

# Psychosocial determinants for frequent primary health care utilisation in patients with heart failure

## Psychosoziale Determinanten für häufige Hausarztkontakte bei Patienten mit Herzinsuffizienz

### Abstract

**Objective:** Psychosocial symptoms are common in patients with heart failure. Little research, however, has been done to determine which psychosocial factors influence primary care patients' consultation frequency in the case of heart failure.

**Methods:** We recruited 310 primary care patients with heart failure by analysing electronic patient records. At baseline, psychological distress (anxiety and depression; HADS), disease coping (FKV), negative affectivity and social inhibition (DS-14), disease-specific quality of life (MLHFQ) and social support (F-SozU) were measured by validated questionnaires. Severity of heart failure (according to NYHA-classification and Goldman's Specific Activity Scale) and sociodemographic characteristics were documented by self-report instruments. Nine months later, patients were contacted by telephone in order to assess GP consultation frequency. Logistic regression was done to determine whether these psychological, medical and sociodemographic factors were associated with primary care utilisation.

**Results:** On average, patients consulted their general practitioner (GP) 8.2 times during nine months. Female subjects and patients with higher levels of perceived heart failure severity, physical problems and anxiety or depression as well as those living alone visited their GP significantly more often. In multivariate analysis, frequent attendance in general practices was predicted by physical problems and living alone. These factors explained 11.6% of the variance of frequent attendance in general practices.

**Conclusion:** Psychosocial factors of help-seeking behaviour in heart failure patients focus on mental and physical discomfort and a lonely home situation. These factors might need to be compensated by GP consultation. GPs should address the rearrangement of physical, mental, and social resources to strengthen self-reliance of patients with heart failure.

**Keywords:** heart failure, psychosocial distress, primary care, consultation frequencies

### Zusammenfassung

**Fragestellung:** Psychische Ko-Symptome sind ein häufiges Phänomen bei Patienten mit Herzinsuffizienz. Allerdings gibt es wenige Daten darüber, inwiefern psychosoziale Faktoren die Inanspruchnahme des Hausarztes bei Patienten mit Herzinsuffizienz beeinflussen.

**Methode:** Insgesamt wurden 310 hausärztliche Patienten mit Herzinsuffizienz durch elektronische Routinedaten rekrutiert. Bei Erhebungsbeginn wurden psychosoziale Belastung, (Ängstlichkeit und Depressivität; HADS), Krankheitsverarbeitung (FKV), negative Affektivität und soziale Inhibition (DS-14), krankheitsspezifische Lebensqualität (MLHFQ) und soziale Unterstützung (F-SozU) durch validierte Instrumente untersucht. Schweregrad der Herzinsuffizienz (NYHA-Klassifikation) und

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Goldman's Specific Activity Scale) sowie soziodemographische Parameter wurden durch Selbstauskunft erhoben. Neun Monate später wurde die Konsultationsfrequenz durch Telefoninterviews erfragt. In logistischen Regressionsanalysen wurde die Konsultationsfrequenz durch psychische, medizinische und soziodemographische Faktoren vorhergesagt.

**Ergebnisse:** Im Durchschnitt besuchten die Patienten ihren Hausarzt 8,2-mal in neun Monaten. Frauen und Patienten mit einer subjektiv schweren Herzinsuffizienz (NYHA III-IV), Körperproblemen, Ängstlichkeit oder Depressivität sowie Alleinlebende wiesen erhöhte Konsultationsraten auf. In der multivariaten Analyse wurden häufige Arztkontakte durch Körperprobleme und Partnerlosigkeit vorhergesagt. Diese Faktoren erklärten 11,6% der Varianz einer häufigen Inanspruchnahme hausärztlicher Leistungen.

**Schlussfolgerung:** Bei Patienten, die häufig hausärztliche Hilfe benötigen, stehen mentale und physische Beeinträchtigung sowie Einsamkeit im häuslichen Umfeld im Vordergrund. Folgen dieser Einschränkungen müssen möglicherweise durch Hausärzte kompensiert werden. Bei der Beratung von Patienten mit Herzinsuffizienz sollte auf eine Stärkung der mentalen, physischen und sozialen Ressourcen geachtet werden.

