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Factors associated with referral to psychiatric care by general practitioners compared with self-referrals

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ABSTRACT

Background. The gatekeeper function of the general practitioner (GP) in the pathway to specialized psychiatric services was investigated in this study, which is part of the Nordic Comparative Study on Sectorized Psychiatry. The question addressed in this paper is whether different socio-demographic and clinical factors as well as factors related to service utilization are associated with referral from the GP compared with self-referrals (including referrals from relatives).

Methods. The study comprised a total of 1413 consecutive patients, admitted during 1 year to five psychiatric centres in four Nordic countries. The centres included in this study were those that accepted non-medical referrals. Only new patients (not in contact with the service for at least 18 months) were included.

Results. Increasing age was the only sociodemographic factor significantly associated with referral by the GP. The clinical factors (psychosis, being totally new to psychiatry and being in need of in-patient treatment) and some treatment characteristics (planned out-patient treatment and involuntary in-patient treatment), were all significantly associated with referral by the GP. Some indication was found that self-referred patients have shorter episodes of care.

Conclusions. The findings were remarkably stable across the different centres indicating a general pattern. This study extends previous work on the role of GPs in the pathway to specialized psychiatric services and indicates that the GP has an important gatekeeper function for the most disabled patients.

INTRODUCTION

The importance of the general practitioner (GP) as the referring agent to psychiatric services has been accepted since the work of Shepherd *et al.* (1966). According to the well-known Goldberg & Huxley model (1980), a patient has to pass through a number of filters in order to arrive at the specialized mental health care level. First, patients have to decide to seek help for their problems (filter one). If they do, they enter the second level of the model, which is the GP. The second filter then is the GPs' ability to detect psychiatric disorders and the third one is the decision to refer to specialized care. In this model, which suggests that the principal pathway to psychiatric care is: 'community – GP – psychiatric care', the GP is the gatekeeper to the specialized psychiatric services. This role of the GP can be studied from both the GP side and the psychiatric service side.

In the first type of study the role of the GP as gatekeeper has been questioned. Detection rates of mental illness are low (Marks *et al.* 1979; Blacker & Clare, 1987; Joukamaa *et al.*

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1994) and there are wide variations in referral rates (Robertson, 1979; Verhaak, 1993). Wilkinson (1989), reviewing the literature on referral of patients by GPs to psychiatrists and mental health specialists, states that the reason for this is not clear. The main determinants of a higher proportion of psychiatric referral are, with regard to GP characteristics, the ability to detect psychiatric disorder, older age and single-handed practice. Patient characteristics related to higher referral rates are, male sex, younger age (between 25 and 45), psychotic disorder and chronic disorder (more than 1 year's duration). Determinants of high referral rates as regards the psychiatric services are, community-orientated service (for patients with psychotic disorders) and urban and accessible service. The patient characteristics mentioned are in accordance with more recent findings (Verhaak, 1993). Arreghini *et al*. (1991) on the other hand could not find any association between sociodemographic variables and referral rates. They found that past psychiatric history, psychological presenting complaint, social problems and GPs' psychiatric diagnosis exerted positive joint main effects on GP referral to specialist psychiatric services.

The second approach to throw some light on the role of the GP in the pathway to psychiatric services has been to compare characteristics of patients who are referred by the GP with those who are referred by other referring agents in service systems where non-medical referrals are equally accepted. Lim (1983) reported attendances over a period of 6 months to a psychiatric emergency clinic in London. Thirty per cent of 1280 patients were referred by a GP compared to 42% who were self-referred. According to the author, disturbed patients identified by psychosis diagnosis or in terms of their requiring at least overnight admission, were more frequent among family and police referrals, although in terms of sheer numbers the majority were self-referred. Two-thirds of patients with no fixed abode were self-referred. More women were referred by GPs, nearly half of them received neurosis diagnoses, while more men were self-referred. Blaney (1987) studied 212 out-of-hours referrals to a walk-in emergency service at a general psychiatric hospital in Edinburgh. Self-referrals comprised 57% and GP referrals 26% of the total referrals. The results indicated that male alcoholics and a number of chronic schizophrenics used the psychiatric emergency service as a primary care service. On the other hand referrals from GPs and 'others' were admitted more frequently than self-referrals. Marriott *et al*. (1993), in their study on the consequences of an open referral system to a community mental health service in London, compared those referred by GPs with those referred by other sources. Out of the 590 patients studied, 35% were referred by GPs and only 7% were self-referred. The results indicated that patients with major mental disorder who are in unstable or temporary housing and come from ethnic minorities, are more likely to be referred by sources other than the GP. A typical patient referred from general practice was a young woman with problems with her relationships who, on assessment, was found to be suffering from a mood or adjustment disorder.

The result from these studies are somewhat inconsistent, but indicate that the most disabled patients bypass the GP in their pathway to psychiatric care. The studies, however, include one catchment area only; the relative importance of service characteristics is not known; two of the studies are based on relatively small numbers of patients and only bivariate statistical analyses were performed. Thus, the role of the GP as gatekeeper in open referral systems still remains unclear.

