

# Persistent frequent attenders in primary care: case-control study comparing chronic diseases of five-year and one-year frequent attenders and features of the typical five-year frequent attenders

**CURRENT STATUS:** POSTED



Anne Santalahti  
University of Turku

✉ [anne.santalahti@ylojarvi.fi](mailto:anne.santalahti@ylojarvi.fi) *Corresponding Author*  
ORCID: <https://orcid.org/0000-0002-1411-2295>

Sinikka H. Luutonen  
Turun yliopisto Laaketieteellinen tiedekunta

Tero J. Vahlberg  
Turun yliopisto Laaketieteellinen tiedekunta

Päivi T. Rautava  
Turun yliopisto Laaketieteellinen tiedekunta

## DOI:

10.21203/rs.2.16990/v1

## SUBJECT AREAS

*General Practice*

## KEYWORDS

*Primary healthcare, features of a persistent frequent attender, chronic disease, GPs' help*

## Abstract

**Background** Persistent frequent attenders have 10 or more face-to-face visits to a general practitioner (GP) within one year and they continue frequent visits for two years or more. It seems that GPs don't recognize their persistent frequent attenders. These patients can cause frustration for GPs and furthermore patients don't seem to get the needed help from GPs. We wanted to find out typical features of persistent frequent attenders and thus help GPs to recognize these patients and even to foresee which patients will most probably become persistent attenders in the future. **Methods** We used the data of 4,392 frequent attenders (FAs) from the primary healthcare centers of the study city in 2001-2006. The five-year FAs formed the study group. Patient record entries of them were scrutinized and the background variables recorded. The background variables were described in terms of means and standard deviations or frequencies and percentages. Chronic diagnoses in the study group were compared to those of the control group. The control group was randomly selected from the group of the one-year frequent attenders in 2001-2006. Conditional logistic regression was used to compare chronic diagnoses between groups. **Results** Out of 4,392 FAs in 2001- 2006 19.4% were FAs during two years and 1.1% during five years. In the study group, there were 65% women and 35% men and the gender distribution remained equal throughout the whole follow-up period. Their average age was 51.7 year. The study group had 15.3 self-initiated visits to a GP annually and had significantly more depression ( $p=0.004$ ), epilepsy ( $p=0.035$ ), heart failure ( $p=0.019$ ), asthma ( $p=0.032$ ), chronic obstructive pulmonary disease (COPD,  $p=0.036$ ) and back pain/lumbago ( $p=0.046$ ) compared to the control group. Patients in the study group were referred to secondary care, on average, 20.1 times per person. **Conclusion** We found out that a typical persistent frequent attender was a woman at the age of 55 who had depression, low back pain, heart failure, asthma or COPD. When a GP notices this kind of a patient it might be wisdom to have extra effort with the patient and make a follow-up and treatment plan together.

## Background

The present study was executed in a city of Finland with about 178,000 inhabitants during the years 2001-2006. The general practitioners (GPs) had been employed in 13 separate public healthcare

centers of the city and GPs worked in the primary care emergency clinic of the city too. All inhabitants had the possibility to use public healthcare centers and primary care emergency clinic. GPs recorded all their patient entries in the same electronic patient record system. In the healthcare centers of the study city, there were altogether over 1.1 million visits to GPs in those years and frequent attenders made little less than 9 % of them [1].

There is no generally accepted definition of a frequent attender (FA) or a persistent frequent attender (pFA) in primary care. In Finnish studies, the contact rates of patients who are regarded as FAs have varied from 8 to 11 contacts per year [2, 3]. Frequent attendance is generally a short-time phenomenon. However part of FAs keep on visiting GPs year after year. Gill and Sharpe (1999) in their review article suggested that there should be management strategies for persistent frequent consulters [4]. Carney et al. (2001) found out that FAs resort to a normal consulting manner within five years [5]. Smits et al. (2009) defined that persistent frequent attenders were patients whose attendance rates were high during three years. They reported that 15.4% of all one-year FAs were pFAs [6]. In previous Finnish study 20% of one-year FAs regarded as pFAs for four years [2]. In the Swedish study, 14% of one-year FAs were frequent attenders also five years later [7]. Morris et al. (2012) defined a persistent frequent attender as a patient who had 30 or more appointments with GP over two years and in their study protocol they compared persistent frequent attenders` clinical characteristics and patterns of health care use to those of normal attenders [8]. Already 23 years ago Neal et al. discussed why some patients attended so much and caused stress and increased workload to GPs [9].

