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Juha Nyman

Academic Dissertation

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To Pirjo, Mirva, Meeri and Noora

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Helsinki, February 2002 Juha Nyman

The choice of unemployment itself as a subject for research
implies a concern about its existence.

ABSTRACT

The aim of this study was to analyze the association of unemployment and ill-being with a panel study design using as the time frame the major recession which occurred in Finland in the beginning of the 1990s. The second aim was to examine if concurrent social support could mediate the detrimental ill-health effects of unemployment. In addition it was examined if insecurely employed people, housewives, or retired persons experience more or less ill-being than their employed counterparts. Two hypotheses were tested: the first proposed that unemployment predisposes towards ill-being, the second being that ill-being predisposes towards unemployment. Initial data for this study came from Health Behaviour Surveys from the years 1989 and 1990, which were combined, and this cohort was followed until the second survey in the year 1997. The sample comprised of 5494 persons representing 55% of the original target sample of 10000 persons. Of the 5494 respondents 4598 were included in the analyses. The sample was divided into the following groups: middle-aged employed, middle-aged unemployed, insecurely employed, students who left school and found a job, students who left school but remained unemployed, housewives, and pensioners, and in the follow up period, ill-being and changes in the employment status were compared.

The results were evaluated controlling for 20 health-related variables. Unemployment increased the risk of poor general health (OR 1.5) and poor physical functioning (OR 1.4) but not having a somatic illness or two or more symptoms in the middle-aged individuals. However, unemployment was associated with self-reported elevated blood pressure in men. Unemployment predisposed the individual to deterioration in mental health, for example depression (OR 2.4), insomnia (OR 1.8), low self-esteem, pessimistic outlook, and anxiety. In addition the unemployed suffered from social ill-being: poor social interactions, lack of sufficient money to buy food, self-dissatisfaction, dissatisfaction with personal life, and dissatisfaction with own financial situation more than the employed. The unemployed men had increased risk of stress (OR 2.0), inability to meet the requirements of everyday life, living on their own (OR 1.9), low spouse support (OR 1.8), psychosomatic symptoms, and dissatisfaction with one's own life. In the school-leavers group, the effects of unemployment were nearly the same as in the middle-aged group, except that unemployment did not predispose to living alone. The estimates of somatic ill health and mental ill-being were somewhat higher in the school-leavers than in the middle-aged group but unemployment brought more social drawbacks in the middle-aged than in the school-leavers. Those individuals, who were out of work already before the recession suffered less negative consequences from being unemployed. However, they were just as discontented and pessimistic as those who lost their job during the recession. Of the health related variables, living alone (OR1.7), poor physical condition (OR 1.4), depression (OR 1.8), insomnia (OR 1.6), and eating disorder all increased the risk of unemployment. Similarly in the school-leavers group, smoking (OR 1.7) and overweight (OR 3.2) predicted unemployment. In summary, the results supported to some extent both hypotheses.

Job insecurity increased the risk of stress, anxiety, depression, insomnia, and dissatisfaction. Men with insecure jobs had increased risk of insomnia and poor physical functioning. Furthermore, job insecurity was a risk factor for major life events and related stress. The people with job insecurity complained of a lack of money more than the securely employed. Being a housewife or retired only slightly was associated with somatic health and even tended to improve mental well-being. In the unemployed, poor social interaction was associated with lack of energy, depression, stress, and dissatisfaction with one's own life. Low social support was associated with poor general health, low self-esteem, and self-dissatisfaction. Low spouse support was associated with psychosomatic symptoms in the unemployed. The social support was not associated with unemployment situation.

Keywords: Unemployment, Ill-being, Ill health, Job insecurity, Retirement, and Housewife

ABBREVIATIONS

Employed groups:

E/E: Middle-aged employed (employed in the first and in the second surveys)

E/I: Insecurely employed (employed in the first and in the second surveys but in the second survey working reduced working hours against own will or threatened by job loss)

S/E: Employed school-leaver (student in the first survey but employed or a student in the second survey)

H/E: Employed housewife (housewife in the first survey but employed in the second survey)

Unemployed groups:

E/U: Middle-aged unemployed (employed in the first survey, but unemployed in the second survey)

S/U: Unemployed school-leaver (student in the first survey, but unemployed in second survey)

U/U: Early-unemployed (unemployed in the first and in the second survey)

Non-employed groups:

H/H: Housewife (housewife in the first and in the second survey)

E/P: Pensioned (employed in the first survey, but retired on a pension in the second survey)

BMI: Body mass index

OR: Odds ratio

T1: The first measurement point

T2: The second measurement point

I. INTRODUCTION

1. Background of the study

In Western societies the standard of living that an individual enjoys depends primarily on employment status. As a consequence, loss of one's job—or cumulative job losses—leads to a fall in the standard of living, a feeling of failure, and social isolation from those in work. Losing a job can initiate processes, which lead to ill health and ill-being. Finland during the period from the year 1990 to 1994 experienced a major period of recession and short- and long-term unemployment became common (1). The proportion of the long-term unemployed increased: by the year 1996, one in three of those unemployed had not been employed for a period of over one year (2). The general unemployment rate remained high and in some sectors including the service industries, unemployment of women still continued to grow during the entire decide. Year after year in the early 1990s, the unemployment benefits and the welfare regime had to be re-adjusted (3). In 1992 and 1993 three out every four unemployed people had been displaced from a full-time job (4).

During the recession, the threat of bankruptcy, loss of income, and job insecurity became a way of life for those working in financially troubled firms. Unstable careers and shorter work periods became more and more usual both in the public and private sector. Contracts of limited duration's, where the risk of lay-off was high, became more prevalent and the employment outlook became bleak for those who had lost their jobs. At that time most unemployed people would be given only limited term contracts and insecure jobs if they were hired again (5). There was some evidence that those who were in insecure employment or with casual labor contracts suffered approximately the same level of mental ill-being as the unemployed (6). The social support from fellow workers often disappeared being re-placed by competition for jobs, pessimism, and sleep deprivation (7).

Both in cases of mass lay-off and in partial firings, job loss may be associated with the productivity of an individual (8). Unsuitable qualifications, poor vocational training, or some handicap are all known to be positively associated with increased risk of job loss and long-term unemployment (9). In conditions where the numbers of those seeking work exceed the supply of jobs available, employers can become more selective. A mild physical or mental impairment or impediment may be sufficient cause for displacement or a fruitless job search in the competition for work. The fitness levels required to perform manual works in rigorous working conditions do not allow an individual

with some disability to work, but may allow employees with higher general and vocational education to retain their jobs.

Labour markets sort workers with less skills and less-advantaged social status into jobs with unsafe and unhealthy conditions. It may happen that a manual worker will voluntarily leave a job if his/her health no longer can stand the strain of working. The job may be perceived as aversive due to the risk of occupational diseases or working accidents; often workers suffer from stress caused by over burdening, under utilisation of their skills, conflicts in relationships, low salary, or decision latitude (10). Changes in social policy that affect the situation of the unemployed may encourage the physically handicapped to take early retirement (11). Retirement may represent an escape route from an unpleasant job, especially for people aged 55 years or more with no vocational training.

Gender is a crucial separating factor in the labor markets; people have careers often depending on their sex and there is a gender gap in the wages paid, even for people doing the same job. Employment commitment differs in different groups; for example a woman with children, occupied with domestic work, and with a spouse working, may view her own unemployment as less stressful than that of a single person.

Since the 1930's (12-14) an abundance of studies concerning the association of job loss and health have been carried out. If unemployment still is a harmful experience for health in all phases of life, this may be attributable to other factors, which have already happened in that individual's life, altering his/her vulnerability to health deterioration. Unemployment may be a covariant in the course of negative experiences that worsens the entire situation. This study analyses the relationship of employment status—especially unemployment—and ill-being. The randomly sampled, nationally representative data comes from the research study "Health Behavior among Finnish Adult Population" carried out by the National Public Health Institute, which is part of the research project: Inequalities in Health and Well-being financed by the Academy of Finland. The data of the Health Behavior Surveys are from the years 1989-90 and 1997; the questionnaires reflect a large range of health concepts and levels of ill-being.

2. Research problem

The cross-sectional studies have described the association of unemployment and ill health (15). In cases where manufacturing plants have closed, the health effects of job loss have been investigated

at the time of redundancy in small groups of blue-collar male workers (16-19). Based on data from registers or surveys, individual level cohort studies have analyzed the health effects of unemployment (20-26). The aggregate level studies or macro studies have generally focused on the correlative association between unemployment rate and mortality or morbidity during times of recession (27-38). As a matter of fact, all these studies report that unemployed people suffer more ill health than the employed.

Some of the individual level studies have, however, analyzed only a few health indicators (39,40). In many of the studies, data has been gathered by using a General Health Questionnaire (41-43), which is designed to detect psychiatric disorders (44). Often the sample is not randomly taken and the focus has been on a restricted group such as people of school leaving age (23), construction workers (45) or the group of unemployed without any reference group (46). The longitudinal studies often have a limited span or high rates of sample attrition, sometimes in excess of 50% (20,41,47). In the aggregate level studies variation in mortality may be due to other preceding or contemporary factors than unemployment: the recession affects the majority of the country's citizens. These studies are able to describe only fatal diseases. If the macro level data is the rate of hospitalization, the results can depend on bed availability, the number of doctors, or the availability of alternative community services. The association of unemployment and ill health probably depends on the level of social security, however, only a few of the studies have been conducted in our society. Some of these results are in mutual contradiction (48-50). Consequently, it is difficult or impossible to draw reliable conclusions on whether predisposition to ill health is increased by unemployment or if the displaced people have poorer health before they were made redundant because of previous conditions at work or some adopted unhealthy lifestyle and consumption patterns. Often studies omit important factors, such as smoking habits in the analyses of unemployment and health.

Recently it has questioned if unemployment actually has some positive effects and why, nowadays, leisure activities could not substitute for paid employment (51). Dissatisfaction with one's own life has been shown to predict ill health (52) and many people working in stressful conditions may demonstrate relief and improvement in mental well-being after job-loss (53). It is estimated that more than one in ten of unemployed person enjoy better mental health after lay off compared to the situation when they were working (54). Not all employment offers positive aspects of work and equal learning opportunities for workers. People, who have modern skills, are more often safe from unemployment but also appear to cope better with unemployment. They are better prepared for

seeking work than people who have for years worked at the same repetitive task (55). On the other hand, uncertainty of job may increase the experience of ill-being (56-59).

A recent study revealed that there are differences in the experience of unemployment between different sectors of the populations (60). This suggests that some sub-populations may have special protective factors against the health deteriorating effects of unemployment. Reaction to unemployment may vary across the life cycle and some groups of people are more ready than others for the change in their role in the labor market. Studies of people out of the labor force seldom discriminate between unemployed women and housewives.

Health services ought to be aware of the relationship of unemployment and ill health in order to support the welfare of the unemployed. On the other hand, re-employment is associated with well-being; the more healthy worker, the more attractive he/she is from an employer's point of view. There is a clear need in health care to identify those people who need support at work, to help them to work at the expected level so that they will not become displaced, and there is need to identify the groups that suffer most from loss of their job. The role of support in unemployment has been extensively not investigated.

The starting point for this study was the knowledge of the association between employment status and health. The first wave of the data combining two samples in 1989 and 1990 was collected before the recession began. The year 1990 was end of long period of economic growth, the time when no-one was aware of the depth of the recession around the corner. For the respondents of these two samples a new survey was sent in the year 1997. At the time of the second survey in 1997, the unemployment rate still was high but gross-national product was rising again. This context provided quite a good opportunity to study the experiences of unemployment. The advantages of this study into the association of health and employment status lie in its national representativeness, large sample size including sufficient unemployed people to allow a reliable analysis, good response rate, and wide range of possible risk factors collected. It has been stated that people who become unemployed suffer prior health problems, health-deteriorating life-styles, or attitudes that increase the risk of lay off and unemployment (61). Only a few Finnish studies exist on this topic. Despite all the many studies into unemployment and health, no unanimous agreement exists, if unemployment causally predicts ill- being or if the people, who are ill, are more likely to lose their jobs.

3. Aims of the study

This study investigates the association between employment status and self-reported ill-being. The unemployed people are analyzed in relation to the employed. To examine whether job insecurity had health depressing effects, the people with insecure jobs were analyzed in relation to the securely employed. The non-employed groups of housewives and pensioners were compared to the employed to see if the effects of these employment statuses have a similar impact on ill-being as unemployment. The ill-being of the groups was analyzed by comparing the groups in the years 1989/90 and 1997 in order to determine differences in the changes. The analysis tries to disentangle the independent effects of unemployment on ill-being and ways in which the employment status is related to indicators of ill-health when a selection of moderating and mediating variables are controlled for. The specific aims are to:

Explore the impact of unemployment on ill-being.

Explore the impact of ill-being on unemployment.

Explore the impact of job insecurity on ill-being.

Explore the impact of non-employment on ill-being.

Analyze the association of social support, social interaction, and ill-being in the unemployed.

Analyze the association of social support, social interaction, and employment status.

II LITERATURE REVIEW

1. Unemployment as a stressful experience

1.1. Unemployment

Unemployment is caused either by the individual or can result from economical factors out with his/her control (62). In absolute unemployment, employers offer less employment than there are people who need and wish work. In structural unemployment, work demand and work supply do not fit each other as a consequence of old-fashioned production techniques or unsuitable qualifications of the employees to carry out new tasks. The cause for friction unemployment is that employees change their place of residence or have some other reason for giving up working and temporarily become unemployed.

Unemployment can also be classified according to its duration as long-term, temporary, and seasonal unemployment. Long-term unemployment according to employment statutes refers to unemployment which has persisted for one year in one or more spells (63). According to life cycle, unemployment may be defined as unemployment of youths, women, or ethnic groups. The third classification is regional and the fourth classification classifies unemployment by the employee's own attitudes either as voluntary or involuntary unemployment.

According to the law, an unemployed person is defined as a person who is: between the school leaving age and the pension age, without employment, dependent on paid work, available to start work, and actively seeking work (64). In most countries looking for a job is a condition if one wishes to receive unemployment benefits and the employment service will require the claimant to register. This excludes firstly those, who want to work and are available for work but do not seek it actively because they have given up looking due to family responsibilities or for some other reason. Secondly this excludes those who already hold a part-time job but are available for full-time work. Often the expression the hidden-unemployed is used.

A non-employed person (inactive, discouraged) is a person who is pensioned on a retirement benefit, a housewife, or voluntarily unemployed (65). Among the unemployed, there are people who are without work due to their own will. According to an extreme viewpoint, unemployment invariably represents a choice: a jobless person can accept less salary, worse working conditions, a

distant job, a job from some occupation other than his/her own trade. If a person accepts these terms, he/she cannot stay out of work for a long time (66). According to the rehabilitation approach, there is a group of the unemployed who are physically capable of work but are exhausted. It is appropriate therefore to rehabilitate them by providing therapy or training (67).

Wages offered to those with few skills and a record of non-employment will be low. Recipients may lose benefits if they work for low wages. The situation where there is a strong incentive to retain the security benefits offered by remaining on social assistance, is called a dependency trap (68). Loss of security benefits and low wages may discourage someone from taking temporary or part-time work when unemployed. Analyses of a large Finnish register data led to the conclusion that in the years 1993 and 1994 only 7% of the long-term unemployed participated in some kind of employment training (69). At the same period almost two-thirds had been placed in a subsidized job. In another Finnish study (70) between the years 1993 and 1994 more than one in two of the long-term unemployed were employed for some shorter or longer periods: they were not totally outside of the labor force. One in four of the long-term unemployed had remained in continuous unemployment.

Regardless of the unemployment rate, there exists an individual element in job loss. The higher the unemployment rate, the harsher the competition for paid work: the more education, better skills and better health are sought than before. Also sex, age, and marital status are associated with the risk of unemployment (71). In Finland during the recession it was most often women, who were in cohabitation but men, who were single, who lost their jobs (72). The employment statuses of spouses show a close relationship. One reason is that, not only the system of benefit, but also because often spouses have the same educational profile and work in the same labor markets. Young labor force entrants, less educated, unskilled workers, and older workers are most likely to stay out of work force or lose their job (73). It has been suggested that in a recession, the early-unemployed have more physical defects and less schooling than those who lose their jobs on some future occasion or who are safely employed.

However, it is doubtful that in Finland during the recession whether individual characteristics could have been changed so suddenly and contributed to job losses for so many people. In Finland in the early 1990s, unemployment was mostly due to unselective economic conditions rather than to personal or health deficiencies. There were much more job seekers than vacancies in the labor

market. Figure 1 illustrates the annual fluctuations in the unemployment rates and the numbers of unemployed in the years between 1989 and 1997.

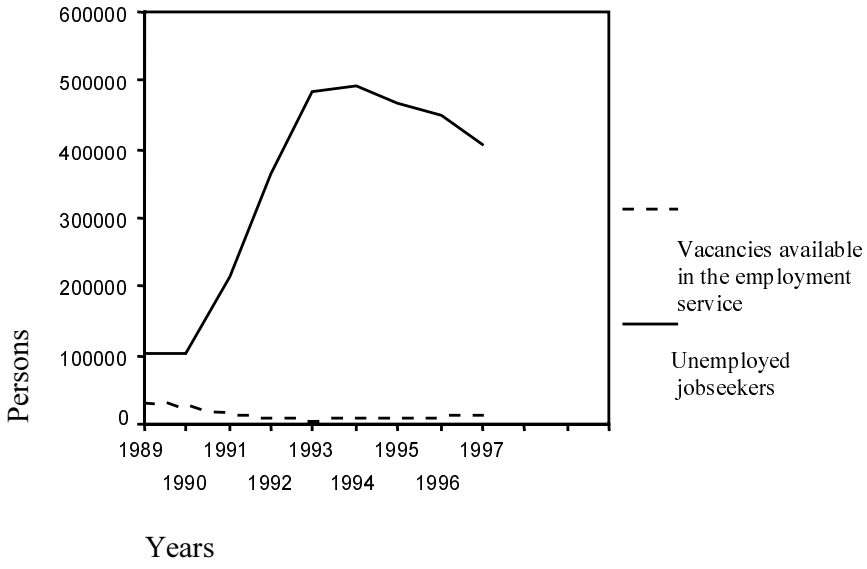


Figure 1. Unemployed jobseekers and vacancies available in the employment service (74)

1.2. Ill-being

Heady et al (75,76) explored the concepts of well-being and ill-being and concluded that indicators of these two concepts form distinct dimensions. The factor pattern of well-being included indexes of self-fulfillment, positive feelings to life as a whole, and other positive factors. This concept was associated with satisfaction in the domains: marriage, friendship, fitness, self-worth, material standard of living, job, and organizational membership. A correlation matrix suggested that also determinants of well-being and ill-being were different. Enjoyable leisure and friendship were the key determinants of well-being but social background only to a slight degree accounted for their levels. Satisfaction with own health had only a marginal impact on well-being. Well-being is then a positive expression reflecting leisure, happiness, and enjoyment (77).

Instead, according to Heady et al (75,76), the factor pattern of ill-being included indexes of somatic complaints, worries, and negative factors. Dissatisfaction with own health had more impact on ill-

being than well-being. Somatic complaints, disabilities, anxiety, depression, low self-esteem, living alone, dissatisfaction with family circumstances, worries about social life, and poor material standard of living—these were closely associated with ill-being. The concept of ill-being may be defined as a painful experience in the individual (78). The scale therefore should measure intensity of somatic disorders, mental disorders, and dysfunction in relationships by combining the scores obtained from those items. Somatic disorder, somatic symptoms, depression, insomnia, anxiety, hopelessness, low level of energy, psychosomatic distress, eating disorders, poor social functioning, self-disparagement, and feelings of failure— the scale of ill-being encompasses these indicators.

Physical health pertains to the body being in good health, being without diseases, and being symptomless, physical functioning, only few days of restricted activity, energy, and self-perceived health (79). There is no perfect state of health; in any random population sample, a majority has some symptoms but a large number of the symptoms or illnesses are non-serious. The indices of health status often focus on diseases, illnesses, or health damaging behavior. Disease is a medically defined disorder. The concept of illness is associated with inability to adequately meet the requirements of everyday life and failure to receive the support esteem from others (80). Being ill refers to some lay defined health problem and a subjective experience of individuals. Subjectively stress is often perceived as a causal factor of illness and illness may be used to legitimate withdrawal from normal life (81). A person can feel ill without there being any detected disease but also can feel well despite the presence of some disease.

There is no coherent rigorous knowledge about the causes, symptoms, or cures of mental disorders in the way that there is of many somatic diseases. Mental ill-being can be defined if a person has depression, insomnia, stress, anxiety, low self-esteem, pessimism, or self-dissatisfaction more than people on average (82). Stress is an analogous word to strain; it implies the effects of burden, pressure and tension, whereas distress is an indicator suffering and results in hardships and thus the need for assistance. An analogous word is anxiety, which is related to fear or shame. Stress, anxiety, or depression are not necessarily signs of poor mental health. Often the word depression refers to a passing mood state that is a normal part of human life. However, depression, distress, or psychological strain if they persist often lead people to seek help. According to the diagnostic criteria (ICD-10), the seriousness of depression is associated with its persistence and the number of symptoms: loss of interest, reduced energy, low self-esteem, concentration difficulties, insomnia, pessimistic life-orientation, weight gain or loss of weight, depressed mind, and consciousness of guilt—these symptoms have persisted at least for two weeks (83). Stress, anxiety and depression

often coincide. The symptoms of anxiety may be autonomic or psychic: racing heart, sweating, tremor, vertigo, and concentration difficulties are just some of the symptoms.

In a Finnish population sample, poor mental health was more common among those with poor subjective health status, disabling illness, unhealthy behavior, low social support, and financial strain (84). The indicators of poor mental health were more closely associated with each other than with the other ill health indicators. The unemployed men and women had more mental ill-being than the Finnish population on average in the years 1993 and 1994.

Social ill-being can be defined as the degree to which an individual is unable to engage in social interactions and to function within the community (85). Social ill-being reflects an inability to maintain supportive social networks, dissatisfaction with relationships, inability to perform in social roles, and maladjustment to the environment (86). Having more friends is better than having only a few, but having too large a social network may be stressful. Functional ability is the degree to which a person is able to act in social roles without physical or mental limitations. In the model of Vaughan et al (87) age, low social-economic status, and serious personal loss affected subjective ill-being only indirectly through ill health, physical inactivity, and social isolation. Health affected physical activity, but activity had no direct effect on well-being; only indirectly through social ties. Thus, social networks and social interaction are likely to be important mediating factors in ill-being.

There are three ways of considering how perception may affect the respondent's self-reported ill-being (88). The first is the perceived gap between what one has and what one wants. Secondly the respondent may differentiate what he/she has now and the best he/she has had in the past. Finally the respondent may have as a reference some relevant other person or group against which to compare his/her own situation. A person can be satisfied with his/her life although reporting negative individual experiences, burdens like depression or fatigue. However, dissatisfaction is associated with living alone, unhealthy behavior (i.e. smoking, heavy drinking, physical inactivity) and dissatisfaction increases the risk of diseases, injuries, and even mortality (89).

1.3. Links of unemployment and ill-being

According to the deprivation theory a good employment position provides physical activity, temporal structure, relationships, opportunities to achieve common goals, personal status, financial rewards, and identity; the consequences of unemployment may be a loss of these functions (90-91).

The experience of loss is likely to increase the probability of illness (92). Loss of the positive elements of employment and its positively experienced challenges, learning possibilities, income, and social contacts are all likely to increase ill-being by increasing depression, pessimism and low self-esteem. Unemployment increases the risk of material poverty. Unemployment may lead to lack of control over one's own actions and depreciation of personal skill. The learned helplessness-model describes, how loss of a job in middle age causes helplessness, depression, reduced initiation, and difficulty in learning (93).

According to the stages model (13) the phases of adjusting to unemployment are shock at job loss, which is followed by an optimistic hunt for a job. If all the efforts fail, the individual becomes pessimistic, anxious and suffers distress. In the ultimate stage, the individual becomes fatalistic and adapts himself to his new state but withdraws from social life. Indeed, some symptoms peak at termination but thereafter may lessen (16-18). There are studies of adaptation or coping with unemployment, which conclude that self-assessed health, mental well-being, and activity level all worsen during the first year after job loss (94-96). However, some unemployed individuals are not able to adapt at all and deterioration of self-reported mental health is likely to continue indefinitely in these people. Adaptation to unemployment is unlikely if a person suffers from material hardship and poverty (97). The most serious problems have been found in people who have been unemployed for more than six months (98). They faced financial strain, quarrels at home, inability to satisfy basic needs, dissatisfaction, stress symptoms, and perceived poor health.

According to the expectancy-value theory, the depressive affect in the unemployed is greatest for those who perceive employment as very attractive and have high expectations of obtaining a job (99). The attribution theory states that the amount of depression will depend on the extent to which the individual attributes unemployment to external causes (recession) or internal causes (own ability). Internal attribution may lead to increased hopelessness, lower self-esteem, passivity, and self-blame (100).

Stress has many adverse physiological and behavioral correlates (101,102). A long-term threat increases predictability of stress and consequently the risk of cardiovascular disease (103-106). Mental stress and perception of some event as threatening are also thought to represent risk factors for elevated blood pressure (107,108). Subjective reports about the severity of job loss experience are related to levels of risk factors. A correlation between anxiety and high cholesterol level has been demonstrated in men (109). Consequently, the influence of stress has been confirmed in earlier

studies on unemployment and ill health (17-19). Unemployment appears to be associated with unhealthy behavior (110) and with increased prescription-rate (111). Unemployment and job insecurity have been reported to have a negative influence on the immune system (112). There exists substantial empirical support for the notion that stress responses increase the risk of peptic ulcers (113) and asthmatic episodes (114).

1.3.1. Somatic ill health

Jin et al (115) reviewed 46 articles published in the 1980s and 1990s on the association of unemployment and health. In their meta-analysis they found a statistically significant association between unemployment rate and mortality especially due to cardiovascular disease or suicide. Large cohort- and case-control studies reported higher adverse health outcomes in unemployed people compared to the employed. However, the conclusion of their review was that further research would be needed to analyze the causation, which involves many factors that might be associated with health problems.

In a cross-sectional study among furniture workers (116), it was found that the unemployed had OR 1.2 the risk for reporting one disease compared to the re-employed. There was an OR of 3.2 for the risk for reporting two or more diseases and the risk for reporting three or more diseases was OR 12.3. The respondents attributed most frequently the disorders of the musculoskeletal system to their former work history but the disorders related to the cardiovascular system were not attributed to their work status. In other cross-sectional studies, unemployment has been associated with chronic physical illnesses (117), activity limitations (118), and general ill health (119). However it was found in the 1970's, that days of restricted activities is not a sensitive measure of perceived ill health (120). The sickness absences are associated with the state of organization: when some kind of re-organization is imminent there may be less sickness related absenteeism, but if the mass dismissal is certain, there may be more sickness related absenteeism.

A chronic illness or long sick leaves may be associated with risk of subsequent unemployment (121). However, in a Finnish postal questionnaire study (122) of a national representative sample only 1% reported that their unemployment was caused by some illness. Thus, the real cause of job loss is not always known or revealed. A Norwegian follow-up study concluded that in fact only ill health predicted subsequent unemployment in the multivariate model (123). Lind (124) stated that

the disabled persons had been unemployed for a longer time or were more threatened by unemployment than those without any handicap.

In a longitudinal study (59) the impact of job insecurity on men's health was evident. Insecurely employed men experienced an increased risk of cardiovascular diseases: they had elevated blood pressure, changes in body weight, and more often suffered stress symptoms than the securely employed men. In their research covering the period 1987-1995, Kortteinen and Tuomikoski (125) combined interview, register material, and questionnaire data from 17 to 45 years old. The register data included 13134 persons and questionnaire data came from 4036 individuals. Health status was measured by using mortality and disability pension statistics. According to the results, the longer the unemployment spell, the stronger the association between unemployment and ill-being. In the logistic regression model, unemployment longer than 6 months predicted early retirement. Socioeconomic variables and health variables adjusted, unemployment predicted longstanding illness (OR 1.5) and more days of restricted activities. On the other hand, having a longstanding illness (OR 1.6) or depression (OR 1.8) were the predictors of unemployment.

Leino-Arjas et al (45) in their panel study examined if there is a health based selection to long-term unemployment among male construction workers aged between 40 and 59 years. Nurses interviewed the 961 employed participants in1991; the follow up interview was made 4 years later. After excluding the retired persons and drop-outs, 586 men were included in the first and second analyses. In the time till the second survey, 50% of the men in the sample had become unemployed, and 80% had unemployment spells during the follow up period. The final multivariate model showed that the highest risk of unemployment was in the range of ages 50 and 59 years. Previous unemployment predicted subsequent unemployment as did: being single (OR 1.8), heavy alcohol consumption (OR 2.1), overweight (OR 1.7), and current smoking (OR 2.6). Symptoms were not significantly associated with employment status but surprisingly, the long-term unemployed reported fewer longstanding illnesses than the permanently employed. No association was found between overall incident disease and duration of unemployment. Of the many illnesses controlled in the study, only skin disorders increased the risk of long-term unemployment. The conclusion was that selection to unemployment due to poor health did occur. Symptoms of stress were predictive of long-term unemployment. However, because of the nature of the sample, the findings are not generalisable to average unemployment other than employment in the construction trade.

Ross and Mirowsky (24) studied the social causation hypotheses that employment preserves good health and the alternative selection hypothesis that healthy people obtain and keep a job easier than unhealthy. In that study, randomly selected adults (N=2436) were interviewed twice in a one year period. In the first type of analyses, the dependent variables were self-perceived general health and physical functioning and in the second type of analyses the dependent variable was employment status. All independent variables in the multivariate models were measured at the first measurement point. The analysis was made separately for women and for men. According to the results perceived general health and physical functioning declined over a one year period in the whole sample but more rapidly in the non-employed categories than in the employed or in students. After controlling for initial self-perceived health and socioeconomic background, being unemployed predicted perceived poor general health in men, but not poor physical functioning. In women, unemployment did not predict either poor perceived health or poor physical functioning. Part-time employment predicted poor health in men but not in women. Being a full-time student was effectively the same as being in full-time employment.

For men, all non-employment statuses, except that of full-time student, had a negative coefficient for physical functioning relative to full-time employment. After controlling for the corresponding baseline variables, being retired predicted poor perceived health and poor physical functioning in men. The women, who were working part-time, unemployed, retired, or in school did not differ significantly from those working full-time. However, in women, being a housewife did predict poor perceived health and poor physical functioning. The conclusion of the study was that full-employment and studying has a beneficial effect on health in men. Among the unemployed, lack of money explained only a small fraction of the ill-being. In men, self-assessed health did not predict subsequent full-time employment but physical functioning was a predictive factor (OR 2.5). In women, the estimate for full-time employment was OR 1.2 for perceived health and OR 2.1 for physical functioning. Health had no effect on the odds of being a housewife; as would be expected being married was the only significant predictor of being a housewife.

Van der Horst et al (126) studied whether poor somatic health among the unemployed results from unemployment or whether poor health conditions are related to the other permanent characteristics of the unemployed. Data from two panel studies were analyzed. The data of the first panel study, on health and high-risk life-style, used a representative nationwide panel during the years 1981 and 1983. A total of 1193 respondents were included in the health survey. In the sample of the study being unemployed referred to those men, who had been displaced for economical reasons; work-

incapacitated referred to men who had lost their jobs because of poor health. Data from the second panel study was gathered from general practitioners during the period of 1987 to 1990. Health was measured with a problem list of longstanding illnesses, symptoms, and health related behavioral disorders. A total of 2158 respondents were included in the sample. In the second panel study, the health status of employed and non-employed men according to medical records were compared with the self-reports gathered using questionnaires sent to the homes of the respondents. The purpose was to validate the results of self-reports of health. Women were left out of the study because they were so few in number. Multivariate models were fitted using analysis of variance. In the sample, most of the drop-outs occurred in the incapacitated group due to severe health problems or deaths.

The results showed that the unemployed did not have poorer health than the employed, but the incapacitated men significantly more frequently suffered from chronic diseases (68% vs 31%), visits to doctors (6.2 vs 2.1), more physical complaints (15.1 vs 8.1), and a less positive general health assessment than the employed. The observation of the data in the general practice gave support to the results: the unemployed did not differ from the employed but the incapacitated did have more problems related to the circulatory system, metabolic system, and psychological problems. The mean number of health problems was 3.2 in the incapacitated group, 2.0 in the unemployed group, and 1.8 in the employed group. One in four of the unemployed but three out of four of the incapacitated had been out of work for more than 2 years. In the incapacitated group, those who had some longstanding illness had been for a long time without paid employment. The physical health of the incapacitated men also worsened. Unemployed and employed men did not differ in terms of number of visits to a physician, physical complaints, or general health assessment. At the end of the study, the proportion of those with longstanding illness had increased only in the employed group. The results suggested that poor health leads to unemployment not vice versa. The results of this study do not, however, describe the reality in the labor market: there are both employed and unemployed people who are incapacitated.

Payne et al (127), in Great Britain—using logistic regression— re-analyzed two longitudinal data sets. The first one, the Child Development Study, followed a birth cohort born in the year1958 and analyzed the results of interviews made in 1982 and 1991 when the respondents were 24 years and 33 years old. The analysis was based on a sample of 4071 men and 4138 women. Of the respondents, 15% had had unemployment spells during the follow up. The second, the Retirement Study, was a national representative sample of people aged from 55 to 69 years old. This study had

a sample of 3543 respondents. The purpose of the study was to examine what kind of individual characteristics increase the risk of long-term unemployment. Due to the many interactions between other variables, especially gender, it was decided to develop separate logistic regression models for men and women. Respondents were categorized to the long-term unemployed group if they had been unemployed for 6 months or more. In the first sample, all the risk factors were asked before the unemployment spells but in the second sample they were asked only retrospectively.

In the 1958 age cohort, prior unemployment increased the risk of subsequent long-term unemployment. Long-term sicknesses or handicap and disability at young age before entry to the labor market had no effect on unemployment for men but in women pregnancy increased the risk of unemployment. The OR for female with good self-assessed health to lose a job was calculated as 1.4 versus those with excellent health. The men who described their health as not excellent were less likely to re-employ themselves (OR 0.8). Prior depression increased the likelihood of remaining unemployed women. Surprisingly, men with favorable attitudes towards work were at greater risk of unemployment than men with a jaundiced viewpoint.

After age 50 years—in the Retirement Study—longstanding illness increased the risk of unemployment and reduced the probability of taking a full-time job. Prior self-perceived ill health increased the risk of long-term unemployment (OR 2.6). Poor general health also reduced the chances of obtaining a job. Older persons, who had been unemployed for several years, tended to end up in retirement rather than employment. Of the men, whose unemployment started after the age of 50 years, 40% left the employment-market. Only 1% of the sample left unemployment in order to return to full-time education. In the sample of the Retirement Study, unemployment spells were longer than in the sample of the Children Development Study.

1.3.2. Mental ill-being

Cross-sectional and longitudinal research into the health consequences of unemployment has shown that, especially under conditions of financial strain and low social support, unemployed people report more mental ill-being relative to the employed (128-132). Unemployment has correlated with lowered self-esteem, depression, anxiety, and a pessimistic outlook to the future (133). Unemployed individuals have reported more insomnia and daytime tiredness compared to the employed (40). Some of the results have indicated that psychological stress is highest during the anticipation phase prior to job loss (134). However, some studies among the unemployed well-educated persons, have

failed to substantiate the findings that unemployment would be associated with stress experience (135). In a sample of unemployed, unskilled male manual workers (N=222), psychological health worsened over the period of the first year of unemployment (94). After one year of continuous unemployment mental health started to improve. Financial strain and length of unemployment correlated significantly but psychological ill health was not associated with the length of unemployment. Another follow-up study showed that initial depression predicted failure to get a job (123).

In the study of Lahelma (136) 2343 registered unemployed aged 25-49 years old, were followed for a period of one year. Of the sample, 1034 responded; thus the final response rate was 45%. The population included only the manufacturing branches of industry. The study group was subdivided into unemployed, re-employed, and employed groups at both cross-sections. Retired people and housewives were excluded because of their small numbers. At the both measurement points, half of the respondents scored zero points on the General Health Questionnaire (GHQ) scale indicating no symptoms. Then, the sum scores were dichotomized: 0-2 indicated normal and more than two indicated a case.

Of the unemployed group 54% (employed 16%) at T1 and 49% (employed 20%) at T2, were classified as having a lowered level of mental well-being. The highest prevalence was observed in depressive feelings among the unemployed men at T1 (unemployed 45% vs employed 20%) and at T2 (unemployed 42% vs employed 14%). In women, the corresponding prevalence was at T1 (35% vs 12%) and at T2 (36% vs 15%). Sleeplessness was more common in the unemployed group; both men 40% (employed 14%) and women 28% (employed 15%) suffered from sleeplessness at T2. Of the unemployed men 33% had strain at T2 (22% of the employed). Surprisingly, however, 30% of the employed women reported strain at T2 (unemployed women only 22%). The prevalence of self-reported low self-esteem was 41% in the unemployed men (employed 10%) and 36% in the unemployed women at T2 (employed 10%). Re-employment between the two measurement points had a positive impact on well-being. One in two of those with normal level of mental well-being and 43% of those with lowered level of mental well-being, were re-employed by the time of the second survey. In the multivariate logistic regression models unemployment predicted a lowered level of well-being.

The sample of Kessler et al (21) consisted of 492 respondents (146 unemployed, 162 re-employed, and 184 employed). The final sample—414 respondents—was re-interviewed one year after the

first interview. The authors used logistic regression equations to estimate the probability of becoming re-employed. Covariance analysis was employed in assessing the impact of employment status on distress. According to the results, the unemployed significantly more often suffered some longstanding illness, depression, anxiety, and somatic symptoms than the employed. The odds ratio for depression was 2.0, for anxiety 3.4, for any symptoms 1.9, and for longstanding illness 2.6 in the unemployed vs those in employment. Distress increased significantly in the unemployed group relative to the employed. Self-selection into unemployment did not explain the results. Higher level of distress and depression were somewhat associated with an increased probability of re-employment in the second survey but no selection effect was found. Re-employment in turn was associated with decreased depression, indicative of a social causation effect. However, those with insecure jobs remained more depressed than those with secure jobs.

Schaufeli and VanYperen (23) had two samples of well-educated unemployed individuals, who had quite good employment prospects. After drop outs, there were 389 unemployed college graduates in the first sample and 166 college graduates in the second sample, who had been unemployed more than 1 year. The response rate was 41% in the both samples. The mean ages were 23 years in the first sample and 30 years in the second sample. Three different employment statuses were distinguished: employed, unemployed, and student. The dependent variable was psychological distress assessed by items of depression, anxiety, and anger. The unemployed received benefits amounting to 80% of their gross wages at the time of data collection and half of the study groups worked in an unpaid job. The results of the first sample (recent graduates) showed that the unemployed on average had higher levels of distress than those employed or students, but the difference was statistically significant only at one measurement point, one year after job loss. The distress level of the unemployed was initially high before the unemployment spell and the re-employed respondents reported lower initial levels of distress before getting a job compared with the permanently unemployed, which suggested a selection effect. In the first sample, 6% of the unemployed had stress; in the second sample, 12% reported stress. Finally, unemployment explained only 1% of the variance of the distress in both samples (70% of the variance in distress was explained by the initial distress level). Their conclusion was that the initial symptom level is a much better predictor of the subsequent level of symptom than change in employment status.

Graetz (53), using the GHQ 12-items version, studied the association of health and employment status in young people aged between 16 and 25 years. The initial sample of 8998 respondents was interviewed annually over a 4-year period. By wave four, 5134 (57%) respondents still remained in

the sample. People with prior health problems were omitted from the analysis. Employment status was divided into three categories, full-time employed, unemployed, and studying. Of the respondents 2647 were continuously employed, 459 studying, 76 were permanently unemployed, 323 had lost their jobs, 954 were students who left school and found a job, 154 were students who had left school but remained unemployed, and 521 were unemployed people who had been re-employed by the end of the study. Analysis of variance was used to calculate the group differences in health.