Another way of studying the role of the GP from the psychiatric service side is to look at characteristics of utilization of psychiatric services (both qualitatively and quantitatively) of those referred by the GP compared with other groups. As far as we can know there is no literature on such an approach.

The objective of this study is to examine the gatekeeper function of the GP in catchment areas where referrals from non-medical sources are equally accepted (i.e. referrals from self, relatives, social workers, police and so on), by comparing those patients referred by the GP with those who referred themselves. The study is part of The Nordic Comparative Study on Sectorized Psychiatry where seven psychiatric care organizations from four Nordic countries are participating (Hansson *et al*. 1995). Two of the centres, Bodø (Norway) and Mora (Sweden) are excluded from this study since non-medical referrals are not equally accepted in these sectors, leaving the centres in Frederiksberg and Greve

(Denmark), Oulu (Finland) and Skellefteå and Stockholm (Sweden) for analysis. The patients are characterized by sociodemographic and clinical variables and the importance of these, as well as the importance of certain characteristics of admission (contact variables), to the outcome variable (referring agent) are analysed by using univariate and multivariate logistic regression techniques. Service consumption is analysed by the same technique as well as by the Cox regression method (survival analysis). By comparing the results from the five participating psychiatric care organizations, whether there is a general pattern or not in the functioning of the GP as gatekeeper, can be elucidated. The study will examine the following research questions.

1 Do sociodemographic and clinical factors differ between patients referred by the GP and self-referred patients?

2 Do factors concerning utilization of the psychiatric services differ between patients referred by the GP and self-referred patients?

3 Are there important catchment area differences concerning the relationship between these factors and patterns of referral?

METHOD

Design

The Nordic Comparative Study on Sectorized Psychiatry is a prospective study of treated incidence and utilization of psychiatric services during a 1-year follow-up. The treated incidence cohorts included all new patients contacting the psychiatric services during 1 year from April 1990 (in Greve this was from October 1990). 'New' was defined as not having been in contact with the psychiatric services during 18 months before index contact. Patients aged 18 years and above were included, except for Frederiksberg, Greve and Oulu where patients aged 15 years and above were included.

Data collection

The following sociodemographic patient characteristics were collected at index contact: age; sex; marital status (not married, married, divorced or widowed); cohabiting (living alone, with partner, with parents, other); children (children at home, children not at home); and, employment status (working, on sick-leave, unemployed, pension, other). The following clinical patient characteristics were collected: earlier in-patient psychiatric care (yes, no); earlier out-patient (including daycare) psychiatric care (yes, no); care level at index contact in the psychiatric service (in-patient, day-patient, out-patient). Except in Denmark, diagnosis was made according to ICD-9 by the psychiatrist in charge of the patient. For matters of comparability, diagnoses for the Danish patients were recoded from ICD-8 to ICD-9 diagnoses. The following characteristics of service utilization were recorded: voluntary or involuntary (in-patients only); planned or not planned (in-patients as well as out-patients). Not planned or acute admission was defined as admission within 24 h from referral. Duration of treatment (days from beginning until end of treatment) as well as number of out-patient contacts were registered. Referring agent (self-referral, relatives, general practitioner, somatic care, other psychiatric care, social services, other) was also recorded. The data were collected prospectively by the psychiatrist, medical doctor, psychologist, social worker or nurse who first met the patient in the psychiatric service. There were no refusals. Missing data for 98 patients were collected retrospectively from the medical records by the members of our study group who also checked the prospectively collected data. For 28 patients we did not succeed in getting a full data set. Each patient is included only once in the analyses.

The participating psychiatric services

Department of Psychiatry, Frederiksberg, Copenhagen, Denmark

The catchment area is part of the inner city of Copenhagen. It is densely populated with a total population of 85000 inhabitants.

Community Mental Health Center, Greve, Denmark

The catchment area is part of the Roskilde county in the vicinity of Copenhagen. It is a suburban area with a total population of 45000 inhabitants.

Department of Psychiatry, Sector A, Oulu, Finland

The catchment area covers the university and industrial town of Oulu with a total population of 101000 inhabitants.

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Table 1. *Referring agents in the total sample and in the participating sectors*

	The total sample ($N = 2160$) %	Oulu ($N = 537$) %	Skellefteå ($N = 581$) %	Stockholm ($N = 352$) %	Frederiksberg ($N = 511$) %	Greve ($N = 179$) %
Self-referral	39·3	62·8	42·5	29·0	23·7	23·5
Relative	8·8	6·5	14·5	3·7	10·0	3·4
General practitioner	18·7	13·4	15·1	17·3	19·6	45·8
Somatic care	11·3	3·9	12·7	7·4	21·5	6·7
Other psychiatry	11·2	2·6	1·7	40·6	11·7	8·4
Social service	2·8	0·7	3·6	2·0	1·8	11·2
Other	8·0	10·1	9·8	0·0	11·7	1·1

Department of Psychiatry, Skellefteå, Sweden

The catchment area covers the small town of Skellefteå in northern Sweden and its sparsely populated surroundings, a total population of 80 000 inhabitants.

