Mild to moderate depression in the elderly in Primary Care - detection, patient centeredness and course

Maria Magnil

Department of Public Health and Community
Medicine/Primary Health Care
Institute of Medicine
Sahlgrenska Academy at University of Gothenburg

UNIVERSITY OF GOTHENBURG

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maria.magnil@vgregion.se

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Department of Public Health and Community Medicine/Primary Health Care,
Institute of Medicine
Sahlgrenska Academy at University of Gothenburg
Gothenburg, Sweden

ABSTRACT

Aims; To study the prevalence of and describe factors associated with depressive symptoms and to observe the course in a cohort of elderly primary care patients with mild to moderate depression. To compare a structured patient-centered consultation model with a validated instrument when screening for depressive symptoms and to investigate if recommended cut-off values for a self-rated instrument should be adjusted for this population.

Method; Cross-sectional data were collected for all papers from one observational two-year follow-up study, using questionnaires, interviews, consultations and medical records. Consecutive patients aged 60 and up were screened for depressive symptoms at a primary care center in 2003. Included patients (n=302) completed the Primary Care Evaluation of Mental Disorders Patient Questionnaire (PRIME-MD PQ); the Montgomery-Åsberg Depression Rating Scale, self-rated version (MADRS-S); and a structured interview with a nurse. They then saw a general practitioner (GP) who assessed whether there was "possible depression", with a structured patient-centered consultation model. The psychometric properties of the consultation model and the PRIME-MD PQ were calculated using the MADRS-S, at two cut-off levels, as a reference. The GPs performed a diagnostic interview using the PRIME-MD Clinical Evaluation Guide (CEG) with patients who had screened positive with any of the methods. In patients with mild to moderate depression (n=54), the course was observed during two years and risk factors and prognostic factors were studied. The optimal MADRS-S cut-off value for a depressive diagnosis was calculated by Receiver Operating Characteristic (ROC) curve. Logistic regression analysis was used for studying associations between the different variables and depressive symptoms as well as mild to moderate depression.

Results Several psychosocial factors and somatic symptoms were associated with depressive symptoms. The point prevalence of depressive symptoms was 15 % (Paper I). The consultation model exhibited moderate to good properties for screening for depressive symptoms in the elderly (Paper II).While median MADRS-S scores declined during a two-year follow-up period, three course patterns were identified: remitting, stable, and fluctuating (Paper III). There were indications that the MADRS-S cut-off value should be lowered when screening for mild to moderate depression in this group (Paper IV).

Conclusion Most elderly individuals with milder forms of depressive disorders are seen and treated in primary care. They are important to recognize since the conditions are associated with considerable functional disability and morbidity. A structured patient-centered consultation model, adjusting self-rated instruments' cut-off values and knowledge of risk factors, prognostic factors, and course may be helpful for GPs in detecting, assessing, and managing depressive disorders in elderly primary care patients.

Keywords: depressive symptoms, mild to moderate depression, patient-centered consultation, screening, elderly, primary care, course, longitudinal, risk factors, prognostic factors

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SAMMANFATTNING PÅ SVENSKA

Bakgrund: De flesta äldre individer med mild till måttlig depression omhändertas och behandlas i primärvården. De är viktiga att upptäcka eftersom de har en ökad risk för sjuklighet och dödlighet relaterat till självmord och kroppsliga sjukdomar. Idag finns det flera behandlingsalternativ med god effekt på både funktion och symtom. Syftet med forskningsprojektet var att jämföra en patientcentrerad konsultationsmodell med ett screeninginstrument och undersöka hur väl modellen fungerade för att upptäcka mild till måttlig depression i en äldre primärvårdspopulation. Förekomst och faktorer associerade med depressiva symtom och med diagnosen mild till måttlig depression studerades och depressionsförloppet observerades under två år. Optimalt tröskelvärde för ett självskattningsinstrument undersöktes också avseende mild till måttlig depression.

Metod: Alla patienter, 60 år eller äldre, som besökte vårdcentralen tillfrågades oavsett besöksorsak att delta i studien. Före läkarbesöket intervjuades de av en sjuksköterska och fyllde i två depressionsfrågeformulär (PRIME-MD PQ och MADRS-S). Läkarna bedömde utifrån en etablerad patientcentrerad konsultationsmodell om patienten hade en ”möjlig depression”. Sensitivitet och specificitet för konsultationsmodellen jämfördes med PRIME-MD PQ med MADRS-S som referens. De patienter som screenade positivt med någon av metoderna bokades för återbesök och läkaren använde PRIME-MD CEG vid den kompletterande diagnostiska intervjun. Upprepade mätningar med MADRS-S gjordes under två år för att observera depressionsförloppet. Tvärsnittsdata från variabler hämtade ur frågeformulär, intervjuer, konsultationer och journaler analyserades för att beskriva associationer mellan dessa variabler och depressiva symtom respektive mild till måttlig depression. Det optimala tröskelvärdet för MADRS-S beräknades genom att göra en ROC kurva relaterad till utfallet av PRIME-MD CEG.

Resultat: Konsultationsmodellen hade goda till måttliga egenskaper för att upptäcka mild till måttlig depression i denna population. Flera faktorer; att inte ha en partner, att inte ha fritidsaktiviteter, att ha blivit änka/änkling, att tidigare ha haft en depression, att ha upplevt livshändelser av betydelse och ett regelbundet användande av sömn- och/eller lugnande medicinering var associerade med både depressiva symtom och diagnosen mild till måttlig depression. Förekomsten av diagnosen mild till måttlig depression var 19 %. Att inte ha fritidsaktiviteter var associerat med förekomst av depressiva

symtom efter två år. Totalt uppvisade alla patienter med mild till måttlig depression en symtomreduktion efter två år och tre olika depressionsförlopp observerades; förbättrat, stabilt och fluktuerande. Att sänka tröskelvärdet för MADRS-S ökade möjligheterna att identifiera mild till måttlig depression i denna population.

LIST OF PAPERS

This thesis is based on the following studies, referred to in the text by their Roman numerals.

I. Magnil M, Gunnarsson R, Björkstedt K, Björkelund C. Prevalence of depressive symptoms and associated factors in elderly primary care patients: a descriptive study. Prim Care Companion J Clin Psychiatry. 2008;10(6):462-8.

II. Magnil M, Gunnarsson R, Björkelund C. Using patient-centred consultation when screening for depression in elderly patients: a comparative pilot study. Scand J Prim Health Care. 2011 Mar;29(1):51-6.

III. Magnil. M, Janmarker L, Gunnarsson R, Björkelund C. Course, risk and prognostic factors for elderly primary care patients with mild depression during a 2-year follow up period; an observational study. Submitted manuscript.

IV. Magnil. M, Gunnarsson R, Björkelund C. Indications for lower MADRS-S cut-off values in elderly primary care patients with mild to moderate depression. Submitted manuscript.

CONTENTS

ABBREVIATIONS

ATC	Anatomical Therapeutic Chemical Classification System
CBT	Cognitive behavioral therapy
CPRS-S-A	Comprehensive Psychopathological Rating Scale, Self-Affective
DSM IV	Diagnostic and Statistical Manual of Mental Disorders, fourth edition
DSM	Diagnostic and Statistical Manuals
GDS	Geriatric Depression Scale
GP	General Practitioner
HAM-D	Hamilton Rating Scale for Depression
ICD	International Classifications of Diseases
ICD-10	International Classification of Diseases, tenth revision
IMPACT	Improving Mood Promoting Access to Collaborative Treatment
IPT	Interpersonal therapy
MADRS	Montgomery-Åsberg Depression Rating Scale
MADRS-S	Montgomery-Åsberg Depression Rating Scale, self-rated version
MMSE	Mini Mental State Examination
NPV	Negative predictive value
OR	Odds ratio

PC	Primary care
PCC	Primary care center
PPV	Positive predictive value
PRIME-MD	Primary Care Evaluation of Mental Disorders
PRIME-MD CEG	Primary Care Evaluation of Mental Disorders, Clinical Evaluation Guide
PRIME-MD PHQ	Primary Care Evaluation of Mental Disorders, Patient Health Questionnaire
PRIME-MD PQ	Primary Care Evaluation of Mental Disorders, Patient Questionnaire
PROSPECT	Prevention of Suicide in Primary Care Elderly: Collaborative Trial
PST	Problem-solving therapy
ROC curve	Receiver operating characteristics curve
SD	Standard deviation
SSRI	Selective serotonin reuptake inhibitors
WHO	World Health Organization
WHODAS II	World Health Organization Disability Assessment Schedule, self-rated version
WONCA	World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians

1 INTRODUCTION

I had known L for several years. He was one of those uncomplicated "time-saving" patients who came in for annual check-ups. I did not know much about him except that he was married and was an active man with many interests. This time he had made an extra appointment because he felt fatigued, had lost eight kilograms and had diarrhea. I found no sign of serious illness during the consultation and examination but decided nonetheless to start an investigation. The laboratory tests were normal and I saw L repeatedly during a three-month period while waiting for the gastrointestinal workup results. I was starting to worry that I had missed something serious and he was becoming worried because I was worried. We spoke mostly about his symptoms, which were unchanged although his weight had stabilized. The results of the workup arrived and everything looked fine, except for some minor pancreatic calcifications. I called a surgeon I knew and he advised me to try prescribing pancreatic enzymes to see if the diarrhea would stop, which it did, but L still felt fatigued and drained of energy. At this point I had almost given up and finally asked him somewhat resignedly, "Is there anything else you would like to tell me?" He was silent for a minute and then thoughtfully began to describe some recent life events that bothered him and that he couldn't stop thinking about. Gradually during the consultation, we agreed that his fatigue, loss of energy and weight loss could be symptoms of depression. He started medication and his symptoms disappeared. At about the same time, several articles were published criticizing GPs for poor recognition of depressive disorders. With L in mind, I felt that this criticism was unfair, and that the authors lacked knowledge of the primary care (PC) context and how we work.

Depression is a syndromal diagnosis with no available biological marker; diagnosis is based on a clinical interview in which symptom severity, duration and effects on functional ability are assessed according to the Diagnostic and Statistical Manuals (DSM) or International Classification of Diseases (ICD) classification systems (1). Approximately 5-10% of PC patients have a current depression and there is considerable co-morbidity with other psychiatric diagnoses, especially with anxiety disorders (2). Depression is 2-4 times as common in women as in men. Most patients with depressive disorders of various severity are seen in PC and only a minority are referred to psychiatric specialists (2-5).The knowledge that individuals

with a history of depression have an increased risk of premature death underlines the fact that it is a serious public health problem and that the management and assessment of depressive disorders are important aspects of PC (2).

2. Background

2.1 Primary Care

Primary care (PC) is the level of care considered to be the cornerstone in many countries' health services (6). It is usually the point of first medical contact for people in the community, providing open and unlimited access and dealing with all kinds of health problems. The PC context and core values are rooted in the bio-psycho-social model according to which each patient is unique and patients' physical and emotional health should be understood based on social, cultural and existential dimensions related to their respective life-stories (7-8). PC should deal with the most common problems in the community, it should integrate care when there are many problems involved, it should address and understand the context in which the illnesses exist and influence, promote and improve health and well-being for the individual (6).

In 2002, the World Organization of Family Doctors (WONCA) defined the discipline of general practice/family medicine, as well as its professional tasks and required competence. The following are among the characteristics of the discipline: *Efficient use of health care, person-centered approach, unique consultation process establishing relationship over time, longitudinal continuity, specific decision-making process determined by the prevalence and incidence of illness in the community, manages both acute and chronic health problems and illnesses which present in an undifferentiated way, promotes health and well-being* (7).

The statement " We are not doctors for particular diseases, or particular organs, or particular stages in the life cycle-we are doctors for people." is one definition of a general practitioner (GP) in a PC context (9).

PC has proven to be beneficial for population health through several mechanisms. In addition to being the first health service contact and an entry point to the rest of the health care system, as mentioned above, it contributes to the quality of care, especially for common conditions, and has significant

impact on prevention and early management of health problems. A professional relationship with a GP, characterized by high continuity, is associated with patient satisfaction, better compliance and lower hospitalization (10).

In Sweden, PC plays a key role in the prevention, diagnostics and treatment of common diseases and health problems. Swedish GPs have five years of specialist training, among the longest specialization programs in the world (2). In recent years the previously rather uniform Swedish PC organization has changed. Patients used to "belong" to a neighborhood Primary Care Center (PCC) and most PCCs were publicly run. While all PC is still publicly funded and patients pay a low fee, more privately run alternatives are available today. This structural change was intended to strengthen patients' influence on the health care system and increase the individual's freedom of choice. However, patients are required to be "listed" at a privately or publicly run PCC. Irrespective of the organization a PCC should offer high accessibility with professional assessments of level of care; continuity in contacts with the GP and/or the PC team; comprehensive, evidence-based treatment regimens; referrals to other health services if needed; support to patients with social problems; promotion of health and prevention of disease (11).

2.2 The diagnostic process in primary care

Knowledge of the PC context and the conditions under which clinical decisions are made is essential for understanding the complexity of the PC diagnostic process. There is a constant process of ruling out medical conditions and prioritizing among several competing problems, allocating time and attention to the detection and treatment of diseases that are common, serious and treatable (12-13).

The patient-centered consultation method commonly used in Sweden is originally from England. It was spread throughout Europe and is now used all over the world (14-15). The methods chronological structure is easy to follow and understand, balancing the patient's and physician's views of the illness (16). In the opening phase of a consultation, which includes an appropriate greeting, a relationship between the patient and the doctor is created by letting the patient talk without interruption. During this initial phase, the doctor explores the patient's conceptions, fears and expectations regarding the health problem and then presents a summary of the patient's narrative. The doctor asks complementary questions, performs a medical examination

and translates all this information into a medical perspective on the illness. In a negotiation process, the patient and the doctor then communicate their respective views and agree on a model of the illness including both diagnosis and a treatment plan (16). Patient-centered care has been shown in several studies to be beneficial both to patients and doctors and is positively associated with patient satisfaction, adherence and better health outcomes (16-17).

The diagnostic process is an important part of, and runs continuously throughout, the consultation. It starts with the patient's narrative providing clues to what might be wrong, leading to the emergence of possible diagnoses, and ends in a categorizable result. Diagnostic work consists of working with individual patterns and clues towards the non-individual category of a diagnosis. Medical diagnosis is based on the patient's history alone in > 70 % of the cases (18). The context and chronological order in which a patient presents his/her illness story provides more information on which to base the diagnosis than just a list of symptoms. Sometimes there is instant recognition of a disease or of patterns, making the diagnostic process quick, but usually the process includes repeated assessments over time, including specific medical tests. The outcomes of the diagnostic process are classification of the illness, deciding on treatment preference and assessing prognosis (18). For GPs, these clinical approaches are a part of everyday practice and integrated in their professional role (7).

2.3 Classifications of psychiatric disorders

Before World War II, classification of psychiatric disorders was mainly based on experiences and observations of patients in mental hospital wards. During and after the war, the need for further classifications emerged, as well as a need to record statistics in psychiatric care (19). In 1952, the American Psychiatric Association developed the first standard classification; the DSM I. It was followed by the DSM II, DSM III, DSM III-R, DSM IV and DSM IV-TR in 1968, 1980, 1987, 1994 and 2000, respectively. A new revision, DSM V, is planned in May 2013. Simultaneously and with similar updates and revisions, the ICD was developed by WHO, facilitating diagnostics in PC (20-22).

