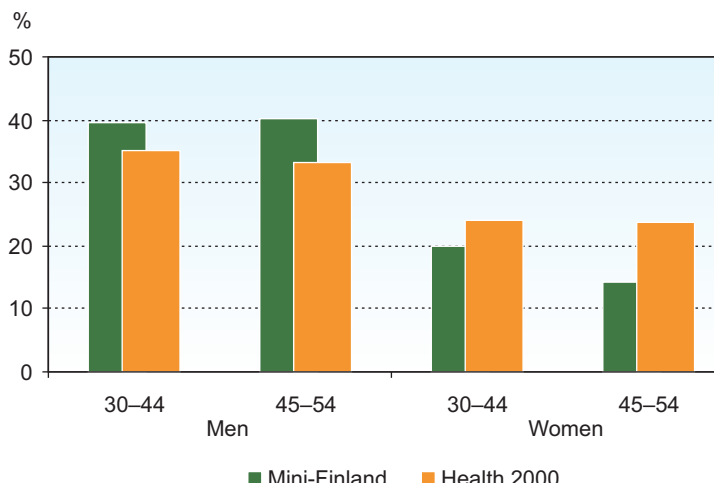
Sociodemographic factors and living conditions

Our comparison of the two sets of survey results from 1980 and 2000 is complicated by a number of developments in Finnish society. The results demonstrate that the overall educational level in the country has risen, the occupational structure has changed, unemployment has increased, co-habiting has increased five times over and living alone has become more common. All these observed changes closely correspond to the trends in development described by official statistical sources.

Risk factors and protective factors

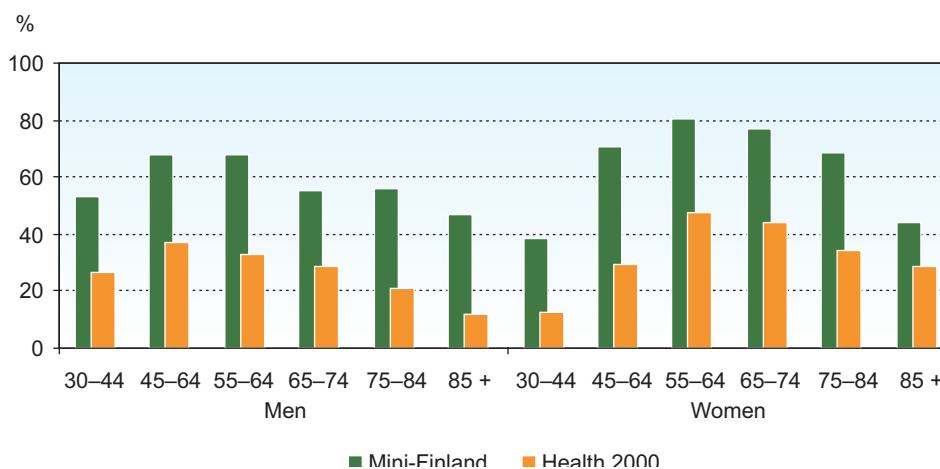
The proportion of daily smokers decreased in men and increased in women aged under 65 (Fig. 15.1, Table 15.1). In working age, the prevalence of smoking in women has by now risen to two thirds of the figure for men.

Figure 15.1. Prevalence of current smoking in Health 2000 and the Mini-Finland survey.



The long-term reduction of cholesterol levels has resulted in a clear decrease in the proportion of persons with high serum cholesterol levels (6.5 mmol/l or over). In fact, the prevalence of high serum cholesterol concentrations among all persons aged 30 or over was reduced from 60% to less than 30%. The change was marked in all age groups and in both men and women (Fig. 15.2, Table 15.2). If the reported cholesterol results from the Mini-Finland survey, which were based upon a different analytic method than today, are transformed to correspond with the results obtained with the method used in Health 2000, the estimated prevalence of hypercholesterolaemia in the Mini-Finland survey is reduced from 60% to 43%. Nonetheless the contrast to the current situation remains considerable.

Figure 15.2. Prevalence of high serum cholesterol concentration (≥ 6.5 mmol/l) in Health 2000 and the Mini-Finland survey.



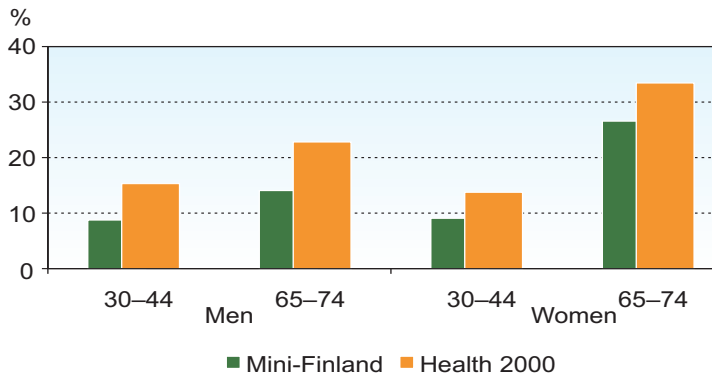
Physical activity

Although the questions in the two studies are not directly comparable, it seems that among men aged 55 or over and women aged 45 or over a larger proportion than before engaged in health promoting leisure time physical activity (Table 15.3).

Obesity

It is well known that adults have put on weight since the 1980s (Vartiainen et al. 2000). This is also clearly in evidence in our comparison. The trend which began in young adults and the middle aged, has resulted in a marked increase in the prevalence of obesity in all age groups. In men the proportion of the obese has increased by more than 70%, in women by over 30% (Fig. 15.3, Table 15.4).

Figure 15.3. Prevalence of obesity (BMI ≥ 30 kg/m²) in Health 2000 and the Mini-Finland survey.



High blood pressure

Known high blood pressure or hypertension have become much more common, which mainly has to do with the increasing use of antihypertensive medication and with the lower indications for treatment. The change has been more notable in men than in women (Fig. 15.4, Table 15.5), which at least in part is due to the fact that previously a much smaller proportion of men than women were treated (see e.g. Aromaa 1981).

In contrast, high blood pressure according to casual blood pressure measurements was now less frequent than 20 years ago (Fig. 15.5, Table 15.6). The change was unexpectedly clear even if one takes into account the increased use of antihypertensive drugs. On the other hand, there are other results from population surveys suggesting that there may have been a substantial decrease in the blood pressure level (Vartiainen et al 2000).

Figure 15.4. Age-adjusted prevalence of reported hypertension in Health 2000 and the Mini-Finland survey.

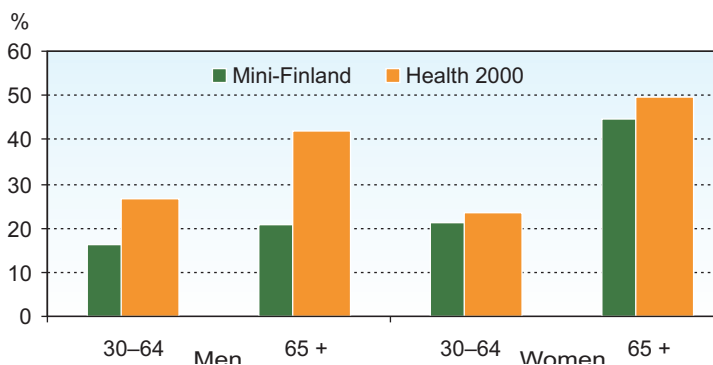
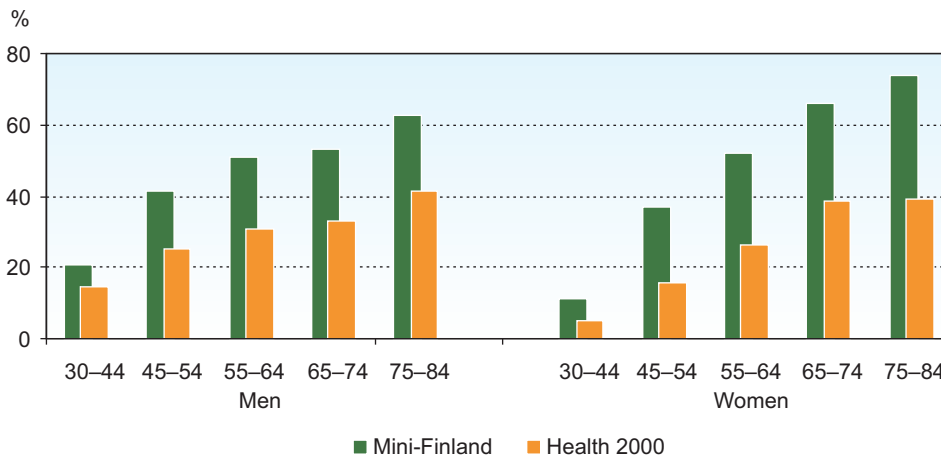


Figure 15.5. Prevalence of high casual blood pressure (systolic ≥ 160 mmHg or diastolic ≥ 95 mmHg), first measurement in a sitting position, in Health 2000 and the Mini-Finland survey.



Heart diseases reported in the interview

The health interview in Health 2000 and the basic questionnaire in the Mini-Finland Health Survey (which was completed by those who took part in the health examination) both included a list of diseases: the respondents were asked whether they had ever been diagnosed with the conditions listed. The prevalence of self-reported myocardial infarction in 2000 was about the same as 20 years earlier, but angina pectoris and other manifestations of coronary heart disease had decreased (Table 15.7). Also, it seems that the overall prevalence of coronary heart disease has clearly decreased. The prevalence of self-reported heart failure had halved from the previous level, i.e. in men from 8.1% and in women from 9.1% to 4.4% in both.

Heart diseases diagnosed in the clinical examination

According to the clinical examination the prevalence of certain cardiovascular diseases had changed considerably, more so in those aged under 65 than in older persons. In persons 65 or over the prevalence of myocardial infarction was unchanged or had slightly declined, but in the age group under 65 years myocardial infarction had decreased considerably (Table 15.8). Chest pain caused by coronary heart disease (angina pectoris) had also decreased very steeply in the age group under 65, but no clear changes were seen in its prevalence among those aged 65 or over. At any rate, when coronary heart disease is defined in terms of the presence of

myocardial infarction or angina pectoris, its prevalence in working-aged men and women has sharply decreased; some decline is also seen in those aged 65 or over (Fig. 15.6). Heart failure has almost disappeared altogether, i.e. it has decreased in men from 9.2% to 1.4% and in women from 10.1% to 2.0% (Fig. 15.7). This unexpectedly quick reduction is explained by the reduced occurrence of coronary heart disease and the improved treatment of hypertension, but also by improved diagnostic practices and changes in the treatment of heart failure. The latter have reduced overdiagnosis and unnecessary medication.

Figure 15.6. Age-adjusted prevalence of coronary heart disease diagnosed by the examining physician in Health 2000 and the Mini-Finland survey.

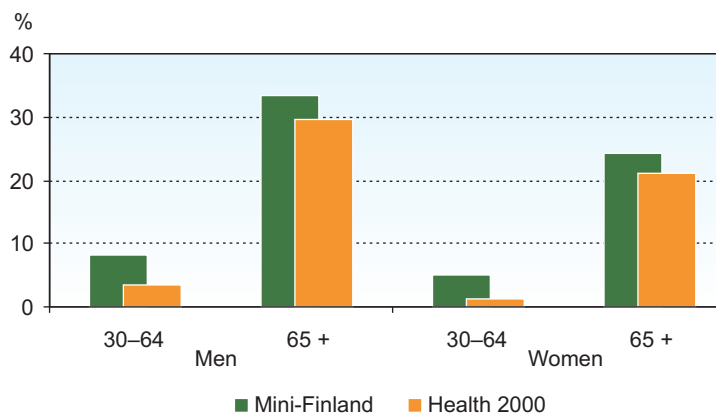


Figure 15.7. Age-adjusted prevalence of self-reported and clinically diagnosed heart failure in Health 2000 and the Mini-Finland survey.

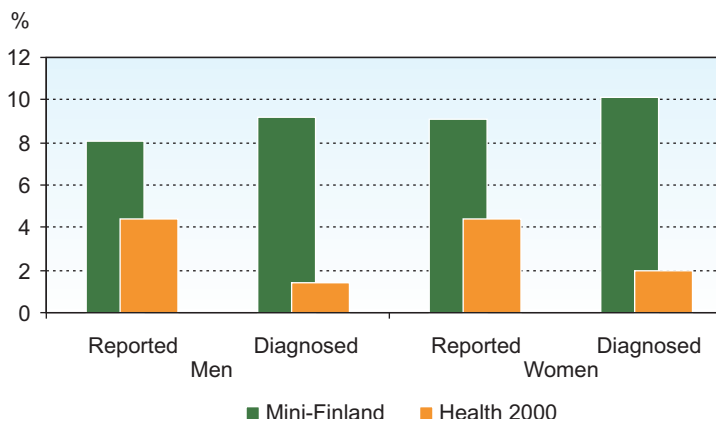
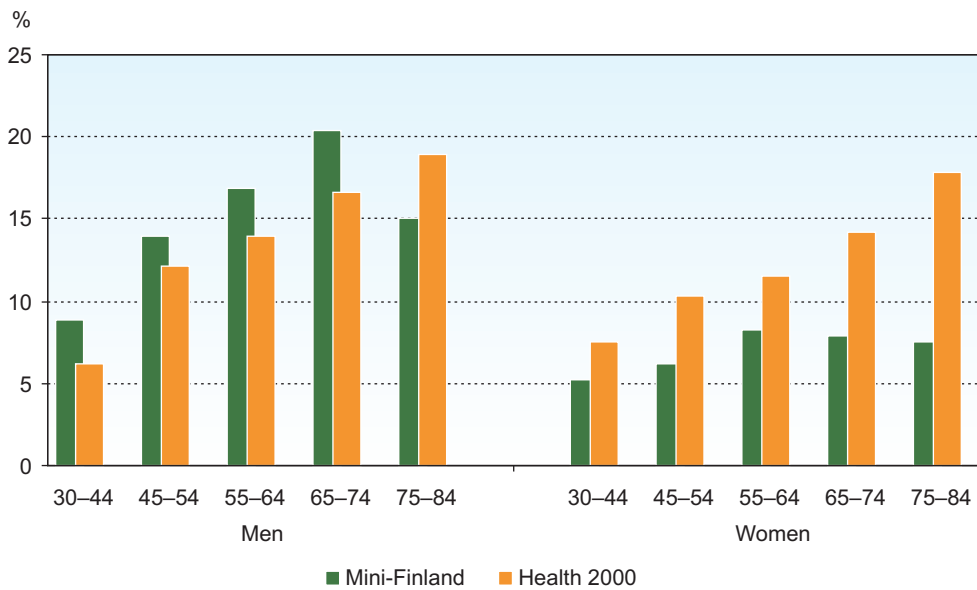


Figure 15.8. Prevalence of the cough symptom of chronic bronchitis in Health 2000 and the Mini-Finland survey.

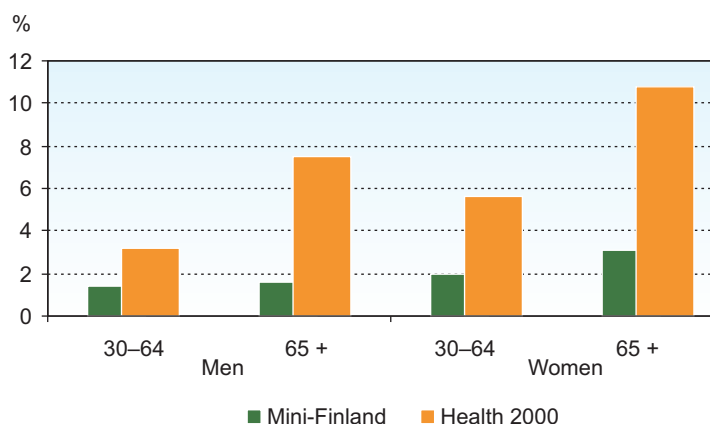


Respiratory diseases

The typical cough and phlegm symptoms of chronic bronchitis are associated with the frequency of smoking. In line with the changes seen in the prevalence of smoking, the prevalence of chronic bronchitis symptoms has also increased by 50% in women aged under 65 and by over 100% in elderly women. In men, the symptom has decreased in the age group under 75 by about one fifth (Fig. 15.8, Table 15.9).

Previous studies have indicated that both asthma medication and self-reported asthma have become much more common since the 1970s. Our comparison of the Mini-Finland and the Health 2000 survey shows that the prevalence of possible or definitive asthma has increased considerably in both men and women (Fig. 15.9, Table 15.10). It remains uncertain whether the major reason for the change is that asthma as a disease has become more common, or whether the finding mainly reflects the improved methods for detecting and treating asthma.

