UPPSALA
UNIVERSITET

*Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine* 276

# Women's Health and Drug Utilisation

ANNIKA BARDEL



ACTA
UNIVERSITATIS
UPSALIENSIS
UPPSALA
2007

ISSN 1651-6206
ISBN 978-91-554-6977-1
urn:nbn:se:uu:diva-8225

Dissertation presented at Uppsala University to be publicly examined in Hörsalen, Ingång D1, Dag Hammarskjölds väg 17, Uppsala, Sweden, Thursday, October 25, 2007 at 13:15 for the degree of Doctor of Philosophy (Faculty of Medicine). The examination will be conducted in Swedish.

**Abstract**
Bardel, A. 2007. Women's Health and Drug Utilisation. Acta Universitatis Upsaliensis. *Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine* 276. 64 pp. Uppsala. ISBN 978-91-554-6977-1.

**Objectives**. To study medication utilization and adherence to prescribed therapy in a female population in central Sweden. To study usage of hormone replacement therapy (HRT) in this population and to assess how HRT users compare to non-users regarding symptom reporting, general health and other variables. To evaluate symptom prevalence adjusted for potential symptom affecting variables.

**Material and methods**. A cross-sectional postal questionnaire study was performed in 1995 in seven counties in central Sweden. A questionnaire was sent to a random sample of 4,200 women aged 35-64, of whom 2,991 responded (71.2%). The questionnaire contained questions on psycho-socio-economic background, quality of life, self-reported health, height and weight, climacteric symptom prevalence, and menopausal status and symptoms. It also comprised questions on medication prescribed during the past year.

**Results**. 40% used prescribed medication and 12% took four drugs or more. Age, educational level, self-rated health, and BMI remained significantly correlated to drug use in multivariate analysis. Adherence ranged from 15%-98% depending on age, a scheduled check-up, perceived importance of medication, concern about medication, taking cardiovascular and respiratory disease drugs. The highest adherence was found for hormonal medication the lowest for musculoskeletal medication.

HRT was used by 15% of the women. 13 % used other symptom relieving therapy. HRT users reported higher score of vasomotor symptoms, except for sweating during the daytime.

Prevalence of general symptoms did not necessarily increase with age. Especially symptoms related to stress-tension-depression decreased with age. Four different symptom prevalence patterns were found.

**Conclusions**. Age, health status, educational level and body mass index (BMI) appear to affect drug use. Adherence to therapy is highest among elderly women who regard their medication as important and have a scheduled check-up. HRT relieves some vasomotor symptoms but does not affect other symptoms or self-rated health. Prevalence of symptoms related to Stress-tension-depression appears to decrease with age.

*Keywords:* women's health, epidemiology, drug utilisation, adherence, symptom prevalence, HRT

*Annika Bardel, Department of Public Health and Caring Sciences, Uppsala Science Park, Uppsala University, SE-75183 Uppsala, Sweden*



ISSN 1651-6206
ISBN 978-91-554-6977-1
urn:nbn:se:uu:diva-8225 (http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-8225)

To the 2991 participating women

# Original paper

This thesis is based upon the following publications:

PAPER I Bardel A, Wallander MA, Svärdsudd K. Reported current use of prescription drugs and some of its determinants among 35 to 65-year-old women in mid-Sweden: a population-based study. *J Clin Epidemiol* 2000;53:637–43.

PAPER II Bardel A, Wallander MA, Svärdsudd K. Factors associated with adherence to drug therapy: a population-based study. *Eur J Clin Pharmacol* 2007;63:307–14.

PAPER III Bardel A, Wallander MA, Svärdsudd K. Hormone replacement therapy and symptom reporting in menopausal women: a population-based study of 35–65-year-old women in mid-Sweden. *Maturitas* 2002;41:7–15.

PAPER IV Bardel A, Wallander MA, Wedel H, Svärdsudd K. Age-specific symptom prevalence in women 35–64 years old: a population-based study. Submitted.

# Contents

# Abbreviations

| | |
|---|---|
| BMI | Body mass index |
| CI | Confidence interval |
| GP | General practitioners |
| HERS | The Heart and Estrogen/progestin Replacement Study |
| HRT | Hormone replacement therapy |
| OR | Odds ratio |
| WHI | Women's Health Initiative |

# Preface

Women are conscious of their health and see their general practitioner (GP) often. As a female GP I have seen many women asking for help in different stages of life. During the mid-1990s more women started asking for help with symptoms associated with the menopause than previously. The pharmaceutical industry had introduced medications to reduce these complaints. These medications, called Hormone Replacement Therapy (HRT), contain female sex hormones in a smaller dose than contraceptive pills. The name suggests that the aim of the therapy is to reinstate natural functions. When more and more of my patients asked for hormone replacement therapy, I became eager to learn more about the differences in medical care between men and women. After some not very successful attempts to obtain information from the pharmaceutical industry on the subject how to help the tired, sweating women who were seeking relief, we initiated our study in 1995. With this as our background and with our awareness that the women were asking their GPs for help with their climacteric complaints, we decided to make this study among women aged 35–64 years from the general population. This thesis is based on a cross-sectional postal questionnaire study, performed in 1995 in seven counties in central Sweden. The overall aim has been to examine the medication and health problems among women aged 35–64 years.

# Introduction

Self-rated health for both men and women is found to be different depending on variables such as educational level, physical activity and social interaction, all of which play a crucial role for men. A cross-sectional study by Undén and Elofsson shows that when women judge their health, their satisfaction with sleep and with physician contacts play a more crucial role than for men (Undén 2006).

Pennebaker concludes that women of all ages report more symptoms, take more prescription and non-prescription medication and consult physicians more often than men (Pennebaker 1982). Al-Windi *et al.* found in a Swedish comparison that women have lower scores for physical wellbeing than men and higher prevalence of symptoms in the categories tension and depression, most significantly among the middle-aged groups (al-Windi 1999). The findings of Thorn *et al.* in a Swedish prospective study, suggest that lifestyle factors such as mental stress, obesity and smoking are related to airway symptoms and quality of life later in life (Thorn 2006). According to Furunes *et al.* foreign origin, low education, and different kinds of isolation such as not working outside the home, and being divorced or widowed are factors that increase the risk of experiencing certain symptoms (Furunes 1996).

The use of medication among women has been investigated in many studies, where it is often compared to use among men. Women take more medication and use the health care services more than men, and this increases with age (Boethius 1977; Dunnel 1972; Eggen 1994; Klaukka 1988; Nordenstam 1996; Rabin 1975; Skegg 1977; Tennis 1990; Tierpsprojektet 1995). According to Eggen in Norway the higher medication use in women is attributed to women's higher levels of physical distress, especially headaches, a larger number of appointments with the doctor and a higher proportion of reported chronic diseases and depression than men (Eggen 1994). Boethius found that women dominated the prescriptions in all age groups except in the youngest (Boethius 1977).

Skegg *et al.* investigated a listed patient population of 19 general practices (Skegg 1977). Twenty percent of the medications prescribed to these women during one year were psychotropic comprising sedatives, hypnotics, tranquilizers, antidepressants, stimulants, and appetite suppressants. Attempts have been made to explain the well-known difference in medication and health care utilization between men and women. According to one hy-

pothesis, women are more inclined to pay attention to their symptoms and to seek care for them than men (Pennebaker 1982). According to another hypothesis the fact that women bear children leads to increased exposure to the health care system and thus to more use of medication (Mustard 1998).

## Adherence

It has been suggested that compliance is generally lower than prescribing doctors thinks, and that compliance is even lower than usual for HRT. In a population based study from Sweden, 50% compliance for HRT was found during one year, which means that half the women discontinued their medication (Lindgren 1993). The 2,465 women in that cohort were 55, 57, 59 and 65 years old. Of these women 10% used HRT, and 10% had discontinued their treatment. Twenty percent of these women stated that they discontinued their medication because of fear.

What is called adherence today was previously referred to as compliance. Compliance implies a submissive behaviour, in contrast to adherence. The reasons for non-adherence are complex. More important than socio-epidemiological facts are complexity of treatment, and factors such as costs and side effects, treatment alternatives, knowledge of the disease, and patients' self-efficacy (Gregoire 2002). The relationship between the provider and the patient is fundamental to how these factors are interrelated. The findings of Svarstad show the need to improve the doctor-patient contact, since 50% of the subjects could not state correctly how long they were supposed to continue their medication a few days after consulting their doctors (Svarstad 1974). Furthermore, 26% did not know the dosage, 17% did not know how often to take the medication, and 23% did not know the purpose of each medicine they were taking.

These findings imply the need to practice communication skills both during undergraduate medical studies and as a practicing physician. To improve the physician's ability to listen to the patient and to create confidence in the consultation is of importance to adherence (Jahng 2005). Kurtz *et al*. suggests a way of doing this in the Calgary-Cambridge guide, with an integrated model of clinical method and effective communication skills (Kurtz 2003). More effective interventions are needed to reduce risk and improve the results for patients (Miller 1997). Specific strategies of verbal and written instruction, including a rationale for treatment and the development of skills in communication, the negotiation of goals and a plan, the anticipation of barriers to compliance, the discussion of solutions and the use of active listening are suggested.

Podell and Gary suggested 5 steps to improve adherence. First, control compliance specifically. Ask do you take the red pill? Second, ensure that the patient understands the general rationale for the treatment. Third, review

the medication regimen with the patient. Fourth, develop compliance-promoting strategies, and fifth, when the patient shows resistance to treatment, ask is your resistance emotional? If the answer is yes, listen to the patient and monitor your own psychological reactions (Podell 1976). Good physician-patient collaboration is associated with better adherence to treatment regimens (DiMatteo 1994; Ong 1995; Podell 1976; Speedling 1985).

The results of Gregoire *et al.* suggest better adherence to prescribed antihypertensive medication if the medications cost less, have fewer side effects, and if people can be helped to differentiate symptoms resulting from their medication, from the symptoms not caused by the medication (Gregoire 2002).

The consensus statement of the International Conference on Communication in Toronto in 1991 summarized the evidence about effective communication, the deficiency in practice and proven methods of teaching (Simpson 1991). This statement was followed by recommendations from the General Medical Council in the UK (General Medical Council 1998) and similar recommendations from the Association of American Medical Colleges (Association of American Medical Colleges 1998). Actions are suggested for the patient, for the providers and for the healthcare organizations. The provider must work for effective communication with patients (Aspegren 1999; Association of American Medical Colleges 1998; General Medical Council 1998).

There is limited population based information about health and use of medications among women. Most studies are not based on population samples, but on the selected female patients seen at hospitals, who are therefore not necessarily representative of women in the general population. Lancaster *et al.* showed that women seen at hospital were better educated and more well-informed than the average woman in the general population (Lancaster 1995).

## Menopause and climacteric complaints

From a medical point of view the menopause is defined as the date when menstruation ceases. Natural menopause is defined as 12 months or more of amenorrhoea resulting from a permanent cessation of ovarian function (Greendale 1999). The menopause appears on the average at 51 years of age for women in the Western world (Hammar 1984; Jaszmann 1976; McKinlay 1992).

Rödström *et al.* showed that the mean age for natural menopause increased in the longitudinal study by 0.1 years per year of birth for Swedish women born 1908-1930 (Rödström 2003).

In a population study McKinley *et al.* showed that in 10% of the women menstruation ceased on one occasion and never came back, while in the re-

maining 90% menstruation became irregular for up to four years before it finally ceased (McKinlay 1992).

Symptoms like irregular bleeding, flushing and sweating, vaginal dryness, urinary incontinence and urinary infections as well as symptoms affecting muscles and joints are common during the menopausal transition (Hammar 1984; Hammar 1998).

It is not quite clear what symptoms are associated with the menopause. Vasomotor symptoms constitute a factor separate from psychological symptoms and other somatic symptoms (Collins 1994). As menopause is a multifactoral phenomenon, symptoms that occur at menopause may have different aetiologies.

Several population studies show that the range of complaints during menopause differs, from almost none to quite severe (Liao 1994). Almost all women have heard of HRT – more than 96% according to Garton (Garton 1995). Women's opinions about HRT have been investigated in many studies. In two studies 40% of the women said they were interested in HRT, 40% were negative and 20% took a neutral position (Hunter 1994; Hunter 1995).

Several studies have found that long-term use of oestrogens has preventive effects against coronary heart disease and osteoporosis (Consensus development conference 1993; Falkeborn 1992; Stampfer 1991). However, the protective effect of HRT has been questioned by others, and the findings of increased risks of breast cancer and thromboembolic diseases make the risk-benefit balance negative. The question of whether or not to prescribe hormone substitution is debated. In the Women's Health Initiative Study effects of conjugated oestrogen (CEE) combined oestrogen-gestagen (CEE and medroxyprogesteronacetate, MPA), and placebo were studied in a longitudinal study of 26,000 women. The risk of venous thromboembolism was increased with HRT (Rossouw 2002). In The Million Women Study (MWS) the risk of breast cancer in women treated with HRT increased (Beral 2003). On the basis of results from recent studies such as the Women's Health Initiative trial (Rossouw 2002), the Million Women Study (Beral 2003) and the Heart and Estrogen/progestin Replacement Study (HERS) (Hulley 1998), new recommendations for use of HRT in Sweden have been issued by the Swedish Medical Products Agency (Läkemedelsverket 2004).

The two previous indications for HRT in Sweden were to alleviate oestrogen deficit symptoms in postmenopausal women and to prevent osteoporosis in women with a high risk for fractures. The first indication was amended to include using the lowest efficient doses for the shortest possible time. The second was amended as follows: to prevent osteoporosis in postmenopausal women with a high risk of future fractures if they cannot take other medications to prevent osteoporosis.

More women request psychological consultation than HRT. Most of the women get their information from the media (Griffiths 1995). However,

almost 47% of the subjects considered the media information not to be informative enough.

Women have generally had cautious attitude toward hormone replacement. The explanation may be lack of knowledge of the substances used and unwillingness to medicate themselves in a process seen as a natural one, or that women fear an increasing risk of cancer from the medication (Cano 1994; Garton 1995; Griffiths 1995; Hunter 1994; Liao 1994; Sinclair 1993). This is in contrast to the well-known fact that women use more medication and more health care than men and that this difference increases with age (Mustard 1998; Nordenstam 1996).

# Aims of the study

The overall aim has been to examine the medication and health problems among women aged 35-64 years. The specific aims of the thesis were:

- to investigate prescription medication utilization in a female population aged 35–64 years and factors possibly related to medication utilization in this population,
- to investigate the adherence of the female population aged 35–64 years to prescribed medications and to study factors affecting adherence,
- to measure the prevalence of HRT in the general population and to see if HRT users report fewer symptoms, better general self-rated health and less use of other symptom relieving medication than non-users and previous users,
- to evaluate symptom prevalence among women aged 35–64 years, adjusted for symptom relieving medication use and other potential symptom affecting variables.

# Study population and Methods

The study was performed in 1995 as a cross-sectional postal questionnaire study in seven counties in central Sweden. All Swedish residents have a unique national census registration number that indicates date of birth, sex and other data. The census register is required by law to be kept up-to-date. A random sample of 4,200 women, aged 35–64 years, was drawn from the register for the seven counties comprising the Uppsala-Örebro Health Care Region, with a population of 2 million.

A postal questionnaire was sent to these women in March 1995, with two reminders when necessary. A total of 2,991 (71.2%) women responded. The age distribution of responders and non-responders was similar, 49.6 ± 8.5 and 49.8 ± 8.7 years, respectively. Due to late response the oldest women were 67 at the time of response.

The questionnaire had two main parts. The first contained questions on psycho-socio-economic background, such as age, marital status, occupational and educational level, tobacco use and physical activity, quality of life, self-reported health, height and weight, general symptom prevalence, lifestyle, housing situation, menopausal status and symptoms, and disorders for which the women was taking medication.

Educational level was classified as compulsory school only, vocational training, high school, and college or university education. Smoking habits were denoted as never smoked, ex-smokers and current smokers. Physical activity was measured during work and leisure time. Work activity was measured on a three-point scale, sedentary, moderately active and heavy (papers 1 and 3). Leisure time activity was measured on a four-point scale, sedentary, moderately, very active and vigorously active. In the analysis the latter two groups were amalgamated.

Body mass index (BMI) was used as a measure of relative weight and was calculated as weight(kg)/height($m^2$). Moreover, the women were asked if they had undergone hysterectomy or oophorectomy and to state their menstrual status.

Menstrual status was classified as premenopausal if the woman reported menses during the past and the present year. Women reporting menses only during the past year but not during the present year were classified as menopausal in papers 1 and 3 but are called perimenopausal in accordance with the present terminology in the rest of this thesis. Women reporting no menses either during the past or the present year were classified as postmeno-

pausal. In the final classification information on hysterectomy and oophorectomy was taken into account.

The women were asked if they were bothered by presumed menopausal symptoms such as flushing, sweating during the day or sweating at night, vaginal dryness, stress urinary incontinence, urge urinary incontinence, urinary infections and muscular pain. Most of the questions have been validated in previous studies (Samuelsson 1999). Information on parity and contraceptive medication was also obtained.

The Gothenburg Quality of Life Instrument was used to measure quality of life aspects (Tibblin 1990b). The Complaint Score and Well-being subscales were used. Complaint Score is a list of 30 general symptoms. The women were asked to indicate which of these they had experienced during the past three months. The subscale is not intended to measure specific symptoms, but rather the tendency to report symptoms. The frequency of each symptom and the sum of all reported symptoms (Complaint Score) were used.

The Well-being subscales include 18 psycho-socio-economic variables, like housing situation, financial status, mood and self-rated health, measured on seven-point interval scales ranging from "poor" (=1) to "excellent could not be better" (=7).

The second part of the questionnaire contained questions on medication prescribed during the past year. Five forms containing two pages each were provided in the questionnaire, one form per prescription. If the woman had received more than five prescriptions during the study period, she was instructed to give information on medication number six and onwards in a free format, and to provide the same type of information as for the first five. All prescribed medications reported were coded according to the Anatomical Therapeutic Chemical Classification System (ATC) (Nordic Statistics 1979). All the diagnoses were coded according to the 9$^{th}$ edition of the Swedish version of the International Classification of Diseases (ICD9), which was used at the time (National Board of Health and Welfare 1986).

In papers 1 and 2 information collected on all medications was used. In papers 3 and 4, only information on HRT and symptom relieving therapy was used. HRT was defined as medications with ATC-codes G03C, G03D and G03F. One hundred and seven (3.6%) women reported that they still menstruated but were using medications classified as HRT. Ninety-six of these women reported menopausal symptoms (ICD-code 627) as the indication for their therapy, and the remaining eleven reported various other indications.