It is natural that diagnostic classifications change over time, mirroring prevailing knowledge and cultural perceptions/influences. Classification systems are clinically applicable worldwide as tools providing the best current guidance and support in the diagnostic process They are adapted to

the demands of psychiatric care and used as instruments for differential diagnosis, therapy and research (21, 23-24).

2.4 Classification of depression

The DSM diagnostics system is a criteria-based categorical framework. A diagnosis of depression requires the existence of a defined number of symptoms, implying clinically significant impairments in the patient's function. The criteria-based symptoms for major depression were introduced in the DSM III (1980); at least five symptoms are required for diagnosis (25). The criteria for minor depression were introduced in the DSM IV (1994) (26), for research purposes. Two to four symptoms and no history of depression are required for diagnosis. In the case of both major and minor depression, the symptoms must have been present "*most of the day*", almost "*every day"* for two weeks and one of the symptoms must be *depressed mood* or *decreased interest/pleasure* (DSM IV-TR) (27-28). The criteria for these diagnoses are based on consensus rather than empirical evidence; consequently, the boundaries between depression and the absence of depression are arbitrary (2).

The ICD-10 system is frequently used in Sweden and, depending upon the number and severity of symptoms, a depressive episode is classified as mild, moderate or severe (without or with psychotic symptoms, in the latter case). In addition to severity, the depressive episode's implications for function are also categorized, serving as a basis for choice and evaluation of treatment (2).The two diagnostic systems, DSM and ICD, are not identical and have different characteristics. In clinical practice they have limited comparability and the boundaries between the different terminologies are arbitrary. To aid the clinician, a "*moderate and severe"* ICD depression is considered to be roughly the same as a DSM "*major depression"*(29) and a "*mild"* ICD depression the same as a DSM "*minor depression*" (2).

2.5 Depression and primary care

Several studies confirm that GPs are much better in ruling out depressive disorders than in recognizing them but that they fail to identify up to 50% of patients with a current depression. Patients were more likely to be recognized and treated if they had a more severe depression, more functional disability, co-morbid anxiety or if the GP had knowledge of earlier depressive episodes (2-3, 30-31). Assessing the level of disability and making diagnostic and treatment decisions, focusing on patients with greater impairment, is essential

in GPs (32). Diagnostic accuracy and recognition improve when GPs make re-assessments at subsequent visits (33).

When it comes to depression, there are several underlying factors contributing to low detection rates, related to GPs, patients and the structure of the PC system (34). GPs must consider many diagnoses in a short time. If patients fail to provide any "clues" indicating mental disorders, the identification rate will be low (35). GPs have been criticized as being unskilled and lacking knowledge, based on the assumption that the psychiatric diagnostic criteria should serve as the "gold standard" for PC (8). The validity and reliability of this assumption have recently been questioned since the criteria do not always identify common psycho-pathological overlapping conditions that exist along a spectrum of anxiety, depression and somatization (36-37). In psychiatric care, patients are usually selected whereas patients attending PC are unselected, with undifferentiated symptoms. They tend to be less severely depressed, the course of the illness is milder and the symptom profile is dominated by somatic symptoms (34-36). Patients presenting with exclusively somatic symptoms are more likely to be overlooked by GPs (38) and the PC system structure may support the belief that reporting somatic symptoms is a more legitimate reason for seeking care (34, 39). Many patients may prefer a medical explanation for their symptoms (35), failing to recognize that they may be suffering from depression, and may also hesitate to reveal their psychosocial problems to the GP (35).

2.6 Depressive disorders in the elderly

Elderly adults are usually defined as aged 65 years and up (40) and are sometimes divided into two age groups; "younger elderly" (65-74 years) and "older elderly" (75 years and up) (41). In recent years, the increasing number of elderly adults in the population, the introduction of selective serotonin reuptake inhibitors (SSRI) and increased knowledge of the public health impact of depressive symptoms in the elderly have led to increased attention and focus, especially in research, on clinically important depressive disorders in the elderly that do not meet the criteria for major or minor depression (29, 42-43).These disorders are called sub-syndromal, mild depression or sub-threshold depression and differ from minor depression in that the symptoms are of short duration and are not always present "*most of the day*, *almost every day*" (27, 43).

The categorical criteria of the DSM IV are the current "gold standard" for the diagnosis of depressive disorders in the elderly (44). Due to the heterogeneity

of depressive disorders late in life, several authors consider the conditions to be a continuum in a larger spectrum of depressive disorders defined by severity, duration and number of symptoms. In these authors' opinion, affected individuals move in and out of the diagnostic subtypes over time. According to this more dimensional view, sub-threshold, minor and major depression are clinical variants or different manifestations of the same illness (45-50), a view supported by genetic findings in which families with a history of minor or sub-threshold depression have increased vulnerability to depression (51).

Assessing disability is included in the diagnostic criteria for depression. To be *disabled* is to have difficulties performing necessary activities of daily life, including personal care or life activities (52-53).This includes mobility, looking after oneself, household maintenance and psycho-social functioning (54).WHO has developed a self-rated disability assessment schedule (WHODAS II) (55) for assessing activity limitations and restrictions, irrespective of medical diagnosis. The domains consist of understanding and communication, getting around, self-care, getting along with people, life activities and participation in society. Co-existing somatic diseases, common in this population, additionally increase the risks of disability in household, family and social life (54).

2.7 Clinical characteristics of mild to moderate depression in the elderly

Most elderly patients with depressive disorders are seen and treated in PC (42, 56-58). Diagnosing and distinguishing true depression from "normal" short term reactions or confounding conditions caused by concomitant medical disorders, medications, aging, loneliness, emotionally stressful events or grief is especially difficult in the elderly (13, 59-61). Many symptoms of depression may be overlooked by the GP's or the patient's attributing the symptoms to illnesses or to normal aging (60).

The symptoms of mild to moderate depression are heterogeneous and the most typical, including sadness or depressed mood, may be absent in elderly individuals. They may also have fewer symptoms than required for normal diagnosis but still have a significant depression (62-64). Late-life depression has been called "depression without sadness", relating to patients who report depressive symptoms but who deny sadness or depressed mood. This condition was found to be associated with increased risk of death, significant functional impairment and psychological distress in a follow up study (62-63, 65). A recent study of cluster symptom profiles of milder depressive

disorders supports this concept, finding that "sadness" was not the most severe symptom in elderly patients (66).

Unexplained somatic symptoms; feelings of hopelessness, anxiety and worry; loss of interest in activities; memory complaints and irritability are clinical clues indicating depression in patients who do not present sadness as the core depressive symptom (62, 67-68). Concomitant somatic illness, anxiety, visceral sensations, difficulty in communicating emotional distress (alexithymia) and cultural differences are predictors of depression being presented with somatic symptoms (69-71).

There is a high co-existence of anxiety, albeit not fulfilling any anxiety syndrome criteria, in elderly patients with depression. These patients describe themselves as tense and, feeling uneasy and nervous. They worry without obvious reason. The symptoms of depression and anxiety overlap and are sometimes referred to as "anxious depression" (46, 57, 63). These conditions are associated with more severe depressive symptoms and disability and are more likely to be identified by GPs (72-74).

Irritability (especially in men), increased or decreased appetite, weight loss, lack of energy, fatigue, sleep disturbances and joint pain are other important symptoms of mild to moderate depression (41, 46, 62-63, 67). Complaints of memory loss and poor concentration, with difficulties watching TV, reading, participating in conversations and making trivial decisions, are other such symptoms (2).

2.8 Epidemiology

2.8.1 Prevalence, age and gender

The prevalence of depressive disorders not meeting the full criteria for major depression among the elderly in PC settings ranges between 10 % and 34%, depending on diagnostic criteria and methodology. These disorders have been found to be at least 2-3 times more prevalent than major depressive disorders (75). Studies show lower prevalence in European PC settings than in the US, possibly reflecting differences in settings and criteria (75). Another reason for this diversity in prevalence is that several diagnostic instruments are not adapted to PC (76).

There is a general opinion that less severe depressive disorders increase with age and that more severe depressive disorders decrease with age (29, 40, 52, 77). A recent study demonstrates that there is a more complex relationship between age and depression, in which chronic somatic disease and functional limitations play important roles as mediators (78).This study also suggests that the relationship between more severe depressive disorders and age is u-shaped, with prevalence decreasing at ages 65-79, followed by an increase depending on how depression is defined.

Mild to moderate depression is more common in elderly women than in elderly men (29, 79) with a prevalence ratio in PC settings ranging between 2.1 and 3.4:1 (29, 75). In very elderly populations, these gender differences are less prominent (29).

2.8.2 Risk factors

The burden of a chronic medical disorder that limits activities increases the risk of developing a mild to moderate depression (29, 80). It is not so much the illness in itself that predicts the onset of depression but rather the limitations patients may perceive to affect their "locus of control" and thus their self-perceived health (80).A systematic review revealed that there are five key significant risk factors for depression in the elderly: bereavement, sleep disturbances, disability, prior depression, and female gender (81). Bereavement or widowhood should be followed up with counseling and support, especially in men. Whenever older patients complain about sleeping problems and/or take hypnotics, GPs should consider a depressive disorder (29, 81-82). Other factors associated with increased risk for mild to moderate depression are co-morbid anxiety disorders, frequent attendance and, certain somatic illnesses such as visual and hearing impairments, Parkinson's disease, cardiac disease, stroke, and cognitive disorders (29, 75, 83-84).

Several social distress factors are considered to be risk factors for mild to moderate depression. These are factors often experienced in later life and include stressful life events and changes in social network and social activities. A diminished social network with social isolation and loss of social activities and support increases the risk for depression. Stressful life events such as widowhood, loss of close social contacts, family or neighborhood

conflicts, major health problems and hospitalization are also factors contributing to elevated risk of depression (29, 48, 56, 75, 79-80, 85-86). A recent study showed that "*lack of social support*" was more strongly associated with mild to moderate depression in men. In women, the association was stronger for "*stressful life events"*(87).

2.8.3 Prognosis and outcome

The course of the depression, functional ability and mortality are factors related to prognosis and outcomes. In longitudinal studies, outcomes are often measured in terms of remission, response, recovery, relapse, and recurrence. Remission is defined as full improvement both in terms of symptoms and function, at the end of the follow-up period. Response is usually defined as a $\geq$ 50 % decrease from baseline symptom scale scores to trial endpoint. Response can occur without remission, meaning that a significant improvement may yield a high score on the symptom scale, thus not fulfilling the criteria for remission. Recovery is a remission that lasts over time and relapse is a return of symptoms during remission but before recovery. Recurrence is a new episode of depression during recovery (88-89).

Patients with mild to moderate depression have poorer outcomes than non-depressed patients; the condition seems to have similar negative consequences as more severe depression for well-being and function (90-91).The prognosis deteriorates with increasing age and somatic co-morbidity and functional limitations are strongly associated with poor outcome (58). Several of the risk factors for onset of a depressive disorder also predict poor prognosis: limited social network, meager social support, perceived poor health status, concomitant anxiety, and severe depression at baseline (73, 92). Reviews of the prognosis for late-life depression showed that it was poor in 20-50% of the cases, regardless of how depression was defined at baseline and the duration of follow-up. The depression became chronic in about one-third and the same proportion had short-term remission, while median longer-terms remission rates were 27-33% in follow up studies (58, 74-75, 83). In older patients, remission is often followed by recurrence and the risk of recurrent episodes is higher than in younger individuals (58, 93). Several authors suggest that the long-term course for a majority of elderly with mild to moderate depression is fluctuating, chronic or chronic- intermittent and

that the depressive symptoms wax and wane in the same patient, patterns that become more obvious with repeated measurement over time (47, 58, 75, 83, 90). The important question is whether any of these patterns are associated with increased risk of mortality, not only by suicide but also due to somatic disease. A recent almost five-year follow-up study showed that patients with persistent depressive symptoms were at increased risk of dying, compared to patients with declining symptoms (94).The incidence of major depressive disorders is increased in elderly patients with mild or sub-threshold depression. Longitudinal data have revealed conversion rates from minor to major depression of approximately 8-10% per year (75, 95). More severe depression increases the risk of death, especially due to cardiovascular disease, in both men and women, whereas milder forms of depression are associated with increased mortality in men but not in women (75, 77).

Mortality due to suicide is almost twice as common in late life than in the general population, especially in older men (96). Mood disorder is an independent risk factor for suicide and two Swedish studies on patients aged $\geq$75 years showed that minor depression was associated with elevated risks of both attempted and completed suicide (97-98).

2.9 Diagnostic and rating instruments

Several diagnostic instruments are currently available to aid in determining whether the patient fulfills the diagnostic criteria for depression. The diagnostic interview in the Primary Care Evaluation of Mental Disorders Clinical Evaluation Guide (PRIME-MD CEG) instrument, based on the DSM IV criteria, and is commonly used in PC, for which it was especially developed (99).

Interviewer-rating scales were originally developed for research and clinical purposes in psychiatry, in order to assess depression symptom severity and change during antidepressant therapy, when the first antidepressants were introduced (100-101). These scales cannot fully encompass the different dimensions of a depressive disorder and a diagnostic interview is still considered to be the "gold standard" with which they are compared (44).The most frequently used interviewer-rating scales are the Hamilton Rating Scale for Depression (HAM-D) and the Montgomery Åsberg Depression Rating Scale (MADRS)(102). These scales can be used for screening, establishing symptom profiles as well as assessing illness and treatment effects (100).

In recent years, self-rating scales have been increasingly accepted in studies, along with growing interest in patient participation in the disease management process, and used to assess secondary outcomes related to quality of life, psychosocial functioning, medication compliance and the patient's perception of symptom severity (103). Self-rating scales are commonly used in PC for screening and/or assessment of severity over time and are considered to be cost-effective, brief, feasible, and easy to use (44, 100, 104-105). Most self-rating scales have been developed from interviewer-rating scales. When observer-ratings are compared with self-ratings, the correlation is modest, reflecting the differences in patients' and clinicians' perceptions of the illness (101, 103). The patient's view provides valuable and complementary information on depressive symptoms, severity, and functional implications in the diagnostic process, thus also supporting clinical decisions and evaluations of treatment outcomes (100, 102, 104-106).

2.10 Screening

PC offers unique opportunities to promote health and well-being, cornerstones in the context of general practice (7). Screening is considered to be secondary prevention aimed at lowering the occurrence and more severe stages of a disease. Screening should identify individuals with a disease at a time where they will benefit from early diagnosis and treatment (107). A screening test is not intended to be diagnostic and a positive finding should be confirmed with special diagnostic procedures (108). Some general principles should be considered before introducing a screening program. Firstly the disease should be an important health problem. It should have a high prevalence in the studied population and be the cause of substantial morbidity and/or mortality. Secondly, the disease should have a detectable preclinical phase. Thirdly, the natural history and course of the disease should be known and adequately understood. This is important when evaluating the balance between benefits and costs of a screening program. Fourthly, there must be effective treatment available. Furthermore, screening programs must be acceptable, safe, easy to implement, and cheap (108-109).