## Methods

The first aim of this study was to examine how common the phenomenon of persistent frequent attendance was in primary healthcare centers of study city during the six-year follow-up period (2001–2006). The second aim was to examine and analyze the profile of five-year persistent FAs. We hoped to find out facts, which could help GPs to recognize those patients who most probably will be persistent frequent attenders in future. We also compared chronic diagnoses of five-year persistent FAs with chronic diagnosis of control group chosen from one-year FA group and hoped to find out if

there were statistical differences between these groups.

The study data were received from the electronic patient record system of the study city. This electronic patient record system was used by every GP in all of the 13 public healthcare centers and in the primary care emergency clinic of the city during the whole study period 2001-2006. Frequent attenders (4,392 different patients) formed the whole study population. The research design is a registry-based analyze of five-year frequent attenders and the case control study design was used in comparing chronic diagnosis and symptoms of five-year adult FAs ( n=47 ) to those of the control group (n=94). In this study, a frequent attender was defined as a patient who had 10 or more face-to-face visits to a GP during one year and a persistent frequent attender was defined as a patient who continued visiting two years or more.

We analyzed in detail a subgroup of persistent frequent attenders who kept on visiting to GPs for five years out of the six study years. There were 47 adults and 2 children in this subgroup, which formed our study group. One of the authors (AKS) scrutinized all patient record entries of this study group and recorded the background variables. The background variables were age, gender, marital status, occupation or education, number of electronic patient record pages, number of referrals to secondary care, information about smoking, alcohol use or use of illicit drugs and body mass index (BMI).

Diagnoses of chronic diseases and long lasting symptoms which GPs were recorded to five-year adult FA group (n=47) were identified and analyzed in detail. In this study design, we used the control group. In the control group there were two age- (+/- 6 months) and gender-matched controls (n=94) assigned to each adult five-year FA patient in the study group. The controls were randomly selected from the whole FA group and they had been FAs only for one year in 2001–2006 (n=3,539). Chronic diagnoses and long lasting symptoms of the control group were identified in the same way as it was done in the study group.

### **Statistics:**

The background variables of the study group were described by means and standard deviations or frequencies and percentages. The  $\chi^2$ -test was used to examine the difference in gender distribution between the one-year FAs and those FAs who attended two to six years. In the statistical analyses,

we used only the information of adults. Conditional logistic regression was used to compare chronic diagnoses or symptoms between the study group and the control group. Results are expressed as odds ratios with 95% confidence intervals. P-values lower than 0.05 are considered statistically significant. Statistical analyses were done using the SAS System for Windows, release 9.2 (SAS Institute Inc., Cary, NC, USA). Research permit granted by Turku Health and social services.

## Results

In the years 2001–2006, there were 4 392 separate FA patients. The amount of persistent FAs in years 2001–2006 is presented in Table 1. There were 853 (19.4%) patients whose frequent attendance continued two years and 49 (1.1%) patients visited frequently for five years. Only 29 patients (0.7%) were FAs over the six-year follow-up period. Female FAs outnumbered male FAs throughout the follow-up. On average, there were 35% (range 32.6–37.3%) men and 65% (range 62.7–67.3%) women FAs and the gender percentages remained the same throughout the follow-up period.

There were 49 patients in our five-year FA study group, 37 females and 12 males. The average age was 51.7 years, counting with the two children aged 5 years. The average age among men was 48.5 (SD 13.6) years and among women 55.4 (SD 17.2) years.