Symptom relieving therapy included tranquilizers, hypnotics, antidepressants and painkillers with ATC-codes N02A, N02B, N05B, N05C, N06A, M01A and M03B. In paper 1 due to the incongruence between the classification systems ATC and ICD9, an adjustment was made of single items to improve the congruence. Lipid lowering drugs were reclassified from blood

to cardiovascular, antidiabetic drugs were reclassified from alimentary to hormonal, and neurologic drugs used for musculoskeletal problems were reclassified as musculoskeletal.

For each prescription, information was collected on medication trade name, dosage, duration, and whether the woman was taking the medication currently or had discontinued the medication. For each prescription adherence to medication was defined as persistence of taking medication, or stopped medication as stipulated with prescription. If medication was taken as prescribed or discontinued as prescribed adherence was considered satisfactory. If medication was discontinued against prescription, filled but not started, or never filled adherence was considered to be unsatisfactory. Information on severity of the disease for which the medication was taken and on the importance of the medication was obtained on seven-point interval scales.

We also asked about concerns with the medication, with possible responses yes or no. Further we asked if the prescribing physician was male or female. Confidence in the prescribing physician and in physicians in general was given on seven grade interval scales. The prescribing physicians were classified as GPs, hospital-based physicians, private practitioners, occupational health care physicians, or other physicians.

The study was approved by the Research Ethics Committee of Uppsala University.

## Statistical considerations

Statistical analyses were conducted using the SAS and the JMP program packages (*JMP* 1995; *Statistical Analysis System (SAS)* 1989-1996). Partial non-response (missing data in returned questionnaires) was less than 2.5%. Summary statistics such as means and measures of dispersion were computed with standard parametric methods. Univariate analyses based on continuous data in the various groups of women were performed with analysis of variance using Students t-test. Analyses based on ordinal or nominal data were performed with the chi-square test. Odds ratios and their 95% confidence intervals were computed using logistic regression technique. Ninety-five percent confidence intervals (95% CI) were computed using conventional methods.

All data were used in the analyses in the same form as they were collected, except some of the interval scale variables, education, BMI, and some others. These were sometimes analysed in the same form as they were collected and sometimes classified into two or three groups depending on numbers. The classified form was used when the effect of the variable on outcome was measured, for instance in papers 1 and 2, The non-classified form

was used when the effect of the variable was taken into account when effects of other variables were measured, for instance in papers 3 and 4.

In paper 1 univariate and multivariate analyses of factors related to medication use were performed with the logistic regression of current medication use as the dependent variable. In paper 2 univariate and multivariate analyses of the effects of various variables on adherence to medication were performed with logistic regression. In the final multivariate analysis backward elimination of non-significant variables on the 5% level was used. Self-rated severity of disease and importance of medication were highly intercorrelated. To avoid collinearity problems the weaker factor, severity of disease, was excluded from this stage of the analysis. The regression surface in Figure 2 was created using a logistic regression technique. In paper 3 the multivariate analyses of factors related to medication use were performed with the logistic regression procedure, using current medication use as the dependent variable.

In paper 4, first preliminary analyses of symptom prevalence in relation to age were performed with univariate and multivariate logistic regression analyses, using symptom reporting (yes/no) as the dependent variable and age and eighteen other potential outcome affecting variables, (education, physical activity, smoking habits, BMI, self-rated work situation, health, mood, energy, self-esteem, patience, appreciated at home or outside the home, number of pregnancies, ever use of contraceptives, hormone replacement therapy, other symptom relieving medication, menstrual status, and hysterectomy or ooforectomy performed), as independent variables with backward elimination of non-significant variables. In addition, a square term for age and a number of potential interaction terms were tested.

Based on the final logistic regression analyses, age-specific symptom prevalence estimates, adjusted for the influence of the final set of covariates listed above, were computed. The fit of adjusted functions to crude data regarding functional form was excellent for all 30 symptoms. The adjustments only affected the prevalence levels, and only moderately.

A final set of independent variables (covariates) common for all symptoms and significantly related to most of them was then defined. In addition to age it included self-rated health, self-rated mood, educational level, BMI, smoking habits, use of hormone replacement therapy, and use of other symptom relieving medication, and age squared for curvilinear functions. No interaction terms survived the preliminary analyses.

All tests were two-tailed. The level of significance was generally set at $p<0.05$ and very small p-values were denoted $p<0.0001$ even when they were smaller. However, in paper 4 $p<0.05$ was used in the preliminary analyses and $p<0.01$ in the final analyses to account for multiple testing.

# Results

## Reported current use of prescription medications and some of its determinants (Paper 1)

### Characteristics of the study population

The characteristics of the study population are presented in Table 1.Two thousand nine hundred ninety one (2,991) (71.2%) responded. Mean age was 49.6 years, and mean BMI was 24.8 kg/m$^2$. Twenty-seven percent (27%) of the women had a university education, and more than 80% were married or cohabiting. Five percent (5%) reported being out of a job, about 10% were on sick leave or had an early retirement pension due to illness, while 4% were old-age pensioners. The proportion of housewives was <6%. Almost half the study population rated their housing situation as excellent.

Table 1. *Age, body mass index and social characteristics of the study population*

| Study variables | n | Mean or % | Standard deviation |
|---|---|---|---|
| Age (years) | 2991 | 49.6 | 8.49 |
| Body mass index (kg/(m$^2$)) | 2873 | 24.8 | 3.81 |
| Education (%) | | | |
| Compulsory school only | 831 | 28.5 | |
| Vocational school | 724 | 24.8 | |
| High school | 575 | 19.7 | |
| College or university | 787 | 27.0 | |
| Marital status (%) | | | |
| Never married | 154 | 5.3 | |
| Married or cohabiting | 2351 | 80.3 | |
| Divorced | 333 | 11.4 | |
| Widowed | 89 | 3.0 | |
| Employment (%) | | | |
| Working full time | 1237 | 42.1 | |
| Working part time | 893 | 30.4 | |
| Student | 76 | 2.6 | |
| Unemployed | 150 | 5.1 | |
| Sick leave or early retirement | 291 | 9.9 | |
| Old age pension | 117 | 4.0 | |
| Others (including housewives) | 172 | 5.9 | |

Table 2. *Smoking habits, physical activity, self-rated health and menstrual status in the study population*

| Study variables | n | % |
|---|---|---|
| Smoking habits | | |
| Never smoked | 1315 | 45.1 |
| Ex-smoker | 838 | 28.7 |
| Current smoker | 763 | 26.2 |
| Physical activity during work | | |
| Sedentary | 858 | 33.5 |
| Moderately active | 1293 | 50.4 |
| Heavy | 414 | 16.1 |
| Physical activity during leisure time | | |
| Sedentary | 427 | 14.7 |
| Moderately active | 2048 | 70.3 |
| Very and vigorously active | 435 | 15.0 |
| Menstrual status | | |
| Menses this year and last year | 1541 | 53.7 |
| No menses this year but menses last year | 120 | 4.2 |
| No menses this year or last year | 1207 | 42.1 |
| Self-rated health | | |
| Poor (1–2) | 141 | 4.8 |
| Moderately good (3–6) | 2217 | 75.9 |
| Excellent (7) | 564 | 19.3 |

Seventy-four percent of the women in the cohort were non-smokers, Table 2. Low or moderately high physical activity during work or leisure time was reported by more than 80%. Fifty-four percent (54%) were still menstruating, 4% had no menses during the present year but had had menses during the past year, and 42% had no menses this or during the past year. The mean age for the three groups was 43.6 ± 5.21 years, 50.0 ± 4.16 years, and 56.7 ± 6.14 years. One fifth of the women rated their health as excellent, 76% as moderately good, and 5% as poor.

## Diseases under treatment and use of drugs

One thousand two hundred eighty five (1,285) (43.0%, CI: 41.2–44.7) women reported being treated for some sort of disease, Figure 1 shows the frequencies after adjustments for the incongruence between the ATC and the ICD classification systems presented in Methods. The most frequent conditions/diseases were urinary and genital tract, cardiovascular, musculoskeletal and, nervous system diseases. 1,207 (40.4%, CI: 38.6–42.2) women reported taking some kind of prescribed medication. The most frequent groups of medications were those affecting conditions in the urinary and genital systems, the nervous system, the cardiovascular system and musculoskeletal

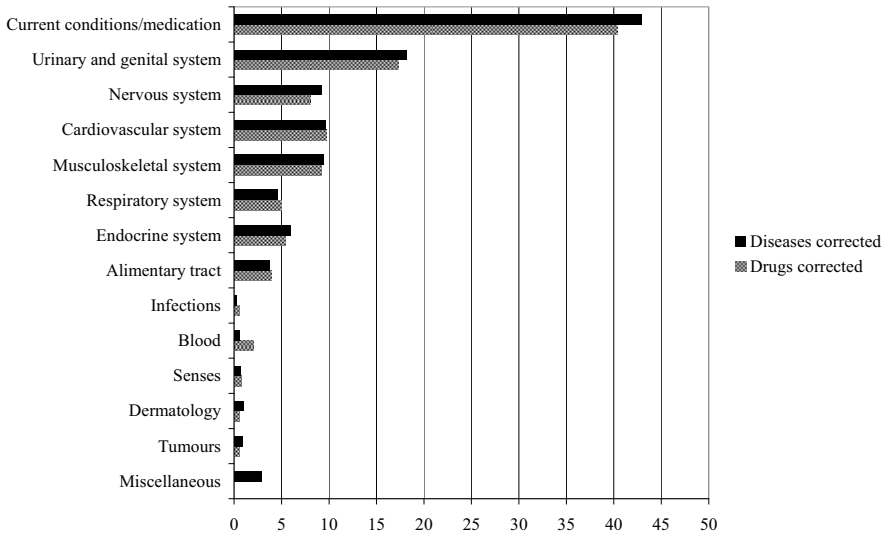



*Figure 1.* Frequencies according to the ATC and ICD classification systems. The difference between the two classification systems has been corrected for

system. Out of the 1,207 women, 624 (51.7%) reported that they were currently taking one medication, 281 (23.3%) two medications, 153 (12.7%) three medications, 78 (6.5%) four medications, 51 (4.2%) five medications and 20 (1.7%) women were currently taking six medications or more. The maximum medication was 15 different medications, reported by one woman.

## Factors correlated to the use of drugs

Current use of drugs was correlated to old age, high BMI, low physical activity, early retirement, a postmenopausal status, not being married, a low educational level, being unemployed, and poor self-rated health, but not to smoking habits and unemployment, Table 3. In addition, most of these variables were inter-correlated.

For this reason a set of multivariate analyses were performed with current use of drugs as the dependent variable and the significant variables in Table 3 as independent variables. After backward elimination (successively eliminating the least significant factor), age, educational level, self-rated health, and BMI remained significantly correlated to drug use.

The effects of these variables on current use of drugs are shown in Table 4. Women aged 45–54 years old had 2.36 times higher odds of using drugs than women 35–44 years old, and the odds were 3.52 higher in the oldest age group, when the effect of other significant factors, *i.e.*, self-rated health, BMI,

Table 3. *Results from bivariate analyses of the influence of a variety of factors on current use of medications. Odds ratio, odds of using drugs in relation to first subgroups of each variable. P-values refer to trend test across all subgroups of a variable*

| | Proportion currently using drugs (%) | Odds ratio | 95% confidence interval | p |
|---|---|---|---|---|
| Age (years) | | | | <0.0001 |
| 35–44 | 24.7 | 1.00 | – | |
| 45–54 | 43.4 | **2.34** | 1.94–2.83 | |
| 55–64 | 52.8 | **3.41** | 2.80–4.15 | |
| Self-rated health | | | | <0.0001 |
| Excellent (7) | 19.5 | 1.00 | – | |
| Moderate (3–6) | 44.2 | **3.52** | 2.83–4.38 | |
| Poor (1–2) | 79.4 | **17.21** | 10.92–27.14 | |
| Body mass index (kg/(m$^2$)) | | | | <0.0001 |
| 15–24 | 35.8 | 1.00 | – | |
| 25–29 | 43.7 | **1.45** | 1.24–1.70 | |
| >30 | 51.9 | **2.02** | 1.60–2.54 | |
| Early retirement due to illness | | | | <0.0001 |
| No | 37.2 | 1.00 | – | |
| Yes | 69.4 | **3.83** | 2.95–4.97 | |
| Menstrual status | | | | <0.0001 |
| Premenopausal | 31.3 | 1.00 | – | |
| Perimenopausal | 52.5 | **2.52** | 1.73–3.65 | |
| Postmenopausal | 52.7 | **2.54** | 2.17–2.96 | |
| Physical activity during leisure time | | | | <0.0005 |
| Sedentary | 45.7 | 1.00 | – | |
| Moderately active | 41.8 | 1.04 | 0.86–1.27 | |
| Very active | 33.1 | **0.72** | 0.55–0.94 | |
| Physical activity at work | | | | <0.01 |
| Sedentary | 40.4 | 1.00 | – | |
| Moderately active | 37.8 | **0.77** | 0.66–0.90 | |
| Very active | 36.7 | **0.75** | 0.59–0.93 | |
| Educational level | | | | <0.01 |
| Compulsory school only | 45.7 | 1.00 | – | |
| Vocational school | 41.6 | 0.95 | 0.78–1.16 | |
| High school | 33.6 | **0.67** | 0.54–0.84 | |
| College or university | 41.3 | 0.94 | 0.77–1.14 | |
| Marital status | | | | <0.05 |
| Married or cohabiting | 39.4 | 1.00 | – | |
| Not married or cohabiting | 46.5 | **1.34** | 1.09–1.64 | |
| Employment | | | | NS |
| Employed | 40.4 | 1.00 | – | |
| Unemployed | 40.0 | 0.99 | 0.70–1.38 | |
| Smoking habits | | | | NS |
| Never smoked | 40.6 | 1.00 | – | |
| Ex-smoker | 42.7 | 1.15 | 0.97–1.37 | |
| Current smoker | 39.7 | 1.02 | 0.85–1.22 | |

Odds ratio estimates in bold type are significantly different from unity

Table 4. *Result of multivariate analysis of the quantitative role of age, self-rated health, body mass index and educational level on current use of any medication*

| | Odds ratio | 95 % confidence interval |
|---|---|---|
| Age (years) | | |
| 35–44 | 1.00 | |
| 45–54 | **2.36** | 1.93–2.89 |
| 55–64 | **3.52** | 2.81–4.41 |
| Self-rated health | | |
| Excellent (7) | 1.00 | – |
| Moderate (3–5) | **3.46** | 2.77–4.33 |
| Poor (1–2) | **17.01** | 10.64–27.17 |
| Body mass index (kg/(m$^2$)) | | |
| 15–24 | 1.00 | – |
| 25–29 | **1.30** | 1.09–1.54 |
| >30 | **1.64** | 1.28–2.11 |
| Educational level | | |
| Compulsory school only | 1.00 | – |
| Vocational school | 0.98 | 0.79–1.21 |
| High school | 1.06 | 0.83–1.36 |
| College or university | **1.40** | 1.12–1.75 |

Odds ratio estimates in bold type are significantly different from unity

and educational level were taken into account. Women who rated their health as moderately good had 3.46 higher odds of currently using drugs than women who rated their health as excellent, and those who rated their health as poor had 17 times higher odds than those with an excellent health score. Moderately obese women (BMI 25–29) had an odds ratio of 1.30 of being on medication compared to lean women (BMI<25), and women with obesity had an odds ratio of 1.64.

The odds ratios for educational level increased from 1.00 for those with compulsory school only to 1.40 for those with university education. This means that the tendency towards an inverse relationship between education and drug use seen in the univariate analysis was changed to a direct one when the influence of age, self-rated health, and BMI was taken into account.

Forty percent (40%) of the women in the age range 35–64 years in the general population were currently using drugs. Current medication was directly correlated with age, BMI, and educational level, and inversely correlated with self-rated health. When the influence of the four latter factors were taken into account, menopausal status, smoking habits, employment status, or co-habiting did not seem to have any effect on drug use.

# Factors associated with adherence to drug therapy (Paper 2)

## Characteristics

The characteristics of the 1,406 women reporting at least one prescription during the last year, constituting the study population in this paper, are presented in Table 5.

The mean age was 51.2 years, mean BMI was 25 kg/($m^2$) and mean number of prescriptions per person was 2.2. Of the respondents, 27% had a col-

Table 5. *Characteristics of the study population and their effects on adherence*

| | Mean or % | SD [1] | Relation to adherence | |
|---|---|---|---|---|
| | | | OR [2] | 95% CI [3] |
| Number of persons | 1406 | | | |
| Age (years) (mean) | 51.2 | 8.17 | **1.05** | 1.04–1.07 |
| Body mass index (kg/($m^2$)) (mean) | 25.2 | 4.01 | **1.06** | 1.03–1.09 |
| Number of prescriptions per subject | | | | |
| Mean | 2.2 | 1.53 | **1.34** | 1.15–1.56 |
| Median | 1.5 | | | |
| Education (%) | | | **0.80** | 0.75–0.86 |
| Compulsory school only | 21.4 | | 1.00 | – |
| Vocational school | 33.3 | | 0.89 | 0.67–1.19 |
| High school | 17.9 | | **0.46** | 0.34–0.61 |
| College or university | 27.4 | | **0.48** | 0.37–0.63 |
| Married or cohabiting (%) | 78.6 | | 0.80 | 0.63–1.03 |
| Employment status (%) | | | **1.26** | 1.12–1.42 |
| Working full time | 42.3 | | 1.00 | – |
| Working part time | 25.9 | | 1.27 | 0.98–1.66 |
| Unemployed, sick leave or retired | 26.2 | | **1.68** | 1.32–2.14 |
| Others (including housewives) | 5.6 | | 1.22 | 0.80–1.88 |
| Smokers (%) | 26.3 | | 0.94 | 0.75–1.18 |
| Self-rated health | | | 0.95 | 0.89–1.01 |
| Poor (1–2) | 8.8 | | 0.70 | 0.36–1.36 |
| Good (3–6) | 81.3 | | 1.00 | – |
| Excellent (7) | 9.9 | | 0.79 | 0.49–1.27 |
| Financial status | | | 1.03 | 0.97–1.10 |
| Poor (1–2) | 10.9 | | 1.25 | 0.55–2.83 |
| Good (3–6) | 79.5 | | 1.00 | – |
| Excellent (7) | 9.6 | | 0.98 | 0.62–1.56 |
| Complaint Score | 10.2 | 5.63 | **0.98** | 0.96–0.98 |

Odds ratio estimates in bold type are significantly different from unity 1) standard deviation 2) odds ratio 3) 95% confidence interval

lege or university education. 79% of the women were married or cohabiting, 68% were working and 26% were smokers. Approximately 90% reported their self-rated health, and financial status to be good or excellent. The number of prescriptions per woman ranged from 1 to 15 medications, with a median of 1.5.