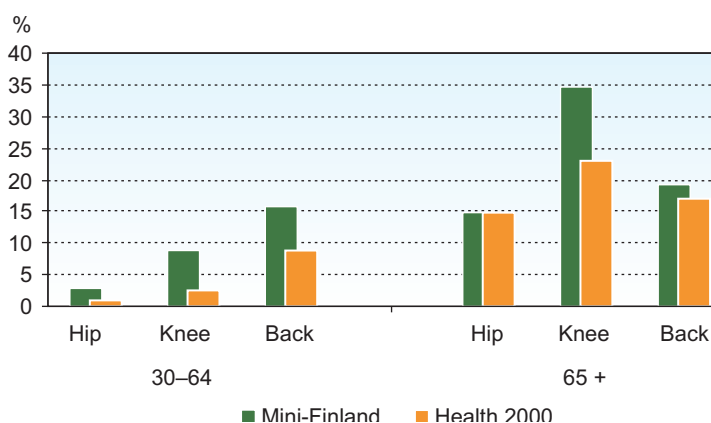
Figure 15.9. Age-adjusted prevalence of asthma (definite and probable) diagnosed by the examining physician in Health 2000 and the Mini-Finland survey.



Musculoskeletal diseases

Osteoarthritis of limb joints in men and in women aged 65 or over is more or less as prevalent as before (Table 15.11). However, in women aged 30 to 64 hip osteoarthritis is less frequent than 20 years ago, and knee osteoarthritis has decreased even more steeply (Fig. 15.10). The prevalence of knee osteoarthritis has decreased by one half in women aged 65 to 74. The reduced level of physical strain at work has no doubt contributed significantly to this trend in development.

Figure 15.10. Age-adjusted prevalence of hip osteoarthritis, knee osteoarthritis and low back syndrome (definite or probable) in women, diagnosed by the examining doctor, in Health 2000 and the Mini-Finland survey.



A clinical diagnosis of low back syndrome was very much less frequent in Health 2000 compared with the prevalence of a definite or probable low back syndrome 20 years ago. However, its prevalence is of the same order as that of a definite syndrome in 1980. It is possible that with the reduction of physical strain at work, the low back syndrome has also become less common. On the other hand, it is also possible that doctors' and patients' attitudes to the syndrome have changed.

Mental health problems

The distribution of the scores from the GHQ questions is exactly the same as 20 years ago (Fig. 15.11, Table 15.12). This observation suggests that both the number and the severity of psychological symptoms have remained unchanged over this 20-year period. The prevalence of major depression was described earlier in Chapter 7.4, and it was close to the level expected on the basis of previous studies. It seems that mental health problems and depression are at roughly the same level as during the Mini-Finland survey 20 years ago. In other words, there is no evidence of any increase in the prevalence of these problems.

Oral health

Loss of all teeth was common 20 years ago, but this is now far less common in all age groups (Fig. 15.12, Table 15.13). In relative terms, the situation has improved most in women under 55 years of age. Despite the improvement, almost half of all women aged 65 or over are still edentulous. In the age group 55 to 64 edentulousness has decreased to about one third of the previous level.

Figure 15.11. Perceived psychological well-being according to the GHQ-12 measure in Health 2000 and the Mini-Finland survey.

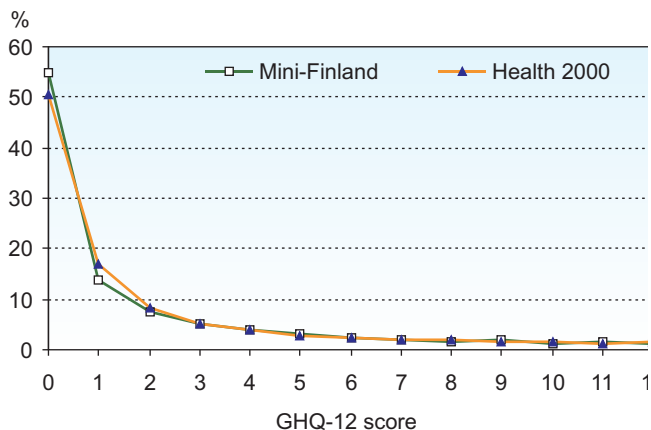
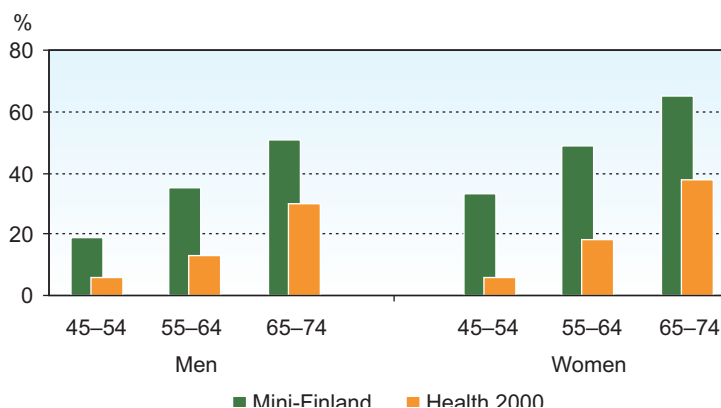


Figure 15.12. Prevalence of edentulousness according to the clinical dental examination in Health 2000 and the Mini-Finland survey.



Caries is diagnosed in persons who have at least one untreated caries focus. Over the past 20 years the proportion of persons with caries has decreased in all age groups (Fig. 15.13, Table 15.14). The change has been largest in women aged 30 to 44, among whom the prevalence of caries has decreased to one third of the previous figure. The occurrence of caries decreased to half in working-aged men. In men aged 65 or over, the prevalence of caries was reduced by 50%, in elderly women the decrease was even steeper.

Figure 15.13. Prevalence of dental caries according to the clinical dental examination in Health 2000 and the Mini-Finland survey.

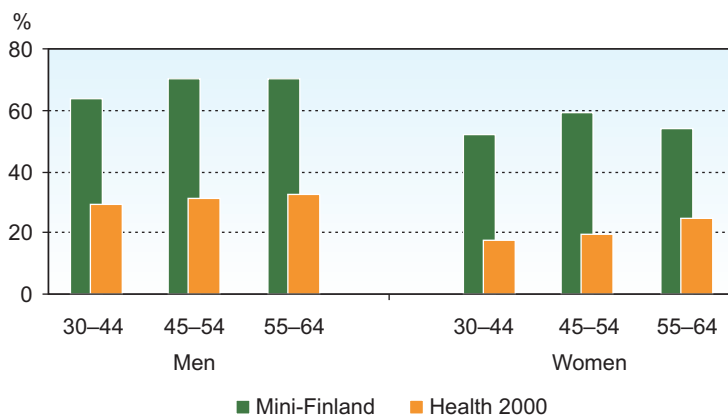
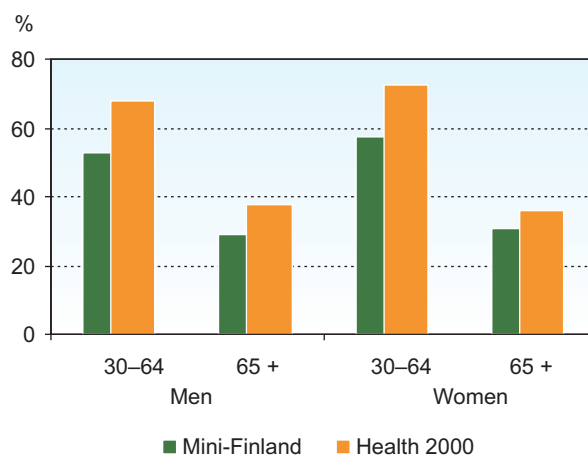


Figure 15.14. Age-adjusted prevalence of good or fairly good self-reported health in Health 2000 and the Mini-Finland survey.



Perceived health and chronic illness

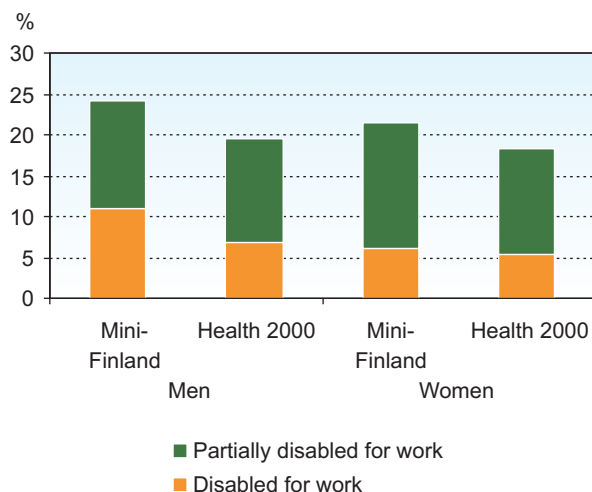
Perceived health has improved (Fig. 15.14, Table 15.15). For example, in the age group 30 to 44 years 79% of men and 83% of women felt that their health was good or fairly good, whereas the corresponding figures 20 years earlier were 70% and 75%. The difference was even bigger in the age group 55 to 64, i.e. almost 20 percentage points, which fits in well with the decrease in severe diseases and work disability.

Chronic illness reported in the interview had decreased by 6 to 7 percentage points in the age group 30 to 64. About half of the population reported a chronic illness in Health 2000 (Table 15.15). There has been no major change in people aged under 45 or in those aged 75 or over. At the age of 45 to 64, however, the proportion of people with chronic illnesses has decreased by over 10 percentage points, which fits in well with the decreasing incidence of many chronic diseases in the middle-aged.

Working capacity

Self-reported work disability (complete or partial) decreased in men. A decline was also seen in women, although the change was relatively minor (Fig. 15.15, Table 15.16). The prevalence of men reporting complete work disability also decreased clearly, while the figure for women dropped only slightly.

Figure 15.15. Age-adjusted prevalence of self-reported work disability in the age group 30–64 years in Health 2000 and the Mini-Finland survey.



Functional capacity

About 85% of persons aged 65 or over managed the essential basic ADL activity of dressing and undressing (Table 15.17), which is about 11 to 12 percentage points more than in the Mini-Finland survey. The proportion of those under 65 who were able to walk half a kilometre without difficulties increased by about 8 to 10 percentage points over the past 20 years (Fig. 15.16, Table 15.17). In older men and women the corresponding increase in walking ability was 16 and 10 percentage points, respectively.

Figure 15.16. Age-adjusted proportion of persons capable of walking half a kilometre without difficulty in Health 2000 and the Mini-Finland survey.

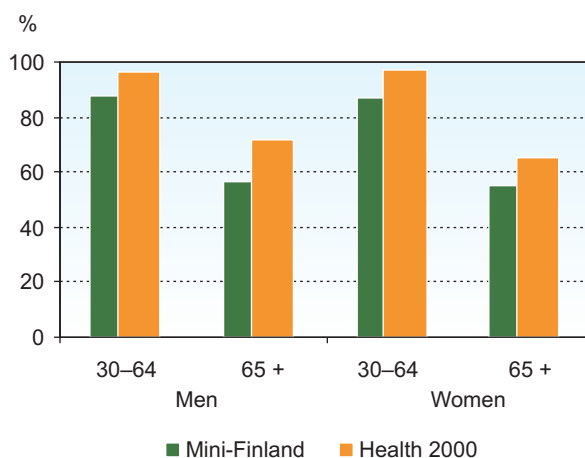
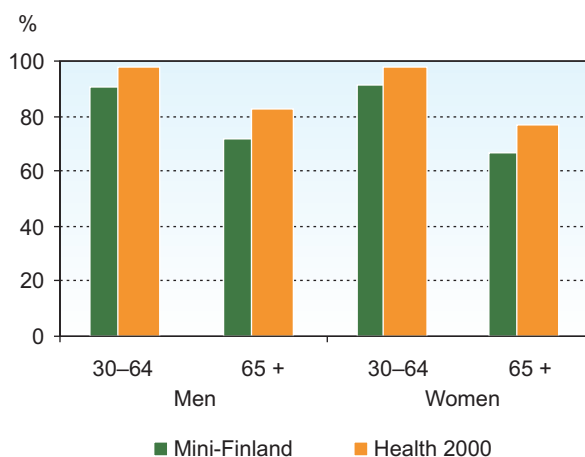
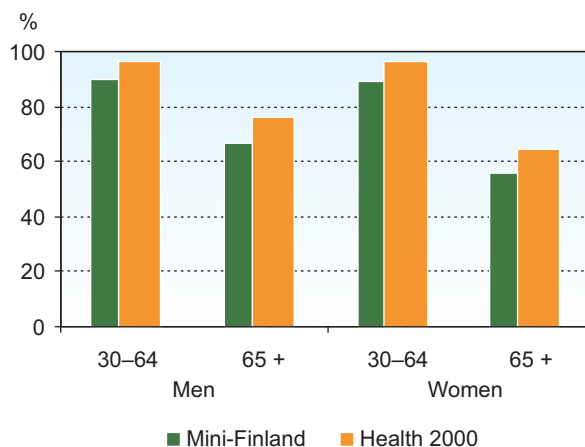


Figure 15.17. Age-adjusted proportion of persons capable of shopping without difficulty in Health 2000 and the Mini-Finland survey.



Shopping is an important precondition for independent living and it requires at least moderate performance in various dimensions of functional capacity. In the age group under 65 years, the proportion who managed shopping without difficulty was 6 to 8 percentage points higher than 20 years ago (Fig. 15.17, Table 15.17). In aged persons the corresponding difference was over 10 percentage points. The item concerning the respondents' ability to carry a shopping bag weighing 5 kg was designed to shed light on coping with the physical strain of shopping. In Health 2000 the proportion who managed this task without difficulty was greater than in the Mini-Finland Health Survey (Table 15.18). Climbing stairs is a major physical strain for the frail elderly. Here we report the results concerning the ability to climb one flight of stairs. In 2000, the proportion who managed climbing stairs without difficulty was about 9 percentage points higher than 20 years ago (Fig. 15.18, Table 15.18). In the Mini-Finland Health Survey the information on dressing and undressing, walking half a kilometre, shopping and climbing stairs was only available for persons participating in the health examination. It is known that their functional capacity was better than that of the whole population, i.e. the interviewees. We may safely assume then that the functional capacity of the whole population has improved even more than suggested by the above comparisons.

Figure 15.18. Age-adjusted proportion of persons capable of climbing one flight of stairs without difficulty in Health 2000 and the Mini-Finland survey.



The question on the ability to read newspaper text was designed to measure vision and general mental capacity. The proportion of the population who could read newspaper text without difficulty was considerably higher in 2000 than at the time of the Mini-Finland Health Survey, with a greater improvement recorded for the aged than the middle-aged (Table 15.18). It is possible that with the decrease in atherosclerotic diseases, vision and hearing have also improved. On the other hand, people today probably have better glasses and other vision aids than 20 years ago, and the same no doubt goes for indoor lighting. The increase in cataract operations may also have helped to improve vision in many elderly people. Unfortunately we do not yet have detailed information on these possible causes of improvement.

One example of a demanding complex function is heavy cleaning (Table 15.19). Managing heavy cleaning without difficulty has improved dramatically both in those under and over 65 years of age.

Conclusions

A comparison of the results from the Health 2000 survey and the Mini-Finland Health Examination Survey points at a general reduction of many risk factors as well as a decrease in common cardiovascular and musculoskeletal disorders. On the other hand, smoking in women and alcohol consumption in men and women have increased. Diseases and disorders have decreased most in people under 65 and some disorders have not decreased in the elderly at all. Serum cholesterol levels have

dropped due to dietary changes, but obesity has increased considerably. Known high blood pressure has become much more common, which is largely attributable to increased treatment. At the same time, it seems that the population's blood pressure level has decreased, also among those not treated with antihypertensive drugs. In the category of respiratory diseases it seems that the prevalence of asthma has increased considerably, although this may be due to changes in diagnostic and treatment principles. Symptoms of chronic bronchitis have increased in women along with the increase in smoking, whereas among men the trend has been in the exact opposite direction. There are no signs of change in the occurrence of mental health problems; thus the results obtained so far do not support the popular notion that mental health problems are increasing. There has been a marked improvement indeed in oral health. Working capacity has also improved, which fits in very well with the reduced incidence of disability pensions. Functional capacity has also improved both among the middle-aged and the elderly. According to the questions now used in the comparison, a clearly larger proportion of the elderly manage without difficulty a number of everyday activities that are necessary preconditions for leading an independent life, such as walking a relatively long distance, shopping, climbing stairs and even heavy cleaning. The proportion of those who have great difficulty with basic activities or who cannot manage at all, seems to have decreased at least up to the age of 85.

The positive trends in development are due in part to the improved living conditions in Finland, in part to improvements in medical care. Many of the changes in people's living habits have had a promotive effect on health, although some of them have also increased health risks. Health promotion, disease prevention and early detection have all had their own role to play, but part of the improvement in health and functional capacity is explained by improvements in the care of illnesses. The change in living conditions is associated with positive factors, but also with new health risks and new physical and psychological demands. It is imperative that steps are taken to make sure the positive trends in development can continue and on the other hand to combat negative trends by means of effective health and social policy. It is even more important than it has been so far to keep a close eye on health developments and to try and identify their causes. A careful analysis of the developments over the past 20 years that leans on the findings of this survey and that sheds light on the reasons for the trends observed, will in the near future provide much essential information for the planning of health and social policy.