In the study group, the adults had on average 15.3 (SD 3.1) self-initiated visits to a GP every year (range 11–30 visits). Of the two children, the boy made 16.8 and the girl 15.4 visits every year. The main reason for their persistent attendance was repeated infections, especially otitis media and other respiratory infections.

Patient record entries of the study group include 20 571 notes together. The adult study group (n=47) had, on average, 427.6 (SD 172.7) separate patient record entries per person (range 186–1,068), and they were referred for secondary care, on average, 20.1 (SD 11.0) times per person (range 4–51 times). The background variables had been recorded poorly. There were no entries on occupation or education for 31.9% of the patient records. The use of alcohol or illicit drugs and smoking habits and information about BMI had been recorded also poorly. In the study group there were six women and three men whose BMI was over 30 (Table 2).

The mean number of different diagnoses which was found from the patient entries of adult study

group was 21.2 per person (SD 5.3) (range 10–32) and the mean number of chronic diagnoses which GPs had recorded was 1.3 (SD 1.7) (range 0–6). Chronic diseases in the adult study group (n=47 patients) differed markedly from those in the control group (n=94 patients). The study group had statistically significantly more depression (p=0.004), epilepsy (p=0.035), heart failure (p=0.019), asthma (p=0.032), chronic obstructive pulmonary disease (p=0.036) and recurrent low back pain / lumbago (p=0.046) compared to the control group (Table 3). There were also many chronic symptoms in the study group, e.g., headache, vertigo and upper abdominal pain, but the occurrence of these symptoms was not statistically significantly different between the groups. Nor were there differences in the occurrence of fibromyalgia, colon irritable, somatization or personality disorders, but this may have been due to small number of recorded diagnoses with these diagnosis groups.

## Discussion

In our study, it seems to be a tendency for female patients around 55 years of age, probably overweight and with special chronic diseases to become persistent FAs more often than other one-year FAs. Five-year frequent attenders had many chronic diseases, of which depression, epilepsy, heart failure, asthma, chronic obstructive pulmonary disease and recurrent back pain / lumbago were significantly more common in our persistent FA group than in the one-year FA control group. Significant proportion, 47 %, of our five-year persistent frequent attenders made appointment to GP for recurrent back pain/lumbago. This has not been reported in previous studies. Whether this relates to variable diagnostic criteria or to other circumstances, e.g., differences in the culture of recording symptoms related to low back pain, is speculative. Koskela 2008 in his dissertation did not find that chronic diseases predict persistent attendance unlike we, but the cohort in Koskela`s study consisted of patients younger than 64 years and the cohort was homogenous by age and chronic diseases [2]. Smits et al (2009) reported, in agreement with our findings, that chronic psychiatric problems and chronic somatic diseases were an important contributor to permanent frequent attendance [6]. Smits et al. (2014) found that panic disorders, other anxiety, negative life events, illness behavior and lack of mastery were associated with persistent frequent attendance [10]. We could not confirm this finding in this study.

Smits et al (2009) and Pymont and Butterworth (2015) reported that persistent FAs used analgesic medication more often than one-year FAs, but the indication for pain medication was not specified [6, 11]. We found out that pFAs had more back pain, but we did not have information about prescriptions of our study group. Reho et al (2018) found out that musculoskeletal disorders were associated to working aged persistent frequent attenders [13]. This is in agreement with our findings that the five-year pFAs were 51.7 years old and significant proportion of them had recurrent back pain or lumbago. We found that the majority of pFAs were women (75.5%). In the study of Pymont and Butterworth (2015), the proportion of female persistent FAs was 75.8% [11], which fits in with our finding. Also Jörgensen et al. reported that women are more likely to be FAs over five years [12].

In the healthcare centers of the study city, the number of persistent FAs approached zero over the six-year period. Carney et al in 2001 found that most frequent attenders resort to the normal consulting pattern within five years [5], which fits with our findings. Smits et al (2009) also found that frequent attending is usually a self-limiting condition [6].