2.10.1 Screening for depression in the elderly in primary care

Preventing mood disorders in the elderly is an important undertaking in PC. Even in their milder forms, depressive disorders cause substantial suffering, including increased risk of morbidity and mortality, both due to suicide and somatic disease. Depression meets most of the above mentioned criteria for

screening: there are serious consequences, it is common, it has a preclinical phase, the natural history is known, and there is effective treatment available.

There are several screening instruments and screening programs available for use in PC. The designs vary but their performances are similar and there is little evidence to support any instrument over the other (110-112). It has been suggested that the choice of instrument should depend on feasibility, administration, time requirement and the ability to monitor severity or response to therapy (112). Most instruments have been validated in general or psychiatric populations and secondarily in the elderly (59). In the elderly, many instruments, including some elderly-specific instruments, have appropriate properties for screening for major depression but they lack accuracy for detection of non-major disorders (27, 42, 52, 68, 113-114). These instruments can be self- or interview administered and the design can be questionnaire with exclusively yes/no answers or also include a grade of severity for each response. They can have preset cut-off points determined in psychiatric context or based on Receiver Operating Curve (ROC) analysis (112, 114).The questionnaires can be used routinely or on clinical suspicion of an ailment within the mental disorder spectrum (111, 115). A positive screen should always be followed up by a semi-structured clinician interview in order to confirm or rule out a diagnosis of depression, based on DSM criteria (116).

GPs have long been recommended to use validated screening and/or self-rating instruments in clinical practice to enhance the recognition of depression. Currently available findings, comprising several studies and meta-analyses, show that screening leads to a modest increase in recognition but fails to yield any consistently positive effects on either younger or older PC patients' management or outcome (32, 116-118). Screening of high-risk groups has been one proposed strategy but no data from randomized trials supports this approach (119). The use of screening instruments alone in routine PC practice has little impact on overall detection, management or outcomes of depression and is not recommended (117). If screening is supplemented with feedback, diagnostic interviews or collaborative care outcome may improve but it remains unclear whether screening is a necessary component of these interventions (111, 117-118).

2.11 Management and treatments of elderly patients with mild and moderate depression in primary care

Most elderly PC patients prefer to receive help for mental problems and emotional distress from their GPs giving PC a strategic position in the management of late-life depression (57, 120-122). In recent years, there has been increasing interest in providing integrated collaborative care, shown to be both generally effective and cost -effective, in managing mental health in PC (123-124). Integrated collaborative care refers to increased involvement of non medical specialists, i.e. PC-based nurses, counselors or psychologists working in close liaison with the rest of the PC team. It also includes collaboration with specialists in psychiatry. All team members contribute to a holistic view and shared understanding of the individual patient (124-125). Treatment goals are symptom decline to remission, prevention of relapse and recurrence, improvement of function and prevention of suicidal ideation (57, 126). Findings of two important studies, the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) (127)and the Prevention of Suicide in Primary Care Elderly Collaborative Trial (PROSPECT) (122), support collaborative care in comparison with "usual care", showing significant reduction of depressive symptoms, suffering and disability in the elderly in PC.

In the Swedish national guidelines for depression, collaborative care is considered to be essential to the management of depressive disorders in PC (128). The organization should offer evidence-based treatment options adapted to and in close collaboration with the patient and his/her needs. In the clinical context, collaborative care should be offered as stepped care, the cornerstones of which are accessibility, continuity and close collaboration and, most important, support from psychiatric health care providers. This organization resembles team-managed care for chronic diseases and includes PC resources such as specialized nurses and behavioral scientists with competence in short-term psychotherapy and psychosocial counseling, as well as educational programs for patients and physicians (128).

Cognitive behavioral therapy (CBT) and *interpersonal therapy* (IPT) are the most common psychotherapies in PC (121, 126). The intention behind CBT is to change thoughts and dysfunctional attitudes, focusing on accomplishments rather than on negative life experiences (120, 129). IPT helps patients break larger problems into smaller components and focuses on grief, interpersonal deficits or disputes and role changes in life (120, 126, 129). *Problem-solving therapy* (PST), focusing on the "here and now" and helping patients function better using their own resources and skills, is

another psychosocial approach in PC (129-130). *Supportive therapy* entails patient education, focus on the patient's concerns, targeting disability problems, frequent follow-ups and accessibility (57, 120, 123, 126).

The pharmacological treatment of choice is selective serotonin reuptake inhibitors (SSRI), recommended to be prescribed with a "start low and go slow" dose titration (57, 126). SSRIs are not more effective than older antidepressants but better tolerated, with fewer side effects, and safer for patients with cardiovascular disease (129, 131). There are no grounds for recommending one SSRI over the other and the prevailing advice to clinicians is to become familiar with one or two SSRIs and use them as first-line medication for most patients (129).Treatment should continue for six months to prevent relapse. Continuous therapy is recommended in cases with recurrent episodes (57, 126, 131).

Different studies have reported different findings regarding the comparison of psychotherapy and antidepressants or combinations of both, making general conclusions difficult (121). For moderate to severe depression, a combination of medication and psychotherapy is considered more efficacious than either form of treatment alone (57, 126, 129-130). For mild to moderate depression there are no major differences in effect between psychotherapy and pharmacotherapy. Psychotherapy should thus be an alternative for elderly patients who cannot or will not tolerate pharmacological treatment (57, 130, 132-135). Along with growing evidence that many elderly prefer psychotherapy, choice of treatment should be based on contraindications, treatment access and patient preferences (124, 135). Self-management, physical exercise and "watchful waiting" are also recommended for mild to moderate depression (126, 129).

2.12 Patient-centered consultation

Many errors in medical practice are due to failure in communication. If the patient is not understood from the beginning, there is an increased risk that investigation and treatment may go wrong. In PC the patients are self-referred and the doctors are available for all types of problems, including psychosocial and complex unexplained symptoms (136-138). In this special context, where the patient and doctor usually know each other, and may have other relationships in common, for example with other family members, communication aims at ascertaining the reason for the encounter and exploring the patient's agenda (137). In this long-standing doctor-patient relationship, the cornerstone of PC, good communication skills, are crucial (136, 139).

It is increasingly regarded as important that doctors adopt a "patient-centered" communication style in the consultation. The primary goal of patient-centered consultation is to establish a clear understanding of the patient's perspective on the problem and to create a therapeutic alliance based on trust and co-operation (139). Patient-centeredness has been described in different ways in the literature. As early as in 1969, patient-centered medicine was described in terms of "understanding the patient as a unique human being" (140) and later as "the physician tries to enter the patient's world, to see the illness through the patient's eyes"(141). A more comprehensive description of the key components in the patient-centered clinical method was presented by Stewart et al in 1995 (142-143). The method encompasses a number of interconnecting domains, one of which is exploration of the patient's experience of disease and illness, probing the patient's ideas and feelings about the problem, effects on function and expectations regarding the consultation. Another domain is trying to understand the whole person, the context in which he/she lives, how life and family have been affected and if he/she feels understood, both emotionally and intellectually. Common grounds for partnership in management should be found, concerning problems, priorities, treatment goals and the patient's and doctor's respective roles. The doctor should promote health, reduce health risks and detect disease early. Enhancing a caring and healing doctor-patient relationship with shared power is also essential in the concept of patient-centeredness, as is being realistic about personal limitations and the availability of time and resources (136, 144).

The patient-centered clinical method is designed to understand the patient's illness at all its levels as well as the disease. There is a distinction between illness and disease; illness is the patient's personal experience of the sensations, feelings, disabilities and the effect the disorder has on activities and relationships at many levels. Disease is the pathological process the doctor uses as an explanatory model for illness, "Illness is what you have when you go to the doctor; disease is what you have when you've seen the doctor"(137).

Both patients and doctors have agendas. The doctor's agenda is to explain the patient's illness in the context of a possible disease. The key to understanding the patient's agenda is the doctor's receptivity to cues offered by him/her , and the doctor's behavior in encouraging him/her to express expectations, feelings and fears (145). Most consultations start with the patient presenting symptoms, which is a form of communication influenced by his/her past experience and culture. This type of indirect communication is common in general practice(137). The aim of the medical interview is to discover the

person behind the symptoms by collecting both verbal and non-verbal information concerning the patient's problem; it does not just consist of asking questions and receiving answers. It is which questions are asked, how they are asked and how the answers are received that will determine if the interview will achieve the goal. The most usual error in medical interviews is the failure to listen, with undivided attention and without interrupting, to the patient's story until the patient is done (137). The scope of this rapport between doctor and patient is also determined by the doctor's empathic skills; how he/she picks up important cues from the patient and interprets them. These "internal" empathic qualities have affective, cognitive and behavioral dimensions which complements the clinical assessments (139).

Every patient who has made an appointment with a physician has some expectations of the visit. They are often related to a concern or a symptom and may be expressed very straight forwardly with a question or a request or in a more unconscious and subtle "by the way" manner (146). Feelings are not always expressed spontaneously by the patient. They are often hidden under the surface and may emerge during the consultation process but must usually be inquired about. Fear is a universal feeling in the doctor-patient interaction. Almost all patients have some fantasy or fear about their illness, how it will be managed and what effects it may have on life. Feelings of fear can be "here and now" or reflect the patient's life experiences and past events (146). The doctor can encourage the patient to express expectations, feelings and fears with open-ended questions, open-ended statements, reflections and confrontations (146).

The quality of the communication between doctor and patient in the consultation is central for patient satisfaction, adherence and longer-term health outcomes (17, 139). Both patients and doctors benefit from good communication skills. Doctors identify patients' problems more accurately and patients are more satisfied with their care and understand their problems and the planned management better (147). Patients also adjust better psychologically, with less distress and less vulnerability to anxiety and depression. In addition, doctors report greater job satisfaction and less work stress (148). In conclusion, an increased patient involvement in expressing concerns and, preferences, as well as participating in medical decisions, has been found to have positive effects on health status, self-management, coping behavior, therapeutic compliance and quality of life (149-151).

2.12.1 Patient-centeredness and older patients

Together with education and increased access to modern information, increased life expectancy will influence living conditions for older people. The traditional view of the elderly is changing and seniors are exhibiting similar preferences for health care as younger people, creating challenges for health care systems (149, 152). The elderly are a very heterogeneous group, differing in their perceptions and needs, as well as in their interest in their own health and ability to participate in medical decisions (149, 152). The definition of "involvement" is to take an active role in decisions and planning related to medical care (153). To facilitate "involvement" patients should be supported in making decisions regarding health care, they should be informed about risks and benefits, be assisted in making informed choices about diagnosis and treatment and be encouraged to share responsibility for their own health (153). Earlier research has shown variability in elderly patients' desire to be involved and participate in medical decisions; not all patients want to participate to the same degree. Several studies have found that the elderly were more likely to prefer a physician-directed style of decision-making, especially when it comes to treatment (154-156), and that preference for an active role in medical decisions seems to decline with increasing age (156). In a large European study of elderly patients preferences concerning involvement, patients were more focused on the patient-centered approach when it came to building a professional relationship and receiving information than in taking an active part in decision making (149).They wanted to be involved in their care, offered choices and asked about their opinions but made a clear distinction between evaluating information and taking responsibility for treatment decisions (149, 157). Emphasis on the importance of receiving good information during consultations was reported in another study (158). Impeding factors for older patients' involvement include feelings of fear, perceived lack of knowledge or understanding, low self-esteem and physical or mental disabilities including, hearing and vision impairment (149, 153-154). In a systematic review, patients with a high degree of preference for involvement were found to be younger, have higher education and higher income (155). In one PC study of older patients with one or more chronic conditions, high preference for involvement was associated with patient enablement, meaning the ability to cope with life and illness (159).

Building a good doctor-patient relationship with clear and open communication, in which the doctor shows interest and, provides information about health conditions as well as on treatment options and prevention seem crucial for elderly patients' preferences in the consultation

with their GPs (149). The desire to participate in decision-making is heterogeneous and may change over time. An individual and flexible approach is recommended, in which the physician devotes major consideration to the patient's autonomy, preferences and goals (149, 153). Facilitating factors for patient involvement are related to both the health care system and the physician and include high accessibility of health care, sufficient consultation time, continuity, the physician's communication skills and the possibility to build a trustworthy relationship (149, 153-155).

3. AIMS OF THE THESIS

3.1 General aims

The aims of this thesis are to explore and describe the difficulties and complexity of detecting and managing elderly patients with milder forms of depressive disorders, which are common in PC, and to study the effect of a patient-centered approach in the consultation.

3.2 Specific aims

Study I

To describe the prevalence of and to explore factors associated with depressive symptoms in an elderly PC population.

Study II

To evaluate the performance of a patient-centered consultation model in detecting depressive symptoms, compared with a validated screening instrument for depression, in elderly PC patients.

Study III

To observe the course of an elderly PC cohort with mild to moderate depression during a two year follow-up and to investigate risk factors and prognostic factors.

Study IV

To determine a clinically useful threshold value for a self-rating instrument when screening for mild to moderate depressive symptoms in older PC patients.

4 MATERIAL AND METHODS

This thesis comprises four quantitative studies, an overview of which is presented in Table 1

Table 1 Methods used in the studies in this thesis.

