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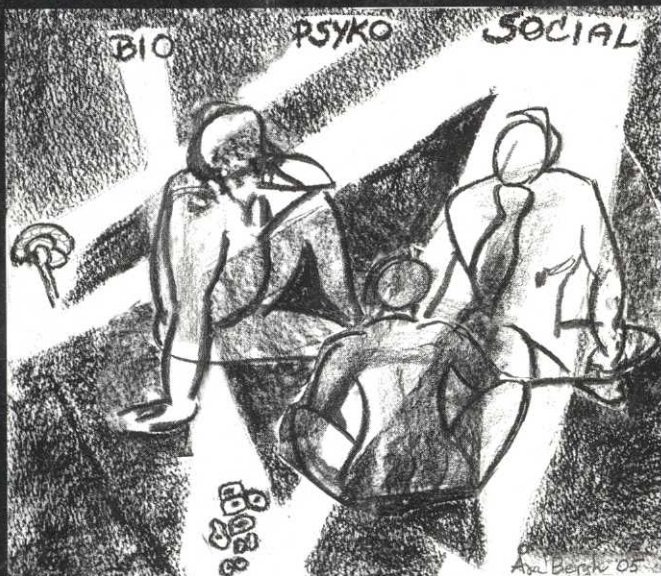


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FREQUENT ATTENDERS IN PRIMARY HEALTH CARE

– a vulnerable patient group seen from a biopsychosocial perspective

Håkan Bergh



Göteborg 2005



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Frequent attenders in Primary Health Care

- a vulnerable patient group seen from a biopsychosocial perspective

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- II. Bergh, H. Baigi, A. Marklund, B. Consultations for injuries by frequent attenders are found to be medically appropriate - from general practitioners' perspective. *Scand J Public Health* 2005;33:228-32.
- III. Bergh, H. Baigi, A. Fridlund, B. Marklund, B. Life events, social support and sense of coherence among frequent attenders in Primary Health Care. *Accepted for publication in Public Health.*
- IV. Bergh, H. Baigi, A. Månsson, J. Mattsson, B. Marklund, B. Predictive factors for long-term sick leave and disability pension among frequent and normal attenders in Primary Health Care over five years. *Submitted*



Frequent attenders in Primary Health Care – a vulnerable patient group seen from a biopsychosocial perspective.

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Department of Primary Health Care, Göteborg University, Göteborg, Sweden.

Abstract

Introduction - The small number of the population who make disproportionately greater use of health care are called frequent attenders (FAs). This group, or 3-5% of the population, account for 15- 25% of all visits to general practitioners (GPs). They have, besides more chronic diseases, often a combination of medical, social and psychological problems. Is the high consulting frequency explained by FAs' comprehension of and way of coping with illness or do they, due to an increased vulnerability, contract diseases more often? No consistent explanation for FAs' high consulting frequency has yet been found.

Aim - The overall aim of this thesis was to describe and explore the phenomenon of frequent attenders in primary health care from a biopsychosocial perspective with special focus on vulnerability.

Material and methods – Among 341 frequent attenders and 1 025 controls divided by age and sex, data about consultation rate, diagnoses, prescribed medicine, referrals and certificates of illness, were gathered from the medical records during one year. All consultations concerning injuries were evaluated regarding the medical appropriateness of consulting a doctor or not. A questionnaire battery comprising scales of socio-demographic variables, stressful life events, social support and sense of coherence (SOC) was sent to the participants. The influence of each variable on frequent attendance was then determined. Based on data covering a five-year period from the National Health Insurance register concerning sick leave and disability pension, the influence of each variable on long-term sick leave and disability pension was estimated.

Results – FAs' morbidity in different age and sex groups was similar to that of the controls, but they had a higher consulting frequency for most medical problems. There was no difference concerning medically appropriate consultations for injuries between FAs and controls, although injuries were 7.2 times more common among FAs. SOC had a significant influence on frequent attendance, while stressful life events and social support did not. FAs were found to be a high-risk group for long-term sick leave and disability pension and, here, stressful life events was the only predictive factor.

Conclusions – The age- and sex-specific morbidity of FAs is similar to the rest of the population but significantly increased. Although their consulting frequency was very high, FAs' consultations were medically appropriate. A weak SOC, which is supposed to indicate a reduced ability to handle stresses of life, distinguished FAs from controls and supported the finding that stressful life events predicted a bad prognosis regarding long-term sick leave and disability pension. The findings from this thesis all point in the same direction – that FAs are a vulnerable group of patients.

Key words – Frequent attenders, primary health care, diagnoses, injuries, medically appropriate consultations, stressful life events, social support, sense of coherence, sick leave, disability pension.

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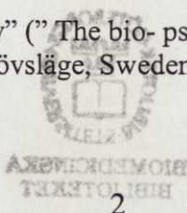
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Front cover

“Bio-psyko-socialt perspektiv” (“The bio-psycho-social perspective”) 2005,
by Åsa Klerfalk Bergh. Träslövsläge, Sweden.



*To my family
Åsa
Linda, Wiktor and Pontus*

..... liksom man ej bör försöka att bota ögonen utan att bota huvudet, ej heller bota huvudet utan att också bota kroppen, så får man ej söka bota kroppen utan att taga själen med: och orsaken till att de hellenska läkarna misslyckas med så många sjukdomar var just detta att de ej toge den hänsyn till det hela som man måste ta, då det ju är omöjligt, att delen är frisk om det hela är sjukt. Och själen botar man genom vissa besvärjelser och dessa besvärjelser bestå i ädelt tal, ty genom sådant tal uppstår besinningen i själen och där denna finnes är det sedan lätt att kurerat både huvudet och kroppen i övrigt.....

Ty detta är just felet i behandlingen av människorna, att man vill ha olika läkare för kropp och själ.

Platon i Karmides

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Original papers

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Abbreviations

ATC	WHO's anatomical therapeutic chemical classification system
BDI	Beck's depression inventory
CI	Confidence interval
DP	Disability pension
DSM-III,IV	Diagnostic and Statistical Manual of Mental Disorders Edition 3 or 4
FAs	Frequent attenders
GHQ-28	General health questionnaire comprising 28 questions
GP	General practitioner
ICD-9 /-10	The international statistical classification of diseases and related health problems, 9 th or 10 th edition
ISSI	Interview Schedule for Social Interaction, an instrument measuring social support
ICHPPC-2	International classification of health problems in primary care
NHI	National Health Insurance
OR	Odds ratio
PHC	Primary health care
SCL-36	Symptom Checklist-36
SL	Sick leave
SOC	Sense of coherence, a health concept comprising three components: comprehensibility, manageability and meaningfulness.
UK	United Kingdom

Foreword

In my work as a general practitioner (GP) I have the privilege of following many people through their lives. They consult me in all phases of life from the cradle to the deathbed. One aspect that aroused my curiosity is why there is such a big difference between GP consulting frequencies. Some persons have an annual consulting frequency of ten visits or more while others make their first visit ever at the age of 75. In my research on this issue I have concentrated upon frequent attenders (FAs) who have the highest number of GP consultations. During the 20th century, utilization of health care has changed a great deal due to a better understanding of diseases and their treatment as well as improved access to health care providers. Diseases have changed from a preponderance of infectious and welfare diseases to psychosocial illnesses and states of exhaustion.

Can the variation in consulting frequency be explained by people's different comprehension of illness and coping strategies or is it just that some people contract more diseases than others?

My most important motive for writing this thesis has been to gain more knowledge and understanding of this essential question.

Introduction

The origin of diseases

A doctor's job is to cure disease and, if this is not possible, to alleviate the symptoms or comfort the patient. Disease is of major importance in a doctor's work. The patient's thoughts concerning the disease and its consequences are related to both the decision to consult a doctor and the expectations concerning the consultation [1].

The knowledge of how disease occurs and spreads in a population is relatively new. In 1854, John Snow discovered a connection between the origin of drinking water and cholera in London. The closure of the infected water pump resulted in a lower incidence of cholera in the area [2]. In the latter part of the 19th century Louis Pasteur and Robert Koch discovered a connection between the presence of bacteria and disease. At the end of the 19th century Friedrich Henle and Robert Koch formulated the conditions under which a bacterium can be regarded as the cause of a disease.

These criteria, which are still valid, are as follows: the bacteria must be found in the sick person, it must be possible to isolate the bacteria, the isolated bacteria must cause the disease in a laboratory animal after which it must be possible to isolate them from the laboratory animal [2].

Since not all individuals who are exposed to a bacterium become ill, it has been concluded that the outcome is dependent on the host's resistance, thus the well-known triad: host – pathogen - environment was developed [3]. René Dubos assumed that physiological stress could alter the individual's susceptibility to different pathogens in the surroundings [4]. Thomas Holmes and Richard Rahe proposed that the accumulation of psychosocial stress measured by means of stressful life events over a period of several months increased vulnerability to illness. They presented a chart of the most common stressful life events in 1967 [5]. In Cassel, Syme and Berkman's model of "susceptible individuals" the psychosocial processes are dependent stressors that can alter the endocrine balance in the body and thereby susceptibility to disease [6, 7]. The new idea in this model was that disturbed balance increases susceptibility to all kinds of diseases [6]. They regarded life situations, life events and social circumstances as potential stressors. According to the model, social support could buffer the individual from injurious physiological and psychological stress effects. In his research, Aaron Antonovsky found that a strong "sense of coherence" (SOC) was a factor that protected the individual from the negative effects of stress [8]. Psychoneuroimmunology has recently established how certain personality factors, coping strategies, stressful life events and lack of social support affect the immune system [9] and render individuals more vulnerable to infections [10], as well as contributing to impaired healing of wounds [11].