The unemployed reported higher scores indicating more mental health impairment relative to the employed. The mean scores were 8.8-9.0 for the employed, 9.7-10.2 for the students, and 10.3-11.9 for the group unemployed in the four measurement points. In the group of displaced workers and unemployed school-leavers, the scores significantly grew higher but continuously employed, employed school-leavers, and re-employed persons had lower mean scores at the end of the study than at its beginning. Women scored higher than men and unmarried respondents had higher scores than their married counterparts. The employed—satisfied with their work—had the lowest level of disorder scores. Those dissatisfied with their work suffered most health impairments and improved their health after job loss. Consequently, the main predictor for the variation in the scores was satisfaction with work and unemployment had a small deteriorating effect on the health of the young school-leavers. The causation rather than selection hypothesis was supported.

1.3.3. Social ill-being

Unemployment can bring personal setbacks such as family breakdown that may be even more stressful than the loss of the job (137-138). Financial strain in families suffering from unemployment is likely to increase disharmony (139). In many cases, one spouse is not able to support the unemployed partner and if this leads to depression this will further increase the risk of undermining behavior dominating over supportive behavior (140). Increased social withdrawal has been concluded to be a consequence of unemployment (141).

Roberts et al (142) analyzed the quality of social support in employed and unemployed people after lay-off. In the analyses, 6987 respondents were included; of them 689 (9.9%) were unemployed. The response rate was 66%. In all, 31% of the unemployed (17% of the employed) reported experiencing lack of practical support, 19% of the unemployed (10% of the employed) reported having a lack of problem-solving support, and 21% of the unemployed (10% of the employed)

experienced a lack of emotional support. Eleven percent of the unemployed (4% of the employed) reported having no support. In the multiple log-linear regression analysis, the estimate for lack of emotional support for the unemployed was 1.8 and estimate for no support was 2.3. In the results men reported that they had less practical support, problem solving support, and no support at all than women and the youngest age groups reported having less emotional support than the older age groups. Those respondents living alone reported a lower level of practical, problem solving, and emotional support, and more often no support at all than those cohabiting respondents.

Atkinson et al (143) evaluated the availability of family support by interviewing four times a sample of 82 families, where the husband had lost his job and a sample of 85 families, where the husband was employed. Half of the men in both sub-samples were blue-collar workers and half were white-collar workers. The respondents were at ages from 21 to 55 years old. The follow-up period was twelve months. According to the results in the unemployed, social support decreased and social networks became smaller if the unemployment was prolonged; conversely after re-employment social support increased. The unemployed, especially blue-collars workers, reported less support than the employed both at the beginning and at the end of the study. However, the marital support indicators showed the greatest change; during the early stages of unemployment, the wives of the unemployed white-collar men became more supportive but by two months after job loss the unemployed white-collar workers evidenced lower social support from their spouse than the employed. Contacts with friends decreased if the unemployment persisted for up to one year and there were more changes in the network composition of families where the husbands were made unemployed compared to the families of employed men. In terms of practical help or information support, no differences existed between the employed and unemployed. The study focused perceptions of spousal and family support for only a short time period after job loss.

Unemployed blue-collar workers suffered a greater decline in support than white-collar workers, probably because in the blue-collar family, unemployment caused a greater financial strain soon after job loss. White-collar workers were not immediately threatened by lack of money, relying on their savings and help from outside the family. However, among the blue-collar workers (unemployed or employed) greater emotional support was found as well as greater frequency of social contacts relative to the white-collar workers. In the multivariate models, the impact of unemployment on the level of perceived social support was mediated by husband's depression, wife's negative mood, anxiety, and total symptoms. The study was unable to conclude in favor of

either hypothesis i.e. unemployment predicts low social support or that those with poorer networks or low social support were more likely to lose their jobs.

Kong et al (144), in their plant closing study analyzed the impact of job loss on perceived emotional-, informational-, and practical support. A mail questionnaire was distributed to 200 displaced workers. There were three waves in the study. The analysis was based on 70 (35% of the original group) cases (53 women and 17 men), the follow-up period being 8 months. The results showed that employment status had no significant direct effects on perceived social support. This was probably because of the short follow-up period and, due to income support, the unemployed did not suffer severe economic hardship. Those unemployed who did experience economic hardship had also reduced perceived social support. The re-employed workers suffered less from a lack of money and considered that they received more social support than the unemployed. Being married and having more social interactions were associated with more perceived social support. Surprisingly, social support at the beginning of the follow up had a negative effect on re-employment at the end of the follow up. This was concluded to be because the married women were less willing to seek work. The divorced respondents were sooner re-employed than the married respondents suggesting that because of a more desperate need for money they were willing to accept whatever job was available. Of the respondents, 53% said that the spouse's wage was their main source of income. There are several reasons why the results of this plant closing study must be viewed with caution, e.g. the small size of the study group and the low response rate.

Schwarzer et al. (145), performed a longitudinal study among the migrants from East Germany in a period between the years 1989 and 1991. In the first survey there were 1036 participants, but only 235 persons (126 men and 109 women) participated in the all three waves of the study. Joblessness was found to predict ill health. The unemployed had lower perceived social support and received less social support than the employed respondents in each wave and the re-employed increased their perceived support after getting a job. There were no sex differences in either perceived support or in received support. In the third wave of the study, the unemployed men and women scored less in actual received support and anticipated support. Only small differences existed between the groups at the beginning of the study in levels of support.

In Finland Laiho (146), analyzed longitudinal register data of 22 000 people and examined the family composition of the unemployed people. The sample was drawn of individuals who had at least one terminated unemployment spell in the years 1988, 1990, 1992, or 1994. The sample did

not represent the entire group of the unemployed in the country as many long-term unemployed, who had not had a terminated unemployment spell, were excluded. More than 60% of the adult unemployed men lived alone or in their parental home whereas 20% to 40% of the unemployed women lived alone. There were as many divorced men as women but because of the fact that the children tend to live with their mother after a divorce also the unemployed women lived more frequently with their family than the men. After the year 1990, the proportion of those unemployed living with the family increased as the unemployment rate and new sectors of the population were affected. The married women had longer unemployment spells than their single counterparts. In contrast, being a family man was associated with shorter unemployment spells. In the sample of the year 1990, 41% of the unemployed women were married but only 28% of the men. As the duration of unemployment became longer, the proportion of divorced individuals increased. Among women, one in ten of the unemployed women was a single parent, but as the national unemployment became more general, the proportion of single parents declined. If the husband was unemployed, the risk of economic strain increased more than in those cases where it was wife who was unemployed.

Kortteinen and Tuomikoski (147) analyzed the family relationships of the unemployed families. The data consisted of married couples in the year 1987 and divorce rates were drawn from a civil register in 1997. Unemployment of the husband, statistically significantly increased the odds ratio of divorce (2.6), relative to employed spouses, but the female unemployment had no effect on the divorce risk. If the husband had been unemployed in the years 1987-1991, the divorce rate in the years 1992-1995 was 17% in comparison with 4% for men in employment. Among the divorced individuals, the risk of unemployment was three times higher than the risk in those who were married. Additionally, the more independent employment status that women had in family, the higher the risk of divorce if the husband lost his job. Marital disharmony was more frequent in the unemployed families. After adjusting for social background variables, the estimated odds ratio for social distrust after 2 years of unemployment was 1.7 relative to those employed. The odds ratio of experiencing insufficient money to buy food in the unemployed was 1.5-5.5 depending on the adjusted co-variables in the model.

Lampard (148), using census data, examined if unemployment increases the risk of separation from the spouse. The study group consisted of 943 divorced or separated persons, 157 widows, and 3801 married persons. After controlling for a variety of confounding variables, an increased risk was found for marital break-up as a consequence of unemployment or insecure job of one spouse. Job loss elevated the odds of marital break-up in the following year by 70%. However, marital

dissolution or separation also increased the risk of job loss. The risk of unemployment was increased as long as five years after the separation. A summary of studies that investigated the association of unemployment and health is found in table 1.

Table 1. Studies on the association of unemployment and ill-being

Authors, Publication year	Place, N	Age, men (%)	Study design	Follow-up time	Method, participation rate	Independent variable	Risk factors which predicted unemployment	Employment status as a risk of somatic ill health	Employment status as a risk of mental or social ill-being
Mattiasson I. et al, 1990 (59)	Sweden, 976	29-61 years, all men	Sample of shipyard workers and controls	6 years	Questionnaire, Health examination, 75%	Threat of unemployment		Insecure job increased the risk of elevated blood pressure.	Men in insecure job had more depression, insomnia and anxiety.
Kortteinen and Tuomikoski, 1998 (26,125)	Finland, 13134 and 4036	17-64 years, 53.4% men	Population sample	8,5 years	Questionnaire, 71%	Unemployment, health related variables	Longstanding illness (OR 1.5)	Longstanding illness (OR 1.5), Disability days (OR 8.8)	Depression (OR 1.8), divorce (OR 2.6), social distrust(OR1.7)
Leino-Arjas et al, 1999 (45)	Finland, 586	40-64 years, all men	Blue-collar workers of 11 construction companies	4 years	Interview, 77%	Health-related variables Long-term unemployment	Smoking (OR 2.6), High alcohol consumption (OR 2.1), BMI > 29 kg/m2 (OR 1.7), Stress (OR 2.1)	Incident disease (OR 0.6)	
Ross and Mirowsky, 1995 (24)	USA, 1436	20-64 years, 39% men	Population sample	1 year	Interview, 81%	Employment status	Poor physical functioning OR 2.5 (men) and OR2.1 (women) Poor self-perceived health OR 1.2 (women)	Unemployment and retirement (in men) and homemaking (in women) predicted poor general health and poor physical functioning.	
Van der Horst et al, 1992 (126)	Nether-lands, 1193 and 2158	21-65 years, all men	Population sample and sample of clients in health-centers	2 years and 3 years	Questionnaire, Medical records, 69% and 65%	Unemployment		For those who had lost their jobs for economical reasons, unemployment had no effects on health.	
Payne et al, 1996 (127)	Great-Britain, 8209 and 3543	33 years old, 55-69 years old, ?	Population samples	9 years and cross-sectional	Interview, 74% and 88%	Risk factors of unemployment	General health worse than excellent, increased risk of unemployment OR 1.4 (women), OR 2.6 (older age groups) and decreased likelihood of reemploy-ment in men (OR 0.8).		

Table 1. continues

Authors, Publication year	Place, N	Age, men (%)	Study design	Follow-up time	Method, participation	Independent variable	Risk factors which predicted unemployment	Employment status as a risk of somatic ill health	Employment status as a risk of mental or social ill-being
Lahelma E. 1989, (41)	Finland, 1034	25-49 years, 51% men	Sample of manufactu-ring branch of industry	1 year	Questionnaire, 45%	Unemployment			Unemployment predicted lowered level of mental well-being, re-employment increased well-being.
Kessler et al, 1989 (21)	USA, 492	Mean age 35 years, 60% men	Census tracts in one area	1 year	Interview, 84%	Unemployment		Unemployment predicted longstanding illness.	Unemployment and job insecurity predicted depression and anxiety.
Schaufeli and van Yperen 1992, (23)	Netherlands, 389 and 166	21-35 years, 63% men and 23-53 years, 44% men	Graduates from technical college	2½ years and 1 year	Questionnaire, 41%	Unemployment	The unemployed had higher level of distress than the employed but the difference existed already before unemployment spells.		
Graetz, B. 1993, (53)	Australia, 5134	16-25 years, ?	Population sample	4 years	Interview, 57%	Employment status			Unemployment had a small detrimental effect on well-being. Those dissatisfied with their work had the lowest level of mental well-being.
Roberts et al 1997, (142)	Great-Britain, 6987	16-64 years, 51% men	Sample of a region	Cross-sectional	Questionnaire, 66%	Unemployment			The unemployed had less emotional support, problem solving support, and practical support, and more often no support at all.
Atkinson et al 1986, (143)	USA, 164	21-55 years, all men	Sample of white-, and blue-collar men	1 year	Interview, ?	Unemployment			Social support (marital support) of the unemployed decreased and support of the re-employed increased.
Kong et al 1993, (144)	? 70	Mean age 41 years, 24% men	Plant closing study	8 months	Questionnaire, 35%	Divorced and those with no social support were sooner re-employed after job loss than the married respondents and those with support			Unemployment did not predict changes in social support.
Schwarzer et al 1994 (145)	Germany, 235	Mean age 31 years, 54% men	Sample of migrants	2 years	Questionnaire, 23%	Employment status			The unemployed enjoyed a lower level of social support than the employed.

2. Moderators and experience of unemployment

Moderation implies that some causal association between two variables changes as a function of a moderator variable (149). A moderator is a variable that can highlight when a certain effect on well-being will be valid and the criterion is to choose variables that are able to reveal some of the processes which underlie ill-being.

2.1 Gender and marital status

Many of the above studies have sampled only unemployed men (16,19,45,94,117,126). If the sample consists of both sexes, the results usually suggest that men suffer more from unemployment than women and unemployment has a less negative impact on married women than on single women (24,41,142). The findings of the unemployment-health relationship in women are quite mixed. In the study of Morrel et al (42) the women had higher morbidity—measured by GHQ rates—both in the unemployed and employed groups than men but unemployed women had lower morbidity ratios than unemployed men. Moreover the unemployed women report fewer somatic symptoms than those in employment (150,151). Women are reported to suffer less severely from the experience of unemployment for the following reasons: employment has less value for women than men because their domestic role is able to compensate for the lost positive effects of work and women are not usually the breadwinners and therefore financial hardship, which is the major cause of distress, is lower if the wife becomes unemployed in the family (152). However, some of the studies indicate that the risk of ill health is higher in young unemployed females than in young unemployed males (23,42,53,118,). Single young women are likely to see unemployment as involuntary and young women with higher education probably experience job loss as stressful because of the loss of the benefits associated with the loss of salary.

According to Leeflang (153) the factors affecting women who are out of the labor force are called push and pull factors. During times of recession, the unemployed women are pushed out of labor markets. However, the hidden unemployed women—many of them live in financially stable two parent families with children—are also pulled out of their jobs by domestic responsibilities. The analysis of Leeflang showed that registered unemployed women suffered from anxiety, somatic symptoms, and depression as much as the unemployed men. Unemployed women seemed to suffer because of disrupted social networks, whereas men suffered because of financial worries. Men more often have to register themselves as unemployed but women have other opportunities to obtain

money from social security (153). The hidden unemployed, supported married women, have longer unemployment spells, do not suffer from unemployment to the same extent as the registered unemployed, and have other activities that substitute for paid work (154).

There are some indications that after job loss, the level of support declines in the unemployed women (145). If social support is low and financial difficulties are present, the risk of distress increases in women. In a Swedish study, regardless of marital status and high guaranteed employment benefits (90% of previous wage), the unemployed women experienced significantly higher levels of depression than the employed controls (155). The study was a plant-closing study, all the workers became long-term unemployed after working for 15 years in the same plant, and the women had no possibility of re-employment because the unemployment rate was high and there were no vacancies. However, the analysis of the study revealed that depression was associated with low social support (74% of those with high social support were not depressed). Living with or without young children is associated with ill health: unemployed men living with own children visit the doctor's at a higher rate than men without own children (156). The women with an unemployed husband have been found to suffer more from depression and anxiety than those women living alone or with an employed partner (157) but no reciprocal effect of the wife's employment status on mental health of their husband has been found (158).

Health selection to unemployment appears to be stronger in women—especially in the low age categories—than in men (159). If self-perceived health is below average, this will predict more subsequent unemployment in women than in men. In women, chronic illness and long absence from work for health reasons has an effect on the risk of unemployment. There is a striking contrast between the sexes in the effects of marital status on unemployment: being married decreases the risk of unemployment in men but increases the risk of unemployment in women (127). Breakdown of a partnership has been found to increase the likelihood to transfer to work in women. After age 50 years in both sexes, being married decreases the risk of unemployment. Men who have children at a young age have increased risk of unemployment but in women the children reduce the risk of unemployment.

Waldron et al (157) interviewed a sample of 4996 women in a longitudinal study. The analyses examined if initial health predicted any subsequent change in employment status, or if the initial employment status predicted the subsequent health. The association of unemployment to health was tested only in married women. The study period was 9 years. Those women who had no initial

activity limitations (RR 1.4) and those who initially reported their general health to be excellent or good (RR 1.6) were more likely to become employed than the others. Women with poor self-rated general health had a risk of leaving employment, which was 4.6 times greater than women with good or excellent health. In this sample, employment status did not predict the subsequent health status. In the results of her second longitudinal study (160) the women, who were out of the labor force experienced a greater increase in ill health than the employed women. The effect of employment was more beneficial on blue-collar worker's health than on the health of white-collar workers. Employment had a beneficial effect on the health of unmarried women but no significant beneficial effect for married women. However, for blue-collar married women, employment had a beneficial effect but for white-collar married women, employment seemed to be harmful. The results suggested that employment was a source of social support particularly for unmarried women.

Ali and Avison (25) examined the mental health of single mothers (N=405) and married mothers (N=455) who experienced employment transitions. Eighteen months after the first interview, the mothers were re-interviewed. Respondents were categorized as permanently employed, transferred out of employment, transferred into employment, and stable unemployed. In the results, the single mothers who transferred out of employment had higher distress scores than the employed single mothers. In married mothers, the mean scores fell when transferring out of employment. At the second interview, the continuously unemployed single mothers had higher mean distress scores than the married unemployed. However, also employed single mothers had higher scores than employed married mothers. Single mothers who transferred out of paid employed had higher depression scores than the permanently employed single mothers but the married mothers experienced no significant change in their mental health if they left the labor market. The scores indicated higher self-esteem in the employed group than in the unemployed group and in the married mothers group than in the single mothers group. For single mothers, initial distress, low self-esteem, transferring out of paid employment, and care giving strain were all associated with subsequent distress. The negative effects of employment changes were mediated through low self-esteem. Among single mothers, the mediating factor affecting depression was financial hardship; this decreased the level of self-esteem.

Dew et al (152) collected panel data of 141 middle-aged women employed in a manufacturing plant. From the first data collection until the following 12 months, 68 women remained employed, 35 were laid off less for than 6 months, and 38 were laid off for 6 months or longer. Two out of

every three in the sample were married. The independent variable was employment status and dependent variables were composed of depression and anxiety scales. According to the multiple linear regressions, unemployment increased the risk of distress more than employment. Initial depression and lack of support from husband and friends were predictive of the subsequent elevated depression. Depression but not anxiety, was associated with the duration of unemployment. The interactions between the variables remained non-significant suggesting that the co-variables did not moderate the effect of unemployment on ill health. Lack of money following job loss was the only significant predictor of anxiety. In particular, women who reported lack of money, more symptoms, low support from friends, and higher stress in the first survey were relatively more likely to report symptoms in the second survey.

2.2 Age

Many of the studies examining the association of unemployment and health utilize a sample middle-aged people (24,41,45,126,157). Unemployment might have a more detrimental impact on the health of people in the middle of their working lives than in people at the extremes (i.e. the start or end). For example, young age is considered to be a moderator of the mental consequences of unemployment (23). The young people, without dependants and family responsibilities, have less job involvement and are more resilient and willing to begin studies if they become unemployed. This is reflected in the fact that in Finland from the year 1992 to 1993 the proportion of young people in the labor force fell and the number of young studying people increased by more than twenty thousand (161). Moreover the average duration of unemployment for middle-aged persons is greater than it is for teenagers. One potential explanation is that young people are on average healthier than middle-aged people and more able to re-employ themselves after unemployment.

However, in contrast it has been found, among young school-leavers that unemployment is strongly associated with mental ill-being, psychosomatic symptoms, decreased social activity, and unhealthy behavior (162-165). Hammaström et al (164) investigated in a two-year follow-up study a total of 1083, 16 years old, final year pupils in secondary school. According to the employment status, the school-leavers were classified as: unemployed group, working in a youth program, non-motivated student, and motivated student. The unemployed group increased their health detrimental behavior (for example problem drinking), they were socially isolated, had more mental symptoms, and had a more pessimistic outlook than the other groups. Among the unemployed boys, dyspepsia had increased relative to the others groups, however, those boys had more dyspepsia already in the first

survey. The unemployed group did not report any increase in smoking. Social background variables, living in a single parent family, overcrowding, and lack of control modified the risk of unemployment, which in turn influenced the increased likelihood of psychosomatic and mental symptoms. Longstanding illness was not a risk factor of unemployment. In this study, hidden unemployed indicated by non-motivated students, who had psychosomatic symptoms, increase in smoking, social isolation, the greatest number of health service utilization, and days of restricted activities.

Morrel et al (42) surveyed two cohorts of young people. The first cohort (N=1403) and the second cohort (N=8995) were random samples of 15-25 years old Australians. Both were re-interviewed annually for four years. Employment and satisfaction with job were independent variables and the dependent variable was a 12-item GHQ, supplemented by items relating to somatic health. The unemployed persons had 1.4-1.7 the prevalence ratio of psychological morbidity relative to the employed. The psychological morbidity measured by GHQ scores was 27-33% in the employed and 38-46% in the unemployed group in each wave. The relative risk of depression ranged from 1.8-3.1 in unemployed men compared to the employed men. The relative risk of low self-confidence was 4.0-4.5 in the unemployed women in comparison to employed women. The recovery from psychological disturbance was associated with family background: if the parents had a white-collar background, the recovery was more likely. The study showed that transition of a young school-leaver into unemployment increases his/her risk of becoming mentally disturbed by 50%.

Another study compared a sample of young unemployed men (mean age 22 years) with a sample of middle-aged unemployed men (mean age 48 years). It noted that the middle-aged group displayed poorer mental health, less life satisfaction and greater work involvement than the young people (166). In the young people, the best predictor of good self-esteem, mental well-being, and life satisfaction was the adequacy of social support. Leisure activities only predicted mental well-being among the middle-aged group. This suggests that a social network is important for the middle-aged.

Age over 50 years, long-term unemployment, and low education are mutually associated (167, 168). In the 55 years old group, health problems are increasing and for many, a process of acceptance of the inevitability of retirement has begun in their minds. In Finland in the year 1995 in the age group of 55-64 years old every second individual was retired and only one in every ten was unemployed (169). Unemployment increases the likelihood of early retirement. Adaptation to unemployment may be easier for older workers, because they probably suffer more from work stress and their

health problems are on the increase. Especially for those who have experienced precarious and low-paid employment careers, retirement means somewhat more security and control over their income and less dependency at the relational level. A study from Great Britain (170) showed that if an unemployment spell started after age 50 years just over one in two would leave unemployment for full-time work. Salokangas and Joukamaa (171) in their prospective study examined the effects of retirement on health and found that the majority of the retirees did not experience any change in their health after retirement. When the baseline mental health was controlled, the change in mental health was even positive in the retirees. Regression analysis revealed that the employed individuals, who felt their work stressful at the baseline, experienced retirement the most positively and the individuals who had the worst functional capacity experienced the greatest recovery after retirement

2.3 Education and socioeconomic status

The mental consequences of unemployment are strongly moderated by the levels of education, socioeconomic status, and unemployment benefits (23). Low incomes are associated with ill health (172). People of low socioeconomic status report poorer general health, more somatic symptoms, chronic illnesses, more restricted physical functioning, and more strain than people higher in the socioeconomic hierarchy (173-177). Risky health behavior such as smoking, use of tranquilizers, heavy drinking, and poor, unhealthy diet are more common in poorly educated and low-income groups. People with poor education are also less likely to seek preventive health services (151). Poor education increases the risk of long-term unemployment (126) and persons with low education leave the labor markets earlier than the persons with high educational levels. In the over 55 years old, long-term unemployment and low education are reported to associate with physical disablement.

Arber (178) found that non-employment is clearly structured and unskilled people are non-employed (housewives, retired) more often than professionals and managers. Non-employment is more concentrated in the lower classes in men than women but it is less health-related in women. According her, being non-employed—not simply unemployed—is the major social determinant of ill health. Non-employment has a particularly detrimental effect on subjective health for men. In the study of Arber, the odds of poor health were three times greater among men in their sixties, who were non-employed than among those working full-time. Unemployment was concentrated in the lower social classes. The likelihood of poor health increased the risk of unemployment since disability is more likely to increase the risk of job loss in a manual job than in the professions. Thus,

occupational class moderated the impact of unemployment on ill health and vice versa. Employment status was more closely associated with longstanding illness than with self-assessed health. Unemployed women and men had twice the odds of longstanding illness in comparison with full time employees. The unemployed men had double the odds of suffering a longstanding illness whereas retirees had a 2.8 fold risk relative to men in full time employment. The unemployed and retired more often had poor self-assessed health (OR 1.6) in comparison with the employed. In women, the odds of longstanding illness were 2.4 in unemployed, 2.5 in retirees, and 1.9 in housewives if compared with employed women. For self-assessed ill health, the odds ratios were 1.8 in the unemployed, 2.0 in the retired and 1.5 in the housewife groups relative to the group in employment.

2.4 Health behavior and need for the attention of a physician

The four main health-related lifestyles are smoking, alcohol consumption, eating habits, and free time exercise (179). Social causation means that those who become unemployed are more likely to become behaviorally disordered and the selection hypothesis states that job loss will result in a behavioral disorder (180,181). A healthy lifestyle is able to moderate the detrimental effects of unemployment on health. Unemployment is reported to cause problem drinking rather than vice versa. In the Finnish aggregate level research, it was shown that alcohol related causes of death were more common among the unemployed men than among the employed (35). In a Finnish sample (182), 12% of the long-term unemployed were categorized in a group, which most often had notations of problems such as alcoholism, homelessness, or criminality in their employment office records. Many studies reveal that unemployment is associated with more alcohol consumption, especially with problem drinking (110,180,183-185) particularly among long-term unemployed men. However, unemployment can be also associated with abstinence (110).

Claussen (186) in 1999 found, that problem drinking increased the risk of being made redundant. Someone who misused alcohol in the year 1988 had an increased the risk of unemployment in 1993 (OR 1.5). The respondents who remained unemployed had twice the odds of alcohol use disorder in comparison with those re-employed. Dooley et al (180) collected data from 8278 respondents. It was found one year after the first interview that the odds ratio of becoming unemployed was 2.1 in the group with alcohol problems. Some indications exist that during periods when there is a high unemployment rate, alcohol consumption among the employed is reduced because of the fear of job loss (181).

Data from the National Child Development Study (110) was used in one study, which investigated the association of smoking and unemployment in 2887 young respondents. Of the 16 years old men who subsequently experienced more than 3 years of unemployment, 50% smoked, but of those who experienced no unemployment, only 32% smoked. The relative odds of smoking at age 33 was 2.1, if the unemployment spell was 3 years or more relative to employed individuals. In the British Regional Heart Study (187), 43% of the non-employed men smoked, and 37% of the employed men smoked. Those who became unemployed had smoked before the job loss; non-employment was not likely to increase subsequent smoking. In contrast, those who became non-employed through illness did reduce their smoking. Cigarettes are highly addictive; it is difficult stop smoking. In the study of Lee et al (188) unemployment was associated with more smoking. However, the unemployed smokers had smoked since they were at 15 years old—i.e. when they were still at school. Few studies exist into the association of unemployment and eating habits. Some of these have found no difference between the employed and unemployed. In our country, differences between educational and social classes still exist in fruit and vegetables consumption, probably because of the high prices of these products (189).

The unemployed do not have the same compulsory daily exercise as the employed. It has been quite consistently found that unemployment is associated with a low level of physical activity and overweight (45). The results of a survey showed that during the first weeks after job loss, those without work increased their physical activity for the next six months, but after that time point, the activity level of the unemployed declined (95). Nevertheless, the unemployed is not coherent group, meaning that it contains sedentary as well as active individuals. However, if only free-time exercise is estimated, the real picture will be distorted.

Use of health services can be differentiated into three categories; emergency health care use, alleviation of a non-serious health problems, and use of preventive health care services. It was found (22) that the relative risk of admission to hospital due to cardiovascular disease increased but the risk of requiring care due to working accidents, of course, decreased in a cohort of unemployed shipyard workers. The admissions to hospital increased only in the employed control group. Some indications exist that the young unemployed are less likely to access preventive health services (151).

Many studies from abroad have shown that people who lose their job or are threatened by redundancy have high consultation rates and greater use of prescribed medicines than the employed

even after adjustment for self-reported illnesses (38,48-49,58). When the same middle-aged cohort was followed the mean number of consultations was 2.0 when the job was secure, 3.5 as the job insecurity began, and 3.5 when the unemployed had lasted for one year (49). In the employed controls, no such fluctuations were to be found. After adjustment for age, socioeconomic group, housing, and region, the odds ratio of unemployed men to consult physician was 1.8 (1.6-2.1) in comparison with employed men. Even including longstanding illness as a co-variable did not alter the odds ratio. The longitudinal studies of plant closings show that the threat of redundancy increases the relative risk of appearances for consultations at outpatient departments or admission in the hospital relative to controls.

However, contradictory results also exist. In one study, when screening was arranged, so many previously undiagnosed illnesses were found that the researcher concluded that health care utilization as a measure badly underestimates the prevalence of physical illnesses in the unemployed (117). Van der Horst et al (126) found at the beginning of their follow up study that the unemployed had more visits to a physician than the employed but by the end of the study period they made less demands on the physician. Lack of health insurance for people outside labor market or no need for sickness absence certificates may contribute to their comparatively low utilization of health services. In a Finnish follow up study, it was found that those who lost their job, reduced their consultations and decreased the frequency of primary health care visits, but after re-employment their consultation rate increased again (50). In a cohort study into the health of those being made redundant found that there was a clear decline in the number of contacts of employed workers under threat of losing their jobs. The few workers who came to the health center did not ask for any certificates for sickness absence, but usually for treatment to alleviate their symptoms so that they could carry on working. This is called an epidemic of good health, which occurs when there is a threat of unemployment (190). A high frequency of absenteeism due to sickness at the workplace might threaten job security.

3. Factors predisposing to ill-being

3.1. Financial strain

The conclusion of the study of Vinocur et al (140) was that financial strain is the key element in the depression occurring in the unemployed and their families. Depression contributes to the partner's withdrawal of support, which in turn increases depression. The greater the family economical resources prior to job loss, the less the family will experience any financial distress. Economics and conditions where the unemployed people live are heterogeneous (191). At the time of this study in Finland the unemployed with a working record received earnings related allowance for 500 days, which ensures in almost all cases that their incomes will be above the social assistance need level and they can avoid economic hardships (192). Membership in a union unemployment fund allowed a member to receive earnings-related allowances amounting to 60-70 % of previous incomes. Until the year 1993 after 12 months of unemployment, participation in the labor force in a subsidized job was guaranteed for six months. In the majority of cases this arrangement re-established entitlement to benefits. Those who did not belong to unions were given so called flat rate benefit or labor market support, which was low (193). Since the compensation was defined in terms of previous employment experience, in young unemployed people, poverty was more common than in the middle-aged unemployed. If either of the spouses was unemployed, the risk that the other would become unemployed or threatened by redundancy, was twice that of those where both partners were in continuous work(194). Single parenthood and having many children clearly placed the unemployed people at the risk of economic hardship and single parent families also are reported to have higher rates of chronic ill health (195). It has been estimated that there were from 80 000 to 140 000 people, who experienced actual hunger, as a consequence of poverty in the year 1993 in Finland (196). In most of these cases, the net income was less than two 2500 FIM (417 EUR) per month and/or many of them were in debt. The real taxable income of the unemployed fell between 1990 and 1994 (197).

Regardless of the cutbacks, the real level of social assistance in Finland has been broadly maintained through the1990s and if a person is in receipt of social assistance, some costs such as medical charges will be met quite automatically, often with the municipality paying the bill directly. Social security replacement rates are generally so high in Finland that the operation of the system of social transfers is able to lift people out of poverty (198). Though both may have similar incomes satisfaction with life amongst students is higher than amongst unemployed (199) and it has been

stated that not all hardship is caused by lack of income but can be traced to other factors such as lack of self-control (200). The overall economic context has important influences on the association between unemployment and health. In the areas were the chances of re-employment are rare, the currently unemployed can become severely distressed (201).

3.2 Pessimism and attitudes to employment

Optimism has an association with self-reported health and emotional well-being and the optimist is more likely than the pessimistic to be able to cope if confronted with a stressful event (202). A pessimistic outlook may increase ill health in the unemployed through physiological processes, withdrawal, or via poor coping abilities with stress (203).

Unemployment experience will have different influences across the career trajectories, because of the different value placed on work. A qualitative study among Swedish women (204) discerned three types of attitude toward employment after job loss. The first kind of reaction was giving-up and losing interest in wage-labor. This group had low self-confidence and women in this group were isolated and pessimistic about the future. They also suffered from headaches and other psychosomatic symptoms. The second group consisted of people who felt that there was no alternative for employment and the most important thing was to get a job. Job security was what they wanted and unemployment created strain in these women who then suffered symptoms such as headaches and depression. The third group had found other activities out with the labor market to give them satisfaction. They had ceased to search actively for a job. Their life had become focused on family and social activities. Periodically their mental well-being was low and they felt stressed and psychological ill-being. In another study (205), a year after job loss the proportion of those seeking employment had declined and alternatives to work had emerged. The proportion of those interested in training declined among the unemployed but the group of those not able to work remained stable. Retirement as an alternative to employment became more prominent. In the sample of the unemployed, 25% wanted a job, 31% were not able to work, 25% had alternative lifestyles and 19% wanted to study. Claussen (206) identified similar groups. In the first group were those who were actively looking for a job. The second group consisted of homemakers who sometimes sought a job but domestic work was more important than getting a job. The third group consisted of cultural workers who had hobbies like sport or artistic work and they hoped they could avoid finding a job. The last group was pensioners who regarded themselves as persons in early retirement or social beneficiaries.

In another study (207), about 80% of the unemployed were job seekers and only 20% were non-seekers. The job seekers were more often men than women and in younger age groups. The job seeking sharply declined after the individual turned 55 years old. In a Finnish study, half of the unemployed reported that they had sought work at least once a month (208). One in four was ready to take an unemployment pension and in the group of 55 years old four out of five were willing to accept an unemployment pension. Only 5% of the unemployed said that they had remained unemployed by their own choice. However, the longer the unemployment spell, the less they wanted a job. Also in other studies, some evidence exists that the employment commitment falls after long-term unemployment (209). A strong employment commitment, satisfaction with previous quality of employment, and strong negative attitudes toward non-work—these have been noted to increase mental ill-being and low self-esteem in the unemployed. In a British study (91) the unemployed who had previously reported a low commitment to having a job and who had contacts outside their immediate family adapted better to unemployment.

3.3. Major life-events

Unemployment is a stressful life-event often appearing in quality of life indices (210) but the weight of unemployment in the most well known examinations is not the greatest—not even among the ten most important events (211). However, life-events are likely to accumulate in an unemployed person: one loss increases the risk of other losses (47). Job loss, persistent unemployment, and its consequences may cause stress and increase the risk of somatic and mental ill-being (212). In a Finnish sample (213), 19% of the short-term unemployed persons considered that unemployment produced overwhelming problems.

Negative life-events are associated with the incidence of illnesses (214-217) but in some studies, no association between life events and getting sick has been noted (218). Several behavioral alterations and illnesses have been associated with negative life events. However, the vulnerability of individuals to stressful event varies (219). Some background characteristics such as sex, social class, anxiety, low self-esteem, coping styles, and low support affect the vulnerability to life-events and the frequency of their occurrence (220). Some indication exists that the chronic type of stressful event is a more serious threat to health than the acute type (221).

4. Protective mediating factors

Mediators are usually external events that might take on an internal significance and the criterion in their selection is the possibility to evaluate the impact of environmental intervention (149).

4.1. Social interaction

An ingrained social network is a structural prerequisite of feeling socially integrated and accepted; social integration refers to the existence of a number of social relationships and contacts with friends. Social networks and marital integration are considered to be mediating factors between occupation and health (222). Unemployed men who have a larger social network with friends and relatives outside their own family show better mental health than the others (85). A social network is a prerequisite of being socially integrated, but the number of social contacts is not decisively associated with mental well-being. Some indications exist that the unemployed become involved in local social networks consisting of other people without work and as a consequence they become segregated from the social networks of those in employment. In the study of Langlie (223), high socioeconomic status and supportive social networks promoted health preventive behavior. The unemployed have weak social support networks.

It has been shown that the unemployed person on average has between four to six additional hours to fill on an average day. Half of the extra time in the day the unemployed fill with passive media consumption, or reading, eating, or doing nothing (224,225). There is some evidence that the withdrawal into passivity and social isolation is not an effect of unemployment but a reflection of other background variables: the unemployed men have had less social interaction before job loss. It has been reported among men—but not among women—that distress predicted decreases in social relationships (226).

4.2 Social support

Social support may be instrumental, emotional, or material (142,143). Instrumental support refers to receiving advice, assistance, or information. Emotional social support entails receiving moral support, sympathy, and understanding. Social support is able to buffer from the impact of depression and the negative health effects of unemployment (145). In the study of Roberts et al (142) lack of a source of support increased the risk of poor general health and poor mental health by

approximately 1.5 times. Marital support was able to mediate the effects of unemployment in depression and total symptoms. In particular, a high degree of spouse support is associated with relief from distress (143). Social support may be formal or informal. Perceived social support denotes the anticipation of the necessary supportive action and received support describes actual social encounters if someone has provided help. The actual event of the lay off may elicit a variety of helping behaviors from the social network—it has been suggested that contacts with other members of the household improve qualitatively. However, the persistence of unemployment may erode the will to support and maintain social ties (227). Long-term unemployment may disrupt spouse-, and family support and erode former social networks (153). In human relationships, social aid is often reciprocal but for the unemployed it is more difficult to retain a sense of reciprocity in social exchanges. The people who are married have had the perception of having greater social support than single and unemployment via its ensuing economic distress, reducing their ability to enjoy social support (227). The unemployed have a poorer quality of support and this may be associated with poor general health and mental ill-being. When questioned, men have rated in their social support as being lower than women (228).

It has been stated that perceived social support predicts adjustment when people face multiple stressful events (229,230). In a Finnish study, if the unemployed respondent had social distrust, the proportion of longstanding illness was nearly twice that of those who enjoyed social trust (26). Another study found that those with no source of support had three times the risk of average or worse general health and poor mental health (142). However, social support was not able to antagonize the health deteriorating effect of unemployment. In unemployed people, social support is associated with lower levels of depression and higher self-esteem (227). Depression and ill health are associated with the level of receiving welfare benefits or unemployment compensation: those receiving better compensation experience less depression (231). It has been found that if a woman has a low level of support from her husband, she will experience a higher level of depression (152). The unemployed juveniles tend to exhibit a positive, optimistic orientation towards the future as long as they felt they were receiving support from parents, friends, and community social services (162).

Bolton and Oatley (47) tested the hypothesis that being without social support increases the vulnerability of a person to stress and depression. Their sample included 35 unemployed men and 49 matched employed controls. The estimated response rate of the unemployed was 80% but the response of the employed was only 20%. The first interview took place at the time of job loss and

the second 6-8 months later. Their social support index included measures of social interaction, emotional support, and material assistance received (money, food, clothes). The unemployed men who became depressed had lower mean score for social interaction than the others. Neither low emotional support nor lack of material support was predictive of depression and consequently they concluded that support did not mediate the effects of unemployment on depression.

Gore (232) investigated the effects of social support on health in involuntarily unemployed married men. The sample included 54 rural and 46 urban displaced workers and 74 employed controls. The data was collected six weeks before job loss, at the time of job loss, six months after job loss, and one year and two years after job loss. Dependent variables were depression, illness symptoms, and level of serum cholesterol. Social support (wife, friends, and relatives support) and economical hardships were measured as mediating factors. The results indicated that the rural unemployed reported having a statistically significantly higher level of social support than the urban unemployed. No differences were found between the supported and unsupported in terms of stress or duration of unemployment spell. However, the unsupported reported more mental and illness symptoms than those who perceived that they were receiving some support. The mean value of depression in the unemployed/unsupported group was 2.3-2.5 compared to 1.6-1.8 in those with employment and support. In those who felt unsupported, self-criticism and economic distress were more common than in the individuals who felt that they were receiving support. For the unemployed men who were unsupported, the mean values for serum cholesterol was at a higher value than for the supported unemployed men.