Study	I	II	III	IV
Design	Observational Cross-sectional	Observational Cross-sectional	Observational Longitudinal cohort study	Observational Cross-sectional
Study groups	Unselected consecutive patients aged ≥ 60 attending the PCC N= 302	Unselected consecutive patients aged ≥60 attending the PCC N= 302	A cohort of patients aged ≥60 with mild to moderate depression N=54	A cohort of patients aged ≥60 participating in a diagnostic interview N=156
Data collection method	Questionnaires Interview with nurse Patient-centered consultation model Medical records	Questionnaires Interview with nurse Patient-centered consultation model	Questionnaires Interview with nurse Patient-centered consultation model Medical records	Questionnaires Interview with nurse Patient-centered consultation model
Data analysis	Descriptive	Comparative	Follow up	Statistical

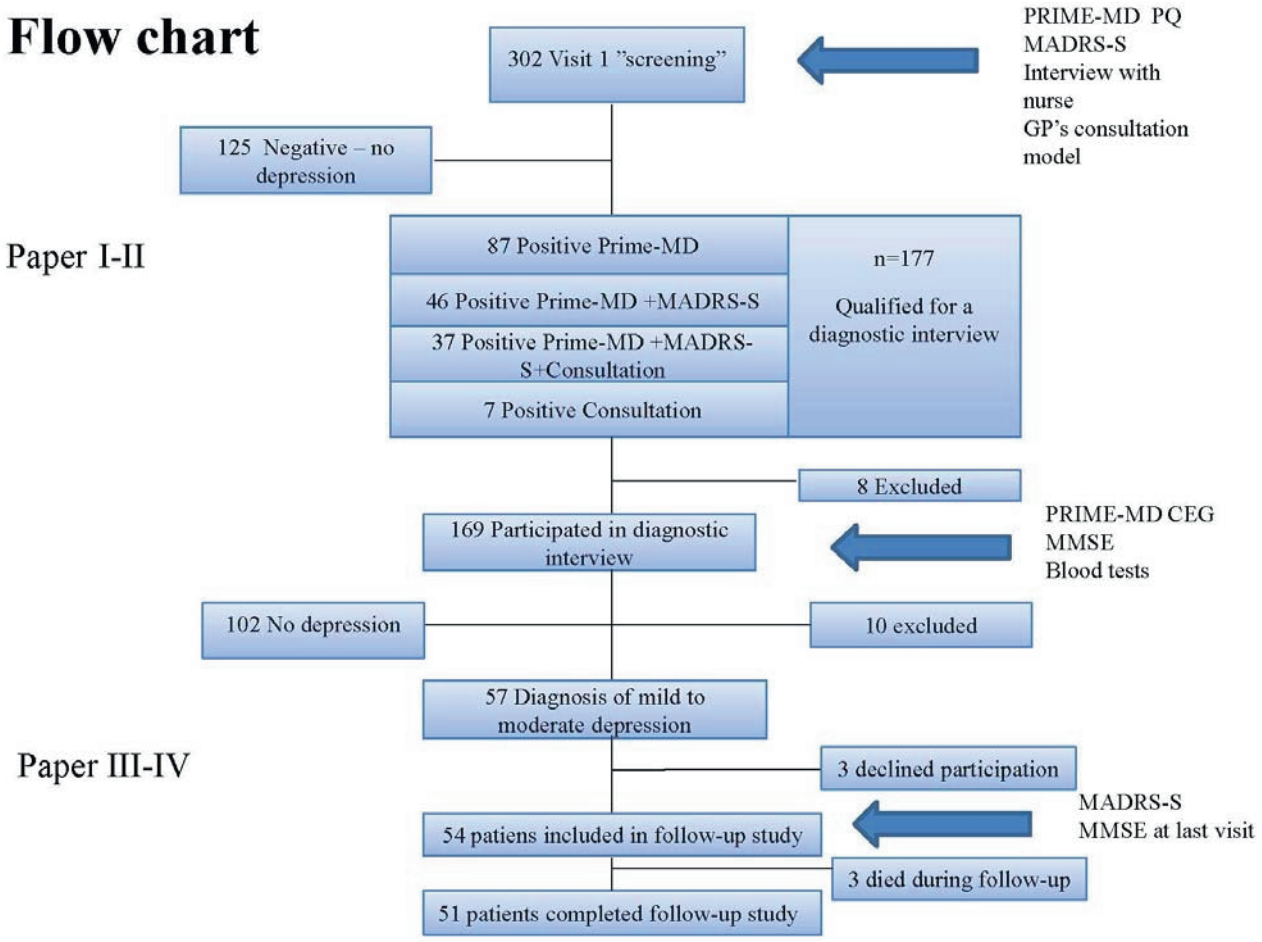
Flow chart
302 Visit 1 "screening"
PRIME-MD PQ
MADRS-S
Interview with nurse
GP's consultation model
125 Negative – no depression
Paper I-II
87 Positive Prime-MD
46 Positive Prime-MD +MADRS-S
37 Positive Prime-MD +MADRS-S+Consultation
7 Positive Consultation
n=177
Qualified for a diagnostic interview
8 Excluded
169 Participated in diagnostic interview
PRIME-MD CEG
MMSE
Blood tests
102 No depression
10 excluded
57 Diagnosis of mild to moderate depression
Paper III-IV
3 declined participation
54 patiens included in follow-up study
MADRS-S
MMSE at last visit
3 died during follow-up
51 patients completed follow-up study

Table 2 Participants; age and gender

	Women, n (%)	Men, n (%)	Total, n (%)
Total participants Mean age	207 (69) 75 SD± 8.2	95 (31) 76 SD± 8,2	302 (100)
Age 60-64 years	24 (12)	11 (12)	35 (12)
Age 65-74 years	65 (31)	27 (28)	92 (30)
Age 75+ years	118 (57)	57 (60)	175 (58)

4.1 Studies (I-IV)

4.1.1 Design

This longitudinal study was essentially naturalistic, reflecting "the real world" of PC. It was conducted as an integrated part of the PCC's and the participating GPs' daily work. No extra time and resources was allocated for the study except for a part-time study nurse during enrollment. The study nurse was subsequently employed at the PCC, making it possible to conduct the follow-ups for two years. Data was collected for all papers using questionnaires, interviews with a nurse, a patient-centered consultation model and medical records. Cross-sectional baseline data was used in all four studies. In Paper III data was also collected from repeated questionnaire assessments during two years.

4.1.2. Setting, subjects, inclusion and exclusion criteria

The study was conducted at Brämaregårdens PCC in Gothenburg, Sweden. The PCC served about 15,000 people at the time of the study. In the Lundby area, where the PCC is situated, the proportion of people aged 65 years and older was 16.3 %, compared with 15 % in the entire city of Gothenburg. The inclusion period was between February and December, 2003. Patients aged 60 and up were asked at the reception desk, consecutively and without selection, to participate in screening for depressive symptoms. Patients with severe psychiatric diagnoses (severe depression, schizophrenia, severe general anxiety disorder, bipolar affective disorder and dementia) were excluded. Patients were divided into three age groups: 60-64 years, 65-74 years and 75 years and up. The intention with including the age group 60 and

up was to study sick leave frequency related to depressive symptoms. Two GPs and a PCC nurse with psychiatric training conducted the study.

4.1.3. Instruments and methods

PRIME-MD

As mentioned above, the PRIME-MD instrument (99) was especially designed for use in PC and covers the most common psychiatric disorders. It was developed with financial support from Pfizer Inc. which also financed its translation to Swedish by Pär Svanborg, MD, PhD.

The instrument has two components: a self-administered Patient Questionnaire (PQ) with yes/no items plus one five-graded (poor, fair, good, very good and excellent) question about perceived general health. Responses to the five-graded question were dichotomized as "good" (good, very good and excellent) and "bad" (fair and poor). The second component is a Clinician Evaluation Guide (CEG) which includes different diagnostic modules used by the GP to follow up positive screens. The PQ includes two screening questions concerning depression (numbers17-18) and three questions concerning anxiety (numbers19-21). Five questions about alcohol and two concerning pain in conjunction with menstruation and coitus were excluded due to previous low response rates (160). Questions 17-21 were used when screening for depression, as anxiety symptoms often occur simultaneously with depression in this age group (73). Answering "yes" to any of questions 17-21 was regarded as a positive screen. Patients also answered questions on somatic symptoms and self-rated health. The module for diagnosing depression in the CEG is a semi structured DSM IV-criteria based-interview, comprising nine yes/no items. The PQ was used in Papers I-II and the CEG was used in Papers III-IV.

MADRS-S

The MADRS-S (161) is the self-rated version of the MADRS (162) and consists of nine items. Patients are instructed to rate symptom severity over the three last days, on a 7-point scale (from 0-6). The variables have four scale steps with the possibility of scoring half steps: 0-1, 2-3, 4-5 and 6 points, respectively, yielding a maximum score of 54. The total scores were calculated and categorized according to the interpretation guidelines indicating that a MADRS-S score of 0-12 points is no depression, 13-19 is mild depression, and 20 points or more is moderate/severe depression (163). A MADRS-S score $\geq$13 was regarded as a positive screen for depressive

symptoms. The MADRS-S was used in Papers I-IV. It is described in the Appendix.

MMSE

The Mini Mental State Examination (MMSE) (164) is a screening instrument for dementia focusing on the cognitive aspects of mental functions. It is divided into two parts, the first of which is a questionnaire covering orientation, memory and attention. The second part tests the ability to name objects, follow verbal and written commands, write a sentence and copy a complex polygon figure. The maximum total score is 30 and patients scoring below 24 points were excluded due to risk of dementia (164). The screening instrument was used in Papers III- IV.

Medical records

All patient contacts, including consultations and telephone contacts with nurses and GPs, were registered in the computerized medical records at the PCC. Data on diagnoses, ongoing medication and number of telephone contacts were manually collected from the records. Diagnoses were registered in the medical records according to the Swedish version of the ICD-10 (165). Sedatives were coded according to the Anatomical Therapeutic Chemical Classification system (ATC) (166) as benzodiazepines (N05B A, N05C D) and non-benzodiazepine sedatives (N05B B, N05C F, N05C M06). Medical records were used in Papers 1 and III.

Laboratory tests

Laboratory tests at inclusion in the follow-up study were taken to rule out somatic conditions such as anemia, cobalamine deficiency, diabetes, thyroid dysfunctions, hyperparathyroidism and infectious diseases (Paper III).

Interview with the nurse

The study nurse interviewed the patients with the aim of covering the most important socio-demographic and other background data associated with risk and prognosis for depressive disorders in the elderly (75). The chosen variables were age, sex, socioeconomic and marital status, social network, leisure activities, history of depression, current treatment for depression, smoking, widowhood, history of serious somatic disease and significant life events during the last year. Marital status was combined into one variable, “having a partner” (defined as married, cohabiting or in daily or almost daily

contact with a special person)(160). A socioeconomic classification system based on the patient's occupation was used (167-168). The data from this interview were used in Papers I-IV.

Patient-centered consultation model

Patient-centeredness is a consultation approach for general practice. Originally derived from England, it is now in extensive international use and is described more thoroughly in the Background chapter of this thesis. The patient-centered consultation model in this study is well-established in Sweden (16). The model is characterized by a chronological, gradual, strategy during the consultation: exploring the patient's view of the illness, a physical examination and a negotiation concerning diagnosis and management. The first step of this model covers a broad range of feelings and concerns about what is causing the illness, elucidated by a series of key questions (169). The GPs used these key questions in the consultation when screening for depression in the elderly (Papers I-IV). Every tenth consultation was audio-taped to certify that the model was implemented according to patient-centered consultation standards. If the patient spontaneously presented at least two criteria-based depressive symptoms, one of which was either "*depressed mood*" or "*loss of interest*" during the consultation, it was regarded as a positive screen for depression (i.e. "possible depression").

Key questions

1. What made you come here today?
2. What do you think your problem is?
3. What do you think caused your problem?
4. Are you worried about anything in particular?
5. What have you tried to do about the problem so far?
6. What would you like me to do about your problem?
7. Is there anything else you would like to discuss today?

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4.2. Procedure, Studies I-II

Patients accepting participation first met the study nurse for an interview and completed the PRIME-MD PQ and the MADRS-S before seeing the GP, who was unaware of the results. During the consultation, the GPs assessed whether or not the patients had a "possible depression" according to instructions. Included patients with a positive screen in the PRIME MD PQ,

the MADRS-S or the consultation were given a new appointment for a diagnostic interview within two weeks.

4.3 Procedure, Study III

The GPs performed the diagnostic interviews, following PRIME-MD CEG guidelines. The definition of mild to moderate depression was the presence of at least two depressive symptoms, one of which must be either "*depressed mood*" or "*loss of interest*". The study nurse conducted the MMSE and laboratory tests in included patients, as well as follow-up assessments of patients with depression, using the MADRS-S at 2, 4 10 and 22 months from baseline. Timing of these follow-ups was adapted to both patients' and the nurse's summer vacations and holidays. The course of depression was defined as *remitting*, *fluctuating* or *stable;* depending on significant changes in the MADRS-S scores (see "Method" in Paper III). The medical records for patients who were assessed as non-depressed were searched for depressive diagnoses (ICD 10; F 32, F33) within two years of the diagnostic interview.

4.4 Procedure, Study IV

In order to determine the optimal MADRS-S cut-off point for detecting mild to moderate depression in this population, sensitivity/specificity and a ROC curve were calculated for different MADRS-S scores, compared with the diagnostic status according to the PRIME-MD CEG. The optimal cut-off score was defined as the point on the ROC curve where the sum of the corresponding sensitivity/specificity pair reached a maximum.

4.5 Statistical analysis, Papers I-IV

For Papers I-IV the statistical analyses were performed using the EPI Info statistics program, version 3.3.2 (Centers for Disease Control, Atlanta, Ga). Furthermore the SPSS-PC version 18 was used for Paper IV.

Descriptive statistics were used to describe the population in Paper I. Fisher's exact test was used when there were differences in proportions (between men and women for variables with small samples in the 2x2 table). The Student's t-test was used when analyzing differences in continuous data and the Mann-Whitney test was used if data was skewed. Unconditional multivariate logistic regression was used for studying characteristics in Paper I. MADRS-S score $\geq$13 was the dependent variable and independent variables were different factors at baseline. Age, gender, "having a partner" and social network were independent variables except when they were the event of

interest. When analyzing diagnoses and medication, perception of good health was added as an extra independent variable.

Sensitivity and specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated for the consultation model and the PRIME-MD PQ, with two cut-off levels for MADRS-S ($\geq$13and $\geq$20) as the reference (Paper II).

Unconditional multivariate logistic regression tested the association between different factors at baseline and the diagnosis of depression according to the DSM IV. Two years later, the different factors at baseline were tested with logistic regression using MADRS-S score $\geq$13 as the dependent variable. Adjustment for age and gender were included as independent variables in all logistic regressions (Paper III).

Estimating test performance and the optimal MADRS-S cut-off score in relation to a DSM IV diagnosis of depression was calculated in a ROC analysis (Paper IV).

4.6 Ethical considerations

Ethical approval for the studies was granted by the Regional Ethical Review Board in Gothenburg, Sweden (Dnr 055-03). Ethical principles based on the Helsinki declaration were followed. All patients received both verbal and written information about the study aim and procedures. All participants gave written informed consent and they were informed that they could withdraw from the study at any time for any reason without any consequences concerning care. A data file was set up and each patient was numbered: the link between number and personal information was only known to the main researcher. All participants were informed that information concerning them would be handled confidentially and that no information would be traceable to a single individual.

5 RESULTS

5.1 Patient characteristics (Paper I)

All 302 patients aged 60 and up who attended the PCC during the study period agreed to participate (participation rate 100%). The population consisted of 207 women with a mean (standard deviation (SD)) age of 75 (8.2) years and 95 men with a mean (SD) age of 76 (8.2) years. The group aged 60-64 years was the smallest (n=35) and that aged 75 years and up was the largest (n=175). There were 92 patients in the group aged 65-74 years. Most patients were skilled and unskilled workers. None of the patients aged 60-64 years were on sick leave.

The point prevalence of depressive symptoms, defined as a MADRS-S score $\geq$13 at baseline, was 15 % (n=46) and most common in the youngest age group. There were no significant differences between the high- and the low-score groups when it came to socioeconomic status, previous telephone contacts or common medical diagnosis in the elderly. The use of sedatives/hypnotics was significantly associated with higher MADRS-S scores. Seventy percent of the patients scoring MADRS-S $\geq$13 used benzodiazepines and/or other sedatives/hypnotics on a regular basis.

A previous history of depression, widowhood and a significant life event were risk factors for scoring MADRS-S $\geq$13. Several somatic symptoms i.e. gastrointestinal problems, fatigue, insomnia, back pain and dizziness were associated with scores above threshold value (MADRS-S $\geq$13) and “having a partner”, leisure activities and perceiving one’s health as good were associated with scores below the threshold value.

Table 3 Age and socio-economic status for all patients and for patients with MADRS-S score ≥13.