Disease – illness – sickness

Who is ill? The one who feels ill or only those who fulfil the diagnostic criteria of a disease? A person may have a disease without feeling ill or he/she may feel ill in the absence of disease. A patient's awareness of bad health is conceptualised by the words disease, illness, and sickness in English, but in Swedish only by the word illness. Disease is a physiological malfunction resulting in reduced capacity and/or life expectancy [12]. Illness is the subjective definition of health based on perceptions of the body, and/or feelings of competence [12] a state of anxiety or discomfort with or without the presence of disease [13]. Sickness has a social implication in terms of the role of the sick person. It may be defined as being considered sick by one's family members [14] or the role a person identified as sick is assigned in a certain cultural context [15].

It is possible to verify a disease caused by an organic dysfunction by means of an examination or various tests. An ill person may or may not have a disease. In the case of illness without disease there is a risk of misunderstanding between the patient and doctor. The doctor is trained to investigate and treat diseases but not illness without disease. The doctor may conclude, based on the x-ray and blood sample, that there is nothing wrong, while the patient feels that he/she has a serious illness. This situation exists when, for example, the patient is suffering from fibromyalgia or burnout syndrome. In such cases there is a risk that the

patient will return to the doctor several times in search of an explanation for the illness. Sickness can also affect doctor utilization. For instance a relative can tell a person that – “you must see a doctor in your condition”. Disease– illness – sickness all have an influence on the individual’s decision to consult a doctor.

Health care and the social insurance system

The payment system, access to doctors and other health care providers are factors influencing the number of GP consultations. A prescription issued by a doctor is needed for most medications including antibiotics. Many employers and insurance companies demand a doctor’s certificate in order to confirm health status and any limitations in the ability to work, and for verifying injuries.

The sickness-benefit insurance provides financial compensation for lost income as well as access to rehabilitation programmes. Only doctors have the authority to issue a certificate of illness in Sweden, even if the reason for the inability to work is of psychosocial origin [16]. There is wide variation among countries regarding how soon a medical certificate is required, the sooner such a certificate is required, the more doctor consultations will be needed. The number of qualifying days before benefits are awarded, the maximum allowed duration of each sick-leave and level of financial compensation are factors influencing the number of GP consultations.

Thus, apart from our knowledge and understanding of illness and disease, also the health care and social insurance systems influence health care utilization [17, 18].

Background

Concepts and definitions

Frequent attenders

The phenomenon of a small group of patients in a general practice having a very high consultation rate and being responsible for a disproportionately large part of the doctor’s workload was reported by Backett et al. in 1954 [19]. Other researchers have confirmed that the 3-15% of the population made up of FAs account for approximately 15-50% of all GP consultations [20-26].

Synonyms for frequent attenders

Frequent attenders have been called by many different names over the years. Some of the most well known are: high utilizers [27-30], high consumers [20], high users [31-34], high consulters [35], and high attenders [36]. The high consultation rate among FAs is regarded as a problem by GPs, and they have often been labelled “the worried well” [34], “heartsink patients” [37-39], or “difficult patients” [40].

Stress and distress

Selye was the first to define stress in 1936, which he described as a state within a living being, resulting from the interaction of the organism with noxious stimuli or circumstances [41]. Lazarus reported that “psychological stress is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” [42].

The word distress means sorrow, misery and pain. It implies mental or physical strain imposed by pain, difficulties or worries and usually suggests a state or situation that can be relieved [43].

Sense of coherence (SOC)

SOC is a health concept that measures the individual’s resources for coping with stress [44-46]. SOC is a global orientation that describes the extent to which one has a pervasive, enduring and dynamic feeling of confidence: 1) that the stimuli originating from one’s internal and external environment in the course of everyday life are structured, predictable, and explicable; 2) that one has the necessary resources to meet the demands posed by these stimuli; and 3) that these demands are challenges, worthy of investment and engagement [8].

According to Antonovsky, people have general resistance resources such as money, ego, cultural stability and social support, and the greater the resources the better the chances of acquiring positive life experiences that contribute to a strong SOC [8]. SOC consists of three factors: comprehensibility, manageability and meaningfulness, which remain relatively stable after the age of thirty [44].

Comprehensibility is the degree to which one perceives inner and outer stimuli as coherent, ordered, structured and understandable, as opposed to chaotic, disordered, random and unexpected, i.e. one’s ability to judge reality.

Manageability is the experience one acquires from knowing that one’s own resources are sufficient to meet the demands one is facing, i.e. coping ability.

Meaningfulness is a motivational component showing the degree to which one feels that life has an emotional meaning that merits the expenditure of energy, engagement and devotion in order to meet the demands one is faced with, i.e. viewing life as a challenge as opposed to a burden [8].

Coping

Lazarus introduced the concept of coping to describe the process by which the individual manages the demands and the resulting emotions of the interaction between person and environment that are appraised as stressful [42]. Common coping strategies are: “approach coping” (e.g. taking pills, going to the doctor, resting, talking to friends about emotions), and “avoidance coping” (e.g. denial, wishful thinking) [47]. When faced with the problem of illness, the individual will therefore develop coping strategies in an attempt to return to a state of healthy normality [47].

Somatization

Somatization refers to the experience and communication of somatic distress in response to psychosocial stress as well as seeking medical help for it [48]. Somatizing patients tend to use bodily symptoms to communicate because they have difficulties expressing their feelings in words.

Hypochondriasis

According to DSM-IV, hypochondriasis is a psychiatric disorder involving a preoccupation of at least six months' duration with fears of having or the idea that one has a serious disease, based on a misinterpretation of bodily symptoms despite appropriate medical evaluation and reassurance.

Stressful life events

"Life events" is the name given to a group of stressors presented by Holmes and Rahe [5]. Life events are discrete, observable events representing significant life changes, with a clear beginning and end. Stressful life events are well-established as factors connected to morbidity and mortality [49-51]. Many stressful events, both negative and positive, increase the risk of becoming ill [49, 51] as well as the progression of illness [50].

Social support

The concept of social support is ancient and dates from approximately 350 B.C. Aristoteles stated that friendship is a basic human need along with food, shelter and clothing. The concept was the subject of renewed attention during the 1970's by, among others, Antonovsky and Cassel, who began to examine factors that could buffer the effects of stressful events [6, 52]. House defined social support as the interactive process in which emotional concern, instrumental aid, information, and appraisal are obtained from one's social network. Emotional support involves the provision of caring, empathy, love and trust. Instrumental support is defined as the provision of tangible goods and services and described as concrete assistance [53]. A number of surveys have shown that weak social support is associated with increased morbidity and mortality [49, 50, 54, 55].

Long-term sick leave and disability pension

There is no uniform definition of long-term sick leave (SL). As we were interested to identify those patients with a bad prognosis and at great risk of disability pension (DP), we chose ≥ 180 days of consecutive SL as the definition of long-term SL. Others have found that each additional 90-day SL period increased the risk of DP [56] and that SL > 197 days is a predictor of DP [57].

The persistence of frequent consulting

In a review, it was concluded that frequent consulting tends to persist over time in a substantial proportion of patients and that the persistence is associated with emotional distress and a very high consultation rate at baseline [58]. The consulting frequency of FAs is high in the years immediately prior to the year they became FAs [25]. Heywood et al. found that 42% of FAs continued to be frequent attenders during the year following identification and that those who had reduced their level of attendance still had very high average frequency [59]. Neal et al. found that 37% of the FAs attended with great regularity over several years [60]. In a Swedish survey, 20% of FAs continued as high consulters during the following years, while the remaining 80% had a higher mean attendance frequency than controls [24]. In a five-year follow-up survey, Andersson et al. concluded that only 14% of FAs (19% of the female FAs) continued to be FAs after five years [61]. In a Croatian study where FAs were defined as the top quartile of attenders, 8% of the total population were FAs on a continual basis for three years [62]. A population survey among elderly people revealed that 14% of these subjects were still high users of health care after six years [33]. Among single diagnosis FAs, only a small proportion continued to be high consulters after 20-years [63]. Frequent attendance seems to be a persistent phenomenon among 14-42% of FAs, while many of the remaining FAs revert to a less extreme, but still higher than average consulting frequency. Neal et al. classified FAs on the basis of their consulting pattern into one group of regular FAs (37%), one without a clearly identifiable pattern (45%), and one with periods of frequent consultations and other periods when they did not consult at all (18%) [60].

FAs' reasons for the encounter

Although the majority of FAs in a Finnish survey had a mixture of physical, psychological and social problems, 87% attended solely for physical reasons [64]. Jyväsjärvi et al. found that the most common reasons for FAs' visits were musculoskeletal, respiratory and digestive complaints although a significant proportion had mental disorders [25]. Those with mental disorders usually presented with a physical disorder. Smucker et al. analysed FAs' reasons for encounters in a qualitative observational study [39]. They identified three major dimensions that indicated differences in the content and characteristics of the encounters: biomedical complexity, psychosocial complexity and dissonance. These were combined in a three-dimensional framework, in which the encounters could be categorised (Figure I). Of the encounters, 44% mainly dealt with biomedical problems while 56% were a mixture of biomedical, psychological and social problems.

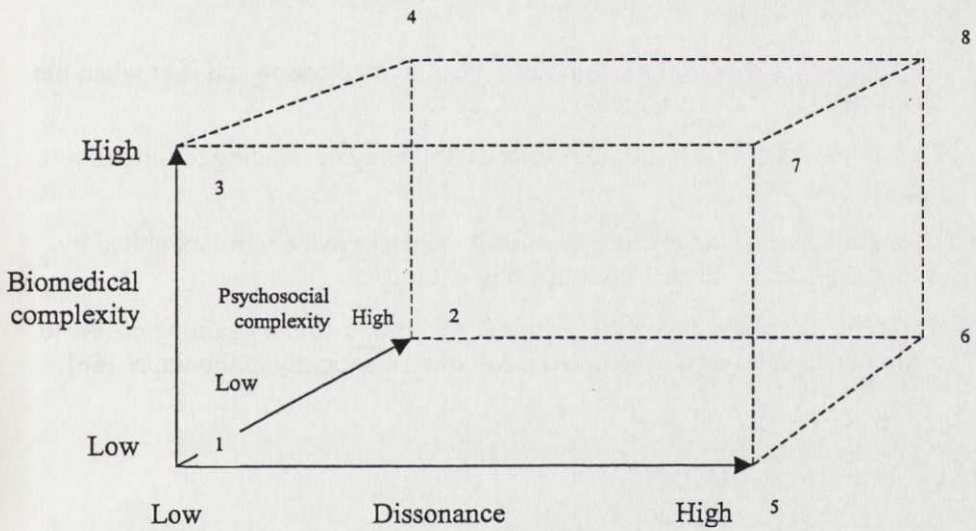


Figure I.