**Schlüsselwörter:** Herzinsuffizienz, psychosoziale Belastung, Allgemeinmedizin, Konsultationshäufigkeit

## Background

Heart failure affects about 2% of the general population and causes considerable health care costs [1]. For many patients, heart failure has also social and psychological impact that needs to be considered by general practitioners (GPs). Prevalences of depression in heart failure patients have been reported from 15% to 36%, which is clearly above even life time prevalence of 13% for major depression in the general population [2], [3], [4], [5]. Incidences of anxiety in heart failure patients are about 29% [6] to 45% [7]. Since heart failure is a complex disease affecting several dimensions of daily life, it can cause multiple problems that may lead to high consultation frequencies in general practices [8].

As a measure for health care utilisation, consultation frequencies reflect the need of a patient for support and the GP's workload. Especially in chronic diseases, consultation frequencies may be associated with several sociodemographic and psychosocial factors, such as age, sex [9], economic status [10], [11] and psychological distress [12]. However, little attention has been directed to the question, which psychological factors contribute to primary care utilisation in patients with heart failure. We therefore conducted a longitudinal study to examine the question of whether and to what extent physical and emotional problems, coping style, social support, and sociodemographic characteristics influence GP consultation frequency in patients with heart failure.

## Methods

### Study design

This is a longitudinal observation study, where primary care patients with heart failure were recruited through electronic patient records. The baseline characteristics of our sample have been reported elsewhere [13]. Anxiety and depression, disease coping, social support, and severity of heart failure were assessed by validated questionnaires. Nine month later, patients were contacted by telephone to assess GP consultation frequency during the past interval in order to analyse the relationship between primary health care utilisation and psychosocial determinants. The study was approved by the ethics committee of the University of Göttingen.

### Recruitment of patients

We used a GP network of 104 practices [14] which has been established as part of a project on quality of medical care in general practice (MedViP [15]). Of these, all general practices within a radius of 30 km around Göttingen (N=44) were selected for participation in this study. Electronic patient data (date of birth, sex, diagnoses) were exported via a defined interface and transferred to a database. This database was screened for patients with the documented diagnosis of heart failure using a specific search strategy based on structured standard query language (SQL). From 44 general practices, 4120 patients with heart failure could be identified. From April 2003 to July 2004 all GPs received lists with patient identification codes and dates of birth. GPs were asked to exclude pa-

tients from the list, if they met the following exclusion criteria:

- Heart failure diagnosis not valid
- Terminal illness or death
- Cancer
- Patients seen by locums only
- Moved in a region outside of the study area
- Severe disability
- Lack of language competence
- Inability to communicate (e.g. dementia).

## Instruments and data collection

After written consent was obtained, patients mailed a baseline questionnaire filled in at home to the study centre. Nine months later, study nurses conducted standardised telephone interviews and asked patients about GP consultations during the past interval.

### Collection of baseline data

In addition to the following instruments, sociodemographic data were obtained by a standardized questionnaire at baseline. Except self-rating according to the classification of the New York Heart Association, the German versions of all psychometric instruments have been validated previously and found suitable for research in physically ill patients [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28].

*Questionnaire for the self-assessment of heart failure severity according to the classification of the New York Heart Association (NYHA)*. This is a self-developed, non validated modification of the NYHA classification that is used world-wide in every day practice. According to the NYHA criteria, patients assessed the severity of their heart disease on a 4-point scale.

*Goldman's Specific Activity Scale (SAS)* [16], [17], [18]. The SAS is a validated instrument that allows a functional classification of the severity of heart failure. Like the NYHA classification, impairment is measured on a four-point scale; higher scores are associated with higher levels of impairment.

*Hospital Anxiety and Depression Scale (HADS)* [19], [20], [21]. The Hospital Anxiety and Depression Scale (HADS) is a widely used short self-assessment questionnaire, especially developed for physically ill patients. Its items mainly ask for psychological manifestations of (generalized) anxiety and depressive mood. Each of the two subscales consists of seven items. Possible subscale scores range from 0 to 21.

*Social support Questionnaire (Fragebogen zur Sozialen Unterstutzung; F-SozU)* [22]. The 14-item short form (five-point scale: from „relevant“ to „not relevant“) assesses perceived social support. The items refer to different aspects of experienced support (emotional support, instrumental support and social integration).

*Freiburg Questionnaire for Coping with Illness (Freiburger Fragebogen zur Krankheitsverarbeitung; FKV)* [23]. The FKV is a questionnaire that takes into account five coping

dimensions: depressive coping, active problem-focused coping, distraction and self-encouragement, religious faith and search for meaning, as well as minimisation and wishful thinking. Items can be answered on a five-point Likert-scale (from 1 = „not relevant at all“ to 5 = „very relevant“).