Characteristic	All patients			MADRS-S score ≥13		
	Women n (%)	Men n (%)	Total n (%)	Women n (%)	Men n (%)	Total N (%)
Age, years						
60-64	24 (12)	11 (12)	35 (12)	8 (33)	3 (27)	11 (31)
65-74	65 (31)	27 (28)	92 (30)	11 (17)	3 (11)	14 (15)
75>	118 (57)	57 (60)	175 (58)	17 (14)	4 (7.0)	21 (12)
Total participants	207 (69)	95 (31)	302 (100)	36 (17)	10 (11)	46 (15)
Socio-economic group[a]						
I[b]	6 (3.0)	3 (3.2)	9 (3.1)	2 (33)	0 (0)	2 (22)
II[c]	78 (39)	41 (44)	119 (40)	10 (31)	2 (5)	12 (10)
III[d]	117 (58)	50 (53)	167 (57)	23 (20)	8 (16)	31 (19)

[a] Missing data for seven patients, N=295
[b] Comprising large-scale employers and officials of high or intermediate rank.
[c] Comprising small-scale employers, officials of lower rank and foremen.
[d] Comprising skilled and unskilled workers.

Table 4 Prevalence of diagnoses and medications in all patients and prevalence of patients with MADRS-S score ≥ 13 in diagnosis/medication groups.

Variable	All patients (N = 302)			MADRS-S score ≥13 (n = 46)		
	Women n (%)	Men n (%)	Total, n (%)	Prevalence n %	OR (95 % CI)	p Value
Diagnosis						
Diabetes**	28 (14)	24 (25)	52 (17)	10 (19)	1.5 (0.62 to 3.5)	.39
Hypertension	70 (34)	37 (39)	107 (35)	17 (16)	1.2 (0.58 to 2.4)	.65
Ischemic heart disease	35 (17)	24 (25)	59 (20)	4 (6.8)	0.4 (0.11 to 1.1)	.07
Arrhythmia	15 (7.2)	10 (11)	25 (8.3)	1 (4.0)	0.3 (0.04 to 2.3)	.24
Stroke	16 (7.7)	12 (13)	28 (9.3)	2 (7.1)	0.4 (0.09 to 2.0)	.29
Depression (episodic and chronic)	35 (17)	11 (12)	46(15)	13 (28)	1.7 (0.75 to 3.8)	.21
Psychiatric disease NOS	10 (4.8)	7 (7.4)	17 (5.6)	6 (35)	3.0 (0.88 to 10)	.08
Hypothyroidism***	42(20)	4 (4.2)	46 (15)	7 (15)	0.8 (0.32 to 2.2)	.71
Medication						
Drugs for cardiovascular disease	123 (59)	65 (68)	188 (62)	23 (12)	0.5 (0.26 to 1.1)	.08
Antidepressants	38 (18)	13 (14)	51 (17)	13 (26)	1.6 (0.70 to 3.5)	.27
Sedatives, benzodiazepines	58 (28)	21 (22)	79 (26)	23 (29)	2.7 (1.3 to 5.6)	.0053
Sedatives, non-benzodiazepines	62 (30)	23 (24)	85 (28)	23 (27)	2.8 (1.4 to 5.8)	.0042
Lipid-lowering*	29 (14)	22 (23)	51 (17)	2 (3.9)	0.2 (0.04 to 0.90)	.036

*p< .05 statistically significant difference in prevalence between women and men

**p< .01 statistically significant difference in prevalence between women and men

***p< .0001 statistically significant difference in prevalence between women and men

Table 5 Prevalence of social network, lifestyle factors, history of depression and perception of health in all patients and prevalence of patients with MADRS-S score ≥13 in the different groups

Variable	All patients (N = 298)[a]			MADRS-S score ≥13 (n = 46)		
	Women n (%)	Men n (%)	Total N (%)	Prevalence n (%)	OR ((95 % CI)	p Value
"Having a partner" ***	77 (37)	61 (66)	138 (46)	13 (9.4)	0.4 (0.19 to 0.80)	.01
Widowed during last year*	12 (5.8)	1 (1.1)	13 (4)	7 (54)	6.0 (1.72 to 20.8)	.0048
Social network	179 (87)	81 (88)	260 (87)	38 (15)	0.5 (0.19 to 1.20)	.12
Leisure activities	173 (84)	75 (82)	248 (83)	29 (12)	0.2 (0.08 to 0.41)	< .0001
Somatic disease during last year	56 (27)	21 (23)	77 (26)	11 (14)	0.9 (0.43 to 2.0)	.85
Significant life events during last year*	98 (48)	32 (35)	130 (44)	35 (27)	4.3 (2.03 to 9.0)	.0001
History of depression	70 (34)	24 (26)	94 (32)	27 (29)	3.5 (1.77 to 6.82)	.0003
Current treatment for depression	40 (19)	12 (13)	52 (17)	12 (23)	1.4 (0.66 to 3.11)	.37
Perception of good health	103 (50)	58 (63)	161 (54)	7(4.3)	0.1 (0.05 to 0.30)	< .0001
Smoker	31 (15)	14 (15)	45 (15)	12 (27)	1.2 (0.51 to 2.86)	.66

[a]Missing data for four patients (1 woman and 3 men)
*p < .05 statistically significant difference in prevalence between women and men
***p < .001 statistically significant difference in prevalence between women and men

Table 6 Prevalence of symptoms according to the PRIME- MD PQ and their correlation to MADRS-S score ≥13.

Symptom	All patients (N = 302) Women n (%)	Men n (%)	Total n (%)	MADRS-S score ≥13 (n = 46) Prevalence n (%)	OR (95 % CI)	p Value
Stomach ache*	48 (23)	13 (14)	61 (20)	16 (26)	2.3 (1.1 to 4.7)	.025
Back pain***	106 (51)	25 (26)	131 (43)	29 (22)	2.3 (1.2 to 4.6)	.015
Joint ache in arms and legs	153 (74)	62 (65)	215 (71)	36 (17)	1.3 (0.6 to 2.9)	.49
Headache	53 (26)	23 (24)	76 (25)	16 (21)	1.3 (0.6 to 2.7)	.44
Chest pain	54 (26)	26 (27)	80 (27)	17 (21)	2.0 (1.0 to 4.0)	.047
Dizziness	68 (33)	36 (38)	104 (34)	24 (23)	2.6 (1.3 to 5.1)	.0045
Fainting	3 (1.4)	0 (0)	3 (1)	0 (0)		
Palpitations*	61 (30)	15 (16)	76 (25)	20 (26)	2.5 (1.3 to 5.1)	.007
Dyspnea	59 (29)	25 (26)	84 (28)	23 (27)	3.4 (1.7 to 6.7)	.0004
Constipation or diarrhea	57 (28)	21 (22)	78 (26)	20 (26)	2.7 (1.4 to 5.4)	.0038
Indigestion	56 (27)	24 (25)	80 (27)	17 (21)	1.6 (0.8 to 3.2)	.185
Fatigue or loss of energy	144 (70)	60 (63)	204 (68)	44 (22)	12 (2.9 to 53)	.0006
Insomnia / hypersomnia	88 (43)	38 (40)	126 (42)	30 (24)	3.1 (1.6 to 6.1)	.001
Change of appetite [a]	12 (5.8)	2 (2.1)	14 (5)	8 (57)	16 (3.4 to 72)	.0004
Loss of interest in activities*	103 (50)	33 (35)	136 (45)	38 (28)	8.1 (3.5 to 19)	< .0001
Feelings of depression*	98 (47)	32 (34)	130 (43)	42 (32)	19 (6.4 to 55)	< .0001
Anxiety*	84 (41)	29 (31)	113 (37)	36 (32)	7.0 (3.3to 15)	< .0001
Worries about a lot of things*	73 (35)	21 (22)	94 (31)	34 (36)	8.8 (4.1 to 19)	< .0001
Sudden feeling of panic	24 (12)	9 (9.5)	33 (11)	20 (61)	14 (5.9 to 33)	< .0001

[a] Loss of appetite or increased appetite

* $p < .05$ statistically significant difference in prevalence between women and men

*** $p < .0001$ statistically significant difference in prevalence between women and men

5.2 Patient-centered consultation (Paper II)

The properties of the patient-centered consultation model and the PRIME-MD PQ were calculated using the MADRS-S as a reference. The patient-centered consultation model exhibited moderate sensitivity and specificity, 78% and 81%, respectively, at the cut-off point MADRS-S $\geq$ 13. At the cut-off point MADRS-S $\geq$20, the sensitivity and specificity were 93% and 75%, respectively. Ten patients of 46 scoring $\geq$13 on MADRS-S were not identified by the GPs in the clinical consultation.

At the lower MADRS-S cut-off point, the screening questions for depression in the PRIME-MD PQ had sensitivity and specificity rates of 98% and 54%, respectively. At the higher MADRS-S cut-off point, sensitivity was 93% and specificity was 48%. Adding the questions about anxiety to the depression questions in the PRIME MD PQ increased the sensitivity, but not the specificity, at both MADRS-S cut-off points.

The PPV was higher for the patient-centered consultation model than for the PRIME-MD PQ and 85 patients of 302 patients (28 %) were assessed as having a possible depression, compared with 162 of 302 patients (54%) with the PRIME-MD PQ. NPV was high both for the consultation model and for the PRIME-MD PQ at both MADRS-S cut-off levels.

Table 7 Test characteristics for the PRIME-MD PQ and patient-centered consultation; depressive symptoms defined by the reference MADRS-S score $\geq$13.[a]

	Sensitivity %	Specificity %	PPV %	NPV %
Consultation, GP's assessment	78 (66-90)	81 (76-86)	43(32-53)	95 (93-98)
Prime-MD 17-18	98 (94-100)	54 (48-60)	28 (21-35)	99 (98-100)
Prime MD 17-21	100	52 (45-58)	27 (20-33)	100

[a] Prevalence of depressive symptoms was 15%.

5.3 The two-year follow-up (Paper III)

A total of 177 patients screened positive with any of the three screening methods. Two patients died (of somatic causes in close connection to screening), two were hospitalized for somatic illness and four declined participation. Thus, 169 participated in a diagnostic interview (see flowchart). Ten patients were excluded due to other psychiatric diagnoses, including dementia. Fifty-seven patients were assessed as having a diagnosis of mild to moderate depression: the point prevalence of mild to moderate depression was 19 % (57/302). Three patients declined further participation and the remaining 54 patients, 41 women and 13 men, were included in the follow-up study. During the two-year follow-up, 51 patients completed five MADRS-S assessments, including the baseline assessment. There was a reduction in the median MADRS-S scores and a remitting, stable or fluctuating course was seen in 29%, 49% and 22% respectively. Concerning choice of treatment, antidepressants were initiated in 25 patients, 22 patients wanted more frequent follow-ups with their GPs, four patients wanted psychological treatment and three patients preferred a combination of antidepressants and psychological treatment. Of the included 54 patients, 23 reported depressive symptoms as the reason for the consultation. The reasons for the remaining 21 patients were distributed as follows: follow-up of chronic disease (n=6), musculoskeletal symptoms (n=7), gastrointestinal symptoms (n=4) and "miscellaneous" (n=14).

Factors associated with a depressive diagnosis at baseline were "not having a partner", widowhood, significant life events, lacking leisure activities, a history of depression and use of sedatives/hypnotics. Back pain and fatigue were symptoms associated with depression. For every additional reported somatic symptom in the PRIME-MD PQ, the odds ratio (OR) for a depressive diagnosis increased (OR 1.4, 95% CI 1.2-1.6, $p<0.0001$). Lacking leisure activities at baseline was associated with depressive symptoms (MADRS-S $\geq$13) two years later. Of the 102 patients who were not assessed as having a depression, the medical records during the same follow-up period showed that 76 did not have a registered depressive diagnosis; 11 had ongoing antidepressant medication, suggesting a chronic course of depression: and a new episode of depressive diagnosis was registered for 13. One patient died and one patient developed dementia during the follow-up period and was not evaluated.

Table 8 Factors and symptoms at baseline associated with baseline prevalence of depressive diagnosis according to the DSM-IV (PRIME-MD) (N=156)

Variable	OR	95% CI	p -value
”Having a partner”	0.41	0.20-0.85	.02
Have not become widowed during last year	0.11	0.02-0.57	.009
No leisure activities	3.4	1.4–8.2	.006
No significant life event during the last year	0.32	0.15-0.67	.0025
No history of depression	0.40	0.19-0.80	.0099
Perception of good health	1.5	0.94-2.3	.09
Socio-economy	1.0	0.56-1.9	.94
Medication			
Sedatives, benzodiazepines	2.0	1.0-4.0	.051
Sedatives, non-benzo-diazepines	3.8	1.9-7.8	.0002
Lipid-lowering medication	0.48	0.17-1.4	.17
Symptoms			
Stomach ache	1.2	0.56-2.6	.65
Back pain	2.1	1.0-4.3	.041
Chest pain	1.6	0.76-3.2	.22
Dizziness	1.2	0.61-2.4	.60
Palpitations	1.5	0.72-3.1	.28
Dyspnea	1.1	0.53-2.3	.79
Constipation or diarrhea	1.4	0.69-2.9	.35
Fatigue or loss of energy	4.4	1.5-13	.009
Insomnia/hypersomnia	1.5	0.76-2.9	.25
Change of appetite	2.6	0.65-10	.18

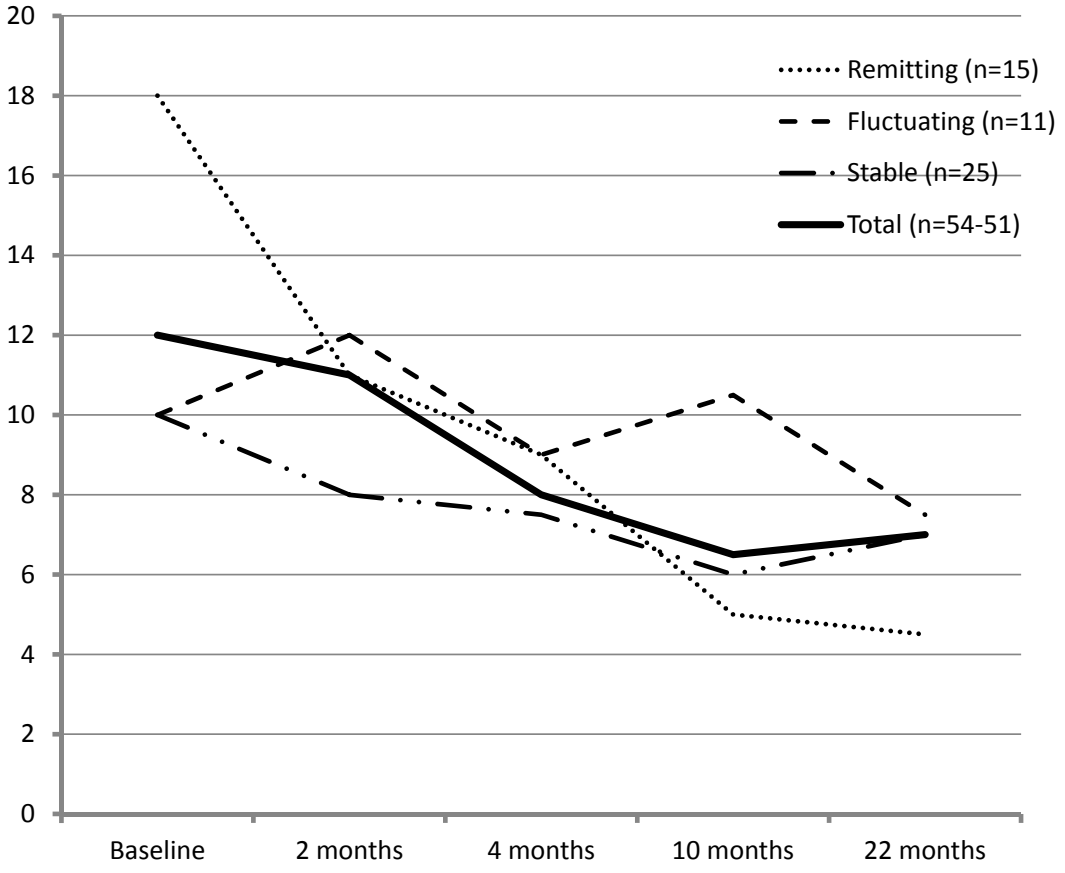
Table 9 Factors and symptoms at baseline predicting prevalence of depressive symptoms two years later, defined by MADRS-S score ≥ 13 (N=51)