5. Summary of literature

Long-term unemployed usually refers to unemployment lasting for from ½ year up to 2 years or more. The duration of the unemployment spell increases the risk of ill health. The aims of the studies were decisive in defining the results obtained: if the study was planned to evaluate the health related selection, then the results revealed something about that factor and if the study was intended to investigate social causation, the results revealed that social causation did exist. When compared to employment, unemployment was found to increase the risk of poor general health (24), longstanding illness (21,26), and symptoms (21). The study of Van der Horst et al (126) did not find any health differences between the unemployed and employed. However, in that study the unemployed people who had lost their jobs for health reasons were called incapacitated and the health of that group had deteriorated more than the health of the employed. Unemployment did not

predict poor physical functioning (24). Some indication existed that unemployment might have increased the days of restricted activities (26). However, disability days as the indicator showed partially conflicting results. Unemployment increased the risk of mental ill-being (41,91) including depression (21,26,143), stress, and anxiety (21,143) in both the middle-aged and school-leavers. However, the proportion of the unemployed who suffered from these symptoms only moderately increased during the follow up (41,53) indicating that there may be a selection effect. Mental ill-being (41) including depression (21,26,127,123), stress (43,45,123), and anxiety (21,23) predicted subsequent unemployment. Unemployed men more often than the employed lived alone (72). Unemployment of the husband increased the risk of divorce (147,148). No source of support, and low spouse support were found in the unemployed group more often than in those employed (142-145). Unemployment reduced perceived social network and support. On the other hand, living alone and divorce increased the risk of subsequent unemployment in men (45,147,148).

Those people threatened by lay-off suffered from anxiety and stress (17-19). An insecure job predicted poor general health and longstanding illnesses in men (59). Non-employment was associated with ill health in a study made in Great Britain (178). For males, being retired and for females being a housewife, were the risk factors for self-perceived poor general health and poor physical functioning (24). Being a housewife was not associated with prior self-perceived ill health (157). Being a full-time student—if motivated (164)— was effectively the same as being employed in relation to health (24). Longstanding illness (26,45,126,127), symptoms, (126,155) poor physical functioning, and self-perceived poor health (21,126,127) increased the risk of unemployment or being out of work.

The experience of unemployment was moderated by many factors, e.g. being a woman, married with an employed man, being at a young age or older than 55 years old, being a white-collar worker, being a non-smoker, a moderate consumer of alcohol, taking some exercise, and use of preventive care, and being highly dissatisfied with one's previous work. The results of the large-scale studies with samples of men have indicated that men suffer more from unemployment (45, 91,126,143). If unemployed women were married to an employed husband, there were no health consequences but in single mothers job loss lead to depression and anxiety (25,160). Divorced women were more likely to quickly re-employ themselves (155). Health related (especially unemployment due to pregnancy) selection seemed to concentrate more often in married women in the low age category though health related selection was seen in men living alone (127,159). The impact of unemployment seemed to be greater if the husband was unemployed than if the wife was

unemployed (153). In the study of Ali and Avison (25), single mothers had a shorter baseline education and lower self-esteem at the baseline than the married mothers. Young people seemed to show fewer differences between sexes in their experience of unemployment than the middle-aged (23,42,53). Many of the studies into the association of unemployment and health have sampled the middle-aged (24,41,45,126,157). This suggests that young people are healthy and the middle-aged age group is most severely affected by unemployment. Only one study compared the different age groups as a study problem (166). The middle-aged had longer unemployment spells, more ill health, depressive mind, longstanding illnesses, and a pessimistic outlook but did not have lower self-esteem than the young school-leavers. Young unemployed people with a good education and support did not suffer from depression, low self-esteem, and less healthy lifestyles unlike the people with low education (23,42,53,54). Unemployment has been associated with eating disorders (110). Blue-collar workers who lost their jobs experienced sooner stress than white-collar workers (143). This was because financial problems appeared rapidly in the blue-collar workers but the white-collar workers more often had savings. Most of the studies concerning employment status and use of health services have shown that the anticipation phase of lay off and subsequent unemployment both increase the need for care from the health services (38,48-49). One Finnish study and a study from abroad contradict this assumption and prove that it is not invariably the case (50,126).

In young people, detrimental health behavior prior to unemployment has been reported (164). However also in the middle-aged, problem drinking (180,185,186), overweight (45), and smoking (45,187) increased the risk of subsequent unemployment. After age 50, ill health increases the risk of unemployment. (127). Retirement in one study was associated with ill health in men (24) but in another Finnish study, it was associated with increased health (171). Unemployment tended to make people sedentary and inactive (224,225).

The predisposing risk factors for ill-being were financial strain, high commitment to employment, pessimism, and accumulation of the additional life-events. Lack of money was the most important mediating variable in the relationship between unemployment and mental or somatic ill health (25, 140,152,155). The studies suggested that unemployment increases pessimism (205) and promotes a decline in enthusiasm for training and a decreased employment commitment (209). Long-term unemployment may change the attitudes toward work such that leisure and family become more important. Unemployment as a life-event does not cause overwhelming problems to everybody (213).

Social isolation and lack of support were mediating factors between unemployment and ill-being. Unemployment increased the risk of social isolation, but there were also changes in the social network of the unemployed: the new network offered fewer potential sources of support than prior to job loss (224). Many of the studies have highlighted the central role of spouses in providing social support. Social support is one mechanism capable of buffering the negative effects of unemployment (206,232).

The conclusion of the results is that the recent studies seem to highlight the greater significance of health related selection to unemployment in place of social causation. However, unemployment can initiate a series of losses, (the most important of which is financial strain) which—if they accumulate—can increase the risk of ill health (cardiovascular diseases), mental ill-being and social ill-being. However, this is not true in all groups; many young people are able to move back to school, many women married to an employed husband are able to transfer to the status of housewife, and many older people can be pensioned off if threatened by unemployment. However, in all these situations the ability to cope is associated with the financial resources of the family. Poor physical functioning, depression, living alone (in men) being married (in women), smoking, and heavy drinking all increase the risk of future unemployment.

Probably the internationally mixed definitions of unemployment and differences in the criteria for awarding unemployment benefits, account for the difficulties to draw general conclusions out of the inconsistencies in those results. The studies of the social support were rather explorative in nature; the sample sizes were small and only a few confounders were adjusted. Employment status was defined using either the respondent's self-definition or register information. If the registered unemployed were the target group then the hidden unemployed were excluded.

In the reviewed studies the following analysis methods were used. Logistic regression analysis was the most often used statistical method. In the cases when matching was used, analysis of variance or linear regression was utilized. Depending of the time and place, the trend has been to form dummy variables of the employment statuses, i.e. the re-employed were compared with employed, or displaced workers were compared with the employed. Many of the studies collected data with some versions of the GHQ and then dichotomized the items. Co-variables collected have been sex, age, marital status, occupational status, and economical situation. The studies frequently have reported bias due to lower response rates in young men, in lower socioeconomic groups, and in the unemployed. In most of the studies, the employed control group, if there was any, were exposed to

the same circumstances such as the economic recession, as the unemployed exposure group. The indicators of health behavior were most often included in the study as dependent variables if the sample consisted of young people. Health behavior was more rarely included as an independent variable. Disability days as an indicator of ill health, was not a good measure of perceived health because they are related to the perceived social situation. The attrition rate of some studies was high (23,47,94,144), suggesting biases and any conclusions must be viewed with caution.

III HYPOTHESES AND OPERATIONALIZATION OF CONCEPTS

1. Hypotheses and rationale

Unemployment predicts ill-being (Causation hypothesis).

In the case of unemployment, social causation means that anticipation of job loss, job loss, and subsequent unemployment will increase the risk of ill health in an individual. The studies showed that the unemployed have the risk of longstanding illness between OR 1.5-2.6 in comparison with the employed (24,26). The odds of overall mental illness were 4.0 in unemployed men and 2.4 for unemployed women in comparison with the employed (41). Relative risk of depression was 2.0 and risk of anxiety was 3.4 in comparison with the employed (21). The consequence of unemployment increased the likelihood of divorce (145,147) and low social support (142,143) especially if the unemployed individual is male and long-term unemployed. Re-employment had a positive effect on mental well-being (21).

Ill-being predicts unemployment (Selection hypothesis).

Health selection by labor markets means that health problems increase the likelihood of involuntary dismissal and decrease the chances of re-employment. A Dutch study came to the conclusion that the likelihood of unemployment is highly increased if a person is ill but unemployment itself is not detrimental to health (126). Poor physical functioning was found to increase the risk of unemployment in a sample of men (24) and having an illness increased unemployment risk in male construction workers (45). Self perceived poor general health and poor physical functioning predicted subsequent unemployment in women (24,127). Depression (26) and distress (23) predicted subsequent unemployment. Being single was associated with subsequent unemployment (144) in men. In women, poor general health or poor physical functioning increased the risk to leave the labor market (157).

2. Operational Definitions

2.1. Unemployment and other employment statuses

Unemployment: Middle-aged unemployed: A respondent, who reported working in agriculture, in industry, or in office-work for the greatest part of the year in 1989/90, but reported to be involuntarily unemployed or redundant in the year 1997. *Unemployed school-leaver:* A respondent who reported as being a student for the majority of the year 1989/90 but was involuntarily unemployed in 1997. *Early- unemployed:* A respondent who reported that he/she was unemployed 1989/90 and 1997.

Employment: Middle-aged employed: A respondent, who reported working in agriculture, in industry, or in office work for the greatest part of the year 1989/90, and who still worked for pay without the threat of unemployment in 1997. *Insecurely employed:* A respondent, who reported to work in agriculture, in industry, or in office work for the greatest part of the year 1989/90 and reported to work reduced working hours not at his/her own request, or who considered him/herself to be threatened by unemployment in the year 1997. *Employed school-leaver*: A respondent, who reported as being a student for the majority part of the year 1989/90, but reported to be a student or employed in 1997. *Employed housewife:* A respondent, who reported being a housewife for the greatest part of the year 1989/90 but who was employed in 1997.

Non-employment: Housewife: A respondent who reported being a housewife for the greatest part of the year 1989/90 and 1997. *Pensioned:* A respondent who reported being employed in 1989/90 but pensioned into retirement in the year 1997.

2.2. Ill-being

Ill-being: Consists of somatic ill health, mental-, and social ill-being (Figure 2). *Somatic ill health* was defined, if a respondent reported a longstanding illness, two or more somatic symptoms, inability to run 500 m, only average or worse overall health, deterioration of overall health during the period of one year, and inability to meet the requirements of everyday life. It was also defined, if a respondent had been forced to restrict on more than three days their usual activities because of disability. *Mental ill-being* was defined, if a respondent reported more mental stress than people on average, depression, sleeplessness, and psychosomatic symptoms, anxiety scores, low self-

esteem scores, and pessimistic outlook scores—all of them above the median. *Social ill-being* was defined, if a respondent lived alone, reported low perceived social support from spouse, friends or relatives, had lower social interaction scores than the median scores, experienced financial strain more than the median, and had major life events and related stress more than on people an average in the sample. Ill-being was composed of distinct components, which were measured and interpreted separately. *Dissatisfaction* was defined if a respondent reported being dissatisfied with his/her self, personal life, social relations, and own financial situation.

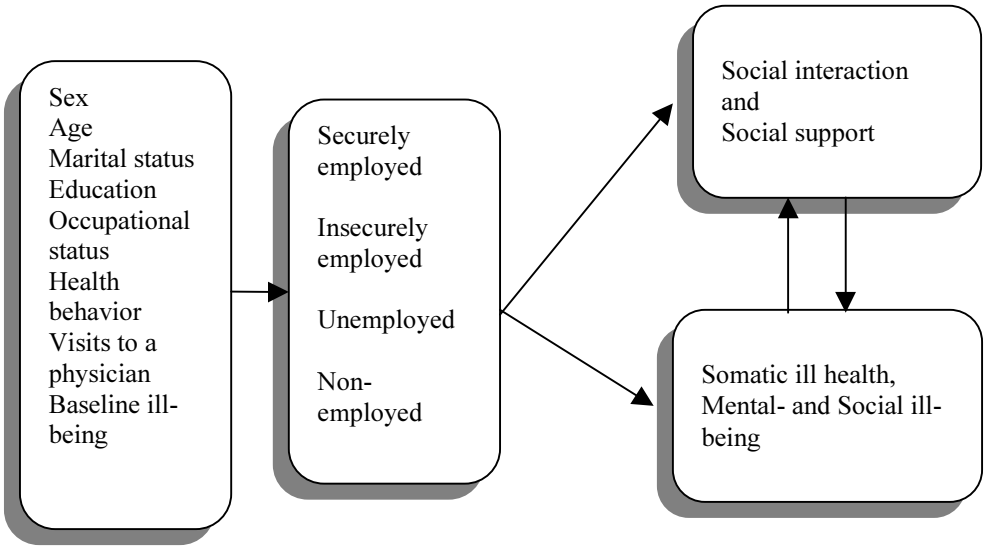
	Somatic ill health	Mental ill-being	Social ill-being
Self-reported general health average or worse	X		
Self-reported general health worse than a year before	X		
Longstanding illness	X		
Two or more somatic symptoms	X		
Inability to run 500 m	X		
More than 3 days of restricted activity	X		
Unable to meet the requirements of everyday life	X		
Stress		X	
Depression		X	
Insomnia		X	
Psychosomatic symptoms		X	
Anxiety		X	
Low self-esteem		X	
Pessimistic outlook		X	
Self dissatisfaction and unhappy with personal life		X	
Marital status single, divorced, or widow			X
Lack of money for food			X
Worse social interaction than the average			X
Low perceived social support			X
More major life events and related stress than the average			X
Dissatisfied with social relations			X
Dissatisfied with own financial situation			X

Figure2. The framework of indicators in health and ill-being

3. Framework of the study

An organizing conceptual framework for studying unemployment and ill-being is presented in figure 3. The foregoing review of the literature indicates that unemployment affects ill-being but also that ill-being increases the risk of job loss. The framework is divided into two different parts: the upper part presents the course of social causation in which ill-being (including somatic ill health, mental ill-being and social ill-being) is influenced by unemployment and the lower part represents the course of the health selection effect where unemployment is influenced by ill-being. The framework presumes that both mechanisms are valid.

The framework proposes that the effects of employment status to ill-being are moderated by several factors i.e. sex, age, marital status, education, occupational status, health behavior, visits to a physician, and baseline ill-being. The effects of employment status on ill-being are in turn mediated by social interaction and social support. If there is low level of social support this can impair health, and a high level of support can ease coping with the situation. The lower part of the framework proposes that the effects of ill-being are moderated by the same factors as above. Ill-being has an effect on employment status and the effect is mediated by social interaction and support as in the case above. Each term in the model is quantifiable; that is every symbol can be replaced by a numerical value. For many of the variables, the measurement is only crude. For example, the variable ‘visits to a physician’ only the number of visits was assessed and no information is available if these contacts were of a preventive nature or not.



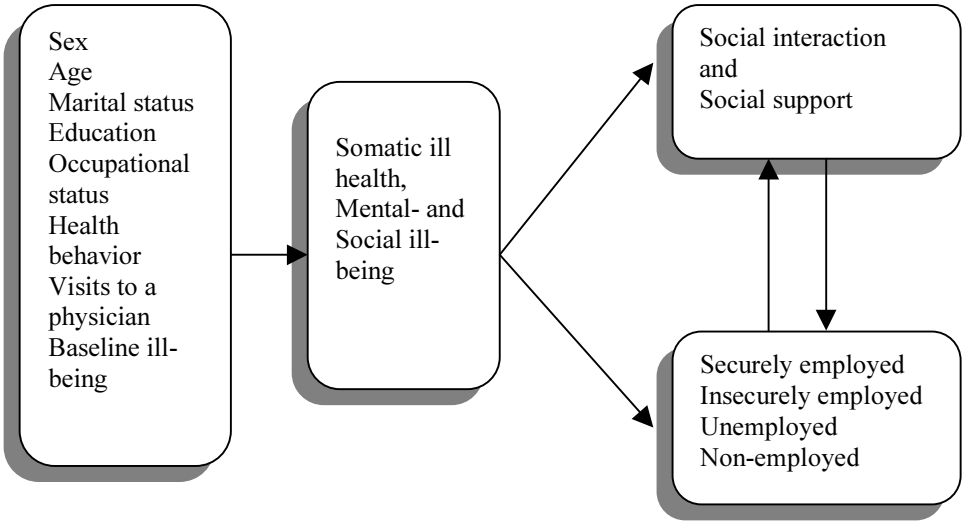


Figure 3. Framework of the study, effects of employment status on ill-being and effects of ill-being on employment status

IV SUBJECT AND METHODS

1. Study population

This is a longitudinal study using the representative random sample from the population of Finland. The data came from the cross-sectional health behavior survey sent by The Finnish National Public Health Institute to 5000 non-institutionalized adults aged 15-64 years. The sample, which covered cities, small towns, and small rural municipalities, was drawn from the population register. The groups of this study were formed by combining samples of two health behavior surveys, and followed this combined cohort until the year 1997 (Figure 4).

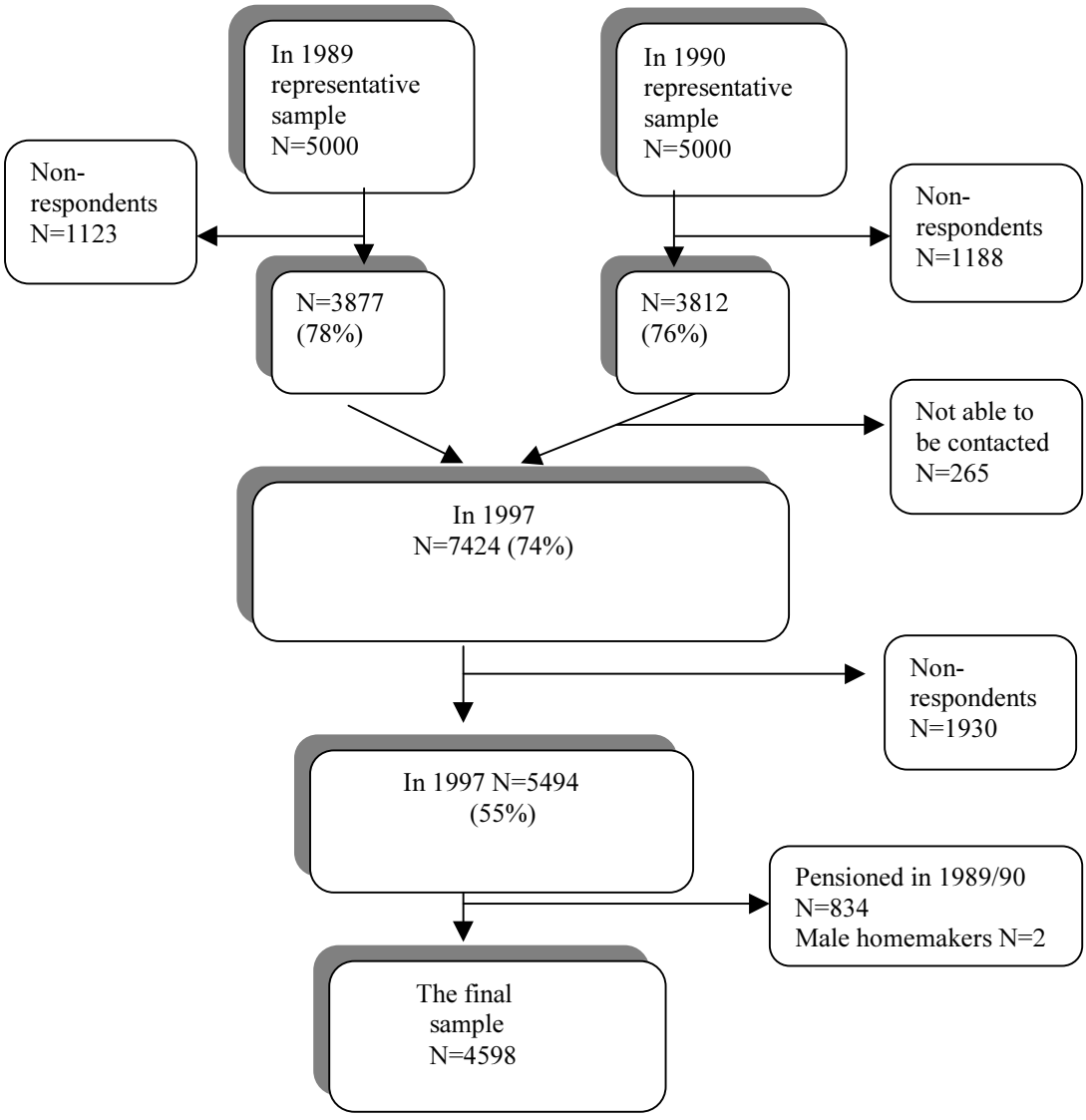


Figure 4. Study subjects in different analyses

The first questionnaires were sent to a random sample of Finns in 1989 (N=5000) and 1990 (N=5000) (233,234). The response rate was 78% in 1989 and 76% in 1990. In 1997, the modified second postal questionnaire (N=7424) was sent to the respondents of the first surveys. The response rate was 74%. The population of the study consisted of 5494 persons (3085 women and 2409 men) representing 55% of the original sample living throughout Finland. Of the 5494 respondents, those who were already retired on a pension at the time of the first surveys in 1989/90 and two males, who were classified within the homemaker group, were discarded from the analysis. Ultimately, there were 4598 respondents included in the analyses.

2. Analysis of drop-outs

In table 2, the comparison between the final sample and results from Labor Force Survey is seen. The young and males were somewhat under-represented in the final sample. In the original sample of this study in 1989, the proportion of men was 47.8% but Statistics Finland defines the proportion of men 49.1% (235). In the final sample of this study the proportion of men was 43.9%. In the sample in 1997, 12.9% reported that they were unemployed. The unemployment rate according to the Labor Force Survey in the year 1997 was 12.7% (236). The questionnaires of this study were sent out on May 1997.

Table 2. Comparing age groups and occupational statuses of the final sample to the results of the Labor Force Survey from the years 1989-1998

Population	Final sample 1997, %	Labor Force Survey from the years 1989-1998, %
Age groups		
Aged 22 to 34 (labor force survey 20 to 34)	23.9	29.7
Aged 35 to 44	21.1	22.7
Aged 45 to 54	24.0	22.7
Aged 55 to 64	19.0	15.3
Occupational status		
Agriculture and forestry	7.4	6.5
Manufacturing and construction	20.9	27.7
Service industries	71.7	65.8

Labour force survey (236)

In the final sample the proportions of different occupational statuses are seen in table 2. Thus, manufacturing and constructing workers are somewhat under-represented. The incidence of some longstanding illness was 32,3% in the sample, similar to the value of 31,7% in the Health Survey

for the same year, recorded by the Finnish National Public Health Institute from another sample (237).

3. Study design

This is a longitudinal study using Health Behavior Survey data of the time before the recession in Finland and of the time when the unemployment rate still was high but gross domestic product had started to increase again. In the years 1989 and 1990, the random sampled adults aged 15-64 were sent the first questionnaires. In the year 1997, these two populations were combined and these people were sent the same questionnaire including several new questions. Thus, for the sample of the year 1989 there were 8 years follow-up time and for the sample of the year 1990 there were 7 years follow-up time. This difference was the same for the employed, unemployed, and non-employed respondents as well.

The respondents were allocated into the groups according to employment statuses. The respondents with changing employment statuses were contrasted with the respondents with stable status. At the baseline (in 1989/90) most of the somatic ill health variables, some of the mental and social ill-being indicators, variables of health behavior, and numbers of visits to a physician were available. In the second measurement point (in 1997) there were the same ill-being variables in the questionnaires and in addition many new items, which were inquired.

4. Postal questionnaire

The framework of the Health Behavior Survey was not to study the effects of unemployment on ill health and ill being but to monitor the health behavior of Finnish adults. The surveys included questions on socioeconomic factors, range of health indicators, health behavior and psychosocial factors.

4.1. Dependent variables

When the first hypothesis was tested dependent variables included measures and indexes of *ill health or ill-being*. In contrast, when the impact of ill-being on employment status was assessed, the employment status served as a dependent variable. The employment statuses changed or remained the same between the years 1990 and 1997. This study uses the concepts of contribute or predict

when speaking about the effects of employment status (adjusted for the moderating covariates measured in the years 1989/90) on the risk of ill-being in the year 1997. Furthermore the concept of prediction was used when speaking about the effects of ill-being covariates (measured in the years 1989/90) on employment status in the year 1997. The survey questionnaires covered the following items (Appendix 1).

General health: Self-reported general health was measured in the years 1989/90 and 1997. The measurement was classified as follows: (1) good (2) quite good (3) only average (4) quite poor (5) poor.

Change of general health: General health compared to the year before was measured in 1997. The end-points of the measurement were: general health much better now – general health now much worse than previously.

Longstanding illnesses: The respondent was asked if he or she had any of the illnesses from the checklist. A positive response to any of the questions was counted as a longstanding illness given the value of 1 (hypertension, diabetes, myocardial infarction, angina pectoris, heart insufficiency, rheumatoid arthritis, low-back disease, obstructive or other chronic lung disease, or emphysema, urinary tract infections, or chronic cystitis). These items measured in the years 1989/90 and 1997 were used in the scale of longstanding illness. Thus this item covered 9 questions in 1989-90 and in 1997. Incidence of asthma and gastritis were measured only in 1997.

Physical symptoms: The items of symptoms were a count of the number of physical complaints the respondent had during the previous month. There were 8 symptoms measured in the years 1989/90 and 1997 used in the scale of somatic symptoms. (Chest pain brought on by exertion, painful joints, low-back pain, swelling in feet, varicose veins, eczema, headache, and constipation). Two additional symptoms were available in 1997 (heartburn, other symptoms of indigestion).

Ability to walk or run was measured in the years 1989/90 and 1997. Three nominal level items in the Guttman-scaling were available: Ability to run 500 m distance, ability to run 100 m distance, and ability to walk 500 meter.

Days of restricted activity: Number of days over the previous year that the respondents were forced to cut back on work or usual activities because of some disability. One item in a ratio scale was measured in the years 1989/90 and 1997.

Energy/ fatigue: The item measured the degree to which a respondent was able meet the standards of daily life. Five response-categories were provided: almost always, often, now and then, rarely, never. The item was measured only in 1997.

Mental ill-being: This study used mental health indicators, i.e. measured symptoms, which will fairly quickly disappear when the situation improves. Indicators did not measure mental illnesses instead they reflected mental ill-being.

Feeling of stress: The item of the scale was the following: Have you been tense, under stress, or under pressure during the previous month. Five response categories were provided: yes, my life is unbearable, considerably more than people an average, to some degree, not more than people an average, and not at all. The item was measured in the years 1989/90 and 1997 using one item.

Depression: Depression was measured in the years 1989/90 and 1997 with one item by asking: have you experienced depression during the last month.

Insomnia: Insomnia was measured in the years 1989/90 and 1997 by asking if the respondent had suffered from sleeplessness during the last month.

Psychosomatic symptoms asked in 1997 were: tachycardia, confused thinking when having to do a task immediately, strain and nervousness, frightening thoughts, exhaustion, irregular cardiac rhythm, dizziness, nightmares, headache, and hand sweating. Three response categories were as follows: often, sometimes, and never.

Anxiety: In the year 1997 the short form alternative of State Trait Anxiety Inventory (238) was employed. The form, which consisted of six items with four response categories, has previously been tested in practice in Finland (239). This study includes only the state anxiety part of the measures included and the Trait-Anxiety measure is abandoned. The items were the follows: (1) I feel peaceful (2) I feel strained (3) I feel upset (4) I am relaxed (5) I am satisfied (6) I am nervous. Four categories provided: not at all, somewhat, considerably much, and very much.

Self-esteem: The Rosenberg self-esteem scale was employed to measure feeling of self-worth (240). There is evidence that this scale reflects two independent aspects of self-esteem assessed by positively and negatively worded items. Self-esteem might be expected to predict patterns of coping tendencies. Seven Likert-scale items with four response options were included. (1) I feel that I am a person of worth, at least on an equal plane with others (2) I feel that I have a number of good qualities (3) I feel I do not have much to be proud of (4) I take a positive attitude toward myself (5) on the whole, I am satisfied with myself (6) I wish I could have more respect for myself (7) all in all, I am inclined to feel that I am a failure.

Optimistic/pessimistic outlook: When measuring optimism, 6 items with four response-categories, were provided (LOT, life orientation test, 241,242). This study used the revised six-item scale. The respondents were asked how well the following sentences hold true for them: (1) in periods of uncertainty I always expect the best (2) if something can fail, as far as I am concerned, it fails (3) I have an optimistic attitude towards the future (4) I never expect the things to work out as I wish (5)

I never expect that something good will happen for me (6) I believe that more good things than bad things will happen to me.

Social ill-being:

Social function: The demographic variables included marital status and employment status measured in the years 1989/90 and 1997. The rest of these items were measured only in 1997.

Lack of money: The measure of economic hardship was an index with six items (243). The emphasis was on the inability to meet the basic needs for food. Have you ever during the previous 12 months: (1) been afraid that there is no food left before you receive new money to buy it (2) been in a situation that you lack enough money for food (3) lack of food because there was not enough money to buy food (4) bought cheaper food than usual because of lack of money (5) been the whole day without food because there was no money left (6) Settled for less than you are used to, for financial reasons.

Social interaction: (244) Self-reported measure of whether the respondents have considered themselves to be a member of social system or behaved socially during the previous month was used. Eight items in the ordinal scales indicating social interaction were measured. How often have you in the previous month: (1) withdrawn from other people (2) felt positive feelings towards other people (3) been in a bad temper, behaved badly toward other people (4) made exorbitant demands on family and friends (5) have got along easily with other people (6) have felt loved and missed (7) have felt lonely (8) have received help when needed.

Perceived social support: Perceived social support refers to the social quality of beneficial relationships. The Social Support Questionnaire (SSQ) was a measure of individual differences in having informal social support (245). Six items translated and modified in Finnish with five response categories were provided (spouse or partner, some other relative, close friend, someone else not related, no one). (1) Whom can you really count on to listen to you when you need to talk with somebody (2) Whom could you really count on to help you out in a crisis situation (3) With whom can you totally be yourself (4) Whom can you really count on to be dependable when you need help (5) Who do you feel really appreciates you as a person (6) Whom can you count on to console you when you are very upset.

Stressful life events: A list of 16 stressful life events were presented and asked the respondents to identify the events they had experienced within the last year. The measure tried to take into account both the situational factor and the experienced severity of each life-events. The severity of each event was asked by asking the respondents to evaluate the events in five scales of rank. (1) worried about one's financial situation, financial crisis (2) lay-off or bankruptcy (3) threat of lay-off or bankruptcy (4) work pressures (5) tense atmosphere or conflicts at workplace (6) change of trade or

workplace (7) quarrels in close relationships (8) divorce, separation, or breaking-up of a close relationship (9) death of spouse, partner, or some other loved ones (10) own accident or getting sick (11) worries about health of a loved one (12) worries about communicating with the children (13) loss of residence (14) moving (15) difficult housing conditions (16) other worries

Personal economic situation: The question asked about experiencing the effects of the recent economic recession. Four response categories were provided in the item.

Satisfaction: Satisfaction with self as a human being at the moment and in relation to year 1990 and satisfaction with own life were measured in 1997. The ordinal scale was used and five response categories were provided.

Satisfaction with personal economic situation: This measure included three items. Two of them asked in an ordinal scale about satisfaction with personal financial situation at the moment, and the second one asked about personal financial situation compared to that experienced in 1989/1990. Five response categories were provided in the items.

4.2. Independent variables

When examined whether unemployment had some health-depressing effects, the employment status served as the independent variable and the indicators of ill-being took the place as dependent variables. In contrast, when the effects of ill-being on employment status were analyzed, the indicators of ill-being served as independent variables and the employment status as dependent variable. In the first case, when examined the impact of unemployment on ill-being, the independent variable was the employment status: middle-aged unemployed, middle-aged employed, insecurely employed, unemployed school-leaver, employed school-leaver, early-unemployed, pensioned, continuously housewife, and employed housewife. The independent variables were formed according to the answers the respondents gave in the first survey to question 7 and in the second survey to questions 7 or 8 (Appendix 1). Question 7: What do you do for the most part of the year (1) farming, stockbreeding, work in the woods, farmer's wife (2) factory work, mining, building, or other corresponding work (3) office, intellectual work, service (4) studying, attending school (5) housewife, housekeeper (6) retired (7) unemployed. Question 8: What is your employment status at the moment (1) unemployed (2) laid-off temporarily (3) shortened working hours against own will (4) employed, but threatened by unemployment (5) normally employed (student, housewife) (6) retired.

Middle-aged unemployed: in the first survey question 7: occupied in 1-3, (farming, farmer's wife, stockbreeding, work in the woods, factory work, mining, building, office work, intellectual work, or

service work) and in the second survey question 8: employment-status unemployed or laid-off temporarily.

Middle-aged employed: in the first survey question 7: occupied in 1-3 and in the second survey question 8: employment status (normally employed).

Insecurely employed: in the first survey question 7: occupied in 1-3 and in the second survey question 8: working on shortened working hours against own will or at work but threatened by unemployment.

Unemployed school-leaver: In the first survey question 7: occupied with studying and in the second survey question 8: unemployed or laid-off temporarily

Employed school-leaver: In the first survey question 7: occupied with studying but in the second survey question 8: normally employed or studying.

Housewife: in the first survey question 7: housewife and in the second survey question 7: occupied with housekeeping

Employed housewife: in the first survey question 7: housewife and in the second survey question 7: occupied in 1-3

Early- unemployed: in the first survey question 7: unemployed and in the second survey question 7: unemployed

Pensioned: In the first survey question 7: occupied in 1-3 and in the second survey question 8: employment status retired

4.3. Moderating and mediating variables

A variety of moderating and mediating variables, which were presumed to buffer the negative impact of unemployment on health, were examined. The following variables were treated as co-variables in the case of different dependent variables. Moderating factors measured in the first survey were sex, age, marital status, education, occupational status, health behavior (smoking, consumption of alcohol, consumption of vegetables, consumption of fruit and berries, body mass index, free-time exercise), visits to a physician, somatic ill health (general health, longstanding illness, 2 or more somatic symptoms, inability to run 500 m, days of restricted activities) and mental ill-being (stress, depression, insomnia). A total of 20 moderating variables were fitted in the univariate and multivariate analyses.

The mediating factors measured in the second survey were social interaction and social support. In addition to the variables listed above other parameters measured in the second survey were 19 co-

variables, which controlled for the effect of social support: spouse unemployment, spouse support, friend and relative support, no support, satisfaction with social relations, length of unemployment, children, place of residence, financial strain, satisfaction with economics, energy/fatigue, psychosomatic symptoms, anxiety, self-esteem, life orientation, attitudes to employment, lack of money, life-events, and life-event stress, which were measured in the year 1997 served as control variables. The question of disability days was omitted because of the low response rate in the second survey among the unemployed.

5. Methods of data handling

5.1 Missing values and sum scores

The items of psychosomatic symptoms, anxiety, self-esteem, social interaction, and life orientation constituted an index. A criterion as to what constituted too much missing data in each index was 5 items (50%) from the psychosomatic symptoms, 3 items (50%) from the anxiety index, 4 items (57%) from the self-esteem index, 4 items (50%) from the social interaction index, and 3 items (50%) from the life orientation index. If there were more missing values than the criterion value in the index, the index was deleted from the analysis. For those responses, which met the criterion of remaining, the scoring was first reversed so that a high score indicated high values and a low score indicated low values. Then the missing values were re-coded as zero. Mean scores of the non-missing values were then computed for each individual. Finally, the computed mean scores were converted back into a total score by multiplying by the maximum numbers of items. The other explanatory variables, co-variables, and dependent variables were single items, and/or categorical items and no replacement of missing values was allowed.

5.2 Statistical Methods

For the most part, the variables used in this analysis are at best ordinal: they are categories rather than a ratio level. Most of the analyses were carried out using statistical modeling by means of logistic regression analyses with qualitative predictors. In this study, there were a number of dependent and independent variables. Also there were 9 different sub-groups in which the variables—assessed in different measurement levels—were fitted. For ordinary and continuous variables, the appropriate cut-off points had to meet the following criteria. The categories had to be relevant from a biologic perspective and in each subgroup there had to be enough cases in

contingent tables in each cell because small numbers produce large standard errors for the estimates and thus unreliable coefficients. However, this requirement was not totally met because the respondents of the subgroups of housewives differed too much from the respondents of the other groups. Therefore in the case of the housewives, some exceptional categorization had to be employed. According to the results of cross-tabulations, the appropriate categories were formed.

In order to test the hypotheses (dummy-variable employment status remains in the multivariate models even though co-variables are introduced) the co-variables in the univariate models should produce the best possible estimates. At the stage of the univariate models, the cut-off points were chosen, which produced the best likelihood ratio in most of the cases. However, because there were many different dependent variables, these were only approximations. For variables of ordinary and ratio level, the most appropriate cut-off points were checked and the variables were converted to categorical measures (Appendix 2). The dummy variables middle-aged employed were to compare the middle-aged unemployed, early-unemployed, insecurely employed, and pensioned. The unemployed school-leavers were compared to employed school-leavers and the housewives who took employment were compared to those who were permanently housewives.

Age was introduced to the univariate models as continuous and also trichotomized to a categorical variable and after that the categorical alternative was chosen to the final models when the middle-aged groups were tested. The age categories of the middle-aged in 1997 were as follows: The youngest category ranged from 22 to 34 years (mean age was 29 years), middle category ranged from 35 to 54 years (mean age was 45 years), and the oldest category ranged from 55 to 64 years (mean age was 59 years). The median ages of the groups were the same as the mean age. When the school-leavers and retired were tested, the age-variable was introduced into the models as a continuous variable.

Education was trichotomized by using as cutoff points the tertiles in a way that the shortest education ranged from 1 to 9 years of education (N=1420 in 1989/90 and N=1368 in 1997). In the second category, education ranged from 10 to 14 years (N=2225 in 1989/90 and 2197 in 1997). In the third category, education was longer than 14 years. (N= 957 in 1989/90 and 947 in 1997). This categorical variable was used in every multivariate analysis.

Marital status was dichotomized: the respondents who reported being single, divorced, or widowed were classified into one group (N= 1598 in 1989/90 and N= 1193 in 1997) and those married or

cohabiting respondents were in another group (N= 3052 in 1989/90 and 3447 in 1997). Due to the relatively long follow up period, it is likely that many of the respondents stated only their current marital status in those cases where they had changed their marital status in the 7-years follow-up period. One indication of that was that there were fewer widowed persons in the second measure point than in the first one.

For adults over 34 years, overweight refers to a BMI ≥ 27 kg/m^2 (246). In the item of body mass index, this cut-point was determined. In the case of visits to a physician, the item was treated as continuous because no single reasonable cut-off point could be determined.

In some items, the scores were initially summarized and after that the scores were divided at the median to give approximate high and low (present or absent, above and below) categories. This was true in items of the somatic symptoms, days of restricted activities, psychosomatic symptoms, anxiety, self-esteem, social interaction, social support, life events, life event stress, life orientation, and lack of money. In many of the variables, the cut-off point was determined and listed as present/absent—these were questions about children, longstanding illness, ability to run 500 m, depression, sleeplessness, smoking, exercise, visiting the dentist, unemployment of spouse, and attitudes to work. Cut-off points in the cases of self-reported consumption of alcohol and fruit/berries and vegetables were dichotomized using as the cut-off point the highest quartile (cut point ¼ and ¾). In the question of self-perceived general health, energy/fatigue, change of general health, stress, missing teeth, and satisfaction (items 47-52), the cut-off point was determined according to the original structure of the items (for example the categories of overall health ‘very good and good’, were included into one category, and ‘only average or worse’ into a second). In the cases of the housewives, the items about stress and satisfaction were re-categorized (appendix 2).