The characteristics of the 3,067 prescriptions are presented in Table 6. The 85.6% prescriptions with adherence classified as satisfactory consisted of 78% still being taken and 7.6% discontinued as prescribed. In 10.7% of the cases, the prescription medication was discontinued prematurely, in 1.8% the medication was never taken and for 1.9% the prescription was never picked up at the pharmacy.

A total of 207 (14.7%) women reported mixed adherence, satisfactory for some medications and unsatisfactory for others. In connection with 62% of the prescriptions, a check-up date with the prescribing doctor was given. For less than half of the prescriptions the women considered the disease for which the medication was prescribed as serious, and in 68% the woman regarded the medication as important to their health. Seventeen percent of the women had concerns about the safety of this particular medication. The majority of the prescriptions were for one dose or less per day. Of all the prescriptions 66.6% were issued by a male prescribing physician, in 71% of the prescriptions, the women stated that their confidence in the prescribing physician was high. A high level of confidence in physicians in general was only reported in relation to one third of the prescriptions. Most prescriptions were issued by general practitioners, or by hospital physicians.

## Possible determinants of adherence

The individually related factors (independent variables) associated with a positive effect on adherence (dependent variables) were age, BMI, number of prescriptions per subject and employment status. Factors associated with a negative effect were education and Complaint Score, Table 5.

In Table 6 the medication-related factors associated with an effect on adherence are seen. The positive factors were whether a check-up was scheduled, importance of medication, the self-rated disease severity, duration of treatment and confidence in the prescribing physician and in physicians in general. Factors with a negative effect of adherence were concerns about medication safety and number of doses taken per day.

The adherence associated with the various drug groups classified by the first letter of the ATC code is shown in Figure 2, after the adjustment for the influence of age, scheduled check-up, importance of medication, concerns about the safety of the of the medication and disease severity. The use of hormone drugs for treating disease, such as thyroid hormone, respiratory disease drugs, blood disease drugs, and cardiovascular disease drugs was associated with an above average adherence (90.7, 90,7, 90.0 and 87.2%, re-

Table 6. *Prescription-related variables and their impact on adherence*

| | n | Mean or % | Relation to adherence | |
|---|---|---|---|---|
| | | | Odds ratio | 95% confidence interval |
| Total number of prescriptions | 3067 | | | |
| Adherence groups (%) | | | | |
| Taken as prescribed | 2391 | 78.0 | | |
| Withdrawn as prescribed | 233 | 7.6 | | |
| Withdrawn against prescription | 329 | 10.7 | | |
| Filled but not started | 56 | 1.8 | | |
| Never filled | 58 | 1.9 | | |
| Check-up scheduled (%) | 1566 | 61.6 | **3.75** | 2.97–4.73 |
| Importance of medication (%) | | | **1.85** | 1.74–1.97 |
| Unimportant (1–2) | 194 | 6.9 | **0.08** | 0.05–0.11 |
| Moderately important (3–5) | 706 | 25.0 | 1.00 | – |
| Important (6–7) | 1926 | 68.1 | **2.75** | 2.09–3.60 |
| Concerns about medication safety (%) | 439 | 16.5 | **0.42** | 0.32–0.54 |
| Disease severity (%) | | | **1.06** | 1.01–1.12 |
| Mild (1–2) | 517 | 18.1 | 0.89 | 0.67–1.18 |
| Moderate (3–5) | 1091 | 38.2 | 1.00 | – |
| Severe (6–7) | 1248 | 43.7 | 1.25 | 0.98–1.58 |
| Number of doses taken per day | | | **0.82** | 0.72–0.94 |
| 1 or less | 1821 | 66.0 | 1.00 | – |
| 2 | 638 | 23.1 | **0.70** | 0.55–0.91 |
| 3 or more | 300 | 10.9 | **0.71** | 0.50–0.99 |
| Treatment time (years) | 2766 | 5.1 | **1.07** | 1.04–1.10 |
| Male prescribing physician (%) | 1823 | 66.6 | 0.92 | 0.75–1.14 |
| Confidence in prescribing physicians | | | **1.43** | 1.33–1.53 |
| Low (1–2) | 88 | 3.2 | **0.40** | 0.25–0.63 |
| Moderate (3–5) | 734 | 26.3 | 1.00 | – |
| High (6–7) | 1966 | 70.5 | **2.41** | 1.93–3.02 |
| Confidence generally in physicians | | | **1.15** | 1.06–1.24 |
| Low (1–2) | 118 | 4.5 | 1.12 | 0.67–1.88 |
| Moderate (3–5) | 1588 | 60.0 | 1.00 | – |
| High (6–7) | 942 | 35.5 | **1.64** | 1.29–2.09 |
| Prescribing physicians (%) | | | | |
| General practitioner | 1170 | 41.3 | 0.97 | 0.78–1.19 |
| Hospital-based physician | 1066 | 37.7 | 1.18 | 0.95–1.47 |
| Private practitioner | 455 | 16.1 | 0.94 | 0.71–1.23 |
| Occupational medicine physician | 195 | 6.9 | 0.92 | 0.62–1.37 |

Odds ratio estimates in bold type are significantly different from unity

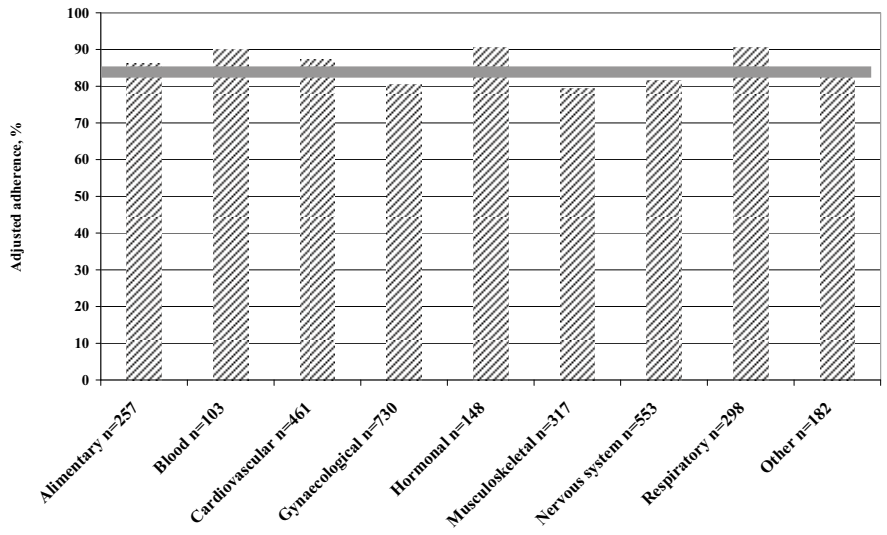



*Figure 2.* Adherence (%) to various medications according to the first letter of the ATC-code, adjusted for the influence of age, scheduled check-up, importance of medication, concerns about the medication safety and disease severity. The *horizontal shaded area* represents the 95% confidence interval of the average adherence percentage. *Bars ending below or above the shaded area* indicate that intake of medications in the group is associated with an adherence significantly different from the average

spectively), while the use of central nervous system (CNS) regulating drugs and gynaecological and musculoskeletal disease drugs was associated with a below average adherence (81.7, 80.5 and 79.5%, respectively). The use of other drugs did not deviate significantly from the average. Only prescriptions for medication to treat cardiovascular and respiratory disease retained their impact on adherence in a multivariate analysis.

In a final multivariate analysis with backward elimination age, an upcoming scheduled check-up, importance of medication, concerns about the safety of the medication, disease severity, taking respiratory disease medication and taking cardiovascular disease medication remained significantly related to adherence, Table 7.

Adherence also varied with various combinations of the significant factors in the multivariate analysis. The result in Figure 3 reveals that adherence ranged from 15%–98%. The highest reported adherence was reported by women who regarded their medication as important and who were scheduled for check-up appointments. Adherence also varied with different combinations of factors.

Table 7. Multivariate analysis of factors associated with adherence in logistic regression with backward elimination of non-significant factors

| | Odds ratio | 95% confidence interval |
|---|---|---|
| Age (years) | **1.04** | 1.02–1.06 |
| Check-up scheduled (yes/no) | **2.51** | 1.85–3.40 |
| Importance of medication score (1–7) | **1.94** | 1.77–2.12 |
| Concerns about medications safety (yes/no) | **0.50** | 0.35–0.73 |
| Disease severity score (1–7) | **0.82** | 0.75–0.89 |
| Respiratory disease medication (yes/no) | **2.16** | 1.13–4.14 |
| Cardiovascular disease medication (yes/no) | **1.80** | 1.05–3.10 |

Odds ratio estimates in bold type are significantly different from unity

Among women 35 years old who regarded their medication as unimportant and who had no check-up scheduled, adherence was approximately 15%, while among the oldest women with the same factors considered, it was 35%. A scheduled check-up increased adherence by 15–20 percent in all importance of medication categories. Increase of importance of medication from unimportant to moderately important increased adherence by approximately 40 percent.

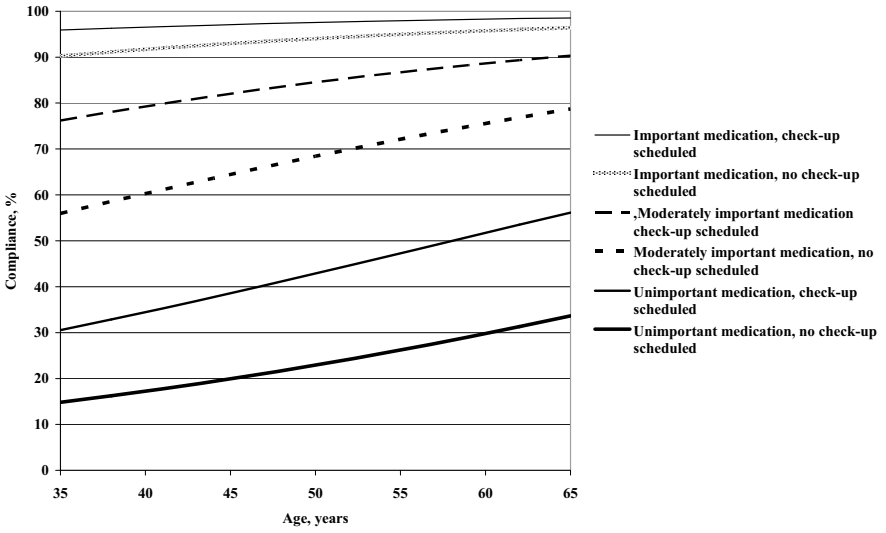



*Figure 3.* Adherence (%) according to age, importance of medication and scheduled check-up visit

# Hormone replacement therapy and symptom reporting in menopausal women (Paper 3)

## Characteristics

Characteristics of the study population are given in Table 1 and Table 2. Mean age was 49.6 years, 73% had more than compulsory education, 26% were smokers. In Table 8 gynaecological information is presented. 4.0% were perimenopausal, 40% were postmenopausal, and 13% were using symptom relieving therapy. HRT was currently being used by 15% of the women, while 2.3% of the women had recently stopped using the medication. One hundred and seven women (3.6%) reported that they were still menstruating using HRT. Ninety–six of them reported menopausal symptoms as indication for their HRT and the remaining 11 reported various other indications.

Table 8. *Characteristics of the study population*

| Study variables | n | Mean or % |
|---|---|---|
| Hysterectomy or oophorectomi | 333 | 11.1 |
| Menstrual state | | |
| Premenopausal | 1541 | 51.5 |
| Perimenopausal | 120 | 4.0 |
| Postmenopausal | 1207 | 40.4 |
| Hormone replacement therapy | | |
| No use | 2428 | 82.7 |
| Current use | 441 | 15.0 |
| Stopped using | 67 | 2.3 |
| Symptom relieving therapy | | |
| No use | 2450 | 83.4 |
| Current use | 375 | 12.8 |
| Stopped using | 111 | 3.8 |

## Menopausal state and symptoms

The perimenopausal women had higher odds than the premenopausal women of reporting all presumed menopausal symptoms, Table 9. The odds ratios were significantly increased for flushing, and sweating during daytime and at night. For the remaining symptoms, there were non-significant trends. All symptom frequencies tended to be lower, but not significantly so, in the postmenopausal phase than in the perimenopausal, except for vaginal dryness, which tended to become more common. Twenty-five percent of the premenopausal women experienced any vasomotor symptoms, as compared with 51% of the perimenopausal and 40% of the postmenopausal women.

Table 9. *Proportion reporting presumed menopausal symptoms in univariate analysis and odds ratio and their 95% confidence interval for reporting symptoms after adjustment for the influence of age, smoking habits, hormone replacement therapy and education. In the latter analyses premenopausal women were used as referents*

| | Crude rates | | | Adjusted odds ratio | | | | |
|---|---|---|---|---|---|---|---|---|
| | Pre-meno-pausal | Peri-meno-pausal | Post-meno-pausal | Pre-meno-pausal | Perimenopausal | | Postmenopausal | |
| | % | % | % | OR | OR | 95% CI | OR | 95% CI |
| Flushing | 6.6 | 29.2 | 15.9 | 1.00 | **5.27** | 3.26–8.51 | **2.93** | 2.02–4.25 |
| Sweating during daytime | 12.4 | 40.8 | 25.1 | 1.00 | **4.67** | 3.05–7.16 | **2.65** | 1.96–3.60 |
| Sweating during night | 19.2 | 40.8 | 31.6 | 1.00 | **2.49** | 1.65–3.75 | **1.80** | 1.37–2.35 |
| Vaginal dryness | 9.4 | 18.3 | 30.5 | 1.00 | 1.54 | 0.91–2.59 | **2.53** | 1.85–3.45 |
| Stress urinary incontinence | 27.3 | 37.5 | 32.7 | 1.00 | 1.10 | 0.73–1.66 | **0.71** | 0.55–0.92 |
| Urgency urinary incontinence | 11.6 | 17.5 | 14.5 | 1.00 | 1.21 | 0.71–2.04 | 0.87 | 0.62–1.23 |
| Urinary infection | 7.9 | 13.3 | 10.5 | 1.00 | 1.33 | 0.73–2.42 | 1.04 | 0.70–1.54 |
| Muscular pain | 10.8 | 20.8 | 16.9 | 1.00 | 1.45 | 0.88–2.39 | 0.98 | 0.70–1.38 |
| Self-rated poor health | 9.4 | 20.8 | 14.0 | 1.00 | **2.09** | 1.26–3.48 | 1.39 | 0.98–1.99 |

Odds ratio estimates in bold type are significantly different from unit

In addition, perimenopausal women reported a higher Complaint Score for the 30 symptoms than pre- and postmenopausal women, Figure 4. The premenopausal women reported on average 8.84 (CI: 8.57–9.11) symptoms, the perimenopausal 10.77 (CI: 9.63–11.91) and postmenopausal women 8.26 (CI: 7.95–8.57) symptoms. All these scores were significantly different. Adjustment for age, smoking habits and educational level did not change the result.

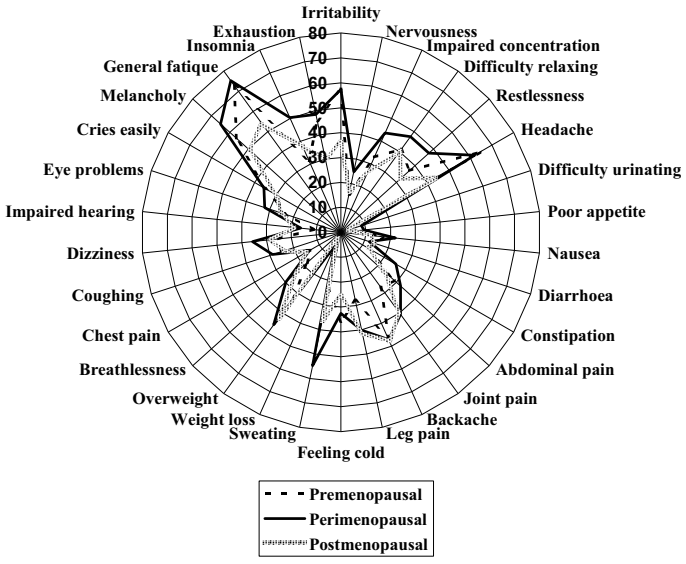



*Figure 4.* General symptom profile according to menstrual status

## Hormone replacement therapy and symptom reporting

Seven percent of the premenopausal women were currently using HRT. The corresponding proportions for the perimenopausal women was 18%, and for postmenopausal women 25%. The reporting of presumed menopausal symptoms among perimenopausal and postmenopausal women according to HRT is shown in Table 10. Those on HRT reported higher frequencies than non-users for all symptoms except sweating during the day, and a significantly worse self-rated health. Those who had stopped HRT tended to report even higher frequencies than the users.

The Complaint Scores among perimenopausal and postmenopausal women are shown in Figure 5. Those not using HRT reported on average 8.49 (CI: 8.27–8.71) symptoms, the users 9.19 (CI: 8.67–9.71) and those who had stopped HRT reported 11.25 (CI: 9.88–12.63) symptoms, significantly more than the former two groups. The results were unchanged after adjustment for age, smoking habits, educational level, and menstrual status.

Fifteen percent of the women used HRT, and 2.3% had discontinued their treatment during the year. Thirteen percent used any symptom relieving therapy. The women on HRT reported the highest scores of all vasomotor symptoms except sweating during the daytime, compared with non-users, Table 10. The highest reported self-rated poor health was found among the users of HRT.

Table 10. *Proportion of perimenopausal and postmenopausal hormone replacement therapy non-users, users, and ex-users reporting presumed menopausal symptoms in univariate analysis (left part of the table) and odds ratio and their 95% confidence interval for reporting symptoms after adjustment for the influence of age, menstrual status, smoking habits and education (right part)*

| | Crude rates | | | Adjusted odds ratio | | | | |
|---|---|---|---|---|---|---|---|---|
| | Non-users | Users | Ex-users | Non-users | Users | | Ex-users | |
| | % | % | % | OR | OR | 95% CI | OR | 95% CI |
| Flushing | 10.6 | 13.6 | 27.7 | 1.00 | 1.05 | 0.76–1.44 | **2.33** | 1.29–4.20 |
| Sweating during daytime | 18.7 | 17.3 | 36.9 | 1.00 | **0.71** | 0.53–0.94 | **2.01** | 1.17–3.48 |
| Sweating during night | 24.2 | 28.7 | 44.6 | 1.00 | 1.00 | 0.79–1.28 | **1.97** | 1.18–3.29 |
| Vaginal dryness | 15.6 | 32.0 | 41.5 | 1.00 | **1.69** | 1.32–2.16 | **3.30** | 1.93–5.63 |
| Stress urinary incontinence | 28.1 | 37.9 | 47.7 | 1.00 | **1.35** | 1.07–1.69 | **2.12** | 1.28–3.51 |
| Urgency urinary incontinence | 11.4 | 25.6 | 24.6 | 1.00 | **1.79** | 1.35–2.37 | **2.22** | 1.23–4.01 |
| Urinary infection | 8.4 | 12.9 | 15.4 | 1.00 | **1.46** | 1.05–2.04 | 1.73 | 0.85–3.49 |
| Muscular pain | 12.1 | 21.5 | 24.6 | 1.00 | **1.79** | 1.35–2.36 | **2.09** | 1.15–3.81 |
| Self-rated poor health | 11.0 | 15.7 | 15.4 | 1.00 | **1.39** | 1.02–1.89 | 1.26 | 0.62–2.55 |

Odds ratio estimates in bold type are significantly different from unit

The women who had stopped taking HRT during the last year had significantly higher odds to report flush, sweating during daytime and at night, fragile/vulnerable mucous membranes, stress and urinary incontinence, and muscular pain. The same pattern was seen for general symptoms. Women who discontinued their HRT, had the highest scores for general symptoms, as presented in Figure 5, and the highest odds ratios for reporting the presumed menopausal symptoms, Table 10. This group of women also had the highest prevalence of taking symptom relieving therapy, hypnotics, tranquilizers, antidepressants and painkillers, Figure 6.