Variable	OR	95% CI	p -value
”Having a partner”	1.7	0.30-9.6	.55
No leisure activities	12	1.1-136	.041
No significant life event during the last year	0.51	0.05-5.2	.57
No history of depression	0.17	0.02-1.6	.12
Perception of good health	1.9	0.52-6.7	.34
Socio-economy	0.43	0.09-2.0	.29
Medication			
Sedatives, benzodiazepines	1.1	0.20-5.6	.94
Sedatives, non benzo-diazepines	2.8	0.47-17	.26
Lipid-lowering medication	3.8	0.11-133	.47
Symptoms			
Stomach ache	0.9	0.14-5.7	.90
Back pain	0.65	0.11-3.9	.64
Chest pain	0.43	0.07-2.6	.36
Dizziness	1.6	0.32-7.6	.58
Palpitations	0.98	0.19-5.0	.98
Dyspnea	0.80	0.13-4.8	.81
Constipation or diarrhea	0.96	0.15-6.1	.97
Insomnia/hypersomnia	2.0	0.34-12	.44
Change of appetite	1.3	0.11-15	.84

Table 10 Reasons for initial visit

Variable	Total N =54 (%)
Check-up of chronic disease	6 (11)
Musculo-skeletal symptoms	7 (13)
Depressive symptoms	23 (43)
Gastrointestinal symptoms	4 (7)
Miscellaneous	14 (26)

Figure 2. Median MADRS-S scores



5.4 Evaluation of the MADRS-S (Paper IV)

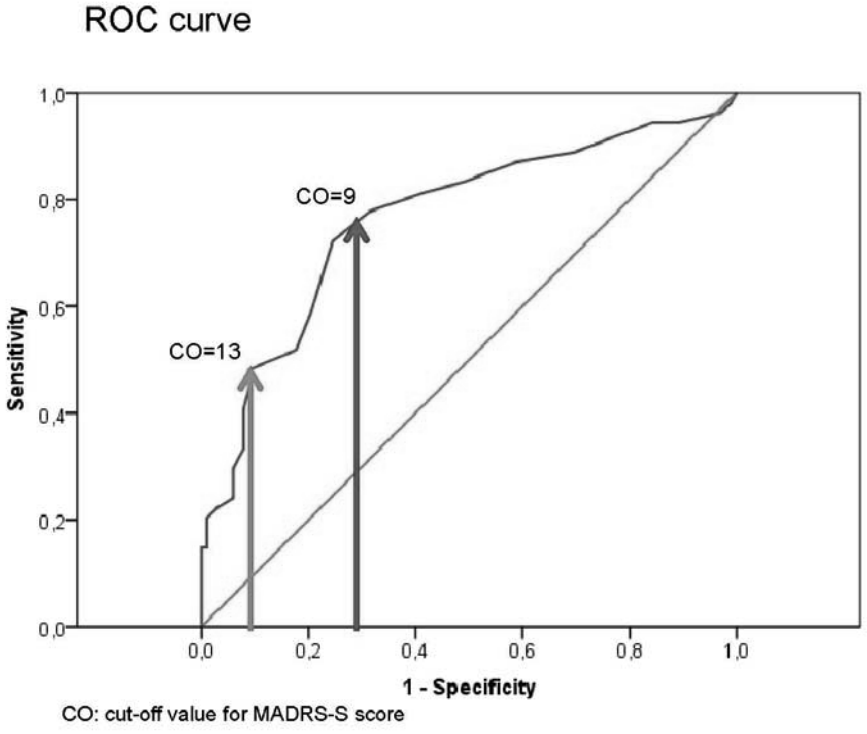
Twenty-six of 54 patients (48 %) with mild to moderate depression had MADRS-S scores ≥13, yielding a sensitivity of 48 % and a specificity of 91 % for this instrument, using a pre-determined cut-off value. The ability of the MADRS-S to discriminate mild to moderate depression from no depression on the individual level in this population was examined by calculating the area under the ROC curve, using data from the 156 patients accepting participation who were not subsequently excluded. The area under the ROC curve was 0.77, (95% CI 0.68-0.85). The optimal MADRS-S cut-off point was determined to be 8/9, as sensitivity and specificity were 77% and 69 %, respectively. Using the post-hoc ROC curve cut-off value, MADRS-S ≥9, 42 of 54 patients (78%) with mild to moderate depression were correctly identified.

Table 11 Age, socioeconomic status and MADRS-S scores for all patients

All patients N= 156

Characteristics	Women (n=119) n (%)	Men (n=37) n (%)
Age, years		
60-64	16 (13)	4 (11)
65-74	38 (32)	9 (24)
75+	65 (55)	24(65)
Socioeconomic group*		
I [a]	4(3)	0 (0)
II [b]	45 (39)	15 (41)
III [c]	68 (58)	22 (59)
MADRS-S≥13	29 (24)	6 (16)
MADRS-S <13	90 (76)	31 (84)
Depressive diagnosis n=54	41 (35)	13 (35)

* Missing data for 2 women (n=117)
[a]Comprising large-scale employers and officials of high or intermediate rank.
[b]Comprising small-scale employers, officials of lower rank and foremen.
[c]Comprising skilled and unskilled workers.



CO: cut-off value for MADRS-S score

6 DISCUSSION

Summary

In this unselected elderly PC population, all patients agreed to participate in different screening procedures for depressive symptoms. The point prevalence of depressive symptoms, defined as a MADRS-S score ≥13 at baseline, was 15 % and the point prevalence of mild to moderate depression, according to the DSM IV, was 19 %. Several psychosocial factors and somatic symptoms were significantly associated with MADRS-S scores ≥13. Patients with ongoing treatment for depression and patients who perceived that they were in good health did not have elevated scores. Patients in the high-score group had considerably more somatic complaints than those scoring below the cut-off point but there were no differences between these groups in the frequency of visits or telephone contacts prior to inclusion. The MADRS-S was used as a reference when comparing the psychometric properties of the PRIME-MD PQ and the patient-centered consultation model in screening for mild to moderate depression in this population. The sensitivity of the PRIME-MD PQ was higher than that of the consultation model but the PPV was lower, yielding a high number of false positives. The consultation model had lower sensitivity and failed to identify every fifth patient but the PPV was higher, reducing the required number of diagnostic interviews by almost 50%, compared to PRIME-MD PQ. Both procedures had high NPVs, indicating excellent properties in ruling out depressive symptoms. The PRIME-MD CEG was used in the diagnostic interview and patients assessed as having mild to moderate depression were followed-up for two years. Several assessments with the MADRS-S were made during follow-up. While mean MADRS-S scores declined over time, half of the patients had a stable course, almost one third had a remitting course, and the rest had a fluctuating course. The characteristics of patients at risk of mild to moderate depression corresponded with those of patients with MADRS-S scores above the cut-off point. The variable “lacking leisure activities” was also a prognostic factor for poor outcome in the follow-up. A majority of patients reported various reasons, including somatic symptoms, for the initial encounter and there was an increased risk of depression for every additional somatic symptom reported by the patients in the PRIME-MD PQ. The MADRS-S instrument exhibited limited accuracy in screening for mild to moderate depression with a preset cut-off value. A post-hoc ROC curve analysis cut-off value increased the performance of the instrument and the ability to distinguish mild to moderate depression from no depression.

6.1 Methodological considerations

All papers derived from a longitudinal study and each paper had its own design.

Study I was a descriptive study of an elderly population in an urban area of Gothenburg. Recruiting patients consecutively with few exclusion criteria led to a high inclusion rate. Many patients had had active contact with the PCC for years and can thus be considered representative for a PC population in the area. In the unconditional multivariate logistic regressions, the outcomes were adjusted for age, gender, "having a partner" and social network, based on the assumption that these factors are possible confounders for depressive symptoms in the elderly. When diagnoses and medication were the focus of interest, we also added "perception of good health" as a possible confounder. The analysis showed the respective associations of the different variables with depressive symptoms. The use of cross-sectional data did not allow any cause-effects interpretations (170). The high participation rate and the demographic characteristics suggested that the findings were representative of Gothenburg and that they may also be generalized to an urban Western European population. One nurse with psychiatric competence performed the screening procedures and interviewed all patients, which may have been beneficial for data collection consistency. The interview with the nurse covered most factors that might have influenced the onset of depressive symptoms. It is possible that these factors might have been elucidated even more if we had also used a validated general health questionnaire focusing on function and perceived health in association with depressive symptoms.

Study II was a comparative study. Assessment of the psychometric properties of a screening procedure for depression should be compared with a "gold standard", at present a diagnostic interview according to the DSM IV(44). A weakness of this study was that we did not perform a diagnostic interview with all patients during the first visit and that we used a MADRS-S score above a preset cut-off point as the reference when evaluating the psychometric properties of the PRIME-MD PQ and the consultation model. A MADRS-S score above the cut-off point indicated a depressive disorder but the diagnosis had not yet been verified. The accuracy of rating scales, regardless of whether they are interviewer-rated or self-rated, is difficult to determine, as there is no "gold standard"(104). The interviewer-rated MADRS and the self-rated MADRS-S are considered to be complementary, as correlations are only moderate to good, indicating that the patients' and the physicians' perceptions of the disease differ. It is unclear whose perceptions are more valid (101-104).The patients were screened with the PRIME-MD

PQ and the MADRS-S before seeing the GPs, which may have affected results by making them more willing to address depressive symptoms during the consultation. The key questions in the consultation model did not comprise any specific question on depression, which may have been a limitation. On the other hand, GPs perceiving patients to be "psychiatric cases" was shown in one study to be a valid marker for major depression in PC patients (115). In another study, the use of a "help" question, similar to one of our key questions, improved detection rates (171). Every tenth consultation was audio-taped and the tapes were evaluated by an independent researcher to minimize the risk of preconceptions and to certify that the model was used according to patient-centered consultation standards. Another limitation of this study was the low number of participating GPs and that we did not compare GPs using and not using the consultation model.

Study III was an observational longitudinal study with frequent follow-ups of patients with mild to moderate depression during two years. The use of three screening procedures for depressive symptoms, minimizing the risk of missing patients with a depressive disorder during enrollment, and the fact that very few patients withdrew from the study were strengths. A positive screen was followed up with a diagnostic interview, using the PRIME-MD CEG, within two weeks from the initial encounter, which may have affected the results since the instrument is designed to be completed during the initial consultation. Using the two-staged PRIME-MD instrument on one occasion is sometimes considered to be too time-consuming to be clinically useful and it is common in research to complete the PRIME-MD on one occasion and to perform the diagnostic follow-up interview at a later date (172-173).This later follow-up may be beneficial for patients with milder depressive disorders, increasing the possibility to reconsider and re-examine symptom severity, thus avoiding over-diagnosis (4).The fact that we did not perform any diagnostic interviews during follow-up, making it difficult to assess remission, recovery and symptom duration, was another weakness in this longitudinal study. Furthermore, other prognostic factors might have been revealed if we had performed diagnostic interviews during the last encounter. Our definition of the different course patterns, based on median MADRS-S scores, was an observational undertaking, not analyzed with formalized statistics. The small sample size and the use of mean MADRS-S scores to describe the course, due to solitary outliers' disrupting interpretation, are other limitations.

The longitudinal design yielded a dynamic view of the condition over time. Furthermore, multiple follow-ups better reflect the course of depressive symptoms, compared to fewer follow-ups (58). It is possible that quality of

life assessments, now recommended in follow-up studies, would have reflected functional outcomes (e.g. emotional recovery, well-being and functional status), in addition to symptom-based outcomes (174-175).

Study IV was a post-hoc ROC curve analysis determining the optimal MADRS-S cut-off point for acceptable sensitivity and specificity rates in this population. A systematic review showed that most studies based their sensitivity and specificity calculations on cut-off points determined by post-hoc ROC curve analysis, possibly overestimating test performances, compared to studies using preset cut-off points (114).The choice of cut-off point depends on the purpose and in which context or population the instrument is to be used (176). One limitation of the ROC curve analysis is that there is always a "tradeoff" between sensitivity and specificity at the expense of specificity. Utility aspects concerning who will be missed and who will be detected require consideration (176).

Screening instruments

In this thesis, the PRIME-MD PQ was chosen for screening because it is brief, easily self-administered with yes/no alternatives and starts out with several somatic symptoms, common in the elderly, that we wanted to study in association with depressive symptoms. It is not designed especially for the elderly but studies have shown test characteristics to be stable in different age groups (110).The exclusion of the questions regarding alcohol is a limitation of this study, as they might have revealed additional information about this population had they been included. The current version of the Swedish PRIME-MD instrument refers to 28 questions in the PQ, whereas there were 26 questions in the original version. We used the original 26-question version. The statement in the Methods section in Papers I and II that a 28-question version was used is thus erroneous. However, this did not affect the numbering of the questions included in the studies. The PRIME-MD CEG thresholds for a diagnosis of minor or major depression were 2-4 and $\geq$ 5 symptoms, respectively, following DSM IV criteria (99, 177). In this thesis, the definition of mild to moderate depression was based on the ICD-10 classification system. Since the ICD-10 and the DSM IV classification systems are not identical, we defined mild to moderate depression as corresponding to minor depression and major depression of medium severity.

The MADRS-S instrument served two purposes in this thesis, screening and follow-up. It was chosen for its briefness, psychometric properties, acceptability to patients and sensitivity to change (102-105). Both the GPs and the nurse were familiar with the instrument. The MADRS-S closely

follows the DSM criteria for depression and focuses on core psychiatric depressive symptoms. It contains few somatic items and can measure depressive symptom severity independently from personality (101, 161, 178). As it does contain few somatic items, the instrument is less sensitive to physical disease, which is common in the elderly. Applying the MADRS-S in an elderly population may therefore be advantageous when assessing milder forms of depression with overlapping somatic symptoms (179). A limitation of this instrument is that it is not designed to identify minor or sub-threshold disorders (161).

The most common screening instrument for depression in the elderly in PC is the Geriatric Depression Scale (GDS) (180). We decided not to use this scale for several reasons. Although it has good properties for screening for major depression, it lacks accuracy when screening for non-major depressive disorders, our focus of interest (114). Several of the somatic symptoms that we wanted to study in association with depression were not covered by GDS items and the diagnostic reliability of the Swedish PC version (GDS-20) is considered to be uncertain (1).