Data analyses were carried out and models were fitted using the SPSS 9 program package. The correlation was analysed with the Spearman rho and odds ratios. Cronbach’s alpha was used as a measure of internal consistency. To see if there were significant variations in dependent variables between the years 1989/90 and 1997 in different groups, MacNemar tests were calculated. The nature of the measures led to a skewed distribution of the scores from normality. The number of subjects in each of the subgroup was unequal and the variances of the values tested were unequal. Consequently only non-parametric tests were utilized. Binomial Logistic regression was used to estimate the adjusted relative risk. Two sets of regression analyses were carried out. Using the univariate analyses, the explanatory variables were organised into order according to the amount of

change in deviance, they affected. Only variables achieving p-value less than 0.2 were selected for multivariate models. The variables for the multivariate analyses were selected. Variables that did not contribute to the model based on criteria of deviance were eliminated. Stepwise procedure was used in analyses: for entry (0.05) and removal (0.10) cut-off points were employed. The program adds a variable into the model if it increases –2 Log Likelihood, otherwise not.

In order to determine whether the differences in health and well-being originated from unemployment, the known demographic variables and co-variables had to be controlled for. The very same variables may be moderators of the effect. In each of consequent models, if available, to the dependent variable corresponding value measured in the year 1989/90 was controlled for. Interaction terms were constructed to examine, if there were differences in the experiences of unemployment between the sexes, age-categories, educational categories, and marital statuses. The overall fit of the logistic regression models were evaluated by examining the Hosmer-Lemeshow Goodness-of-fit statistics.

In the logistic regression analysis, the question was, how much does the adjustment lower the estimated effect of employment status on ill health and ill-being measures and does the correlation between employment and health remain significant after adjusting for moderating factors of age, sex, education, marital status, and other co-variables. Furthermore, if the mediation effect exists, then social support remained statistically significant when co-variables such as financial strain, life orientation and stressful life events were adjusted for. The selection effect was studied by means of the odds ratio of being at work in the year 1997.

5.3. Validity and reliability

According to Campbell and Stanley (247) history, maturation, effects of testing, reactivity, statistical regression, selection, and mortality are all threats of validity. In this study, the time period between the two surveys was 7 years, and it is unlikely if the answers in the first survey could have any effect on the answers in the second survey. The questionnaires comprised a wide range of items and there was the opportunity to control several items against each other. One advantage is that the questionnaires were sent to a representative sample of Finnish adults—not only to the unemployed—thus there is no reason to consider that the unemployed would have reacted differently than the employed to the questions. However, because the questions concerning personal

employment status were placed at the beginning of the questionnaire, these questions are potentially able to affect the answers to the subsequent items.

The relation of paid employment and health is complicated: for example Lahelma (248) reported that a number of respondents did not answer items of his study because they feared lack of anonymity. Some unemployed respondents wanted to be sure before answering the items that the questionnaires would not be made available to the employment officials. There is a possible bias in answering for example those, who have lost their work other than because of mass lay off (e.g. plant shut down), might pretend to be in better health in order to show their willingness to work, and those, who have lost their job because of ill health, might pretend to be in poor health in order to legitimize their status as being ill. The sample of this study was not approached within the framework examining the relationship between being unemployed and ill health, but rather in the framework of a health behavior survey. This data, which was not only intended for displaced workers but for a random sample of all adults, permitted the analysis and comparison of the experiences of all groups with each other at one time. Consequently the picture obtained has many aspects of ill-being and is more than a sum-score.

In the year 1989/90 the employment status was measured only by one question. That question asked the respondent to write down the main employment status during that year. In 1989 the national unemployment rate was only 3.1 % and in 1990 3.2 % respectively. Thus, considering that the sample is random, it is quite justified to be confident that the middle-aged unemployed individuals, employed individuals, and individuals in insecure jobs, were employed in 1989/90. In the year1997 the employment status was measured by three different questions. In 1997 the responses of main employment status and employment status at the moment showed a good correspondence with each other. The measures of somatic ill health are used annually in the Health Behavior Surveys as well in studies of the Finn-risk surveys.

Bias may exist in the sub-samples. One factor that may jeopardize validity is the fact that attrition of people in a low social position is more likely than among middle-class individuals (249). In the self-evaluation of health this can lead to problems. People with lower socioeconomic status, women, people living alone, young people, people with lower education, and residents in large cities tend to evaluate their well-being as being lower than others (250). Men probably tend to deny or disregard their symptoms more often than women.

In this study the non-employed and unemployed had the lowest answer rates. Nevertheless, in the items of general health, change of general health, and energy/fatigue the proportion of non-respondents was only 0.2-1.7% in each group. In the items of functional ability, the attrition rate was 1.4-6.2% depending on the group. The greatest attrition rates were in the item 'days of restricted activities' measured in the second survey in the non-employed or unemployed groups. The proportions of non-respondents in this item were 47% in the pensioned group, 31% in the early- unemployed group, 25% in the middle-aged unemployed group, 7% in unemployed school-leavers, and 23% in the housewife group. The proportion of non-respondents varied only between 2% and 4% in the employed groups in this item. In the index of psychosomatic symptoms the range of missing answers was between 7.6% and 41% in the 10 items. Again, the pensioners had the greatest average attrition rate, 35%. For the middle-aged unemployed the average proportion of missing answers was 30%, in the housewives 27%, in the early-unemployed it was 22%, and in the employed it was 16%. In the other groups, the proportion of missing values was less; in the school-leavers the attrition rate was 7%. In the item of stress, the proportion of missing answers ranged between 2% and 4% at the both measurement points in each group. In the indexes of anxiety, self-esteem, lack of money, social interaction, and optimism/pessimism, the proportions of non-respondents ranged between 12-17% in the pensioned group, 5-9% in the middle-aged unemployed, 4-8% in the early- unemployed, 2-4% in the employed, 5-10% in the housewives, 2-6% in the employed housewives, and 1-2% in both school-leaver groups. In the items of satisfaction, the proportion of non-respondents ranged from 1% to 2% in each group.

The information source of this study is the self reported ill-being of the respondents. Self-assessed health has a good predictive value for health behavior and it is a valid indicator of health status. Haapanen et al (251) showed that questionnaire data and medical records show good agreement in those chronic diseases that have diagnostic criteria. The study of Räikkönen et al (252) provided evidence that persons with high anxiety-scores on the Spielberg Anxiety Inventory and pessimistic persons, according to Carver Scheier Life Orientation Test, also had high systolic and diastolic blood pressures.

The indexes used in this study showed reasonable internal consistency. In the items, the alpha values are as follows: Psychosomatic symptoms (alpha=0.85), anxiety scale (alpha=0.84), self-esteem (alpha= 0.81) life orientation, (alpha=0.75), social interaction (alpha=0.74), social support (alpha=0.89), major life-events (alpha=0.95), and lack of money (alpha=0.80). The item total correlation varied between 0.37 and 0.64 for the index of psychosomatic symptoms, between 0.44

and 0.71 for the anxiety index, between 0.46 and 0.65 for the self-esteem scale, between 0.32 and 0.55 for life-orientation scale, between 0.38 and 0.55 for the social interaction scale, and 0.67 and 0.75 for the social support scale, and 0.51 and 0.89 for the major life-events scale. The variables of satisfaction correlated with each other between 0.41 and 0.61 (alpha= 0.72).

V RESULTS

1. Cross-sectional findings

1.1. Employment status

The results are presented in two sections; the first provides cross-sectional findings and the second longitudinal results. In the beginning of the cross-sectional findings, the respondents were classified according their employment statuses and after that the demographic information broken down by the employment statuses are presented. Based on the responses to the questions 7 and 8 (Appendix 1.) the following combinations of employment statuses could be identified. First there were respondents who retained the same employment status at each wave as employed. These were the securely employed (employed/employed) who were contrasted against the people whose employment status changed from the first wave to the second; these included those employed people who became unemployed (employed/unemployed), were threatened by unemployment in the second measurement point (employed/insecurely employed), or who were retired in the year 1997 (employed/pensioned).

Secondly there were students in the first survey who either found work or still studied in the second survey (student/employed), who were contrasted against the students who became unemployed (student/unemployed). Thirdly there were two groups of housewives in the first survey: the housewives who retained the same status in the second survey (housewife/housewife); these women were contrasted against those housewives who answered to be in paid employment in the second survey (housewife/employed). And finally there were the unemployed people in the first survey who retained the same employment status as unemployed in the second survey (unemployed/unemployed). These people were contrasted against the normally employed respondents. There were 4658 respondents (2083 men and 2575 women) in the analysis (Figure 5). The groups were tested for the influence of predisposing health differences.

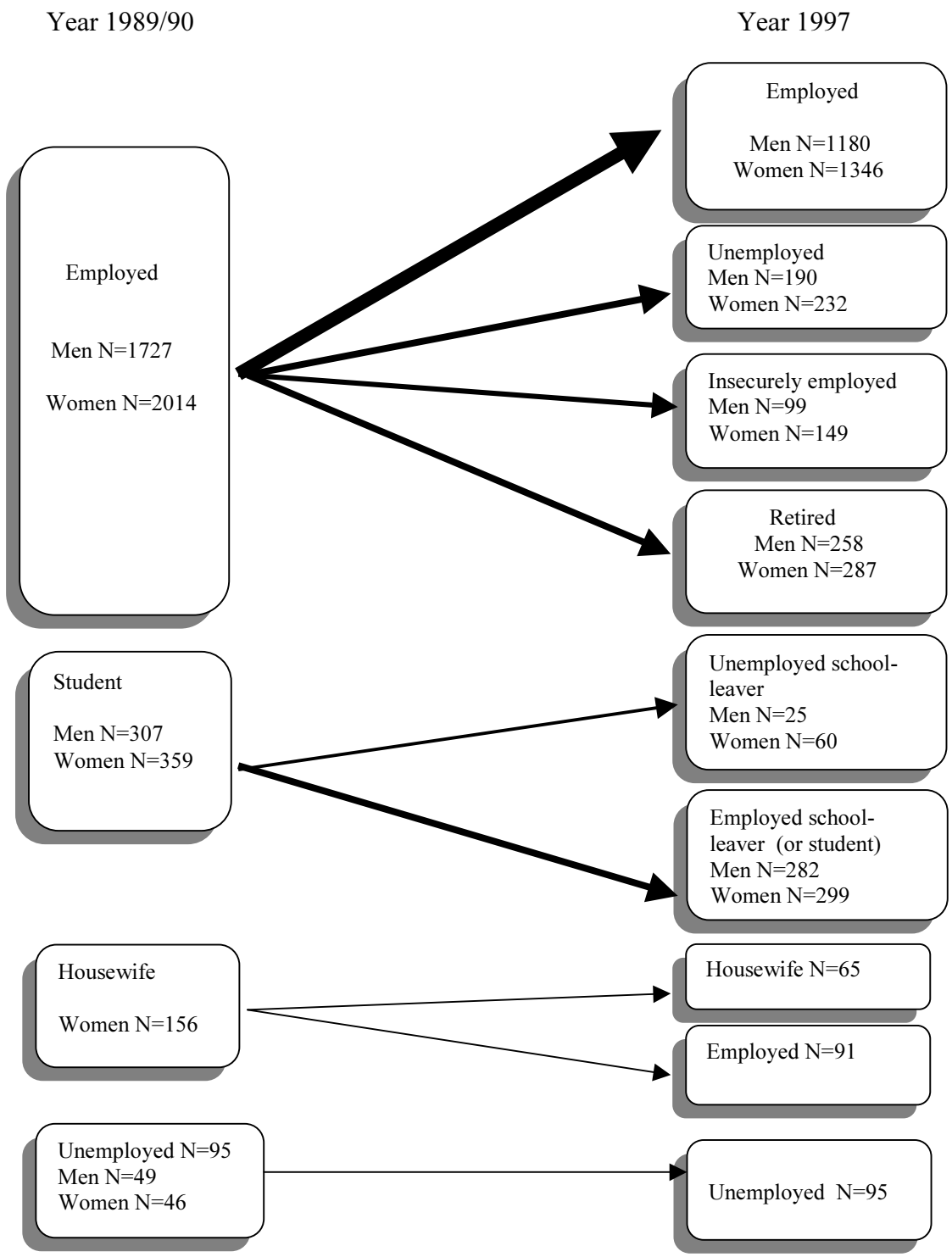


Figure 5. Distribution of study population according to employment statuses

Of the 5494 respondents, 834 people who were pensioned in the first and second survey, or who were unemployed in the first survey but had re-employed themselves at the second survey were excluded from this analysis. Re-employment of the unemployed people was rare. Of those, who

were unemployed in the first survey 47% were unemployed, 24% employed, and 29% retired in the second survey. In the first survey the respondents were as follows: 3741 employed, 666 students, 156 housewives, and 95 unemployed, a total of 4658 respondents in the sample. Of those who were employed in the first survey, 74% were employed also in the second survey, 15% had retired on a pension, and 11% had lost their jobs. Of the school-leavers, 13% were out of work in the second survey; the others were employed or continued to study. In the second measurement, the respondents were as follows: 3446 employed, 602 unemployed, and 610 non-employed persons (housewife, pensioner), a total of 4658 respondents.

From the industrial workers one in six and from the service industries or agricultural workers one in ten, had lost their jobs by the year 1997. The flow of students was into office work both for men and women. This flow into office work held true in the whole sample, but more women than men were employed in office work.

In the second survey, there were different items to check the reliability of the answers about employment status. Of the women who in one item classified themselves as housewives, 30% reported themselves to be unemployed in another item in the same survey. In the second survey, the respondents were asked retrospectively if they had experienced unemployment spells between the years 1990 and 1997. The middle-aged unemployed, early- unemployed, unemployed school-leavers, and insecurely employed had had noticeably more such periods than the individuals in the other groups (Table 3). Nearly 90% in the middle-aged unemployed group, 81% of the unemployed school-leavers, and 70% of the early-unemployed group, had experienced at least one unemployment spell of 3 months' duration. Of the middle-aged employed only 12% had had any unemployment spells.

The men had had more unemployment spells than women. The insecurely employed had quite an unstable labour market position; more than half of the group had had at least one unemployment period of 3 months in the past 7-8 years. The housewives who had taken employment by the second survey seemed to be a group, which had experienced unemployment spells during the recession. In all, 39% of this group had had one or more unemployment spells. The respondents who had been employed in the first survey but retired by the second survey had not suffered from many previous unemployment spells.

TABLE 3. Numbers of individuals with unemployment spells between the years 1990 and 1997 by employment groups, N (% in parenthesis)

Groups	0 spell	1-2 spells	3-4 spells	≥5 spells	N	%
Middle-aged unemployed	47 (11)	98 (23)	104 (25)	173 (41)	422	(100)
Insecurely employed	119 (48)	45 (18)	48 (19)	36 (15)	248	(100)
Middle-aged employed	2213 (88)	200 (8)	85 (3)	28 (1)	2526	(100)
Early-unemployed	29 (30)	9 (10)	20 (21)	37 (39)	95	(100)
Pensioned	495 (91)	22 (4)	21 (4)	7 (1)	545	(100)
Unemployed school-leaver	16 (19)	30 (35)	16 (19)	23 (27)	85	(100)
Employed school-leaver	374 (64)	148 (26)	43 (7)	16 (3)	581	(100)
Housewife	50 (77)	2 (3)	6 (9)	7 (11)	65	(100)
Employed housewife	55 (61)	21 (23)	4 (4)	11 (12)	91	(100)
Total	3398 (73)	575 (12)	347 (8)	338 (7)	4658	(100)

Note: unemployment spell 3 months or longer

In the second survey the length of the unemployment spell in the past 12 months was inquired. The burden of unemployment history was concentrated on the same people who were still unemployed at the time of the second survey. In all, 72% of the middle-aged unemployed, 57% of the early-unemployed, and 50% of the unemployed school-leavers had been jobless for more than half year. On the contrary, only 1% of the middle-aged employed and 1.4% of the employed school-leavers had been out of work for more than half year (Table 4). Many of the retirees did not answer the question of recent unemployment spell. However, in the second survey of those retirees who responded, approximately one in four had been unemployed for more than year before their retirement. The same was true in the housewives; it appears like many of them consider themselves as either a housewife or unemployed. In the group of the middle-aged unemployed, men more often than women had been unemployed for longer than 6 months.

TABLE 4. Length of unemployment spells in the past 12 months, by groups N, (%)

Groups	0 Month	1-6 Months	7-11 Months	≥12 Months	N
Middle-aged unemployed	14 (3)	102 (25)	79 (19)	222 (53)	417
Insecurely employed	122 (50)	96 (40)	21 (9)	4 (1)	243
Middle-aged employed	2359 (94)	119 (5)	18 (1)	11 (0)	2507
Early-unemployed	20 (26)	13 (17)	12 (15)	33 (42)	78
Pensioned	169 (70)	2 (1)	5 (2)	64 (27)	240
Unemployed school-leaver	6 (7)	35 (43)	20 (24)	21 (26)	82
Employed school-leaver	469 (81)	99 (17)	5 (1)	3 (1)	576
Housewife	36 (67)	2 (4)	6 (11)	10 (18)	54
Employed housewife	64 (71)	23 (25)	3 (3)	1 (1)	91
Total (%)	3259 (76)	491 (12)	169 (4)	369 (8)	4288 (92)
Missing cases					370 (8)

1.2. Demographic variables

The mean age was highest in the pensioned group; after which came the groups of the middle-aged unemployed, early-unemployed, and housewives. As a rule, the employed groups had a lower mean age than the unemployed or non-employed comparison groups. The mean age of the insecurely employed group was somewhat lower than that of either of the employed or unemployed comparison groups. The employed housewives were younger in mean-age than those who retained housewife status. There were only 21 respondents in the middle-aged unemployed group who were younger than 30 years old in the year 1997. As expected the lowest mean age was found in the school-leavers: of the unemployed school-leavers only 5 respondents were older than 35 years. As can be seen from table 5, the relative frequency of men was smaller in the unemployed school-leavers and in the insecurely employed, than it was in the entire final sample. The early-unemployed persons more often than the others were living in a rural area.

The employed men cohabited more often than the unemployed in both the first and second surveys. It was somewhat more common that the middle-aged unemployed reported that they were divorced, separated, or widowed compared to those employed. Single marital status had increased in the pensioned group and in the employed housewives group between the measurement points. Those living with children in the family increased in the school-leavers, insecurely employed men, and early-unemployed women. Of the middle-aged unemployed men 30% (40% of the women) lived with underage children. Of the housewives more than 80% were caring for underage children. Those living with underage children had decreased in the pensioned group and in the housewives group.

The industrial trade workers were over-represented in the unemployed group of men and the office/service trade workers were over-represented in the employed. Of the unemployed women, only 30% had been a blue-collar worker; in unemployed men the proportion was over 60%. In the insecurely employed group, industrial work was over-represented in men and office/service work was over-represented in women. Nearly all, 87 % of the housewives who took employment were working in an office.

Table 5. Demographic variables of the groups

		Middle-aged unemployed	Insecurely employed	Middle-aged employed	Unemployed School-leavers	Employed School-leavers	Housewives	Employed housewives	Early-unemployed	Pensioners	Total Mean	N
Sex , N (%)	M	190 (45)	99 (40)	1180 (47)	25 (29)	282 (49)	-	2 (2)	49 (52)	258 (47)	45%	2085
	F	232 (55)	149 (60)	1346 (53)	60 (71)	299 (52)	65 (100)	91 (98)	46 (48)	287 (53)	55%	2575
Mean age (std.)	M	47.0 (9.6)	43.5 (9.8)	44.2 (9.3)	26.3 (4.5)	27.3 (4.0)	-	-	46.8 (14.8)	63.8 (3.9)	44.4	2085
in 1997	F	46.3 (10.4)	43.9 (9.4)	44.6 (8.9)	28.2 (6.2)	27.8 (5.9)	47.0(10.1)	42.6 (7.3)	47.5 (14.2)	63.7 (3.7)	44.5	2575
Mean education years	M	10.0 (2.8)	11.2 (3.3)	12.2 (3.4)	10.5 (2.2)	11.8 (2.7)	-	-	9.9 (2.2)	9.5 (3.6)	11.5	2064
(std.) in 1989/90	F	10.8 (2.9)	12.0 (2.9)	12.4 (3.4)	11.5 (2.5)	11.8 (3.0)	11.5 (3.2)	11.7 (3.3)	9.7 (2.9)	9.8 (3.4)	11.8	2538
Mean education years	M	10.1 (2.8)	11.9 (3.8)	12.5 (3.6)	13.6 (3.3)	15.5 (3.2)	-	-	10.4 (2.9)	9.8 (4.4)	12.3	2040
(std.) in 1997	F	11.2 (3.2)	12.2 (3.2)	12.8 (3.5)	14.6 (2.5)	15.7 (3.0)	11.7 (3.2)	12.5 (4.3)	10.3 (2.8)	9.8 (3.6)	12.6	2518
Marital status single	M	77(41)	37(38)	290(25)	24(96)	252(90)	-	-	27(55)	34(13)	36.0%	2080
N (%) in 1989/90	F	72(31)	43(29)	336(25)	48(80)	254(85)	1(2)	7(8)	23(50)	72(25)	33.0%	2570
Marital status single	M	74(39)	28(29)	219(19)	15(60)	123(44)	-	-	21(43)	50(20)	26.0%	2072
N (%) in 1989/90	F	62(27)	31(21)	302(23)	24(40)	122(41)	0(0)	15(17)	20(44)	89(31)	26.0%	2568
No underage children	M	125 (66)	61 (62)	566 (48)	21 (84)	251 (89)	-	-	35 (71)	231 (90)	62%	2085
N (%) in 1989/90	F	128 (55)	70 (47)	604 (45)	54 (90)	274 (92)	12 (19)	11 (12)	35 (76)	253 (88)	56%	2575
No underage children	M	132 (70)	52 (53)	587 (50)	20 (80)	211 (75)	-	-	41 (84)	251 (97)	62%	2085
N (%) in 1997	F	138 (60)	79 (53)	679 (50)	38 (63)	213 (71)	18 (28)	16 (18)	32 (70)	283 (99)	58%	2575
Blue-collar worker at	M	105 (64)	58 (64)	455 (42)	-	-	-	-	-	93(42)	46%	1547
N (%) in 1989/90	F	60 (27)	22(16)	152(12)	-	-	-	-	-	52(22)	15%	1873

At the beginning of the follow-up the middle-aged employed had the longest education but at the end, the employed and unemployed school-leavers had taken first place. The shortest education was in the group of those who had retired on a pension before the second survey. The middle-aged unemployed and employed groups differed by about 1 year of education, which was statistically significant. The permanently employed had longer education than those who were unemployed or threatened by job loss, but the length of education increased more in the insecurely employed group. The employed housewives also increased the length of their education and in the second survey mean education year in the permanent housewives was 11.5 years but in the employed housewives group it was 12.7 years. This difference was statistically significant. Thus, in each group the longer the education the more likely it was that the respondent would be employed. The middle-aged unemployed and the two non-employed groups, housewives and retired only modestly increased the length of their education during the follow-up. It is worth noting that the education years had only increased by 0.1 years in the middle aged unemployed group of men and by 0.4 years in the group of women during the seven-eight follow-up years. At the same time, the education years of the group of the school-leavers had increased by nearly 4 years.

In the unemployed school-leavers, middle-aged unemployed group, and insecurely employed groups, women had a longer education than men. In the other groups, only minor differences or no differences at all, existed between the sexes in terms of education. In all, 47 % of the middle-aged unemployed group and 23% of the middle-aged employed group had at best 9 years of education at the beginning of the follow up. In the early-unemployed, 54% had only 9 years of education. In the unemployed group, only 9.7% had more than 14 years of education and the corresponding number was 26.2% in the middle-aged employed group but only 3% in the early-unemployed group. There were fewer unemployment spells in the group who had more than 9 years of schooling. However, the continuation of unemployment status seemed to be less dependent on education in women.

Education was strongly associated with the nature of work. Those with education of no more than 9 years did heavy work on average for 3.4 hours per day and less physical work for 4.4 hours per day, whereas those educated for more than 14 years did heavy work on average for only 1.0 hour and less physical work for 7.1 hours per day. The shorter the education, the more often in 1997 the respondent was leaving off an illness-, or disability pension. The average height of the middle-aged employed men was 1.8 cm taller than the mean height of the unemployed men; between the unemployed and employed male school-leavers this difference was 5.6 cm.

1.3. Health behavior and visits to a physician

The health behavior variables analyzed in this study were measured in 1989/90 when the middle-aged unemployed and pensioned were still in paid employment. Self-reported life-style pointed to a more unhealthy way of life in the unemployed group than in the employed already before the unemployment periods (Table 6.) The differences existed in mean-body mass index, consumption of fruit/berries and vegetables, exercise taken, tooth brushing, and smoking. Men reported more unhealthy behavior than women.

Overweight was more common in men than in women. The older the mean age of the group, the more common was being overweight. The proportion of those who were overweight had increased statistically significantly in most of the groups between the years 1989/90 and 1997. However, overweight was strongly associated with employment status so that in the middle-aged unemployed, unemployed school-leavers, and pensioned groups, the men and women were statistically significantly more often overweight than the men and women in the comparison groups. Those women who retired on a pension by the end of the follow up were significantly more often overweight compared to their working counterparts. No differences were found in the incidence of being overweight between the early-unemployed men and the employed.

Men more rarely consumed fruit, berries, and vegetables than women. The middle-aged employed group reported consuming more often vegetables and fruit and berries than the unemployed or pensioned. The same was true between the unemployed and employed school-leavers. The association between employment status and use of vegetables was stronger in the male group than in females group but in both sexes the direction was the same. More than every other man in the unemployed group had consumed vegetables more rarely than on 3 days in past week. The insecurely employed and the pensioned men consumed less fruit and berries than the securely employed men.

Smoking was more common among the people who became unemployed. In the unemployed school-leavers, smoking was also more usual than in the comparison group, although the differences did not reach statistical significance. The homemakers, who had moved to paid employment in the second survey, smoked statistically significantly more often than those who remained outwith the labour market. These women in fact were the least likely to smoke of any of the groups.

On average men reported more alcohol consumption than women. The total sum of alcohol usage in the middle-aged unemployed group was statistically significantly greater than in the middle-aged employed group. However, when alcohol consumption was treated as a category variable, the statistically significant difference disappeared. In the unemployed group, the highest decile reported using 16 units or more alcohol per week and in the employed group the corresponding decile used 14 units or more. The unemployed more often reported that they did exercise less than two times per week which was less than those in paid employed.

In the first survey, daily tooth brushing was somewhat less regular in the unemployed and pensioned groups of men than in their comparison male groups. There were no differences in daily tooth brushing in women. The pensioned group in both sexes reported in both waves as having more often more than 5 missing teeth than their employed counterparts. The middle-aged unemployed group reported more often to have more than five missing teeth than the employed group. The women used analgesic drugs more often than men. The unemployed group of women used more analgesic drugs than the employed women. The use of analgesic drugs was more common in the insecurely employed women than in the securely employed.

Table 6. Proportion of respondents, who reported health related co-variables in the years 1989/90 N (% in parenthesis)

Health behavior in 1989/90		Middle-aged Unemployed	Insecurely employed	Middle-aged Employed	Unemployed School-leavers	Employed School-leavers	Housewives	Employed housewives	Early-unemployed	Pensioners	N, %	Total of respondents
BMI index ≥ 27 kg/m2	M	60 (32)	24 (25)	277 (24)	3 (12)	9 (3)	-	-	12 (25)	107 (42)	492 (24)	2061
	F	49 (22)	23 (16)	175 (13)	4 (7)	8 (3)	11(17)	16 (18)	11 (24)	91 (33)	388 (15)	2528
Vegetables consumption 0-2 days per week	M	103 (55)	36 (36)	414 (35)	14 (56)	94 (33)	-	-	28 (57)	111 (43)	800 (39)	2079
	F	73 (32)	40 (27)	275 (21)	21 (35)	67 (22)	19 (29)	22 (24)	22 (48)	78 (28)	617 (24)	2566
Fruit and berries consumption 0-2 days per week	M	86 (46)	39 (39)	416 (35)	7 (28)	85 (30)	-	-	22 (45)	98 (38)	753 (36)	2082
	F	57 (25)	29 (20)	205 (15)	21 (35)	51 (17)	14 (22)	17 (19)	16 (35)	58 (20)	468 (18)	2573
Smoking	M	93 (51)	43 (44)	420 (36)	10 (40)	73 (26)	-	-	28 (60)	78 (32)	745 (37)	2038
	F	87 (38)	43 (30)	380 (29)	20 (33)	77 (26)	7 (11)	22 (25)	19 (41)	39 (14)	694 (28)	2528
Alcohol more than 7 units in last week	M	75 (40)	39 (39)	445 (38)	5 (20)	64 (23)	-	-	18 (37)	74 (29)	720 (35)	2083
	F	34 (15)	16 (11)	146 (11)	8 (13)	31 (10)	3 (5)	8 (9)	6 (13)	18 (6)	270 (11)	2575
Exercise less than 2 times per week	M	118(62)	66 (67)	610 (52)	10 (40)	83 (30)	-	-	22 (46)	129 (50)	1038 (50)	2071
	F	129(56)	75 (51)	689 (51)	28 (47)	104 (35)	21(32)	51 (56)	17 (38)	157 (56)	1271 (50)	2561
Used analgesic drugs in last week	M	45 (24)	27 (27)	284 (24)	6 (24)	48 (17)	-	-	12 (25)	82 (32)	504 (24)	2083
	F	105 (45)	63 (42)	481 (36)	27 (45)	109 (37)	20 (31)	35 (39)	25 (54)	126 (44)	991 (39)	2575
More than 5 teeth absent	M	72 (39)	25 (26)	225 (19)	0 (0)	3 (1)	-	-	20 (41)	162 (63)	507 (25)	2072
	F	79 (34)	34 (23)	252 (19)	3 (5)	5 (2)	17 (26)	20 (22)	21 (46)	183 (64)	614 (24)	2568
Do not brush teeth daily	M	55 (29)	15 (15)	170 (14)	6 (24)	32 (11)	-	-	15 (32)	50 (20)	343 (17)	2068
	F	10 (4)	5 (3)	14 (1)	2 (3)	3 (1)	4 (6)	3 (3)	6 (13)	5 (2)	52 (2)	2562

On average, women reported having more visits to a physician than men. The unemployed women made a mean of 4.0 visits to a physician in the first survey compared to 3.3 visits for the employed women. This difference was statistically significant. The number of visits remained the same among the unemployed women in the second survey; only the employed women had increased their number of visits to 3.9. The unemployed men made an average of 2.8 visits to a physician compared to 2.4 in the employed group at the baseline. The unemployed men increased their number of visits to 3.2 and the employed men to 2.8. The youngest respondents (22-34 years old) in the unemployed and in the insecurely employed groups had markedly less visits to a doctor in the second survey than in the first one. In the youngest age group of the unemployed people, the visits to a physician decreased from 5.2 to 4.4 and the insecurely employed people reduced the number of they made visits from 3.7 to 3.0. In contrast, the oldest securely employed i.e. the 55-64 age group had increased by most their number of visits from 2.8 to 4.0.

In the first measurement point, both the employed and unemployed school-leavers had gone an average of 2.8 times the doctor's in the year but in the second measurement point the employed school-leavers had increased the number of visits in a statistically significant manner to 3.2 visits, whereas the unemployed made 2.7 visits in the year. Those retired on a pension had the same number of visits in the first and second measurement points i.e. 3.7 visits. In the permanent housewives, the mean number of visits remained unchanging 3.1, whereas the housewives who found work lately had less visits in the second survey (3.1) than in the first one (3.7). The mean number of visits to a physician had decreased strongly in the early-unemployed group from 4.7 to 3.7.

On average, the respondents made two visits to a physician each year. The proportion of those who visited a physician two times or more in the previous year increased in the middle-aged employed group and in the insecurely employed male group but not in the other groups (Table 7). The respondents were asked about seeing a dentist. The middle-aged employed men were more likely than the unemployed job losers or initially unemployed men to have visited the dentist in the past year but among the women no differences were found. In the school-leavers, the proportion of those who had visited a dentist had decreased.

Table 7. Visits to physician and dentist, N (%)

		Middle-aged unemployed	Insecurely employed	Middle-aged employed	Unemployed school-leavers	Employed school-leavers	Housewives	Employed housewives	Early-unemployed	Pensioners	N, %	Total of respondents
Visited doctor 2 times or more in last year (in 1989/90)	M	66 (35)	29 (30)	399 (34)	3 (12)	110 (39)	-	-	19 (41)	120 (47)	746 (36)	2071
	F	143 (62)	74 (50)	658 (49)	32 (53)	138 (46)	30 (46)	41 (46)	27 (60)	163 (58)	1306 (51)	2556
Visited doctor 2 times or more in last year (in 1997)	M	74 (40)	38 (38)	480 (41)	6 (25)	91 (32)	-	-	17 (35)	109 (43)	815 (40)	2064
	F	132 (57)	72 (49)	722 (54)	32 (53)	176 (59)	30 (46)	46 (51)	23 (52)	164 (59)	1397 (55)	2551
Not visited dentist in the previous year (in 1989/90)	M	105 (57)	36 (37)	493 (42)	4 (16)	50 (18)	-	-	21 (45)	125 (52)	834 (41)	2047
	F	68 (30)	42 (28)	391 (29)	9 (15)	44 (15)	25 (39)	27 (30)	20 (44)	104 (38)	730 (29)	2534
Not visited dentist in the previous year (in 1997)	M	95 (53)	46 (48)	464 (40)	12 (50)	135 (48)	-	-	26 (55)	104 (44)	882 (44)	2027
	F	74 (33)	39 (26)	376 (28)	22 (38)	106 (36)	16 (25)	35 (39)	21 (48)	95 (37)	784 (31)	2513

1.4. Somatic ill health

The indicators of somatic ill health were self-reported only average or worse general health (alternatives of the item were good, quite good, only average, quite poor, poor), longstanding illness, two or more somatic symptoms, inability to run 500m, more than 3 days of restricted activity, general health worse than a year before, and inability to meet the requirements of everyday life. The correlation between the variables of somatic ill health measured in the second survey, were only moderate. However, the covariates of somatic ill health had closer inter-correlation with each other than with the mental- or social ill-being variables. The highest correlation was between self-reported general health as only average or worse and the other somatic health variables.

In every group, the mean number of longstanding illnesses was less than one. There were no statistical significant differences in mean number of longstanding illnesses between the unemployed and employed men. The mean number of longstanding illnesses was highest in the retired persons and lowest in the school-leavers. The insecurely employed group had the higher mean number of longstanding illnesses than securely employed in the first survey. The mean number of symptoms was highest in women (close to 2) and in the group of the early-unemployed women (mean 2.4). The mean number of symptoms was statistically significantly higher in the middle-aged unemployed group—in both sexes and measurement points—than in the middle-aged employed. The insecurely employed men had a statistically significantly higher mean symptom rate than the securely employed men but no differences existed between the securely and insecurely employed women.

The days of restricted activities due to illness were not related to the employment experience in the same way as the other somatic health measures. In the item ‘days of restricted activities’ one hundred and four missing responses were found in the year 1997 in the middle-aged unemployed (mean 12.5 days in 1989/90 and 1997). In the group of employed, the mean number was 9.5 (1989/90) and 7.5 (1997). The youngest age–group of the middle-aged unemployed, the early-unemployed group, and the whole group of unemployed school-leavers reported substantially fewer days of restricted activities in the second survey than in the first. In the group of unemployed school-leavers, the drop was from 9 days to 2 days. No similar change was seen in the employed groups. In contrast, the employed groups had as many days of restricted activities in the first survey, as they had in the second (middle-aged employed: mean 8 days (1989/90), 10 days (1997); employed school-leavers: mean 7 days (1989/90), 6 days (1997); and employed housewives: mean

9 days (1989/90), 8 days (1997). The early-unemployed reported a mean number of 34 days of restricted activities at T1 but a mean number of 12 days in the year 1997. It was found, that days of restricted activities only moderately correlated with age or with education. The odds ratio between days of restricted activities and visits to a physician (categorical variables) was OR 5.8 in both the first and second surveys.

The divisions of the somatic ill health variables are shown in table 8. In each group, ill health was more common in the second survey than in the first one but there were statistically significant differences between the groups in most of the 7 somatic health indicators: the unemployed reported more ill health than the employed. However, most of these differences existed already in the first survey when all of these respondents had been employed. The middle-aged unemployed more often than the employed reported that their general health was only average or worse. More than every other of the middle-aged unemployed men (33% of the employed) said their overall health was only average or worse and 42% of the unemployed men (22% of the employed) said they were unable to run 500 meter in the second survey. The unemployed reported having one longstanding illness more often than the comparison groups, but the difference reached statistical significance only in women's group in 1989/90. Instead, statistically significant differences were found between the groups in self-reported symptoms and inability to run 500 m. There were also differences between the insecurely and securely employed. The insecurely employed reported most often that they had two or more symptoms. There were no differences in general health or longstanding illness between the sexes but the women reported more frequently two or more symptoms, lack of energy, and inability to run for 500 m.

Table 8. Somatic ill health by employment status and gender, %

		Middle-aged unemployed	Insecurely employed	Middle-aged employed	N	χ^2
Self-reported health only average or worse in 1989/90	M	37.6 (188)	35.4 (99)	27.0 (1176)	1465	.004
	F	38.8 (232)	36.2 (149)	22.6 (1343)	1724	.000
Self-reported health only average or worse in 1997	M	53,2 (186)	41,2 (97)	33,9 (1170)	1453	.000
	F	47,2 (231)	40,9 (149)	33,0 (1339)	1719	.000
Self-reported health not as good as 1 year before in 1997	M	21,0 (186)	14,0 (99)	11,2 (1174)	1459	.001
	F	18,0 (233)	19,2 (146)	12,9 (1344)	1723	.023
Longstanding illness in 1989/90	M	27,4 (190)	23,2 (99)	21,4 (1180)	1469	Ns.
	F	25,4 (232)	26,9 (149)	20,1 (1346)	1727	.043
Longstanding illness in 1997	M	35,8 (190)	28,3 (99)	28,2 (1180)	1469	Ns.
	F	31.9 (232)	27,5 (149)	25,3 (1346)	1727	Ns.
Two or more symptoms in last month in 1989/90	M	30,0 (190)	42,4 (99)	25,0 (1180)	1469	.000
	F	50,9 (232)	45,0 (149)	40,5 (1346)	1727	.010
Two or more symptoms in last month in 1997	M	37,4 (190)	45,5 (99)	30,9 (1180)	1469	.004
	F	55,2 (232)	55,0 (149)	50,8 (1346)	1724	Ns.
Unable to run 500 m in 1989/90	M	24,3 (177)	9,8 (92)	12,5 (1147)	1416	.000
	F	49,5 (212)	32,1 (140)	31,5 (1261)	1613	.000
Unable to run 500 m in 1997	M	39,4 (175)	32,6 (95)	21,7 (1136)	1406	.000
	F	65,9 (217)	44,6 (139)	45,6 (1267)	1623	.000
More than 3 days of restricted activity due to illness in previous year in 1989/90	M	41,9 (186)	45,9 (98)	38,8 (1172)	1456	Ns.
	F	52,0 (227)	47,7 (149)	43,6 (1336)	1712	.046
More than 3 days of restricted activity due to illness in previous year in 1997	M	20.8 (149)	33,0 (94)	40,9 (1163)	1406	.000
	F	33,7 (169)	42,0 (143)	45,7 (1312)	1624	.010
At least now and then feeling incapable of meeting the requirements of everyday life in 1997	M	43,7 (190)	32,7 (98)	21,7 (1174)	1462	.000
	F	36,8 (231)	36,9 (149)	34,2 (1346)	1726	Ns.

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples Middle-aged unemployed: N=422, Insecurely employed: N=248, Middle-aged employed: N=2526.