We found out that GPs had registered only 1.3 diagnoses of chronic diseases per five-year FAs to patient record entries. One of the authors (AKS) scrutinized all patient record entries and she found from the same patient entries on average 21.2 different diagnoses per five-year FAs. It seems that GPs didn't recognize their own persistent frequent attenders well enough or they didn't record FA patients' diagnoses to the patient record well enough and so it is speculative if this patient group got treatment which they were seeking again and again year after year.

The strength of this study is that we obtained data directly from the electronic patient records used by each of the GPs involved in the healthcare centers of the study city. The FA-cohort is substantial (4 392 patients). The chosen persistent FA study group was quite small (N=49) but the profile of them based on analysis of no less than 20 571 patient record entries. Albeit, the modest size of the study group constitutes a weakness of this study because some diagnoses had been recorded so seldom that meaningful statistical analyses were not always feasible. Information about health behavior habits of FAs has been registered poorly and this did not allow us to compare our findings to other studies.

## Conclusion

There is still no easy and reliable way to recognize primary care patients at risk of becoming persistent frequent attenders. However female gender, age above 55 years, overweight and chronic diseases especially depression, heart failure, asthma and especially low back pain explain persistent frequent attendance. The entries in medical records should be more comprehensive and an electronic patient record system should be able to help GPs to identify rapidly relevant information about FAs attending for consultation. So when GP notices above-mentioned patient seeking help from his/hers surgery it might be wisdom to spend a longer time with her and make treatment plan together with the patient and register information carefully on her patient record.

## List Of Abbreviations

BMI body mass index

COPD chronic obstructive pulmonary disease

GP general practitioner

FA frequent attender

pFA persistent frequent attender

## Declarations

### *Ethics approval and consent to participate*

Finnish law does not require review by an ethics committee of registry studies. This study was totally made by using registry information.

### *Consent for publication*

The medical record data used in the research has been obtained by permission of the official authority competent to grant access, who has also evaluated the legality of providing and using the data in accordance with the applicable law. Here the relevant authority has been the City of Turku, Health and social service.

### *Availability of data and material*

The data that support the findings of this study are available from Health and social service of Turku, but restrictions apply to the availability of these data, which were used under license for the current study, and so they are not publicly available. Data are however available from the authors upon

reasonable request and with permission of Health and social service of Turku.

### *Competing interests*

The authors declare that they have no competing interests.

### *Funding*

The study was supported by a grant from the Turku city healthcare center in 2009 and 2010. AKS received resource salary for one month from University hospital of Turku.

### *Authors' contributions*

AKS collected the data and performed the drafting of the manuscripts. AKS, TJV, SHL and PTR participated in the conception and design of the research, revising the manuscript for its intellectual content. TJV made statistical assays. AKS, SHL, TJV and PHR have read and approved of the final version.

### *Acknowledgements*

Thanks to Virpi Rantanen (MD, PhD adjunct professor in Obstetrics and Gynecology at the University of Turku) for valuable comments to abstract and to FA Heile Tofferi for her help with language and submitting the manuscript.

## References

1. Santalahti A, Vahlberg T, Luutonen S, Rautava P. Effect of administrative information on visit rate of frequent attenders in primary health care: ten-year follow-up study. *BMC Family Practice* 2018;19:142
2. Koskela T-H. The prognostic risk factors for long term frequent use of the primary health care services, PhD[ dissertation] Kuopio; University of Kuopio; 2008.
3. Karlsson H, Lehtinen V, Joukamaa M. Frequent attenders of Finnish public primary health care: sociodemographic characteristics and physical morbidity. *Fam Pract.* 1994;11:424-30.
4. Gill D, Sharpe M 1999: Frequent consulters in general practice: a systematic review of studies of prevalence, associations and outcome. *J of Psychosomatic Res* 1999;

47:2: 115-130.