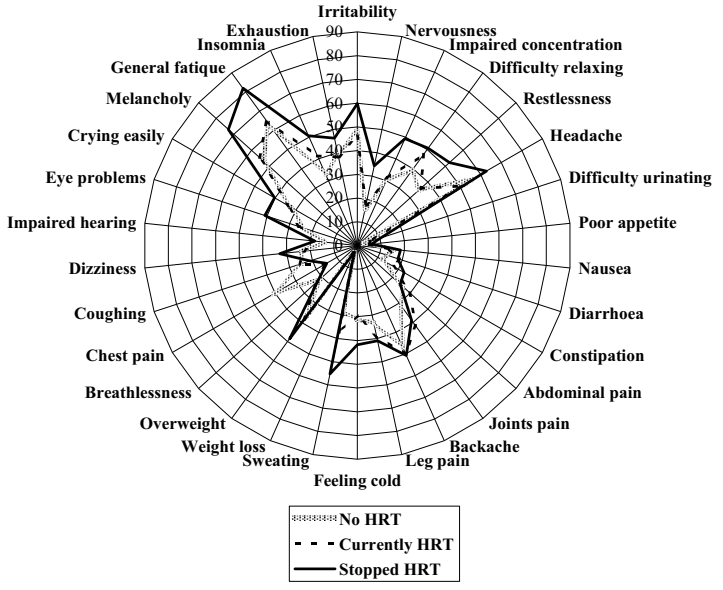



*Figure 5.* General symptom profile according to usage of HRT among perimenopausal and postmenopausal women

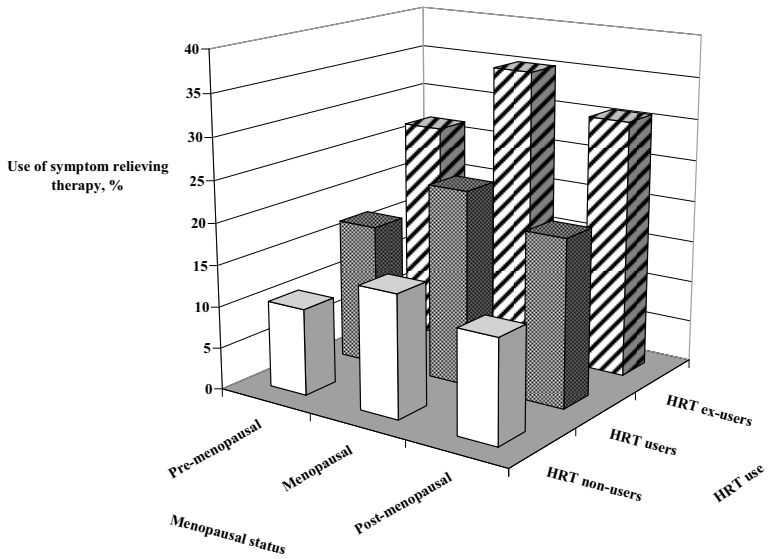



*Figure 6.* Symptom relieving therapy related to menopausal status and use of HRT

# Age-specific symptom prevalence (Paper 4)

## Characteristics

The same study population as in papers 1 and 3 was used in paper 4. Some further characteristics are given in Table 11. The mean age was 49.6 years, interquartile range 42–56. More than one fourth of the women had a university education and one fourth were smokers. Mean BMI was 24.8, interquartile ranged 22.2–26.8. The majority reported their mood and self-rated health as moderately good or good. HRT was currently used by 15% and other symptom relieving therapy by 13%.

Table 11. *Psycho-socio-economic characteristics of the study population*

| | n | mean or % |
|---|---|---|
| Age (years) | 2991 | 49.6 ± 8.5 |
| Educational level | | |
| Compulsory school only | 831 | 28.5 |
| Vocational school / high school | 1299 | 44.5 |
| College or university | 787 | 27.0 |
| Smoking habits | | |
| Never smoked | 1315 | 45.1 |
| Ex-smoker | 838 | 28.7 |
| Current smoker | 763 | 26.2 |
| Body mass index (kg/(m$^2$)) | | |
| 15–24 | 1704 | 59.3 |
| 25–30 | 888 | 30.9 |
| >30 | 201 | 9.8 |
| Mood | | |
| Poor (1–3) | 207 | 7.1 |
| Moderately good or good (4–6) | 2182 | 74.6 |
| Excellent (7) | 534 | 18.3 |
| Self-rated health | | |
| Poor (1–3) | 338 | 11.6 |
| Moderately good or good (4–6) | 2020 | 69.1 |
| Excellent (7) | 564 | 19.3 |
| Hormone replacement therapy | | |
| no use | 2428 | 82.7 |
| current use | 441 | 15.0 |
| past use | 67 | 2.3 |
| Symptom relieving therapy | | |
| no use | 2450 | 83.4 |
| current use | 375 | 12.8 |
| past use | 111 | 3.8 |

## Prevalence patterns

The prevalence of the 30 symptoms among all women in the study are shown in Figure 7. The most prevalent symptoms were general fatigue

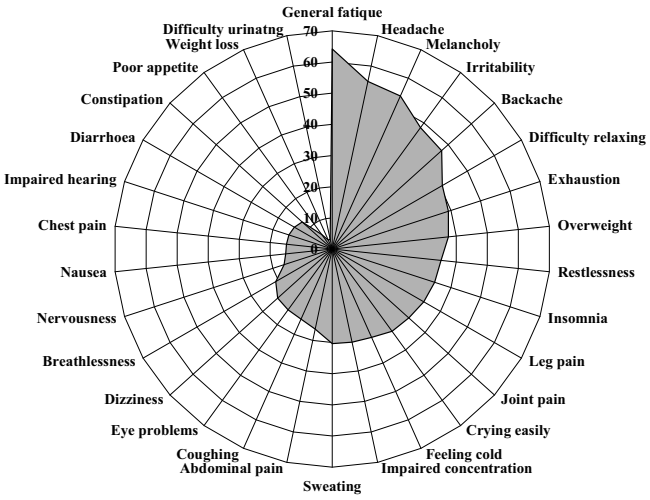



*Figure 7.* Three months prevalence (%) of 30 symptoms among women 35–64 years of age

(64.2%), headache (54.9%), melancholy (53.7%), irritability (48.1%), and backache (47.1%). The least prevalent were difficulty urinating (3.1%), weight loss (3.1%), poor appetite (5.7%), constipation (13.0%), and diarrhoea (14.0%).

The prevalence of the 30 symptoms by 5-year age groups, after adjustments for the influence of educational level, perceived health and mood, body mass index, smoking habits, use of hormone replacement therapy, and use of other symptom relieving therapy, is presented in Table 12. Four symptoms, insomnia, leg pain, eye problems and impaired hearing, all increased significantly by age with 8-10 percent from the youngest age group to the oldest age group. Joint pain has showed a similar but inconclusive increase. An example from this group, impaired hearing, is shown graphically in Figure 8.

Twelve symptoms, difficulty relaxing, restlessness, overweight, coughing, breathlessness, diarrhoea, chest pain, constipation, nervousness, poor appetite, weight loss, and difficulty urinating, had a stable prevalence with age, ranging from 41.3% to 1.9%. An example from this group, coughing, is also shown on the graph in Figure 8.

Two symptoms, impaired concentration and sweating, had biphasic prevalence. Impaired concentration increased from 28% among the youngest women, to a peak value of 32% at ages 45–49 and then decreased to 22% at age 60–64. Sweating had an even more pronounced biphasic course starting at 14% among the youngest, reaching a maximum level of 38% at ages 50–

Table 12. *Symptom prevalence by age after adjustment for the influence of educational level, self-rated health and mood, body mass index, smoking habits, use of hormone replacement therapy, and use of other symptom relieving therapy. P-values refer to prevalence trends across age*

| | Age groups | | | | | | p across age |
|---|---|---|---|---|---|---|---|
| | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | |
| n | 426 | 514 | 602 | 541 | 418 | 490 | |
| Increasing prevalence | | | | | | | |
| Insomnia | 28.1 | 30.0 | 32.0 | 34.1 | 36.2 | 38.4 | <0.005 |
| Leg pain | 27.0 | 28.8 | 30.7 | 32.7 | 34.7 | 36.7 | <0.005 |
| Joint pain | 27.0 | 28.5 | 30.1 | 31.7 | 33.3 | 35.0 | |
| Eye problems | 16.2 | 20.7 | 24.3 | 26.2 | 26.3 | 24.6 | <0.005 |
| Impaired hearing | 9.4 | 10.9 | 12.6 | 14.6 | 16.8 | 19.3 | <0.0001 |
| Stable prevalence | | | | | | | |
| Difficulty relaxing | 37.1 | 40.0 | 41.3 | 41.0 | 39.1 | 35.8 | |
| Restlessness | 35.3 | 34.4 | 33.5 | 32.5 | 31.6 | 30.7 | |
| Overweight | 32.5 | 32.8 | 33.2 | 33.5 | 33.8 | 34.1 | |
| Coughing | 23.7 | 23.7 | 23.8 | 23.9 | 24.0 | 24.0 | |
| Breathlessness | 16.6 | 17.1 | 17.5 | 18.0 | 18.5 | 18.9 | |
| Diarrhoea | 16.1 | 13.3 | 11.7 | 11.2 | 11.5 | 12.7 | |
| Chest pain | 12.2 | 12.3 | 12.5 | 12.6 | 12.8 | 13.0 | |
| Constipation | 12.2 | 12.1 | 11.9 | 11.8 | 11.6 | 11.5 | |
| Nervousness | 10.7 | 11.0 | 11.3 | 11.7 | 12.0 | 12.4 | |
| Poor appetite | 5.4 | 3.7 | 2.9 | 2.7 | 2.8 | 3.4 | |
| Weight loss | 2.6 | 2.5 | 2.3 | 2.2 | 2.0 | 1.9 | |
| Difficulty urinating | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | |
| Biphasic prevalence | | | | | | | |
| Impaired concentration | 28.1 | 31.3 | 32.2 | 30.7 | 27.0 | 21.6 | <0.001 |
| Sweating | 14.1 | 25.0 | 34.1 | 38.1 | 35.9 | 28.2 | <0.0001 |
| Decreasing prevalence | | | | | | | |
| General fatigue | 83.4 | 78.2 | 71.8 | 64.4 | 56.3 | 47.8 | <0.0001 |
| Headache | 74.2 | 67.3 | 59.7 | 51.5 | 43.3 | 35.4 | <0.0001 |
| Irritability | 66.1 | 59.1 | 51.8 | 44.4 | 37.2 | 30.5 | <0.0001 |
| Melancholy | 60.1 | 58.3 | 56.4 | 54.6 | 52.7 | 50.8 | <0.01 |
| Backache | 55.2 | 52.1 | 48.9 | 45.8 | 42.7 | 39.6 | <0.0001 |
| Exhaustion | 45.4 | 45.6 | 43.2 | 38.1 | 30.9 | 22.5 | <0.001 |
| Feeling cold | 40.7 | 36.0 | 31.6 | 27.5 | 23.7 | 20.3 | <0.0001 |
| Crying easily | 38.6 | 35.5 | 32.4 | 29.5 | 26.8 | 24.3 | <0.0001 |
| Abdominal pain | 32.2 | 28.7 | 25.4 | 22.3 | 19.6 | 17.1 | <0.0001 |
| Dizziness | 27.3 | 24.9 | 22.6 | 20.6 | 18.6 | 16.8 | <0.0005 |
| Nausea | 17.9 | 15.7 | 13.6 | 11.8 | 10.2 | 8.8 | <0.0001 |

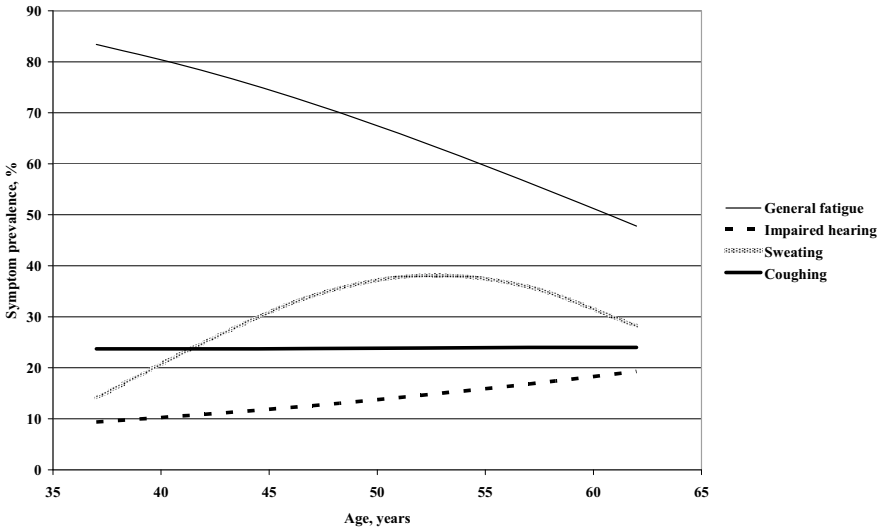



*Figure 8.* The four different groups of symptom prevalence

54 years and then decreasing to 28% among the oldest subjects. The prevalence course for sweating is shown in Figure 8.

The remaining eleven symptoms, general fatigue, headache, irritability, melancholy, backache, exhaustion, feeling cold, crying easily, abdominal pain, dizziness, and nausea, all showed a significantly decreasing prevalence with age. For many of the symptoms the prevalence at age 60–64 was half or less of what it was among the youngest women. General fatigue shown in Figure 8, ranged from 83.4% among the youngest to 47.8% among the oldest women. Corresponding levels for headache were 74.2% and 35.5%, respectively, Table 12. Irritability ranged from 66.1% to 30.5% and backache from 55.2% to 39.6%.

# Discussion

## Validity

The study was performed in a random population sample of women aged 35–64 from the seven counties of the Uppsala-Örebro health care region. The latter has more than two million residents and is therefore large enough to be fairly representative of the national Swedish population. The response rate was 71%, which is satisfactory from the point of view that the normal response rate for postal questionnaires in Sweden is approximately 60-65% according to our experience from other postal questionnaire studies. Contributing factors to the relatively high response rate might be the circumstance that the study population consisted of middle-aged women, since women have a higher response rate than men, and middle-aged persons a higher response rate than youngsters and old people. Moreover, two reminders were used when necessary as opposed to one reminder used in most studies.

The 29% who were non-responders may have introduced a potential selection bias in the estimation of the proportion of women reporting symptoms and taking medication if responders and non-responder had different characteristics. However, the distribution of socio-economic variables and drug use among the responders was similar to that of national samples in Sweden (Burman 1996; Statistical yearbook 1996).

The size of the potential bias caused by non-response was estimated in paper 1 (Bardel 2000). One way to measure this kind of bias is to calculate the medication use based on two extreme cases. In the first case we assumed that the non-responders had lower education, better health and a much lower BMI than the responders, so they would have more factors indicative of taking fewer medications. As the age was the same for the group who responded and the group who did not, we did not take age into account. A standard deviation of 5 standard deviation units for each variable in the non responding group compared to the responding would have given current medication in 39.4% in the whole selection compared to 40.4% as was found among the respondents. Assuming the other extreme, *i.e.*, 5 standard deviation units towards more education, worse self-rated health, and a higher BMI, resulted in a medication level of 41.3% in the whole group of women, as compared to the 40.4% found in respondents.

Potential recall bias may be involved in the symptom reporting and the reporting of medication use. Regarding symptom reporting the recall period of the last 3 months was short and the age range was such that younger and older women may be expected to have similar recall capacity. Regarding medication reporting there may be a problem with reporting bias because subjects may have failed to mention a medication they are currently taking. However, the concordance between information on drug use obtained from questionnaires and actual use has been shown to be fairly good, especially regarding current long-term use of drugs (Harlow 1989; Van den Brandt 1991). The recall problem might be more important for medications that were no longer taken. However, the recall period covered only the last 12 months and the recall bias is therefore probably small. Thus, there is no reason to believe that the potential bias in our data was sufficient to affect the results.

## Current use of prescription drugs and some of its determinants

Among the women investigated in our study 40% used drugs daily, and 12% took 4 or more different drugs. The most frequently reported drugs used by women aged 35–64 years were drugs for diseases of the urinary and genital system and contraceptives, followed by the nervous and cardiovascular systems.

Current use of drugs was correlated to old age, high BMI, low physical activity, early retirement, postmenopausal status, not married or cohabiting, low educational level, and poor self-rated health, but not to smoking habits or being unemployed. The most frequent groups of medications were those affecting conditions in the urinary and genital systems, the nervous system, the cardiovascular system and musculoskeletal system.

Eggen (Eggen 1994) found the educational level to be inversely related to current medication in univariate analysis. After adjustment for factors including self-rated health, high education level became a weak predictor for increased use of drugs. Women in our study in the age group 45–54 years had a 2.4 time higher odds ratio for using medication as compared with younger women. For the oldest women the odds were 3.5 times higher than for the youngest women in our study, when other significant factors such as education, self-rated health, and BMI had been taken into the account. When health was self-rated as poor, the odds were raised 17 times. Women who self-rated their health as moderately good had 3.5 higher odds of currently using drugs than women who rated their health as excellent.