A visit may be categorized at any point along each of 3 dimensions from low to high. The number in the corners exemplifies visits which are: 1) simple medical, 2) ritual visit, 3) complicated medical, 4) the tango (the doctor and patient follow each other as in a dance), 5) simple frustration (patient demands differ from the doctor's perspective), 6) psychosocial disconnect, 7) medical disharmony, and the heartsink visit.

“Somatic symptoms may be a common pathway through which organic disease, psychiatric disorder, emotional dysphoria, and perhaps social stress all influence the decision to seek medical care” [65]. In a qualitative study of FAs, Neal et al. identified some key issues behind the decision to consult a doctor:

- The process by which FAs make individual decisions to consult is complex and informed by their experience of previous symptoms.

- Chronic physical and psychological illnesses have a major influence on attendance patterns.
- The perceived power of the GP in the control of medication and if or when the patient should return for a review.
- The way in which various reasons to consult aggregate, leading to further visits.
- The significance of the themes of passivity and external control exhibited by some of the FAs through their consulting patterns.
- The familiarity of the FAs with the whole process, including gaining access to the GP, made it easier for them to consult more frequently in the future [66].

FAs' use of resources

In addition to a high rate of GP consultations, FAs are referred to hospital specialists to a greater extent than ordinary attenders [59, 67, 68]. FAs also receive prescriptions from more therapeutic groups as well as more medications from each group than normal attenders [20, 22, 59, 68]. Frequent daytime attendance is strongly associated with frequent attendance after hours, and daytime FAs account for a large proportion of all contacts with general practice [69]. FAs are also high users of social resources [22, 70], and cross-sectional studies reveal that they are on sick leave more often and account for 40% of all sick leave days [20]. Many of the FAs finally receive a disability pension [25]. Several have put the question whether FAs' greater use of health care is appropriate [59, 71]. Few studies have investigated unnecessary health care utilization by FAs.

FAs from a biomedical perspective

Self-reported morbidity

Nervous disorders, trauma, heart disease and hypertension were more common among FAs in a Swedish population survey [20]. In Canada, FAs identified in a family practice had more emotional and gastrointestinal problems [22]. A study among elderly patients in the US concluded that arthritis, rheumatism, high blood pressure, heart disease, anxiety, nervousness, stress and depression were more common among FAs [31].

Morbidity based on medical records

There is only one study in which morbidity is based on diagnoses collected from medical records [35]. In this small study among children up to the age of seven, the most common problems among child frequent attenders were infections of the ear- and respiratory system [35]. In other studies of morbidity

among FAs, the classification of diagnoses was made retrospectively by GPs based on the medical records. A study conducted in Slovenia revealed a higher level of malignant, mental and gastrointestinal diseases among FAs [67]. FAs had a greater number of different diagnoses per year than normal attenders [24, 67, 72]. A Swedish survey concluded that all diagnostic groups were more common among FAs [24]. Karlsson et al. reported from Finland that FAs had more multiple physical diagnoses than normal attenders, but the distribution of the diagnoses into different disease classes according to ICD-9 did not differ from that of normal attenders. The most common diagnoses were from the musculoskeletal, respiratory and circulatory diagnostic groups [73]. Another Finnish survey revealed that FAs had significantly more mental disorders and diseases of the musculoskeletal and digestive systems than controls [25]. In a survey from the UK and Spain, ICHPPC-2 was used to classify diagnoses and an increased level of respiratory, female genital, nervous and digestive disorders as well as skin conditions was identified among FAs [72].

Mental disorders

Mental disorders are much more common among FAs (21-59%) than among ordinary attenders (6-29%) [25, 58, 64, 67, 68, 74, 75]. Depression was found among 24-59% of FAs (5-29% among controls) and seems to be the dominating mental disorder [59, 72, 76]. Among seven to twelve year old FAs, psychiatric disorders, mainly of an emotional nature, were more common than among controls (29% versus 9%) [77]. Depression was also more common among older FAs [31, 78]. Mental health and depression were found to be the main factors associated with frequent attendance [72, 79]. In a review, Gill & Sharpe concluded that medical-psychiatric co-morbidity was more common among FAs [58].

Chronic diseases

Many FAs have a chronic disease. Heywood et al. found that 94% of FAs had a chronic health problem defined as a physical, mental, or terminal illness or pregnancy [59]. A Finnish study revealed that 84% of FAs had a chronic diagnosis compared to 59% among controls [25]. A study from Slovenia showed that 68% of FAs reported suffering from a chronic disease [75]. Chronic somatic disease and hypochondriac beliefs were the only significant predictors of frequent attendance in a multivariate analysis [80].

FAs from a psychological perspective

Stress and distress

Stress is clearly related to increased frequency of attendance [81-84]. Ambiguous symptoms and low social support in combination with stress have been shown to lead to increased consulting frequency [85, 86]. Somatizers who

were under stress made more visits to clinics than did nonsomatizers or somatizers not under stress [83].

Psychological distress is associated with subjective ill health [87]. FAs are more likely to feel distressed than normal attenders [22, 31, 59, 74]. Karlsson et al. found that 44% of FAs and 26% of ordinary attenders were distressed [74]. In another Finnish survey, 34% of FAs and 19% of controls were distressed, which difference was only significant among male FAs [88]. Berkanovic found that while distressed subjects reported more illnesses, they did not initiate more medical care per illness [89]. Furthermore, distressed persons are not more likely than other groups to initiate unnecessary visits to a physician or to avoid necessary ones [64, 90].

Somatization

Somatization may provide a link between psychological distress in primary care patients and increased use of services [28]. Among FAs, 20-49% have been identified as somatizers [28, 64, 91], compared to 16% of controls [91].

Somatization is more common among female FAs [92]. Several surveys have found an association between somatization and increased attendance [64, 92, 93], but the association was not evident in multivariate analyses when adjusted for age, sex and chronic somatic illnesses [91].

Hypochondriasis

Hypochondriasis is more common among male FAs compared to controls, 58% vs. 7% [88]. Hypochondriac beliefs and psychiatric co-morbidity were connected with FAs' somatization, and hypochondriac beliefs explained somatizers' frequent attendance [91]. Hypochondriac attitudes are associated with frequent use of medical services [65].

FAs from a social perspective

FAs are more likely to live alone [59], although in one survey this was only valid among men [68]. Most researchers have found that FAs are overrepresented among secondarily single (divorced, separated or widowed) individuals [59, 72, 94-96] although in one survey no association with civil status could be found [73]. In an analysis of family factors, Jyväsjarvi et al. found no difference between FAs and controls regarding: family size, family structure, number of brothers and sisters or number of family members living together [80]. In terms of marital communication and happiness, FAs expressed the same degree of satisfaction with their marital relationship as did controls [80]. Poor marital communication was associated with somatization among female FAs in a logistic regression [80]. FAs are more likely to be part of a dysfunctional family [22, 79] of whom many are externally controlled [22]. Weimer et al. found the families of FAs to be less expressive, less social and more achievement-oriented [97].

Demographic factors

Sex and age are related to frequent attendance [65]. Females attend more frequently and many studies have found an increased number of middle aged and older women among FAs [20, 23-25, 31, 59, 72, 96]. Frequent attendance is also connected to the distance the patient has to travel to the PHC centre; the closer the PHC centre is, the more frequent the attendance [20].

Socio-economic factors

A low socio-economic status is associated with poor health [98]. FAs are overrepresented among those from a low social class [20, 22, 59, 72, 73, 96]. The connection between FAs and educational level is ambiguous; some researchers have found that poor education is more common among FAs [20, 25, 75], while others have found no such connection [31, 72, 73].

Socio-economic status based on income and occupation showed no difference between FAs and non FAs [25, 31] although FAs assessed their economic situation as poorer in a self-assessed questionnaire [25]. Two studies showed a higher rate of unemployment among FAs [68, 96], although two other surveys found no such connection [25, 73]. According to a cross-sectional study, FAs were more often in receipt of a disability pension than controls [25]. At present, it is not clear whether people become FAs after they receive a disability pension or if FAs are at higher risk of receiving a disability pension.

Biopsychosocial morbidity

Physical, psychological and social problems are very common among FAs [24, 72], and they often have a combination of all three [22, 58, 64, 68, 73]. Brown et al. described FAs as more physically, socially, and emotionally distressed than other patients [22]. Karlsson et al. found that 28% of FAs had purely somatic reasons for their visits while 21% were clearly psychiatric cases (who mainly presented with physical symptoms). The remaining FAs had a combination of somatic, psychological and social problems [64].

According to the model of "susceptible individuals", FAs' biopsychosocial burdens are a cause of vulnerability. The model reveals that, in addition to the life situation and social circumstances, life events are also potential stressors. Social support and SOC are two important factors that alleviate the negative effects of stress. General vulnerability is supposed to cause increased morbidity in respect of all kinds of diseases. There is currently a lack of knowledge of FAs' morbidity within different age groups and sex strata. The knowledge about FAs' life events, their social support and SOC is also scarce.

Aims

The overall aim of this thesis was to describe and explore the phenomenon of frequent attenders in primary health care from a biopsychosocial perspective with special focus on vulnerability.