6.2 General discussion

For many years there has been a focus on improved detection and management of elderly patients with depressive disorders, even in milder forms, because of the elevated risk for serious consequences, including increased mortality related to suicide, somatic illness and cognitive impairment (2, 46, 181). A majority of older patients who commit suicide have seen a GP one month prior to their death (182). Today, there are effective treatment options available and management can be adapted to resources, individual values and preferences. Detecting and managing mood disorders in the elderly are important preventive issues in PC, in order to increase function and quality of life as well as decrease costs for and demands on health care systems (75). Findings from these studies may contribute to the understanding of both the onset and the course of milder forms of depressive disorders in elderly PC patients, which may in turn increase the possibility of prevention, early detection, diagnosis and appropriate management.

The study population and the PCC

Most patients who were asked to participate in the studies were familiar with the PCC. Very few patients met the exclusion criteria; they were either well known or attended psychiatric care. The participating GPs were experienced

and had worked many years at this particular PCC. It is possible that the patients' familiarity with both the PCC and the GPs contributed to the 100 % participation rate. Another explanation for the high participation rate was that several patients expressed a genuine interest in participating in a "local" study. A high participation rate was also seen in another PC study of similar design (171), and the willingness to participate may also reflect the acceptance of the diagnosis of depression, as seen in other studies (125). The high participation rate and the demographic characteristics suggest that our findings are representative of Gothenburg and may also be generalized to a general urban Western European population. Both GPs had been involved in supervising medical students and were well acquainted with the patient-centered consultation model used in the studies. They were both women and one is the author of this thesis, which may have affected the patient-centered consultation outcomes, due to special interest in the subject.

Despite the fact that depressive symptoms were most common in the age group 60-64 years, none of the patients were on sick leave, making it impossible to study sick leave frequencies. There was a 30-year age span in the population, reflecting a substantial heterogeneity in the term "elderly". The patients' living conditions are probably very diverse and some baseline variables may be more or less relevant for the individual, depending on age. Many factors are not only associated with age but also related to changes in society. With higher life expectancy there is an increasing number of elderly who have higher education, are more physically and mentally active, and are expected to work longer, indicating that assessing "functional age" rather than chronological age may be important in the future (93). Even if the age group 75+ was the largest in this population, results might have been different and more age-specific with a larger number of patients in each age group and if age groups had been evaluated separately. More women than men participated in the study, as has been seen in other studies, possibly due to women's higher life expectancy and more frequent PCC visits (94, 183). The classification system on which the socioeconomic evaluation was based is old but still in use (167-168). A majority of patients belonged to socioeconomic groups II and III, and strikingly few women, equally distributed among socioeconomic groups II and III, had been homemakers and thus classified according to their husbands' occupations.

Prevalence

Calculating the point prevalence of depressive symptoms, using cross-sectional MADRS-S scores $\geq$13 at inclusion, did not reveal whether it represents the early or late stages of a more severe depression, reactions to

upsetting life events, or symptoms of medical illness (184). However, the point prevalence of mild to moderate depression, calculated after the diagnostic interview, may be more accurate. The higher point prevalence of mild to moderate depression was probably due to the application of three different screening methods during enrollment, minimizing the probability of missing patients with any depressive symptoms. These findings correlate well with earlier studies, although there is a diversity of prevalence rates in the literature, depending on methodology and diagnostic criteria (29).

Risk factors and prognostic factors

We found that both female gender and history of depression were risk factors for MADRS-S scores above the cut-off point and for a diagnosis of mild to moderate depression. Cross sectional studies on risk and prognostic factors limit cause-effect interpretations. A recent meta-analysis suggests that some of the studied variables might be more clear-cut risk factors (e.g. female gender), while other conditions might be both risk factors for and a consequence of mild to moderate depression (75). This should be considered when interpreting our finding that the variable "leisure activities" was associated with MADRS-S scores $\geq$13 at baseline as well as with a diagnosis of mild to moderate depression. However, it was also a prognostic factor for MADRS-S scores $\geq$ 13 after two years. Our interest in leisure activities, defining as "participating in at least one stimulating activity outside the home" was merely based on clinical experience. When asked about decreased interest/pleasure, one of the core symptoms of depression, many patients answered quite distinctly that they had stopped participating in any activities outside home, activities that they had used to enjoy. There are additional dimensions to outside activities, including the effort of leaving home and the social dimension of meeting other people. Stimulating and pleasurable activities at home are obviously also of interest, but possible interactions with diminished interest in other daily life activities may lead to less specific evaluation. The variable "having a partner" was developed during the inclusion period because many elderly people preferred to live separately, but nonetheless considered themselves to be partnered. As one of the participating women said, "I like spending time or traveling with him but I still want a place of my own". "Not having a partner" was associated with both depressive symptoms and a diagnosis of mild to moderate depression. Being unmarried has previously been shown to be associated with sub-threshold depression in late life (75).

"Significant life events during the last year" was associated with both depressive symptoms and a diagnosis of mild to moderate depression,

whereas somatic illness during the last year was not. Distinguishing somatic illness from significant life events was aimed at targeting psychological stressors in the context of life events. We did not use any specific questionnaire for this assessment, but the nurse was instructed to inquire about events affecting quality of life such as illness in the family, separations, deaths and interpersonal problems outside or within the family. Many of these life events are known risk factors for depression in the elderly and for suicide (185-186). Replacing the question "How are you?" with "How is your family?" may help GPs explore the role of family factors in late-life depression. Supporting our findings, a longitudinal follow-up study in Finland showed that several psychosocial factors such as life events, changes in close relationships and giving up hobbies were related to the occurrence of depression, in both men and women (187).

Most patients perceived their own health as "good"; this was associated with significantly decreased MADRS-S scores at baseline, and there was no association with either depressive diagnosis or depressive symptoms after two years. The variables "having leisure activities", "having a partner" and perceiving one's health to be "good" may be protective factors against mild to moderate depression and promoters of well-being in the elderly. This may be important information for both health care systems and the community. Older people use less health and social services if they have higher levels of emotional, social and psychological well-being (188). Poor self-rated health predicts depression (189). Perception of health, one of the main factors influencing overall well-being, was defined as "being able to continue doing the things they had always done" in one recent study on people aged >65 (188). Efforts aimed at investigating the needs and interests of older people and encouraging them to maintain and develop their social activities and networks may improve health and function and minimize the risk of depressive disorders (188). A recent meta-analysis on psychosocial interventions for prevention of depression in older adults showed that social activities significantly reduced depressive symptoms, compared to non-intervention controls (190).

The use of sedatives and hypnotics

The frequent use of sedatives and hypnotics and the strong association with both elevated MADRS-S scores and depressive diagnosis were "eye-openers" for the two participating GPs. In addition to known side effects including cognitive impairment and ataxia, leading to falls and fractures, this may also indicate under-recognition and/or poor management of depression and anxiety, as has been shown in earlier studies (191).In a study on associations between benzodiazepine use and mental disorders in older PC patients, many users suffered from depressive and/or anxiety disorders and had been using benzodiazepines for years (191).In the Västra Götaland region in western Sweden, increasing attention is being focused on changing prescription patterns regarding sedatives/hypnotics for older patients and financial incentives have been introduced to encourage PCCs to follow guidelines. Gradual tapering off of medication, psychological interventions and SSRI prescription have proven effective in discontinuing long-term benzodiazepine use and are recommended whenever possible, in order to improve functioning (192).

The presentation of somatic symptoms

In PC, patients are essentially unselected and single somatic symptoms are the primary reason for more than 50% of the visits (193-194). Somatic symptoms as the reason for the encounter are sometimes considered to be "a ticket into the system" (34). Assessing whether a physical complaint is due to somatic illness or a depressive disorder is a complicated diagnostic dilemma for GPs (194). In the elderly, who usually have somatic co-morbidities, this is especially difficult. There is some evidence, both from qualitative and quantitative studies, that GPs believe all other causes of somatic symptoms, especially fatigue and anorexia, must be ruled out prior to considering a depressive diagnosis (69).

Earlier PC studies have found that only 25-30% of the patients with depression present purely depressive symptoms as the reasons for attending (69, 194). In this study, almost half of the patients reported depressive symptoms as the reason for the encounter, which may reflect the interactions between the patients and the GPs. It is possible that longstanding professional relationships made the patients more willing to communicate and reveal symptoms of psychological distress. This is supported by findings from a study in which the probability of a somatic presentation of depression was higher in "drop-in" settings, compared with those in which the physician had a professional relationship with the patients (34).

Associations between somatic symptoms and depression in the elderly have been reported previously (69-71, 193). This supports our findings that several somatic symptoms were associated with elevated MADRS-S scores and some (e.g. back pain and fatigue) with a depressive diagnosis as well. Some symptoms associated with high MADRS-S scores (e.g. chest pain, palpitations and dyspnea) may reflect concurrent anxiety, which is closely associated with depression, especially in the elderly (75). The overall risk for a depressive diagnosis increased with every additional somatic symptom reported, as seen in other studies (194-195). It has been suggested that if GPs adopt a more "inclusive approach" and suspect a depressive diagnosis whenever several and unexplained somatic symptoms are presented, especially repeatedly, interventions might prevent a more severe and chronic course of the illness (69, 194-196).

Patient-centered consultation and screening for depression

There is growing evidence that patients who are encouraged to participate more actively in their own medical care have better outcomes (149). A review on interventions involving older people in PC showed some positive effects on specific methods but none that could be recommended for daily practice (153). The structured patient-centered consultation model used in our study in screening for depressive symptoms was aimed at exploring the patients' expectations, feelings and fears about the reasons for the encounter, encouraging active participation in the consultation. Our key questions are well integrated in the consultation model and can target any medical problem. Irrespective of the presented problems, they may disclose symptoms of psychological distress meeting the criteria for a depressive disorder. The GPs were concerned that the key question "Is there anything else you would like to discuss today?" might reveal problems that could not be solved within consultation time limits. Instead, this question seemed to be important in enabling the expression of psychological distress, thus contributing to the assessment of core depressive symptoms. In his "A Textbook of Family Medicine", Ian McWhinney (137) calls this the "exit problem" or the "doorknob comment ", as patients often leave the most sensitive problem, usually the main reason for the consultation, to the last.

Balancing true positives with true negatives (e.g. sensitivity and specificity) in a screening procedure is important. In the case of the consultation model, sensitivity and specificity rates were moderate but the balance between them was better than for the PRIME-MD PQ. To be of clinical use, especially in PC, sensitivity and specificity should be complemented with PPV and NPV. PPV is the probability that the disease is present if the test is positive and

NPV is the proportion of those testing negative that are truly disease-free. Both PPV and NPV are highly dependent on the prevalence of the disease, as well as on sensitivity and specificity (170). A low prevalence will yield low PPV and high NPV, increasing the number of false positives but favorable for identifying non-depressed patients (4).This was seen in our study, both for the consultation model and the PRIME-MD, when the higher MADRS-S cut-off point was applied and the prevalence was low. At the lower MADRS-S cut-off point, the prevalence rose and the number of false positives was still high for the PRIME-MD, but it was reasonable for the consultation model, decreasing the number of diagnostic follow-ups by almost 50 %. In the case of depression, it has been hypothesized that there is a tipping point at a prevalence of 27 % where the number of false positives meets the number of false negatives, underlining the impact of prevalence on detection rates (4). Both the PRIME-MD and the consultation model had excellent properties in ruling out depressive symptoms at both cut-off levels, supporting earlier findings that many screening instruments are better suited for exclusion than for inclusion purposes (76, 110).

A recent meta-analysis assessed GPs' clinical diagnosis of depression in routine PC practice, unaided by severity scales, diagnostic instruments or educational interventions (4).The weighted diagnostic sensitivity was 50.1 % and the weighted diagnostic specificity was 81.3 %; at a prevalence of 21.9 %, the PPV was 42 % and the NPV 85.8 %. In comparison, the sensitivity for the consultation model in our study was higher and the PPV was about the same at a prevalence of 15 %. At the lower cut-off level for the MADRS-S, the consultation model missed one in five patients. At the higher cut-off level, indicating more severe depressive symptoms, the consultation model failed to identify one in ten patients. The finding that more severe cases are identified more reliably than less severe cases is consistent with other studies (197-198). Diagnostic sensitivity has been suggested to be improved with a better therapeutic relationship, familiarity and contact with the patients, as well as with increasing experience in the GP (4, 198). The GPs in our studies were experienced, had long-standing professional relationships with many of the participating patients and had offered continuity of care for many years. This, together with the GPs' awareness of the studies' aim, may have contributed to the relatively high detection sensitivity rates for the consultation model. The question of whether it is the consultation model or the GPs' ability to "sniff out" depressive symptoms that was actually measured in this study can be discussed. Alone or in combination with two questions on depression a question resembling one of the key questions was asked in a PC study aimed at detecting depression: "is this something with which you would like help?" Sensitivity and specificity rates for this question

alone were 75 % and 94 %, respectively (171). Another more recent study, using this same "help" question found no corresponding increase in sensitivity but findings did suggest that the "help" question could facilitate discussion about mood disorders and their management in the PC context (199).

The PRIME-MD and screening for depression

We found that the PRIME-MD PQ had some limitations in screening for depressive symptoms in this elderly PC population. Although sensitivity and NPV rates were high for the depression questions as well as for the combination of the depression and anxiety questions, specificity and PPV were low, resulting in a high number of false positives, as also seen in other studies (110, 171). Screening instruments with high false positive rates are not feasible or cost-effective for use in PC, as they create huge workloads in the follow-up process. The participants in our studies seemed to be comfortable filling out the questionnaire (PQ) and all answers were interpretable. Early on, Spitzer et al recognized several limitations of the two-staged PRIME-MD instrument for use in clinical practice. The instrument has been altered to a single self-administered questionnaire, the PRIME-MD Patient Health Questionnaire (PHQ), in which the response categories are expanded to measure severity with the ability to monitor outcomes over time, resembling other self-rating instruments more (172). However, the PRIME-MD CEG seemed to be a valuable tool for diagnostics in primary care.

The MADRS-S in clinical practice

The MADRS-S was originally presented as one of three subscales from the psychiatric Comprehensive Psychopathological Rating Scale, Self-Affective (CPRS-S-A). The cut-off point for mild depression was set at $\geq$13, based on clinical psychiatric observations and two normal samples (163). In recent years, this cut-off point has been lowered to $\geq$12 (179). Many patients in these studies did not reach the MADRS-S cut-off level of $\geq$13 for mild to moderate depression. Almost twice as many patients had a positive screen for depression in the PRIME-MD PQ, to which they responded first. Our suggested explanation is that grading symptom severity with the MADRS-S made the patients reassess their perception of the reported depressive symptoms in the PRIME-MD PQ, as if they were thinking, "Maybe I don't feel so bad after all". The nurse identified a few questions that seemed more difficult for the patients to answer. One of them was about "pessimism", which has two dimensions in Swedish, one regarding the future and one relating to guilt. This was confusing and required clarification by the nurse.