Table 15.1. Prevalence (%) of current smoking in Health 2000 and the Mini-Finland survey.

	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹
Men							
Mini-Finland	39.6	40.1	34.5	29.8	14.6	13.3	35.5
Health 2000	35.0	33.1	24.0	20.5	10.7	10.8	28.8
Women							
Mini-Finland	19.9	14.3	9.0	5.3	1.8	0.0	13.3
Health 2000	24.0	23.6	13.8	6.5	3.0	2.2	18.0

¹ age-adjusted: direct standardisation, with the 1980 population of Finland as the standard

Table 15.2. Prevalence (%) of high serum cholesterol concentration (≥ 6.5 mmol/l) in Health 2000 and the Mini-Finland survey.

	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹
Men							
Mini-Finland	53.4	67.7	68.0	55.3	55.6	46.7	60.3
Health 2000	26.5	37.0	33.2	28.5	21.2	11.6	29.6
Women							
Mini-Finland	38.5	70.7	80.1	77.0	68.8	44.0	61.9
Health 2000	12.5	29.7	47.5	43.8	34.1	28.8	28.3

¹ age-adjusted: direct standardisation, with the 1980 population of Finland as the standard

Table 15.3. Prevalence (%) of regular physical activity¹ in Health 2000 and the Mini-Finland survey.

	30–44	45–54	55–64	65–74	75–84	85+
Men						
Mini-Finland	23.7	17.7	11.8	11.6	8.8	..
Health 2000	18.7	19.9	34.3	42.6	37.0	24.4
Women						
Mini-Finland	18.7	12.3	11.9	8.0	1.6	..
Health 2000	22.5	27.2	30.0	37.6	26.7	14.9

¹ Mini-Finland: regular leisure time physical activity

Health 2000: fitness training at least 3 hours a week or training for competition

Table 15.4. Prevalence (%) of obesity (BMI 30 kg/m² or over) in Health 2000 and the Mini-Finland survey.

	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹
Men							
Mini-Finland	8.6	13.6	14.6	14.0	10.4	20.0	11.7
Health 2000	15.4	23.3	27.5	22.7	20.6	11.3	20.5
Women							
Mini-Finland	9.0	18.5	27.7	26.5	19.2	12.0	17.4
Health 2000	13.7	25.4	31.9	33.5	30.4	14.5	23.3

¹ age-adjusted: direct standardisation, with the 1980 population of Finland as the standard

Table 15.5. Age-adjusted¹ prevalence (%) of reported hypertension in Health 2000 and the Mini-Finland survey.

	30–64	65+	30+
Men			
Mini-Finland	16.1	20.9	17.2
Health 2000	26.8	41.8	30.1
Women			
Mini-Finland	21.4	44.7	26.5
Health 2000	23.5	49.8	29.2

¹ direct standardisation, with the 1980 population of Finland as the standard

Table 15.6. Prevalence (%) of high casual blood pressure (systolic 160 mmHg or over or diastolic 95 mmHg or over), first measurement in a sitting position in Health 2000 and the Mini-Finland survey.

	30–44	45–54	55–64	65–74	75–84	85+	30+ ¹
Men							
Mini-Finland	20.8	41.6	51.1	53.4	62.5	53.3	38.1
Health 2000	14.7	25.1	30.7	33.0	41.6	19.7	24.1
Women							
Mini-Finland	11.0	36.8	52.0	66.2	73.8	64.0	36.0
Health 2000	5.0	15.7	26.4	38.5	39.2	44.1	18.4

¹ age-adjusted: direct standardisation, with the 1980 population of Finland as the standard

Table 15.7. Age-adjusted¹ prevalence (%) of selected self-reported heart diseases in Health 2000 and the Mini-Finland survey.

	Myocardial infarction	Angina pectoris, other manifestations of coronary heart disease	Coronary heart disease	Heart failure
Men				
Mini-Finland	5.9	9.2	12.0	8.1
Health 2000	6.1	7.2	10.8	3.7
Women				
Mini-Finland	2.5	6.7	7.9	9.1
Health 2000	2.1	5.1	6.1	3.9

¹ direct standardisation, with the 1980 population of Finland as the standard

Table 15.8. Age-adjusted¹ prevalence (%) of selected heart diseases (definite or probable) diagnosed by the examining physician in Health 2000 and the Mini-Finland survey.

	Myocardial infarction		Angina pectoris		Coronary heart disease	
	30-64	65+	30-64	65+	30-64	65+
Men						
Mini-Finland	3.5	16.3	7.1	28.2	8.1	33.4
Health 2000	2.1	15.1	3.0	27.5	3.6	29.6
Women						
Mini-Finland	1.3	6.4	4.8	21.6	5.0	24.3
Health 2000	0.3	6.7	1.1	20.1	1.3	21.1

¹ direct standardisation, with the 1980 population of Finland as the standard

Table 15.9. Prevalence (%) of the cough symptom of chronic bronchitis in Health 2000 and the Mini-Finland survey.

	30-44	45-54	55-64	65-74	75-84	85+
Men						
Mini-Finland	8.8	14.0	16.9	20.4	15.1	..
Health 2000	6.2	12.1	14.0	16.6	18.9	21.1
Women						
Mini-Finland	5.2	6.2	8.2	7.9	7.5	..
Health 2000	7.9	10.3	11.5	14.2	17.0	14.6

Table 15.10. Age-adjusted¹ prevalence (%) of asthma (definite or probable) diagnosed by the examining physician in Health 2000 and the Mini-Finland survey.

	Men			Women		
	30-64	65+	30+	30-64	65+	30+
Mini-Finland	1.4	1.6	1.4	2.0	3.1	2.2
Health 2000	3.2	7.5	4.2	5.6	10.8	6.8

¹ direct standardisation, with the 1980 population of Finland as the standard

Table 15.11. Age-adjusted¹ prevalence (%) of hip osteoarthritis, knee osteoarthritis and low back syndrome (definite or probable) diagnosed by the examining physician in Health 2000 and the Mini-Finland survey.

	Hip osteoarthritis			Knee osteoarthritis			Low back syndrome		
	30-64	65+	30+	30-64	65+	30+	30-64	65+	30+
Men									
Mini-Finland	2.2	13.5	4.6	3.2	14.0	5.6	17.1	19.7	17.6
Health 2000	1.9	15.9	4.9	2.9	13.9	5.3	9.0	15.7	10.4
Women									
Mini-Finland	2.9	14.8	5.5	8.8	34.7	14.5	15.7	19.3	16.5
Health 2000	1.1	14.7	4.0	2.6	23.1	7.1	8.8	17.0	10.6

¹ direct standardisation, with the 1980 population of Finland as the standard

Table 15.12. Perceived psychological well-being according to the GHQ-12 measure in Health 2000 and the Mini-Finland survey (%).

	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
Mini-Finland	54.7	13.8	7.5	5.0	4.0	3.2	2.4	1.9	1.6	1.8	1.3	1.4	1.3	100
Health 2000	50.6	16.9	8.2	5.3	4.1	2.9	2.2	2.0	1.8	1.7	1.5	1.2	1.5	100

Table 15.13. Prevalence (%) of edentulousness according to the clinical dental examination in Health 2000 and the Mini-Finland survey.

	Men			Women		
	45–54	55–64	65–74	45–54	55–64	65–74
Mini-Finland	19.1	34.9	49.2	32.9	48.6	64.0
Health 2000	6.1	12.6	29.9	5.7	17.8	37.6

Table 15.14. Prevalence (%) of dental caries according to the clinical dental examination in Health 2000 and the Mini-Finland survey.

	Men				Women			
	30–44	45–54	55–64	65+ ¹	30–44	45–54	55–64	65+ ¹
Mini-Finland	64	69.7	70.1	68	52	58.7	54.1	64
Health 2000	29.0	31.3	32.2	43.2	17.3	19.7	24.8	24.6

¹ age-adjusted: direct standardisation, with the 1980 population of Finland as the standard

Table 15.15. Age-adjusted¹ prevalence (%) of good or fairly good self-reported health and at least one chronic illness in Health 2000 and the Mini-Finland survey.

	Good or fairly good perceived health		Chronic illness	
	30–64	65+	30–64	65+
Men				
Mini-Finland	52.7	28.9	48.2	81.6
Health 2000	67.7	37.4	42.0	80.4
Women				
Mini-Finland	57.2	30.5	48.2	83.0
Health 2000	72.3	35.9	44.3	80.4

¹ direct standardisation, with the 1980 population of Finland as the standard

Table 15.16. Age-adjusted¹ prevalence (%) of self-reported work disability in age group 30–64 years in Health 2000 and the Mini-Finland survey.

	Men	Women
Completely disabled for work		
Mini-Finland	10.9	6.0
Health 2000	6.9	5.4
Partially or completely disabled for work		
Mini-Finland	24.1	21.5
Health 2000	19.4	18.3

¹ direct standardisation, with the 1980 population of Finland as the standard

Table 15.17. Age-adjusted¹ proportion (%) of persons managing selected common activities without difficulties in Health 2000 and the Mini-Finland survey.

	Dressing ²		Walking half a kilometer ²		Shopping ³	
	30–64	65+	30–64	65+	30–64	65+
Men						
Mini-Finland	92.1	72.2	87.8	56.3	90.3	71.8
Health 2000	97.8	84.1	96.3	72.0	98.0	82.7
Women						
Mini-Finland	92.2	74.4	87.2	55.3	91.5	66.6
Health 2000	97.1	85.3	96.8	65.4	97.6	76.9

¹ direct standardisation, with the 1980 population of Finland as the standard

² the results concern the interviewees in the Health 2000 survey and persons who took part in the medical examination in the Mini-Finland survey

³ in the Health 2000 survey the respondents were inquired about managing shopping whereas in the Mini-Finland survey the question concerned managing shopping and attend to one's affairs in a bank or office

Table 15.18. Age-adjusted¹ proportion (%) of persons managing selected common activities without difficulties in Health 2000 and the Mini-Finland survey.

	Carrying a shopping bag (5 kg) ²		Climbing stairs (1 flight) ³		Reading newspaper text ²	
	30–64	65+	30–64	65+	30–64	65+
Men						
Mini-Finland	93.1	65.5	89.8	66.8	90.4	73.9
Health 2000	96.4	73.1	96.7	75.8	96.3	87.0
Women						
Mini-Finland	86.7	48.4	88.8	55.9	89.5	72.2
Health 2000	90.9	52.5	96.1	64.8	96.1	81.2

¹ direct standardisation, with the 1980 population of Finland as the standard

² the results concern the interviewees in both surveys

³ the results concern the interviewees in the Health 2000 survey and persons who took part in the medical examination in the Mini-Finland survey

Table 15.19. Age-adjusted¹ proportion (%) of persons managing heavy cleaning without difficulty² in Health 2000 and the Mini-Finland survey.

	Men			Women		
	30–64	65+	30+	30–64	65+	30+
Mini-Finland	76.2	34.8	67.2	58.7	16	49.4
Health 2000	93.2	60.2	86.0	87.5	42.9	77.8

¹ direct standardisation, with the 1980 population of Finland as the standard

² the results concern the interviewees in the Health 2000 survey and persons who took part in the medical examination in the Mini-Finland survey

16 SUMMARY AND DISCUSSION

Arpo Aromaa and Seppo Koskinen

16.1 Population and methods

Sample and design

The two-stage sample was representative of the whole Finnish population aged 30 years or over, allowing for good generalisability of the results. Oversampling in the age group 80 or over, made sure that a sufficient number of old examinees were included. This oversampling was taken into account in data analysis.

The survey was carried out in several phases. During the home visits Statistics Finland interviewers conducted a comprehensive health interview, provided information about the health examination and made appointments for the examination proper. This probably helped to increase participation in the examination. The home health examinations were important to securing the participation of the oldest persons: these were carried out in people's homes and in institutions in order to reach all those who were unable to attend the health examination proper. Finally, a telephone interview and a final questionnaire were administered to collect information from those who did not participate in any of the previous phases of the survey. We had good success at every stage of the survey, although there were some problems with the execution of interviews and examinations in institutions, which were due in part to cautiousness on the part of staff in those institutions. There was also some negative feedback as we repeatedly approached people who had declined to take part in the health examination.

The research staff consisted of more than 160 interviewers and altogether 85 persons in the five examination teams. There were no doubt some differences in the way that individual interviewers and observers went about their work. However for financial reasons it was not possible for us to have a rotation system that would have definitely removed the influence of individual observers on the regional differences observed. On the other hand, all measurements were carried out by several observers with the same training, which probably helped to reduce the impact of single deviations. We will revert later to the magnitude of the differences between observers and to their possible effects on results concerning the whole country and different regions.

Study subjects

At least some information was obtained on 93% of the sample. The Mini-Finland Health Survey 20 years ago had even slightly greater success (Aromaa et al. 1989), but other Finnish and all national health examinations in other countries have recorded much lower participation rates (Koponen and Aromaa 2000). It is also exceptional that the rate of participation among old people was over 80%, which is mainly attributable to the home health examinations. In fact, in the oldest age groups participation rates in Health 2000 were even higher than in the Mini-Finland Health Survey.

High participation rates are crucially important for the validity of results, particularly those on functional capacity and need for care and help. At the same time, high participation allows us to make valid comparisons between the results of the Health 2000 survey and the Mini-Finland Health Survey. It is important to note though that in the remaining small group of non-participants there may well be a considerable number of persons suffering from severe diseases or injuries and persons with alcohol or drug problems. In forthcoming studies based on the Health 2000 data, it is important always to assess both the effect of non-participation as well as the representativeness of the particular data set examined.

Methods

Although our survey design was unique, many parts of its contents were internationally recommended, had been previously used in Finnish surveys or were based on established clinical practice. Wherever possible the same methods of measurement were used as previously in the Mini-Finland Health Survey.

Most of the data were fed directly into laptops. For the main part both data collection and data transfer to Statistics Finland and the National Public Health Institute went smoothly, although minor software problems that were due to time pressure did cause some extra work in data cleaning and editing. In developing the health interview we were able to make good use of the experiences from previous surveys by Statistics Finland, the Social Insurance Institution, the National Public Health Institute, the National Research and Development Centre for Welfare and Health and the Finnish Institute of Occupational Health. The many and varied information needs of the large group of researchers meant that the interview was longer (averaging 90 minutes) than originally intended, and it was feared that this might adversely affect the willingness of people to participate. However these fears proved unfounded. Indeed there is every reason to believe that the results are valid and comparable with earlier surveys.

The health examination was supposed to last about four hours, including a break for refreshments. However, in some cases the examination took much longer, which prompted some negative feedback particularly from people who were working; a few examinees actually had to terminate the examination prematurely for this reason. Older people, however, were only all too pleased to have a comprehensive health examination; for many it was also a welcome change to their daily routines.

The field conditions of the examination were standardised as far as possible. The examinees were asked to fast before coming to the field examination so that blood samples could be taken in standard conditions. However, the examinations were started between 8 o'clock in the morning and 2 o'clock in the afternoon, sometimes even later, so that some results depending on the time of day and the duration of fasting may also vary because of variation in the conditions.

The observers were trained and the instruments were calibrated. Interindividual differences between observers may have influenced particularly blood pressure measurements, spirometry, certain functional capacity measurements and the clinical examinations. Written instructions were issued and joint training organised in an attempt to minimise these differences. Further quality assurance measures included repeated supervision of the measurements and guidance in their correct execution during the field examination.

The blood samples were taken and processed using a standard technique, and they were frozen for transportation to the National Public Health Institute. Part of the analyses were carried out at the KTL laboratory, part at the Social Insurance Institution's laboratory. The validity of the results was assured by means of standardised conditions, careful handling of the samples as well as internal and external quality control of the determinations.

The results of the questionnaires (Questionnaire 1, Questionnaire 2, Questionnaire 3 and the Dietary questionnaire) did not depend upon individual observers. However, there was variation in the examinees' willingness to respond; the lowest response rates were recorded for the questionnaires that were to be returned after the health examination. Some of the questionnaire components were based upon items well established in Finland and elsewhere, other were specially designed for this survey. On some occasions they contained both the questions initially used in the Mini-Finland Health Survey and new items (alcohol consumption, physical activity). This decision made the questionnaire longer, but it also proved very useful since some of the internationally recommended questions were still in the development phase.

The home health examination was conducted by nurses working in the field teams, so they were well placed to follow the same procedures as in the health examination proper. However their training and experience was different from those of Statistics

Finland interviewers, which means some of their interpretations in connection with the interview may have been different.

16.2 Population health, functional capacity and their determinants at the beginning of the 21st century

Living and working conditions

The information on education and living conditions tells a story of change in Finnish society. The rising educational level in the country also has a positive effect on living habits and health.

The majority of persons of working age were gainfully employed, but the large number of disability and early retirement pensions meant that only under 40% of those aged 55 to 64 years were working. Although one in five persons of working age felt they were at risk of being laid off or made redundant and 10% perceived a threat of mental violence, traditional physical disadvantages such as dust and noise were still the most common type of disadvantage reported in the workplace. This is quite surprising in view of the major changes that have taken place at work and popular notions of the frequency of mental violence at work.