The specific aims were to

- describe FAs' gender- and age specific morbidity by comparison with controls.
- determine whether FAs' greater use of health care concerning injuries is medically appropriate or a misuse of resources.
- determine whether FAs differ from non FAs in terms of sociodemography, stressful life events, social support and sense of coherence.
- identify risk and prognostic factors for long-term sick leave and disability pension among FAs and non FAs in primary health care.

Material and methods

Design

A cross-sectional design was used in papers I-III and a prospective design in paper IV. The ethical issues in this thesis have been considered in the light of the guiding principles of the World Medical Association's Helsinki Declaration 2000. The Ethics Committee of Göteborg University, Sweden, approved the studies reported in papers I-III. The study reported in paper IV was approved by the Ethics Committee of Lund University, Sweden.

Settings

Falkenberg is a small coastal municipality with 39 000 inhabitants in the southwest of Sweden. This town is situated in the county of Halland, which is one of the healthiest areas of Sweden with a high average life expectancy [99]. The population is mainly employed in small industries and service industries. Persons born outside Sweden constitute 7.6% of the population. There are six primary health care (PHC) centres and two private general practitioners (GPs). Each PHC centre is responsible for the health care services within a specific geographic area. After working hours one of the PHC centres provides emergency services. PHC centres located close to a hospital usually handle very few injury cases, but as the studied PHC centre had access to X-ray facilities and was located 35 km from the nearest hospital, it dealt with 86% of all injury cases among the population in the Falkenberg area [100]. At the time of the study, the PHC centre had seven GPs (two women and five men) who mostly worked on a part-time basis and who had a specific general practice education and an average of 17 years in the profession. The PHC centre studied handled 79 % of all daytime visits to primary health care physicians by the inhabitants of the area. Adjacent PHC centres handled 9% and private GPs 12% of visits. Since 1995 all appointments, fees and medical records have been handled through a computerized system. There is a fee for all face-to-face contacts with GPs, except for those <20 years and for maternity- and child-welfare, which are free. There is an annual maximum charge of 900 SEK for health care, after which all health care is covered by the health insurance.

Study population

The study population was located in a geographic area clearly defined by the postal code (N=10 431) (Figure II). One PHC centre was responsible for the health care service within the area.

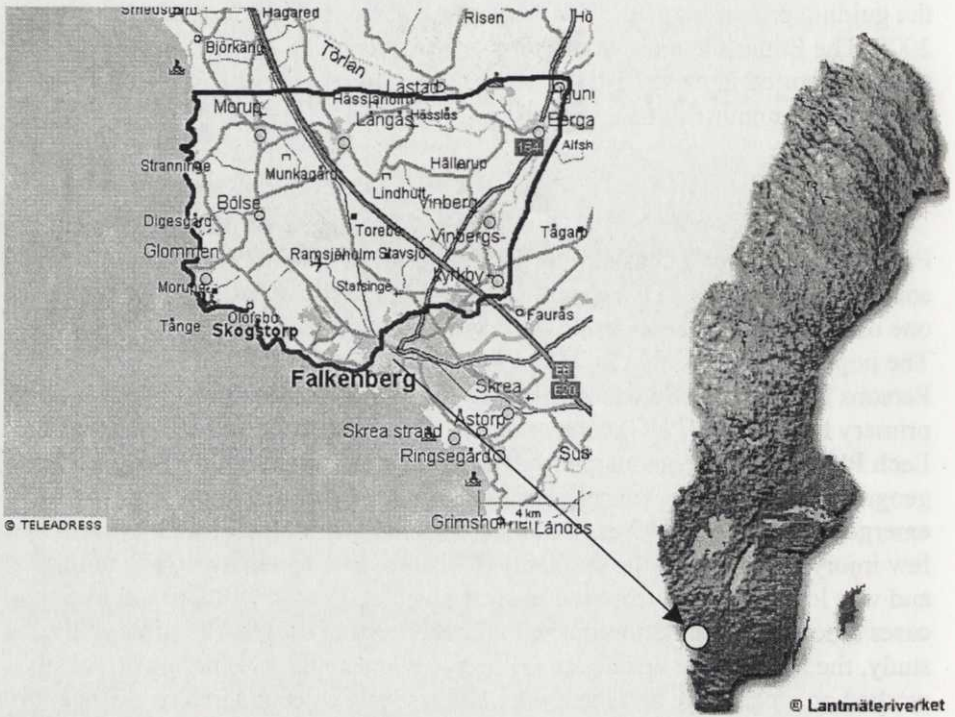


Figure II.

The study area and its location in Sweden.

A list of all inhabitants in the study area based on number of visits to the GPs in the studied PHC was produced by the PHC centre's computer (Figure III).

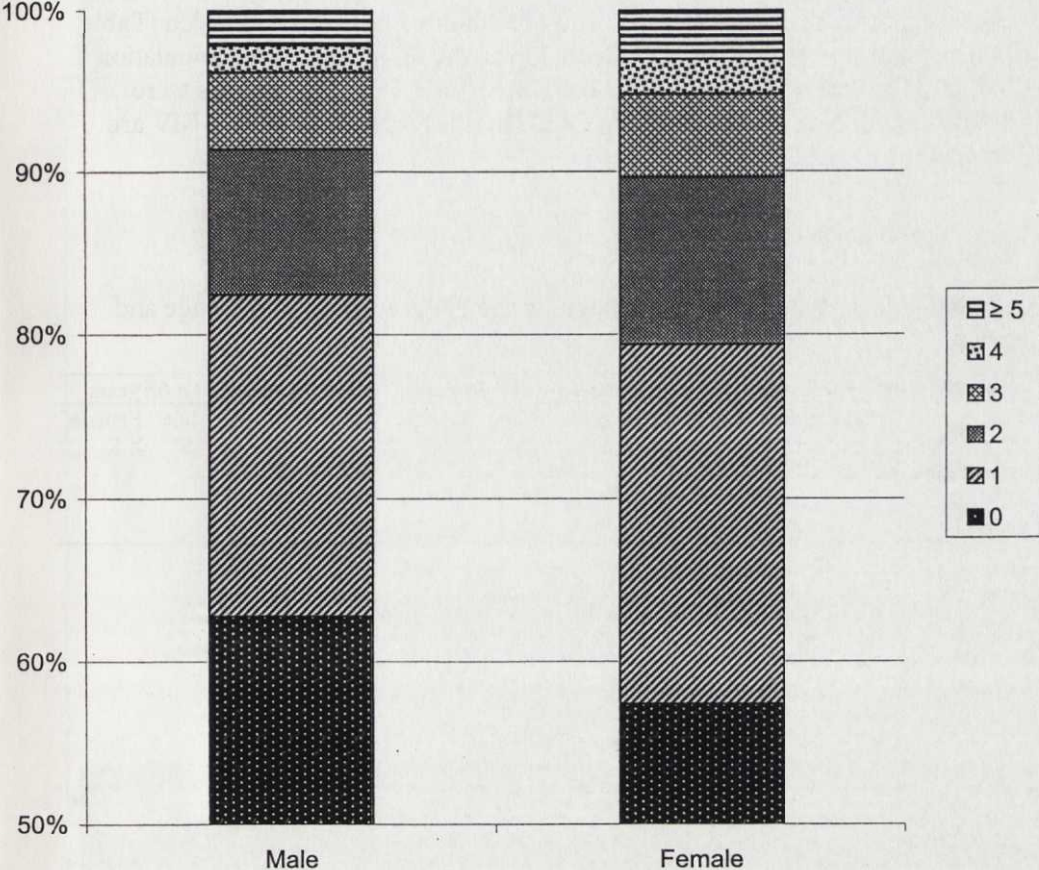


Figure III.

Number of GP consultations per year in the study area distributed according to gender.

The population was divided into ten groups based on sex and age (0-4, 5-17, 18-44, 45-64, 65-). FAs were defined as the 10% of patients from all ten groups who had made the greatest number of ambulatory visits to a GP during a 12-month period. As the cut off point did not exactly correspond to 10%, the proportion of group members fluctuates. All face-to-face visits to a GP, with the exception of those concerning maternity or child welfare, were included (Table I). The controls (n=1 025) were selected from the remainder of the population living in the area with birthdays on the 3rd, 13th and 23rd. The controls were divided into the same groups as the FAs. The study groups in papers I-IV are described in Figure IV.

Table I.

Cut-off points of consultation rates within the FA groups divided by age and gender.

	0-4 years		5-17 years		18-44 years		45-64 years		≥ 65 years	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	≥ 5	≥ 4	≥ 4	≥ 4	≥ 4	≥ 5	≥ 5	≥ 5	≥ 5	≥ 5
Consultation rate during a 12-month period										