An association between high educational level and medication has also been shown in studies of the use of hormone replacement therapy, (Finucane

1993). The opposite result was, however, found in a Swedish study by Collins and Landgren (Collins 1994). We found that the odds increased by 40% for the women with a university education as compared with the women who had only attended compulsory school to use medication. In addition to age, education and self-rated health, and BMI also had a significant impact on the use of medication. The risk of using medication was 1.3 times increased in women with a BMI of 25–29 compared to women with a BMI below 25. Among obese women (BMI >30) the risk was even more increased with odds ratio 1.6 for current medication. Morse *et al.* found that self-rated health was significantly related to BMI, and it is possible that high BMI is also related to greater use of medication (Morse 1994). McTigue *et al.* found that much of the obesity-related mortality and coronary heart disease risk was mediated by diabetes, hypertension, and hyperlipidemia (McTigue 2006).

## Adherence to drug therapy

Prescriptions and adherence were investigated in this thesis. Adherence was considered satisfactory if the women took their medications as prescribed and discontinued their medications as prescribed. There is known to be a gap between best care and most usual care for many major diseases. This gap in patient care has four main causes according to Wahl *et al*. Diseases may not be diagnosed, efficacious therapies may not be prescribed, access to therapy may be restricted or patients may not adhere to their prescriptions (Wahl 2005).

In this study a subgroup, women taking prescription medication, was used. For this report, information on 1,406 women on at least one prescription medication constituted the study population. Most studies are not based on the population, but on women selected from the patients seen at hospitals, and they are therefore not representative of women in the general population. In antihypertensive drug treatment discontinuation is associated with younger patients as opposed to older ones, according to Bloom (Bloom 1998) and Caro *et al.* (Caro 1999). We found older women to have the best adherence. Men are more inclined than women to stop the taking their medication, according to Caro *et al.* (Caro 1999). Gregoire's *et al.* results suggest better adherence to the new prescribed antihypertensive medication with lifting financial barriers to drug treatment, selection of antihypertensive medications with fewer side effects, and by helping people differentiate between symptoms from their medication, from symptoms not attributable to their medication (Gregoire 2002).

An article from 1992 describes four ways of improving compliance: by ensuring compliance, removing the barriers to compliance, simplifying therapeutic regimens, and educating the patient (Aronson 1992). The human

relationship between the provider and the patient is superior to all these factors. In our study we found that the patient's confidence in her doctor raised the rate of adherence. Carter *et al.* found, as early as 1982, that adherence to medical recommendations was positively related to "sharing opinions" and patient knowledge about illness (Carter 1982). This is in congruence with our findings that if the woman considered the medication to be important it raised her adherence level in the multivariate analysis.

In a meta-analysis, was found that compliance is associated with more information–giving and positive talk (Roter 1989). Patient-centered consultations, when the patient's points of view were sought by the physicians, was examined (Stewart 1984). It was found that a high frequency of patient-centered behaviour was related to higher reported compliance. Our findings of high adherence in the group of women with a check-up appointment is supported by the findings of Haynes *et al.*, where keeping patients in care is considered the most important adherence intervention (Haynes 1996).

DiMatteo and DiNicola, claimed that non-compliance is attributable to psychological factors (such as denial of disease rejection of authority), environmental factors (such as other demands on the patient's resources, time and money), and the patient/practitioner relationship (such as resistance in the provider or rejection of the specific advice given) (DiMatteo 1982).

When the sender and or the receiver are emotionally upset, and when there are differences in educational background and social status the communication is inhibited. Barnlund claimed that the factors that complicate the process of shared meaning are nearly all present in doctor-patient encounters (Barnlund 1976). Whal *et al.* found that the patient-provider relationship, when communicative and concordant aspects are developed offers promise of further improving adherence (Wahl 2005). The concordance model of the patient–physician relationship is described as two sets of contrasting but equally cogent health beliefs on the parts of the patients and the doctors. One way to improve this relationship is to train the providers in communication skills. Communication can be improved if training is held repeatedly according to Aspegren (Aspegren 1999) and Laidlaw *et al.* (Laidlaw 2002).

These findings imply the need to practice communication skills for both medical students and specialized physicians. Physicians need to have time for as many patients as possible per day, but also to have time to improve their abilities to create the optimal consultation. It is well known that the patient needs to trust the doctor before he or she will reveal beliefs and norms and that the patient's thoughts and others expectations influence patients compliance. This is in agreement with our findings that the older women who had doctors who followed up on the prescription with an appointment were most inclined to adhere to their medication (Bardel 2007).

The best adherence was found among the women with a follow-up appointment, and who believed that the medication was necessary for their

health. In this group the adherence was almost 95%. The patient's confidence in her own doctor raised the rate of adherence.

Among the drug groups the best adherence was found in the groups taking hormonal medications, such as insulin and thyroid hormones, not including hormone replacement therapy or contraceptives. The lowest adherence was found in the women taking musculoskeletal medications, such as non-steroid anti-inflammatory drugs.

## Hormone replacement therapy and symptom reporting

According to Andersson *et al.* the use of HRT in Sweden increased more than threefold from 7–10% in the 1980s to 35% among 55–56 years old women in a university city in 1996 (Andersson 1998). Ekström presents the sales figures, with a peak in Sweden in 1999, after which a decrease has been seen (Ekström 2005). In our study 18% of the perimenopausal and 25% of the postmenopausal women reported taking HRT. These results are in accordance with findings from other recent Swedish studies, where the prevalence of HRT use was 21% among both peri- and postmenopausal women (Li 2003; Stadberg 2000). We therefore have no reasons to believe that our data are biased to such an extent that the results have been affected. In previous Swedish studies the prevalence rate for HRT was lower (Collins 1994; Lindgren 1993). Our interpretation of the low figures in Sweden is that Swedish doctors prescribe HRT for women with severe complaints but not for prevention. Andersson *et al.* revealed that attitudes, knowledge, and management strategies concerning HRT differed between gynaecologists and GPs, so that more gynaecologists than GPs took the first initiative to discussing HRT with their patient (Andersson 1998). GPs' cautious attitudes concerning contraindication to the medication were also reflected in the fact that 32% of the GPs and 23% of the gynaecologists were of the opinion that ongoing ischemic heart disease was an absolute or relative counter indication to HRT. The number of female postmenopausal physicians who took HRT themselves differed in the both groups, 88% of the gynaecologists were users as compared with 72% of the female GPs (Andersson 1998).

The menopause appears on average at 51 years of age for women in the Western world (Hammar 1984; Jaszmann 1976; McKinlay 1992). Menopause is defined as 12 months or more of amenorrhoea resulting from a permanent cessation of ovarian function according to Greendale *et al.* (Greendale 1999). A number of studies have attempted to identify groups of symptoms experienced around the time of menopause (Jaszmann 1976; Hunter 1986; Jaszmann 1973; Hardy 1988). Two commonly considered groups are vasomotor symptoms and psychological symptoms. In a population-based study, McKinley *et al.* shows that in 10% of per menopausal women, menstruation ceased on one occasion and never came back, whereas

in the remaining 90%, menstruation became irregular for up to four years before it finally ceased (McKinlay 1992).

Menopausal symptoms are generally related to decreasing hormone levels as well as to increasing age. Hot flushes and sweating are associated with high levels of follicle stimulating hormone and luteinising hormone, and low levels of estradiol (Larson 1997). Symptoms such as irregular bleeding, flush and sweating, vaginal dryness, urinary incontinence and urinary tract infections, as well as symptoms affecting muscles and joints are common during the menopausal transition (Hammar 1984; Hammar 1998; Kenemans 1999). However, such symptoms may occur also before and after this phase as shown in this study (Bardel 2002).

The vasomotor symptoms; flushing and sweating during daytime and during night are believed to be related to the menopausal hormone transition (Greendale 1999; Hammar 1998). This has been shown in cross-sectional studies (Hunter 1986; Jaszmann 1973) as well as in prospective longitudinal studies (Hardy 1988; Holte 1992).

In one longitudinal study an increase of vasomotor symptoms was seen prior to the start of the perimenopause, with a peak 4–6 years after beginning (Hardy 1988). Several studies, including ours, have reported that approximately half the menopausal women experienced vasomotor symptoms (Bardel 2002; Hammar 1984; McKinlay 1992).

In this study the perimenopausal women reported more flushing and sweating than the premenopausal women, as well as a higher prevalence of general symptoms and worse self-rated health. This is in agreement with other studies (Ettinger 1999 ; Hunter 1992; Morse 1994).

Postmenopausal women reported significantly fewer general symptoms, which may indicate less stress in their life situations (Tibblin 1990a). However, this may be different in different cultures. For instance, a Japanese population had lower prevalence rates of vasomotor and somatic and psychological symptoms than US and Canadian populations of similar ages (Avis 1993; Lock 1986). In a cross-sectional survey of women aged 40–55 years from various racial/ethnic groups in the US, a variation in the proportion of women reporting symptoms was found, which was interpreted as evidence against a universal menopausal syndrome with a variety of vasomotor and psychological symptoms (Avis 2001).

These findings can be summarized in the discussion of three different aspects of the menopause: medicalisation, social construction, and the menopause as a turning point at which the woman's power can be mobilized, according to Hovelius *et al.* (Hovelius 2000).

The use of HRT to treat symptoms such as urge and stress urinary incontinence is controversial. Some authors claim that the use might relieve those symptoms (Fantl 1994; Goode 1997; Griebling 1997; Kok 1999), while others consider it to be of limited value (Fantl 1996; Thom 1998).

In epidemiological studies, there is a higher prevalence of incontinence among the women on HRT, than among not-treated women (Bjornsdottir 1998; Samuelsson 1999; Thom 1997). In the majority of the studies it is not known whether HRT was given to treat the incontinence or whether the incontinence was a result of the treatment. This is also true of our study.

Women who discontinued their HRT during the past year had significantly raised odds of reporting flushing, sweating during daytime and at night, vulnerable/fragile mucus membranes, stress and urinary incontinence and muscular pain. The same pattern was seen for general symptoms. This group had the highest score and odds ratio, as well as the highest prevalence regarding symptom relieving therapy: hypnotics, tranquilizers, antidepressants and painkillers.

High reporting of symptom prevalence among users was found by others (Collins 1994; Stadberg 1997; Wilson 1998; von Muhlen 1995). The therapeutic value of HRT is questioned for other indications than for vasomotor symptoms. The most probable explanation of our findings is that the women who suffer most ask their doctors for help and are prescribed HRT, and we get confounding by indication in our study. Hällström found that women had more psychological disorders before the climacteric period, than they had during and after (Hällström 1973). Cullberg suggested a division into the categories climacteric, with hormonal climacteric, with vasomotor symptoms, and psychological climacteric, associated with feelings about the loss of the ability to have children (Cullberg 1975). Ekström found that the women in her study found the effects of menopause on quality of life and on the number of symptoms she studied, to be of generally minor importance, and that the only symptoms that disturbed them considerably were cold sweats and hot flushes (Ekström 2005).

Rödström *et al.* found that HRT is prescribed to the healthier women, with lower blood pressure, and less BMI than the average woman (Rödström 1999). Because the women's health status in our study before use of HRT is not known, we cannot tell whether or not it improved from the treatment. HRT does not appear to relieve symptoms other than some of the vasomotor symptoms such as sweating. This is supported by the finding that users of hormone therapy also used symptom relieving therapy to a larger extent than non-users. Women who had recently stopped their use of HRT also used symptom relieving therapy to a larger extent than non-users. The women who had recently stopped using HRT reported higher prevalence of symptoms as compared with non-users.

## Age-specific symptom prevalence in women 35-64 years old

This study concluded that symptoms did not necessarily increase with age, indicating that they may have other causes than ageing or disease. This was especially true for symptoms generally believed to be related to stress/overstrain, such as general fatigue, which appears to decrease with age. Symptom occurrence mirrors disease prevalence and may also be attributable to the physiological effects of anxiety or other emotions arising from personal problems (Tibblin 1990a). Our study revealed that the prevalence patterns of the symptoms examined had different courses across age. Four different patterns for the 30 symptoms examined were found. Twelve symptoms had stable prevalence, five symptoms had increasing prevalence, eleven symptoms had decreasing prevalence, and two symptoms had a biphasic course with age, after adjustment for the influence of the final set of covariates on symptom prevalence.

It has previously been shown by Tibblin *et al.* that there are different symptom prevalence patterns with age (Tibblin 1990a). They studied both women and men and found generally higher symptom prevalence in women, using the same symptom questionnaire as used in this study (Tibblin 1990a). The symptoms were classified into 7 groups of symptoms: depression, tension, gastro-intestinal tract, musculoskeletal, metabolism, heart-lung, and head. They found three patterns: increasing, decreasing and biphasic prevalence for the 30 symptoms used in the present study, whereas we found four patterns: increasing, decreasing biphasic and stable. However, the study of Tibblin *et al.* was performed some twenty years ago and no adjustments were made to make the age groups more comparable (Tibblin 1990a). We made adjustments, and the pattern of some symptoms therefore changed. The main difference is that many symptoms proved to be stable in prevalence in relation to age when adjustments were made for confounding factors. As strikingly large number of symptoms were stable after the adjustment for covariates.

Sullivan *et al.* applied psychometric analysis techniques to test the Göteborg Quality of Life Instrument and found two distinct symptom scales, physiological and physical, and two well-being scales, social and physical-mental (Sullivan 1993).

The most common symptoms reported by the women in this study were general fatigue, headache, irritability, melancholy and backache. Furthermore, one third or more of the women had symptoms including insomnia, restlessness, exhaustion and crying easily. Melancholy and general fatigue are two of eleven of the symptoms included in the depression diagnosis (Ågren 1997). Gorman, in a review has examined gender differences in epidemiology and clinical presentations of depression (Gorman 2006). In the United States, 1 out of 5 women suffered from an episode of major depres-

sion at some time in her life, and depression is about twice as common among women as among men. Many women have classical depression, but are more likely to have depression combined with increased sleep and hyperphagia or to have co-morbid anxiety disorders or to attempt suicide than men. The classic type of depression, first described in the early 20th century, is characterized by loss of appetite, weight loss, inability to sleep, and early-morning awakening.

The reasons for which such symptoms generally decrease with age may be that women at the lower end of the age range have a larger burden with family, children, and occupational career than older women have, when the children may be grown up and their careers may be more stable.

This circumstance indicates that the stress is lower among older women than in younger ones. Ladwig *et al.* concluded that the gender gap in symptom-reporting in their study is largely explained by low social class status, high levels of chronic distress and poor perceived/self assed health (Ladwig 2000).

Five symptoms *increased* with age. These symptoms were insomnia, leg pain, joint pain, eye problems, and impaired hearing. It an established fact, that insomnia increases with age (Tibblin 1990a). This finding has been reconfirmed by Björkelund *et al.* (Björkelund 2002) and Wallander *et al*. (Wallander In press). According to Björkelund *et al.* sleep duration decreased by 0.4 hours per night for women aged from 38–66 years, and sleep problems increased by 30% for women aged 38–84 (Björkelund 2002). An increasing insomnia in the higher age groups was also found by Lambe and Thorslund (Lambe 1990). According to Wallander *et al.* the incidence for sleep disorders is greater in women (15.4 per 1000 person-years) than in men (9.7 per 1000 person-years) (Wallander, in press).

The symptom with the second largest increase was leg pain. Impaired hearing is a typical example of the group of symptoms that increased with age.

*Stable* prevalence was found for the twelve symptoms: difficulties in relaxing, restlessness, overweight, coughing, breathlessness, diarrhoea, chest pain, constipation, nervousness, poor appetite, weight loss, and difficulty urinating. It has been shown in Norway that overweight increases with age (Midthjell 1999). The highest prevalence of overweight was found among those aged 50–60 years. Some of these symptoms such as poor appetite, weight loss and difficulty urinating are commonly associated with serious diseases, such as diabetes mellitus and cancer, while constipation is common among the elderly. A recent study from England shows figures similar to ours for BMI in different age groups (Health survey 2005). Long-term weight loss after 18 years of age is related to a significantly lower risk of hypertension, while weight gain increases the risk of hypertension (Huang 1998). We found unchanged weight loss in the different age groups according to self reported weight loss.

A *decreasing* prevalence with age was found for eleven symptoms. The symptom with the highest prevalence was general fatigue, followed by headache, irritability, melancholy, backache, exhaustion, feeling cold, crying easily, abdominal pain, dizziness and nausea in the prevalence table indicating that women of higher ages are less tense and have few symptoms included in a depression diagnosis than the younger women.

It is known that the prevalence for headache decreases after 50 years of age both for migraine and other types of headaches (Aegidius 2007). In a Swedish study the prevalence for headache was 20% during one year, and women had more headaches than men (Dahlöf 2001).

Backache had decreasing prevalence in our study. Lower back pain occurs mainly during the most productive work years, between the ages of 25 and 60 (Dixon 1999). A peak is found in the age interval 35–59 years (Croft 1998; Papageorgiou 1995).

Abdominal pain and nausea also decreased with age. These two symptoms were less common at the older end of the age range than at the younger end. In a recent UK primary care study the incidence of abdominal pain in women was seen to decrease between 35 and 60 years of age, after which a slight increase could be seen (Wallander 2007).

Symptoms with *biphasic* course in our study were sweating and impaired concentration. The finding that two symptoms showed biphasic pattern, may suggest their association to the menopausal transition. In a longitudinal study, an increase of vasomotor symptoms was seen prior to inception of the perimenopause, with a peak 4–6 years after the start (Hardy 1988). This is in agreement with our findings of biphasic prevalence with peak prevalence, 38.1% for sweating in the age group 50–54 years. We also found biphasic prevalence for impaired concentration, with a peak prevalence of 32.3% in the age group 45–49 years. This is in concordance with findings reported by Tibblin *et al.* (Tibblin 1990a). According to a study by Devi *et al.* memory loss is found to be a part of the symptom complex of the menopausal transition (Devi 2005).

A number of studies identify groups of symptoms experienced around the time of menopause (Hardy 1988; Hunter 1986; Jaszmann 1973; Jaszmann 1976). Two commonly considered groups are psychological and vasomotor symptoms.

Our findings indicate that there are several explanations other than lack of oestrogen for the development of the 30 symptoms examined. Further studies focusing on the determinants of symptoms among women could help us understand how to improve women's health.

# Conclusions

Paper 1:
Current use of drugs is correlated to old age, high BMI, low physical activity, early retirement, postmenopausal status, not being married or cohabitating, a low educational level, and poor self-rated health, but not to smoking habits, or being unemployed. Age, educational level, self-rated health and BMI remained significantly correlated to drug use in a multivariate analysis after backward elimination. Among the women investigated in our study 40% used drugs daily, and 12% took 4 different drugs or more. The most reported drugs among women aged 35–64 years are drugs for diseases in the urinary and genital system and contraceptives, followed by the nervous system and cardiovascular system.

Paper 2:
Age, scheduled check-up, perceived importance of medication, concerns about medication and taking medication for a respiratory or a cardiovascular disease were significantly related to adherence. Adherence ranged from 15%–98% depending on these factors, the lowest among young women who regarded their medication as unimportant and who had no scheduled check-up. The highest reported adherence was found among older women who regarded their medication as important and who had a scheduled check-up.