Living habits

Almost 30% of persons aged under 55 smoked daily, the proportion being higher among men than women. The proportion of smokers was slightly higher than in the mailed questionnaire based survey of the adult population's health behaviour in 2000 (Helakorpi et al. 2000). The difference may be due to the low rate of non-participation in Health 2000.

The amount and frequency of alcohol consumption was measured indirectly by asking the respondents how often they had had a hangover during the past year. Almost 40% of men and over 60% of women had not experienced hangovers at all. However, among men aged under 45 only one in five and among women less than half had not experienced hangovers. The consumption of large amounts of alcohol and heavy consumption on single drinking occasions was thus clearly seen in the high frequency of hangovers among the working-aged population. Drinking to inebriation is considered a typical feature of Finnish drinking patterns, although in

a European comparison the overall quantities consumed are still around the average (Simpura and Karlsson 2001).

The proportion of persons who ate raw vegetables every day was quite high (50–60%), although still lower than in many southern European countries. Health promoting physical activity was also quite common, in fact more common than in many other European countries.

With the exception of the increase in alcohol consumption, the picture that emerges of the Finnish population's living habits is quite favourable. However, the adverse consequences of increasing alcohol consumption are bound to accumulate with the passage of time. From a public health point of view the proportion of smokers also remains too high, and the constant rise in the number of women smokers since the 1980s will lead to increasing morbidity.

Risk and protective factors

Finns have put on weight during the 1980s and 1990s (Vartiainen et al. 2000; Helakorpi et al.2000), and currently more than 20% of the population are obese. Dietary changes, on the other hand, have contributed to a decrease in serum cholesterol levels, while HDL cholesterol levels have been increasing. Even so almost one third of the population has a total cholesterol concentration that according to current criteria is too high (≥ 6.5 mmol/l). So called good HDL cholesterol was too low in a larger proportion of men than women. An elevated gamma-glytamyltransferase concentration, reflecting heavy alcohol use, was observed in 13% of men and 3% of women, which fits in well with the gender variation in alcohol consumption and in the frequency of hangovers.

Enhanced control of hypertension has now continued for more than a quarter of a century, bringing a sharp increase in antihypertensive treatment. There is some earlier indication that the overall blood pressure level in the population has decreased (Vartiainen et al. 2000). Nonetheless one quarter of men and one fifth of women still had high casual blood pressure.

The results show that on the basis of risk factors, a large part of the population in Finland has an increased risk of many cardiovascular diseases and diabetes. Obesity may also predispose to other diseases such as osteoarthritis.

Perceived health and chronic illness

About 60% of the population stated that their health was good or rather good, which is a slightly larger proportion than in other recent surveys in Finland (Arinen et al. 1998, Helakorpi et al. 2000; Sulander et al. 2000). More than 50% reported chronic illnesses, which is a slightly smaller proportion than in studies in the mid-1990s (Arinen et al. 1998; Huuhka et al. 1996).

Cardiovascular diseases

The proportion of working-aged persons who had suffered a myocardial infarction was quite low, but in the population aged 65 or over 15% of men and 7% of women had been affected. Among elderly men 28% and among elderly women one in five suffered from angina pectoris. The validity of these figures depends mainly on the validity of the clinical diagnostics. The scarcity of resources for examinations and surgical treatment of coronary heart disease has long been considered one of the major problems in health care. From this point of view of it was an important and unexpected finding that over 40% of men aged 45 to 74 who reported a myocardial infarction or angina pectoris, had had bypass surgery or angioplasty.

Respiratory diseases

One in ten men and women had the cough symptom of chronic bronchitis, which is mainly due to smoking. The advanced disease, i.e. COPD, was still more common among men than women. It seems clear that the future occurrence of these diseases will depend upon the development of people's smoking habits.

Asthma was diagnosed in 6% of the population, which clearly underlines the public health importance of this disease. Its high frequency is due to the increase in the number of treated asthma patients, resulting at least partly from advances both in diagnostics and in medical treatment.

Musculoskeletal diseases

According to the clinical examination, 10% of the population suffered from chronic low back syndrome. This is a large but still a smaller than expected proportion of the population. The prevalence of hip osteoarthritis was close to expectations at about 5% of the population. However, knee osteoarthritis was less prevalent than

expected: 5% of men and 7% of women were sufferers. These musculoskeletal diseases are still major public health problems whose prevention and control requires closer attention.

Psychological symptoms and mental disorders

Between 20 and 25% of the participants reported psychological symptoms affecting their well-being, which is more or less in line with expectations. Professional burnout was assessed in persons gainfully employed during the previous 12 months. The adverse effects of burnout on well-being was repeatedly stressed during the 1990s. In our survey severe burnout was quite rare (2.5%), mild burnout by contrast very common (25%). However, burnout in this study was clearly less frequent than in a previous study in the late 1990s (Kalimo and Toppinen 1997). During the past 12 months 5% had experienced major depression, 6% of men and 1.5% of women had suffered from alcohol dependence. Psychological symptoms affecting well-being are common, but severe mental disorders are much less frequent. The results are not unexpected, and they can be interpreted to suggest that no alarming deterioration is taking place in the population's mental health. However, they do unequivocally demonstrate that mental disorders are a major public health problem and that one of the most important challenges for health policy today is to get that problem under control.

Oral health

The majority of the participants regarded their oral health as good or rather good. One third of dentate men and one fifth of women suffered from caries. However, caries was much more common among older people than among the middle-aged. Edentulousness was relatively prevalent only after age 65. The dental health of adults is indeed much better today than it was 20 years ago. However, there is also a very considerable perceived need for care and service use is at a high level.

Communicable diseases

Respiratory infections are common and they are the most important causes of short-term work absenteeism. Close on one fifth or 19% of the participants reported that they had suffered a respiratory infection during the previous two months, the figures being much higher in the working-aged people than among people aged 65 or over. Among those who had suffered a respiratory infection, about 40% had used health

care services, younger people less often than the aged. The results demonstrate that these infections are extremely common and that they also represent a major burden to the health care system.

In regard to the control of respiratory infections, we were particularly interested to know about vaccinations against influenza and pneumococci in population groups that have been singled out as targets for vaccinations on account of their health status. In the target group for influenza vaccination, fewer than 30% had been vaccinated during the past year, in the target group for pneumococcal vaccination only 3% had been vaccinated during their lifetime. It is clear that the coverage of both vaccinations must be improved.

Injuries and disabilities due to accidents

A permanent injury or disability due to an accident was reported by 19% of men and 9% of women. The exact nature and impact of these injuries will be a subject of later studies. However it is clear that accidents are a major cause of permanent injuries and disabilities.

Health promotion

Group activities and individual counselling are among the key methods of health promotion. Almost 30% of the population reported that they had participated in some health promoting group activity during the past 12 months. The majority of these had been groups aimed at the promotion of physical fitness or at strengthening the musculoskeletal system. Few had participated in any other groups – the only exception were groups for weight reduction in which 6% of working-aged women had participated. It seems that the possibilities offered by group activities are very much underused. Unfortunately no information is available here about individual counselling. Individual health promotion is often an integral part of the follow-up of persons with diabetes or high blood pressure. Therefore the current information provides only a partial description of all health promotion and disease prevention.

Use of medical care

On average people had been to see a doctor in ambulatory care 3.1 times during the past 12 months. Visits to health centre doctors accounted for 40% of these visits. Over half of the participants said they had their own family doctor. The results

correspond well with the findings from other recent surveys. However, the number of physician visits is slightly lower than in a previous survey in the mid-1990s (Arinen et al. 1998), although this difference is probably due to the different recall period.

Need for care and met need

According to their own report 36% of men and 43% of women needed physician care, and 15% of all subjects said that they had received inadequate physician care for at least one of their illnesses. This corresponds to slightly over one third of all those needing care, which is less than in the Mini-Finland Health Survey but shows that there is still quite a considerable unmet need for care.

Functional capacity and need for help

With the continuing increase in life expectancy, the functional capacity of the elderly and the oldest old has become an increasingly important determinant of the need for care and help. According to the results over 90% of persons aged 65 to 74 but only half of those aged 85 years or over managed dressing and undressing without difficulties. Almost all persons of working age were able without difficulty to walk half a kilometre, whereas in the age group 65 or over only close to two thirds managed this. After age 75 more than 40% had difficulties in shopping, and the majority of persons in this age group perceived difficulties in heavy cleaning.

The Health 2000 survey also produced the first countrywide measurements of the adult population's functional capacity. Visual acuity decreased after age 65 and particularly after age 75; a similar pattern was seen with regard to hearing. Blindness, deafness and severe impairments in vision or hearing were quite rare until age 74. Performance in cognitive tests (verbal fluency, learning of words and delayed recall of words) also deteriorated clearly after age 65. One of the tests used in the estimation of physical performance was walking speed. The thresholds 1.2 m/s and 0.8 m/s are related to the timing of traffic lights. One in four persons aged 65 to 74, over half of those aged 75 or over and about 90% of those aged 85 or over fell short of the target speed of 1.2 m/s. The decline in sensory, cognitive and physical capacity, particularly after age 75, should be given due attention in general social policy, in community and traffic planning, in equipment design and entertainment so that services and living environment of the ageing population can be improved.

Only a small proportion of persons aged under 45 needed help or used it. The need for help increased sharply with advancing age so that in the age group 55 to 64 about 4% of men and 12% of women, in the age group 65 to 74 years 15% of men and 27% of women, and in the age group 75 to 84 years 38% of men and 58% of women considered themselves to be in need of help. Beyond age 85 four out of five persons needed help. The majority of those needing help reported that they received enough help. However, in the oldest age groups one in ten of all women and men would have needed help, but received either none at all or inadequate help. Although the situation overall seems reasonably satisfactory, it is essential that the increasing needs for help resulting from the growing number of the oldest old can be met in those age groups where already it is felt that needs for help are not fully met.

Working capacity and need for rehabilitation

The majority of working-aged persons and particularly those aged 30 to 54 performed well in the assessments and measurements of functional capacity. However, in the age group 55 to 64 years the respondents' sensory, mental and physical capacity began to deteriorate. Four fifths of those in working age reported that they were completely fit for work, 13% said they were partially disabled for work and 6% that they were completely disabled for work. In the age group 55 to 64 years only slightly over half felt that they were fit for work. Among respondents who had been working within the past year, almost all in the age group 30 to 44 years but only three in four of those aged 55 to 64 believed they would be able to continue in their current job in two years' time. The functional capacity as well as self-reported working capacity of people under 55 is thus good. However, in the age group 55 to 64 functional restrictions leading to reduced working capacity become more prevalent. In order to improve working capacity in this oldest group of people in working age, we need to have even more effective disease prevention as well as improved medical care and rehabilitation so that the resulting improvement in health and functional capacity leads to improved working capacity. It is also important to ensure that working conditions are good because large numbers of those who are currently employed have a reduced working capacity.

About 4% of the labour force reported that they had been in rehabilitation during the past 12 months, attending a programme designed to improve their working capacity. However, 15% of those under 45 years of age and 20% of older people thought they needed such rehabilitation, the figures being much higher for women than for men. The validity of these self-assessed rehabilitation needs is no doubt reduced by people's limited knowledge of vocational rehabilitation and its possibilities. Still,

it is significant that such a large proportion of the middle-aged work force look to rehabilitation as a way of retaining their working capacity.

Regional differences in health

There were marked health differences between different parts of the country, but poor health and health endangering behaviour did not systematically cluster in certain regions. In South Finland health was better than average, but smoking in women and alcohol consumption in men and women was at a much higher level than average. The population's health was average or better than average in southwestern and central regions as well. In Southwest Finland men's obesity and high alcohol consumption were particularly prevalent. In East Finland health was still worse than average, just as it has been in the past, although patterns of health behaviour were now quite close to the average in the whole country. North Finland was characterised by a low prevalence of musculoskeletal diseases, but much poorer oral health than average. In addition, smoking and obesity were common among women in North Finland, but rare among men. In other words, health and health behaviour were dissimilar in different regions. The results point to a number of factors that should be taken into account in the development of health services in different regions.

Health differences between educational and marital status groups

Persons with a longer education were usually healthier and their living habits were less risky than those of persons who had no more than basic education. This pattern corresponds to other recent results from Finland and elsewhere (e.g. Lahelma and Koskinen 2002). However, the Health 2000 survey provides a uniquely comprehensive picture of variations in health and its determinants by educational level and other indicators of socioeconomic status. This information should be used to reduce health inequity. The population's rising level of education has contributed to the improvement of public health, and this trend looks set to continue.

Married women and men were in many respects healthier and their living habits were also healthier than those of other marital status groups. Divorced and single men perceived their health as worse than other men did, and their health was exceptionally poor according to several other indicators as well. Mental health problems and alcohol dependence were common particularly among divorced men. Cohabiting men and widowers were in better health than single and divorced men, but still their health was worse than that of married men. Health differences

between marital status groups were not as pronounced in women as in men, and the rank order of marital status groups by health status was also different in women. Divorced women, widows and cohabiting women had the poorest health, but the health of single women was in many respects as good as that of married women. Mental health problems were more common among widows than other women. The good health of married persons is supported by earlier findings (Koskinen et al. 1999). It is possible that changes in marital status distributions are reflected in the population's health.

16.3 Health, functional capacity and their determinants 1980–2000

This chapter compares the results of the Health 2000 survey with those of the Mini-Finland Health Survey that was carried out in 1978 to 1980, starting out from the assumption that the populations and methods are comparable. Indeed it would be virtually impossible to create a design that would allow for more accurate comparisons than the one we have here. To the extent that the rather minor differences in participation and methodology do affect the comparisons, it is reasonable to assume that they generally result in underestimation of true differences.

Living habits, risk and protective factors

It seems that leisure time physical activity among old men has increased, daily smoking among men has decreased and daily smoking in women under 65 has increased. Obesity has increased in all age groups and in both men and women. The prevalence of high total cholesterol concentration has markedly declined. Reported high blood pressure has clearly increased with the increase in the treatment of hypertension. At the same time it appears that the population's blood pressure level has decreased considerably.

This favourable picture is supported by the findings of previous studies (Helakorpi et al. 2000; Vartiainen et al. 2000). However further efforts are needed to sharply reduce smoking in women and men, to improve the control of obesity, to promote healthy dietary habits and physical activity. It is likely that the reduction observed in blood pressure levels is associated both with the increase in antihypertensive treatment and with dietary changes. Both should be further promoted.

Perceived health and chronic illness

Perceived health has improved clearly over the past 20 years, most notably so in the age group 55 to 64. Known chronic illnesses decreased in the age range 45 to 64, which probably is mainly due to the reduction in cardiovascular diseases and certain other chronic illnesses in middle-aged persons.

Diseases and syndromes

There has been a sharp decrease in coronary heart disease, low back syndrome and women's knee osteoarthritis. Although changes in diagnostic practices may explain at least part of the reduced prevalence of low back syndrome, it is clear that the reduction in coronary heart disease and knee osteoarthritis is due to a decrease in their causes. The reduced prevalence of coronary heart disease corresponds with the well-known reduction in mortality, and it is due to the huge efforts invested in prevention and to the reduction in its known risk factors. The prevalence of coronary heart disease has decreased in the elderly as well: this trend in development will help to reduce the burden placed upon health care services otherwise caused by the ageing of the population. The reduced prevalence of knee osteoarthritis is most probably due to the decrease in physically strenuous work and suggests that we may see a corresponding decrease in work disability, morbidity and need for care in the future.

The prevalence of symptoms of chronic bronchitis has changed in line with the changes observed in smoking, i.e. they have decreased in men and increased in women. It is reasonable to assume that the prevalence of severe pulmonary diseases will change accordingly in the future. Asthma has become much more common than before. This is largely due to the increased detection and treatment of the disease. On the basis of these findings it is not possible for us to estimate whether asthma would have increased had exactly the same diagnostic criteria been applied.

It is generally thought that mental health problems, particularly anxiety and depression, professional burnout and alcohol and drug dependence are more common today than they were before. However in view of all the results, it seems that with the exception of alcohol dependence, mental health problems are about as prevalent as they were 20 years ago. In particular, it seems that the amount and severity of psychological symptoms remain unchanged. There are no comparable data on burnout from 20 years ago, but the prevalence figures obtained in Health 2000 on burnout are lower than those from other studies carried out in the 1990s. There are also no directly comparable figures on the prevalence of anxiety and

depression from previous decades. However, the prevalence figures in the compared studies were of the same magnitude, and the stability of psychological symptoms suggests that there has been no marked change in the population's mental health. The number of disability pensions awarded on ground of mental health problems increased during the 1990s. However, the present findings are quite encouraging in the sense that there are no indications of a continued increase in the number of disability pensions due to mental health problems. The major exception seems to be the increase in alcohol dependence and drug dependence and their consequences.