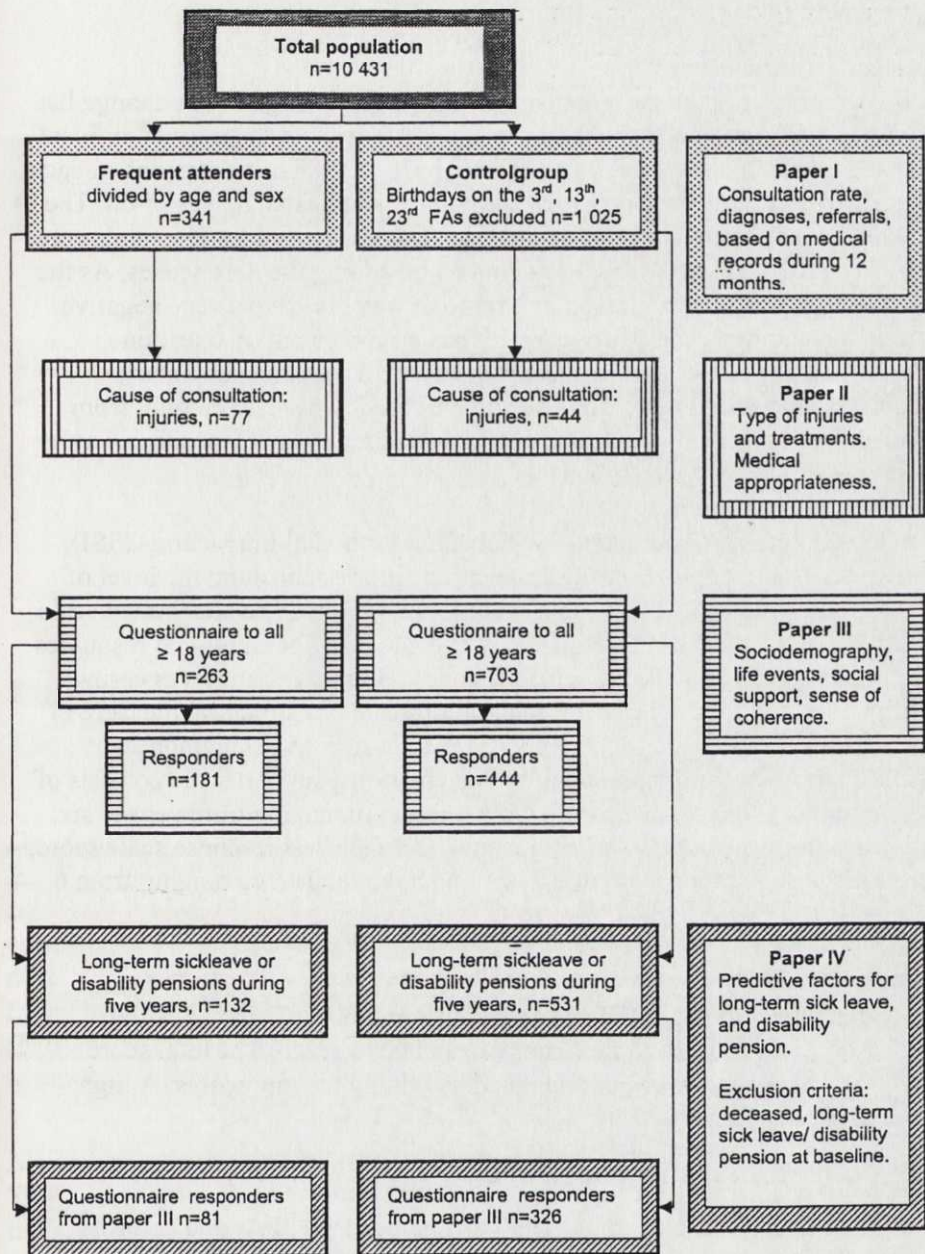


Figure IV.

Description of the study groups in paper I-IV.

Instruments

Life event questionnaire

The life event instrument is a condensed version of the original life change list presented by Holmes and Rahe [5]. It contains 14 items of the most significant life changes, of which five are work-related [101, 102]. The occurrence of each of the life events during the previous 24 months is indicated by yes or no. The instrument does not cover minor events or events earlier in life. The total score ranges from 0-14. A scale score is calculated by adding the item scores. As the same event may affect one person in a positive way but have a very negative influence on another, each life event item has a supplementary question regarding the subjective significance of the event. These supplementary questions are measured by means of a three or five point scale ranging from "affected me in a very negative way" to "affected me in a very positive way".

Social support questionnaire

A condensed version of the Interview Schedule for Social Interaction (ISSI), modified for use in population studies, was used for establishing the level of social support [103]. The instrument includes two scales. The attachment scale is a functional measure of the availability and adequacy of emotional resources (emotional support) provided by close friends and family. It involves caring, empathy, love and trust. The social integration scale is a structural measure of peripheral social ties available for specific factors such as belongingness, tangible support and appraisal support. The emotional support scale consists of six dichotomous items (yes or no), with a total score ranging from zero to six. The integration scale consists of six items with an interval response scale score, where each item is coded from one to six and has a total score ranging from 6 - 36.

SOC questionnaire

SOC was assessed in papers III and IV using Antonovsky's short 13-item version [44]. Scores for each item range from one to seven. The total score range is 13-91. A scale score is calculated by adding the raw scores. A high score indicates a strong SOC.

Data collection and procedure

During the period from November 1997 to October 1998, FAs and controls were identified through the PHC centre computer. Information about consulting rates, diagnoses, medication, referrals, and sick-leave certification was collected from the medical records. A questionnaire battery comprising background data and scales of socio-demographic variables, stressful life events, social support and SOC was sent to the participants in 1999. Non-responders received two reminders. Information about sick leave and disability pensions during 1999-2003 was gathered from the National Health Insurance register. The times at which data collection took place are described in Figure V.

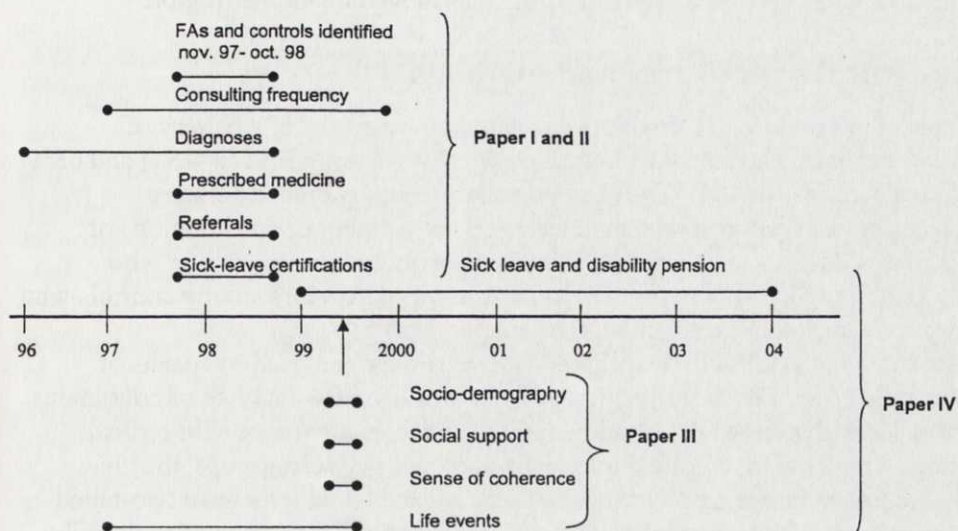


Figure V.

The times at which data collection took place, and type of collected data.

Diagnoses

In papers I and II, all diagnoses were classified as chronic or non-chronic by two GPs. In papers III and IV, the informants were asked whether they had a chronic disease (>6 months) or not. In paper II an injury consultation was defined as a consultation leading to a diagnosis from the injury chapter (XIX) of the international statistical classification of diseases and related health problems (ICD-10) for primary care [104]. In order to ensure that the diagnosis was relevant to the injury in question, it was assessed by two GPs.

National Health Insurance (NHI) register

Sickness insurance in Sweden is public and compulsory and mainly financed through taxes. Information about the participants' SL and new DPs during the period 1999-2003 was gathered from the NHI register. In order to receive sickness benefit in Sweden, a disease or an injury must reduce a person's working capacity by at least 25%. Employees receive compensation from their employer for the first 14 days of every SL period. Those first 14 days are not registered in the NHI register. Sick-leave certification from a physician is required from the eighth day of SL. There is no fixed upper limit to the number of days of sick-leave benefit. The NHI's computerised register contains details of all refunded days of SL as well as disability benefits paid to all Swedish

citizens. As the NHI's computerized register is uniform for the whole country, it includes all SL/DP days even if a person has moved to another region.

Statistical procedures and methods

In papers III and IV, information was gathered by means of a battery of questionnaires. The response frequency was 69% among FAs (n=181) and 63% among controls (n=444). There was no significant difference between responders and non-responders in terms of sex, number of consultations or diagnoses. Mean age showed no significant difference between FAs who responded and those who did not. Mean age was 47.6 years among controls who responded and 43.5 years among non-responders ($p < 0.002$).

The continuous normally distributed variables were analysed by means of Student's t-test. The Mann-Whitney U-test was used for analyses of continuous variables with skewed distribution and for variables measured with ordinal scales. For comparison of dichotomised variables between groups, the chi-square test or Fisher's exact test was used. All statistical tests were two-tailed and the significance level was set at 5%. Odds ratio (OR) was used to describe the ratio of individuals in the group of frequent attenders who had received a certain diagnosis compared to the ratio in the control group. Kendall's tau-test was used for analyses of correlations between dichotomous variables. For determination of the influence of individual variables on frequent attendance and long-term SL/DP, multiple logistic regression analyses with forward Wald were used. In order to reduce the effect of age on variables that correlated with age, interaction variables were created and included in the multiple logistic regression analyses.

Main results

Gender and age specific morbidity among FAs and controls

The studied FAs represented 3.7 % of the female and 2.9% of the male population. The mean number of consultations during the study year among female FAs was 6.1 and among male FAs 6.0. The mean consultation rate for the control group was 0.6 for both sexes. Although consultation rates during the year before and after the study were lower than during the study year, they were still 3.5 – 4 times higher compared to the control groups. Overall, FAs accounted for approximately one fifth of referrals and x-rays, one fourth of GP visits and prescriptions as well as 44% of all sick-leave certification. Most diagnostic groups were more common among FAs than controls, with an odds ratio varying between 1.5 and 10.4. The most frequent diagnostic groups among the different age strata are presented in Table II.

The number of prescriptions from most of the therapeutic groups, which are based on the WHO's anatomical therapeutic chemical classification system (ATC), was higher among FAs than among controls, and antibiotics were the most prescribed group [104].

Among FAs, 32% of the women and 33% of the men had a chronic diagnosis, compared to 6% of both sexes in the control groups. The six most frequent chronic diagnoses in the study population were; hypertension, diabetes, asthma, angina pectoris, heart failure and osteoarthritis. The general finding was that FAs' morbidity within different age groups and with respect to both sexes was similar to that of the controls, but they had a higher consulting frequency for most medical problems and consumed significantly more antibiotics.

Table II.