5. Carney T, Guy S, Jeffrey G 2001. Frequent attenders in general practice: a retrospective 20-year follow-up study. *British J of Gen practice* 2001;51:567-569.
6. Smits F, Brouwer H, Riet G, van Weert H 2009. Epidemiology of frequent attenders: a 3-year historic cohort study comparing attendance, morbidity and prescriptions of one-year and persistent frequent attenders. *BMC Public Health* 2009; 9:36.
7. Andersson S-O, Lynöe N, Hallgren C-G, Nilsson Mats 2004. Is frequent attendance a persistent characteristic of a patient? *Scand J Prim Health Care* 2004; 22:91-94.
8. Morris R, Kai J, Atha C, Avery A, Bayes S, Franklin M, George T, James M, Malins S, McDonald R, Patel S, Stubley M, Yang M. Persistent frequent attenders in primary care: cost, reasons for attendance, organization of care and potential for cognitive behavioral therapeutic intervention. *BMC Family Practice* 2012,13:39
9. Neal R, Dowell A, HeyWood P, Morley S. Frequent attenders: Who needs treatment? *British J of Gen Practice* 1996, 46:131-132.
10. Smits F T, Brouwer H J, Zwinderman A H, Mohrs J, Schene A H, van Weert H C P M, ter Riet G Why do they keep coming back? Psychosocial etiology of persistence of frequent attendance in primary care: A prospective cohort study. *J of Psychosomatic Res* 77 ( 2014) 492-503.
11. Pymont C, Butterworth P. Longitudinal cohort study describing persistent frequent attenders in Australian primary healthcare. *BMJ Open* 2015; 5 e008975
12. Jörgensen J T, Andersen J S, Tjønneland A, Andersen J. Determinants of frequent attendance in Danish general practice: a cohort-based cross-sectional study. *BMC Family Practice* 2016 17:9
13. Reho T, Atkins S, Sumanen M, Viljamaa M, Uitti J. Comparing occasional and persistent frequent attenders in occupational health primary care – longitudinal

study. BMC Public Health 2018; 18:1291.

## Tables

Table 1. Duration of frequent attenders visit attendance 2001–2006

Duration of frequent attendance (years)	Individual FA patients (N)	Proportion of permanent FAs of all FAs (%)
at least 1 year	4392	
at least 2 years	853	19.4
at least 3 years	288	6.6
at least 4 years	119	2.7
at least 5 years	49	1.1
all 6 years	29	0.7

FA: frequent attender

Table 2. The background variables of 47 adult five-year pFAs

Variable	n
Marital status (N=46)	
Single	14
Married	15
Divorced	7
Widowed	4
Occupation (N=32)	
Service or industrial workers or farmers	15
Professionals	1
Retired	16
Smoking (N=10)	
Non-smoker	4
<10 / day	1
10-20 / d	5
Use of alcohol (N=11)	
Abstainer	4
Moderate (2-14 doses/week)	3
Heavy user ( $\geq 15$ doses/week)	4
Illicit drug use (N=47)	
User	3
Non-user	44
Body mass index BMI (N=14)	
Normal weight (<25)	2
Overweight (25-29.9)	3
Obese ( $\geq 30$ )	9
pFAs: persistent frequent attenders	
BMI: body mass index	

Table 3. Chronic diseases of five-year adult pFAs and controls (one-year FAs)

Chronic disease	pFA group (n=47)	Matched control group (n=94)	OR	95% CI
Asthma	15 (32)	15 (16)	2.6	1.1 - 6.0
COPD	7 (15)	4 (4)	9.7	1.2 - 81.7
Depression	25 (53)	26 (28)	3.5	1.5-8.0
Epilepsy	8 (17)	5 (5)	3.7	1.1 - 12.3
Heart failure	7 (15)	2 (2)	12.6	1.5 - 103.1
High blood pressure	23 (49)	31 (33)	2.2	1.0 - 4.7
repeated low back pain	22 (47)	28 (30)	2.2	1.0 - 4.6

OR = Odds ratio

CI = Confidence interval

FAs=frequent attenders

pFAs= persistent frequent attenders