Oral health

Oral health improved markedly in all age groups regardless of whether it was measured in terms of edentulousness, the number of missing teeth, or the prevalence of caries. Oral health improved most in the age group 30 to 44 years, which has clearly benefited from improved dental care services in children and young adults. In all adults the positive trends are probably explained by both improved self-care and increased use of dental care services, although it is only for the past few years that dental care costs have been reimbursed to middle-aged and older adults. Despite the positive development, caries and periodontal disease are still extremely common, indicating a considerable need for care. Since the out-of-pocket costs of dental care are now being reduced in all age groups, it is likely that oral health will continue to improve quickly in the whole population.

Functional capacity

Several different estimates have been presented concerning the development of functional capacity in the population. The comparison of the results from the Health 2000 survey and the Mini-Finland Health Survey shows that the proportion of both the middle-aged and the elderly population who now manage without difficulty a variety of functions is much higher than 20 years ago. In other words the functional capacity of the population has improved markedly. This is hardly surprising in view of the lowered occurrence of cardiovascular diseases and many other disabling diseases. At the same time the care provided for many important diseases and disorders has improved. Living conditions and the demands placed upon individuals have also changed. We would have an even more solid foundation for these estimates of time trends if in addition to the interview and questionnaire findings we also had access to measurements from both surveys on functional capacity. Unfortunately, we will not have access to such longitudinal findings until

later on when a survey comparable to Health 2000 is repeated. A more detailed assessment of how functional capacity has changed and particularly of the reasons for these changes is an important topic for further research which already is under way.

Working capacity

In the light of self-reported work disability, men's working capacity has considerably improved, which is consistent with the changes observed in morbidity and functional capacity. Women's reported working capacity has improved somewhat. These observations are in line with the decrease in the percentage of persons on disability pension. Both from the point of view of working life and pension systems it is important to look more closely at working capacity, its determinants and its development. The data collected in Health 2000 provide an excellent starting point for such studies.

16.4 Social and health care services and social insurance

The ageing of the population, particularly with the large post war birth cohorts beginning to near retirement age, means that the need for health care services and later the need for supportive social services, is set to increase in Finland at least until the 2020s. The favourable trends observed in health and functional capacity will no doubt help to curb the increase in the need for care and help, but it is unlikely they can stop it.

The spectrum of diseases and the possibilities of medical care are changing. Whilst the two major public health problems of coronary heart disease and osteoarthritis have decreased, other diseases such as asthma and allergies, chronic obstructive pulmonary disease, treated hypertension, anxiety and depressive disorders, alcohol dependence and hip fractures all look set to require increasing care and treatment. It has also become possible to help many more people than before by means of surgical treatment. The incidence of certain cancers is rising very quickly, which means that the need for care will also increase. The improvement of oral health will lead to changes in the contents of care and most probably increase the use of services. In addition, a large proportion of the population feel that they do not receive sufficient medical care.

The oldest old population is growing particularly rapidly, but we do not yet know whether the need for care among persons in this age group will remain unchanged

or perhaps decrease. It is possible that the need for institutional care or ambulatory care requiring large staff numbers will increase markedly. However, given the improved functional capacity of the old and the oldest old, it is possible that the need for institutional care will not grow as rapidly as predicted earlier.

The increasing consumption of alcohol and drugs, increasing smoking in women and increasing obesity in the whole population are serious threats to public health. It is imperative that every possible means is used to support the positive trends in development and to control negative trends. This means we need to step up our preventive efforts. Despite this the need for services is likely to increase, at the same time as the range of those services is changing. In health care the need for primary and special level care as well as the need for care for the oldest old may increase considerably. Also, the spectrum of additional needs is likely to range from surgical treatment to ambulatory care of addictions, from counselling of the working aged and the old to home help services and institutional care.

Whether public and private services even together can meet the needs for care will mainly depend upon four issues: 1) will there be enough competent staff available; 2) will the municipal health service system perform up to standards; 3) can people afford to use private services, and 4) is the co-operation between different sectors and primary and specialised care better than today. In future studies we will proceed to look more closely into health trends and their effect on future needs for care, drawing also on the approaches developed previously in connection with the Uusimaa need for care study (Luoto et al. 2000).

As far as social insurance is concerned the development of public health has effects upon sickness insurance, pension insurance and rehabilitation. In the future, the healthier working-aged adult population may need fewer medicines and long-term treatment contacts. It is also possible that with improving health, there will be less need for relatively long sick leaves. On the other hand the wealthier and more demanding working-aged population may call for more public as well as private services. Changes in the perceived strenuousness of work, the treatment of mental health problems and dependency problems may require occupational health care services and specialist services as well as different types of rehabilitation and medication to such an extent that this will increase the use of medicines and private services. It is likely that their demand and costs will depend mainly on economic fluctuations and the supply of different services.

The increasingly large and increasingly affluent elderly population also expects to have access to better medicines and better care, which they will also seek in the private sector. Some currently common diseases are expected to decrease in the elderly population as well. Nonetheless the number of older persons receiving

medical care for these disease will continue to increase for at least the next 10 to 15 years. Therefore we can expect to see medication costs continue to rise regardless of how the spectrum of supply changes. It also looks like the use of services is going to increase. Furthermore many surgical treatments will increase in the elderly, with part of the operations performed in the private sector. The disappearance of edentulousness means that the need for and use of preventive and curative dental care will increase considerably, resulting in a corresponding increase in costs.

The most probable future scenario in sickness insurance is thus a major increase in costs, due in part to an increase in the use of services and in part to rising medication costs. It is unlikely the increase in reimbursement costs can be controlled without causing major health hazards to the population, unless the municipal system can provide at least the same level and standard of services as today. There will probably be no dramatic increase in long sickness absences and sickness allowances if the municipal system can continue to provide services at least at the current level, if the health of working-aged people continues to improve and if no new causes emerge for long absences (e.g. drug and alcohol dependencies, mental health problems). On the contrary, it seems likelier that long sickness absences will decrease as the age groups grow smaller. However, some long sickness absences are due to people being on sick leave and waiting to be admitted to curative or rehabilitative care, some are due to ineffective examinations and treatments leading to long sick leaves. Indeed health care must be made more effective and care practices developed, not only with a view to improving people's health but also to reducing the costs of sickness absences. This will require a sufficient supply of services, proper training for personnel and closer collaboration between different sectors.

As regards pension insurance, the favourable health trends give reason to expect that the need for disability pensions and other early retirement pensions will decrease and that people will remain in the labour force longer than they do now. This trend has in fact already started, as is evident from the recent declining incidence of disability pensions. However, a significant proportion of the labour force still state that they are at least partly disabled. In the age group 55 to 64 a large proportion suspect that they will not be able to continue in their present job in two years' time. If working conditions deteriorate, or if independence and leisure time become more valued, it is quite possible that large numbers will apply for early retirement. It was seen 20 years ago that people who thought they were disabled for work were granted a disability pension within a few years (Takala 1984). It is unlikely that this situation has changed. It is indeed a major challenge for the future to improve and develop working conditions so that people want to work and so that their job satisfaction is not compromised.

Improving public health and functional capacity may reduce the need for rehabilitation. However, since only a small proportion of the currently perceived need is satisfied, it is unlikely that the demand for rehabilitation will decrease. On the other hand the emphasis of rehabilitation will probably shift as not only people of working age but also the elderly require ever greater attention. Alongside traditional rehabilitation, it is essential that broad rehabilitation programmes are introduced that place sufficient emphasis on psychological and social aspects and interpersonal skills. The latter aspect is particularly important with the ever greater weight that is now being placed both at work and in everyday life upon psychological and social skills, and with the growing occurrence of mental health and addiction problems. Social insurance must be prepared to provide more financing for rehabilitation than it does today. However, it is important that scarce resources are not wasted on programmes that do not work. Key actors in this field should therefore join forces in a concerted effort to organise an effective rehabilitation service and to conduct high quality research and development. In research it is important that there is close contact and cooperation both with municipal health care services and with the experimental and development projects run by patient organisations.

17 CONCLUSIONS

Arpo Aromaa

- The Health 2000 survey was a success and its results can be generalised to the population of the whole country.
- Many health habits in Finland have changed for the better, but some also for the worse.
- Serum cholesterol levels have decreased, but still remain too high in one third of the population.
- Obesity has continued to increase since the 1980s.
- The population's blood pressure level has decreased considerably.
- A large proportion of Finnish adults still have an increased risk of cardiovascular diseases and diabetes.
- Perceived health is clearly better than 20 years ago.
- Coronary heart disease has become much less prevalent, and among 45–74 year-old men suffering from coronary heart disease as many as 40% have had bypass surgery or angioplasty.
- In the adult population 6% suffer from diabetes and 6% from asthma. One in ten has the cough symptom of chronic bronchitis and one in five men and 9% of women report a chronic injury or disability caused by an accident. Diabetes, asthma and in women chronic bronchitis are much more prevalent than before.
- Both low back syndrome and women's knee osteoarthritis are now less frequent than 20 years ago.
- Mental health problems, psychological symptoms, major depression, alcohol dependence and burnout are common, symptoms with an adverse effect on general well-being even more common. However, there are no indications that mental health problems have become more prevalent during the past 20 years.
- The dental health of adults is now much better than 20 years ago. Edentulousness is common only in the group aged 65 or over.
- In the influenza risk group 40% have received an influenza vaccination.
- About one third of those perceiving a need for physician care feel that they need more medical attention, indicating that there are still considerable unmet needs for care, albeit less than 20 years ago.

- People's ability to manage basic daily activities declines sharply after the age of 80 to 85 years.
- A rather large proportion of people have difficulties in managing common daily activities after age 75. Likewise, both sensory functions and cognitive functions deteriorate after age 65 and especially after age 75. However, functional capacity has clearly improved during the past 20 years, suggesting that if this trend continues, the elderly and the oldest old will have much improved prospects for leading an independent life in the community.
- One in five persons of working age report being completely or partially disabled for work, but among those aged 55 to 64 half take that opinion. In particular, men's working capacity is better today than it was 20 years ago, and there has also been some improvement in women. If these positive trends in development continue, a larger proportion of the ever smaller cohorts can continue to work for longer time than they do now.
- About 15% of employed persons in the age group 30 to 44 report that they need vocational rehabilitation in order to improve their ability to manage their job. The figure in those aged 45 to 64 is 20%. Both figures are much higher than the proportion of those who have received rehabilitation.
- Persons with a longer education and married men and women are clearly healthier than those with a shorter education or single, divorced, widowed and cohabiting persons.
- Overall the health and functional capacity of Finnish adults has improved markedly during the past 20 years, even though some diseases and health threats have become more prevalent.
- Health care needs are going to increase both due to changes in the population's age structure and due to changes in the spectrum of health needs. It is possible that the need for institutional care or highly intensive ambulatory care for the oldest old will not increase as sharply as previously anticipated.
- In social insurance the costs of health care and medicines look set to increase, while sickness allowance costs and early retirement costs may decrease. The latter scenario may only materialise if no other factors emerge to persuade people to stop working – so large was the proportion of partially disabled persons who were working at a time of the survey. Rehabilitation must be developed and its emphasis shifted towards the elderly. At the same time it is important that a larger proportion of the rehabilitation needs of people in working age are addressed. The contents of rehabilitation and the spectrum of rehabilitation services must be developed to meet the many and diverse needs of the future.

LITERATURE

Arinen S, Häkkinen U, Klaukka T, Klavus J, Lehtonen R, Aro S. Health and the use of health services in Finland. Main findings of the Finnish Health Care Survey 1995/96 and changes from 1987. *Stakes and SII, Health Care* 1998;5, Helsinki 1998.

Aromaa A, Heliövaara M, Impivaara O, Knekt P, Maatela J, Joukamaa M, Klaukka T, Lehtinen V, Melkas T, Mälkiä E, Nyman K, Paunio I, Reunanen A, Sievers K, Kalimo E, Kallio V. Health, functional limitations and need for care in Finland. Basic results from the Mini-Finland Health Survey (in Finnish with English summary). *Publications of the Social Insurance Institution AL:32*, Helsinki 1989.

Aromaa A, Koskinen S, Huttunen J. *Health in Finland*. National Public Health Institute, Ministry of Social Affairs and Health, Helsinki 1999.

Drury TE, Winn DM, Snowden CB, Kingman A, Kleinman DV, Lewis B. An Overview of the Oral Health Component of the 1988-1991 National Health and Nutrition Examination Survey (NHANES III-Phase 1). *J Dent Res* 1996;75 (Spec Iss):620-630.

Fiararone M, O'Neill E, Ryan N, Clements K, Solares G, Nelson M, Roberts S, Kehayias J, Lipsitz L, Evans W. Exercise training and nutritional supplementation for physical frailty in very elderly people. *N Engl J Med* 1994;330:1769-1775.

Folstein M, Folstein S, McHugh P. 'Mini-Mental State': a practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* 1975;12:189-198.

Goldberg DP. *The detection of psychiatric illness by questionnaire*. Maudsley Monograph No 22. Oxford University Press, Oxford 1972.

Heinonen OP. *Autoklinikka (Mobile Clinic, in Finnish)*. *Duodecim* 1966;82:1161-1164.

Heistaro S, Vartiainen E, Heliövaara M, Puska P. Trends of back pain in eastern Finland, 1972-1992, in relation to socioeconomic status and behavioral risk factors. *Am J Epidemiol* 1998;148:671-682.

Helakorpi S, Uutela A, Prättälä R, Puska P. *Health behaviour and health among Finnish adult population, spring 2000*. *Publications of the National Public Health Institute B:8*, Helsinki 2000.

Heliövaara M, Mäkelä M, Sievers K, Melkas T, Aromaa A, Knekt P, Impivaara O, Aho K, Isomäki H. *Tuki- ja liikuntaelinten sairaudet Suomessa (Musculoskeletal diseases in Finland, in Finnish)*. *Publications of the Social Insurance Institution AL:35*, Helsinki 1993.

Huuhka M, Lahelma E, Manderbacka K, Mattila V, Karisto A, Rahkonen O. *Terveystilä ja sosiaalinen murros. Vuosien 1986 ja 1994 elinolotutkimukset (Population health and social change. The Surveys of Living Conditions in 1986 and 1994, in Finnish)*. *Tilastokeskus, SVT Elinolot* 1996:2, Helsinki 1996.

Hytti H, Gould R, Aromaa A. *Toimintakyky, työkyky ja sairauden sosiaaliset seuraukset (Functional capacity, working capacity and social consequences of illness, in Finnish)*. In: Aromaa A, Huttunen J, Koskinen S, Teperi J (ed.), *Suomalaisten terveys 2003*. Kustannus Oy Duodecim, Helsinki 2003.

Hänninen T, Pulliainen V, Salo J, Hokkanen L, Erkinjuntti T, Koivisto K, Viramo P, Soininen H, ja Suomen Memorytutkimusyksiköiden asiantuntijaryhmä. *Kognitiiviset testit Memoryhäiriöiden ja alkavan dementian varhaisdiagnostiikassa: CERAD-tehtäväsarja (Cognitive tests in the early diagnostics of memory disorders and dementia: the CERAD test series, in Finnish)*. *Suomen Lääkärilehti* 1999;15:1967-1975.