The three most frequent diagnostic groups among frequent attenders (FAs) and control groups (CGs) in different age strata. The diagnostic groups correspond to the international statistical classification of diseases and related health problems (ICD-10), ranked according to order of frequency. The ICD-10 chapters are within brackets. Odds ratio (OR) and confidence interval (CI) for diagnostic groups among the visitors to the PHC. OR is missing in cases of non diagnosis within the diagnostic group among CG or when several diagnostic groups were in the same ranking position.

	0-4 years			5-17 years			18-44 years			45-64 years			≥ 65 years		
	FAs		CG	FAs		CG	FAs		CG	FAs		CG	FAs		CG
	1. Ear (viii)	1. Ear (viii)	1. Resp (x)	1. Resp (x)	1. Resp (x)	1. Injury (xix)	1. Resp (x)	1. Resp (x)	1. Injury (xix)	1. Resp (x)	1. Resp (x)	1. Resp (x)	1. Resp (x)	1. Resp (x)	1. Resp (x)
Most frequent diagnostic groups* among males	OR	6.5	0.2	2.7	0.4	0.8-6.3	0.2-1.8	2.1-28.6	2.1-28.6	0.2-2.1	0.6	0.6	1.6	0.6	0.2-1.7
	CI	1.03-48.2	0.02-0.97	0.7-11.0	0.1-1.5	0.8-6.3	0.2-1.8	2.1-28.6	2.1-28.6	0.2-2.1	0.6	0.6	0.6	0.6	0.2-1.7
	OR	1.9	0.5	9.6	0.3	1.5	0.4	3.8	3.8	0.3	0.3	0.3	0.3	0.3	0.1-1.3
	CI	0.4-10.4	0.1-2.7	1.7-65.5	0.1-1.3	0.6-4.0	0.2-1.2	1.2-11.8	1.2-11.8	0.1-0.8	0.1-0.8	0.1-0.8	0.1-0.8	0.1-1.3	0.1-1.3
Most frequent diagnostic groups* among females	OR	1.8	0.6	3.1	0.6	2.9	0.4	2.8	2.8	0.4	0.4	0.4	0.4	0.4	0.1-2.0
	CI	0.3-14.3	0.1-3.7	0.8-13.2	0.1-3.5	0.9-9.2	0.1-1.1	0.9-9.2	0.9-9.2	0.1-1.1	0.1-1.1	0.1-1.1	0.1-1.1	0.1-1.1	0.1-2.0
	OR	1.8	0.6	3.1	0.6	2.9	0.4	2.8	2.8	0.4	0.4	0.4	0.4	0.4	0.1-2.0
	CI	0.3-14.3	0.1-3.7	0.8-13.2	0.1-3.5	0.9-9.2	0.1-1.1	0.9-9.2	0.9-9.2	0.1-1.1	0.1-1.1	0.1-1.1	0.1-1.1	0.1-1.1	0.1-2.0
Most frequent diagnostic groups* among males	OR	1.8	0.6	3.0	0.3	10.4	0.4	2.9	2.9	0.4	0.4	0.4	2.7	0.4	0.1-1.1
	CI	0.2-12.2	0.1-4.1	0.8-11.2	0.1-1.2	4.0-27.7	0.2-0.9	1.1-7.7	1.1-7.7	0.1-0.9	0.1-0.9	0.1-0.9	0.9-8.0	0.1-1.1	0.1-1.1
	OR	7.8	0.1	4.2	0.4	2.5	0.3	6.7	6.7	0.3	0.3	0.3	2.9	0.4	0.1-1.1
	CI	1.2-59.8	0.1-0.8	0.9-21.5	0.1-1.6	1.1-5.6	0.1-0.8	2.1-25.3	2.1-25.3	0.1-0.8	0.1-0.8	0.1-0.8	0.9-9.1	0.1-1.1	0.1-1.1
Most frequent diagnostic groups* among females	OR	-	1.6	2.7	0.4	3.3	0.10	3.8	3.8	0.10	0.10	0.10	2.9	0.4	0.1-1.1
	CI	-	0.1-25.0	0.6-12.2	0.1-1.6	1.3-8.5	0.04-0.2	1.2-13.1	1.2-13.1	0.04-0.2	0.04-0.2	0.04-0.2	0.8-11.5	0.1-1.1	0.1-1.1

* Infection (I), Neoplasm (II), Blood diseases (III), Endocrine (IV), Mental (V), Neurological dis. (VI), Eye dis (VII), Ear dis (VIII), Circulatory dis (IX), Respiratory dis (X), Digestive dis (XI), Skin dis (XII), Musculoskeletal dis (XIII), Genito urinary dis (XIV), Pregnancy dis (XV), Perinatal dis (XVI), Symptoms (XVII), Injuries (XVIII), Factors influencing health (XX).

The appropriateness of FAs' greater use of health care concerning injuries

The consultation rate for injuries was 7.2 times higher among FAs compared to controls. During the study year, 23% (77 of 341) of FAs and 4% (44 of 1 025) of controls consulted a GP due to injury ($p < 0.001$). Injuries among FAs were equally distributed between the sexes, while among controls men were more injured. The most common injuries among FAs were distortion, fractures and traumatic wounds. Injuries caused by a foreign body, mostly in the eye, were more common among controls ($p = 0.005$). Odds ratios for FAs suffering a specific injury are presented in Table III. All forms of treatment were equally common in the two groups, with the exception of the removal of foreign bodies, which was more common among controls ($p = 0.006$). Chronic disease was found among 31% of FAs (24 of 77) and among 2% of controls (1 of 44) ($p < 0.001$). Mean number of injury consultations (1.5 / year) was the same for FAs with and without chronic disease. The five most common chronic diseases were osteoarthritis, diabetes, hypertension, asthma and hypothyroidism. Two FAs had known alcohol problems.

Among the FAs and controls who had made an injury consultation, significantly more FAs had also consulted a GP concerning acute infection during the study year and two previous years ($p = 0.010$). More than 90% of the consultations among both FAs and controls were found to be medically appropriate by the two adjudicating GPs. The general finding was that FAs made medically appropriate consultations for injuries to the same extent as the rest of the population.

Table III.

The odds ratio (OR) with 95% confidence interval (CI) for FAs sustaining a certain injury compared to non FAs during one year.

Type of injury	OR	CI
Fracture	8.1	3.2 – 21.6
Distortion	9.8	4.5 – 21.7
Traumatic wound	3.6	1.6 – 8.4
Contusion	11.4	2.9 – 51.5
Foreign body	0.8	0.1 – 3.8
Other injuries	8.7	2.9 – 28.0
All injuries	8.0	5.4 – 12.0

Sociodemography, stressful life events, social support and sense of coherence among FAs

FAs were found to be older and more likely to be secondarily single compared to controls. Chronic diseases and sickness/disability pensions were also more common among FAs. During the study year and the preceding year, FAs experienced the same number of life events as the controls (Table IV). Women had experienced significantly more life events ($p=0.011$) compared to men. Both FAs and controls estimated the effects of the events in the same way. There were no significant differences in terms of social integration or emotional support between the groups of FAs and controls (Table IV). There was no significant gender difference among FAs, while among controls, women had significantly better emotional support compared to men ($p=0.016$). FAs had a significantly weaker SOC (mean value 66.7) than controls (71.5) ($p<0.0001$).

Table IV.

Comparison of life events, social support and sense of coherence among the frequent attenders and controls. Mean values and standard deviations (SD) are presented for the whole group and for males and females separately. The *p*-values and 95% confidence interval (CI) were calculated by Student's *t*-test and refer to the comparison between the whole groups of frequent attenders and controls.

	Frequent attenders				Controls				<i>p</i> -value	95% CI
	Male (n=79)		Female (n=107)		Male (n=225)		Female (n=225)			
	Mean (SD)	Whole group (n=186)	Mean (SD)	Whole group (n=186)	Mean (SD)	Whole group (n=450)	Mean (SD)	Whole group (n=450)		
Major life events	1.8 (1.5)	2.1 (2.1)	2.0 (1.9)	1.8 (1.7)	2.2 (1.8)	2.0 (1.7)	0.846	-0.34	- 0.28	
Social integration	21.2 (6.2)	20.7 (6.5)	20.9 (6.4)	22.0 (5.9)	21.7 (6.1)	21.8 (6.0)	0.086	-2.01	- 0.13	
Emotional support	5.3 (1.3)	5.2 (1.5)	5.3 (1.4)	5.3 (1.3)	5.5 (1.1)	5.4 (1.2)	0.187	-0.37	- 0.07	
Sense of coherence	67.2 (14.9)	66.4 (14.4)	66.7 (14.6)	71.6 (11.6)	71.4 (13.1)	71.5 (12.3)	<0.0001	-7.44	- -2.14	

Old age, chronic disease, sickness/disability pension and a poor SOC were found to be associated with being a FA (Table V). Chronic disease and sickness/disability pension were the strongest variables with an odds ratio of 3.1 and 2.5 respectively. Social support and life events had no significant effect on frequent attendance in the logistic regression analysis (Table V). The general findings were that FAs experienced the same amount of stressful life events and had the same level of social support as the controls but a weaker SOC.

Table V.

The influence of different variables on frequent attendance by logistic regression (n=471). The frequent attenders and controls as dependent variables (β -coefficient, odds ratio (OR) and 95% confidence interval (CI)).