*Type D Scale (DS14)* [24], [25], [26]. This instrument assesses components of the Type D personality trait, a psychological construct referring to simultaneous tendencies to experience negative emotions and inhibit the expression of these emotions in social interactions. The DS14 consists of two 7-item subscales measuring negative affectivity and social inhibition.

*Minnesota Living with Heart Failure Questionnaire (MLHFQ)* [27], [28]. The MLHFQ measures the effects of heart failure and treatments for heart failure on an individual's quality of life by using 21 Likert scaled items scored zero to five. Disease specific quality of life is indicated on the MLHFQ total score and two subcores (physical and emotional problems). Higher values indicate more severe impairment.

### Ascertainment of consultation frequencies

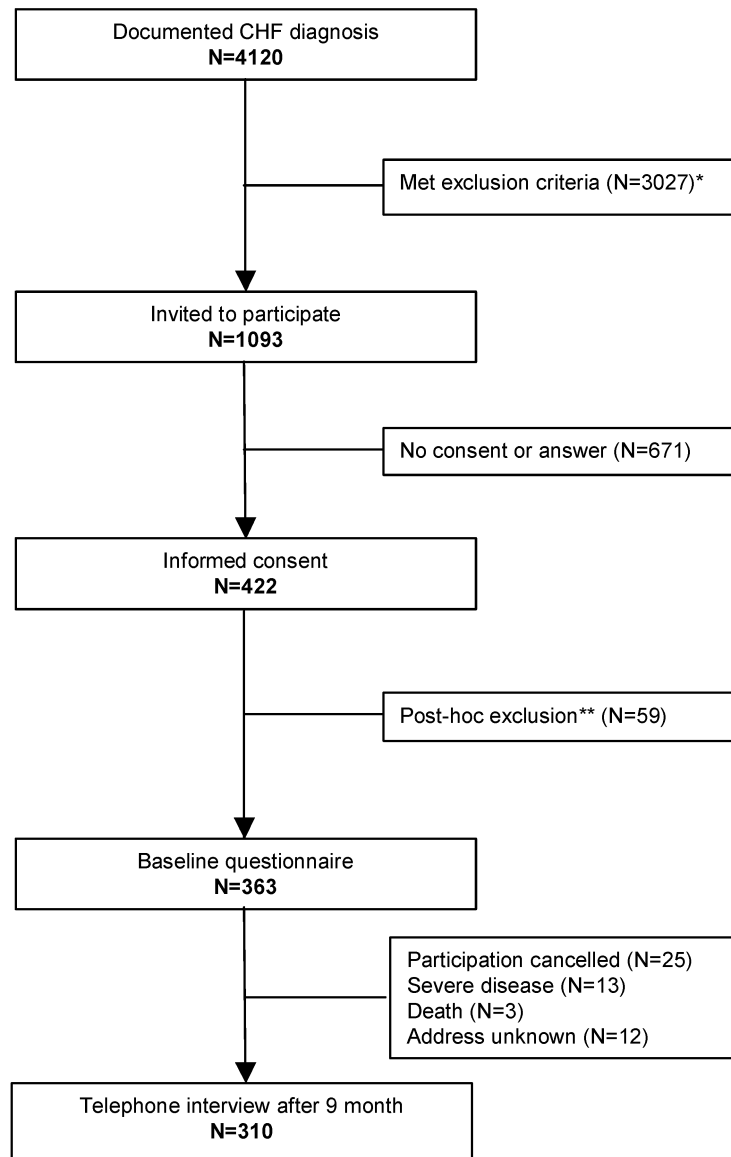
After nine month patients were contacted by telephone. To ascertain rates of consultation with the GP, responders were asked first: „Over the past 9 months have you consulted a GP or family doctor on your own behalf?“ If „yes“, responders were then asked, „How many times have you visited the GP on your own behalf?“

## Statistical analysis

All data were coded and entered into an anonymized database on a personal computer. For the statistical analyses, SPSS for Windows (V.14) standard software was used.