Factors associated with the perceived importance of medication, affect adherence positively while concerns about the medication affect adherence negatively.

Paper 3:
Twenty-five per cent of the premenopausal women experienced any vasomotor symptoms, as compared with 51% of the perimenopausal and 40% of the postmenopausal women. Women on HRT reported higher frequencies than non-users of all symptoms except for sweating during the daytime. In addition, the perimenopausal women experienced more of other symptoms, usually not associated with the menopause, than premenopausal and postmenopausal women. HRT users reported a significantly worse self-rated health and they took other symptom relieving medication to a larger extent than HRT non-users.

HRT seems to be effective in relieving some vasomotor symptoms but did not affect the prevalence of other symptoms or self-rated health, in spite of the fact that women on HRT supplemented their therapy with symptom relieving medication to a larger extent than other women.

Paper 4:
The results of the study revealed that the prevalence of the symptoms examined had different patterns with age. We found four different patterns for the 30 symptoms examined: twelve symptoms had stable prevalence, eleven symptoms had decreasing prevalence, five symptoms had increasing prevalence, while two symptoms had biphasic course across age after adjustment for the influence of the final set of covariates on symptom prevalence. Symptoms do not necessarily increase with age, indicating that they may have other causes than ageing or disease. Symptoms related to stress-tension-depression appear to particularly decrease with age.

# Swedish summary

Läkemedelsanvändningen hos kvinnor har undersökts i flera studier, mest i relation till mäns läkemedelsförbrukning. En högre konsumtion av såväl läkemedel som sjukvård har påvisats för kvinnor, vilka ökar med ökande ålder (Boethius 1977; Dunnel 1972; Eggen 1994; Klaukka 1988; Nordenstam 1996; Rabin 1975; Skegg 1977; Tennis 1990; Tierpsprojektet 1995). Försök har gjorts att förklara skillnaderna i läkemedelsanvändning och även skillnaderna i sjukvårdskonsumtion mellan män och kvinnor. Enligt en hypotes är kvinnor mer benägna att uppfatta sina symptom och att söka hjälp än män (Pennebaker 1982). Enligt en annan hypotes är det reproduktionen, som leder till att kvinnor utsätts för hälsovård och därmed till ökad läkemedelskonsumtion (Mustard 1998).

Projektet påbörjades 1995. Ett postfrågeformulär skickades till 600 kvinnor i åldern 35–64 år i vart och ett av de sju länen i Uppsala-Örebroregionen. Formuläret innehöll frågor om social bakgrund, livsstil, livskvalitet, aktuellt hälsoläge, gynekologiska och obstetriska uppgifter, samt uppgifter om läkemedelsanvändning med en enkät-sida per använt läkemedel under senaste året. Formuläret besvarades av 2991 kvinnor. Det fanns inga betydelsefulla skillnader mellan svarande och icke-svarande. 1997 var insamlade data registrerade och inmatade på datamedium.

## Artikel 1

Bardel A, Wallander MA, Svärdsudd K. Reported current use of prescription drugs and some of its determinants among 35 to 65-year-old women in mid-Sweden: a population-based study. *J Clinl Epidemiol* 2000;53:637–43.

Pågående läkemedelsanvändningen redovisades för kvinnorna. Univariata och multivariata analyser av faktorer relaterade till läkemedelsanvändning utfördes med logistisk regression med läkemedelsanvändning som beroende variabel.

Resultat: 40% av kvinnor i åldern 35–64 år i den allmänna befolkningen använde läkemedel. 1285 (43,0%, CI: 41.2–44.7) kvinnor rapporterade att de behandlades för någon sjukdom. Mest frekvent var urogenital sjukdom följt av cirkulatorisk, därefter muskuloskelettal sjukdom och sjukdom som drabbar nervsystemet. 1207 (40.4%, CI: 38.6–42.2) kvinnor rapporterade att de tog någon form av förskrivet läkemedel. De mest använda läkemedelsgrup-

perna var sådana som påverkar urogenitala systemet, nervsystemet, kardiovaskulära systemet och det muskuloskelettala systemet.

Av dessa 1207 kvinnor svarade 624 (51.7%) att de tog ett läkemedel, 281 (23.3%) tog två, 153 (12.7%) tog tre, 78 (6.5%) tog fyra, 51 (4.2%) tog fem medan 20 kvinnor (1.7%) rapporterade pågående medicinering med sex eller fler läkemedel. Maximum var 15 olika läkemedel som rapporterades av en person. Pågående medicinering var i den bivariat analysen korrelerad till hög ålder, högt BMI, låg fysisk aktivitet, tidig pension, postmenopausalt status, att ej vara gift/sammanboende, låg utbildning och låg självskattad hälsa, men inte till tobaks- vanor eller arbetslöshet. Efter baklänges eliminering av de minst signifikanta faktorerna i den multivariata analysen, kvarstod ålder, utbildningsnivå och BMI som direkt korrelerade samt självskattad hälsa som inverst korrelerad till pågående läkemedelsanvändning.

När betydelsen av dessa fyra faktorer togs i beaktande saknade menopausalt status, rökvanor, anställningsform och civilstånd betydelse för läkemedelsanvändningen

# Artikel 2

Bardel A, Wallander MA, Svärdsudd K. Factors associated with adherence to drug therapy: a population based study. *Euro J Clin Pharmacol* 2007;63: 307–14.

*Compliance* är ett äldre namn på att ta läkemedel som de förskrivits, medan *adherence* är ett nyare begrepp som mer förutsätter att de två parterna, patient och läkare, är överens om användandet av läkemedlet. Låg adherence antas kunna bero på att patienten t ex saknar motivation eller har dålig ekonomi. Förskrivaren kan även påverka adherence genom sitt arbetssätt, t ex genom att vara mer patientcentrerad. Dålig kommunikation kan förbättras både hos läkare och studenter genom träning. I detta delarbete använde vi information från de 1406 kvinnor, som hade minst ett läkemedel utskrivet senaste året.

Resultat: Medelåldern var 51 år, BMI 25 kg/$m^2$ och medelantal recept per person 2.2. 27% av kvinnorna hade universitets- eller högskoleutbildning, 79% var gifta eller sammanboende och 68% yrkesarbetade. Adherence definierade vi som att ta läkemedlet som det förskrivits eller att sluta ta det enligt anvisningar.

Den genomsnittliga följsamheten var 85.5%. Samma kvinna kunde ha olika grad av adherence till olika mediciner. Efter multivariat logistisk regression var sju variabler signifikant relaterade till adherence, nämligen ålder (OR=1.04), planerat återbesök (OR=2.51), läkemedlets betydelse för hälsan (OR=1.94), oro för biverkningar (OR=0.50), sjukdomens allvarlighetsgrad (OR=0.82), läkemedel för lung/luftrörssjukdom (OR=2.16), och läkemedel för kardiovaskulär sjukdom (OR=1.80).

Adherencen varierade mellan 15–98% beroende på dessa faktorer och var lägst hos de yngsta kvinnorna som ansåg medicineringen vara oviktig och inte hade något planerat återbesök, medan den högsta nivån av adherence fanns bland de äldsta som ansåg medicineringen viktig och hade planerat återbesök. Bland läkemedelsgrupperna fanns den högsta följsamheten i gruppen hormoner, som insulin och tyroideahormon, men ej hormonersättningsmedel vid övergångsbesvär (HRT). Lägsta följsamheten hade läkemedel inom gruppen muskuloskelettal sjukdom

Att ta thyroideahormoner eller annat hormon samt att ta medicin som påverkar det kardiovaskulära systemet eller respiratoriska systemet medförde högre adherence än genomsnittet. För de läkemedelsgrupper som påverkar centrala nervsystemet och muskuloskeletala systemen fann vi en lägre adherence än genomsnittet.

## Artikel 3

Bardel A, Wallander MA, Svärdsudd K. Hormone replacement therapy and symptom reporting in menopausal women: a population-based study of 35–65-year-old women in mid-Sweden. *Maturitas* 2002;41:7–17.

I detta arbete studerade vi symptomrapporteringen hos kvinnor med och utan HRT vid menopaus.

Resultat: Mensstatus – 1541 var premenopausala kvinnor, 120 perimenopausala och 1207 postmenopausala. Femton procent av dessa kvinnor hade hormonersättningspreparat (HRT) och 2,3% hade avslutat behandlingen under året. 13% av kvinnorna använde andra symptomlindrande läkemedel. 25% av de premenopausala kvinnorna rapporterade vasomotorsymptom jämfört med 51% av de perimenopausala och 40% av de postmenopausala. De kvinnor som tog HRT rapporterade högre frekvenser av alla symptom, utom för svettning på dagen jämfört med icke användarna. Perimenopausala kvinnor rapporterade mer av alla övriga symptom som normalt ej associeras till klimakteriet jämfört med vad de pre- och postmenopausala kvinnorna rapporterade. HRT-användarna rapportade en signifikant sämre självskattad hälsa och tog mera symptomlindrande läkemedel jämfört med dem som inte använde HRT.

15% av kvinnorna använde hormonersättningspreparat och 2% hade avbrutit behandlingen senaste året. 13% använde andra symtomlindrande läkemedel. HRT minskade vissa vasomotorsymptom. Att hormonersättningsmedel i samband med menopaus företrädesvis ges till de friskaste kvinnorna kunde vi inte bekräfta i denna studie. Kvinnor, som vid tidpunkten för en-

kätbesvarandet tog hormonersättningspreparat, rapporterade sämre självskattad hälsa och högre prevalenstal för alla symtom med undantag för svettning under dag tid, jämfört med icke-användare. Detta indikerar att behandlingen med hormonersättningen inte är tillräckligt effektiv för att minska symtomen till de premenopausala kvinnornas nivå. De perimenopausala kvinnorna hade mer andra symptom än de pre- och postmenopausala kvinnorna.

## Artikel 4

Bardel A, Wallander MA, Svärdsudd K. Age-specific symptom prevalence in women 35–64 years old: a population-based study. Inskickat manus.

Om symtomförekomst återspeglar sjukdom och åldrande så borde symtomförekomsten stiga med åldern. I detta delarbete undersöktes symtomprevalens bland kvinnor i åldrarna 35-64 år. Symptomen var de 30 symptomen som ingår i Complaint Score.

Resultat: Efter justering för inflytandet av utbildningsnivå, självskattad hälsa, humör, BMI, rökvanor, användning av HRT och annan symptomlindrande medicinering på symtomprevalensen ökade vissa symptoms prevalens med åldern som väntat (fem symtom), medan andra minskade (elva symtom), var oförändrad (tolv symtom) eller hade en bifasisk prevalensutveckling (två symtom) över åldern.

Slutsatsen blev att symtom inte nödvändigtvis ökar med åldern, vilket innebär att symtom kan ha andra orsaker än åldrande och sjukdom. Speciellt symtom som kan vara relaterade till stress-spänning-depression sjunker med ökande ålder.

# Acknowledgements

I would like to express my sincere gratitude to

- Associate professor Mari-Ann Wallander, my main supervisor, for her inspiration to start the project, for excellent discussions and for going on with this interesting collaboration in scientific work.
- Professor Kurt Svärdsudd, my second supervisor, for his guiding the methodological discussions and article preparations, who on the same time is leading the whole Section of Family Medicine and Clinical Epidemiology.
- Professor Hans Wedel, my co-author, for generously teaching and sharing his knowledge in epidemiology.
- The late professor Gösta Tibblin who had an outstanding inspiration he shared with his fellow workers and made us do the unexpected.
- Margaretha Eriksson, for all support, as a colleague, co-worker and friend. All other colleagues and co-workers who friendly supported me at the Section of Family Medicine and Clinical Epidemiology and the other sections of the Department of Public Health and Caring Sciences in Uppsala.
- John Gulliver and Linda Schenk for valuable help with the linguistic revisions of manuscripts.
- My colleagues in Södertälje for still accepting my participation.
- My beloved family and dear friends for supporting me during these years.

The studies in this thesis were supported by grants from Vårdalstiftelsen, AstraZeneca R&D and Uppsala University, Sweden.

# References


Aegidius KL, Zwart JA, Hagen K, Schei B, Stovner LJ. Hormone replacement therapy and headache prevalence in postmenopausal women. The Head-HUNT study. *Eur J Neurol* 2007;14:73-8.

al-Windi A, Elmfeldt D, Tibblin G, Svärdsudd K. The influence of sociodemografic characteristics on well-being and symptoms in a Swedish community: results from a postal questionnaire survey. *Scand J Prim Health Care* 1999;17:201-09.

Andersson K, Pedersen AT, Mattsson AL, Milsom I. Swedish gynecologists' and general practitioners' views on the climacteric period: knowledge, attitudes and management strategies. *Acta Obstet Gynecol Scand* 1998;77:909-16.

Aronson JK, Hardman M. ABC of monitoring drug theraphy. Patient compliance. *BMJ* 1992;305:1009-11.

Aspegren K. Teaching and learning communication skills in medicine: a review with quality grading of articles. *Med Teach* 1999;21:563-70.

Association of American Medical Colleges. *Learning Objectives for Medical Student Education. Guidelines for Medical Schools*. Washington DC: Association of American Medical Colleges, 1998.

Avis NE, Kaufert PA, Lock M, McKinlay SM, Vass K. The evolution of menopausal symptoms. *Baillieres Clin Endocrinol Metab* 1993;7:17-32.

Avis NE, Stellato R, Crawford S, Bromberger J, Ganz P, et al. Is there a menopausal syndrome?: menopausal status and symptoms across racial/ethnic groups. *Soc Sci Med* 2001;52:345-56.

Bardel A, Wallander MA, Svärdsudd K. Reported current use of prescription drugs and some of its determinants among 35 to 65-year-old women in mid-Sweden: A population-based study. *J Clin Epidemiol* 2000;53:637-43.

Bardel A, Wallander MA, Svärdsudd K. Hormone replacement therapy and symptom reporting in menopausal women: a population-based study of 35-65-year-old women in mid-Sweden. *Maturitas* 2002;41:7-15.

Bardel A, Wallander MA, Svärdsudd K. Factors associated with adherence to drug therapy: a population-based study. *Eur J Clin Pharmacol* 2007;63:307-14.

Barnlund DC. The mystification of meaning: doctor-patient encounters. *J Med Educ* 1976;51:716-25.

Beral V. Breast cancer and hormone-replacement therapy in the Million Women Study. *Lancet* 2003;362:419-27.

Bjornsdottir LT, Geirsson RT, Jonsson PV. Urinary incontinence and urinary tract infections in octogenarian women. *Acta Obstet Gynecol Scand* 1998;77: 105-09.

Björkelund C, Bengtsson C, Lissner L, Rödström K. Women's sleep: longitudinal changes and secular trends in a 24-years perspective. Results of the population study of women in Gothenburg, Sweden. *Sleep* 2002;25:894-96.

Bloom BS. Continuation of initial antihypertensive medication after 1 year of therapy. *Clin Ther* 1998;20:671-81.

Boethius G. Recording of drug prescriptions in the County of Jämtland, Sweden. Patterns of drug usage in 16,600 individuals during 1970-75. *Acta Med Scand* 1977;202:241-51.

Burman K. *Läkemedelsstatistik 1996*. Stockholm, Sweden: Text & Tryck, 1996.

Cano A. Compliance to hormone replacement therapy in menopausal women controlled in a third level academic centre. *Maturitas* 1994;20:91-99.

Caro JJ, Salas M, Speckman JL, Raggio G, Jackson JD. Persistence with treatment for hypertension in actual practice. *CMAJ* 1999;160:31-37.

Carter WB, Inui TS, Kukull WA, Haigh VH. Outcome-based doctor-patient interaction analysis: II. Identifying effective provider and patient behavior. *Med Care* 1982;20:550-66.

Collins A, Landgren BM. Reproductive health, use of estrogen and experience of symptoms in perimenopausal women: a population-based study. *Maturitas* 1994;20:101-11.

Consensus development conference. Diagnosis, prophylaxis, and treatment of osteoporosis. *Am J Med* 1993;94:646-50.

Croft PR, Macfarlane GJ, Papageorgiou AC, Thomas E, Silman AJ. Outcome of low back pain in general practice: a prospective study. *BMJ* 1998;316:1356-59.

Cullberg J. *Kris och utveckling: en psykoanalytisk och socialpsykiatrisk studie*. Stockholm: Natur och Kultur, 1975.

Dahlöf C, Linde M. One-year prevalence of migraine in Sweden: a population-based study in adults. *Cephalalgia* 2001;21:664-71.

Devi G, Hahn K, Massimi S, Zhivotovskaya E. Prevalence of memory loss complaints and other symptoms associated with the menopause transition: a community survey. *Gend Med* 2005;2:255-64.

DiMatteo MR, DiNicola DD. *Achieving patient compliance: the psychology of the medical practitioner's role*. New York: Pergamon Press, 1982.

DiMatteo MR, Reiter RC, Gambone JC. Enhancing medication adherence through communication and informed collaborative choice. *Health Commun* 1994;4:234-65.

Dixon A, Gatchel RJ. Gender and parental status as predictors of chronic low back pain disability: a prospective study. *J Occupational Rehab* 1999;9:195-200.

Dunnel K, Cartwright C. *Medicine takers, prescribers and hoarders*. London: Routledge & Kegan Paul, 1972.

Eggen AE. Pattern of drug use in a general population--prevalence and predicting factors: the Tromsö study. *Int J Epidemiol* 1994;23:1262-72.

Ekström H. *Keeping my ways of being. Middle-aged women and menopause*. Medical Sciences, Lund University, Lund, 2005.

Ettinger B. Personal perspective on low-dosage estrogen therapy for postmenopausal women. *Menopause* 1999;6:273-76.

Falkeborn M, Persson I, Adami HO, Bergström R, Eaker E, et al. The risk of acute myocardial infarction after oestrogen and oestrogen-progestogen replacement. *Br J Obstet Gynaecol* 1992;99:821-28.

Fantl JA, Bump RC, Robinson D, McClish DK, Wyman JF. Efficacy of estrogen supplementation in the treatment of urinary incontinence. The Continence Program for Women Research Group. *Obstet Gynecol* 1996;88:745-49.

Fantl JA, Cardozo L, McClish DK. Estrogen therapy in the management of urinary incontinence in postmenopausal women: a meta-analysis. First report of the Hormones and Urogenital Therapy Committee. *Obstet Gynecol* 1994;83: 12-18.

Finucane FF, Madans JH, Bush TL, Wolf PH, Kleinman JC. Decreased risk of stroke among postmenopausal hormone users: results from a national cohort. *Arch Intern Med* 1993;153:73-79.

Furunes B, Bengtsson C, Lapidus L. Subjectively experienced symptoms in relation to socio-economic factors in women. *Eur J Epidemiol* 1996;12:617-24.