- Kalimo R, Toppinen S. Työuupumus Suomen työikäisellä väestöllä (Burn-out in the Finnish working aged population, in Finnish). Työterveyslaitos, Helsinki, 1997. Kansallisen Ikäohjelman seurantaraportti 2001. TyöryhmäMemoryo 2001:17. Sosiaali- ja terveysministeriö ja työministeriö, Helsinki 2001.
- Katz S, Downs TD, Cash HR, Grotz RC. Progress in development of the index of ADL. *Gerontologist* 1970;10:20-30.
- Katz S, Ford AB, Moskowitz RW, Jackson BA, Jaffe MW. Studies of illness in the aged. The index of ADL: a standardized measure of biological and psychological function. *JAMA* 1963;185:914-919.
- Kelly M, Steele J, Nuttall N et al. Adult Dental Health Survey: Oral Health in the United Kingdom 1998. Her Majesty's Stationery Office, London 2000.
- Koponen P, Aromaa A. Health Examination Surveys (HES). Review of literature and inventory of surveys in the EU/EFTA Member States. National Public Health Institute (KTL), Helsinki 2000.
- Koskinen S, Aromaa A, Kattainen A, Martelin T, Sainio P, Salo S, Alha P, Heliövaara M, Jousilahti P, Knekt P, Korpela K, Mäkelä M, Reunanen A, Rinne S, Virtala E. Health, functional capacity and their determinants in the age group 65-74 years in North Karelia and the Helsinki region: The execution and main results of the FINRISK-97 Senior Survey (in Finnish with English summary). Publications of the National Public Health Institute, in press.
- Koskinen S, Martelin T. Viina tappaa keski-ikäisiä pääkaupunkiseudulla. Kuolleisuuden alue-erot 1990-luvulla (Alcohol kills middle-aged people in the Capital area. Regional mortality differences in the 1990s, in Finnish). *Kuntapuntari* 1998;2:66-71.
- Koskinen S, Martelin T, Rissanen H. Siviilissäytyjen kuolleisuuserot–kasvava kansanterveysongelma (Mortality differences by marital status—a growing public health problem, in Finnish with English summary). *Sosiaalilääketieteellinen aikakauslehti* 1999;36:271-284.
- Lahelma E, Koskinen S. Suomalaisten suuret sosioekonomiset terveyserot haaste terveys- ja yhteiskuntapolitiikalle (Wide socioeconomic inequities in health – a challenge for health policy and public policy, in Finnish). In: Kangas I, Keskimäki I, Koskinen S, Lahelma E, Manderbacka K, Prättälä R, Sihto M (ed.), *Kohti terveyden tasa-arvoa*. Edita, Helsinki 2002.
- Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist* 1969;9:179-186.
- Lee J. Covariance adjustment of rates based on the multiple logistic regression model. *J Chron Dis* 1981; 34: 415–426.
- Lehtonen R, Pahkinen EJ. *Practical Methods for Design and Analysis of Complex Surveys*. John Wiley & Sons Ltd, Chichester 1995.
- Leino PI, Berg MA, Puska P. Is back pain increasing? Results from national surveys in Finland during 1978/9-1992. *Scand J Rheumatol* 1994;23:269-276.
- Liikenteen valo-ohjauksen suunnittelu LIVASU-78 (Planning the directing of traffic with traffic lights, in Finnish). Pohjoismaiden Tieteknillinen Liitto, Suomen osastojaos 51. Raportti 1:1978, 1978.
- Luoto R, Laine M, Alha P, Koskinen S, Martelin T, Reunanen A, Virtala E, Aromaa A and the project group. Health and health care needs in the Uusimaa area 1996-2010. Final report from

the second phase of the project evaluating health and health care needs among the population of Uusimaa (in Finnish with English summary). Publications of the National Public Health Institute B2, Helsinki 2000.

Manninen P, Riihimäki H, Heliövaara M. Has musculoskeletal pain become less prevalent? *Scand J Rheumatol* 1996;25:37-41.

Martelin T, Koskinen S, Kattainen A, Sainio P, Reunanen A, Aromaa A. Changes and differentials in the prevalence of activity limitations among Finns aged 65-74: comparison of the Mini-Finland Health Examination Survey (1978-80) and the FINRISK-97 Senior Survey (1997). *Yearbook of Population Research in Finland* 2002;38:55-75.

McWhinnie JR. Disability assessment in population surveys: results of the O.E.C.D. Common Development Effort. *Rev Epidemiol Santé Publique* 1981;29:413-419.

Morris JC, Heyman A, Mohs RC, Hughes JP, van Belle G, Fillenbaum G, Mellits ED, Clark C. The Consortium to Establish a Registry for Alzheimer's Disease (CERAD). Part I. Clinical and neuropsychological assessment of Alzheimer's disease. *Neurology* 1989;39:1159-1165.

Pevalin DJ. Multiple applications of the GHQ-12 in a general population sample: an investigation of long-term retest effects. *Social Psychiatry and Psychiatric Epidemiology* 2000;35:508-512.

Piirainen H, Elo A-L, Hirvonen M, Kauppinen K, Ketola R, Laitinen H, Lindström K, Reijula K, Riala R, Viluksela M, Virtanen S. Työ ja terveys -haastattelututkimus v. 2000. Taulukkoraportti. (Work and Health Survey 2000. Tables. In Finnish). Työterveyslaitos, Helsinki 2000.

Pulliaainen V, Hokkanen L, Salo J, Hänninen T (toim.). CERAD, kognitiivinen tehtäväsarja, käsikirja (CERAD, cognitive test series, handbook, in Finnish). Kuopio 1999.

Purola T, Kalimo E, Sievers K, Nyman K. Sairastavuus ja lääkintäpalvelusten käyttö Suomessa ennen sairausvakuutusta (Morbidity and use of medical services in Finland prior to the Sickness Insurance, in Finnish). *Kansaneläkelaitoksen julkaisuja A:1*, Helsinki 1967.

Puska P, Korhonen HJ, Uutela A, Helakorpi S, Piha T. Anti-smoking Policy in Finland, Smokefree Europe: Conference on Tobacco or Health. Finnish Centre for Health Promotion, Helsinki 1997.

Puska P, Tuomilehto J, Nissinen A, Vartiainen E. The North Karelia Project, 20 year results and experiences. National Public Health Institute, Helsinki, 1995.

Rahkonen O, Lahelma E. Sosiaalinen rakenne ja väestön terveys (Social structure and public health, in Finnish). In: Piirainen T, Saari J (ed.) *Yhteiskunnalliset jaot*. Gaudeamus, Helsinki 2002.

Research Triangle Institute. SUDAAN User's Manual, Release 8.0. Research Triangle Institute, Research Triangle Park, NC, 2001.

Simpura J, Karlsson T. Trends in Drinking Patterns among Adult Population in 5 European Countries, 1950-2000. *Nordisk Alkohol & Narkotikatidsskrift* 2001;18 (English Supplement):31-48.

Strandell A. Asukasbarometri 1998. Asukaskysely suomalaisista asuinympäristöistä. (Residents' barometer 1998. Residents' questionnaire on the living environment in Finland. In Finnish with English summary). Suomen ympäristö 343. Ympäristöministeriö, Vantaa 1999.

Sulander T, Helakorpi S, Uutela A, Puska P. Health behaviour among Finnish elderly, spring 1999 with trends 1993-1999. Publications of the National Public Health Institute B 7, Helsinki 2000.

Statistical Yearbook of Finland 2001. Statistics Finland, Helsinki 2001.

Takala I. Työkyvyn rajoitukset ja kuntoutuksen tarve 30-64-vuotiailla lounais- ja itäsuomalaisilla (Limitations of working ability and the need for rehabilitation among 30-64 years olds of Soutwestern and Eastern Finland, in Finnish with English summary). Publications of the Social Insurance Institution, Finland, AL:24, Turku 1984.

Tuomi K, Ilmarinen J, Jahkola A, Katajarinne L, Tulkki A. Working ability index, 2nd revised edition. Finnish Institute of Occupational Health, Helsinki 1998.

Valkonen T, Kauppinen T. Miesten kuolleisuuden alue-erot ja sosiaalinen segregatio pääkaupunkiseudulla (Geographic mortality differentials in men and social segregation in Helsinki region, in Finnish). Kvartti 2001;1:7-21.

Vartiainen E, Jousilahti P, Alfthan G, Sundvall J, Pietinen P, Puska P. Cardiovascular risk factor changes in Finland, 1972-1997. International Journal of Epidemiology 2000;29:49-56.

Vartiainen E, Jousilahti P, Juolevi A, Sundvall J, Alfthan G, Salminen I, Puska P. FINRISKI 1997. Tutkimus kroonisten kansantautien riskitekijöistä, niihin liittyvistä elintavoista, oireista ja terveyspalvelujen käytöstä. Tutkimuksen toteutus ja perustaulukot. (FINRISK 1997. A survey on the risk factors for chronic diseases, associated health behaviours, symptoms and use of health services. Implementation of the surveys and its baseline tables. In Finnish.) Publications of the National Public Health Institute B1/1998, Helsinki 1998.

Vehkalahti M, Paunio I, Nyyssönen V, Aromaa A (ed.). Oral health in adult Finnish population and associated factors (in Finnish with English summary). Publications of the Social Insurance Institution AL:34, Helsinki and Turku 1991.

WHO. Composite International Diagnostic Interview (CIDI, Version 1.1). World Health Organization, Geneva 1990.

WHO. Grades of hearing impairment. Hearing network News 1991:1.

WHO. Composite International Diagnostic Interview (CIDI, Version 2.1). World Health Organization, Geneva 1997a.

WHO. Oral health surveys. Basic methods 4th Edition. WHO, Geneva 1997b.

WHO. Obesity: preventing and managing the global epidemic. Report of a WHO Consultation on Obesity, 3-5 June 1997, Geneva 1998.

Wittchen H-U, Lachner G, Wunderlich U, Pfister H. Test-retest reliability of the computerized DSM-IV version of the Munich-Composite International Diagnostic Interview (M-CIDI). Social Psychiatry & Psychiatric Epidemiology 1998;33:568-578.

Population structure 2000. Population 2001:6. Statistics Finland, Helsinki 2001.

Ylöstalo P. Työolobarometri. Lokakuu 2000. (Finnish working life barometer. October 2000. In Finnish with English summary.) Työpoliittinen tutkimus 228. Työministeriö, Helsinki 2001.

APPENDICES

Appendix 1. Contents of the health interview

A. Background information

- Mother tongue, marital status and relationship
- Household and children
- Education
- Main activity, occupation
- Present/previous occupation (main job), employer
- Working hours
- Secondary job
- Unemployment
- Information about spouse
- Income

B. State of health and illnesses

- Percieved health and chronic illness
- Specific diseases, accidents and injuries
- Treatment of illnesses
- Hospital care
- Surgical operations
- Menstruation, pregnancies and deliveries
- Fertility, infertility and treatment for infertility
- Contraception, hormone replacement therapy

C. Questions concerning parents and siblings

- Illnesses of parents and siblings
- Living conditions in childhood

D. Health services

- Availability and accessibility of services
- Ambulatory visits due to illnesses and symptoms
- Mental health services
- Health examinations and preventive health services
- Physiotherapy and alternative treatments
- Medicines

E. Oral health

- Oral health status
- Self-care of the mouth
- Use of services
- A customer of dental care

F. Living habits

- Eating habits
- Smoking

G. Living environment

- Residential history
- Housing
- Services in the neighbourhood

H. Functional capacity

- Usual activities
- Mobility and moving capacity
- Sensory functions
- Need and receipt of assistance and help, aids
- Cognitive capacity

I. Work and work ability

- Working conditions
- Working capacity
- Working skills
- Pension attitudes
- Working history

J. Rehabilitation

- Use of services
- Need for rehabilitation

K. Interviewer's assessments

Appendix 2. Contents of Questionnaires 1–3, the Symptom Interview and the Dietary Questionnaire

Questionnaire 1

Functional capacity and quality of life (e.g. Euroqol)
Income and sickness expenditure
Usual symptoms (e.g. SCL-90)
Weight and height
Time use and hobbies
Computer use
Retrieving information on health and illnesses
Exercise; leisure time, work, on the way to work, daily exercise (IPAQ)
Use of alcohol, treatment of drinking problems
Eating or drinking sweets or sweetened drinks
Health promotion
Environment
Social environment
Psychological experiences (e.g. GHQ 12)
Mood and feelings (BDI)
Job perception and job strain
Working conditions

Questionnaire 2

Gastrointestinal diseases
Respiratory diseases
Vaccinations

Symptom Interview

Respiratory and cardiovascular symptoms (Rose, Fletcher)
Cough and chronic bronchitis
Dyspnea
Chest pain in exercise
Myocardial infarction (possible)
Arterial diseases of lower extremities

Atopy and allergies
Hand eczema
Musculoskeletal symptoms
 Back
 Neck and shoulders
 Joints in extremities
 Symptoms of the hands
 General handicap caused by musculoskeletal symptoms
Balance problems

Questionnaire 3

Sleep and sleeping
Disadvantages in housing conditions
Pets and domestic animals
Attitudes regarding health
Oral health and quality of life (OHIP)
Experiencing every-day life (Antonovsky, sense of coherence)
Seasonal variations
Health related quality of life (15 D)
Experiences of the influence of alcohol
Emotions and feelings
Infections and diseases in the genital area
Driving

Dietary Questionnaire

Milk products
Cereal products
Fat spread
Vegetables
Potatoes, rice and pasta
Meat dishes
Fish dishes
Poultry and eggs
Fruit and berries
Desserts
Snacks and confectionery
Beverages

Appendix 3. Health 2000 organisation during the planning and data collection phases

Steering group

Markku Lehto (chair), Seppo Koskinen (secretary), Arpo Aromaa, Jorma Back, Mikael Forss, Aino-Inkeri Hansson, Kaija Hasunen, Jussi Huttunen, Heli Jeskanen-Sundström, Satu Lahti, Simo Lämsä, Jorma Rantanen, Vappu Taipale, Matti Uimonen and Jukka Wuolijoki (at the beginning Timo Relander represented Statistics Finland and Esko Kalimo represented the Social Insurance Institution)

Managing group

Jussi Huttunen (chair), Seppo Koskinen (secretary), Arpo Aromaa, Sami Heistaro and Antti Reunanen

Project group

Arpo Aromaa (chair), Terhi Saarinen (secretary), Sami Heistaro, Markku Heliövaara, Unto Häkkinen, Olli Impivaara, Pekka Jousilahti, Paul Knekt, Seppo Koskinen, Jouko Lönnqvist, Tuija Martelin, Anne Nordblad, Veijo Notkola, Antti Reunanen, Hilikka Riihimäki, Petri Ruutu, Jouko Sundvall, Antti Uutela and Erkki Vartiainen
Executive committee: Arpo Aromaa (chair), Terhi Saarinen (secretary), Sami Heistaro, Seppo Koskinen and Vesa Tanskanen

Working group for living conditions

Tuija Martelin (chair), Tarja Nieminen (secretary), Matti Heikkilä, Sakari Kainulainen, Timo Kauppinen, Eero Lahelma, Simo Mannila and Veijo Notkola

Working group for health behaviour and psychosocial factors

Antti Uutela (chair), Ritva Prättälä (secretary), Anna-Mari Aalto, Hannu Alho, Arja R. Aro, Markku Heliövaara, Sari Isotupa, Paul Knekt, Päivikki Koponen, Marjaana Lahti-Koski, Esko Mälkiä, Satu Männistö, Pekka Oja, Pirjo Pietinen, Raimo Raitasalo, Antti Reunanen, Sakari Suominen, Jussi Vahtera, Liisa Valsta, Miira Vehkalahti and Eira Viikari-Juntura

Working group for cardiovascular diseases

Antti Reunanen (chair), Anna Kattainen (secretary), Matti Jauhiainen, Antti Jula, Risto Kaaja, Antero Kesäniemi, Katriina Kukkonen-Harjula, Mika Kähönen, Markku Laakso, Riitta Luoto, Silja Majahalme, Leena Mykkänen, Markku S. Nieminen, Janne Rapola, Veikko Salomaa, Marja-Riitta Taskinen, Jaakko Tuomilehto, Marjut Varpula and Erkki Vartiainen

Working group for musculoskeletal diseases

Hilkka Riihimäki (chair), Markku Heliövaara, Sami Heistaro (secretary), Olli Impivaara, Tuula Jokiniemi, Satu Luoto, Pirjo Manninen, Matti Mäkelä, Simo Taimela, Esa-Pekka Takala and Eira Viikari-Juntura

Working group for respiratory and skin diseases

Pekka Jousilahti (chair), Tari Haahtela, Sami Heistaro (secretary), Markku Heliövaara, Jussi Karjalainen, Kaj Koskela, Henrik Nordman, Timo Palosuo, Juha Pekkanen, Tuula Petäys, Kari Reijula and Päivikki Susitaival

Working group for mental health

Jouko Lönnqvist (chair), Sami Pirkola (secretary), Kirsi Ahola, Martti Heikkinen, Teija Honkonen, Erkki Isometsä, Matti Joukamaa, Raija Kalimo, Olli Kiviruuu, Teemu Kärnä, Eero Lahtinen, Ville Lehtinen, Kari Poikolainen, Raimo Raitasalo, Jouko Salminen and Jaana Suvisaari

Working group for oral health

Anne Nordblad (chair), Sinikka Varsio (secretary), Sirkkasisko Arinen, Dorrit Hallikainen, Hannu Hausen, Matti Knuuttila, Liisa Suominen-Taipale, Anna-Lisa Söderholm and Miira Vehkalahti

Working group for communicable diseases

Petri Ruutu (chair), Markku Kuusi (secretary), Juhani Eskola, Pentti Huovinen, Hannele Jousimies-Somer, Ilkka Julkunen, Eija Könönen, Pauli Leinikki, Tuija Leino, Anja Siitonen and Martti Vaara

Working group for cancer

Paul Knekt (chair), Lyly Teppo, Matti Rautalahti, Risto Sankila and Jarmo Virtamo

Working group for functional capacity

Seppo Koskinen (chair), Päivi Sainio (secretary), Arpo Aromaa, Pertti Era, Pauli Forma, Raija Gould, Päivi Haavisto, Jukka-Pekka Halonen, Kaj Husman, Juhani Ilmarinen, Jorma Jarvisalo, Sirkka-Liisa Karppi, Jarmo Malmberg, Simo Mannila, Timo Marttila, Seppo Miilunpalo, Matti Ojamo, Sirkka-Liisa Rudanko, Sanna Rätty, Raimo Sulkava, Timo Suutama, Reijo Tilvis and Mariitta Vaara

Working group for health services use

Unto Häkkinen (chair), Pirkko Alha (secretary), Ilmo Keskimäki, Timo Klaukka, Päivikki Koponen and Kimmo Räsänen

Working group for sampling, survey execution, data processing and analysis

Risto Lehtonen (chair), Kari Djerf, Pirjo Hyytiäinen, Tommi Härkänen, Paul Knekt, Kari Kuulasmaa, Vesa Kuusela, Johanna Laiho, Marjo Laine, Paula Lamberg, Jouni Maatela, Tuija Martelin, Erkki Nenonen, Mikko Nenonen, Tarja Nieminen, Mikko Nissinen, Timo Peltomaa, Harri Rissanen, Pentti Salmela, Matti Sarjakoski, Eero Tanskanen, Vesa Tanskanen, Tuula Tiainen, Kai Vikki and Esa Virtala

Working group on laboratory tests

Jouko Sundvall (chair), Marja Leena Kantanen (secretary), Georg Alfthan, Matti Jauhiainen, Kimmo Kuoppasalmi, Eija Könönen, Jaana Leiviskä, Jukka Marniemi, Kimmo Peltonen, Markus Perola, Irma Salminen, Vesa Tanskanen and Ismo Ulmanen

Working group on clinical medical examination

Antti Reunanen (chair), Markku Heliövaara, Anna Kattainen, Satu Luoto, Tuula Petäys and Esa-Pekka Takala

Working group on the preparation of the field work

Sami Heistaro (chair), Terhi Saarinen (secretary), Pirkko Alha, Arpo Aromaa, Jaason Haapakoski, Olli Impivaara, Pekka Jousilahti, Seppo Koskinen, Jaana Leiviskä, Jouni Maatela, Tarja Nieminen, Veijo Notkola, Panu Oksa, Marjatta Riisiö, Sirkka Rinne, Matti Sarjakoski, Jouko Sundvall, Vesa Tanskanen and Kai Vikki

People contributing to the project in the participating organisations

The sample was defined and formed at Statistics Finland under the supervision of Risto Lehtonen. The sampling process itself was conducted at the Social Insurance Institution's Information Systems Department under Erkki Nenonen. The weighting coefficients were constructed at Statistics Finland.