When the illnesses and symptoms were examined separately, in the years 1989-90, there were no differences between the employment statuses in men. Of the respondents, 373 (8%) reported suffering from diagnosed high blood pressure and 549 (12%) of back-related illness— these were

the most common longstanding illnesses in the sample. The prevalence of high blood pressure had increased to 633 (14%) and back illness to 578 (12%) at the second survey. In the year 1997, the unemployed reported having significantly more often high blood pressure than the employed. The employed reported less back illness than the unemployed or insecurely employed groups, but the differences did not reach statistical significance. The prevalence of the other longstanding illnesses was between 0.2% and 2.2%. The middle-aged unemployed persons were more likely to complain of stomach illness than the middle-aged employed. Furthermore, the unemployed men had more often toothache than the employed men. The insecurely employed women more often complained of indigestion than the securely employed.

The difference in health between the unemployed and employed school-leavers was quite similar to the situation between the middle-aged unemployed and employed (table 9). The self-reported somatic health deteriorated in both of the school-leaver groups but the greatest difference emerged from the fact that general health and ability to run 500 m had worsened more in the unemployed group compared to those in employment. Approximately 40% of the unemployed school-leavers (20% of the employed) reported that their overall health was only average or worse. Of the male unemployed school-leavers 16% (3% of the employed) and of the female unemployed school-leavers 45% (19% of the employed) said they were unable to run 500m. There were fewer respondents with longstanding illnesses in the school-leavers than in the other groups and no differences were noted between the female unemployed and employed school-leavers in longstanding illnesses. Mean symptom rate was statistically significantly higher in the female unemployed school-leavers than in the employed both in the first and second surveys. Except for days of restricted of activities in the year 1989/90, the school-leavers reported better health than the other groups. However, the proportion of those with more than 3 days of restricted activities had decreased in the school-leavers at the second survey. In the second survey, the unemployed young women reported more frequently that they were less able to meet the requirements of everyday life than even the retired persons.

Table 9. Somatic ill health by employment status and gender, %

		Unemployed school-leavers, %	Employed school-leavers %	N	χ^2
Self-reported health only average or worse in 1989/90	M	16,0 (25)	11,7 (282)	307	Ns.
	F	20,0 (60)	13,0 (299)	359	Ns.
Self-reported health only average or worse in 1997	M	40,0 (25)	17,0 (282)	307	.005
	F	44,1 (59)	20,8 (298)	357	.000
Self-reported health in 1997 not as good as 1 year before	M	20,0 (25)	9,9 (282)	307	Ns.
	F	16,7 (60)	10,8 (296)	356	Ns.
Longstanding illness in 1989/90	M	0,0 (25)	6,4 (282)	307	Ns.
	F	10,0 (60)	9,0 (299)	359	Ns.
Longstanding illness in 1997	M	20,0 (25)	6,7 (282)	307	.018
	F	10,0 (60)	11,7 (299)	359	Ns.
Two or more symptoms in last month in 1989/90	M	12,0 (25)	15,6 (282)	307	Ns.
	F	50,0 (60)	33,5 (299)	359	.015
Two or more symptoms in last month in 1997	M	20,0 (25)	27,3 (282)	307	Ns.
	F	60,0 (60)	44,8 (299)	359	.032
Unable to run 500 m in 1989/90	M	4,0 (25)	2,1 (280)	305	Ns.
	F	16,1 (56)	8,0 (301)	357	.071
Unable to run 500 m in 1997	M	16,0 (25)	3,2 (279)	304	.002
	F	45,0 (60)	19,1 (294)	354	.000
More than 3 days of restricted activity due to illness in previous year in 1989/90	M	36,0 (25)	49,6 (278)	303	Ns.
	F	55,2 (58)	58,5 (299)	357	Ns.
More than 3 days of restricted activity due to illness in previous year in 1997	M	18,2 (22)	35,1 (279)	301	Ns.
	F	22,8 (57)	48,5 (291)	348	.000
Not able to meet the requirements of everyday life in 1997	M	32,0 (25)	17,0 (282)	307	.063
	F	32,2 (59)	28,1 (299)	358	Ns.

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples Unemployed school-leavers: N=85, Employed school-leavers: N=581

Also the unemployed school-leavers reported more often that they had high blood pressure than the employed. No other differences between the employed and unemployed school-leavers existed in the self-reported somatic illnesses or symptoms, which were examined one at a time.

Between the early-unemployed and employed, the mean number of longstanding illnesses and symptoms showed no differences in men but the early-unemployed women had a statistically significantly higher mean number of longstanding illnesses and symptoms than the employed

women. The pensioners had more than twice the mean number of longstanding illnesses than the employed and the pensioners had a statistically significantly higher mean number of symptoms than the employed.

In the mutual comparisons of the early-unemployed group, retired group, and employed group, most differences in somatic health variables detected between the retired and employed respondents. The early-unemployed group reported worse health than the employed except in the case of days of restricted activities (Appendix 3, table 3a). Those who retired on a pension by the time of the second survey had more days of restricted activities already in the first survey compared to the continuously employed group. In the second survey, the middle-aged employed had the most days of restricted activities. In the early-unemployed men, the ability to run 500 m had deteriorated—this was the only deterioration in somatic health. The early-unemployed women reported more often the presence of symptoms and of worse general health than the pensioners. The pensioners responded most often that they had one of the longstanding illnesses and inability to run 500 m.

When the reports of the illnesses and symptoms were examined one at a time, some differences were found between the groups. In women, those who retired on a pension by the time of the second survey were more likely to report in the first survey that they had suffered from back illness than those who remained employed. The early-unemployed women reported asthma and heartburn statistically more often than the employed women. Stomach disease was more common in the early-unemployed group than in the employed. The employed complained more often of toothache than the pensioners. Self-reported stomach disease was more common in retired women than it was in employed women.

The self-reported somatic ill health of the housewives was at the same level as it was in the women in the other groups but no deterioration similar to that occurring in the middle-aged unemployed group was found. In the first survey, the group of housewives who took employment had a statistically higher mean number of longstanding illnesses than those who remained housewives. No differences existed between the two groups in mean number of symptoms. Moreover, only a few differences between the housewives who took a job and the housewives who retained housewife status, were noted and these favoured the health of those who retained their positions as housewife. The housewives, who were employed in the second survey, reported at the starting point more often being able to run 500 m compared to those who remained as housewives. No other differences in self-reported health existed between the housewives and employed housewives (Appendix. 3, 3b).

1.5. Mental ill-being

The indicators of mental ill-being were stress, depression, insomnia, psychosomatic symptoms, anxiety, low self-esteem, and pessimistic outlook. The correlation coefficients between the mental ill-being variables, which were measured in the second survey were significant at the 0.05 level. The closest the correlation was between the items of depression and insomnia and between stress and anxiety. As can be seen in table 10, differences emerged between the middle-aged unemployed and employed groups in mental ill-being. However, in many of the indicators, the insecurely employed scored close to the unemployed. Self-reported stress, depression, and insomnia were measured in both the first and second surveys. In the unemployed men and in the insecurely employed men, stress had increased between the measurement points. The unemployed and insecurely employed reported much more ill-being assessed with these indicators in the second survey than in the first. Approximately one in every three of the middle-aged unemployed said they had been depressed during the past month. Depression and insomnia increased in the insecurely employed men as much as it did in the unemployed. Insomnia had increased among the securely employed women as much as in the unemployed women. The unemployed and insecurely employed groups of both sexes reported more often that they had anxiety, pessimistic outlook, and low self-esteem in the second survey relative to the employed. Self-reported anxiety was at the same high level in the unemployed and in the insecurely employed groups. Where the unemployed and insecurely employed differed from each other, was that the unemployed reported more often that they had low self-esteem and pessimistic outlook. The self-reported life orientation was more optimistic in those males with a stable job than in the males with poor job security. The unemployed reported most often as having the psychosomatic symptoms, dissatisfaction with their own life, and dissatisfaction with self. Half of the middle-aged unemployed (20% of the employed) were dissatisfied with their own life. Those with insecure jobs were often dissatisfied and suffered from stress.

Table 10. Mental ill-being by groups and gender, %

		Middle-aged unemployed	Insecurely employed	Middle-aged employed	N	$\chi 2$
Stress in 1989/90	M	19,5 (190)	15,2 (99)	17,3 (1170)	1459	Ns.
	F	15,7 (230)	15,9 (145)	12,3 (1343)	1718	Ns.
Stress in 1997	M	23,1 (182)	21,1 (95)	14,4 (1173)	1450	.008
	F	14,0 (235)	21,0 (148)	14,0 (1329)	1712	.072
Depression in 1989/90	M	20,5 (190)	14,1 (99)	8,8 (1180)	1469	.000
	F	20,7 (232)	21,5 (149)	13,5 (1346)	1727	.001
Depression in 1997	M	27,9 (190)	25,3 (99)	10,7 (1180)	1469	.000
	F	35,4 (232)	27,5 (149)	17,5 (1346)	1727	.000
Insomnia in 1989/90	M	20,0 (190)	14,1 (99)	11,6 (1180)	1469	.005
	F	22,0 (232)	21,5 (149)	12,0 (1346)	1727	.000
Insomnia in 1997	M	30.5 (190)	32,3 (99)	15,8 (1180)	1469	.000
	F	33,6 (232)	25,5 (149)	20,5 (1346)	1727	.000
Psychosomatic symptoms in 1997	M	62,6 (190)	50,5 (99)	38,1 (1180)	1469	.000
	F	59,1 (232)	55,0 (149)	49,1 (1346)	1727	.012
Anxiety in 1997	M	66,8 (190)	67,7 (99)	48,2 (1180)	1465	.000
	F	68,1 (232)	63,8 (149)	53,4 (1346)	1720	.000
Low self-esteem in 1997	M	70,0 (190)	53,5 (99)	43,8 (1180)	1469	.000
	F	59,9 (232)	54,4 (149)	43,4 (1346)	1727	.000
Pessimistic outlook in 1997	M	67,4 (190)	51,5 (99)	40,3 (1180)	1469	.000
	F	56,0 (232)	51,0 (149)	39,9 (1346)	1727	.000
Dissatisfied with own life in 1997	M	55,0 (189)	45,5 (99)	22,3 (1169)	1457	.000
	F	39,8 (231)	34,9 (146)	18,1 (1336)	1713	.000
Comparing to 1989-90 more self-dissatisfied now in 1997 than at that time	M	29,0 (186)	17,2 (99)	8,8 (1173)	1458	.000
	F	20,3 (231)	16,7 (144)	9,5 (1336)	1711	.000

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples Middle-aged unemployed: N=422, Insecurely employed: N=248, Middle-aged employed: N=2526.

No differences existed in stress scores between the unemployed and employed school-leavers groups. Between the unemployed and employed school-leavers, the differences emerged in the second survey in depression and insomnia (table 11). More than one in three of the unemployed school-leavers said they had been depressed during the past month. The unemployed persons were more likely to report anxiety, low self-esteem, and pessimism. The employed or continuously studying school-leavers were more self-satisfied compared to the unemployed. The unemployed female school-leavers reported more psychosomatic symptoms than the employed.

Table 11. Mental ill-being by groups and gender, %

		Unemployed school-leaver	Employed school-leaver	N	χ2
Stress in 1989/90	M	0,0 (25)	7,5 (280)	305	Ns.
	F	6,7 (60)	8,7 (298)	358	Ns.
Stress in 1997	M	20,0 (25)	12,1 (282)	307	Ns.
	F	18,3 (60)	13,1 (297)	357	Ns.
Depression in 1989/90	M	8,0 (25)	12,1 (282)	307	Ns.
	F	26,7 (60)	18,1 (299)	359	Ns.
Depression in 1997	M	32,0 (25)	13,5 (282)	307	.013
	F	41,7 (60)	21,7 (299)	359	.001
Insomnia in 1989/90	M	12,0 (25)	9,6 (282)	307	Ns.
	F	15,0 (60)	14,1 (299)	359	Ns.
Insomnia in 1997	M	24,0 (25)	15,3 (282)	307	Ns.
	F	30,0 (60)	17,7 (299)	359	.029
Psychosomatic symptoms in 1997	M	44,0 (25)	28,7 (282)	307	Ns.
	F	55,0 (60)	38,8 (299)	359	.020
Anxiety in 1997	M	64,0 (25)	37,6 (282)	307	.010
	F	65,0 (60)	49,8 (299)	356	.038
Low self-esteem in 1997	M	56,0 (25)	23,4 (282)	307	.000
	F	45,0 (60)	28,8 (299)	359	.013
Pessimistic outlook in 1997	M	60,0 (25)	29,1 (282)	307	.001
	F	46,7 (60)	29,1 (299)	359	.008
Dissatisfied with own life in 1997	M	56,0 (25)	14,2 (282)	307	.000
	F	33,9 (59)	14,4 (299)	358	.000
Compared to 1989-90 situation, more self-dissatisfied now in 1997 than at that time	M	28,0 (25)	7,1 (282)	307	.000
	F	20,3 (59)	8,7 (299)	358	.008

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples Unemployed school-leavers: N=85, Employed school-leavers: N=581

Those 95 people who reported that they were unemployed already at the first survey, were quite similar in their self-reported mental ill-being to the 422 middle-aged unemployed. However, in the early-unemployed group of men, the number of those with stress and depression did not increase in the follow up period. In the early-unemployed group, the women reported more insomnia in the second survey than in the first. This unemployed group complained more often of psychosomatic symptoms, anxiety, pessimism and dissatisfaction than the other groups. The early-unemployed women scored higher in anxiety, and had more low self-esteem and more pessimistic outlook than

the employed women but the early-unemployed men had higher scores only in low self-esteem than the continuously employed men (Appendix 3, table 3c). In indices of low self-esteem and pessimistic outlook, the pensioners scored statistical significantly higher mean scores than the employed. No differences existed in low self-esteem and pessimistic outlook between the pensioners and unemployed.

Only a few differences emerged in mental ill-being between the housewives who retained this position and who changed to paid employment (Appendix 3, table 3d). For example there were no differences in the mean scores of anxiety, low self-esteem, or pessimistic outlook. Only a few of the housewife-groups responded that they had stress, depression, and insomnia or dissatisfaction; therefore the stress-variable and satisfaction- variables had to be re-categorized in the housewife-groups for the additional analyses. The housewife-groups revealed as much psychosomatic symptoms and anxiety as the women in the other groups. The estimates of self-esteem of the employed housewives were similar to the responses in women of the insecurely employed and the responses of the housewives were similar to the securely employed. The group which was the most satisfied with themselves and their own life was the group of housewives.

1.6. Social ill-being

The indicators of social ill-being were marital status single, low spouse support, low support from relatives and friends, lack of enough money for food, negative interaction, two or more major life-events, life-event stress, and suffered drawbacks of the recession. In the whole sample, the correlation between the social ill-being variables, which were measured in the second survey, were significant but only moderate, except for the relation between marital status single and of course low spouse support and between two or more life-events and life-event stress.

The unemployed men lived more often alone than the men in the other groups (table 12). The differences between the sexes were greater in the unemployed group than the differences between the sexes in the securely employed group in marital status. Unemployment appeared somewhat to be concentrated in families e.g. the spouses of the middle-aged unemployed persons more often were unemployed than was the case in the comparison group. The middle-aged unemployed and insecurely employed had experienced more often major life events (unemployed mean 3.3, insecurely employed mean 3.7, and employed mean 2.8) and experienced them as more stressful than the securely employed. The insecurely employed responded that they experienced as much as

life event stress as the unemployed.

Table 12. Social ill-being in 1997 subdivided by group and gender, %

		Middle-aged unemployed	Insecurely employed	Middle-aged employed	N	$\chi 2$
Marital status single in 1989/90	M	40,7 (189)	37,4 (98)	24,6 (1179)	1466	.000
	F	31,0 (232)	28,9 (149)	25,0 (1343)	1724	Ns.
Marital status single in 1997	M	38,9 (190)	28,6 (98)	18,5 (1171)	1459	.000
	F	26,7 (232)	20,9 (148)	22,5 (1342)	1722	Ns.
Occupational status of spouse unemployed	M	28,0 (118)	20,6 (73)	9,4 (968)	1159	.000
	F	20,0 (165)	11,0 (118)	7,7 (1054)	1337	.000
Low perceived social support from spouse	M	57,9 (190)	36,4 (99)	35,2 (1180)	1469	.000
	F	53,0 (232)	52,3 (149)	47,0 (1346)	1727	Ns.
Low perceived social support from friends or relatives	M	59,5 (190)	62,6 (99)	63,8 (1180)	1469	Ns.
	F	41,8 (232)	47,7 (149)	39,7 (1346)	1727	Ns.
Negative interaction with loved ones during the past month.	M	76,3 (190)	61,6 (99)	53,7 (1180)	1469	.000
	F	57,8 (232)	55,7 (149)	51,1 (1346)	1727	Ns.
During the last month lack of enough money for food	M	67,9 (184)	53,1 (98)	28,7 (1159)	1441	.000
	F	65,0 (226)	53,9 (141)	36,0 (1327)	1694	.000
Two or more major life events in the last year	M	57,9 (190)	58,6 (99)	48,7 (1180)	1469	.000
	F	60,4 (232)	65,1 (149)	55,0 (1346)	1727	.000
The experience of the life event stress	M	49,5 (190)	52,5 (99)	33,6 (1180)	1469	.000
	F	50,4 (232)	54,4 (149)	41,3 (1346)	1727	.001
Compared to 1989/90 now more dissatisfied with relationships	M	19,0 (189)	12,1 (99)	10,0 (1167)	1455	.000
	F	16,1 (230)	19,3 (145)	9,7 (1336)	1711	.000
Suffered drawbacks of recession	M	61,1 (190)	57,1 (98)	21,2 (1171)	1459	.000
	F	54,5 (231)	42,8 (145)	19,1 (1338)	1714	.000
Currently dissatisfied with personal finances at the moment	M	42,1 (190)	28,3 (99)	7,1 (1171)	1460	.000
	F	29,9 (231)	14,5 (145)	6,6 (1344)	1720	.000
Compared to the year 1989/90 dissatisfied with personal finances	M	59,3 (189)	54,6 (99)	18,6 (1170)	1458	.000
	F	51,1 (231)	31,0 (144)	18,7 (1344)	1719	.000

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples Middle-aged unemployed: N=422, Insecurely employed: N=248, Middle-aged employed: N=2526.

The middle-aged unemployed showed higher scores than the other groups in all indicators of social ill-being except in perceived support from friends and relatives. On average, women perceived that they received less support than men from their spouse—except the unemployed women. However, the unemployed men did consider that they received statistically significant less support from their

spouse than the other groups (58% vs 35%). In all, 36% of the insecurely employed men (52% of the women) reported that they received only low support from their spouse.

No differences existed in the perceived support from close relatives or friends between the unemployed and employed. In social interaction sum scores, the unemployed men showed statistically significantly lower scores indicating poorer interactions than the employed men (16.7 vs. 18.6, $F=27.0$, $P< 0.001$) and unemployed women had lower scores than the employed women (16.5 vs. 17.2, $F=3.9$, $p< 0.05$). This difference did not reach statistical significance between the insecurely and securely employed. However, the item did not refer to the workplaces.

Dissatisfaction with personal finances was much more common in the unemployed group than dissatisfaction with relationships. As common as lack of money was in the unemployed group, it was nearly as common in the insecurely employed group. One in every two of the insecurely employed had actually experienced unemployment during the previous year.

The unemployed male school-leavers lived more often alone in the second measurement than the employed. The male and female unemployed school-leavers scored statistical significantly lower mean scores in social interaction than the employed school-leavers (in men 16.4 vs. 19.4, $F=12.8$, $p< 0.001$ and in women 16.5 vs. 17.5, $F=4.4$, $p< 0.05$). More than two out of three of the employed school-leavers and half of the employed school-leavers, said they received support from their spouse. Of the unemployed students group, 70% and of the employed students group, 75% perceived receiving support from relatives or friends: the proportion of those who perceived receiving support was highest in the school-leaver groups. The unemployed school-leavers responded that they had experienced more often major life-events (unemployed school-leavers: mean 3.6 and employed school-leavers: mean 2.9) and they experienced them as more stressful than the employed school-leavers. There existed differences between the unemployed and employed school-leavers in lack of money, life-event stress, suffered from the drawbacks of the recession, and dissatisfaction. The same proportion in the unemployed school-leavers as in the middle-aged unemployed i.e. one out of three, responded that they did not have lack of enough money. The unemployed school-leavers were more often dissatisfied with personal finances but not with their social relationships (table 13).

Table 13. Social ill-being in 1997 according to group and gender, %

		Unemployed school-leaver	Employed school-leaver	N	χ2
Marital status single in 1989/90	M	96,0 (25)	90,0 (280)	305	Ns.
	F	80,0 (60)	85,2 (298)	358	Ns.
Marital status single in 1997	M	60,0 (25)	43,8 (281)	306	0.09
	F	40,0 (60)	40,8 (299)	359	Ns.
Occupational status of spouse unemployed	M	8,0 (25)	5,3 (282)	307	Ns.
	F	11,7 (60)	2,0 (299)	359	.000
During the last month lack of enough money for food	M	60,0 (25)	42,5 (280)	305	.091
	F	74,6 (59)	53,2 (293)	352	.003
Low in perceived social support from spouse	M	48,0 (25)	37,9 (282)	307	Ns.
	F	50,0 (60)	43,5 (299)	359	Ns.
Low perceived social support from friends or relatives	M	56,0 (25)	40,8 (282)	307	Ns.
	F	20,0 (60)	26,1 (299)	359	Ns.
Negative interaction with loved one during the past month.	M	72,0 (25)	49,7 (282)	307	.032
	F	65,0 (60)	47,2 (299)	359	.012
Two or more major life events in the last year	M	60,0 (25)	52,5 (282)	307	Ns.
	F	73,3 (60)	65,9 (299)	359	Ns.
Life event stress	M	36,0 (25)	28,0 (282)	307	Ns.
	F	65,0 (60)	44,5 (299)	359	.004
Compared to 1989/90 more dissatisfied now with relationships	M	12,0 (25)	7,8 (282)	307	Ns.
	F	11,9 (59)	8,0 (299)	358	Ns.
Suffered the drawbacks of the recession	M	52,0 (25)	18,8 (282)	307	.000
	F	33,9 (59)	18,1 (299)	358	.006
Dissatisfied with personal finances	M	48,0 (25)	10,6 (282)	307	.000
	F	28,8 (59)	17,1 (299)	358	.035
Compared to 1989/90 dissatisfied with personal finances	M	28,0 (25)	10,3 (282)	307	.008
	F	37,3 (59)	20,7 (299)	358	.006

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples Unemployed school-leavers: N=85, Employed school-leavers: N=581

There were no such differences in social interaction between the early-unemployed and employed group as there were between the group of those who had lost their jobs and the employed group (Appendix 3, table 3e). However, in the other variables, similar differences existed. Only 57% of the early- unemployed group said they felt that they had the support from their spouse, but the early-unemployed women perceived they received more often support from friends and relatives than the other groups. The early-unemployed group complained like the middle-aged unemployed

about the lack of money and dissatisfaction with personal finances. Over one in every two of the group of early-unemployed had experienced at least two major life event, the mean number of life events being 3.1. The pensioned group had significantly higher scores in social interaction than the employed indicating good interaction. (In men 16.7 vs. 15.4, $F=16.8$, $p< 0.001$ and in women 16.5 vs. 15.3, $F=17.1$, $p< 0.001$). The pensioners had the fewest major life events (mean 2.1) and lowest life event stress of these groups. Two out of three of the pensioners said they had support from their spouse. The pensioners considered that they received less support from friends and relatives but at the same time the majority responded that they were satisfied with their social relationships. Approximately 30% of the retired men and women had a spouse who had also retired by T2 but in the employed only 1% had a spouse in retirement.

In the homemaker's group, as a matter of fact nearly all of the women were married with an employed husband. In the permanent housewives group, 95 % of the spouses were employed or retired and in the employed housewives, 80% of the spouses were employed or retired. Of the permanent housewives, 31% said they received low support from their spouse whereas 43% of the employed housewives received low support from their spouse. The employed housewives scored lower in social interaction sum-scores than the housewives who retained their positions (15.3 vs. 17.2, $F=103$, $p< 0.01$). The employed housewives were less satisfied with their close relationships than the stable housewives. The continuous housewives were mostly satisfied with their finances: the variables about satisfaction had to be re-categorized in the subsequent analyses in the groups of housewives. The employed housewives had more experienced life-event stress than the permanent housewives (Appendix 3, table 3f.).

Attitudes to work, leisure, and home, which were measured in two questions in 1997, revealed major variation between the sexes and between employment status groups. On average, home/family was the cornerstone of their life. In the unemployed or non-employed groups, work was less important and home/family and leisure were much more important in comparison with the employed groups. In the middle-aged unemployed and pensioned groups 70% said home and family was the most important aspect of their life whereas the corresponding portion was less than 50% in the employed groups except in the employed housewives. The differences between the groups were statistically significant. There were no significant differences in attitudes to these fields of life between the insecurely and securely employed. The women of the young unemployed group reported that home was their most important field of life, but work was clearly less important than in the group of employed.

The majority of women reported home to be the most important field of life, but for men the most important field of life was work. Most often the least important field of life was leisure. In the unemployed group, the least important field of life was work, but in the employed group it was leisure. Leisure was reported to be the most important aspect of life in the unemployed school-leavers (29%) and the early-unemployed (22%), in the employed school-leavers, 18% and in the middle-aged employed group, 9% said leisure was the most important aspect of life.

2. Longitudinal findings

2.1. Changes in somatic ill health

Two by two comparisons were used to test for predisposing differences in every group between the two measurement points. If differences emerged only in the year 1997, then this was likely to be a function of the intervening changes in employment status. McNemar test statistics were used to analyze the changes in ill-being measures between 1989/90 and 1997.

The frequency of those with self-reported average or worse general health increased in the middle-aged unemployed and employed groups both in women and men (Table 14). About one in four of the unemployed men (employed men 16%), had changed their self-report of health from good to only average or worse. In the insecurely employed group, the change did not reach statistical significance. The proportion of those who reported to have a longstanding illness increased in the unemployed and employed groups. In the unemployed group, the change did not quite reach statistical significance, although the percentage of those who had changed was somewhat greater than it was in the employed group. The unemployed and employed groups more often in the second survey than in the first, reported having two or more symptoms. There were no major differences between these groups but the percentage of those with symptoms increased to some extent more in the employed women than in the unemployed women. In the insecurely employed female group, the respondents more often reported having symptoms in the second survey. In the insecurely employed men, the change did not reach statistical significance. The ability to run 500m had deteriorated in every group. Only a few cases reporting that they could not run 500m in the first survey, had changed to being capable of this feat in the second survey. In the group of employed men, the change toward inability was the most modest: 12% had changed their evaluation of the physical condition (17% of the unemployed men). Men more often than women, reported being able to run 500m. Both in the unemployed and insecurely groups, the proportion of those who described having

more than 3 days of restricted activity decreased in the second survey. In the securely employed, no changes were observed. However, the response rate of the unemployed to this question had decreased dramatically.

In the present study 8% of the unemployed men (13% of women) changed their self-report of general health to better; 11% of the unemployed men (16% of the women) reported less symptoms; and 12% (women 11%) had less diseases under treatment of doctor's after the experienced unemployment periods.

Table 14. Changes in variables (N) between 1989/90 and 1997, McNemar test-statistics (Middle-aged unemployed and employed)

	Middle-aged unemployed, Men		Insecure job, Men		Employed, Men		Middle-aged unemployed, Women		Insecure job, Women		Employed, Women	
Overall health only average or worse	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	55	15	20	13	208	104	60	30	34	20	198	102
No	44	72	20	44	187	667	49	92	27	68	242	794
Long-standing illness	N=186, p<0.001		N=97, p=0.297		N=1166, p<0.001		N=231, p<0.043		N=149, p=0.381		N=1336, p<0.001	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	29	23	13	10	156	96	33	26	22	18	146	124
No	39	99	15	61	177	751	41	132	19	90	194	882
Two or more symptoms	N=190, p=0.057		N=99, p=0.424		N=1180, p<0.001		N=232, p=0.087		N=149, p=1.000		N=1346, p<0.001	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	36	21	25	17	169	126	81	37	51	16	392	153
No	35	98	20	37	196	689	47	67	31	50	292	509
Unable to run 500m	N=190, p=0.082		N=99, p=0.742		N=1180, p<0.001		N=232, p=0.326		N=148, p=0.041		N=1346, p<0.001	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	32	8	7	1	101	28	89	13	33	9	322	50
No	28	97	19	62	131	851	43	58	26	65	213	622
More than 3 days of restricted activities	N=165, p=0.002		N=89,p <0.001		N=1111, p<0.001		N=203, p<0.001		N=133, p=0.007		N=1207, p<0.001	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	15	43	21	23	254	192	30	57	31	36	335	230
No	15	74	10	41	220	488	24	55	29	45	261	479
	N=147, p<0.001		N=95, p=0.037		N=1154,p=0.183		N=166, p<0.001		N=141, p=0.457		N=1305, p=0.176	

When examining the separate illnesses, it was found that the proportion of those who responded suffering from back pain and ache in the joints had increased only in the middle-aged employed groups. In these illnesses, no changes were found in the other groups. The women in the middle-aged employed group were the only ones who reported more headaches in the year 1997 than in 1989/1990. The unemployed group of women was the only group that did not report having elevated blood pressure more often in the second survey than in the first. The men, both in the employed and unemployed groups, had lost more their teeth during the follow up. No other changes were found in the groups of the middle-aged employed and unemployed in the somatic ill health variables.

The members of the school-leavers who responded to having poor general health increased in number between the two measurement points (Table 15). Although small in number, the change was especially evident in the unemployed groups. Only a few changes were seen in the self-reported longstanding illnesses between the first and second survey. The school-leavers more often in the second survey described having two or more symptoms: the change in the direction of more symptoms was about 10% both in the unemployed and employed school-leavers. The number of those who could not undertake a long run had increased in both unemployed and employed school-leavers; the change reached statistical significance only in women. Surprisingly, the days of restricted activities had decreased in all of the school-leaver groups. The response rate was somewhat lower in the items of physical functioning and days of restricted activities than in the other items.

Table 15. Changes in variables between 1989/90 and 1997, McNemar test-statistics (School-leavers)

	Unemployed school-leavers, Men		Unemployed school-leavers, Women		Employed school-leavers, Men		Employed school-leavers, Women	
General health only average or worse	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	2	2	11	1	10	23	14	24
No	8	13	15	32	38	211	48	212
Longstanding illness	N=25, p=0.109		N=59, p=0.001		N= 282, p=0.073		N=298, p =0.007	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	0	1	1	5	7	11	10	17
No	5	19	5	49	12	252	25	247
Two or more symptoms	N=25, p= Ns.		N= 60, p=1.000		N=282, p=1.000		N=299, p=0.280	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	1	2	19	11	15	29	56	44
No	4	18	17	13	62	176	78	121
Unable to run 500m	N=25, p=0.688		N=60, p=0.345		N=282, p=0.001		N=299, p=0.003	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	1	0	9	0	0	5	16	8
No	3	19	17	32	9	265	40	230
More than 3 days of restricted activities	N=23, p=0.250		N=58, p < 0.001		N=279, p=0.424		N=294, p < 0.001	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	2	6	7	23	53	83	98	71
No	2	12	6	19	44	96	43	79
	N=22, p=0.289		N=55, p=0.003		N=276, p=0.001		N=291, p=0.011	

Because of small study group, the differences at the follow up period did not reach statistical significance in the unemployed school-leavers even though the health problems tended to increase rather than remaining unchanged. In the unemployed school-leavers, when men and women were combined together, changes in incidence of diagnosed high blood pressure, became statistically significant. In the employed school-leavers, the proportion of the men who had had back pain and headache in the last month had increased statistically significantly. Also in the unemployed female school-leavers, the trend was the same but did not reach statistical significance.

The early-unemployed and the pensioned evaluated their overall health and incidence of symptoms rather similarly in both measurement points (Table 16). Unlike most of the other groups, the proportion of those having two or more symptoms had not increased. Furthermore, no changes were reported in the incidence of longstanding illness in the other groups but the male respondents, who

had pensioned on a retirement described more often that they suffered from a longstanding illness in the second survey compared to the first survey, and the proportion of those who said they could not run 500m, had increased. However, self-reported inability to run 500m had increased both in the early-unemployed and pensioned men. The retired were less likely to have days of restricted activity in the second survey than in the first one but the response rate was low. The middle-aged employed showed even more often general health deterioration than the early-unemployed or retirees. The proportion of those who reported two or more symptoms increased in the employed group but not in the early-unemployed or male retirees.

Table 16. Changes in variables between 1989/90 and 1997, McNemar test-statistics (Early-unemployed and pensioned)

	Early-unemployed, Men		Early-unemployed, Women		Pensioned, Men		Pensioned, Women	
General health only average or worse	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	16	6	21	5	94	30	95	44
No	7	19	6	14	33	97	42	99
Longstanding illness	N=48, p=1.000		N=46, p=1.000		N=254, p=0.801		N=280, p=0.914	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	8	4	11	9	84	31	98	34
No	7	30	8	18	55	88	48	107
Two or more symptoms	N=49, p=0.549		N= 46, p=1. 000		N= 258, p=0. 013		N= 287, p=0.151	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	10	7	25	4	63	32	111	41
No	5	27	9	8	34	129	38	97
Unable to run 500m	N=49, p=0.774		N=46, p=0.267		N=258, p=0.902		N=287, p=0.822	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	8	1	19	2	84	7	126	5
No	9	23	8	6	33	73	28	16
More than 3 days of restricted activities	N=41, p=0.021		N=35, p=0.109		N=197, p < 0.001		N=175, p < 0.001	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	4	8	6	11	15	48	19	45
No	6	13	6	10	11	77	11	51
	N=31, p=0.791		N=33, p=0.332		N=151, p < 0.001		N=126, p < 0.001	

In the retired persons, the proportion of those with high blood pressure had increased statistically significantly. Headache showed a decreasing trend.

The housewives were one of the groups in which self-perceived poor general health had not increased (Table 17). The proportion of those, who responded to suffering from longstanding illness was low in housewives and had only moderately changed in the follow up. The housewives reported experiencing symptoms as often as the women in the other groups but no changes were found in the proportions between the measurement points. The housewives who retained their positions more often than the employed housewives reported not being able to undertake to a long run in the second survey but the proportion of those who were unable to perform this activity had increased only in the employed housewives. No change was found in the days of restricted activities between the surveys.

Table 17. Changes in variables between 1989/90 and 1997, McNemar test-statistics, (Housewives)

		Housewives		Employed housewives	
General health only average or worse		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	9	10	13	8
	No	9	36	16	54
		N=64, p=1.000		N=91, p =0.152	
Longstanding illness		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	7	3	9	10
	No	8	47	17	55
		N=65, p=0.227		N=91, p =0.248	
Two or more symptoms		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	23	7	33	15
	No	9	26	18	25
		N=65, p=0.804		N=91, p =0.121	
Unable to run 500m		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	16	8	17	3
	No	11	21	16	46
		N=56, p=0.648		N=82, p=0.004	
More than 3 days of restricted activities		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	5	7	9	11
	No	6	32	21	45
		N= 50, p=1.000		N=86, p=0.112	

2.2. Changes in mental and social ill-being

Self-reported stress showed no evident changes in the unemployed or insecurely employed groups (Table 18). Self-reported stress had increased only a few percentage points in the unemployed and insecurely employed groups, though not in the unemployed women. These changes were not statistically significant. However, in the securely employed men, feelings of stress had diminished at the second survey in relation to the first. Self-reported depression and insomnia had increased in the unemployed women and men as well in the insecurely employed men; proportion of those reporting of depression had also increased in employed women. The proportion of those who suffered from insomnia also increased in the employed group. Employment status was associated with current marital status. Between the years 1990 and 1997, the proportion of cohabiting had increased in the middle-aged employed, insecurely employed, and in both of the school-leavers groups in a statistically significant manner; this change was not apparent in either in the male or female unemployed individuals.

In the same manner as in the somatic ill health variables approximately ten percent of the unemployed described that their stress, depression, and sleeplessness had relieved after the periods of unemployment. Of the unemployed men 12% showed decreased trend in stress, 11% in depression, and 8% in insomnia. The proportion of the unemployed women who showed similar change into the better direction was quite similar.

Table 18. Changes in variables (N) between 1989/90 and 1997, McNemar test-statistics (Middle-aged unemployed and employed)

	Middle-aged unemployed, Men		Insecure job, Men		Employed, Men		Middle-aged unemployed, Women		Insecure job, Women		Employed, Women	
Stress and under pressure	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	15	22	5	8	76	123	11	25	10	13	48	116
Year 1989/90 No	27	121	15	66	93	870	22	172	19	103	137	1027
Depression	N=185, p= 0.568		N=94, p=0.210		N=1162, p=0.048		N=230, p=0.770		N=145, p=0.377		N=1328,p=0.209	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	19	20	11	3	35	69	37	11	16	16	76	105
Year 1989/90 No	34	117	14	71	91	985	45	139	25	92	159	1006
Insomnia	N=190, p=0.077		N=99, p=0.013		N=1180, p=0.097		N=232, p< 0.001		N=149, p=0.212		N=1346,p=0.001	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	23	15	9	5	70	67	29	22	21	11	79	82
Year 1989/90 No	35	117	23	62	116	927	49	132	17	100	197	988
Marital status single	N=190, p=0.007		N=99, p=0.001		N=1180, p < 0.001		N=232, p=0.002		N=149,p=0.345		N=1346,p<0.001	
	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90 Yes	62	15	25	11	151	136	41	31	25	18	190	146
Year 1989/90 No	11	101	3	58	66	818	21	139	6	99	112	891
	N=189, p=0.556		N=97, p=0.057		N=1171, p < 0.001		N=232, p=0.212		N=148, p=0.023		N=1339, p=0.040	

The unemployed and employed school-leavers rarely reported to experiencing stress; the changes in self-reported stress did not reach statistical significance although the trend toward increased stress was apparent (Table 19). Self-reported depression was not as common as in the other groups; but the increase in its prevalence did occur in the unemployed school-leavers. Insomnia had become more common but only for the female unemployed and male employed groups did the change achieve statistical significance. In all four groups, living with a partner was much more common in the second survey than in the first. When the unemployed men and women were analysed together, the data showed that changes in self-reported stress and depression reached statistical significance.

Table 19. Changes in variables between 1989/90 and 1997, McNemar test-statistics, (School-leavers)

		Unemployed school-leavers, Men		Unemployed school-leavers, Women		Employed school-leavers, Men		Employed school-leavers, Women	
Stress and under pressure		Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	0	0	1	3	7	14	3	22
	No	5	20	10	46	26	233	36	235
Depression		N=25, p= 0.063 Year 1997 Yes	No	N=60, p=0.092 Year 1997 Yes	No	N=280, p=0.082 Year 1997 Yes	No	N=296, p=0.088 Year 1997 Yes	No
Year 1989/90	Yes	2	0	10	6	11	23	13	52
	No	6	17	15	29	27	221	41	193
Insomnia		N=25, p=0.031 Year 1997 Yes	No	N=60, p=0.078 Year 1997 Yes	No	N=282, p=0.671 Year 1997 Yes	No	N=299, p=0.300 Year 1997 Yes	No
Year 1989/90	Yes	2	1	6	3	11	16	11	31
	No	4	18	12	39	32	223	42	215
Marital status single		N=25, p=0.375 Year 1997 Yes	No	N=60, p=0.035 Year 1997 Yes	No	N=282, p=0.030 Year 1997 Yes	No	N=299, p=0.242 Year 1997 Yes	No
Year 1989/90	Yes	15	9	23	25	117	135	116	138
	No	0	1	1	11	5	22	6	38
		N=25, p < 0.004		N=60, p < 0.001		N=279, p < 0.001		N=298, p < 0.001	

In the early-unemployed group of men as well as both sexes of the retired groups, the number of those who reported of being stressed and under pressure decreased between the measurement points (Table 20). In the retired group, the proportion of those with low level in stress increased from 83% to 93%. The depression indicator showed no changes in these groups nor did the insomnia indicator. In the groups of the pensioned persons, living alone had become more common in the second survey.