Garton M, Reid D, Rennie E. The climacteric, osteoporosis and hormone replacement; views of women aged 45-49. *Maturitas* 1995;21:7-15.

General Medical Council. *Tomorrow's doctors. Recommendation on undergraduate medical education issued by the Education Committee on the General Medical Council in pursuance of Section 5 of the Medical Act 1983*. London: GNC, 1998.

Goode PS, Burgio KL. Pharmacologic treatment of lower urinary tract dysfunction in geriatric patients. *Am J Med Sci* 1997;314:262-67.

Gorman JM. Gender differences in depression and response to psychotropic medication. *Gend Med* 2006;3:93-109.

Greendale GA, Lee NP, Arriola ER. The menopause. *Lancet* 1999;353:571-80.

Gregoire JP, Moisan J, Guibert R, Ciampi A, Milot A, et al. Determinants of discontinuation of new courses of antihypertensive medications. *J Clin Epidemiol* 2002;55:728-35.

Griebling TL, Nygaard IE. The role of estrogen replacement therapy in the management of urinary incontinence and urinary tract infection in postmenopausal women. *Endocrinol Metab Clin North Am* 1997;26:347-60.

Griffiths F. Women's decisions about whether or not to take hormone replacement therapy: influence of social and medical factors. *Br J Gen Pract* 1995;45:477-80.

Hammar M, Berg G, Fåhraeus L, Larsson-Cohn U. Climacteric symptoms in an unselected sample of Swedish women. *Maturitas* 1984;6:345-50.

Hammar M, Berg G, Lindgren R. Vilka somatiska symptom uppträder vid hormonbortfall kring och efter menopausen och hur vanliga är dessa? (What somatic symptoms occur at hormone reduction around and after the menopause, and how common are they /authors transation) In *Subtitutionsbehanding i kimakteriet: aktuella sypunkter (Substitution treatment in the menopause: current views)*, ed. NO Sjöberg. Stockholm, Sweden: Swedish Society of Medicine, 1998.

Hardy R, Kuh D. Change in psychological and vasomotor symptom reporting during the menopause. *Soc Sci Med* 1988;55:1975-88.

Harlow SD, Linet MS. Agreement between questionnaire data and medical records. The evidence for accuracy of recall. *Am J Epidemiol* 1989;129:233-48.

Haynes RB, McKibbon KA, Kanani R. Systematic review of randomised trials of interventions to assist patients to follow prescriptions for medications. *Lancet* 1996;348:383-86.

Health survey. Health survey for England 2004. The Department of health, London, 2005.

Holte A. Influences of natural menopause on health complaints: a prospective study of healthy Norwegian women. *Maturitas* 1992;14:127-41.

Hovelius B, Ekström H, Esseveld J, Landgren BM, Vinge E. Klimakteriet - sjukligt, bagatelliserat eller normalt? (Climacteric - medicalization, minimalization or normalization?). *Läkartidningen* 2000;97:5927-30.

Huang Z, Willet WC, Manson JE, Rosner B, Stampfer MJ, et al. Body weight, weight change, and risk for hypertension in women. *Ann Intern Med* 1998;128:81-88.

Hulley S, Grady D, Bush T, Furberg C, Herrington D, et al. Randomized trial of estrogen plus progestin for secondary prevention of coronary heart disease in postmenopausal women. Heart and Estrogen/progestin Replacement Study (HERS) Research Group. *JAMA* 1998;280:605-13.

Hunter M. The south-east England longitudinal study of the climacteric and postmenopause. *Maturitas* 1992;14:117-26.

Hunter M, Battersby R, Whitehead M. Relationships between psychological symptoms, somatic complaints and menopausal status. *Maturitas* 1986;8:217-28.

Hunter MS, Liao KL. Intentions to use hormone replacement therapy in a community sample of 45-year-old women. *Maturitas* 1994;20:13-23.

Hunter MS, Liao KL. Determinants of treatment choice for menopausal hot flushes: hormonal versus psychological versus no treatment. *J Psychosom Obstet Gynaecol* 1995;16:101-08.

Hällström T. *Mental disorder and sexuality in the climacteric: a study in psychiatric epidemiology*. Göteborg: Akademiförlaget, 1973.

Jahng KH, Martin LR, Golin CE, DiMatteo MR. Preferences for medical collaboration: patient-physician congruence and patient outcomes. *Patient Educ Couns* 2005;57:308-14.

Jaszmann L. Epidemiology of climacteric and postclimacteric complaints. In *Ageing and Estrogens*, ed. P Van Keep, C Lauritzen, pp. 22-34. Basel: Karger, 1973.

Jaszmann L. Epidemiology of the climacteric syndrome. In *The management of the menopause and postmenopausal years*, ed. S Cambell, pp. 11-23: Lancaster MTP Press, 1976.

*JMP,* SAS Institute Inc. JMP, Ver. 4. Cary, NC: SAS Institute, 1995.

Kenemans P. Menopause, HRT and menopausal symptoms. *J Epidemiol Biostat* 1999;4:141-53.

Klaukka T. Users of prescription drugs in Finnish primary care. *Scand J Prim Health Care* 1988;6:43-50.

Kok AL, Burger CW, van de Weijer PH, Voetberg GA, Peters-Muller ER, Kenemans P. Micturition complaints in postmenopausal women treated with

continuously combined hormone replacement therapy: a prospective study. *Maturitas* 1999;31:143-49.

Kurtz S, Silverman J, Benson J, Draper J. Marrying content and process in clinical method teaching: enhancing the Calgary-Cambridge guides. *Acad Med* 2003;78:802-09.

Ladwig KH, Marten-Mittag B, Formanek B, Dammann G. Gender differences of symptom reporting and medical health care utilization in the German population. *Eur J Epidemiol* 2000;16:511-18.

Laidlaw TS, MacLeod H, Kaufman DM, Langille DB, Sargeant J. Implementing a communication skills programme in medical school: needs assessment and programme change. *Med Educ* 2002;36:115-24.

Lambe M, Thorslund M. Levnadsnivåundersökning i Uppsala län, Uppsala, 1990.

Lancaster T, Surman G, Lawrence M, Mant D, Vessey M, et al. Hormone replacement therapy: characteristics of users and non-users in a British general practice cohort identified through computerised prescribing records. *J Epidemiol Community Health* 1995;49:389-94.

Larson B, Collins A, Landgren BM. Urogenital and vasomotor symptoms in relation to menopausal status and the use of hormone replacement therapy (HRT) in healthy women during transition to menopause. *Maturitas* 1997;28:99-105.

Li C, Samsioe G, Borgfeldt C, Lidfeldt J, Agardh CD, Nerbrand C. Menopause-related symptoms: what are the background factors? A prospective population-based cohort study of Swedish women (The Women's Health in Lund Area study). *Am J Obstet Gynecol* 2003;189:1646-53.

Liao K, Hunter MS, White P. Beliefs about menopause of general practitioners and mid-aged women. *Fam Pract* 1994;11:408-12.

Lindgren R, Berg G, Hammar M, Zyccon E. Hormonal replacement therapy and sexuality in a population of Swedish postmenopausal women. *Acta Obstet Gynecol Scand* 1993;72:292-97.

Lock M. Ambiguities of aging: Japanese experience and perceptions of menopause. *Cult Med Psychiatry* 1986;10:23-46.

Läkemedelsverket. 2004. Medical Products Agency in Information. *Läkemedelsverket* 15, 2004.

McKinlay SM, Brambilla DJ, Posner JG. The normal menopause transition. *Maturitas* 1992;14:103-15.

McTigue K, Larson JC, Valoski A, Burke G, Kotchen J, et al. Mortality and cardiac and vascular outcomes in extremely obese women. *JAMA* 2006;296:79-86.

Midthjell K, Kruger O, Holmen J, Tverdal A, Claudi T, et al. Rapid changes in the prevalence of obesity and known diabetes in an adult Norwegian population. The Nord-Tröndelag Health Survey: 1984-1986 and 1995-1997. *Diabetes Care* 1999;22:1813-20.

Miller NH, Hill M, Kottke T, Ockene IS. The multilevel compliance challenge: recommendations for a call to action. A statement for healthcare professionals. *Circulation* 1997;95:1085-90.

Morse CA, Smith A, Dennerstein L, Green A, Hopper J, Burger H. The treatment-seeking woman at menopause. *Maturitas* 1994;18:161-73.

Mustard CA, Kaufert P, Kozyrskyj A, Mayer T. Sex differences in the use of health care services. *N Engl J Med* 1998;338:1678-83.

National Board of Health and Welfare. *International Classification of Diseases, Swedish version, 9th revision*. Stockholm: Liber, 1986.

Nordenstam I, Wennberg M, Kristoferson K. *Svensk läkemedelsstatistik 1996*. Spånga: Text & Tryck, 1996.

Nordic Statistics. *Nordic Statistics on Medicines 1975-1977, parts I & II*. Helsinki and Oslo: Nordic Council on Medicines, 1979.

Ong LM, de Haes JC, Hoos AM, Lammes FB. Doctor-patient communication: a review of the literature. *Soc Sci Med* 1995;40:903-18.

Papageorgiou AC, Croft PR, Ferry S, Jayson MI, Silman AJ. Estimating the prevalence of low back pain in the general population. Evidence from the South Manchester Back Pain Survey. *Spine* 1995;20:1889-94.

Pennebaker JW. *The psychology of physical symptoms*. Berlin: Springer Verlag, 1982.

Podell RN, Gary LR. Compliance: a problem in medical management. *Am Fam Physician* 1976;13:74-80.

Rabin DL, Bush PJ. Who's using medicines? *J Community Health* 1975;1:106-17.

Rossouw JE, Andersson GL, Prentice RL, LaCroix AZ, Kooperberg C, et al. Risks and benefits of estrogen plus progestin in healthy postmenopausal women: principal results From the Women's Health Initiative randomized controlled trial. *JAMA* 2002;288:321-33.

Roter DL. Which facets of communication have strong effect on outcome: a meta-analysis. In *Communication wih medical patients*, ed. MA Stewart, DL Roter. Newbury Park: Sage Publications, 1989.

Rödström K, Bengtsson C, Lissner L, Björkelund C. Pre-existing risk factor profiles in users and non-users of hormone replacement therapy: prospective cohort study in Gothenburg, Sweden. *BMJ* 1999;319:890-93.

Rödström K, Bengtsson C, Milsom I, Lissner L, Sundh V, Björkelund C. Evidence for a secular trend in menopausal age: a population study of women in Gothenburg. *Menopause* 2003;10:538-43.

Samuelsson E. *Urinary incontinence and genital prolaps: a prospective population-based study*. Medical Sciences, Uppsala University, Uppsala, 1999.

Simpson M, Buckman R, Stewart M, Maguire P, Lipkin M, et al. Doctor-patient communication: the Toronto consensus statement. *BMJ* 1991;303:1385-87.

Sinclair HK, Bond CM, Taylor RJ. Hormone replacement therapy: a study of women's knowledge and attitudes. *Br J Gen Pract* 1993;43:365-70.

Skegg DC, Doll R, Perry J. Use of medicines in general practice. *BMJ* 1977;1:1561-63.

Speedling EJ, Rose DN. Building an effective doctor-patient relationship: from patient satisfaction to patient participation. *Soc Sci Med* 1985;21:115-20.

Stadberg E, Mattsson LA, Milsom I. The prevalence and severity of climacteric symptoms and use of different treatment regimens in a Swedish population. *Acta Obstet Gynecol Scand* 1997;76:442-48.

Stadberg E, Mattsson LA, Milsom I. Factors associated with climacteric symptoms and the use of hormone replacement therapy. *Acta Obstet Gynecol Scand* 2000;79:286-92.

Stampfer MJ, Colditz GA, Willett WC, Manson JE, Rosner B, et al. Postmenopausal estrgen therapy and cardiovascular disease: ten-year follow-up from the nurses' health study. *N Engl J Med* 1991;325:756-62.

*Statistical Analysis System,* SAS Institute Inc. Ver 6.12 and 9.1. Cary, NC: SAS Institute Inc., 1989-96.

*Statistical yearbook 1996*. Stockholm, 1997.

Stewart MA. What is a successful doctor-patient interview? A study of interactions and outcomes. *Soc Sci Med* 1984;19:167-75.

Sullivan M, Karlsson J, Bengtsson C, Furunes B, Lapidus L, Lissner L. "The Göteborg Quality of Life Instrument" - a psychometric evaluation of assessments of symptoms and well-being among women in a general population. *Scand J Prim Health Care* 1993;11:267-75.

Svarstad B. *The doctor-patient encounter: an observational study of communication and outcome*. Unpublished doctoral dissertation, University of Wisconsin, 1974.

Tennis P. Drug utilization by the 30-64 year-old people in two cities in the Federal Republic of Germany in 1984. *Eur J Clin Pharmacol* 1990;38:447-52.

Thom DH, Brown JS. Reproductive and hormonal risk factors for urinary incontinence in later life: a review of the clinical and epidemiologic literature. *J Am Geriatr Soc* 1998;46:1411-17.

Thom DH, van den Eeden SK, Brown JS. Evaluation of parturition and other reproductive variables as risk factors for urinary incontinence in later life. *Obstet Gynecol* 1997;90:983-89.

Thorn J, Björkelund C, Bengtsson C, Guo X, Lissner L, Sundh V. Low socioeconomic status, smoking, mental stress and obesity predict obstructive symptoms in women, but only smoking also predicts subsequent experience of poor health. *Int J Med Sci* 2006;4:7-12.

Tibblin G, Bengtsson C, Furunes B, Lapidus L. Symptoms by age and sex. The population studies of men and women in Gothenburg, Sweden. *Scand J Prim Health Care* 1990;8:9-17. (Tibblin 1990a).

Tibblin G, Tibblin B, Peciva S, Kullman S, Svärdsudd K. "The Göteborg quality of life instrument" -- an assessment of well-being and symptoms among men born 1913 and 1923. Methods and validity. *Scand J Prim Health Care, Suppl* 1990;1:33-38. (Tibblin 1990b).

Tierpsprojektet. 1995. Receptmaterial; www.pubcare.uu.se.20030124.

Undén AL, Elofsson S. Do different factors explain self-rated health in men and women? *Gend Med* 2006;3:295-308.

Wahl C, Gregoire JP, Teo K, Beaulieu M, Labelle S, et al. Concordance, compliance and adherence in healthcare: closing gaps and improving outcomes. *Healthc Q* 2005;8:65-70.

Wallander MA, Johansson S, Ruigómez A, García Rodríguez LA. Unspecified abdominal pain in primary care: the role of gastrointestinal morbidity. *Int J Clin Pract* 2007 [Epub ahead of print].

Wallander MA, Johansson S, Ruigómez A, García Rodríguez LA, Jones R. Morbidity associated with sleep disorder in primary care: a longitudinal cohort study. *Prim Care Companion* (in press).

Van den Brandt PA, Petri H, Dorant E, Goldbohm RA, Van de Crommert S. Comparison of questionnaire information and pharmacy data on drug use. *Pharm Weekbl Sci* 1991;13:91-96.

Wilson DH, Taylor AW, MacLennan AH. Health status of hormone replacement therapy users and non-users as determined by the SF-36 quality of life dimension. *Climacteric* 1998;1:50-54.

von Muhlen DG, Kritz-Silverstein D, Barrett-Connor E. A community-based study of menopause symptoms and estrogen replacement in older women. *Maturitas* 1995;22:71-78.

Ågren H. Affektiva sjukdomstillstånd. In *Läkemedelsboken 1997*. Stockholm: Apoteksbolaget, 1977.

# Att vara kvinna

Om frågor uppstår vid tolkningen av enkäten, får vi då ta kontakt med Dig per telefon?

Ja ☐ Nej ☐ Om ja, ange telefonnummer _____ /_____

Ifylles ej

1 1

5

## Först några frågor om din bakgrund:

Ålder ..... år
Längd ..... cm
Vikt ..... kg

7
10
14

Är Du
1 ☐ ogift
2 ☐ gift/sammanboende
3 ☐ frånskild/separerad
4 ☐ änka

15

Vilken är Din nuvarande sysselsättningsgrad?

1 ☐ heltidsarbetande
2 ☐ deltidsarbetande
3 ☐ studerande
4 ☐ arbetslös
5 ☐ långvarigt sjukskriven (mer än 6 månader)
6 ☐ sjukbidrag eller förtidspension pga sjukdom eller skada
7 ☐ ålderspension
8 ☐ annat, vad _____

16
17

Vilken utbildning har Du? *Ange den högsta*

1 ☐ folkskola
2 ☐ grundskola
3 ☐ yrkesskola, realskola eller folkhögskola
4 ☐ gymnasium
5 ☐ universitet eller högskola
6 ☐ annat, vad _____

18
19

Hur många gånger har Du varit gravid? _____
Hur många förlossningar har Du genomgått? _____
När inträffade senaste graviditeten? År 19 ____

21
23
25

Behandlas Du regelbundet för någon sjukdom? 0 ☐ nej 1 ☐ ja
om ja, vilken/vilka? _____
_____
_____

26
29
32
35

## Livsstilsfaktorer

Ifylles ej

Har Du någonsin rökt dagligen under minst 6 månader?

0 ☐ nej 1 ☐ ja *om nej, fortsätt till nästa ruta*
*om ja, fortsätt här* ☐ 36

Hur gammal var Du när Du började röka? _____ år ☐☐ 38

Röker Du för närvarande? ☐ 39

0 ☐ nej 1 ☐ ja

om nej, när slutade Du? år 19_____ ☐☐ 41

Om Du röker cigaretter, eller om Du rökte cigaretter innan Du slutade röka, hur många cigaretter röker/rökte Du per dag?

_____ cigaretter ☐☐ 43

Om Du röker/rökte cigarr-cigaretter, hur många per dag röker/rökte Du?

_____ cigarr-cigaretter ☐☐ 45

Om Du röker/rökte cigarrer, hur många röker/rökte Du per dag?

_____ cigarrer ☐☐ 47

Om Du röker/rökte pipa, hur många dagar räcker/räckte ett 50-grams tobakspaket?

_____ dagar ☐☐ 49

Har Du någonsin snusat dagligen under minst 6 månader?

0 ☐ nej 1 ☐ ja *om nej, fortsätt till nästa ruta*
*om ja, fortsätt här* ☐ 50

om ja, snusar Du för närvarande? ☐ 51

0 ☐ nej 1 ☐ ja

om nej, när slutade Du snusa? år 19_____ ☐☐ 53

Om Du fortfarande snusar, hur många dagar räcker en dosa?