	β	<i>p</i> - value	OR	95% CI
Age	0.022	0.015	1.023	1.01 - 1.04
Sex	0.326	0.168	1.385	0.87 - 2.20
Civil status	0.219	0.501	1.245	0.66 - 2.36
Chronic disease	1.124	< 0.0001	3.076	1.96 - 4.83
Sickness/disability pension	0.901	0.029	2.463	1.10 - 5.52
Life events	0.076	0.300	0.972	0.93 - 1.25
Social integration	0.025	0.258	1.025	0.98 - 1.07
Emotional support	-0.037	0.734	0.964	0.78 - 1.19
Sense of coherence	-0.028	0.004	0.972	0.95 - 0.99

Risk and prognostic factors for long-term sick leave and disability pension among FAs and non FAs

At the five-year follow up, the FAs had a median of 176 SL days refunded by the NHI, compared to a median of zero days for the non FAs ($p < 0.0001$). During the study period, 18.9% of the FAs and 6.0% of the non FAs obtained long-term SL benefit/DP ($p < 0.0001$). The FAs in receipt of long-term SL benefit/DP had 17.2 more days refunded by the NHI than those not receiving such benefit/pension, which represented 80.0% of all days refunded for the whole group of FAs. The background, situational and socio-demographic variables revealed no differences between FAs and non FAs other than the fact that chronic disease was more common among FAs, 51.9% versus 26.7% ($p < 0.0001$). The only variable that differed between FAs in receipt and those not in receipt of long-term SL benefit/DP was life events, which was the only predictor of long-term SL/DP among FAs ($p = 0.006$). The presence of chronic

disease did not predict long-term SL/DP among FAs ($p=0.131$), although among non FAs the absence of chronic disease predicted a decreased possibility of long-term SL/DP of 69% ($p=0.028$).

A poor financial situation was the only life event that was more common among FAs on long-term SL/DP compared to those who were not ($p=0.011$). FAs on long-term SL/DP were more negatively affected by the following events: conflict with wife/husband/cohabitant ($p=0.005$), an impaired financial situation ($p=0.005$), conflict with a close relative or friend ($p=0.011$), and death of a close relative or friend ($p=0.049$). The main findings were that FAs is a high-risk group in terms of long-term SL/DP. Life event was the only predictor of long-term SL/DP among FAs, while chronic disease was the only predictor of long-term SL/DP among non FAs.

General discussion

Methodological considerations

The study population

The study population consists of a mixture of people from high and low social groups living in the city as well as in the countryside. Falkenberg's population is representative of the population in the county of Halland [105], which is equivalent to three percent of the Swedish population.

The PHC centre computer provided a list of all daytime GP visits made by the studied population over a 12-month period (1997-98) in descending order of frequency. Those in different age and sex groups who had consulted the GPs most frequently were selected as FAs. The identification of FAs did not take account of after hour visits to the PHC centre. Vedsted et al. found that frequent daytime attendance is very strongly associated with frequent attendance after hours, and daytime FAs accounted for a large proportion of all contacts with general practice [69]. Of the total population in the area, 3.3% were identified as FAs. A strategic sample of 10% ($n=1\ 025$) of the rest of the population in the area was chosen as controls. Consequently, three controls were chosen for every FA. In order to detect a 20% difference between two groups with a level of significance of 5% and a power of 90%, the sample size of controls required was calculated to 755 subjects.

Definition of FA

A recent review article by Vedsted et al. concluded that there is no generally accepted definition of FA [26]. Many researchers have defined FAs as those patients who exceed a certain consulting frequency (ranging from two to 24 contacts) during a predetermined period, usually one year [26, 59, 88, 96]. The tradition of seeking health care differs between countries. In Sweden, the average number of visits to a GP is 1.2 – 1.4 per year, while in other countries it is three to five times higher. These differences make it difficult to compare results that are based on a certain number of visits per year. Furthermore, with

such a definition of FAs, middle-aged women will, due to their higher consulting frequency, dominate the group [59]. By defining FAs as the top ten percent of attenders [30, 69] in different sex and age strata, FAs of all ages and both sexes will be included. Since FAs appear in all age groups and among both sexes, it was more appropriate to use this definition to identify specific characteristics.

Data records and register

In most studies of FAs, the medical records have been manually surveyed. This study was based on data from computerised medical records. Only one previous study based partly on computerised medical data has been found [23]. The advantages of using computerised medical records are that all FAs, their medical events and registered data can be easily located if the records are appropriately structured. In a manual system with records in folders, the folder may be temporarily missing from the archives and the records may therefore be omitted from the data collection. In a manual system all data are gathered by hand and some may be overlooked due to human error.

The NHI register does not include the first two weeks of every SL period, which reduces the number of refunded days among those on short-term SL. This limitation of the NHI register makes comparison with the total number of refunded days difficult, but has no major influence on long-term SL.

Diagnoses

Diagnoses are made individually – some GPs always make a diagnosis while others do so less frequently. It was found that 75% of the consultations at the studied PHC centre had resulted in a diagnosis. Shortly before the survey, the PHC centre staff took part in an internal education on the subject of making diagnoses, aimed at reaching consensus on the content of the most common diagnoses. The analyses of the diagnoses were made at chapter level, which showed good validity in an earlier study [106]. At the beginning of 1998 the classification system for diagnoses was changed from ICD-9 to ICD-10. As the diagnostic groups within ICD-9 and -10 mostly remained intact, this shift had no major influence on the results.

Validity and reliability of the questionnaires

The life event questionnaire has previously been used in Swedish surveys and found to be valid and reliable [101, 102]. The ISSI has been widely used [51, 107-109] and the validity and reliability have previously been tested in a Swedish population [108]. In paper III the internal consistency reliability measured by Cronbach's alpha coefficient was 0.88 for the integration scale and 0.80 for the attachment scale, which are satisfactory values. The SOC instrument has been used worldwide [44, 108, 110]. It seems to be stable over time in a normal population [110, 111]. However, in smaller populations after the occurrence of significant changes in life events, i.e. coronary by-pass surgery or severe injury due to accident, SOC seems to change [112, 113].

Reliability and validity of the instrument have been found satisfactory when tested in different populations [44, 45, 114, 115]. Analyses of the structure validity support Antonovsky's recommendation that SOC should be treated as one rather than three factors [115]. In papers III and IV, the Cronbach's alpha coefficient for SOC was 0.88 and 0.89 respectively.

Retrospective evaluation

Medical records were analysed retrospectively in papers I and II. A retrospective design is always limited to the information available, which may not correspond exactly with the information required. A retrospective design may, however, have advantages, as for example in paper II, where the retrospective design made it possible for two GPs to evaluate the same consultations independently of each other and without being aware of the patient's identity. A retrospective design may also facilitate a focus on medical needs, free from the influence of personal bonds and emotions. In paper III the respondents were asked about life events over the previous two years. However, this time span made the information less reliable due to the recall bias. Recall bias probably has a greater influence on minor events, while important events that have a greater potential of affecting a person's health, such as the death of a spouse, are less likely to be affected by forgetfulness.

Generalizability

In spite of the above mentioned weaknesses, the results from this thesis should be relevant in many PHC populations. Despite the fact that consulting frequency is, among other things, dependent on the health care and social security systems, which differ between countries, the findings concerning diagnoses, sociodemography, stressful life events, social support and SOC should be applicable among FAs in different countries.

Result issues

Paper I. Comparison of FAs' gender- and age specific morbidity with that of controls

Paper I revealed that FAs or 3.3% of the population used 20-25% of the health care resources. This finding is in accordance with previous surveys [20, 22, 23, 59]. A new finding in paper I was that FAs exhibited higher morbidity with regard to most medical problems compared to controls of the same age and gender. This higher morbidity was associated with increased prescription in most of the different ATC groups. The concordance between FAs and controls was greater in terms of morbidity than medication prescribed. FAs were prescribed far more antibiotics compared to the controls, and antibiotics were the main ATC group in eight out of ten FA groups. A high antibiotic prescription rate was also found among FAs in Slovenija [67].

Paper II. Determining whether FAs' greater use of health care is medically appropriate or a misuse of resources.

The finding that a small group of the study population uses a disproportionately high amount of the total health care resources may be explained by greater medical or non-medical needs. The question of whether FAs' high attendance rate is appropriate has been put by Heywood et al. [59] but has rarely been analysed. In the only study found that had been published during the last 15 years, it was concluded that 64% of FAs were inappropriate users [71]. However, in the aforementioned survey, the patients were evaluated retrospectively, one year later, mostly by assistant physicians, and all psychosomatic patients were classified as misusers in addition to which, the high drop-out rate of 64% was problematic [71].

The main finding in paper II was that FAs' GP consultations were as medically appropriate as those of the controls. However, as this finding was restricted to injury consultations, it is not possible to arrive at any conclusion concerning other kinds of diagnoses. The finding in paper II contradicts that of Wagner et al, but these authors' use of a different classification system and the high drop-out rate make comparison of the results difficult [71]. Paper II also revealed that FAs had a seven times higher attendance frequency in terms of injuries compared to the control group. Chronic diseases or alcoholism could not explain the high incidence of injuries. Most FAs were classified as such due to diagnoses other than injuries, and it is therefore unlikely that their high injury rate was the result of a high level of violence in their family or a greater degree of risk-taking. A comparison between those FAs whose consultations were dominated by injuries and those whose consultations were not, showed no differences in terms of age, sex, chronic diagnoses or type of injury. Significantly more of the injured FAs had consulted the GP due to an infection both during the study year and during the two previous years compared to the controls. Thus, the findings in paper II point in the same direction as the findings in paper I, namely that FAs have an increased vulnerability to all kinds of medical problems including injuries and infections and that their high consulting frequency is therefore medically appropriate.

Paper III. Determining whether FAs differ from non FAs regarding sociodemography, stressful life events, social support and sense of coherence.

In paper III, FA's stressful life events, sociodemography, social support, and SOC were compared with those of controls. A poor SOC was the only factor influencing frequent attendance. As no other studies have explored SOC among FAs, it is not possible to compare the results. However, persons with a poor SOC have been found to be more prone to disease [108, 111].

FAs' lower SOC value is unlikely to be explained by their higher rate of chronic diseases, as SOC is not dependent on such diseases [116, 117]. SOC increases with age [118], but as the FAs were older than the controls, this should have affected the mean value of SOC positively. As the study in paper III had a

cross-sectional design, it was not possible to establish whether a poor SOC preceded disease or if disease resulted in a poor SOC. Most of the studies about the protective effect of SOC have been cross-sectional. In one of the few longitudinal studies, a low initial SOC predicted a poor subjective state of health for both sexes four years later [110].