Table 20. Changes in variables between 1989/90 and 1997, McNemar test-statistics (Early-unemployed and pensioned)

	Early-unemployed, Men		Early-unemployed, Women		Pensioners, men		Pensioners, Women	
Stress and under pressure	Year 1997		Year 1997		Year 1997		Year 1997	
	Yes	No	Yes	No	Yes	No	Yes	No
Year 1989/90 Yes	4	8	5	6	9	34	10	35
Year 1989/90 No	0	37	5	29	8	196	6	220
	N=49, p=0.008		N=45, p=1.000		N=247, p < 0.001		N=271, p < 0.001	
Depression	Year 1997		Year 1997		Year 1997		Year 1997	
	Yes	No	Yes	No	Yes	No	Yes	No
Year 1989/90 Yes	6	3	9	5	18	12	15	27
Year 1989/90 No	7	33	5	27	12	216	28	217
	N =49, p=0.344		N=46, p=1.000		N=258, p=1.000		N=287, p=1.000	
Insomnia	Year 1997		Year 1997		Year 1997		Year 1997	
	Yes	No	Yes	No	Yes	No	Yes	No
Year 1989/90 Yes	8	5	7	12	31	22	40	37
Year 1989/90 No	4	32	7	20	29	176	32	178
	N=49, p=1.000		N=46, p=0.359		N=258, p=0.401		N=287, p=0.630	
Marital status single	Year 1997		Year 1997		Year 1997		Year 1997	
	Yes	No	Yes	No	Yes	No	Yes	No
Year 1989/90 Yes	18	9	16	7	28	6	65	6
Year 1989/90 No	3	19	4	19	22	200	23	191
	N=49, p=0.146		N=46, p=0.549		N=256, p=0.005		N=285, p=0.003	

In the group of housewives, stress, depression, or insomnia were all rare (Table 21). Furthermore, no changes between the two measurement points occurred. Accordingly these items of stress were re-categorised in such a way that there would be observations in each cell. In the second survey, none of the housewives who retained their position was single; however, a considerable proportion of the employed housewives had become single during the follow up (the proportion increased from 8% to 17%).

Table 21. Changes in variables between 1989/90 and 1997, McNemar test-statistics, (Housewives)

		Housewives		Employed housewives	
Stress and under pressure		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	0	5	0	5
	No	1	57	12	74
		N=63, p=0.219		N=91, p=0.143	
Depression		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	3	4	9	11
	No	4	54	6	65
		N=65, p=1.000		N=91, p=0.332	
Insomnia		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	1	6	7	6
	No	7	51	13	65
		N=65 p=1.000		N=91, p=0.167	
Marital status single		Year 1997 Yes	No	Year 1997 Yes	No
Year 1989/90	Yes	0	1	4	3
	No	0	64	11	72
		N=65 p=1.000		N=90 p=0.057	

3. Impact of unemployment on ill-being, Hypothesis 1. Social causation

The first step in the regression analysis was to eliminate those factors, which had little or no impact on the risk of ill-being. A total of 20 health-related independent variables, which were measured in the first survey and employment status were first fitted into the univariate models. Change in deviance in the univariate models served as the criteria: if in the univariate analyses the significance of any of the independent variables reached the 0.20 level, the variable—predictor or co-variable—was fitted into the multivariate model. The stepwise forward method was used to identify the most relevant set of variables that related to whether there was ill-being and all of the suitable moderating variables were fitted in turn. In the models * indicated p-value of $p < 0.05$, ** indicated $p < 0.01$, and *** indicated $p< 0.001$.

The indicators of *somatic ill health* were self-reported average or worse general health, change of general health into the worse direction, longstanding illness, two or more somatic symptoms,

inability to undertake a long run, days of restricted activities, and inability to meet the requirements of everyday life.

Considering the first hypothesis, all of the somatic health-related variables were examined in turn as dependent variables and the dummy-variable *employed/unemployed* as a predictor and other co-variables—measured in the first survey—which reached predetermined significance, were fitted in the logistic regression analysis. As can be seen in table 22, unemployment predicted poor self-perceived general health (OR 1.5, CI 95% 1.1-1.9). Furthermore, after adjusting for the corresponding baseline variable, the unemployed had a 1.4 (CI 95% 1.1-1.7) risk of being unable to run 500m relative to the employed. Relative to the employed, the unemployed had 1.4 (CI 95% 1.0-1.9) risk to perceive their general health as worse than a year before. Relative to the employed women, the unemployed males had OR 2.7 (CI 95% 1.7-4.3) the risk of inability to meet the requirements of everyday life. In the cases where the other somatic health measures were used as respondent variables, employment status did not reduce the deviance sufficiently to survive in the model. What did make a difference was that the employment predicted increased the risk of having more than 3 days of cutting back on work or usual activities. However, this model did not fit and it had to be rejected. Original occupational status did not seem to be associated with the experiences of unemployment.

Consequently, entering the covariates for a model (forced model), it was analysed whether unemployment was associated with high blood pressure; the unemployed more often reported suffering diagnosed high blood pressure than the employed ($\chi 2$ 6.9, $p < 0.01$). After adjusting for sex, age, body mass index, and baseline high blood pressure those unemployed, who did not report having high blood pressure in the first survey were more likely to report having high blood pressure in the second survey (interaction of unemployment and high blood pressure, OR 2.8 (CI 95% 1.2-6.5).

Table 22. The influence of unemployment on somatic ill health measures in 1997, logistic regression models (Middle-aged unemployed and employed)

Adjusted OR of predictor and co-variables measured in 1989/90	General health average or worse	Inability to run 500m	Unable to meet the requirements of everyday life	General health worse than 1 year previously
Predictor: Unemployed:	1.5**	1.4*	1.0 Ns.	1.4*
Interaction unemployed * male			2.7***	
Co-variables:				
Female		3.0***	1.9***	
Age from 15 to27 years		0.3***		0.6**
Age from 28 to 47 years		0.4***		0.7*
Age ≥ 48 years		1.0		1.0
Education ≤ 9 years			0.8 Ns.	
Education from 10 to 14 years			0.8 **	
Education ≥ 15 years			1.0	
General health average or worse	4.3***	1.7***	1.6***	2.1***
Longstanding illness	1.5**			
Two or more symptoms				1.3*
Inability to run 500m	1.7***	12.0***	1.3*	
More than 3 days restricted of activities		1.3*		
Stress and under pressure	1.4*		2.2***	1.4*
Insomnia	1.3*			1.4*
Depression			2.0***	
Smoking	1.5***			
BMI ≥ 27 kg/m2	1.5***	1.8***		
Vegetables less than 3 days per week		1.4*		
Exercise less than 2 times per week		1.5***		

Notes. Number of cases included in the analyses: General health: group E/U N=327 E/E N=2100; Inability to run 500m: E/U N=357, E/E N=2272; Energy/fatigue: E/U N=340, E/E N=2152 General health worse than year before: E/U N=361, E/E N=2214. Employment status did not improve the fit of the models to the response variables longstanding illness, somatic symptoms, and days of restricted activities. The models are not shown.

Stress, depression, insomnia, psychosomatic symptoms, anxiety, low self-esteem, and pessimistic outlook—these were the indicators of *mental ill-being*. The mental ill-being items depression, insomnia, and stress had been measured already in the first survey; the other variables were measured only in the second survey. Unemployment turned out to be a stable predictor of mental

ill-being as 20 co-variables—collected at the initial inquiry—were controlled for (table 23). Unemployment increased the risk of mental ill-being in the case of every indicator. After adjustment for the corresponding baseline variable, unemployment increased the risk of depression (OR 2.4, CI 95% 1.8-3.1) and insomnia (OR 1.8, CI 95% 1.4-2.4). Furthermore, after adjusting for the baseline variable, the risk of stress was increased OR 2.0 (CI 95% 1.1-3.5) in the unemployed men. The unemployed men had an OR 1.9 (CI 95% 1.2-2.9) for the risk of psychosomatic symptoms compared to the employed women. Unemployment was associated with anxiety (OR 1.5, CI 95% 1.2-2.0) and low self-esteem (OR 1.6, CI 95% 1.2-2.1). The unemployed in the age group 28-47 years old had 2.3 (CI 95% 1.3-4.1) the risk of pessimistic outlook. These people in the second measurement point had aged into the group 35 to 54 years old. Occupational status (blue-collars or white-collars) did not seem to be associated with the experiences of unemployment.

Table 23. The influence of unemployment on mental ill-being measures in 1997, logistic regression models (Middle-aged unemployed and employed)

Adjusted OR of predictor and of co-variables measured in 1989/90	Stress	Depression	Insomnia	Psychosomatic symptoms	Anxiety	Pessimistic outlook	Low self-esteem
Predictor: unemployed	0.8 Ns.	2.4***	1.8***	1.0 Ns.	1.5**	1.0 Ns.	1.6**
Interaction Unemployed * male	2.0*			1.9**			
Interaction unemployed * age from 15 to 27 years old						1.5 Ns.	
Interaction unemployed * age from 28 to 47 years old						2.3**	
Interaction unemployed * age ≥ 48 years old						1.0	
Co-variables:							
Female		1.7***		1.5***			
Age from 15 to 27 years				0.6***		0.8 Ns.	0.5***
Age from 28 to 47 years				0.8 *		0.8 Ns.	0.8 (*)
Age ≥ 48 years				1.0		1.0	1.0
Education ≤ 9 years	0.8 Ns.			1.9***		1.7***	2.6***
Education from 10 to 14 years	0.7 **			1.3*		1.2 Ns.	1.6 Ns.
Education ≥ 15 years	1.0			1.0		1.0	1.0
Blue collar worker						1.5***	1.4**
General health only average or worse	1.4*	1.4*		1.6***	1.4**		1.8***
Two or more symptoms	1.5**		1.4***	1.4***	1.3**		
Inability to run 500m			1.6***		1.4***	1.7***	
More than 3 days restricted of activities		1.3*					
Stress and more under pressure than the average	3.1***	1.5**	1.6**	1.8***	1.8***	1.4**	
Depression		3.0***		2.0***	1.8***	1.8***	1.7***
Insomnia	1.5**	2.1***	4.7***		1.5**		
Vegetables less than 3 days per week				1.2 (*)	1.4**	1.4***	1.3**
Smoking		1.3*		1.3**	1.3**		
Visits to a physician	1.04**						

Notes. (*) p=.08. Number of cases included in the analyses: Stress: E/U N=401, E/E 2455; Depression: E/U N=366, E/E 2315; Insomnia: E/U N=349, E/E N=2189; Psychosomatic symptoms: E/U N=401, E/E 2431;.Anxiety: E/U N=368, E/E 2304;. Pessimistic outlook: E/U N=353, E/E 2206; Low self-esteem: E/U N=339, E/E 2142

The indicators of *social ill-being* were living alone, perceived poor social interaction, perceived low social support from spouse, perceived low support from relatives and friends, major life events and related stress, and lack of money for food. As a rule, the indicators of social ill-being were measured only in the year 1997, the only exception was marital status. In the final logistic regression models of social ill-being, employment status was an important predictor for nearly all of the indicators (Table 24). Male unemployment was a risk factor for living alone (OR 1.9, CI 95% 1.1-3.3) and low spouse support (OR 1.8, CI 95% 1.2-2.8). Furthermore unemployment increased the risk of lack of money for food (OR 4.7, CI 95% 3.6-6.1), two or more major life events (OR 1.5, CI 95% 1.1-1.9), life-event stress (OR 1.6, CI 95%, 1.2-2.0) poor social interaction (OR 3.2, CI 95% 2.3-4.4) and suffering the drawbacks of the recession (OR 5.2, CI 95%, 3.3-8.3). In the youngest age groups, the unemployed 15-27 years old persons seemed to suffer less from the drawbacks of recession relative to the older employed. Unemployment was not associated with experienced support from friends and relatives. Occupational status was associated with major life-events and related stress.

The indicators of *dissatisfaction* were self-dissatisfaction, dissatisfaction with one's own life, dissatisfaction with social relationships, and dissatisfaction with personal finances at the moment of the second measurement and compared to the year 1989/90. Unfortunately the indicators of dissatisfaction were measured only in the second survey, so adjustment for the baseline values was impossible. The strongest association was between employment status and dissatisfaction (table 25). Unemployment increased the odds ratios in the items of dissatisfaction with the social relationships (OR 2.0, CI 95% 1.5-2.8) and with personal finances (OR 8.9, CI 95% 6.6-11.8). The interaction term suggested increased dissatisfaction with one's own life in the unemployed men (OR 1.7, CI 95% 1.1-2.6). In the youngest age-group dissatisfaction with personal finances was lower than in the older age-groups (OR 0.5, CI 95% 0.4-0.8). Blue-collar workers were more dissatisfied with their personal finances than the white-collar workers.

Table 24.The influence of unemployment on social ill-being measures in 1997, logistic regression models (Middle-aged unemployed and employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Marital status single	Low in spouse support	Lack of enough money for food	Two or more major life-events	Life-event stress	Poor social interaction	Suffering drawbacks of recession
Predictor: Unemployed	1.1 Ns.	1.1 Ns.	4.7***	1.5**	1.6***	3.2***	5.2***
Interaction: unemployed * male	1.9*	1.8**					
Interaction. Unemployed * age from 15 to 27 years old							0.5 (*)
Interaction: unemployed * age from 28 to 47 years old							1.4 Ns.
Interaction: unemployed * age ≥ 48 years old							1.0
Co-variables:							
Female	1.2 (*)	1.7***	1.3**		1.4***		
Age from 15 to 27 years	0.5***	0.5***	3.3***	1.6***	1.4*		1.4 Ns.
Age from 28 to 47 years	1.1 Ns.	1.0 Ns.	2.1***	1.4***	1.4*		1.2 Ns.
Age ≥ 48 years	1.0	1.0	1.0	1.0	1.0		1.0
Education ≤ 9 years			1.1 Ns.	0.6***			
Education from 10 to 14 years			1.4**	0.7***			
Education ≥ 15 years			1.0	1.0			
Marital status single	15.5***	3.3***	1.3**				
Blue collar worker				0.8**	0.8**		
General health only average or worse		1.4***	1.4**			1.6**	
Inability to run 500m			1.3 *	1.3**	1.4**		
More than 3 days of restricted activities			1.3***	1.2*	1.3*		
Stress and under pressure				1.6***	1.9***	2.1***	1.5**
Depression	1.4*	1.8***		1.4*	1.7***		
Two or more symptoms			1.2*	1.4***	1.5**		1.4***
Insomnia						1.8**	
Fruit and berries less than 3 days per week			1.3*				
Smoking			1.5***	1.2*			1.5***

Notes. (*) p=.07, Number of cases included in the analyses: Group of E/U=422, E/E=2526, Marital status single: E/U N=421, E/E 2500. Low in spouse support: E/U N=420, E/E 2506. Lack of enough money: E/U N=336, E/E 2144. Major life-events: E /U N=338, E/E 2138. Life-event stress E/U N=333, E/E 2129. Poor social interaction: E/U N=340, E/E 2139. Suffered drawbacks of recession: E/U N=404, E/E 2433.

Table 25. The influence of unemployment on dissatisfaction in 1997, logistic regression models (Middle-aged unemployed and employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Dissatisfied with one's own life	Compared to the year 1989/90 dissatisfied with self	Dissatisfied with social relationships	Dissatisfied with personal finances	Compared to the year1989/90 dissatisfied with personal finances
Predictor: unemployed	2.5***	3.4***	2.0***	8.9***	5.6***
Interaction: unemployed * male	1.7*				
Interaction: unemployed * age from 15 to 27 years old.					0.5*
Interaction: unemployed * age from 28 to 47 years old.					1.0 Ns.
*Interaction unemployed * age* ≥48 years					1.0
Co-variables:					
Female	0.8*				
Age from 15 to 27 years		1.3 Ns.	1.9**	2.7***	1.8***
Age from 28 to 47 years		1.7**	2.0***	2.0**	1.8*
Age ≥ 48 years		1.0	1.0	1.0	1.0
Education ≤ 9 years		0.9 Ns.			
Education from 10 to 14 years		0.6***			
Education ≥ 15 years		1.0			
Marital status single				1.4*	
Blue collar worker				1.6**	
General health only average or worse	2.0***	1.5**			1.5***
Longstanding illness	1.3*				
Unable to run 500m		1.5**			
More than 3 days of restricted activities				1.4*	
Stress and under pressure	1.3*	1.8***	1.7***		1.4*
Depression	1.7***	1.6*	1.8***		
Alcohol more than 7 unit per week			1.4**	2.0***	
Smoking	1.4***			1.6***	1.3**

Notes. Number of cases included in the analyses: Dissatisfied with one's own life: E/U N=407, E/E 2445. Compared to the year 1989/90 no more dissatisfied with self: E/U N=334, E/E N=2122, Dissatisfied with social relations: E/U N=339, E/E 2126. Dissatisfied with personal finances: E/U N=353, E/E 2216. Compared to the year 1989/90 dissatisfied with personal finances: E/U N=393, E/E 2405

When the analyses were limited in the group of employed or unemployed *school-leavers* the picture of *somatic ill health* in these individuals was obtained (Table 26). Unemployment increased the risk of only average or worse general health (OR 3.0, CI 95% 1.8-4.9), general health deterioration (OR 1.8, CI 95% 1.0-3.4), and inability to run 500m (OR 3.5, CI 95% 1.9-6.4). As was the case in middle-aged groups, unemployment in school-leavers seemed to decrease the risk of days of restricted activity. Unemployment did not increase the risk of longstanding illnesses, somatic symptoms, or inability to meet the requirements of everyday life.

Table 26. The influence of unemployment on somatic ill health in 1997, logistic regression models (School-leavers)

Adjusted OR of predictor and co-variables measured in 1989/90	General health average or worse	General health worse than 1 year before	Inability to run 500m	More than 3 days of restricted activities in a year
Predictor: Unemployed school-leaver	3.0***	1.8 (*)	3.5**	0.4***
Co-variables:				
Female			6.1***	1.6**
Age		1.05*		
General health only average or worse	2.8***			
Inability to run 500m			9.4***	
More than 3 days of restricted activities				1.8***
Insomnia				2.2**
BMI ≥ 27 kg/m2			5.1**	
Exercise less than 2 times per week	1.9**			

Notes. (*) p=0.5. Number of cases included in the analyses: General health average or worse: group S/U N=73, S/E N=532, Change of general health: group S/U N=80, group S/E N= 570, Inability to run 500m: group S/U N=76, S/E N= 529, Days of restricted activities: group S/U N=77, S/E N=562. Employment status did not improve the fit of the models to the response variables longstanding illness, two or more symptoms, and inability to meet the requirements of everyday life. The models are not showed.

With respect to the *mental ill-being* indicators youth unemployment increased the risk of depression (OR 2.7, CI 95% 1.6-4.5) and insomnia (OR 1.9, CI 95% 1.1-3.4) after adjustment for the baseline corresponding variable (Table 27). Furthermore unemployment increased the risk of psychosomatic symptoms, anxiety, pessimistic outlook, and low self-esteem. In the case of stress, the model construction was not allowed. These results resemble the results of the middle-aged unemployed but most of the odds ratios are even larger in the group of school-leavers.

Table 27. The influence of unemployment on mental ill-being in 1997, logistic regression models (group School-leavers)

Adjusted OR of predictor and of Co-variables measured in 1989/90	Depression	Insomnia	Psychosomatic Symptoms	Anxiety	Pessimistic outlook	Low self-esteem
Predictor: unemployed school-leaver	2.7***	1.9*	1.9**	2.1**	2.2**	2.7***
Co-variables:						
Female	1.7**		1.6**	1.6**		
Age (continuous variable)	0.95*					
Education ≤ 9 years			2.5**			1.7*
Education from 10 to 14 years			1.7*			1.1 Ns.
Education ≥ 15 years			1.0			1.0
Inability to run 500m					3.0**	2.1*
Depression	1.7*		1.8*			
Insomnia	2.0*	3.0***	2.6***	1.8*		2.1**
Two or more symptoms		1.7*				
Alcohol more than 7 unit per week			2.0**			
Use of vegetables less than 3 days per week					1.7**	
Smoking					1.6*	

Notes. Number of cases included in the analyses: Depression: S/U N=84, S/E N=573; insomnia: S/U N=79, S/E N= 536; psychosomatic symptoms: S/U N=78, S/E N=566; anxiety: S/U N=85, S/E N= 570; pessimistic outlook: group S/U N=78, S/E N=568; low self-esteem: group S/U N=80, S/E N=573; the model with stress as respondent variable is not constructed, because there were too few of cases in the cells for the cross-tabulations.

With respect to the *social ill-being* indicators, youth unemployment was not associated with all those consequences of middle-aged unemployment (Table 28). However, unemployment increased the risk of poor social interaction (OR 2.1, CI 95% 1.3-3.4), lack of money (OR 2.7, CI 95% 1.6-4.5), life event stress (OR 2.1, CI 95% 1.3-3.4), and suffering the drawbacks of recession (OR 2.7, CI 95% 1.6-4.5). This result is somewhat similar to that seen in the middle-aged unemployed; the association is quite strong. Unemployment of the school-leavers did not predict living alone, low spouse support, or major life events in the same way, as was apparent in the middle-aged group of unemployed individuals.

Table 28. The influence of unemployment on social ill-being in 1997 (School-leavers), logistic regression models

Adjusted OR of predictor and co-variables measured in 1989/90	Poor social interaction	Lack of enough money for food	Life-event stress	Suffering drawbacks of the recession
Predictor:				
Unemployed school-leaver	2.1**	2.7**	2.1**	2.7***
Co-variables:				
Female		1.6**	2.0***	
Education ≤ 9 years		2.7***		
Education from 10 to 14 years		1.6*		
Education ≥ 15 years		1.0		
Two or more symptoms	1.5*			
Unable to run 500m				2.0(*)
Depression			1.6*	
Insomnia	1.7*		1.7*	
Visits to a physician			1.08**	
Exercise less than 2 times per week				1.6*
Smoking		1.8**		1.5*

Notes. (*) =0.6. Number of cases included in the analyses: Poor social interaction: S/U N=81, S/E N=575; lack of enough money: S/U N=79, S/E N=551; life-event stress: S/U N=80, S/E N=573; suffered from drawbacks of recession: S/U N=76, S/E N=533; employment status did not improve the fit of the models to the response variables marital status, two or more major life-events, social support, and suffering the drawbacks of the recession. The models are not shown.

Similar to the case in the middle-aged unemployed group, unemployment in the school-leavers also increased the risk of *dissatisfaction* with one's own life (OR 4.0, CI 95% 2.4-6.6), more self-dissatisfaction than earlier (OR 3.4, CI 95% 1.9-6.2), dissatisfaction with finances compared to earlier (Table 29). The unemployed male school-leavers had increased risk of dissatisfaction with personal finances at the moment (OR 5.1, CI 95% 1.6-16.1). The association of unemployment and dissatisfaction was strong.

Table 29. The influence of unemployment on dissatisfaction in 1997 (School-leavers), logistic regression models

Adjusted OR of predictor and co-variables in 1989/90	Dissatisfied With one's Own life	Compared to the year1989/90 Dissatisfied with self	Dissatisfied with personal finances	Compared to the year 1989/90 dissatisfied with personal finances
Predictor: unemployed school-leaver	4.0***	3.4***	1.8 Ns.	2.6***
Interaction unemployed* male			5.1**	
Co-variables:				
Female			1.5 Ns.	1.9**
Education ≤ 9 years			4.3***	
Education from 10 to 14 years			1.8 Ns.	
Education ≥ 15 years			1.0	
Two or more symptoms			1.7*	
Inability to run 500m		2.5*		
More than 3 days restricted of activities				1.6*
Exercise less than 2 times per week	1.8**			
Insomnia			2.2**	
Visits to a physician			1.08*	

Notes. Number of cases included in the analyses: Dissatisfied with ones's own life: group S/U N=80, S/E N=578. Compared to the year 1989/90, dissatisfied with self: dissatisfied with personal finances: S/U N=78, S/E N=570; compared to the year 1989/90 dissatisfied with personal finances: group S/U N= 75, S/E N=533. Employment status did not improve the fit of the models to the response variables dissatisfied with social relationships. The model is not shown.

The members of the *early-unemployed* group were out of work already in the first survey. Being in the early-unemployed group was a somewhat dissimilar predictor than being a job loser. Of the *somatic ill health* variables, being in the group of early-unemployment, increased only the risk of inability to undertake a long run (Table 30). The model of restricted days of activities did not fit; it had to be rejected. Early-unemployment predicted pessimistic outlook, and lack of enough money for food. Since the sub-sample of the middle-aged employed was the same as in earlier models, the models were very similar to the earlier situation and the odds ratios very close to each other with the earlier models where the middle-aged employed were included. In the model with dummy variable, early-unemployed/employed, the co-variable occupational status was excluded.

Table 30. The influence of early-unemployment on ill health and ill-being in 1997 (Group early-unemployed and middle-aged employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Inability to run 500m	Pessimistic outlook	Lack of enough money for food	Suffering drawbacks of the recession
Predictor: Early-unemployed	2.1*	1.7*	4.4***	2.4***
Co-variables:				
Female	2.9***		1.5***	
Age from 15 to 27 years	0.3***		3.5***	
Age from 28 to 47 years	0.4***		1.9***	
Age ≥ 48 years	1.0		1.0	
Education ≤ 9 years		2.2***	1.1 Ns.	
Education from 10 to 14 years		1.3*	1.6***	
Education ≥ 15 years		1.0	1.0	
General health only average or worse	1.7***		1.4**	
Two or more symptoms	1.3*		1.4**	1.4**
Inability to run 500m	13.0***	1.6***	1.2*	
Stress and under pressure		1.3*		1.7***
Depression		1.9***	1.5**	
Exercise less than 2 times a week	1.4**			
BMI ≥ 27 kg/m2	1.7***			
Vegetables less than 3 days a week	1.5**	1.4***		
Fruit and berries less than 3 days a week			1.3*	
Smoking			1.6***	

Notes. Number of cases included in the analyses: Inability to run 500m: group U/U N=62, E/E N=2264; pessimistic outlook: group U/U N=70, E/E N=2337; lack of enough money for food: group U/U N=66, E/E N=2281; suffering drawbacks of recession: group U/U N=68, E/E N=2295. Employment status did not improve the fit of the models to the response variables general health only average or worse, longstanding illness, somatic symptoms or psychosomatic symptoms, energy/fatigue, depression, insomnia, social support or social interaction, marital status, low self-esteem, and anxiety. The models are not shown.

Early-unemployment predicted dissatisfaction with one's own life, dissatisfaction with self, and dissatisfaction with personal finances (Table 31.). The association of early-unemployment to dissatisfaction was strong.

Table 31. The influence of early- unemployment on dissatisfaction in 1997 (Group early-unemployed and middle-aged employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Dissatisfied with one's own life	Compared to 1989/90 Dissatisfied with self	Dissatisfied with personal finances	Compared to 1989/90 Dissatisfied with personal finances
Predictor: Early-unemployed	3.6***	2.4**	11.5***	3.3***
Early-unemployed * Age from 15 to 27 years			0.1***	
Early-unemployed * Age from 28 to 47 years			0.8 Ns.	
Age ≥ 48 years * early-unemployed			1.0	
Co-variables:				
Female	1.5***			
Age from 15 to 27 years			4.3***	1.8**
Age from 28 to 47 years			2.4*	1.8***
Age ≥ 48 years			1.0	1.0
Education ≤ 9 years		0.7 Ns.		1.4*
Education from 10 to 14 years		0.7*		1.4**
Education ≥ 15 years		1.0		1.0
General health average or worse			1.9***	1.5**
Longstanding illness	1.3*			
Two or more symptoms	1.3*			
Inability to run 500m	1.5**	1.5**		
More than 3 days of restricted activities			1.5*	
Stress and under pressure	1.5**	1.9***		1.4*
Depression	1.7**	1.7**		
Visits to a physician				1.03*
Exercise less than 2 times per week	1.3*	1.4*		
Alcohol more than 7 unit in week			1.9***	
Smoking	1.4**		1.6**	1.5***

Notes. Number of cases included in the analyses: Dissatisfied with one's own life: U/U N=75, E/E N=2294. Compared to 1989/90 dissatisfied with self: U/U N=53, E/E N=1972. Dissatisfied with personal finances: U/U N=52, E/E N= 1953. Compared to 1989/90 dissatisfied with personal finances: U/U N=74, E/E N=2403. Employment status did not improve the fit of the model to the response variables dissatisfied with social relationships. The model is not shown.

In sum, the evidence of this study shows that unemployment predicts self-perceived ill-being. The association of unemployment to somatic ill health was only moderate but the association of unemployment to mental and social ill-being as well as dissatisfaction was quite strong. However, the results do indicate that unemployment also was related to somatic ill health too. The unemployed had more a health detrimental lifestyle; there were some indications that in males unemployment is able to induce stress and to elevate blood pressure, which can be viewed as a serious threat to health.

4. Impact of ill-being on unemployment, Hypothesis 2. social selection

Employment status as a dependent variable and the co-variables measured at T1, the models were fitted next (Table 32). The procedure was the same as above; each of the predictors and co-variables were fitted first alone with the dependent variable and then a stepwise procedure was employed to form the logistic regression model. In the results, some of the health related variables predicted unemployment. Inability to undertake a long run (OR 1.4, CI 95% 1.0-2.0), depression (OR 1.8, CI 95% 1.2-2.6), and insomnia (OR 1.6, CI 95% 1.1-2.6) increased the risk of unemployment in the middle-aged group. Of the other health related variables visits to a physician (OR 1.04, CI 95% 1.01-1.07) and eating disorders were associated with increased risk. Living alone in the years 1989/90 increased the risk of unemployment in the year 1997 (OR 1.7, CI 95% 1.0-2.9).

In the school-leavers, unhealthy behaviour (smoking 1.7, CI % 1.0-2.9; overweight OR 3.2, CI 95% 1.2-8.9; and rare consumption of vegetables (OR 2.0, CI 95% 1.2-3.4) increased the risk of unemployment. In sum, it can be said that initial poor physical functioning, mental ill-being, and unhealthy way of life all had an impact on later unemployment.

In the group of the early-unemployed, the risk factors for being unemployed also in the second survey were with some exceptions the same as in the middle-aged unemployed. In the model, poor general health substituted for insomnia. The health related predictors of job insecurity were being single, having two or more symptoms, and poor general health. Increased odds for transfer to retirement were older age, and fewer education years. Unhealthy behaviour decreased but ability to undertake a long run increased the probability of staying a housewife in women. Introducing the interaction term marital status and gender into the model did not improve the fit of the model to the respondent variable suggesting that marital status had no differential effect on unemployment in men and women. In sum, when adjusted with numerous co-variables, functional inability and depressive symptoms were associated with subsequent unemployment. An unhealthy lifestyle was associated with unemployment especially in young school-leavers.

Table 32. The influence of somatic ill health and ill-being variables on employment status in 1997, logistic regression models

Adjusted OR of predictor and co-variables measure in 1989/90	Middle-aged unemployed	Unemployed School-leaver	Early-unemployed	Insecurely employed	Retired	Housewife
Female	1.6**	2.9***		1.6**		
Age from 15 to 27 years	0.5 Ns.					
Age from 28 to 47 years	0.4***					
Age ≥ 48 years	1.0					
Age (continuous variable)					1.7***	
Education ≤ 9 years	4 .3***		13.7***		3.5***	
Education from 10 to 14 years	2.2***		5.0**		2.3*	
Education ≥ 15 years	1.0		1.0		1.0	
Blue collar worker	1.9***			1.7**		
Marital status single	1.7***		3.6***	1.5*		
General health average or worse			2.5***	1.6**		
Unable to run 500m	1.4*					2.6*
Two or more symptoms				1.4*		
Depression	1.8**		1.9*			
Insomnia	1.6*					
Visits to a physician	1.04*		1.07**			
Smoking		1.7*				0.4*
Exercise less than 2 times per week						0.3**
BMI ≥ 27 kg/m2		3.2*				
Vegetables less than 3 days per week	1.4*	2.0**	1.9*			

Notes. Dependent dummy-variables:
Unemployed/employed: number of cases included in the analysis N=2483,
Unemployed school-leaver/employed school-leaver, number of cases included in the analysis N=594.
Early unemployed/middle-aged employed, number of cases included in the analysis N=2357.
Insecurely employed/middle-aged employed: number of cases included in the analysis N=2507,
Retired/middle-aged employed, number of cases included in the analysis N=3019.
Housewife/employed housewife. Number of cases included in the analysis N=138

Aching joints were found to be a symptom that predicted subsequent unemployment after adjusting for sex, age, marital status, occupational status, depression, physical functioning, smoking, and body mass index. Risk of subsequent unemployment increased for those with joint ache at the baseline (OR 1.5 CI 95% 1.1-2.2).

5. Impact of job insecurity on ill-being

In the following analyses the independent variable is the dummy variable job insecurity (yes/no). This employment status did not improve the fit of most of the models in which the outcome variable was somatic ill health suggesting that job insecurity had no effect on ill health. Of the *somatic ill health* variables, *job insecurity* predicted only inability to undertake a long run in men (Table 33). If

a man was in an insecure job, the odds ratio for his inability to run 500m was OR 2.2 (CI 95% 1.1-4.5). If a man was in an insecure job, the OR for insomnia was 2.4 (CI 95% 1.2-4.7). Job insecurity increased the risk of anxiety. Fitting the models adjusting the outcome variables of mental ill-being with the baseline variables, indicated that those with insecure job experienced stress (OR 1.6) and depression (OR 1.8).

Table 33. The influence of job insecurity on somatic ill health and mental ill-being in 1997, logistic regression model (Group insecurely employed and middle-aged employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Inability to a long run	Stress and under pressure	Depression	Insomnia	Anxiety
Predictor: Insecurely employed	0.9 Ns.	1.6*	1.8***	1.0 Ns.	1.6**
Interaction: job insecurity * male	2.2*			2.4**	
Co-variables:					
Female	3.1***		1.6***		
Age from 15 to 27 years old	0.3***				
Age from 28 to 47 years old	0.4***				
Age ≥ 48 years old	1.0				
Two or more symptoms		1.7***		1.6***	1.3*
General health only average or worse	1.8***		1.4*		1.5***
Insomnia		1.9***	2.1***	4.6***	1.4*
Inability to run 500m	12.5***			1.6***	1.3**
Depression			3.1***	1.6**	1.6**
Stress and under pressure		3.0***	1.5**		1.9***
Exercise less than 2 times per week	1.5***				
Vegetables less than 3 days per week	1.4***				
BMI ≥ 27 kg/m2	1.9***				
Smoking					1.3*
Vegetables less than 3 days per week	1.4*				1.3*
Visits to a physician			1.03*		

Notes. Number of cases included in the analyses: Inability to a long run: E/I N=214, E/E N=2265; stress and under pressure: E/I N=194, E/E 2117; depression: E/I N= 218, E/E N=2310; insomnia: E/I N=232, E/E 2408; anxiety: E/I N=193, E/E 2113. Employment status did not improve the fit of the models to the response variables psychosomatic symptoms, pessimistic outlook, and low self-esteem.

The people in an insecure job had experienced more the consequences of the recession than those in secure employment. They complained of lack enough money for food OR 2.2 (CI 95% 1.6-3.0) and they had had more often life-events OR 1.6 (CI 95% 1.1-2.1) and life-event stress OR 4.7(CI 95% 2.3-9.9) than the securely employed people (table 34).

Table 34. The influence of job insecurity on social ill-being in 1997, logistic regression models (Insecurely employed and middle-aged employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Two or more major life-events	Life-event stress	Lack of enough money for food	Suffering the drawbacks of the recession
Predictor: Insecurely employed	1.6**	4.7***	2.2***	3.6***
Co-variables:				
Female		1.4***	1.5***	
Age from 15 to 27 years	1.8**		4.2***	
Age from 28 to 47 years	1.4**		2.3***	
Age ≥ 48 years old	1.0		1.0	
Education ≤ 9 years	0.6***		1.0 Ns.	
Education from 10 to 14 years	0.7***		1.4**	
Education ≥ 15 years	1.0		1.0	
Blue collar worker	0.7**			
Two or more symptoms	1.3**	1.5***	1.3*	1.4***
General health only average or worse		1.3**	1.4**	
Inability to run 500m	1.5***			
More than 3 days of restricted activities	1.3**	1.3**	1.4***	
Depression	1.4*	1.7***	1.5**	
Insomnia				
Stress and under pressure	1.6***	2.0***		1.6***
Smoking			1.5***	1.6***
More than 7 unit alcohol per week		1.3*		
Exercise less than 2 times per week		1.2*		
Fruit or berries less than 3 days per week			1.3**	

Notes. Number of cases included in the analyses: Life-events E/I N= 206, E/E 2197; Life-event stress E/I N=236, E/E N=2460; Lack enough money for food E/I N= 201, E/E N=2156; Suffered drawbacks of recession E/I N=213, E/E N=2281. Employment status did not improve the fit of the models to the response variables marital status, low social support, or poor social interaction. The models are not shown.

The insecurely employed showed dissatisfaction more than the securely employed. However, the odds ratios ranged between 1.8 and 3.5, which were a somewhat lower than the corresponding of the unemployed group (table 35).

Table 35. The influence of job insecurity on dissatisfaction in 1997, logistic regression models (Insecurely employed and middle-aged employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Dissatisfied With one's own life	Compared to the year1989/90 Dissatisfied with self	Dissatisfaction with social relations	Dissatisfied with personal finances	Compared to the year 1990 dissatisfied with personal finances
Predictor: Insecurely employed	2.2***	1.8**	1.8**	3.5***	2.8***
Co-variables:					
Female					
Age from 15 to 27 years				4.7***	1.7**
Age from 28 to 47 years				2.6*	1.6**
Age ≥ 48 years				1.0	1.0
General health only average or worse	1.7***	1.5**		1.8**	1.4**
Two or more symptoms					1.3*
Longstanding illness	1.3*				
Stress and under pressure	1.6**	1.7**	1.5*		1.3*
Depression	1.7***	1.9***	1.9***	1.6*	
Insomnia	1.6**				
Alcohol less than 7 unit per week			1.5**	2.0***	
Fruit or berries less than 3 days per week	1.3*				
Exercise less than 2 days per week					1.3*
Smoking	1.4**			1.9***	1.4**

Notes. Number of cases included in the analyses: Groups E/I N= 248, E/E N= 2526. Dissatisfied with own life: E/I N=193, E/E N=2127. Compared to 1989/90 dissatisfied with self: E/I N=217, E/E N=2341. Dissatisfied with social relationships E/I N= 230, E/E N= 2424, Dissatisfied with personal finances: E/I N=206, E/E N= 2222. Compared to 1989/90 dissatisfied with personal finances: E/E N=207, E/E N=2217.

To confirm the above results, the insecurely employed were compared to the unemployed by forming a dummy-variable of these two groups. This dummy explained neither of the somatic ill health variables nor the mental ill-being variables. The unemployed people had greater risk of having lack of enough money (OR 2.2, CI 95% 1.5-3.2) and suffering the drawbacks of the recession (OR 1.6, CI 95% 1.1-2.4). The unemployed appeared to be much more dissatisfied with themselves as human beings (OR 1.8, CI 95% 1.0-2.8), dissatisfied with their own life (OR 1.5, CI 95% 1.0-2.2), dissatisfied with personal finances (OR 2.5, CI 95% 1.6-3.9) than the insecurely employed persons.

6. The impact of non-employment on ill-being

Retirement appeared to have no significant effect on most of the somatic ill health outcome variables (Table 36). For the retired, the odds of inability to meet the requirements of everyday life was only half of the odds of those of employed. For the employed, the odds of having more than 3 days restricted of activities was approximately double the corresponding odds in the retirees. Holding constant the other terms in the model, for the employed the occurrence of self-assessed health deterioration was approximately double the odds for the retired. To summarize, retirement did not affect the somatic ill-health of these people. For the pensioners the odds of depression and anxiety was approximately half of the odds of those of employed. For the employed, the odds of having stress more than an average was three times the corresponding odds on the retired persons.