Consultation rates showed a multimodal distribution with highest frequencies at 0, 3, 9, and 18 consultations (i.e., never, every three months, monthly, twice a month), and normal distribution was neither present nor achievable by log-transformation. We therefore dichotomized consultation rates below the highest modal value, i.e., between 17 and 18 consultations. Patients who consulted their GP at least 18 times during 9 months observation period (ie, at least twice a month) were allocated to the „frequent attenders“ group. This group comprised approximately 15% of the sample (see Table 1). Higher cutoffs appeared unfeasible because of small remaining sample sizes in the frequent attenders' group. When lower cutoffs were tested, results remained virtually unchanged.

For group differences of baseline variables between unfrequent and frequent attenders we used chi-square tests and t-tests. To predict frequent attendance of heart failure patients in general practices, we performed a logistic regression, including all variables of bivariate analysis with  $p < 0.05$  (gender, living situation, severity of heart failure, anxiety, depression, physical problems; see Table 1). We report adjusted odds ratios with corresponding 95%



\* No CHF (N=455); terminal illness (N=24); death (N=639); patients seen by locums (N=469); export of electronic patient record incorrect (N=486); dementia (N=377); severe mental disorder (N=110). The remaining patients (N=467) had either changed domicile or GP or had an urgent need for care, inability to communicate or suffered from cancer.

\*\* Consent in the study cancelled (21), questionnaire not filled in (34), heart failure diagnosis not valid (2), communication problems (2).

Figure 1: Study flow

confidence intervals and p-values (p-values less than 0.05 indicating statistical significance).

## Results

From initially 4120 subjects with a documented diagnosis of heart failure 1093 were invited and 310 patients finally participated in the study. Exclusion criteria and the flow through the study are shown in Figure 1.

The mean age was 72.9 years (SD=9.0). On average, patients consulted their GP 8.2 times during nine month. Forty-eight patients (15.5%) were frequent attenders, while 262 patients (84.5%) belonged to the unfrequent

attenders group (less than two visits per month). In bivariate analyses, women and patients living alone were more likely to visit their GP at least twice per month. Low self-rated severity of heart failure was associated with infrequent attendance while frequent attenders showed significantly higher levels of self-rated heart failure-related impairment (NYHA and Goldman SAS). High primary care utilisation was also influenced by anxiety and depression (HADS) as well as by physical problems measured by the Minnesota Living with Heart Failure Questionnaire (Table 1).

In multivariate analysis, patients who had physical problems and patients living alone visited their GP significantly

Table 1: Baseline characteristics of patients (N=310)

Baseline variables	Unfrequent attenders (N=262) (≤17 consultations in 9 months)	Frequent attenders (N=48) (>17 consultations in 9 months)	p <sup>4</sup>
<b>Sociodemographic parameters</b>			
Age; M(SD)	72.1 (9.1)	74.6 (8.5)	n.s.
Female; N(%)	132 (50.4)	33 (68.8)	0.02
Living alone; N(%) <sup>1</sup>	83 (32.0)	23 (51.1)	0.01
<b>Severity of heart failure; N(%)</b>			
NYHA self-rating <sup>2</sup>			<0.001
NYHA I	147 (57.4)	15 (33.3)	
NYHA II	92 (35.9)	17 (37.8)	
NYHA III	13 (5.1)	13 (28.9)	
NYHA IV	4 (1.6)	-	
Goldman SAS <sup>3</sup>			<0.001
Goldman I	119 (48.6)	11 (24.4)	
Goldman II	59 (24.1)	8 (17.8)	
Goldman III	60 (24.5)	25 (55.6)	
Goldman IV	7 (2.9)	1 (2.2)	
<b>Psychological distress (HADS); M(SD)</b>			
Anxiety	5.7 (3.7)	7.2 (3.8)	0.02
Depression	6.0 (4.0)	7.4 (3.9)	0.04
<b>Type D personality (DS); M(SD)</b>			
Negative affectivity	10.8 (5.6)	11.0 (5.5)	n.s.
Social inhibition	9.5 (5.6)	9.0 (5.7)	n.s.
<b>Quality of life (MLHFQ); M(SD)</b>			
Physical problems	13.6 (9.9)	21.3 (10.8)	<0.001
Emotional problems	3.9 (4.0)	5.4 (5.1)	n.s.
<b>Social support (F-SozU); M(SD)</b>			
	4.0 (0.8)	4.1 (0.8)	n.s.
<b>Coping style (FKV); M(SD)</b>			
Depressive Coping	9.8 (4.0)	10.1 (3.7)	n.s.
Active problem-focussed coping	13.9 (4.6)	13.6 (4.0)	n.s.
Distraction and self-encouragement	14.3 (4.4)	14.7 (4.0)	n.s.
Religious faith / search for meaning	13.9 (4.1)	14.7 (3.8)	n.s.
Minimisation and wishful thinking	6.7 (2.8)	7.4 (2.9)	n.s.