The interviews were carried out by Statistics Finland's interview staff of around 160.

The health examinations were conducted by KTL field units. Each of the five units had a staff of 16–17, working under the following nominated nurses-in-charge: Liisa Uusitalo (Helsinki), Päivi Sirén (Tampere), Riitta Sipilä (Turku), Kirsi Tiihonen (Kuopio), and Kristiina Väisänen (Oulu). Sami Heistaro had overall responsibility for the organisation and coordination of field operations.

Laboratories: The SII Biochemistry Laboratory under the supervision of Jukka Marniemi and the KTL Laboratory of Analytical Biochemistry under Jouko Sundvall were responsible for most of the determinations. DNA isolations were performed at the KTL Department of Molecular Medicine under Ismo Ulmanen. Irma Salminen was in charge of the laboratory operations out in the field, while Jaana Leiviskä assumed responsibility for the transfer and storage of samples.

Project information management and data communications were planned and implemented by project staff as well as by the KTL's ADP unit under the supervision of Mikko Nissinen and the information system unit under Jaason Haapakoski.

During the fieldwork Virpi Killström at project headquarters was responsible for various aspects of the operation, including personnel resources, employment contracts and travel arrangements.

A large number of people at project headquarters contributed to final data editing and to the various tasks involved in the preparation of this report. Apart from the members of the working groups proper, these people included Heidi Alha, Pirkko Alha, Päivi Haavisto, Katri Hakulinen, Hannele Ikkala, Tarja Kiesi, Onni Koskinen, Noora Kuosmanen, Tomi Mäkinen, Marjatta Riisiö, Saila Rinne, Sirkka Rinne, Harri Rissanen, Sanna Rätty, Terhi Saarinen and Ulla Tyyni.

At KTL Tommi Härkänen, Paul Knekt and Esa Virtala were responsible for the planning of statistical analyses and the selection and development of the methods employed. Esa Virtala was also in charge of creating the files as well as programming and designing the tabular results. In addition to the names mentioned in the previous paragraph, Mikko Pekkarinen worked on taking printouts.

Appendix 4. Research localities, periods and sample sizes (planned) [actual] by field group.

Research locality (sample size)	Municipalities included in the sample	Period
Field group 1		
Helsinki (900)	Helsinki	11.09.2000–22.11.2000
Espoo (309)	Espoo	27.11.2000–15.12.2000
Hyvinkää (88)	Hyvinkää	02.01.2001–05.01.2000
Tuusula (88) [85]	Tuusula	08.01.2001–12.01.2001
Loviisa (88)	Lapinjärvi, Liljendal, Loviisa, Pernaja, Ruotsinpyhtää	15.01.2001–19.01.2001
Vantaa (260) [259]	Vantaa	22.01.2001–16.02.2001
Porvoo (88)	Porvoo	19.02.2001–23.02.2000
Field group 2		
Tampere (310) [311]	Tampere	11.09.2000–13.10.2000
Hämeenlinna (101)	Hattula, Hauho, Hämeenlinna, Kalvola, Renko	16.10.2000–20.10.2000
Heinola (100)	Heinola	23.10.2000–27.10.2000
Nokia (100)	Nokia	30.10.2000–03.11.2000
Keuruu (80) [82]	Keuruu, Multia	06.10.2000–10.10.2000
Orimattila (100) [101]	Artjärvi, Myrskylä, Orimattila, Pukkila	13.11.2000–17.11.2000
Forssa (100)	Forssa, Humppila, Jokioinen, Tammela, Ypäjä	20.11.2000–24.11.2000
Somero (50)	Somero	27.11.2000–01.12.2000
Loimaa (50)	Alastaro, Loimaa, Loimaan kunta, Mellilä, Oripää	04.12.2000–08.12.2000
Valkeakoski (100)	Valkeakoski	11.12.2000–15.12.2000
Jämsä (80) [82]	Jämsä, Jämsänkoski, Kuhmoinen	02.01.2001–05.01.2001
Riihimäki (100) [102]	Hausjärvi, Loppi, Riihimäki	08.01.2001–12.01.2001
Karkkila (88)	Karkkila	15.01.2001–19.01.2001
Lahti (150) [151]	Lahti	19.02.2001–25.02.2001
Muurame (80) [82]	Korpilahti, Muurame	26.02.2001–02.03.2001
Field group 3		
Kuopio (140) [130]	Kuopio	11.09.2000–29.09.2000
Lappeenranta (90)	Lappeenranta	02.10.2000–06.10.2000
Joensuu (80)	Joensuu	09.10.2000–12.10.2000
Juuka (80)	Juuka	13.10.2000–17.10.2000
Ruokolahti (88)	Ruokolahti	18.10.2000–23.10.2000
Luumäki (88)	Luumäki	24.10.2000–27.10.2000
Kotka (90)	Kotka	30.10.2000–03.11.2000
Siilinjärvi (80) [83]	Maaninka, Siilinjärvi	06.11.2000–10.11.2000
Lieksa (80)	Lieksa	13.11.2000–16.11.2000
Pyhäselkä (80)	Kiihtelysvaara, Pyhäselkä	20.11.2000–24.11.2000
Imatra (88)	Imatra	27.11.2000–01.12.2000
Kerimäki (80)	Enonkoski, Kerimäki, Savonranta	04.12.2000–08.12.2000
Mikkeli (80) [83]	Anttola, Hirvensalmi, Mikkeli, Mikkelin mlk, Ristiina	02.01.2001–05.01.2001

Polvijärvi (80)	Polvijärvi	13.01.2001–16.01.2001
Hamina (88)	Hamina, Vehkalahti, Virolahti	22.01.2001–26.01.2001
Jyväskylä (120) [113]	Jyväskylä	10.02.2001–18.02.2001
Savonlinna (80) [81]	Punkaharju, Rantasalmi, Savonlinna	19.02.2001–23.02.2001
Kouvola (88)	Kouvola, Valkeala	26.02.2001–02.03.2001

Field group 4

Oulu (180) [182]	Oulu	11.09.2000–06.10.2000
Ilmajoki (100)	Ilmajoki	09.10.2000–13.10.2000
Kajaani (60)	Kajaani	16.10.2000–20.10.2000
Haukipudas (60) [59]	Haukipudas	23.10.2000–26.10.2000
Utsjoki (60) [61]	Utsjoki	27.10.2000–31.10.2000
Kemi (60) [62]	Kemi	01.11.2000–03.11.2000
Nivala (60)	Nivala	06.11.2000–08.11.2000
Ylivieska (60) [62]	Alavieska, Sievi, Ylivieska	09.11.2000–13.11.2000
Pyhäjärvi (60)	Pyhäjärvi	14.11.2000–17.11.2000
Seinäjoki (100) [101]	Nurmo, Peräseinäjoki, Seinäjoki, Ylistaro	20.11.2000–27.11.2000
Sodankylä (60)	Sodankylä	28.11.2000–01.12.2000
Kiiminki (60)	Kiiminki	04.12.2000–08.12.2000
Lapua (100)	Lapua	11.12.2000–15.12.2000
Lapinlahti (80) [83]	Lapinlahti	02.01.2001–05.01.2001
Iisalmi (80)	Iisalmi, Vieremä	08.01.2001–12.01.2001
Raahe (60) [55]	Pattijoki, Pyhäjoki, Raahe, Ruukki, Siikajoki	15.01.2001–18.01.2001
Simo (60)	Kuivaniemi, Simo	19.01.2001–25.01.2001
Kuusamo (60)	Kuusamo	26.01.2001–28.01.2001
Rovaniemi (60) [57]	Rovaniemi	29.01.2001–01.02.2001
Taivalkoski (60)	Taivalkoski	21.02.2001–26.02.2001
Kokkola (60) [63]	Kokkola, Kälviä, Lohtaja, Ullava	27.02.2001–02.03.2001

Field group 5

Turku (330) [278]	Piikkiö, Turku	11.09.2000–11.10.2000
Kaarina (50) [51]	Kaarina	12.10.2000–13.10.2000
Pietarsaari (100) [99]	Luoto, Pedersöre, Pietarsaari	16.10.2000–20.10.2000
Ulvila (50)	Kullaa, Ulvila	23.10.2000–25.10.2000
Harjavalta (50)	Harjavalta, Kiukainen, Nakkila	26.10.2000–27.10.2000
Masku (50) [49]	Askainen, Lemu, Masku, Nousiainen, Vahto	30.10.2000–01.11.2000
Parainen (50)	Parainen	02.11.2000–03.11.2000
Rauma (50)	Eurajoki, Kodisjoki, Lappi, Rauma	06.11.2000–08.11.2000
Kristiinankaupunki (100)	Isojoki, Karijoki, Kristiinankaupunki	09.11.2000–17.11.2000
Vehmaa (50)	Kustavi, Taivassalo, Vehmaa	20.11.2000–22.11.2000
Salo (50)	Salo	23.11.2000–27.11.2000
Lohja (88)	Karjalohja, Lohja, Nummi-Pusula, Sammatti	28.11.2000–03.12.2000
Perniö (50)	Perniö, Särkisalo	07.12.2000–08.12.2000
Kokemäki (50)	Kokemäki	08.01.2001–10.01.2001
Uusikaupunki (50)	Uusikaupunki	11.01.2001–12.01.2001
Pori (120)	Pori	15.01.2001–24.01.2001
Uusikaarlepyy (100)	Uusikaarlepyy	13.02.2001–20.02.2001
Naantali (50) [52]	Merimasku, Naantali, Rymättylä	21.02.2001–23.02.2001
Vaasa (90) [89]	Vaasa	26.02.2001–02.03.2001

APPENDIX TABLES

Appendix table 1. Age-adjusted¹ prevalence (%) of selected indicators of health and functional capacity and risk factors by university hospital region (age group 30+, unless stated otherwise).

Variable ²	MEN							WOMEN						
	HUS (south)	TYKS (west)	TaYS (central)	KYS (east)	OYS (north)	Whole country	p	HUS (south)	TYKS (west)	TaYS (central)	KYS (east)	OYS (north)	Whole country	p
Good perceived health	65.5	61.5	60.3	55.9	61.2	61.5	0.006	63.2	61.2	63.2	57.5	59.9	61.5	0.083
Chronic illness	44.8	51.6	49.3	55.8	50.9	49.5	0.004	51.6	56.8	53.5	59.7	58.2	55.0	0.017
Myocardial infarction	4.4	5.0	5.8	7.9	5.4	5.6	0.087*	2.5	2.2	2.4	3.5	3.0	2.7	0.558
Diabetes	4.1	5.8	6.4	6.8	6.4	5.7	0.304	5.6	4.1	4.8	6.7	8.1	5.7	0.039
Airway obstruction	8.4	10.9	9.4	7.5	11.3	9.3	0.252	4.9	5.8	5.3	5.1	8.2	5.6	0.210
Asthma	4.0	3.8	3.7	4.6	3.5	4.0	0.895*	7.1	5.2	5.5	9.9	6.5	6.8	0.007*
Low back syndrome	8.7	14.0	11.5	11.8	6.6	10.3	0.004*	9.9	14.7	11.9	11.1	8.0	11.0	0.024
Hip osteoarthritis	3.7	6.2	3.4	6.4	1.7	4.2	<0.001	4.5	5.1	4.3	5.1	2.6	4.4	0.424
Knee osteoarthritis	4.3	6.0	6.2	3.7	3.4	4.8	0.054	7.7	8.9	7.4	8.8	5.6	7.8	0.271
Psychological symptoms	21.3	23.4	23.4	20.8	23.4	22.3	0.672	27.4	26.0	25.0	24.6	26.7	26.1	0.687
Alcohol dependence	9.2	7.1	3.7	6.5	5.4	6.7	0.003	2.0	1.1	1.4	0.9	1.2	1.5	0.409
Major depression	3.5	4.3	2.9	3.3	4.8	3.6	0.575	6.2	5.7	6.9	5.9	8.2	6.5	0.580
Good oral health	62.2	66.5	57.6	58.1	59.3	60.7	0.086	68.0	70.1	69.6	66.5	67.1	68.4	0.795
Edentulousness	6.6	9.3	11.5	11.4	16.0	10.3	<0.001	11.0	12.0	16.2	18.4	25.9	15.7	<0.001*
Respiratory infections	17.5	22.1	15.7	14.1	14.1	16.6	0.022*	21.1	22.5	20.2	19.6	17.8	20.4	0.370
Hospital care	11.2	12.0	9.8	11.1	13.3	11.2	0.443	13.8	15.6	12.4	16.8	18.3	14.8	0.036
No. of physician visits ³	2.6	3.0	2.3	2.6	2.6	2.6	0.417	3.9	3.8	3.3	3.3	3.0	3.5	<0.001
Unmet need for medical care	12.3	11.1	13.0	16.0	17.1	13.6	0.050	13.4	15.5	14.9	15.4	20.3	15.3	0.105

Walking 0.5 km without difficulties	92.1	90.8	92.1	91.3	91.1	91.7	0.813	87.7	85.6	87.7	85.1	85.9	86.7	0.191
Impaired distant vision	6.1	6.2	5.6	6.7	7.0	6.2	0.836	9.0	7.6	8.8	9.4	8.4	8.8	0.729
Impaired hearing	9.5	10.8	10.3	11.5	8.7	10.1	0.340	13.4	11.1	13.1	13.7	12.8	13.0	0.504
Verbal fluency ³	24.2	22.8	22.4	23.4	23.9	23.4	<0.001	24.0	22.9	23.1	23.8	23.4	23.5	0.041
Memory ³	7.9	7.9	7.8	7.6	8.1	7.8	<0.001	8.2	8.3	8.3	8.1	8.5	8.3	<0.001
Handgrip strength ³ (N)	474	492	483	485	467	479	<0.001	272	268	268	272	266	270	0.481*
Working capacity score ³	8.2	7.8	7.9	7.7	8.0	8.0	0.020	8.3	8.1	8.1	8.0	8.2	8.2	0.097
Compromises in consumption	33.1	39.3	40.0	44.4	40.7	38.5	0.005	38.5	40.8	42.7	40.2	44.5	40.9	0.226*
Overcrowded dwelling	10.6	10.8	9.2	11.5	14.1	10.9	0.117	9.6	8.9	7.5	11.9	12.8	9.8	0.031
Daily smoking	29.0	27.9	32.4	28.7	27.4	29.3	0.353*	19.7	14.1	16.4	13.8	18.9	17.1	0.008*
Daily use of vegetables	55.6	51.7	54.1	43.1	43.8	50.9	<0.001	66.0	62.2	66.5	58.2	57.5	63.1	0.006
Adequate phys. exercise	24.1	23.2	26.8	27.2	26.6	25.5	0.386	27.3	23.8	28.9	27.8	27.0	27.2	0.460
Alcohol g/week ³	136.2	149.1	116.0	112.0	117.5	126.5	0.083	37.1	34.4	33.8	28.7	24.4	32.9	0.017
Hangover in past year	64.2	66.0	58.3	63.3	64.0	62.9	0.163	38.3	33.5	34.5	34.1	35.4	35.7	0.271
Obesity	18.8	24.1	21.7	22.5	18.7	20.7	0.186	21.6	25.9	23.8	24.0	28.4	23.9	0.067
High blood pressure	24.1	23.0	25.6	27.5	16.7	23.9	0.028	17.5	19.0	20.5	22.0	20.9	19.6	0.315*
High cholesterol	30.3	29.1	30.5	30.7	31.1	30.4	0.984	28.0	33.6	29.3	27.1	32.5	29.5	0.140
High gamma-GT	14.4	12.4	10.6	12.9	10.4	12.4	0.134	3.8	3.4	3.5	3.3	2.7	3.5	0.877

¹ Age-adjusted using separate models for men and women. The figures for the whole country are not age-adjusted, and they may therefore slightly differ from the gender-specific results presented in other part of this report.