SOC is considered to be a personal salutogenic resource that influences the aetiology of and recovery from disease by means of effective coping [118]. Also the finding in paper III that FAs have a poor SOC supports the hypothesis about increased vulnerability.

Paper IV. Risk and prognostic factors for long-term sick leave and disability pension among FAs and non FAs.

In paper IV, FAs were found to be a high-risk group for long-term SL/DP and 3.2 times more likely to receive long-term SL benefit/DP over a five-year period compared to non FAs. During a five-year follow up, FAs had 2.4 more days refunded by the NHI compared to non FAs. As many as 18.9% of FAs received long-term SL benefit/DP and they accounted for 80% of all days refunded for the entire group of FAs. These are new findings indicating that FAs are a vulnerable group who are very costly to society. Chronic disease was the only predictor of long-term SL/DP among non FAs, a finding supported by a Dutch study that revealed a connection between chronic disease and long-term sick leave [119]. Surprisingly, chronic disease was not a predictor of long-term SL/DP among FAs. The high prevalence of chronic diseases among the whole group of FAs probably made it difficult to reach a statistically significant difference between those FAs with and without a long-term SL/DP. Life event was the only predictor of long-term SL/DP among FAs, and each additional event increased the probability of receiving long-term SL benefit/DP by 60%. Conflicts and losses had the greatest negative impact on FAs. There is no comparable study of SL/DP among FAs, although in a Finnish longitudinal population study it was found that the death or serious illness of a family member, violence and financial difficulties were significantly associated with subsequent sick leave among men [120].

Are FAs a vulnerable group of patients?

Weitoft et al. found an increased risk of mortality, severe morbidity, and injury among children living with single parents (an indicator of low socio-economic status) [121]. Apart from psychiatric diseases, violence and traffic injuries, other kinds of accidents were also more frequent [122]. In a review article, Galobardes et al. concluded that poor socio-economic conditions in childhood are associated with a higher risk of all-cause mortality, most notably from stomach cancer, haemorrhagic stroke, coronary heart disease, lung cancer, and respiratory-related diseases [123]. Cohen et al. showed that low income during early childhood was associated with decreased resistance to upper respiratory infections in adulthood [124]. In addition to a higher incidence of infections, such subjects also had many different kinds of infections and greater illness

expression [124]. The authors' interpretation of the results was that early economic conditions influence the development of the immune processes involved in host resistance to infection and disrupt the regulation of inflammatory mediators believed to be responsible for illness expression [124]. Bosma et al. found that external locus of control, neuroticism, and passive coping style explained half of the association between low socio-economic status in childhood and poor general health in adulthood [125]. These results indicate that the foundation of vulnerability is laid in childhood, which is supported by Antonovsky's concept of SOC. The development of SOC is dependent on social class and other social and historical circumstances during childhood, adolescence and early adulthood [8]. When correlated with health and mental well-being, SOC is by far the best predictor of the following variables among children: intelligence, validity (energy level), solidity (flexibility level) and stability (sociability level), locus of control, mastery and ways of coping [126].

Previous surveys have found that FAs are a socially and psychologically exposed group with a higher level of distress. Does this exposure render them more vulnerable to all kinds of diseases, thereby explaining their frequent attendance? Some researchers have discussed vulnerability among FAs [127, 128], but no one has established an association. Many authors and clinicians hold that FAs are the chronically ill and those suffering from the most complicated diseases. True, chronic diseases are clearly overrepresented among FAs but this may be a result of underlying biopsychosocial vulnerability.

Connection between psychosocial illness and disease

Low social status and unemployment are associated with greater susceptibility to infection [129]. Negative life events and external locus of control increase the risk of morbidity, and external locus of control together with a small social network increases the risk of multi-morbidity [49]. Marital discord, persistent interpersonal stressors, and a passive coping style have been associated with poor immune function [9]. Increased stress affects the immune system, resulting in greater susceptibility to respiratory infections and slower wound healing [10, 11]. Psychological stressors influence the immune system through affecting the T- and B-lymphocytes and interleukins [9, 130]. Severe stressors may produce long-term immune dysregulation, which under some circumstances may persist for months or years after the event [9]. Individuals seem to vary in the magnitude of their immune responses to stress. These individual differences in immune reactivity may provide a vulnerability factor that mediates the relationship between stress and disease [131].

A strong SOC lessens the probability of perceiving the social environment as stressful, thereby reducing the individual's susceptibility to the health-damaging effects of chronic stress [118]. SOC may be one factor that explains individual differences in immune reactivity. FAs' weaker SOC indicates a decreased ability to handle life stress, which may result in a poor immune response and subsequent vulnerability to all kind of diseases.

Conclusions

FAs suffer from diseases typical for their age and sex but to a much higher degree than controls. Although FAs' consulting frequency is seven times higher for injuries, their consultations were found to be medically appropriate. FAs do not report a greater number of stressful life events than controls, and their social support is as strong as that of the latter. A weak SOC among FAs may provide a vulnerability factor, which would partly explain their high consulting rate and increased morbidity. FAs are a high-risk group in terms of SL/DP, and their prognosis concerning SL/DP is dependent on stressful life events. The above findings indicate that FAs are a vulnerable group of patients.

Reverting to the question posed in the foreword: Can the variation in people's consulting frequency be explained by a different comprehension of and coping with illnesses or is it just that some people contract more diseases than others? FAs seem to have a poorer ability to handle life stress, which may influence the immune system in a negative way, thereby causing more diseases.

Implications

The results from this thesis indicate that FAs are a vulnerable group of patients who, due to more diseases, have a high GP consulting frequency. These patients should be treated from a biopsychosocial perspective, as their vulnerability may have biological, psychological, or social causes. GPs should pay more attention to life events among FAs, as this seems to be a negative prognostic factor. Multidisciplinary collaboration would favour a biopsychosocial perspective and lead to a more complete understanding of the patient's illness and thereby also more appropriate interventions. GPs who alone carry the burden of these endlessly returning patients would also be relieved in multidisciplinary collaboration.

Summary in Swedish

Håkan Bergh. 2005. Frequent attenders in Primary Health Care - a vulnerable patient group seen from a biopsychosocial perspective. Department of Primary Health Care, Göteborg University, Göteborg, Sweden.

Introduktion – Den grupp av patienter som gör oproportionerligt många läkarbesök, brukar kallas för mångbesökare. Denna grupp, som utgör 3-5% av befolkningen, svarar för 15-25% av alla allmänläkarbesök. Förutom många kroniska sjukdomar så har de ofta en kombination av medicinsk, social och psykologisk problematik. En allmängiltig förklaring till mångbesökarnas höga sökfrequens finns inte idag.

Syfte – Att undersöka och beskriva fenomenet ”mångbesökande i primärvård” från ett biopsykosocialt perspektiv med ett särskilt fokus på sårbarhet.

Material och metod – I en befolkning på 10 400 individer uppdelade efter ålder och kön identifierades 341 mångbesökare och 1 025 kontroller. Journaluppgifter avseende besöksfrekvens, diagnoser, mediciner, remisser och sjukintyg under ett års tid jämfördes mellan grupperna. Alla journalanteckningar avseende olycksfallsskador under ett år bedömdes utifrån den medicinska relevansen till besöken. Uppgifter om sociodemografi, stressfulla livshändelser, socialt stöd och känsla av sammanhang inhämtades via enkäter, varefter varje enskild variabels påverkan på fenomenet mångbesökande bestämdes. Efter fem år insamlades uppgifter från försäkringskassan, varefter enkätvariablernas prediktiva betydelse för långtidssjukskrivning och sjukpensionering beräknades.

Resultat – Mångbesökarna har en ålders och könsspecifik sjuklighet likvärdig med kontrollernas, men de söker oftare läkare och får dessutom mer antibiotika förskrivet. Läkarbesöken för olycksfallsskador, som var ökade 7.2 gånger, bedömdes lika medicinskt adekvata som kontrollernas besök. Kroniska sjukdomar förklarade inte den höga skadefrekvensen. Känsla av sammanhang men inte stressfulla livshändelser eller socialt stöd hade en signifikant påverkan på mångbesökandet. Under en femårsperiod blev mångbesökarna i högre utsträckning långtidssjukskrivna och sjukpensionerade, stressfulla livshändelser var den enda prediktiva faktorn för detta.

Slutsatser – Mångbesökarna har en ålders och könsspecifik sjuklighet likvärdig med kontrollerna, men de drabbas mycket mer. Även om de har en hög sökfrequens så är deras konsultationerna medicinskt adekvata. Utmärkande för mångbesökarna är en svag känsla av sammanhang, vilken indikerar en reducerad förmåga att hantera stress. Den reducerade förmågan gör att stressfulla livshändelser oftare resulterar i långtidssjukskrivning och

sjukpension. Resultaten i denna avhandling talar för att mångbesökare är en sårbar grupp av patienter som drabbas mer av sjukdom.

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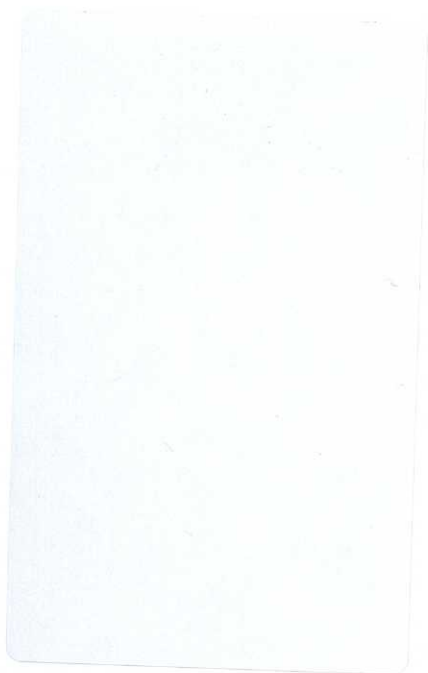
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