_____ dagar ☐☐ 55

Ifylles ej

Hur mycket rör Du Dig och anstränger Dig kroppsligt under Din fritid?
*Kryssa för den ruta som passar bäst för Dig*

1 ☐ Du ägnar Dig mestadels åt läsning, TV, bio eller annan stillasittande sysselsättning på fritiden

2 ☐ Du promenerar, cyklar eller rör Dig på annat sätt under minst 4 timmar i veckan. I detta inräknas också gång eller cykling till och från arbetet samt söndagspromenader

3 ☐ Du ägnar Dig åt löpning, simning, tennis, badminton, motionsgymnastik eller dylikt under minst 3 timmar i veckan.Tyngre trädgårdsarbete och dyl räknas hit

4 ☐ Du ägnar Dig åt hård träning och tävling i löpning, orientering, skidåkning, simning, fotboll, handboll etc regelbundet och flera gånger i veckan

☐ 56

Hur mycket rör Du Dig och anstränger Dig kroppsligt under Ditt arbete?
*Kryssa för den ruta som passar bäst för Dig*

1 ☐ Du har ett stillasittande arbete

2 ☐ Du har ett rörligt arbete

3 ☐ Du har ett fysiskt ansträngande arbete, tex tunga lyft

☐ 57

På nedanstående skalor är det meningen att Du skall försöka uppskatta och markera hur tillfredsställd Du är med din situation i olika avseenden. Skalorna löper från "mycket dåligt", som är sämsta tänkbara situation, till "alldeles utmärkt, kunde inte vara bättre". Ange hur Du upplever Din situation i olika avseenden.

*Kryssa i valfri ring.*

**HEM- OCH FAMILJESITUATION**

1 2 3 4 5 6 7

Mycket dålig — Alldeles utmärkt Kunde inte vara bättre

**BOSTAD**

1 2 3 4 5 6 7

Mycket dålig — Alldeles utmärkt Kunde inte vara bättre

**ARBETSSITUATION**

1 2 3 4 5 6 7

Mycket dålig — Alldeles utmärkt Kunde inte vara bättre

**EKONOMI**

1 2 3 4 5 6 7

Mycket dålig — Alldeles utmärkt Kunde inte vara bättre

**HÄLSA**

1 2 3 4 5 6 7

Mycket dålig — Alldeles utmärkt Kunde inte vara bättre

**FRITID**

1 2 3 4 5 6 7

Mycket dålig — Alldeles utmärkt Kunde inte vara bättre

**HÖRSEL**

1 2 3 4 5 6 7

Mycket dålig — Alldeles utmärkt Kunde inte vara bättre

**SYN**

1 2 3 4 5 6 7

Mycket dålig — Alldeles utmärkt Kunde inte vara bättre

**MINNE**

1 2 3 4 5 6 7

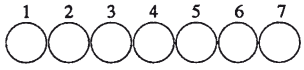
Mycket dåligt — Alldeles utmärkt Kunde inte vara bättre

Ifylles ej

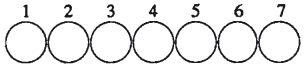
58 59 60 61 62 63 64 65 66

**KONDITION**

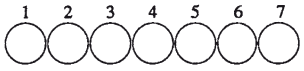

**APTIT**



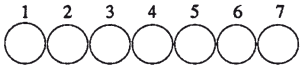

**HUMÖR**



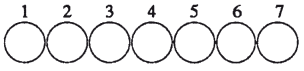

**ENERGI**



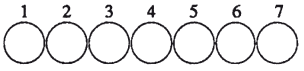

**TÅLAMOD**



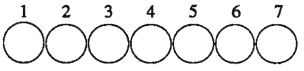

**SJÄLVFÖRTROENDE**



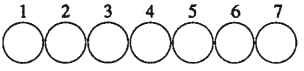

**SÖMN**




**KÄNNER DU DIG BETYDELSEFULL OCH UPPSKATTAD UTANFÖR HEMMET?**




**KÄNNER DU DIG BETYDELSEFULL OCH UPPSKATTAD I HEMMET?**




Ifylles ej

67

68

69

70

71

72

73

74

75

Har Du under de senaste 3 månaderna besvärats av något eller några av nedanstående tillstånd? Om Du är tveksam, försök ändå att besvara frågan!
*Markera med kryss i ja- eller nej-rutorna.*

| | nej | ja | Ifylles ej |
|---|---|---|---|
| Yrsel | ☐ 0 | ☐ 1 | 1 |
| Ögonbesvär | ☐ 0 | ☐ 1 | 2 |
| Hörselnedsättning | ☐ 0 | ☐ 1 | 3 |
| Huvudvärk | ☐ 0 | ☐ 1 | 4 |
| Känt Dig allmänt trött | ☐ 0 | ☐ 1 | 5 |
| Sömnbesvär | ☐ 0 | ☐ 1 | 6 |
| Nervösa besvär | ☐ 0 | ☐ 1 | 7 |
| Svettningar | ☐ 0 | ☐ 1 | 8 |
| Andfåddhet | ☐ 0 | ☐ 1 | 9 |
| Ont i bröstet | ☐ 0 | ☐ 1 | 10 |
| Hosta | ☐ 0 | ☐ 1 | 11 |
| Känt Dig lättirriterad | ☐ 0 | ☐ 1 | 12 |
| Känt Dig överansträngd | ☐ 0 | ☐ 1 | 13 |
| Haft svårt att koncentrera Dig | ☐ 0 | ☐ 1 | 14 |
| Känt Dig rastlös | ☐ 0 | ☐ 1 | 15 |
| Haft perioder då Du känt Dig nere och dyster | ☐ 0 | ☐ 1 | 16 |
| Haft lätt för att gråta | ☐ 0 | ☐ 1 | 17 |
| Haft svårt att slappna av | ☐ 0 | ☐ 1 | 18 |
| Ont i magen | ☐ 0 | ☐ 1 | 19 |
| Illamående | ☐ 0 | ☐ 1 | 20 |
| Diarré | ☐ 0 | ☐ 1 | 21 |
| Förstoppning | ☐ 0 | ☐ 1 | 22 |
| Dålig aptit | ☐ 0 | ☐ 1 | 23 |
| Avmagring | ☐ 0 | ☐ 1 | 24 |
| Övervikt | ☐ 0 | ☐ 1 | 25 |
| Frusenhet | ☐ 0 | ☐ 1 | 26 |
| Ledbesvär | ☐ 0 | ☐ 1 | 27 |
| Ont i ryggen | ☐ 0 | ☐ 1 | 28 |
| Ont i benen | ☐ 0 | ☐ 1 | 29 |
| Besvär med att kasta vatten | ☐ 0 | ☐ 1 | 30 |
| | | | 31 |
| | | | 32 |
| | | | 33 |
| | | | 34 |
| | | | 35 |

## Nedan följer några frågor kring menstruationer och övergångsbesvär som vi ber Dig besvara:

Ifylles ej

Vid vilken ålder började Dina menstruationer ? Vid _____ års ålder — 37

Har Du fortfarande menstruationer? 0 ☐ nej 1 ☐ ja — 38

om nej, har Du haft menstruationer det senaste året? 0 ☐ nej 1 ☐ ja — 39

om nej, vid vilken ålder upphörde menstruationerna? Vid _____ års ålder — 41

om nej, använder Du Levonovaspiral (hormonspiral) 0 ☐ nej 1 ☐ ja — 42

Har Du fått äggstockarna bortopererade? 0 ☐ nej 1 ☐ ja — 43

om ja, vid vilken ålder? Vid _____ års ålder — 45

Har Du fått livmodern bortopererad? 0 ☐ nej 1 ☐ ja — 46

om ja, vid vilken ålder? Vid _____ års ålder — 48

Vid vilken ålder upphörde din mors menstruationer? Vid_____års ålder — 50

1 ☐ Vet ej — 51

2 ☐ Pågår än

Har Du någon gång använt p-piller? 0 ☐ nej 1 ☐ ja — 52

*om nej, fortsätt till nästa ruta*

Vid vilken ålder började Du använda p-piller? Vid _____ års ålder — 54

Använder Du fortfarande p-piller? 0 ☐ nej 1 ☐ ja — 55

om nej, vid vilken ålder slutade Du använda p-piller? Vid _____ års ålder — 57

Besväras Du för närvarande av:

Blodvallningar? 0 ☐ nej 1 ☐ ja — 58

Svettningar under dagen? 0 ☐ nej 1 ☐ ja — 59

Svettningar under natten? 0 ☐ nej 1 ☐ ja — 60

Sköra slemhinnor i underlivet? 0 ☐ nej 1 ☐ ja — 61

Urinläckage i samband med ansträngning (lyft, hosta)? 0 ☐ nej 1 ☐ ja — 62

Urinläckage i samband med trängningar? 0 ☐ nej 1 ☐ ja — 63

Har Du haft urinvägsinfektion under det senaste året? 0 ☐ nej 1 ☐ ja — 64

Har Du kroniskt ont i musklerna? 0 ☐ nej 1 ☐ ja — 65

**Summering angående Dina mediciner (receptbelagda eller inte) och recept**

| | | | |
|---|---|---|---|
| Använder Du någon medicin nu? | 0 ☐ nej | 1 ☐ ja | Ifylles ej ☐ 66 |
| Har Du under det senaste året slutat använda någon medicin? | ☐ nej | ☐ ja | ☐ 67 |
| Har Du under det senaste året fått recept på någon medicin som Du har löst ut, men som Du aldrig börjat använda | ☐ nej | ☐ ja | ☐ 68 |
| Har Du fått recept under det senaste året som Du inte löst ut | ☐ nej | ☐ ja | ☐ 69 |

**Om Du svarat nej på alla fyra ovanstående frågor är Du nu klar med ifyllandet av denna enkät.**

## Tack för din medverkan!

**För Dig som svarat ja på någon av de fyra ovanstående frågorna:**

Här följer nu frågor om mediciner
- som Du använder nu
- som Du har använt någon gång under det senaste året, men som Du slutat med
- som Du har fått recept på under senaste året och som Du har löst ut, men som Du aldrig börjat använda
- som Du har fått recept på under senaste året, men som Du inte löst ut

Vi har avsatt plats för 5 st mediciner och/eller recept.
Frågor om varje medicin eller recept upptar två sidor, var och en med olika färger.
I vilken ordning du redovisar dina mediciner och/eller recept spelar ingen roll.
Har du fler än 5 st mediciner/recept går det bra att fylla i dessa på baksidan.

Här är ett exempel:

Om Du äter en sorts medicin nu och även har ätit en annan sorts medicin under en tid för knappt ett år sedan och har ett recept utskrivet för 9 mån sedan på en tredje medicin, men som Du inte har löst ut:

då fyller Du i uppgifter om den första medicinen på sidorna 10-11, uppgifter om den andra medicinen på sidorna 12-13 och uppgifter om den tredje medicinen på sidorna 14-15

*Om Du inte tycker att våra frågor täcker in Dina förhållanden till medicinen/receptet vill vi gärna att Du gör Dina egna noteringar på baksidan!*

*Här följer en lista med mediciner som är vanliga bland annat i övergångsåren, men det finns naturligtvis även andra mediciner som många använder under dessa år. Oberoende av om Dina mediciner finns med på nedanstående lista eller ej är vi intresserade av dem. Listan är enbart tänkt som ett stöd för minnet.*

## Östrogenpreparat

1 Estraderm, plåster
2 Evorel, plåster
3 Progynon, tablett
4 Oestriol, tablett
5 Ovesterin, tablett
6 Ovesterin, vaginalkräm
7 Ovesterin, vagitorium
9 Dionoestrol, vaginalkräm
10 Dionoestrol, vagitorium
11 Oestring, vaginalinlägg
12 Vagifem, vagitorium

## Gulkroppshormoner

13 Depo-Provera, injektion
14 Gestapuran, tablett
15 Orgametril, tablett
16 Provera, tablett
17 Duphaston, tablett
18 Primolut-Nor, tablett
19 Premarina, tablett

## Komb.preparat

20 Estracomb, plåster
21 Kliogest, tablett
22 Trisekvens, tablett
23 Cyclabil, tablett
24 Cyclabil Mite, tablett

## Antibiotika

25 Lexinor, tablett
26 Furadantin, tablett
27 Selexid, tablett
28 Trimetroprim, tablett
29 Ciproxim, tablett
30 Negram, tablett
31 Triple Sulfa, vaginalkräm
32 Triple Sulfa, vagitorium
33 Flagyl, vagitorium
34 Diflucan, kapsel
35 Canesten, vaginalkräm
36 Canesten, vagitorium
37 Daktar, vaginalkräm
38 Daktar, vagitorium
39 Pevaryl, vaginalkräm
40 Pevaryl, vagitorium

## Medel för att sova

41 Rohypnol, tablett
42 Flunitrazepam, tablett
43 Propavan, tablett
44 Mogadon, tablett
45 Apodon, tablett
46 Imovane, tablett
47 Nitrazepam, tablett
48 Triazolam, tablett

## Lugnade medel

49 Stesolid, tablett
50 Valium, tablett
51 Sobril, tablett
52 Apozepam, tablett
53 Diazepam, tablett
54 Oxazepam, tablett
55 Temesta, tablett
56 Buspar, tablett
57 Xanor, tablett

## Medel mot depression

58 Anafranil, tablett
59 Tofranil, tablett
60 Tymelyt, tablett
61 Saroten, tablett
62 Ludiomil, tablett
63 Aurorix, tablett
63 Surmontil, tablett

## Värktabletter

65 Distalgesic, tablett
66 Citodon, tablett, supp
67 Alvedon, tablett, supp
68 Panodil, tablett, supp
69 Naproxen, tablett, supp / Naprosyn, tablett, supp
70 Indomee, kapsel, supp
71 Ipren, tablett
72 Brufen, tablett
73 Voltaren, tablett,supp
74 Orudis, tablett, supp

# 1:a medicinen / receptet:

Ifylles ej 3 1

5

Vilket av nedanstående fyra alternativ tänker Du besvara på sidorna 10-11:

1 ☐ Medicin som Du använder nu

2 ☐ Medicin som Du har använt någon gång under det senaste året, men som Du slutat med

3 ☐ Recept som Du har fått under det senaste året och som Du har löst ut, men som Du aldrig börjat använda

6

4 ☐ Recept som Du har fått under det senaste året, men som Du inte löst ut

10

Vad heter medicinen som Du fått utskriven _____

12

Vid vilken ålder började Du använda denna medicin? Vid _____ års ålder

15

Anledningen till att Du tar/tog denna medicin
(vilket symptom eller vilken åkomma sökte Du för): _____

16

Anser Du att denna åkomma är ett allvarligt tillstånd?

1 2 3 4 5 6 7

Inte alls ○ ○ ○ ○ ○ ○ ○ Ja, mycket

17

Hur nödvändig tycker Du att denna medicin är för Din hälsa?

Inte alls nödvändig ○ ○ ○ ○ ○ ○ ○ Mycket nödvändig

**Uppgift från recept, medicinförpackning och/eller Din läkare:**

21

Medicinens styrka (tex mg), enligt uppgift på förpackningen _____

23

Antal gånger per dag medicinen skall/skulle tas _____

27

Hur mycket per gång (dosering) _____

Hur länge har läkaren angivit (muntligt eller skriftligt) att Du skall/skulle ta medicinen?
*OBS! Fyll endast i ett alternativ*

1 ☐ Fram till nästa återbesök
2 ☐ Tills vidare
3 ☐ Tidsbegränsat på annat sätt, hur länge?_____
4 ☐ Tills medicinförpackningen tar/tog slut
5 ☐ Du har ingen information eller kommer inte ihåg att läkaren sagt något om hur länge Du skall/skulle ta medicinen

28

31

Har Du fått information om hur medicinen verkar *(flera alternativ kan kryssas för)*

1 ☐ Nej
2 ☐ Ja, av min läkare
3 ☐ Ja, på apoteket
4 ☐ Ja, på annat sätt, nämligen _____

32

34

Har Du fått information om vilka biverkningar medicinen kan ha *(flera alternativ kan kryssas för)*

1 ☐ Nej
2 ☐ Ja, av min läkare
3 ☐ Ja, på apoteket
4 ☐ Ja, på annat sätt, nämligen _____

35

37

Ifylles ej

## Uppgifter om hur Du i själva verket tar denna medicin, eller hur Du tog medicinen:

Följer/följde Du läkarens ordination (tex antal tabl/dag)? 0 ☐ nej 1 ☐ ja — 38

Glömde Du bort att ta medicinen ibland? 0 ☐ nej 1 ☐ ja — 39

## Om Du slutat ta medicinen i förtid, varför har Du slutat?

1 ☐ Medicinen var inte till nytta för Dig — 40

2 ☐ Du fick symptom som troligen är biverkningar. Vilket/vilka? _____ — 43

3 ☐ Du var rädd att få biverkningar av medicinen om Du fortsatte att ta den — 44

4 ☐ Annan orsak, vilken? _____ — 46

_____

## Är Du bekymrad för Din medicin 0 ☐ nej 1 ☐ ja — 47

## Om Du aldrig börjat använda den medicin Du löste ut, varför började Du inte:

1 ☐ Du blev bra ändå

2 ☐ Du fick annan medicin i stället — 48

3 ☐ Du var rädd för biverkningar

4 ☐ Annan orsak, vilken? _____ — 50

## Uppgifter om den läkare som skrev ut medicinen:

Var det en allmänläkare/distriktsläkare på en vårdcentral? 0 ☐ nej 1 ☐ ja — 51

Var det en läkare på en sjukhusklinik? 0 ☐ nej 1 ☐ ja — 52

Var det en privatpraktiserande läkare? 0 ☐ nej 1 ☐ ja — 53

Var det en företagsläkare? 0 ☐ nej 1 ☐ ja — 54

Annan läkare 0 ☐ nej 1 ☐ ja — 55

Var läkaren Kvinna ☐ 2 Man ☐ 1 — 56

Har Du tid för återbesök (eller går Du på regelbunden kontroll) hos den läkare som skrivit ut denna medicin? 0 ☐ nej 1 ☐ ja — 57

Känner Du förtroende för Din läkare?

1 2 3 4 5 6 7

Inget förtroende ○ ○ ○ ○ ○ ○ ○ Stort förtroende — 58

Känner Du förtroende för andra läkare

1 2 3 4 5 6 7

Inget förtroende ○ ○ ○ ○ ○ ○ ○ Stort förtroende — 59

*Om Du tar /tog fler mediciner, eller har flera recept fortsätt på nästa sida*

Acta Universitatis Upsaliensis

*Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine* 276

Editor: The Dean of the Faculty of Medicine

A doctoral dissertation from the Faculty of Medicine, Uppsala University, is usually a summary of a number of papers. A few copies of the complete dissertation are kept at major Swedish research libraries, while the summary alone is distributed internationally through the series Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine. (Prior to January, 2005, the series was published under the title "Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine".)

Distribution: publications.uu.se
urn:nbn:se:uu:diva-8225

ACTA
UNIVERSITATIS
UPSALIENSIS
UPPSALA
2007