Table 36. The influence of retirement on somatic ill health and mental ill-being in 1997 (Pensioned and middle-aged employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Unable to meet the requirements of everyday life	More than 3 days of restricted activities	Health not as good as year before	Stress and under pressure	Depression	Anxiety
Predictor: Retired on a pension	0.5***	0.4***	0.6*	0.3***	0.6**	0.6***
Co-variables:						
Female	1.7***				1.7***	
Age		0.98***	1.03***			
Education ≤ 9 years	0.9 Ns.					1.4**
Education from 10 to 14 years	0.8*					1.1 Ns.
Education ≥ 15 years	1.0					1.0
General health only average or worse	1.4***		2.2***		1.4**	1.4**
Longstanding illness			1.4*			
Two or more symptoms	1.4***	1.3*	1.3*	1.6***		1.3**
Unable to run 500m	1.3**	1.5***				1.4**
More than 3 days of restricted activities		2.3***				
Stress and under pressure	2.2***			3.4***	1.5**	1.7***
Depression	2.0***				3.3***	2.0***
Insomnia				2.2***	2.4***	1.5**
Visits to a physician		1.05**	1.04*			
Use of vegetables less than 3 times per week						1.3**

Notes. Number of cases included in the analyses: Unable to meet the requirements of everyday life: E/P N= 380, E/E N=2287; days of restricted activities: E/P N= 204, E/E N=2235; general health not as good as year before: E/P N=404, E/E N=2336; stress: E/P N= 399, E/E N=2235; Depression: E/P N=331, E/E N=2138; anxiety: E/P N= 316, E/E N=2113. The employment status did not improve the fit of the models to the response variables general health only average or worse, longstanding illness, somatic symptoms, inability to run 500m, insomnia, psychosomatic symptoms, pessimism, or low self-esteem.

The retired were more at risk of living alone and having lack of money than the employed people (Table 37). The retirees had approximately half the odds of experiencing the two or more major life events and related stress relative to the employed.

Table 37. The association of retirement and social ill-being in 1997 (Pensioned and middle-aged employed)

Adjusted OR of predictor and co-variables measured in 1989/90	Marital status single	Major life events	Life-event stress	Lack of enough money for food
Predictor: Retired on a pension	1.5**	0.5***	0.6 Ns.	1.9***
Retired * Education ≤ 9 years			0.4**	
Retired * Education from 10 to 14 years			0.5 Ns.	
Retired* Education ≥ 15 years		1.0	1.0	
Co-variables:				
Female	1.3*	1.3***	1.4***	1.6***
Age		0.98***		0.94***
Marital status single	13.0***			
Education ≤ 9 years		0.5***	0.8 Ns.	1.3(*)
Education from 10 to 14 years		0.6***	0.9 Ns.	1.5***
Education ≥ 15 years		1.0	1.0	1.0
Two or more symptoms				1.3**
Unable to run 500m	1.4*		1.2*	
General health only average or worse		1.3*		1.4**
Two or more symptoms		1.4***	1.6***	
More than 3 days of restricted activities			1.3**	1.3*
Stress and under pressure		1.7***	2.1***	
Depression			1.7***	1.4*
Insomnia		1.4*		
Exercise less than 2 times per week			1.2*	
Fruit and berries less than 3 days per week				1.4**
Alcohol more than 7 unit per week			1.3*	
Smoking		1.2*		1.5***

Note. (*) p=.07. Number of cases included in the analyses: Major life-events: E/P N=393, E/E N=2232; life-event stress: E/P N=319, E/E N=2142; marital status single: E/P N=369, E/E N=2295; lack of enough money for food: E/P N=311, E/E N=2127. The employment status did not improve the fit of the models to the response variables: low social support, poor social interaction, or suffered drawbacks of the recession.

Fitting of the models of somatic ill health, mental ill-being, and social ill-being for the group of housewives as the predictor are summarised in table 38. The models indicate that the relationship between employment status of housewives and ill-being is moderate. In modelling the dependence of ill-being on the explanatory dummy-variable continuous housewife/ employed housewife, there were only 5 models which indicated any relationship and all of these models suggested that the employed housewives had two to five times higher the risk of ill-being relative to the housewives who retained their position.

Table 38. The association of employment status housewife to ill-being in 1997, logistic regression

Adjusted OR of predictor and co-variables measured in 1989/90	Stress at least as much as people on Average	Low self-esteem	Experienced major life events	Life event stress	Dissatisfaction with own life
Predictor: Stable housewife	0.4*	0.4**	0.2***	0.2***	0.3*
Co-variables:					
Age (continuous variable)		1.05*	1.17*		1.07*
Longstanding illness	0.3*				
Two or more symptoms			3.3**		4.6**
Stress at least as much people on average	4.2***		2.5*		
Depression				3.8*	
Vegetables less than 3 days per week		3.9**			

Notes. Number of cases included in the analyses: Low self-esteem: H/H N=63, H/E N=85; stress at least as much as people an average: H/H N=59, H/E N= 85; experienced major life-events: H/H N=59, H/E N=86; life-event stress: H/H N=64, H/E N=87; dissatisfaction with one's own life: H/H N=52, H/E N=84. The employment status did not improve the fit of the models to the response variables general ill health, longstanding illness, somatic symptoms, inability to run 500m, energy/fatigue, stress, depression, insomnia, psychosomatic symptoms, anxiety, pessimism, low social support, poor social interaction, suffered drawbacks of the recession, dissatisfaction with self or personal finances, are not shown because employment status did not improve the fit of these models.

7. The association of social interaction, social support and ill-being

When the association of social interaction and support with ill-being was analysed; some new co-variables were introduced. The co-variables which fitted into the models were measured in the second survey, except in those cases were the corresponding baseline measurement was available. The variables fitted first in the univariate analyses and subsequently in the multivariate analyses. In table 39 it can be seen that in the group of middle-aged unemployed, after adjusting for the baseline variables, the poor social interaction was associated with increased risk of stress (OR 3.5), and

depression (OR 3.2). Furthermore poor social interaction was associated with inability to meet the requirements of everyday life and dissatisfaction with one's own life n the unemployed people. However, in most of the indicators of ill-being, poor social interaction was not detected to be associated with less ill-being in the unemployed individuals.

Table 39. The association of social interaction and ill-being in the year 1997 (middle-aged unemployed)

Adjusted OR of predictor and co-variables measured in 1997	Stress and under pressure in 1997	Depression in 1997	Unable to meet the requirements of everyday life in 1997	Dissatisfaction with one's own life in 1997
Poor social interaction	3.5*	3.2**	2.3*	3.0***
Female		2.9**		
Age from 22 to 34 years old				0.8 Ns.
Age from 35 to 54 years old				2.1*
Age ≥ 55 years old				1.0
Single		2.0*		
General health average or worse	2.5*			
Unable to meet the requirements of everyday life	3.6***	2.3**		
Stress and under pressure			2.3*	
Depression in 1989/90		3.5***		
Depression in 1997			1.9*	
Insomnia	3.9***	3.9***		
Anxiety		3.2**	4.4***	5.2***
Pessimistic outlook		2.1*		
Psychosomatic symptoms	6.9***		3.1***	
Life-event stress				2.0*
Poor personal finances	3.5***	2.4**		3.4***
No social support				5.2***

Notes. The whole group E/U N=422. Number of cases included in the analyses: Unable to meet the requirements of everyday life: group E/U N=350; depression: group E/U N=345; stress and under pressure: group E/U N=416; dissatisfaction with own life: group E/U N=376. The employment status did not improve the fit of the models to the response variables general ill health, change of general health, longstanding illness, somatic symptoms, inability to run 500m, insomnia, psychosomatic symptoms, anxiety, pessimism, low social support, suffering drawbacks of the recession, dissatisfaction with self or personal finances, are not shown because social interaction did not improve the fit of these models.

In the group of the unemployed people, lack of perceived social support was associated with poor self-perceived general health (OR 3.7), low self-esteem (OR 3.3), and dissatisfaction with one's own life (OR 5.2). Low spouse support was associated with psychosomatic symptoms (OR 1.8).

Compared to the year 1989/90, dissatisfaction with social relations was associated with dissatisfaction with one's self (OR 7.5). Consequently, lack of social support was moderately associated with experienced ill-being in the unemployed group. However, in total these co-variables were associated with six out of twenty health related outcome variables.

Table 40. The association of social support and ill-being in the year 1997 (middle-aged unemployed)

Adjusted OR of predictor and co-variables measured in 1997	General health only average or worse in 1997	Psychosomatic symptoms in 1997	Low in self-esteem in 1997	Dissatisfaction with own life in 1997	Compared to 1989/90 more self-dissatis-faction in 1997
No social support	3.7***		3.3**	5.2***	
Low spouse support		1.8*			
Compared to 1990 more dissatisfied with social relations					7.5***
Unemployment > 6 months			1.8*		
Age from 22 to 34 years old				0.8 Ns.	
Age from 35 to 54 years old				2.1 *	
Age ≥ 55 years old				1.0	
General health average or worse in 1989/90	3.6***				
Longstanding illness		2.2**			
Unable to run 500m	3.2***				
Unable to meet the requirements of everyday life		2.3**			
Stress and under pressure	4.7***	5.7**			3.8**
Insomnia		2.1*			
Anxiety			2.5**	5.2***	
Pessimistic outlook			2.2**		
Low self-esteem		2.1**			8.1***
Psychosomatic symptoms			2.2**		
Life-event stress				2.0*	
Poor social interaction				3.0***	
Poor personal finances				3.4***	3.2**

Notes. General health average or worse: E/U N= 380; psychosomatic symptoms: E/U N=366; low in self-esteem: E/U N=353; dissatisfaction with one's own life: E/U N=341; compared to 1989/90 dissatisfied with self: E/U N=320.The employment status did not improve the fit of the models to the response variables; change of general health, longstanding illness, somatic symptoms, inability to run 500m, stress, depression, insomnia, anxiety, pessimistic outlook, suffered drawbacks of the recession, dissatisfaction with self or personal finances, are not shown because social support indicators did not improve the fit of these models.

Finally using the dummy variable middle-aged employed/unemployed as a dependent variable it was examined whether social interaction or social support were associated with unemployment. The results showed that the factors most closely associated with current unemployment were lack of money, few years of education, dissatisfaction with one's own life, inability to run 500m, spouse unemployment, being female, living outside capital area, older age 35-54 years old, and depression in this order. Consequently, the results indicated that the social support or the level of social interaction were not associated with unemployment situation.

VI DISCUSSION

1. Evaluation of the methods

The aims of the study were as follows: (1) to explore the impact of unemployment on ill-being (2) to explore the impact of ill-being on unemployment (3) to explore the impact of job insecurity on ill-being (4) to explore the impact of non-employment on ill-being (5) to analyze the association of social interaction, social support, and ill-being in the unemployed (6) to analyze the association of social interaction, social support, and employment status. The relationship of employment status to ill-being was examined by means of a panel survey and the time elapsing between the two measurement points was 7-8 years; the follow-up period was long enough for changes in health status to have occurred. The Health Behavior Survey was used in data collection; the sampling-frame was all Finnish adults aged between 15 and 65 years old at the starting point. The information gathered enabled the construction of sub-samples of different employment statuses and these sub-samples were sufficient for most of the statistical analyses.

The overall response rate was 55%, which was high enough to permit reliable analysis. Men had a lower response rate than women; among the young male school-leavers the problem of non-responses was the greatest. The causes of non-responses remain open. As has been previously found, a proportion of the unemployed people may have many problems in their life—including alcohol disorder, criminal behaviour, or homelessness. These people may be difficult to trace. The time elapsing between the surveys was 7-8 years. It is possible that many of people would have changed their health status or their health behaviour during that time. It is likely that in the passing years, many things had happened. On the other hand, health related behaviour and lifestyle are rather constant. Mulder et al (253) studied the stability of health related lifestyle (smoking, alcohol consumption, physical activity, and dietary habits) and reported that half of the sample did not change their behaviour over a 4-year period. Only one in ten changed two or more lifestyle behaviour. In this study there was a retrospective question about number of the unemployment spells in the period between the years 1990 and 1997. The proportion of those with these spells increased from the year 1990 in parallel with the curve of the national unemployment rate.

The unemployed and non-employed groups had somewhat lower responses rates in the items of ill-being than the employed groups. However, in the most of the items, the difference was not great. The most obvious selective drop out appeared to be in the item ‘days of restricted activities’; this finding being in accordance with some previous findings (120). The item seemed to be more closely

associated with employment status than with health. Where the response rate was extraordinarily low, this was taken into account in the analyses. In this study the middle-aged unemployed represented 14.3% of the dummy employed/unemployed and the unemployed school-leavers represented 12.8% of the dummy employed/unemployed school-leavers. These proportions were approximately equal to the national unemployment rate of the time in the second survey.

In the present study subjectively determined employment status is appropriate, because the health effects are considered to follow from the personal appreciation of the situation (for example experienced threat of job loss), which is best evaluated by the respondent. The hidden unemployed are more likely to be included in this kind of random sample than if people are chosen from unemployment register. On the other hand, the register data is also based on self-defined information and there is even disagreement on the real numbers of unemployed people between the authorities. The proportion of people in different employment status depends on the way employment is defined. It is possible that there are respondents who were not able to define their employment status correctly—for example, people working in voluntary organizations, housewives, or artists.

This study has to rely on subjective judgements of the individual's health. Subjective measurement is able to give an immediate description of the quality of ill-being. A respondent can make numerically accurate estimates of a stimulus, which reflects his/her own health, especially judgements about mild symptoms. The measurements of this study have been previously in use both abroad and in Finland. Nonetheless, one defect of this study is that it has no criterion against which to compare the results of the outcome variables. Sometimes personality and situation may be reasons for distorted answers and sometimes the respondent cannot remember the inquired events from the past. Most of the health related items asked the respondents to remember symptoms or events, which occurred during the last month or during the last week.

Some inconsistencies have been found in data collected about physical exercise (254) smoking (255), or alcohol consumption (256) between the different groups. In the case of smoking or alcohol consumption, some biochemical assessment would have been preferable but unfortunately none was available in this study. The measurement of physical exercise is questionable, because it asks if the respondents describe, how many times in a week they had physical exercise until they sweated or got out of breath. Logically, if a respondent is in poor shape, the answer may more likely to be positive than if a respondent is in a good physical condition. In the whole sample, in the first survey

the question about physical exercise correlated only moderately (OR 1.4) with the question about ability to run 500 meter. For example, it has been found (254) that farmer's wives underestimate the amount of exercise they do each day. Time use survey could well have been a better data collecting method in the health behaviour items.

In the questionnaires the explanatory variable was placed at the beginning of the questionnaires; this may have had some effect on the subsequent responses. Subjects may have responded in a socially desirable way that they believe is congruent with the investigators' expectations. Perhaps in the society in which we live, being ill is a more legitimate role than being unemployed and that is why some respondents may have adopted the sick-role to give them the right to be jobless. However, subjective assessment of health cannot be neglected in health care domains. The Health Behavior Survey-study was originally intended to survey health behavior and related events, not the association of unemployment and health. Consequently this study, probably, was not considered be related to unemployment insurance or other social security, and consequently there was no fear of losing some benefit because of the information given by the respondent.

Many dependent variables were considered to encompass the concepts of somatic ill health, mental ill-being, and social ill-being. Many of the items had a dichotomous response. This self-rating method is adequate to establish the presence of symptoms but not to quantify their severity. Perhaps the scales may not have demonstrated discriminate validity; there were interrelations between the different scales and items. However, the different scales were considered as separate dimensions of ill-being, and it was supposed that the scales contained unique information, therefore overall score was not calculated. The concept of ill-being was derived from many items. Outcome variables were analyzed separately because the results of the different kinds of defects in ill-being were considered to be important information. Content validity of the instrument is adequate because numerous health-related variables and many different aspects of the concept of ill-being were taken into account. The somatic ill health, - mental ill-being, - or social ill-being variables did not correlate highly with each other and did not measure the same aspect of ill-being. The fact that different demographic and health variables predicted each dependent variables confirms the multidimensional nature of the scale.

Items that were mainly physical in nature were analyzed together. The item of general health is widely used. However, judging by correlation, self-reported general health and inability to meet the

requirements of everyday life reflected both somatic and mental ill-being. Fatigue can have underlying physical basis or emotional problems; fatigue is a symptom of depression. Compared to prior health, general health exhibited some change over time. The diseases inquired were not exhaustive: there were no questions of cancer, accidents, visual defects, or hearing problems. Additionally only known diseases were reported, and it is possible even likely, that there were silent diseases not known to the respondents whether these were. Unevenly distributed or not, remained unknown. How they think about their health and whether they are satisfied with their health, is what makes people decide whether or not to visit a doctor. The items of symptoms included mainly somatic symptoms with the possible exception being item of headache; which is often caused by tension.

The concept of restricted activity days was defined as days absent from work or failure to attend to normal duties. As the analysis proceeded, it was found out that item 'days of restricted activities' was closely related to employment status and this probably accounted for the many non-responses among the unemployed and non-employed groups. The unemployed had fewer days absent than the employed. The unemployed might be satisfied with less than perfect physical functioning scores because of the minimal physical demands their daily life makes upon them. Functioning is often assessed within many areas (active daily living, ability to do homemaking, or shopping). Measurement of functioning is subject to confusion with social roles; walking and running are not very role related. It was assumed that if a respondent states that he/she has no problem with vigorous activities, i.e. running 500 meter, it is unlikely that he/she is limited on any of the remaining items i.e. walking. However, one problem with this item may arise from the fact that not everybody likes running.

Multiple types of indicators and symptoms that indicated mental health problems were included in the study. Many of them were measured only in the second survey. Negative affectations were quite well presented in the questionnaires but there were only few opportunities to show positive feelings (only in the items of satisfaction). Many of the concepts are complex and difficult to define by a single item. As one example, the definition of depression contains many components; since it was in the form of a dichotomy, the measurement did not elicit information on intensity of symptoms of depression. Long-term somatic diseases can lead to sleeping difficulties for example pain can stop a person from sleeping. No information of the conditions of cognitive functions (memory, concentration ability) was available. Items of depression and insomnia were dichotomised. They correlated with each other and some other items of depression measured in the

year 1997 questionnaire (not reported in this study). Stress was ordinarily measured with the item used for years also in the Finn Risk study. Stress was included in the item of life-event stress as well—these two stress-items correlated. Psychosomatic symptoms constituted an index with essential symptoms either of depression or anxiety. This item was ordinarily measured. Items of anxiety, low self-esteem, and pessimistic outlook were validated indexes. All these together constituted in a satisfactory manner the concept of mental ill-being. The unemployed showed worse mental and social health in *all of the indicators measured*—this fact is noteworthy. Ill-being like this increases the liability to become physically sick.

In the present study the unemployed people lived more often alone and lonely living did not decrease as it did between the two measurement points in the employed groups. The unemployed men experienced having less support from their spouse and they perceived that their relationships with their closest people were worse than did the employed. The spouse of the unemployed more often was unemployed than the spouse of the employed. However, the unemployed did not experience less support from their relatives or friends than the employed did. This finding was in accordance with some the previous studies (143,144); the unemployed perceive still to have emotional support from other people. However, some other of the previous studied reported different result (142). Nearly two in three of the unemployed suffered from financial strain.

According to the previous study, low social support was associated with mental distress especially among women and loneliness was associated with mental distress among men (257). In another Finnish sample, 88% of the men and 86% of the women reported they were happy in their closest relationship (258) The proportion of mental distress was somewhat smaller in the married men and women compared to the unmarried (except in the unhappy marriages). In the multivariate model, after adjustment for unemployment and family support, the mental health protecting effect of marriage seemed to disappear. Then, living alone and lack of support in marriage are likely to impair mental health.

The core question is, are the responses of the dummy groups different with each other, and if there is some factor other than employment status, which affects ill-being in one group but not in another. Measures of self-perceived ill-being are subject to distortion because of variation of norms by education, age, and occupation. Also some diseases and symptoms such as headaches or gastric pain may be of very different degrees of perceived severity. The illnesses diagnosed by a doctor are considered to be a more objective measurement than the other measurements. Diagnosis, however,

depends on the willingness to visit a doctor and to some extent on the information the patient tells the doctor. Elstadt (259) concluded, that self-reported longstanding illnesses probably underestimate the true differences between the working and middle classes. In the surveys the middle-class reports having any non-serious illnesses more often than the working class. A Finnish study showed, however, that agreement between self-reported health and medical records is good particularly if there is agreement about the diagnostic criteria of the medical condition (251). The problem in this study was that the variable 'longstanding illness' was only a crude item assessing if illness existed or not. Furthermore, the item included life threatening illnesses and less serious illnesses within the same item but no information about the seriousness of the illness of the individual. In the review of the literature, it was found that self-perceived general ill health is an important independent predictor of mortality (260).

Many of the items were inquired in the form of dichotomized variables. In the ordinary and ratio level items categorization of the sum scores made the presentation of estimated odds ratios possible. Categorizations were based on distribution of scores in the sample. The aim was to find cut-points, which divide the sample in a way to eliminate zero cells. Categorization was based on media, quartiles, or some other meaningful point based on the response categories. In determining the cut-points, bivariate logistic regression was used to choose the appropriate cut points (261).The categorization of the items in ordinary or ratio level may have caused some loss of study power. After the cross-sectional comparisons, the analysis proceeded by fitting two variable models, which included employment status and each of the explanatory variables, one at a time. Data collected for the same group of respondents at the two collection points allowed comparison of the groups and exploration of the changes in somatic ill health. However, one weakness was that there were only three questions about mental ill-being and one question about the social ill-being included both in the first and second measurement points. Therefore, with respect to the mental-, and social ill-being variables, only the items of stress, depression, insomnia, and marital status could be controlled for change. The order in which the variables were included into the multivariate models was decisive.

The independent variables were organised into the order according to the magnitude with which they affected the dependent variables. In this stage, dummy variable unemployment/ employment was a dominating factor explaining some of the somatic ill-health variables and most of the mental and social ill-being variables. When fitting the models it was noted that in some of the cases a variable, which did not reach the significance level of 0.20 was still able to improve the fit of the multivariate model. However, there were not very many of these models and these situations did not

change the role of employment status in the models. The impact of unemployment on ill-being was studied by introducing several conditioning variables into the models. In the multivariate models, unemployment was the strongest predictor of ill-being out of the 20 covariates. Men and women were analysed together, because in the multivariate models, the effect of sex could be controlled for. Mental ill-being, social ill-being, and unhealthy behaviour predicted unemployment in the sample of young and middle-aged people.

Attributing ill health and ill-being to unemployment have the following requirements: the causal variable should precede the affected variable in time; a relationship must exist between the variables; some third variable must not cause both events. It is not easy to achieve complete control of these factors although the relation of independent variables and ill-being variables were statistically significant. The correct causal specification of a relationship involves the possibility that an unobserved external phenomenon is responsible for changes in both predictor and predicted factors. In this study, however, there was a high degree of control imposed on the extraneous variables that might confound the data. The relationship between unemployment, stress, economical worries, or health behavior is complex. In this data many factors have been taken into account but the study permit statements only of probability. Internal consistency, consistency with other published findings, statistical significance, and theoretical considerations confirm the reliability and validity of the findings.

2. Cross-sectional findings

This study indicates that the unemployed people in many respects were at a disadvantage. Many of them had a shorter education and unhealthy life-style, which affects not only their health but also their appearance (for example irregular teeth brushing, missing teeth, overweight, which may not be attractive to the employers), worse physical condition, more health complaints, and fewer visits to a dentist. The youngest age-group of the unemployed and insecurely employed had fewer visits to the doctor in the second measurement than in the first one. The unemployed felt themselves more depressed, this feeling being related with low self-esteem, pessimistic outlook, and insomnia. Undoubtedly these kinds of qualities reduce the possibility to become employed and after re-employment these are negative factors in the competition for keeping their employment. When financial strain occurs, tensions among family members increase in response to disagreements regarding the allocation of scarce financial resources. The unemployed men more often lived alone and were less likely to have children than the employed men; this finding was in line with the

previous finding (146). More major life-events and related stress took place in the unemployed group. Some of the life-events were associated with state of unemployment, some were associated with state of employment, and some with neither.

Most of the health problems in men were differently distributed from women's; this finding was in accordance with the previous findings. In surveys, women have reported more symptoms of illnesses (262). The socially disadvantaged groups: blue-collar workers, and persons with low level of education, reported poorer self perceived mental health (psychosomatic symptoms, low- self-esteem, pessimistic outlook) compared to the rest of the respondents. After adjusting for the employment status, the differences in length of education or occupational status did not predict poor somatic health as it has been predicted in some previous studies (263).

The middle-aged unemployed had a higher mean number of diseases and symptoms than the employed. Middle-aged unemployed men were more likely to suffer stress. These results point in the same direction as the results of the previous studies (21,26). Lahelma (45) estimated that the proportion of the unemployed men who suffered from stress, depression, or insomnia was nearly 10% higher than the estimates in this study. In women, the results of prevalence of depression were in agreement between the two studies. Here, 31% of the middle-aged unemployed men suffered from sleeplessness (compared to16% of the employed). Some of these other studies have indicated that in the young well-educated unemployed, mental symptoms were not a problem (23,54). In this study this assumption was not confirmed. More major life-events and related stress took place in the unemployed group.

Job insecurity was associated with impaired mental health, sleeplessness, and poor general health. In the present study, the insecurely employed persons reported poorer general health, symptoms (only men), inability to run 500m, fatigue, stress, depression, insomnia, psychosomatic symptoms, anxiety, and dissatisfaction more often than the securely employed. These findings are in line with the results of Ferrie et al (264). Somatic ill health and ill-being were more common in the unemployed groups than in the employed. However, with the exception of stress, there were differences already in the first survey when all these people were working.

3. Impact of unemployment on ill-being

The first hypothesis stated that *unemployment predicts ill health and ill-being*. After adjusting for the baseline corresponding measurement and covariates, in comparison to the employed, unemployment predicted moderately somatic ill health in middle-aged men and women. Unemployment did predict poor general health and poor physical functioning though the association was not strong among the middle-aged. However, in the school-leavers this association was closer. In a previous study (21,24,26), the association of unemployment to poor general health and also to longstanding illness was closer. One of the previous studies concluded that unemployment predicted poor general health in men but not in women (24). Some indications existed that approximately one in ten of the unemployed shows decreasing trend in ill-being (54). In the present study of the unemployed group, approximately ten percent of the respondents changed their self-report of health from poor to good; they reported having less diseases and symptoms after the experiences of unemployment. The changes in the direction of better self-reported health were more common in the women but the difference was not marked. In this study, unemployment was associated with high blood pressure in men. Some of the previous studies have not found any such association (116,117). The high blood pressure is a rather predictable result because nearly all of the indicators showed the unemployed men to have a more unhealthy life style than the employed. For example being stressed and overweight were more common in the unemployed and conversely consumption of vegetables, fruit, and berries was less common. On the basis of the available evidence, it can be stated that the somatic health of the unemployed deteriorated more than the health of the employed. However, in the youngest age groups of the unemployed and insecurely employed groups, the prevalence of visits to a physician did not increase in the same manner as it did in the employed. This result is in line with the results of Virtanen (50). There is no information on whether the reason is that their self perceived health was so good that they did not feel the need for accessing health care, or is it related to the loss of health care provided by their working place or is it related to fact that they no longer needed sick leave certificates. The measurement of the visits to a physician is a crude estimate and only counts the number of contacts due to some health problem; it does not specify the seriousness of the health problems. This is also true in the case of the symptoms and illnesses, which were summary measures constructed from a series of different kinds of symptoms and illnesses. This kind of summary does not provide an accurate picture of the standard of health of the unemployed. The results point to deterioration of the somatic health of the unemployed; however more detailed screenings are needed.

Unemployment predicted an increased risk of depression and insomnia in both sexes in school-leavers and in middle-aged persons. Depression is one of the major public health problems. It is a state in which sleep mechanism, motivation, memory, and attention mechanism are altered (265) Depressive episodes may be related to increased aggressive or neglectful behavior toward own children. Wells et al (266) using a sample of more than 10000 patients showed that physical functioning of patients with depressive symptoms, other factors being equal, was significantly worse than that of patients with the chronic medical conditions i.e. arthritis, diabetes, hypertension, or gastrointestinal problems. The functioning of depressed patients was comparable with that of patients with heart conditions. In this study no information was available of the baseline levels of self-esteem, life orientation, anxiety, or attitudes to work. After becoming unemployed, individuals were worse off in all of these indicators. Here, the estimated likelihood of anxiety was lower than in a previous study (21). Other previous studies had also estimated stress, low self-esteem and depression to be more likely in the unemployed than among the employed (45,141). The result that many of the unemployed suffer from mental ill-being, may be important in job seeking. If a claimant has a depressed mood, low self-esteem, and pessimism before an interview with an employer, the possibility of gaining a job may be low. Low self-esteem and pessimism are often associated with symptoms of depression.

Unemployment predicted living alone in middle-aged men. This result agreed with earlier results (125). However, unemployment in the school-leavers, did not seem to increase the likelihood of living alone. It is noteworthy that the mean age of the school-leavers was between 26-28 years in the second measurement point. However, the cross-sectional finding was indicative that the unemployed more often live alone. The unemployed considered that they received less support from their spouse. These findings are in accordance with the previous findings (147,148). In the study of Roberts (142) the risk of low support in the unemployed was at the same level as that found in this study. Because of dichotomizing (the dichotomizing point is the median), the proportion of low support was higher in this study. As in the previous study (140), a risk of poor social interaction for the middle-aged unemployed and school-leavers was found in this study. The unemployed were at higher risk not to have enough money for food, and to experience life-event related stress. In the unemployed school-leavers, the effects of employment status on social ill-being were not as strong as in middle-aged unemployed. Unemployment was strongly associated with dissatisfaction.

The results support the notion that unemployed individuals had not adjusted to the situation in which they live. Unemployment seems to have more social consequences and to be more stressful

in people in their middle age but unemployment seems to have a more detrimental impact on the fitness of school-leavers. According to the expectancy-value theory, the depressive affect in the unemployment is greatest for those who perceive employment as very attractive (99). The results of this contradict this assumption. The unemployed showed more depression and a lower commitment to employment than the employed people. It might be that the unemployed people had made a rational decision not to obtain paid work, which was quite unattainable at that time. This view of the world i.e. the opinion that paid employment has little value may become a factor which can prevent a person from finding re-employment.

4. Impact of ill-being on unemployment

The second hypothesis stated that *ill health and ill-being predict unemployment*. In the middle-aged individuals if there was poor physical functioning, depression, insomnia, and being single at baseline, then these predicted subsequent unemployment. Additionally, a higher prevalence of visits to a physician and eating disorder, predicted subsequent unemployment. The number of visits to a physician did not increase after the individual became unemployed during the follow up and in the unemployed school-leavers the number of visits even decreased. The result that low physical functioning predicts unemployment resembles one earlier published finding (24). In this study, poor general health did not predict subsequent unemployment as it did in the studies of Payne (121) and Ross and Mirowsky (24). In the school-leavers, with respect to the health related factors, only health behavior disorders (smoking, overweight, and eating disorders), predicted subsequent unemployment. These results also resemble previous studies. Leino-Arjas (45) found that smoking and being single predicted unemployment in construction workers, but in that study also alcohol consumption and stress were predictive; this was not case in this study. Possibly the measurement of alcohol consumption underestimated the real consumption or those who have high consumption did not respond to the postal questionnaire in this study.

Of the unemployed men approximately 50% consumed fruit and vegetables less than 2 days a week. Fruit and vegetables are recommended and they are the base of the food guide pyramid. Rare consumption of vegetables was associated with declined physical functioning, pessimistic outlook and anxiety. This finding is interesting in the light of recent finding that high serum cholesterol concentration are associated with increased risk of violent suicide in a large Finnish population sample (267). In the study of Kortteinen and Tuomikoski (26), the estimated effect of depression on subsequent unemployment was similar as in this study. Here the number of longstanding illnesses

did not predict unemployment; the only symptom that was predictive of subsequent job loss was aching joints. An alternative model predicting subsequent unemployment was the one in which more than five missing teeth was a significant predictor. Previously it has been reported that being single predicted unemployment in men but increased the likelihood of being employed in females (127,147). It has been reported that married women have longer unemployment spells than single women (146). In this study, living alone, after adjustment for sex and being single, increased the likelihood of unemployment, but no interaction effect between sexes and living alone was found. Stress has been associated with subsequent unemployment in an earlier study (21,23)— but was not linked to the likelihood of unemployment in this study.

In summary, detrimental health behavior (smoking, eating disorders) in young people and mental- and social ill-being (depression, insomnia, living alone) in middle-aged people increased the probability of subsequent unemployment. Somatic health variables had only a moderate association with subsequent unemployment, however, functional inability and increase in the number of visits to a physician did predict subsequent unemployment in the middle-aged. The results of this study support the conclusions of van der Horst et al (126) that those people who have initially poor health and ill-being lose their jobs more easily than others and unemployment in turn has a detrimental impact on their health. The practical significance is that emphasis in health care should be focused on maintaining their ability to work and the emphasis should also be concentrated on health care of the unemployed to encourage them to seek and obtain work. These efforts could have a decisive role in increasing productivity and cutting the unemployment rate.

5. Impact of job insecurity on ill-being

Inclusion of the other employment groups into the analysis was one way to increase the comprehensibility of the data. The group of insecurely employed was compared to those people with job security. Many of those who were in insecure jobs had been unemployed previously and their employment status had fluctuated in the past but at the moment of the second measurement point they were employed. There were the same differences between the insecurely and securely employed (with a few exceptions) as seen between the unemployed and employed though the association was somewhat weaker. The insecurely employed were dissatisfied with themselves and their personal finances relative to the securely employed; the only difference between the insecurely employed and unemployed was that the likelihood of experiencing a lack of money and dissatisfaction was greater among the unemployed. The similar effects of these employment

statuses on ill-being became apparent when the dummy variable of insecurely employed and unemployed was constructed. Living alone, only average or worse general health, and two or more symptoms at the baseline predicted subsequent job insecurity. The above results are in line with the previous result that job insecurity is associated with depression (21) and has a detrimental effect on health (17,58,59).

6. Impact of non-employment on ill-being

As was evident in a previous Finnish study (171), retirement does not increase ill-being. In fact just the opposite was observed: moving to retirement had more beneficial than deleterious effects. After adjustment for the baseline corresponding variable, after retirement the individual tended to suffer less depression, less major life-events, or stress relative to those in employment. The results agree with a previous Finnish study (171) but disagree with some of the studies from abroad (24,178). Of the social indicators, however, the living alone and financial strain had increased in the people living on a pension. None of the health related variables predicted subsequent retirement; only a few education years and older age—in this order—were the predictors for transferring to retirement.

The women who responded that they were housewives in the first survey responded that they had less stress, less dissatisfaction with life, and less dissatisfaction with personal finances than the other groups. The difference was so great that in this case the group cut off-points had to altered. Comparing the dummy variable housewives relative to employed housewives, it was found out that the housewives reported higher self-esteem, lower stress, less major life-events and related stress and less dissatisfaction than the employed housewives. The result of this study did not support the previous standpoint that being a housewife was detrimental to health (24). A proportion of the employed housewives had become divorced between the two measurement points. This result agreed with the results of Kong et al (144). The group of the employed housewives was more likely to smoke than the housewives who retained their position and also to take less exercise but have better functional ability. Health had no effects on being housewife; this finding was in line with a previous finding (24). In sum, if it is to be health promoting, employment has to be secure; job insecurity is a threat to well-being. The role of housewife and retirement do not increase ill-being.

7. The association of social interaction, social support, and ill-being in the unemployed

The unemployed group was next evaluated to see if contemporary social interaction or social support were associated with ill-being. Social interaction and social support were associated with health related variables among the middle-aged unemployed. Poor social interaction was related to depression, stress, inability to meet the requirements of everyday life, and dissatisfaction with one's own life. Absence of social support was associated with poor general health, low self-esteem, and dissatisfaction with one's own life. In the middle-aged unemployed, those not receiving adequate spouse support reported more psychosomatic symptoms than those with high spouse support. Consequently it is likely that social support is able to contribute to the mental equilibrium of the unemployed people; in contrast isolation from constructive social group is likely to promote ill-being. It has been found that for example the preventive 'Työhön' job seeking program has been particularly beneficial for persons at high risk of depressive symptoms (268). It is likely that the lower levels of depressive symptoms provide the motivational energy, which increases the likelihood of re-employment. The problems in these programs have been that three out of four of the participants have been women whereas majority of men have refused to participate. However, when unemployment rate is high the other things become more prominent in getting a job than social support. In the results of this study social interaction or support were not associated with the unemployment situation. This finding was in accordance with the results of Atkinson (143).

The risk of becoming unemployed has increased in our society. Because of the many negative consequences of unemployment, re-employment and studying are more preferable than other alternatives. As shown in a previous study (94) the results of this study revealed that work itself becomes less significant in the lives of the unemployed. At work a person creates relationships, learns new skills, masters self-control, and attains a certificate of work, which may be important when changing to a new job. The resources of the nation are limited and it is important that every adult make his/her own living. According to a study of Eales (269) of the unemployed men 25% reported feelings of shame: they felt guilty when collecting unemployment benefits. The shame aroused in interaction with other people leading isolation. Having children was sometimes associated with feeling of shame. Working for one's own living reduces the feeling of dependence, shame, and improves morale. Rights and duties should be distributed to everybody according to their talents and abilities. Every other worker currently has to work overtime; by sharing work more equally, more jobs could become available to the unemployed. The strict sex-based distribution in the occupations does not promote re-employment but only reduces the careers available. The results

indicated that education and training of the unemployed has been neglected. The idea of lifelong education was not adopted.

Health care workers should be aware of the health consequences of unemployment. The results suggest that many of the unemployed have tried to seek help from health care services. The health care of all people of working age should be available; not just health care for the employed. The coping skills of the unemployed people may fail. The health care personnel, if they know that the client is unemployed or threatened by it, should be able to offer support and increase the self-esteem of these people and ask about stress, depression, insomnia, evaluate their physical functioning, and give advice on how to aim at healthier lifestyle. The greater the feeling of membership in a society, the more efficient will be the organizations of that society, the better the degree of integration, and the greater the self-determination of the people.

In the early 1990s there were not enough jobs for every adult to be able to work. Since unemployment is detrimental to health in so many ways, society has to recognize its responsibility in employment promotion; at the same time this will be health promotion. Reducing the unemployment benefits will not create employment. Working in the low-wage sectors should pay more than living for allowances. If the gap between assistance benefits and potential income from employment is small, the authorities should reduce the taxes on low incomes. Sharing employment gives the employees the opportunity to study and rest and provides work for the unemployed. Since the threat of lay off increases suffering and is an impediment to a financially independent life and optimistic planning of one's own future, permanent employment should always take precedence over short-term contracts. Many parts of the unemployed person's life need support: education, health behavior, health, mental well-being, social relationships, and economics.

The unemployed do need to receive preventive health care in the same way that it is offered to the employed if they are to maintain their ability to work. Providing information at the personal level is important. With respect to the long-term unemployed, those who are no longer able to work should be offered retirement: transfer to retirement promotes well-being. It is important that the status of housewives is good; this will benefit the up-bringing of children.

The main results of this study were in accordance with several previous studies. Unemployment, and job insecurity increase the risk of mental ill-being, and social ill-being. The health deterioration occurring in the unemployed people has a major impact on public health. The results of this study

support the theory of deprivation. The aims of the national policy should stress the importance of health and health equality. In the groups of the unemployed people these aims do not seem to be achieved—unemployment does not have positive results on health.

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Appendix 1.