² See description of the variables and variable-specific definitions of the population.

³ The mean

* The interaction between age and region is statistically significant ($p < 0.05$).

Appendix table 2. Age-adjusted¹ prevalence (%) of selected indicators of health and functional capacity and risk factors by level of education (age group 30+, unless stated otherwise).

Variable ²	MEN					WOMEN				
	Basic	Secondary	Higher	Total	p	Basic	Secondary	Higher	Total	p
Good perceived health	52.4	64.4	73.5	61.6	<0.001	55.0	62.1	71.4	61.6	<0.001
Chronic illness	55.2	49.1	40.8	49.4	<0.001*	60.1	54.8	48.8	54.9	<0.001
Myocardial infarction	6.5	4.2	4.5	5.6	0.046	2.8	3.1	1.6	2.7	0.172*
Diabetes	6.5	5.1	4.2	5.6	0.102	6.9	4.6	3.5	5.7	0.004
Airway obstruction	11.0	7.7	7.2	9.2	0.016	6.2	4.6	4.9	5.5	0.247
Asthma	3.6	3.7	5.0	3.9	0.324	7.9	6.1	5.9	6.9	0.204
Low back syndrome	13.1	10.2	5.6	10.4	<0.001	11.8	11.8	9.1	11.1	0.139*
Hip osteoarthritis	4.8	3.5	3.4	4.2	0.238	4.8	4.6	2.7	4.4	0.073
Knee osteoarthritis	5.4	4.1	3.8	4.8	0.254*	8.8	7.5	4.2	7.8	0.001
Psychological symptoms	23.9	21.5	20.6	22.2	0.286	25.9	25.9	26.6	26.1	0.928*
Alcohol dependence	6.6	6.5	7.2	6.7	0.860*	1.6	1.5	1.4	1.5	0.970
Major depression	3.5	3.6	3.8	3.6	0.955*	6.4	5.6	7.2	6.5	0.386*
Good oral health	50.3	60.8	74.1	60.7	<0.001	62.5	67.8	74.6	68.4	<0.001
Edentulousness	14.6	7.0	2.0	10.3	<0.001	20.1	12.8	4.0	15.6	<0.001
Respiratory infections	16.3	14.4	20.4	16.6	0.002	16.8	19.9	25.0	20.5	<0.001
Hospital care	12.1	10.8	9.8	11.2	0.293	14.1	15.5	15.3	14.7	0.566*
No. of physician visits ³	2.7	2.6	2.4	2.6	0.531	3.4	3.7	3.7	3.5	0.278
Unmet need for medical care	12.9	15.4	12.3	13.6	0.191	17.8	14.4	12.1	15.2	0.004*
Walking 0.5 km without difficulties	89.3	93.9	97.2	91.7	<0.001	85.6	87.3	92.2	86.9	<0.001
Impaired distant vision	6.7	6.0	4.9	6.2	0.382	8.9	9.0	7.1	8.7	0.357*
Impaired hearing	11.8	8.7	6.4	10.2	<0.001	13.3	12.1	12.3	13.0	0.514
Verbal fluency ³	21.0	23.5	27.1	23.4	<0.001*	21.6	23.2	26.4	23.5	<0.001*

Memory ³	7.4	7.8	8.4	7.8	<0.001*	7.9	8.3	8.6	8.3	<0.001*
Handgrip strength ³ (N)	476	484	477	479	0.126*	266	269	274	270	0.015*
Working capacity score ³	7.5	8.0	8.5	8.0	<0.001*	7.7	8.2	8.5	8.2	<0.001*
Compromises in consumption	46.7	39.8	24.0	38.4	<0.001	48.0	43.4	30.4	40.9	<0.001
Overcrowded dwelling	12.7	11.3	8.7	10.9	0.030	12.7	10.7	7.7	9.8	<0.001
Daily smoking	38.2	29.1	17.6	29.3	<0.001*	25.4	18.5	9.7	17.1	<0.001*
Daily use of vegetables	41.4	51.9	65.0	50.9	<0.001*	54.9	63.3	73.7	63.1	<0.001*
Adequate physical exercise	26.2	25.1	24.9	25.5	0.773	27.0	29.0	26.1	27.2	0.338
Alcohol g/week ³	113.7	136.1	132.1	126.6	0.041*	31.0	31.7	36.3	32.9	0.236*
Hangover in past year	60.6	63.2	65.7	62.9	0.102	36.6	34.8	35.8	35.7	0.739
Obesity	25.3	19.6	15.2	20.7	<0.001	29.0	22.9	17.7	24.0	<0.001
High blood pressure	27.0	22.8	19.4	23.7	0.003	21.3	20.1	15.9	19.6	0.014*
High cholesterol	32.3	30.8	26.2	30.3	0.017*	33.2	27.9	25.2	29.5	<0.001*
High gamma-GT	12.9	12.4	11.8	12.4	0.839*	4.7	2.5	2.2	3.5	0.005*

¹ Age-adjusted using separate models for men and women. The figures for all women and men are not age-adjusted, and they may therefore slightly differ from the gender-specific results presented in other parts of this report.

² See description of the variables and variable-specific definitions of the population.

³ The mean

* The interaction between age and education is statistically significant ($p < 0.05$).

Appendix table 3. Age-adjusted¹ prevalence (%) of selected indicators of health and functional capacity and risk factors by marital status (age group 30+, unless stated otherwise).

Variable ²	MEN							WOMEN						
	Married	Cohabiting	Divorced	Widowed	Single	Total	p	Married	Cohabiting	Divorced	Widowed	Single	Total	p
Good perceived health	63.5	63.2	54.5	62.4	55.5	61.5	0.003	62.3	60.4	59.2	62.3	59.7	61.5	0.658*
Chronic illness	47.1	48.1	53.3	53.1	57.7	49.5	<0.001*	54.7	52.7	54.2	60.3	54.4	55.0	0.334
Myocardial infarction	6.0	3.0	6.3	5.0	4.4	5.6	0.356*	2.1	1.0	4.1	3.1	1.7	2.7	0.103*
Diabetes	5.9	4.3	4.8	2.4	7.9	5.7	0.059	5.0	7.9	7.2	6.7	2.7	5.7	0.012
Airway obstruction	8.7	8.6	15.2	8.0	10.1	9.2	0.024	4.3	7.4	9.1	6.1	5.4	5.6	0.003
Asthma	4.0	5.1	4.6	2.9	2.3	3.9	0.413	6.4	6.5	8.1	7.4	7.1	6.9	0.781
Low back syndrome	11.0	8.1	11.1	10.8	8.4	10.4	0.442	11.8	10.6	14.6	8.4	8.3	11.0	0.018*
Hip osteoarthritis	4.2	5.0	5.2	3.4	4.3	4.2	0.840	4.1	3.5	5.5	4.6	4.7	4.4	0.775*
Knee osteoarthritis	5.1	3.4	4.6	3.7	4.3	4.7	0.716	8.0	3.1	7.4	8.9	5.0	7.8	0.062*
Psychological symptoms	20.2	20.1	36.6	21.9	25.6	22.3	<0.001	24.8	25.8	28.6	28.4	27.1	26.1	0.422*
Alcohol dependence	4.7	8.7	14.8	0.0	10.9	6.7	<0.001	1.0	2.2	2.2	1.5	2.3	1.5	0.126
Major depression	3.2	1.5	8.6	8.3	4.2	3.6	0.002	5.7	4.9	10.7	11.2	5.8	6.5	0.003*
Good oral health	64.6	60.4	52.7	44.1	51.3	60.7	<0.001*	69.7	64.6	63.8	70.9	67.7	68.4	0.109
Edentulousness	9.8	11.4	11.8	11.7	11.0	10.3	0.660*	16.1	14.0	17.5	16.9	8.3	15.7	<0.001*
Respiratory infections	17.5	14.4	15.1	22.3	14.4	16.6	0.212	21.3	21.7	18.7	20.0	16.9	20.5	0.289
Hospital care	10.3	8.6	15.5	14.7	13.7	11.2	0.017	13.0	18.1	15.5	17.4	14.8	14.8	0.022
No. of physician visits ³	2.6	2.6	3.0	2.5	2.2	2.6	0.245	3.5	3.6	3.8	3.4	3.4	3.5	0.692
Unmet need for medical care	12.3	15.4	17.9	14.5	15.8	13.6	0.045	16.8	15.8	17.0	11.7	11.2	15.3	0.012*

Walking 0.5 km without difficulties	93.8	90.4	82.2	91.9	85.9	91.7	<0.001	89.1	85.2	85.6	83.9	88.0	86.7	<0.001
Impaired distant vision	4.6	5.2	9.3	10.3	12.8	6.2	<0.001*	6.9	10.1	10.6	9.5	11.5	8.8	0.010*
Impaired hearing	9.6	15.1	8.1	8.2	14.7	10.1	<0.001	12.7	13.4	15.3	12.6	13.3	13.0	0.506*
Verbal fluency ³	24.0	23.4	22.6	22.5	21.4	23.4	<0.001	24.1	22.5	23.9	22.6	22.1	23.5	<0.001*
Memory ³	8.0	7.7	7.7	7.6	7.3	7.8	<0.001	8.4	8.1	8.3	8.0	8.0	8.3	<0.001*
Handgrip strength ³ (N)	491	477	472	456	437	479	<0.001*	276	262	273	257	256	269	<0.001*
Working capacity score ³	8.1	8.1	7.4	7.9	7.5	8.0	<0.001	8.3	8.0	8.2	7.4	8.0	8.2	<0.001
Compromises in consumption	36.1	37.9	54.3	35.2	40.9	38.4	<0.001	37.5	40.1	60.9	39.8	38.9	40.9	<0.001*
Overcrowded dwelling	14.7	12.7	2.9	7.0	1.1	10.9	<0.001*	11.7	12.9	4.7	8.5	1.8	9.8	<0.001*
Daily smoking	24.4	31.2	49.8	29.1	35.9	29.4	<0.001	12.8	23.5	30.5	15.0	19.6	17.1	<0.001*
Daily use of vegetables	55.9	51.1	41.1	40.8	37.5	50.9	<0.001	66.6	57.2	60.6	57.9	61.0	63.1	<0.001
Adequate physical exercise	25.0	27.0	26.1	19.6	27.9	25.5	0.467	26.5	24.0	34.8	25.8	27.5	27.2	0.008*
Alcohol g/week ³	115.7	141.8	182.3	113.0	131.7	126.5	<0.001	30.1	44.0	38.5	27.8	37.5	32.9	0.009*
Hangover in past year	61.1	71.3	68.5	62.4	60.4	62.9	0.001	31.5	43.1	46.1	26.3	42.9	35.7	<0.001
Obesity	20.8	24.2	18.9	11.4	21.0	20.7	0.108	24.3	22.7	24.6	24.1	22.0	23.9	0.882*
High blood pressure	22.9	22.1	30.9	16.8	27.9	23.8	0.010*	20.4	20.5	20.5	17.7	18.0	19.6	0.561*
High cholesterol	30.7	28.0	34.2	23.3	29.7	30.3	0.278*	31.9	32.5	30.6	21.6	28.5	29.5	<0.001*
High gamma-GT	11.6	13.6	14.0	11.1	14.4	12.4	0.471	3.6	3.3	3.4	3.3	2.8	3.4	0.941

¹ Age-adjusted using separate models for men and women. The figures for all women and men are not age-adjusted, and they may therefore slightly differ from the gender-specific results presented in other parts of this report.

² See description of the variables and variable-specific definitions of the population.

³ The mean

* The interaction between age and marital status is statistically significant (p<0.05).

Variables used in Appendix tables 1–3 and variable-specific definitions of the population.

- 1.. Good perceived health: self-reported health fairly good or good (Chapter 6)
2. Chronic illness: at least one chronic illness (Chapter 6)
3. Myocardial infarction: self-reported or clinically diagnosed myocardial infarction (Chapter 7.1)
4. Diabetes: self-reported diabetes (Chapter 7.1)
5. Airway obstruction: FEV% <70 in spirometry (Chapter 7.2)
6. Asthma: asthma diagnosed in clinical examination (Chapter 7.2)
7. Low back syndrome: chronic low back syndrome diagnosed in clinical examination (Chapter 7.3)
8. Hip osteoarthritis: hip osteoarthritis diagnosed in clinical examination (Chapter 7.3)
9. Knee osteoarthritis: knee osteoarthritis diagnosed in clinical examination (Chapter 7.3)
10. Psychological symptoms: GHQ-12 score ≥ 3 (Chapter 4)
11. Alcohol dependence: alcohol dependence during the past 12 months, on the basis of the CIDI interview (Chapter 7.4)
12. Major depression: major depression during the past 12 months, on the basis of the CIDI interview (Chapter 7.4)
13. Good oral health: self-reported oral health fairly good or good; excludes edentulous persons (Chapter 7.5)
14. Edentulousness: not any natural teeth left (Chapter 7.5)
15. Respiratory infections: respiratory infection during the past 2 months (Chapter 7.6)
16. Hospital care: in-patient in a hospital during the past 12 months (Chapter 10)
17. No. of physician visits: number of ambulatory physician visits during the past 12 months (Chapter 10)
18. Unmet need for medical care: according to own assessment needs continuous physician care because of a chronic illness but does not receive that care (Chapter 11)
19. Walking 0.5 km without difficulties: according to own assessment manages walking half a kilometre without difficulty (Chapter 12.1)
20. Impaired distant vision: visus $\leq 0,5$ in the distant vision test (Chapter 12.2)

21. Impaired hearing: the average hearing threshold of the ear with better hearing > 25 dB (Chapter 12.2)
22. Verbal fluency: the number of words (meeting the criteria given in instructions) listed in one minute (Chapter 12.2)
23. Memory: the number of words recalled on the third time, maximum = 10 (Chapter 12.2)
24. Handgrip strength: mean grip strength of the dominant hand, in Newtons (Chapter 12.2)
25. Working capacity score: own assessment of present working capacity in relation to the best working capacity ever (=10), age group 30–64 years (Chapter 12.3)
26. Compromises in consumption: self-report of having to make at least some compromises in personal consumption (Chapter 3)
27. Overcrowded dwelling: number of rooms per inhabitant < 1 (kitchen not regarded as a room); excludes institutionalised population (Chapter 3)
28. Daily smoking: current daily smoking (Chapter 4)
29. Daily use of vegetables: eats raw vegetables or roots daily (Chapter 4)
30. Adequate physical exercise: exercise at least 4 times a week, at least half an hour at a time, causing at least slight shortness of breath and sweating (Chapter 4)
31. Alcohol g/week: total consumption of alcohol g/week during the past month, calculated on the basis of questions on the consumption of different types of alcoholic beverages
32. Hangover in past year: has experienced hangover during the past 12 months (Chapter 4)
33. Obesity: BMI ≥ 30 kg/m² (Chapter 5)
34. High blood pressure: systolic blood pressure ≥ 160 mmHg and/or diastolic blood pressure ≥ 95 mmHg (Chapter 5)
35. High cholesterol: serum cholesterol concentration $\geq 6,5$ mmol/l (Chapter 5)
36. High gamma-GT: serum gammaglutamyltransferase concentration ≥ 80 U/l (Chapter 5)

Conducted from 2000 to 2001, the Health 2000 survey was based upon interviews and examinations of 10,000 adults representing the adult population in Finland. The project is coordinated by the National Public Health Institute KTL. Other participants include national health research institutes, Statistics Finland, social insurance institutions and experts from various different organisations.

The aim of the project is to draw a comprehensive and up-to-date picture of health, working capacity, functional capacity, their determinants and consequences in Finland. The field survey started with a home health interview. Next, persons aged 30 and over were invited to a four-hour health examination which included thorough examinations by a physician and a dentist. Over 90% of the sample participated.

This baseline report presents a lot of new information about health, diseases, functional limitations and disabilities, and their causes. The current findings are compared to earlier results in order to shed light on time trends of health problems and future challenges. The information will be used to plan and develop health care services, social services and social security in the whole country and its various regions.

ISBN 951-740-299-6 (print)

ISBN 951-740-300-6 (pdf)

ISSN 0359-3576

Helsinki 2004

Hakapaino Oy