<sup>1</sup> Missing data: N=3

<sup>2</sup> Missing data: N=9

<sup>3</sup> Missing data: N=9

<sup>4</sup> Chi-square or t-tests

Table 2: Predictors for frequent primary health care utilisation (frequent attendance\* yes/no)

Baseline variables	Range	OR	95% CI**	p
<b>Domestic situation</b>				
Living alone	Yes/No	2.4***	1.1 ; 5.1	0.02
<b>Disease specific quality of life</b>				
MLHFQ physical problems	(0-40)	1.1****	1.0 ; 1.1	<0.001

R<sup>2</sup> = 11.6

\* >17 consultations in 9 months

\*\* 95% confidence interval

\*\*\* for living alone vs. not living alone

\*\*\*\* per point increase on the MLHFQ-Scale

more often. These factors explained 11.6% of the variance of frequent attendance in general practices (Table 2).

## Discussion

### Main findings

In this longitudinal study of patients with heart failure, consultation frequencies in general practice during nine months could, at least to some degree, be predicted by

several psychosocial baseline characteristics. In multivariate analysis, physical problems and living alone were independently related to frequent attendance.

### Strengths and limitations

Our study was conducted in a relatively large group recruited by a defined algorithm from the whole patient population of various practices. The quite large number of exclusions can be traced back to predefined reasons according to this algorithm (Figure 1) so that it is unlikely

that our sample was subject to an unintentional selection bias.

Since it was intended to examine psychosocial predictors of primary health care utilisation, no objective data on left ventricular dysfunction and underlying cardiac pathology or comorbidity were collected. Our predictive model explained only 11.6% of the variance of consultation frequency. It might have been further improved by controlling for objective cardiac measures such as ejection fraction or natriuretic peptides. These parameters should be considered in further studies on primary health care utilisation in heart failure. Classification of heart failure severity was assessed by self-rating questionnaires and not by objective measures. However, it should be kept in mind that heart failure severity rated by physicians is also far from being objective and psychological variables such as depressive mood are bidirectionally related to physicians' severity ratings. Furthermore, all our results were based on psychometric data obtained by validated questionnaires.

## Meaning of the study

In our study, patients living alone visited their GP more frequently. Interestingly, this does not confirm some findings from Ellaway and colleagues [29]. In their study, primary health care utilisation was higher in patients who "felt lonely" but not in those who were living alone. However, their findings refer to a much younger sample. Especially older patients with chronic heart failure might need a partner for support and advice in health-related problems and questions and therefore may compensate a low consultation frequency with their GP.

Complementing the findings of Ellaway et al. [29], anxiety and depression of the patients in our study was associated with frequent attendance in general practices during the following nine months. Bushnell et al. [30] report that the diagnosis of depression might also be inversely related with consultation frequencies. They suggested that psychological problems are only missed among patients with low consultation rates and concluded that GPs should foster continuity of care in order to improve the recognition of mental disorders.

## Implications for practice

A previous study about frequent attenders in general practice addressed the heterogeneity and multiplicity of their problems, such as chronic, minor, terminal, recurrent or unexplained illness, and a plethora of social and psychological problems [8]. At least for patients with heart failure we might provide a quite clearly contoured set of psychosocial factors contributing to GP consultation. We differentiate that in these patients consultation rates seem to be influenced by psychological distress (anxiety and depression) as well as by a lack of resources on the body level (physical problems) and personal level (living alone). Thus, as far as help-seeking from a GP in these patients is influenced by psychological factors, it is both

a question of mental and physical discomfort and a question of a lonely home situation. These factors might need to be compensated by GP consultation in patients suffering from heart failure. In order to manage chronic diseases with regard to a strengthening of self-reliance of patients with heart failure, GPs should address the rearrangement of physical, mental, and social resources.

## Notes

### Competing interests

The authors declare that they have no competing interests.

### Authors' contributions

MS participated in the design of the study, performed the statistical analyses and wrote the first draft of the paper. WH and CHL participated in study design, statistical analyses and the writing of the manuscript. DA, JFC, and AS contributed to the interpretation of the results and the writing of the manuscript. JK and MMK participated in the design and extensively commented on the manuscript. All authors have approved the final manuscript.

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