Kysymys (Kysymyksen jäljessä oleva vuosiluku ilmaisee, milloin kysymys esiintyi kyselylomakkeessa)

1. Sukupuoli (1989/90, 1997)
   0 mies
   1 nainen

2. Syntymävuosi (1989/90, 1997)
   19__

3. Siviilisääty (1989/90, 1997)

   1 naimisissa tai avoliitossa
   2 naimaton
   3 asumuserossa tai eronnut
   4 leski

4. Montako alle 18-vuotiasta lasta Teillä on kotona? (1989/90)

   ___lasta Jos Teillä ei ole lapsia, merkitkää nolla.

5. Kuinka monta taloutenne jäsenistä on Teidät itsenne mukaan lukien? (1997)

   Aikuisia (yli 18 vuotta) ____ jäsentä
   Lapsia 7 – 17 vuotta ____ jäsentä
   Lapsia alle 7 vuotta ____ jäsentä

6. Kuinka monta vuotta olette yhteensä käynyt koulua ja opiskellut päätoimisesti? Kansakoulu lasketaan mukaan. (1989/90, 1997)

   ___ vuotta

7. Millaista työtä teette suurimman osan vuodesta? (1989/90, 1997)

   1 maanviljelys, karjanhoito, metsätyö, emäntä
   2 tehdas-, kaivos-, rakennus- tai muu vastaava työ
   3 toimistotyö, henkinen työ, palvelutyö
   4 opiskelu tai koulunkäynti
   5 kotirouva, perheenemäntä (kotiäiti, koti-isä v. 1997)
   6 eläkeläinen
   7 työtön

8. Mikä on tämänhetkinen työtilanteenne? (1997)

   1 työtön
   2 lomautettu
   3 lyhennetyllä työajalla (ilman omaa toivomusta)
   4 työssä, mutta työttömyys uhkaa
   5 normaalisti työssä (tarkoittaa myös opiskelijoita, perheenemäntiä tms.)
   6 eläkeläinen

9. Oletteko ollut viimeksi kuluneen 12 kuukauden aikana työttömänä tai lomautettuna (kokonaan poissa työstä, tämänhetkinen työttömyys tai lomautus mukaan lukien)? (1997)

   1 en lainkaan
   2 0 – 1 kk
   3 2 kk – 3 kk
   4 4 kk – 6 kk
   5 7 kk – 11 kk
   6 12 kk (koko vuoden)

10. Mikä on puolisonne/avopuolisonne tämänhetkinen työtilanne? Onko hän (rengastakaa 0, jos Teillä ei ole puolisoa) (1997)

   0 ei puolisoa/avopuolisoa
   1 työtön
   2 lomautettu
   3 lyhennetyllä työajalla (ilman omaa toivomusta)
   4 työssä, mutta työttömyyden uhkaamana
   5 normaalisti työssä, opiskelemassa tai kotiäiti tms.
   6 eläkeläinen

11. Merkitkää vuosittain, onko Teillä tai perheenjäsenellänne esiintynyt vähintään 3 kuukauden työttömyysjaksoa kysytyn kalenterivuoden aikana: (1997)

	Kyllä Itselläni	Kyllä, muulla perheenjäsenellä	Ei kenelläkään
1990	1	2	3
1991	1	2	3
1992	1	2	3
1993	1	2	3
1994	1	2	3
1995	1	2	3
1996	1	2	3
1997	1	2	3

12. Montako kertaa viimeksi kuluneen vuoden (12 kk) aikana olette käynyt lääkärin vastaanotolla (sairaala- ja poliklinikkakäynnit lasketaan mukaan)? (1989/90, 1997)

   ___kertaa

13. Saatteko jonkin sairauden tai vamman vuoksi työkyvyttömyyseläkettä? (1989/90, 1997)

   1 en
   2 kyllä, osaeläke
   3 kyllä, määräaikainen eläke
   4 kyllä, pysyvä eläke

14. Kuinka monta kokonaista päivää olitte viimeksi kuluneen vuoden (12 kk) aikana sairauden takia poissa töistä tai hoitamasta tavallisia tehtäviänne? (Ellette muista tarkkaan, arvio riittää.) Raskautta ei lasketa mukaan. (1989/90, 1997)

   ___ päivää

15. Onko Teillä viimeksi kuluneen vuoden (12 kk) aikana ollut seuraavia lääkärin toteamia tai hoitamia sairauksia? (1989/90, 1997)

	Kyllä
kohonnut verenpaine, verenpainetauti	1
sokeritauti	1
sydänveritulppa, sydäninfarkti	1
sepelvaltimotauti, angina pectoris (=rintakipua rasituksessa)	1
sydämen vajaatoiminta	1
nivelreuma	1
selän kulumavika, muu selkäsairaus	1
pitkäaikainen keuhkoputkentulehdus, keuhkolaajentuma	1
pitkäaikainen virtsateiden tulehdus, munuaistulehdus	1
astma (1997)	1
vatsasairaus (mahakatarri, gastriitti, mahahaava) (1997)	1

16. Onko Teillä viimeksi kuluneen kuukauden (30 pv) aikana ollut seuraavia oireita tai vaivoja? (1989/90, 1997)

	Kyllä
rintakipua rasituksessa	1
nivelsärkyä	1
selkäkipua, selkäsärkyä	1
turvotusta jaloissa	1
suonikohjuja	1
ihottumaa	1
päänsärkyä	1
ummetusta	1
hammassärkyä (1997)	1
närästystä (1997)	1
muita ruoansulatusvaivoja (ilmavaivoja, ripulia) (1997)	1

17. Onko Teillä viimeksi kuluneen kuukauden (30 pv) aikana ollut seuraavia oireita tai vaivoja? (1989/90, 1997)

	Kyllä
unettomuutta	1
masentuneisuutta	1

18. Kuinka usein viimeisen kuukauden (30 pv) aikana Teillä on ollut seuraavia havaintoja: (1997)

	Usein	Joskus	Ei ollenkaan
sydämenlyöntinne on ollut kiihtynyt	1	2	3
ajatuksenjuoksunne on sekaantunut kun Teidän on tehtävä jokin työ nopeasti	1	2	3
olette tuntenut olevanne jännittynyt ja hermostunut	1	2	3
pelottavat ajatukset ovat pyörineet mielessänne	1	2	3
olette tuntenut itsenne uupuneeksi ja ylirasittuneeksi	1	2	3
epäsäännölliset sydämenlyönnit ovat vaivanneet Teitä	1	2	3
teillä on ollut huimausta	1	2	3
olette nähnyt painajaisunia	1	2	3
teillä on ollut päänsärkyä	1	2	3
teitä on vaivannut käsien hikoilu	1	2	3

19. Pystyttekö yleensä seuraaviin suorituksiin? (1989/90, 1997)

	Kyllä Pystyn	En pysty
noin puolen kilometrin matkan käveleminen levähtämättä	1	2
lyhyehkön matkan (noin sata metriä) juokseminen	1	2
pitkähkön matkan (yli puoli kilometriä) juokseminen	1	2

20. Oletteko viimeksi kuluneen viikon (7 pv) aikana käyttänyt mitään tabletteja, pulvereita tai muita lääkkeitä? Merkitkää mistä syystä? (1989/90)

	Kyllä
päänsärkylääkkeitä	1
muita särkylääkkeitä	1

21. Onko oma terveydentilanne nykyisin mielestänne yleensä: (1989/90, 1997)

1 hyvä
2 melko hyvä
3 keskitasoinen
4 melko huono
5 huono

22. Onko terveytenne tällä hetkellä vuoden takaiseen (12 kk) verrattuna (1997)

1 nyt paljon parempi
2 nyt jonkin verran parempi
3 nyt suunnilleen samanlainen
4 nyt jonkin verran huonompi
5 nyt paljon huonompi

23. Oletteko tuntenut itsenne jännittyneeksi, stressaantuneeksi tai kovan paineen alaiseksi viimeksi kuluneen kuukauden (30 pv) aikana? (1989/90, 1997)

1 kyllä – elämäntilanteeni on miltei sietämätön
2 kyllä – melkoisesti enemmän kuin ihmiset yleensä
3 kyllä – jonkin verran, mutta en enempää kuin ihmiset yleensä
4 en ollenkaan

24. Onko Teillä usein tunne, että ette pysty täyttämään arkielämän asettamia vaatimuksia? Minulla on tällainen tunne (1997)

1 lähes aina
2 usein
3 silloin tällöin
4 harvoin
5 ei koskaan

25. Montako kertaa viimeksi kuluneen vuoden (12 kk) aikana olette käynyt hammaslääkärin vastaanotolla? (1989/90, 1997)

___kertaa

26. Kuinka monta hammasta Teiltä puuttuu? (1989/90, 1997)

1 ei puutu yhtään hammasta
2 puuttuu 1 – 5 hammasta
3 puuttuu 6 – 10 hammasta
4 puuttuu yli 10 hammasta mutta ei kaikki
5 kaikki hampaat puuttuvat tai on kokoproteesi

27. Miten usein Teillä on tapana harjata hampaanne? (1989/90)

1 useammin kuin kerran päivässä
2 kerran päivässä
3 harvemmin kuin kerran päivässä
4 ei koskaan

28. Oletteko koskaan tupakoinut elämänne aikana? (1989/90)

1 en
2 kyllä

29. Oletteko koskaan tupakoinut säännöllisesti (= lähes joka päivä ainakin yhden vuoden ajan) Kuinka monta vuotta yhteensä? (1989/90)

1 en ole koskaan tupakoinut säännöllisesti
2 olen tupakoinut säännöllisesti yhteensä ___vuotta

30. Koska olette tupakoinut viimeksi? Jos tupakoitte jatkuvasti, merkitkää vaihtoehto 1. (1989/90)

1 eilen tai tänään
2 pv – 1 kk sitten
3 1 kk – puoli vuotta sitten
4 puoli vuotta – vuosi sitten
5 1 – 2 vuotta sitten
6 yli 2 vuotta sitten

31. Miten usein olette syönyt vihanneksia tai juureksia (ei perunaa) viimeksi kuluneen viikon (7 pv) aikana sellaisenaan, raasteena tai tuoresalaattina (1989/90)

1 en kertaakaan
2 1 – 2 päivänä
3 3 – 5 päivänä
4 6 – 7 päivänä

32. Miten usein olette syönyt tuoreita hedelmiä sellaisenaan tai salaattina viimeksi kuluneen viikon (7 pv) aikana? (1989/90)

1 en kertaakaan
2 1 – 2 päivänä
3 3 – 5 päivänä
4 6 – 7 päivänä

33. Miten usein olette syönyt marjoja sellaisenaan (myös esim. jälkiruokien yhteydessä) viimeksi kuluneen viikon (7 pv) aikana? (1989/90)

7 1 en kertaakaan
8 1 – 2 päivänä
9 3 – 5 päivänä
4 6 – 7 päivänä

34. Montako lasillista (tavallista ravintola-annosta) tai pullollista olette juonut edellisen viikon (edelliset 7 vrk) aikana seuraavia: (ellette ole juonut yhtään, merkitkää 0): (1989/90)

olutta (IV tai III) _____ pullollista
long drink-juomia _____ pullollista
väkevää alkoholia _____ ravintola-annosta
viiniä tai vastaavaa _____ lasillista
alkoholipitoista siideriä tai kevytviiniä ___ lasillista

35. Kuinka pitkä olette? (1989/90, 1997)

____cm

36. Miten paljon painatte kevyissä vaatteissa punnittuna? (1989/90, 1997)

____kg

37. Kuinka usein harrastatte vapaa-ajan liikuntaa vähintään puoli tuntia niin, että ainakin lievästi hikoilette ja hengästytte? (1989/90)

1 päivittäin
2 2– 3 kertaa viikossa
3 kerran viikossa
4 2 – 3 kertaa kuukaudessa
5 muutaman kerran vuodessa tai harvemmin
6 en voi vamman tai sairauden vuoksi harrastaa liikuntaa

38. Oletteko viimeksi kuluneen 12 kuukauden aikana (1997)

	Kyllä	En
Pelännyt, että Teiltä loppuu ruoka ennen kuin saatte rahaa ostaaksenne lisää	1	2
Joutunut tilanteeseen, jossa ruokarahat ovat loppuneet	1	2
Jäänyt liian vähälle ruoalle, koska ei ole ollut rahaa ostaa tarpeeksi ruokaa	1	2
Ostanut tavallista halvempia ruokia, koska muuhun ei ole ollut varaa	1	2
Ollut kokonaisen päivän tai pitempään syömättä, koska ei ole ollut rahaa ruokaan	1	2
Joutunut muulla tavalla tinkimän siitä, mihin olette tottunut, taloudellisista syistä	1	2

39. Miten hyvin seuraavat väittämät kuvaavat mielialojanne? (1997)	Ei ollenkaan	Hieman	Melko hyvin	Erittäin hyvin
Tunnen oloni rauhalliseksi	1	2	3	4
Oloni on kireä	1	2	3	4
Tunnen olevani poissa tolaltani	1	2	3	4
Olen rentoutunut	1	2	3	4
Olen tyytyväinen	1	2	3	4
Olen huolestunut	1	2	3	4

40. Kuvatkaa itseänne suhteessa seuraaviin väittämiin. (1997)

	Täysin Samaa Mieltä	Samaa Mieltä	Eri Mieltä	Täysin eri Mieltä
Tunnen olevani arvokas ihminen, ainakin yhtä hyvä kuin muut	1	2	3	4
Minulla on joukko hyviä ominaisuuksia	1	2	3	4
Minulla ei ole paljon ylpeilemisen aihetta	1	2	3	4
Minulla on myönteinen kanta itseeni	1	2	3	4
Kokonaisuutena ottaen olen tyytyväinen itseeni	1	2	3	4
Toivoisin voivani kunnioittaa itseäni enemmän	1	2	3	4
Välistä tunnen olevani täysin kelvoton	1	2	3	4

41. Miten usein olette viimeksi kuluneen kuukauden aikana (30 pv). Rengastakaa jokaiselta riviltä sen vaihtoehdon numero, joka mielestänne parhaalla tavalla kuvaa tilannettanne viimeisen kuukauden aikana (1997)	Koko ajan	Suurim-maksi Osaksi	Silloin Tällöin	Harvoin	En ollenkaan
- eristäytynyt ympärillänne olevista ihmisistä	1	2	3	4	5
- tuntenut myönteisiä tunteita muita kohtaan	1	2	3	4	5
- osoittanut huonoa tuulta, käyttäytynyt huonosti läheisiä kohtaan	1	2	3	4	5
- asettanut kohtuuttomia vaatimuksia perheellenne ja ystävillenne	1	2	3	4	5
- tullut hyvin toimeen muiden kanssa	1	2	3	4	5
- tuntenut itsenne rakastetuksi ja kaivatuksi	1	2	3	4	5
- tuntenut itsenne yksinäiseksi	1	2	3	4	5
- saanut apua joltakulta tarvitessanne	1	2	3	4	5

42. Keneen voitte todella luottaa tarvitessanne apua. Voitte ympyröidä kunkin kysymyksen kohdalla yhden tai useamman vastausvaihtoehdon. (1997)	Puoliso Kumppani	Joku muu Lähiom.	Läheinen Ystävä	Joku muu sukul. ei työtov.	Ei kukaan
- Keneen voitte luottaa, kun haluatte unohtaa murheenne tuntiessanne olevanne rasittunut	1	2	3	4	5
- Kenen apuun voitte todella luottaa kaivatessanne rentoutusta, kun teillä on kovia paineita	1	2	3	4	5
- Kuka hyväksyy teidät sellaisena kuin olette, kaikkine hyvine ja huonoine puolinenne	1	2	3	4	5
- Kenen voitte uskoa välittävän teistä tapahtuupa teille mitä tahansa	1	2	3	4	5
- Kenen voitte todella luottaa saavan teidän tuntemaan olonne paremmaksi, kun olette allapäin	1	2	3	4	5
- Kenen voitte luottaa lohduttavan teitä, kun olette poissa tolaltanne (järkyttynyt, hämmentynyt, surullinen)	1	2	3	4	5

43. Mikä seuraavista elämänalueista antaa teille tällä hetkellä eniten sisältöä? (1997)

1 työ
2 kodin ulkopuolinen vapaa-aika
3 koti ja perhe

44. Entä millä on vähiten merkitystä elämänne sisällön kannalta? (1997)

1 työllä
2 kodin ulkopuolisella vapaa-ajalla
3 kodilla ja perheellä

45. Seuraavassa luetellaan joukko tapahtumia, joita elämässä voi sattua ja pyydetään Teitä kertomaan, onko niitä sattunut Teille viimeisen vuoden aikana ja jos on, miten rasittaviksi ne olette kokenut. Merkitkää ensin ympyröimällä sana kyllä, jos kyseinen asia on sattunut Teille ja arvioikaa sen jälkeen, kuinka rasittava se on Teille ollut. Älkää tehkö merkintöjä, jos tapahtumaa ei ole sattunut. (1997)

	Sattunut teille?	Millaiseksi olette muutoksen kokenut? Ei Ollenkaan Rasittavaksi				Erittäin rasittavaksi
- jatkuvat taloudelliset huolet, vaikea taloudellinen kriisi, työttömäksi joutuminen	kyllä	1	2	3	4	5
- oman yrityksen konkurssi	kyllä	1	2	3	4	5
- työttömyys tai konkurssiuhka	kyllä	1	2	3	4	5
- jatkuvat työpaineet, tulehtunut ilmapiiri tai ristiriidat työpaikalla	kyllä	1	2	3	4	5
- ammatin tai työpaikan vaihto	kyllä	1	2	3	4	5
- jatkuvat riidat läheisessä ihmissuhteessa	kyllä	1	2	3	4	5
- avio- tai asumusero, läheisen ihmissuhteen katkeaminen	kyllä	1	2	3	4	5
- puolison/avopuolison kuolema, muun läheisen ihmisen kuolema	kyllä	1	2	3	4	5
- oma tapaturma tai sairastuminen	kyllä	1	2	3	4	5
- huoli läheisen ihmisen terveydentilasta	kyllä	1	2	3	4	5
- huoli lasten/omasta selviytymisestä	kyllä	1	2	3	4	5
- asunnon menetys	kyllä	1	2	3	4	5
- muutto	kyllä	1	2	3	4	5
- vaikeat asumisolosuhteet	kyllä	1	2	3	4	5
- muu huolenaihe, mikä	kyllä	1	2	3	4	5

46.	Miten hyvin seuraavat väittämät pitävät paikkansa kohdallanne? (1997)	Ei Ollenkaan	Ei juuri ollenkaan	Melko hyvin	Täysin
	- Epävarmoina aikoina odotan aina parasta	1	2	3	4
	- Jos jokin asia voi epäonnistua, niin juuri minun kohdallani se epäonnistuu	1	2	3	4
	- Suhtaudun aina optimistisesti ja myönteisesti tulevaisuuteen	1	2	3	4
	- En juuri koskaan odota asioiden sujuvan niin kuin haluaisin	1	2	3	4
	- En juuri koskaan odota, että minulle tapahtuisi jotain hyvää	1	2	3	4
	- Uskon, että minulle tapahtuu enemmän hyviä kuin huonoja asioita	1	2	3	4

47.	Miten tyytyväinen olette tällä hetkellä elämäänne kokonaisuutena ottaen? Oletteko (1997)	1	erittäin tyytyväinen
		2	jokseenkin tyytyväinen
		3	en kovin tyytyväinen, mutten niin tyytymätönkään
		4	jokseenkin tyytymätön
		5	erittäin tyytymätön
48.	Onko taloudellinen tilanteenne tällä hetkellä (1997)	1	erittäin hyvä
		2	hyvä
		3	tyydyttävä
		4	huono
		5	erittäin huono
49.	Suhteessa taloudelliseen tilanteeseenne viime vuosikymmenen vaihteessa (1989/90), oletteko (1997)	1	nyt paljon tyytyväisempi
		2	nyt tyytyväisempi
		3	nyt jokseenkin yhtä tyytyväinen
		4	nyt tyytymättömämpi
		5	nyt paljon tyytymättömämpi
50.	Suhteessa läheisiin ihmissuhteisiinne viime vuosikymmenen vaihteessa (1989/90), oletteko (1997)	1	nyt paljon tyytyväisempi
		2	nyt tyytyväisempi
		3	nyt jokseenkin yhtä tyytyväinen
		4	nyt tyytymättömämpi
		5	nyt paljon tyytymättömämpi
51.	Suhteessa tilanteeseenne vuosikymmenen vaihteessa (1989/90), miten tyytyväinen olette itseenne ihmisenä? Oletteko (1997)	1	nyt paljon tyytyväisempi
		2	nyt tyytyväisempi
		3	nyt jokseenkin yhtä tyytyväinen
		4	nyt tyytymättömämpi
		5	nyt paljon tyytymättömämpi
52.	Suomessa on ollut 1990-luvulla talouslama, joka on voinut vaikuttaa paljonkin ihmisten elämään. Kaikki eivät kuitenkaan ole lamaa kokeneet henkilökohtaisessa elämässään. Miten on Teidän kohdallanne, oletteko omasta mielestänne (1997)	1	kokonaan välttynyt laman haittavaikutuksilta
		2	kokenut sen lieviä haittavaikutuksia
		3	kokenut sen varsin voimakkaita haittavaikutuksia
		4	kokenut sen erittäin voimakkaita haittavaikutuksia

53. Montako tuntia päivässä kuluu niin, että teette (merkitkää 0 jos ei yhtään)

raskasta ruumiillista työtä (hikoilette)___tuntia
keskiraskasta ruumiillista työtä (hengästytte)___tuntia
kevyttä työtä(istutte, ajatte, kävelette hitaasti)___tuntia

Appendix 2.

Variable	Name	Codes/Values
1	Sex	1 Male 2 Female
2	Age	1 22 to 34 years 2 35 to 44 years 3 45 to 54 years
3	Marital status	1 Married or cohabiting 0 Single, separated, divorced, or widow
4-5	Children in the family	1 Yes 0 No
6	Education, years	1 0 to 9 years 2 10 to 14 years 3 ≥15 years
7	Occupational status	0 farming, stockbreeding, work in the woods, farmer's wife, factory work, mining, building, or other corresponding work (1-2) 1 office, intellectual work, service (3) missing (4-7)
8	Employment status	0 Unemployed, redundant (1-2) 1 Reduced working hours, threatened by unemployment (3-4) 2 Normally at work (5) 3 Pensioner (6)
7-8	Employment status	0 Employed/unemployed 1 Employed/employed 2 Employed/Insecurely employed 3 Student/Unemployed 4 Student/Employed 5 Housewife/Housewife 6 Housewife/Employed 7 Employed/Pensioned 8 Unemployed/Unemployed
9	Unemployed in the past 12 months	0 Less than 6 months (1-4) 1 More than 6 months (5-6)
10	Employment status of the spouse	Missing (No spouse) 0 Employed or pensioned (3-6) 1 Unemployed or redundant (1-2)

11	Unemployment > 3 three months	0 Not at all 1 1-2 spells 2 3-4 spells 3 ≥5 spells
12	Visits to a physician in past year	0 1 - 2 times 1 more than 2 times
13	Illness or disability pension	0 No (1) 1 Disability pension, pension (2-4)
14	Restricted days of activities due to illness	1 Yes > 3 days 0 No 0-3 days
15	Longstanding illness in past year	1 Yes (1-9) 0 No (0)
16	Symptoms last month	1 Yes (2-8) 0 No (0-1)
17	Insomnia during the last month	1 Yes 0 No
17	Depression during the last month	1 Yes 0 No
18	Psychosomatic symptoms during last month	0 25-30 (yes) 1 0-24 (no)
19	Ability to walk 500 meter	1 Yes 0 No
	Ability to run 100 meter	1 Yes 0 No
	Ability to run 500 meter	1 Yes 0 No
20	Use of analgesic drugs in past 7	1 Yes 0 No
21	General health	1 Good, quite good (1-2) 0 Average, quite poor, poor (3-5)
22	Change of general health	0 worse (1-2) 1 equal or somewhat better, much better (3-5)

23	Strained, stressed or under pressure in last month	1 More than people on average (1-2) 0 No more than people on average (3-4)
23	Strained, stressed or under pressure in last month (housewives)	1 Yes, somewhat but no more than people an average (1-3) 0 Not at all (4)
24	Inability to meet the requirements of everyday life Energy/fatigue	1 not able to meet (1-3) 2 able to meet (4-5)
25	Contacts to a dentist in past year	1 Yes 0 No
26	Missing teeth	1 Yes, more than five teeth absent (3-5) 0 No, five teeth or less teeth absent (1-2)
27	Toothbrush	1 at least once a day (1-2) 0 more rarely than once a day (3-4)
28-30	Smoking currently	1 Smoking 0 Do not smoke
31	Consumption of vegetables during the past 7 days	0 0 to 2 days (1-2) 1 3 to 7 days (3-4)
32-33	Consumption of fruit and berries during the past 7 days	0 0 to2 days (1-2) 1 3 to 7 days (3-4)
34	Sum of alcohol units during the last week	0 less or equal than 7 units 1 more than 7 units
35-36	Body mass index	0 26.99 kg/m2 1 more than 26.99 kg/m2
37	Exercise at least half an hour	1 daily, from 2 to 3 times a week (1-2) 0 Once a week or less frequently (3-5) missing (6)
38	Financial strain	1 Yes sum score (1-6) 0 No sum score (7-12)
39	Anxiety	0 Sum score 0- 19 1 Sum score 20 – 24
40	Feeling of self-esteem and self-worth	0 Sum scores 0-20 Low self-esteem 1 Sum scores 21-28 High self-esteem
41	Social Interaction	0 Sum scores 0-31, poor social interaction 1 Sum scores 32- 40, good social interaction

42	Spouse support	1 Sum scores (6), high in spouse support 0 Sum scores (0-5), low in spouse support
42	Friend or relative support when needed help	1 Sum scores (13-56), high in friend, relative support 0 Sum scores (0-12), low in friend, relative support
42	No support	1 Sum scores (0-10), social support 0 Sum scores (11-30), no social support
43	The most important substance in own life	1 Work 0 Leisure, Home and family
44	The least important substance in own life	1 Work 0 Leisure, Home and family
45	Life event happened to a respondent in last year	1 > event occurring (2-15) 0 ≤ event occurring (0-1)
45	Life event stress	1 Stress (9-77) 0 No stress (0-8)
46	Life orientation toward future	1 Optimistic 18-24 0 Not optimistic 0-17
47	Satisfaction with own life	1 Satisfied 1-2 0 Dissatisfied 3-5
48	Own economical situation at the moment	1 very good, good, average 1-3 0 poor, very poor 4-5
48	Own economical situation at the moment (housewives)	1 very good, good (1-2) 0 average, poor, very poor (3-5)
49	Satisfaction with own economical situation compared in 1989-90	1 At least as satisfied (1-3) 0 Now more dissatisfied (4-5)
49	Satisfaction with own economical situation compared in 1989-90 (housewives)	1 Now more satisfied (1-2) 0 At least as satisfied or more dissatisfied (3-5)
50	Satisfaction with social relationships	1 At least as satisfied (1-3) 0 Now more dissatisfied (4-5)
50	Satisfaction with social relationships (housewives)	1 Now more satisfied (1-2) 0 At least as satisfied or now more dissatisfied (3-5)
51	Satisfaction with self compared to 1989/90	1 At least as satisfied (1-3) 0 Now more dissatisfied (4-5)

51	Satisfaction with self compared to 1989/90 (housewives)	1 Now more satisfied (1-2) 0 At least as satisfied or more dissatisfied (3-5)
52	Suffered drawbacks of recession	0 Suffered from only some consequences of depression (1-2) 1 Suffered from quite strong consequences of depression (3-4)
52	Suffered drawbacks of recession (housewives)	1 Totally, not suffered from depression (1) 0 Suffered at least some consequences of depression (2-4)
53.	Main nature of the work	0 mainly not physical (0-4) 1 mainly physical (5-24)

Appendix 3.

Table 3a. Somatic ill health by employment status, %

		Early-unemployed, N, (%)	Pensioner N, (%)	Middle-aged employed, N, (%)	N	χ^2
Self-reported health only average or worse in 1989/90	M	46,9 (49)	48,6 (257)	27,0 (1176)	1482	.000
	F	58,7 (46)	48,4 (285)	22,6 (1343)	1674	.000
Self-reported health only average or worse in 1997	M	47,9 (48)	50,0 (254)	33,9 (1170)	1472	.000
	F	56,5 (46)	50,0 (282)	33,0 (1339)	1667	.000
Self-reported health not as good as 1 year before In 1997	M	22,5 (49)	19,3 (254)	11,2 (1173)	1476	.000
	F	21,7 (46)	15,3 (282)	12,9 (1344)	1672	Ns.
Longstanding illness in 1989/90	M	24,5 (49)	44,6 (258)	21,4 (1180)	1487	.000
	F	43,5 (46)	46,0 (287)	20,1 (1346)	1679	.000
Longstanding illness in 1997	M	30,6 (49)	53,9 (258)	28,2 (1180)	1487	.000
	F	41,3 (46)	50,9 (287)	25,3 (1346)	1679	.000
Two or more symptoms in last month in 1989/90	M	34,7 (49)	36,8 (258)	25,0 (1180)	1487	.000
	F	63,0 (46)	53,0 (287)	40,5 (1346)	1679	.000
Two or more symptoms in last month in 1997	M	30,6 (49)	37,6 (258)	30,9 (1180)	1487	Ns.
	F	73,9 (46)	51,9 (287)	50,8 (1346)	1679	.009
Unable to run 500m in 1989/90	M	25,6 (43)	45,6 (215)	12,5 (1147)	1405	.000
	F	60,5 (38)	63,7 (248)	31,5 (1261)	1547	.000
Unable to run 500m in 1997	M	48,9 (47)	62,8 (226)	21,7 (1136)	1409	.000
	F	78,6 (42)	88,7 (222)	45,6 (1267)	1531	.000
More than 3 days of restricted activity due to illness in previous year in 1989/90	M	34,8 (46)	44,9 (247)	38,8 (1172)	1465	Ns.
	F	50,0 (44)	55,4 (271)	43,6 (1336)	1651	.001
More than 3 days of restricted activity due to illness in previous year in 1997	M	30,0 (33)	16,8 (155)	40,9 (1163)	1351	.000
	F	36,4 (33)	24,0 (129)	45,7 (1312)	1474	.000
At least now and then feeling not able to meet the requirements of everyday life in 1997	M	32,7 (49)	18,4 (256)	21,7 (1174)	1479	.080
	F	43,5 (46)	24,5 (282)	34,2 (1346)	1674	.002

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples Early-unemployed N=95, Pensioners N=545, Middle-aged employed N=2526.

Table 3b. Somatic ill health by employment status, %

		Housewives, N, (%)	Employed housewives N, (%)	N	χ^2
Self-reported health only average or worse in 1989/90	F	28,1 (64)	23,1 (91)	155	Ns.
Self-reported health only average or worse in 1997	F	30,8 (65)	31,9 (91)	156	Ns.
Self-reported health not as good as 1 year before in 1997	F	4,6 (65)	11,0 (91)	156	Ns.
Longstanding illness in 1989/90	F	15,4 (65)	20,9 (91)	156	Ns.
Longstanding illness in 1997	F	23,1 (65)	28,6 (91)	156	Ns.
Two or more symptoms in last month in 1989/90	F	46,2 (65)	52,8 (91)	156	Ns.
Two or more symptoms in last month in 1997	F	49,2 (65)	56,0 (91)	156	Ns.
Unable to run 500m in 1989/90	F	43,9 (57)	26,7 (86)	143	.034
Unable to run 500m in 1997	F	50,0 (60)	41,9 (86)	146	Ns.
More than 3 days of restricted activity due to illness in previous year in 1989/90	F	20,6 (63)	23,3 (90)	151	Ns.
More than 3 days of restricted activity due to illness in previous year in 1997	F	22,0 (50)	37,1 (89)	139	.067
At least now and then feeling not able to meet the requirements of everyday life in 1997	F	26,2 (65)	39,6 (91)	156	.081

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples: Housewives=65, Employed housewives=91

Table 3c. Mental ill-being by groups, %

		Early- unemployed N,(%)	Pensioner N, (%)	Middle-aged employed N,(%)	N	χ2
More stress than people on average in 1989/90	M	25,0 (48)	16,9 (260)	17,3 (1170)	1478	Ns.
	F	23,9 (46)	17,2 (279)	12,3 (1343)	1668	.010
More stress than people on average in 1997	M	8,3 (48)	7,0 (244)	14,4 (1173)	1465	.003
	F	21,7 (46)	5,8 (278)	14,0 (1329)	1653	.000
Depression in last month in 1989/90	M	26,5 (49)	11,6 (258)	8,8 (1180)	1487	.000
	F	30,4 (46)	15,0 (287)	13,5 (1346)	1679	.005
Depression in last month in 1997	M	18,4 (49)	11,6 (258)	10,7 (1180)	1487	Ns.
	F	30,4 (46)	14,6 (287)	17,5 (1346)	1679	.030
Insomnia during the last month in 1989/90	M	24,5 (49)	23,3 (258)	11,6 (1180)	1487	.000
	F	30,4 (46)	25,1 (287)	12,0 (1346)	1679	.000
Insomnia during the last month in 1997	M	26,5 (49)	20,5 (258)	15,8 (1180)	1487	.034
	F	41,3 (46)	26,8 (287)	20,5 (1346)	1679	.000
Psychosomatic symptoms in 1997	M	53,1 (49)	51,9 (258)	38,1 (1180)	1487	.001
	F	76,1 (46)	63,4 (287)	49,1 (1346)	1679	.000
Anxiety in 1997	M	58,3 (48)	46,4 (252)	48,2 (1180)	1480	Ns.
	F	76,1 (46)	52,0 (281)	53,4 (1346)	1673	.006
Low self-esteem in 1997	M	69,4 (49)	67,4 (258)	43,8 (1180)	1487	.000
	F	65,2 (46)	64,5 (287)	43,4 (1346)	1679	.000
Pessimistic outlook in 1997	M	65,3 (49)	59,7 (258)	40,3 (1180)	1487	.000
	F	67,4 (46)	54,4 (287)	39,9 (1346)	1679	.000
Dissatisfied with own life in 1997	M	55,1 (49)	22,7 (256)	22,3 (1169)	1474	.000
	F	50,0 (46)	17,8 (287)	18,1 (1336)	1669	.000
Comparing to 1989-90 more dissatisfied With self in 1997 than at that time	M	22,5 (49)	9,5 (252)	8,8 (1173)	1474	.006
	F	15,2 (46)	7,0 (284)	9,5 (1336)	1666	Ns.

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples: Early-unemployed N=95, Pensioners N=545, Middle-aged employed N=2526.

Table 3d. Mental ill-being by groups, %

		Housewives N,(%)	Employed housewives N, (%)	N	χ2
More stress than people on average in 1989/90	F	7,8 (64)	5,5 (91)	155	Ns.
The life is somewhat stressful in 1989/90	F	70,3 (64)	72,5 (91)	155	Ns.
More stress than people on average in 1997	F	1,6 (64)	13,2 (91)	155	.010
Life is somewhat stressful in 1997	F	65,6 (64)	82,4 (91)	155	.017
Depression in last month in 1989/90	F	10,8 (65)	16,5 (91)	156	Ns.
Depression in last month in 1997	F	10,8 (65)	22,0 (91)	156	.068
Insomnia during the last month in 1989/90	F	10,8 (65)	14,3 (91)	156	Ns.
Insomnia during the last month in 1997	F	12,3 (65)	22,0 (91)	156	Ns.
Psychosomatic symptoms in 1997	F	50,8 (65)	50,6 (91)	156	Ns.
Anxiety in 1997	F	55,4 (65)	56,0 (91)	156	Ns.
Low self-esteem in 1997	F	38,5 (65)	53,9 (91)	156	.058
Pessimistic outlook in 1997	F	46,2 (65)	48,4 (91)	156	Ns.
Dissatisfied with own life in 1997	F	12,5 (64)	27,8 (90)	154	.028
Compared to 1989-90, more dissatisfied With self in 1997 than at that time	F	3,2 (63)	14,4 (90)	153	.021
Compared to 1989-90 not more satisfied with self now in 1997 than at that time	F	57,1 (63)	63,3 (90)	153	Ns.

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples: Housewives=65, Employed housewives=91

Table 3e. Social ill-being in 1997 by groups, %

		Early-unemployed N, (%)	Pensioner N, (%)	Middle-aged employed N, (%)	N	χ2
Marital status single in 1989/90	M	55,1 (49)	13,2 (258)	24,6 (1179)	1486	.000
	F	50,0 (46)	25,2 (286)	25,0 (1343)	1675	.001
Marital status single in 1997	M	42,9 (49)	19,5 (256)	18,5 (1171)	1476	.000
	F	43,5 (46)	31,1 (286)	22,5 (1342)	1674	.000
Occupational status of spouse unemployed	M	8,2 (49)	7,0 (257)	9,4 (968)	1274	Ns.
	F	13,0 (46)	4,0 (275)	7,7 (1054)	1375	.038
Low in perceived social support from spouse	M	51,0 (49)	44,6 (258)	35,2 (1180)	1487	.002
	F	65,2 (46)	60,3 (287)	47,0 (1346)	1679	.000
Low in perceived social support from friends or relatives	M	57,1 (49)	71,3 (258)	63,8 (1180)	1487	.037
	F	32,6 (46)	49,5 (287)	39,7 (1346)	1679	.005
Negative interaction with loved one during the past month.	M	67,4 (49)	57,8 (258)	53,7 (1180)	1487	Ns.
	F	63,0 (46)	48,1 (287)	51,1 (1346)	1679	Ns.
Two or more major life events in the last year	M	40,8 (49)	21,7 (258)	48,7 (1180)	1487	.000
	F	52,2 (46)	30,7 (287)	55,0 (1346)	1679	.000
Experience of a life event stress	M	38,8 (49)	14,7 (258)	33,6 (1180)	1487	.000
	F	52,2 (46)	18,5 (287)	41,3 (1346)	1679	.000
During the last month lack of enough money for food	M	59,2 (49)	22,2 (248)	28,7 (1159)	1456	.000
	F	69,6 (46)	31,8 (274)	36,0 (1327)	1647	.000
Suffered drawbacks of recession	M	36,7 (49)	15,7 (255)	21,2 (1171)	1475	.003
	F	37,0 (46)	15,7 (281)	19,1 (1338)	1665	.003
Dissatisfied with personal finances	M	27,1 (48)	5,4 (258)	7,1 (1171)	1477	.000
	F	26,1 (46)	5,6 (284)	6,6 (1344)	1674	.000
Compared to 1989/90 dissatisfied with personal finances	M	42,9 (49)	17,6 (256)	18,6 (1170)	1475	.000
	F	39,1 (46)	17,0 (282)	18,7 (1344)	1672	.001
Compared to 1989/90, now more dissatisfied with relationships	M	8,2 (49)	8,3 (254)	10,0 (1167)	1470	Ns.
	F	13,0 (46)	7,1 (282)	9,7 (1336)	1664	Ns.

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples: Early-unemployed N=95, Pensioners N=545, Middle-aged employed N=2526.

Table 3f. Social ill-being in 1997 by groups, %

		Housewives N, (%)	Employed housewives N, (%)	N	$\chi 2$
Marital status single in 1989/90	F	1,5 (65)	7,7 (91)	156	0.09
Marital status single in 1997	F	0,0 (65)	16,7 (90)	155	0.001
Occupational status of spouse unemployed	F	6,2 (65)	11,0 (91)	156	Ns.
Low in perceived social support from spouse	F	30,8 (65)	42,9 (91)	156	Ns.
Low in perceived social support from friends or relatives	F	55,4 (65)	40,7 (91)	156	.069
Poor interaction with confidant during the past month.	F	35,4 (65)	58,2 (91)	156	.005
Two or more major life events in the last year	F	33,9 (65)	72,5 (91)	156	.000
Life event stress	F	20,0 (65)	51,7 (91)	156	.000
During the last month lack of enough money for food	F	48,4 (64)	46,2 (91)	155	Ns.
Suffered drawbacks of recession	F	15,9 (63)	24,2 (91)	154	Ns.
Experienced at least some drawbacks of recession	F	88,9 (63)	85,7 (91)	154	Ns.
Compared to 1989/90, now more dissatisfied with relationships	F	4,8 (63)	16,5 (91)	154	.026
At the moment not more satisfied with relationships than in the year 1989/90	F	61,9 (63)	64,8 (91)	154	Ns.
Own personal finances poor	F	4,8 (63)	8,8 (91)	154	Ns.
Personal finances now below quite good or good	F	55,6 (63)	62,6 (91)	154	Ns.
Compared to 1989/90, now more dissatisfied with personal finances	F	17,5 (63)	20,9 (91)	154	Ns.
Compared to 1989/90, now not more satisfied with personal finances	F	68,3 (63)	62,3 (91)	154	Ns.

Note: Figures in parentheses are base Ns for the adjacent percentages. Total samples: Housewives=65, Employed housewives=91