This confusion was also seen in the original MADRS-S study (200). The question concerning "zest for life" made some of these elderly patients feel uncomfortable.

The MADRS-S exhibited limited properties as a screening instrument for depressive symptoms in this elderly population when the preset cut-off point of≥13 was applied according to the original guidelines. Only about half of the patients with mild to moderate depression had MADRS-S scores ≥13, indicating that this cut-off level may be too high in this population. When a post–hoc ROC analysis cut-off value was applied, the MADRS-S performance increased, but there was still a risk of missing patients suffering from clinically significant depressive disorders. Our findings suggest that the MADRS-S may not be useful for screening for mild to moderate depression in elderly PC patients, regardless of whether preset or post-hoc cut-off values are applied. This is in accordance with the recommendations that wating-room screening should not be undertaken in PC (1, 117).

However, using the MADRS-S in the follow-up study seemed feasible and useful for evaluating treatment outcomes. None of the patients withdrew during follow-up, indicating high acceptance, which was also seen in another study (103). Asking patients to rate their perception of depressive symptoms over time also increased their opportunity to participate more actively in treatment and management decisions, key components in the definition of "patient involvement" (153).This might also have improved the patients' ability to identify separate symptom components, increasing their understanding of their illness (104). Although the MADRS-S is not developed for use in PC and does not address older people specifically, the self-rating scale may be useful in supporting clinical decisions and be of therapeutic value by involving patients in follow-up assessments (1, 102).

Course of depression

Studying the course of mild to moderate depression might help identify the patients most at risk of persistent depression. The strategy of dividing patients into subgroups based on the type of course might provide important signals indicating when to intervene (201). In these studies over almost two years, we found three patterns of depressive symptoms. The first pattern consisted of median baseline MADRS-S scores substantially over the cut-off point, with a marked remitting course. These patients had probably responded well to their choice of therapy and maybe considered not to be at risk of a persistent depression. Interpretations should be cautious for the stable and fluctuating course types, for which median MADRS-S scores did not reach

the pre-set cut-off value at any assessment which is normal to guidelines. Nonetheless, these patients were assessed as having a clinically significant mild to moderate depression at the diagnostic interview. Possible reasons for this discrepancy are that the MADRS-S instrument, originally developed for psychiatric care, is not valid in this population and that the recommended cut-off value was too high. Patients not reaching the median cut-off level might have had a "depression without sadness"(62), thus not captured by MADRS-S, or persisting sub-threshold symptoms " waxing and waning" within the same spectrum of depressive disorder. In addition MADRS-S is not a diagnostic instrument. These patterns may require special attention since the specific characteristics of individuals in the different groups are unknown. We do not know who will have an increased risk of persistent depressive symptoms or who will have a self limiting course. However, a recent study (PROSPECT) of course patterns suggests that patients who are unmarried, aged under 70 years and have several co-morbidities may need special attention for improvement of depressive symptoms, as they are at increased risk of persistent depressive symptoms and poor long-term outcomes (201).

The total median MADRS-S scores declined and it is possible that the follow-up encounters and continuity per se may have prevented milder forms of depression from deteriorating in this cohort, an effect seen in other studies (202). The observed change could also be due to the regression towards the mean phenomenon (203). Despite these declining scores, almost 20 % had a chronic course, defined as having MADRS-S scores $\geq$13 at 80 % or more of the observations, indicating that the prognosis is generally poor in this sub-group, findings confirmed by other studies (90, 204).

Is depression over-diagnosed?

GPs can both overestimate and underestimate depressive symptoms and it is unclear which is most problematic in routine clinical practice (4, 198). While there is longstanding debate about GPs' under-detection of depression in PC, some authors argue instead that depression in PC is over-diagnosed. The condition is heterogeneous and GPs have implemented psychiatric diagnostic methods in response to symptoms that may resemble those of a depressive disorder but that mainly emanate from normal problems in everyday life (205). In the international discussion, there is a conflict between those finding it important to diagnose milder forms of depressive disorders in the elderly, in order to increase quality of life, and those advocating cautiousness in diagnosing and treating disorders that may be natural adaption to age. The latter fear that the side effects of treatment with modest efficacy (e.g. medication) can worsen rather than improve the situation for the aging person

(2, 205).The risk of overestimation of depressive symptoms is highest in those with known risk factors for depression. The clinical significance of over-recognition is highly dependent on what happens after the diagnosis, i.e. does the GP initiate treatment, "watch and wait" or re-assess? (4). In order to increase the rate of correct diagnosis and improve overall quality of care, GPs should adopt a stepped care approach, with repeated re-assessments of patients suspected of having depression, a core approach in the PC context (4, 33, 205-206).

"Gold standard"

A "gold standard" is the best and most accepted reference method to establish the presence or absence of a disease or illness (207). "Gold standard "and "the truth" are not always the same. Recently, there has been a discussion on the validity and relevance of DSM IV criteria in a PC context. The criteria were developed based on the demands of psychiatric care. The resulting categorical approach in which the psychiatric syndromes are distinct from one another, does not cover all categories of clinically significant depressive disorders, especially sub-threshold disorders which are frequent in PC and in the elderly (4, 46). There is emerging consensus on viewing depressive disorders as a continuum, agreeing on clinical continuity between very mild and more severe depressive disorders that may share characteristics, onset variables as well as functional and psychosocial consequences (46, 50, 75). Moving towards a more dimensional approach to diagnostics, as proposed in the DSM V, and diagnosing depressive disorders using DSM criteria may be more clinically meaningful for PC physicians.

Management of depression in primary care

It has been suggested that, rather than spending time on screening procedures, GPs should focus on improving the care of those who have already been identified as well as on the sub-groups of depressed patients most vulnerable to recurrent episodes (208-209). There are several available evidence-based treatment and management options with similar outcomes (210). Since the majority of elderly individuals with mood disorders are diagnosed and treated in PC, the important question is how available resources should best and most cost-effectively be organized in PC to meet the need of both patients and professionals (211). In effectively managing depressive disorders in the elderly, PC settings can be visualized as a ship where all crewmembers must collaborate, contribute and strive in the same direction to deliver professional and high-quality care. Continuity, accessibility and collaborative care are key components in improving quality of care, outcome, patient

satisfaction and adherence (2, 128). Continuity of care involves stepped, collaborative team care models, including integration of psychiatry specialists in conjunction with self-management adapted to individual patient preferences, needs and values (128, 212-215). High accessibility for a first assessment is essential in the management of mood disorders (128, 210-211). In recent years there has been a focus on accessibility in Swedish PC, leading to improved telephone systems and an increasing number of short "drop-in" visits. It is not obvious that these "improvements" benefit the elderly with depressive disorders. Patients may be reluctant to address a mood disorder during short consultations, especially if they lack a professional relationship with the GP (35) and the telephone may be a barrier due to difficulties in hearing and following instructions. A majority of people aged 65 years or older have one or more chronic illness and the health care system must balance unscheduled "drop-in" visits with planned management of chronic illness (216). In improving the care of patients with depression, chronic care models may be beneficial for long-term management of selected groups (208). These models include linkage with community-based resources, self-management support, decision-making support from evidence-based guidelines and proactive teamwork with feed-back systems within the PCC (216). Offering the patient a special "contact person" may be one way to secure accessibility, continuity and trust.

7. CONCLUSION

Most elderly patients with milder forms of depression are seen and managed in primary care. They are important to recognize since these conditions are associated with increased mortality and morbidity related to suicide, somatic illness and cognitive impairment. Several treatment options are available. Increasing function and quality of life and preventing the development of more serious or chronic courses of depression are key issues for primary care. Knowledge of risk factors, prognostic factors and course, implementation of a structured patient-centered consultation model, and adjustment of screening or rating instruments' cut-off values may be helpful for GPs in detecting, assessing and managing depressive disorders in elderly primary care patients.

8. FUTURE PERSPECTIVES

Comparison of a larger number of GPs using the structured patient-centered consultation model at different PCCs with GPs not using the model is one challenge for the future. This would hopefully elucidate the implications of the patient-centered approach for detection, management, adherence to treatment, course, and outcome as well as patient involvement, quality of life, and perceived health. Another future perspective is the introduction of a proactive and preventive approach in close collaboration with the community, investigating the needs and preferences of elderly individuals to create opportunities for developing and/or maintaining social activities, networks and continuing “doing the things they have always done” (188).

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APPENDIX

MADRS-S
(självskattningsskala)

Namn **Ålder** **Datum**

Genom att besvara följande nio frågor kan du och din läkare få en detaljerad bild av hur du mår och om du har symtom, som är typiska för depression. Genom att lägga ihop den "poäng" du får på frågorna får du och din läkare en bild av graden av depression. Sätt en ring runt siffran som du tycker bäst stämmer med hur du mått de senaste tre dagarna. Använd gärna mellanliggande alternativ. Tänk inte allt för länge, utan försök arbeta snabbt.

1. Sinnestämning
Här ber vi dig beskriva din sinnesstämning, om Du känner dig ledsen, tungsint eller dyster till mods. Tänk efter hur Du har känt dig de senaste tre dagarna, om Du har skiftat i humöret eller om det varit i stort sett detsamma hela tiden, och försök särskilt komma ihåg om Du har känt dig lättare till sinnes om det har hänt något positivt.

0 Jag kan känna mig glad eller ledsen, alltefter omständigheterna.
1
2 Jag känner mig nedstämd för det mesta, men ibland kan det kännas lättare.
3
4 Jag känner mig genomgående nedstämd och dyster. Jag kan inte glädja mig åt sådant som vanligen skulle göra mig glad.
5
6 Jag är så totalt nedstämd och olycklig att jag inte kan
tänka mig värre.

2. Oroskänslor
Här ber vi dig markera i vilken utsträckning Du haft känslor av inre spänning, olust och ångest eller odefinierad rädsla under de senaste tre dagarna. Tänk särskilt på hur intensiva känslorna varit, och om de kommit och gått eller funnits nästan hela tiden.

0 Jag känner mig mestadels lugn.
1
2 Ibland har jag obehagliga känslor av inre oro.
3
4 Jag har ofta en känsla av inre oro som ibland kan bli mycket stark, och som jag måste anstränga mig för att bemästra.
5
6 Jag har fruktansvärda, långvariga eller outhärdliga ångestkänslor.

3. Sömn
Här ber vi dig beskriva hur bra Du sover. Tänk efter hur länge Du sovit och hur god sömnen varit under de senaste tre nätterna. Bedömningen skall avse hur Du faktiskt sovit, oavsett om Du tagit sömnmedel eller ej. Om Du sover mer än vanligt, sätt din markering vid 0.

0 Jag sover lugnt och bra och tillräckligt länge för mina behov. Jag har inga särskilda svårigheter att somna.
1
2 Jag har vissa sömnsvårigheter. Ibland har jag svårt att somna eller sover ytligare eller oroligare än vanligt.
3
4 Jag sover minst två timmar mindre per natt än normalt. Jag vaknar ofta under natten, även om jag inte blir störd.
5
6 Jag sover mycket dåligt, inte mer än 2-3 timmar per natt.

4. Matlust
Här ber vi dig ta ställning till hur din aptit är, och tänka efter om den på något sätt skiljt sig från vad som är normalt för dig. Om Du skulle ha bättre aptit än normalt, sätt din markering vid 0.

0 Min aptit är som den brukar vara.
1
2 Min aptit är sämre än vanligt.
3
4 Min aptit har nästan helt försvunnit. Maten smakar inte och jag måste tvinga mig att äta.
5
6 Jag vill inte ha någon mat. Om jag skulle få någonting
i mig, måste jag övertalas att äta.

5. Koncentrationsförmåga

Här ber vi dig ta ställning till din förmåga att hålla tankarna samlade och koncentrera dig på olika aktiviteter. Tänk igenom hur Du fungerar vid olika sysslor som kräver olika grad av koncentrationsförmåga, t ex läsning av komplicerad text, lätt tidningstext och TV-tittande.

0 Jag har inga koncentrationssvårigheter
1
2 Jag har tillfälligt svårt att hålla tankarna samlade på sådant som normalt skulle fånga min uppmärksamhet (t ex läsning eller TV-tittande).
3
4 Jag har påtagligt svårt att koncentrera mig på sådant som normalt inte kräver någon ansträngning från min sida (t ex läsning eller samtal med andra människor).
5
6 Jag kan överhuvudtaget inte koncentrera mig på någonting.

6. Initiativförmåga

Här ber vi dig försöka värdera din handlingskraft. Frågan gäller om Du har lätt eller svårt för dig att komma igång med sådant Du tycker Du bör göra, och i vilken utsträckning Du måste övervinna ett inre motstånd när Du skall ta itu med något.

0 Jag har inga svårigheter med att ta itu med nya uppgifter.
1
2 När skall jag ta itu med något, tar det emot på ett sätt som inte är normalt för mig.
3
4 Det krävs en stor ansträngning för mig att ens komma igång med enkla uppgifter som jag vanligtvis utför mer eller mindre rutinmässigt.
5
6 Jag kan inte förmå mig att ta itu med de enklaste vardagssysslor.

7. Känslomässigt engagemang

Här ber vi dig ta ställning till hur Du upplever ditt intresse för omvärlden och för andra människor, och för sådana aktiviteter som brukar bereda dig nöje och glädje.

0 Jag är intresserad av omvärlden och engagerar mig i den, och det bereder mig både nöje och glädje.
1
2 Jag känner mindre starkt för sådant som brukar engagera mig. Jag har svårare än vanligt att bli glad eller svårare att bli arg när det är befogat.
3
4 Jag kan inte känna något intresse för omvärlden, inte ens för vänner och bekanta.
5
6 Jag har slutat uppleva några känslor. Jag känner mig smärtsamt likgiltig även för mina närmaste.

8. Pessimism

Frågan gäller hur Du ser på din egen framtid och hur Du uppfattar ditt eget värde. Tänk efter i vilken utsträckning Du ger självförebråelser, om Du plågas av skuldkänslor, och om Du oroat dig oftare än vanligt för t ex din ekonomi eller din hälsa.

0 Jag ser på framtiden med tillförsikt. Jag är på det hela taget ganska nöjd med mig själv.
1
2 Ibland klandrar jag mig själv och tycker jag är mindre värd än andra.
3
4 Jag grubblar ofta över mina misslyckanden och känner mig mindervärdig eller dålig, även om andra tycker annorlunda.
5
6 Jag ser allting i svart och kan inte se någon ljusning. Det känns som om jag var en alltigenom dålig människa, och som om jag aldrig skulle kunna få någon förlåtelse för det hemska jag gjort.

9. Livslust

Frågan gäller din livslust, och om Du känt livsleda. Har Du tankar på självmord, och i så fall, i vilken utsträckning upplever Du detta som en verklig utväg?

0 Jag har normal aptit på livet.
1
2 Livet känns inte särskilt meningsfullt men jag önskar ändå inte att jag vore död.
3
4 Jag tycker ofta det vore bättre att vara död, och trots att jag egentligen inte önskar det, kan självmord ibland kännas som en möjlig väg.
5
6 Jag är egentligen övertygad om att min enda utväg är
att dö, och jag tänker mycket på hur jag bäst skall gå tillväga för att ta mitt eget liv.

Lägg samman poängen från *båda sidor* av formuläret och ange summan i rutan