Department of Psychiatry, Sector Central City, Stockholm, Sweden

The catchment area covers the central parts of the city of Stockholm and has a total population of 53 000 inhabitants.

All the centres provide a 24-hour comprehensive psychiatric service. They are to a varying degree, hospital based, the rates of beds ranges from 0·76/1000 inhabitants in Greve to 2·45 in Oulu. Out-patient staff varies from 0·24/1000 inhabitants in Greve to 0·64 in Skellefteå. The proportion of out-patient staff from the total staff available in each sector varies from 14–21%. For a more thorough description of the services (resources and accessibility) see Hansson *et al.* (1995) and Saarento *et al.* (1995, 1996*a*, *b*). The degree of liaison between GPs and the psychiatric services could not be quantified in our study. None of the centres has a special liaison programme directed towards the GPs. In all the sectors GPs do see patients out of hours.

Pathways to care

Most of the centres have long traditions of accepting referrals from non-medical sources. However, in Greve self-referrals had been accepted for only 6 months prior to commencement of the study. The distribution of referring agents for the total sample is shown in Table 1; 'somatic care' refers to speciality medical care; 'other' includes referring agents such as police, alcohol clinics, employer, home help, school, or friend. The largest group was the self-referrals, followed by referrals from the GP. The most striking difference between the services is the high proportion of self-referrals in Oulu and Skellefteå compared with Greve, which had the highest proportion of GP referrals.

Statistical analysis

To investigate whether sociodemographic and clinical factors differed between patients being referred by the GP and patients who were self-referrals (including referrals from relatives), univariate odds-ratios (OR) were first estimated. For each characteristic, the odds of being referred by a GP was calculated (odds = $p/(1-p)$, where p is the proportion referred by a GP). For example: the odds ratio of 'living together' can be obtained by dividing the odds of this category by the odds of the category we want to compare with ('living alone').

To obtain adjusted odds ratios, multivariate logistic regression was performed for all of the sociodemographic and clinical variables in Table 2. In this way independent predictors could be distinguished. Referring agent (i.e. referred by self *v.* by GP) was used as the dependent variable. To investigate whether the association with any of the sociodemographic and clinical factors differed between sexes and diagnostic groups, separate analyses were performed for strata defined by sex and diagnostic group, respectively. To investigate association with the characteristics of admission and utilization of care separate analyses were performed for out-patients and for in-patients. All sociodemographic and clinical variables were used for

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Table 2. *Proportion of the sample referred by the GP compared with self-referrals, according to sociodemographic and clinical characteristics. Univariate odds ratios and multivariate odds ratios*† *(OR) and 95% confidence intervals*

	Total sample ($N = 1413$) *N*	GP referrals ($N = 397$) %	Univar. OR	95% CI	Multivar. OR	95% CI
Age (years)						
15 (18)–44	887	20·7	1		1	
45–64	348	32·5	1·84**	(1·34–2·42)	1·63**	(1·21–2·20)
65–94	178	56·2	4·90**	(3·49–6·87)	4·11**	(2·70–6·28)
Sex						
Male	629	24·2	1		1	
Female	784	31·3	1·43**	(1·31–1·81)	1·09	(0·84–1·43)
Marital status						
Married	475	26·7	1		1	
Not married	942	28·8	1·11	(0·86–1·42)	1·16	(0·86–1·56)
Cohabiting						
Living with others	830	25·7	1		1	
Living alone	583	31·6	1·34*	(1·06–1·69)	0·95	(0·71–1·27)
Children						
At home	407	23·6	1		1	
Not at home	1006	29·9	1·38*	(1·06–1·80)	0·96	(0·69–1·33)
Employment status						
Working	700	23·7	1		1	
Unemployed	713	32·4	1·54**	(1·22–1·95)	0·95	(0·71–1·26)
Diagnosis						
Not psychosis	1053	23·7	1		1	
Psychosis	360	40·8	2·22**	(1·72–2·86)	1·52**	(1·12–2·08)
Previous psych. treatment						
Yes	680	28·1	1		1	
No	733	28·1	1·00	(0·79–1·26)	1·37*	(1·06–1·77)
Care level at index contact						
Out-patient	1177	26·3	1		1	
In-patient	236	37·3	1·67**	(1·24–2·24)	1·44*	(1·02–2·06)
Sector						
Oulu	443	16·3	1		1	
Skellefteå	418	21·1	1·37	(0·97–1·94)	1·21	(0·84–1·74)
Stockholm	176	34·7	2·73**	(1·83–4·08)	2·69**	(1·74–4·15)
Frederiksberg	246	38·2	3·19**	(2·22–4·57)	2·24**	(1·51–3·32)
Greve	130	63·1	8·80**	(5·69–13·62)	9·26**	(5·87–14·61)

† Adjusted for all the variables presented in this table.
* $P < 0{\cdot}05$; ** $P < 0{\cdot}01$.

stratification. The model was applied in each stratum separately.

In order to avoid the problem of small number of observations within cells, all independent variables, except age, which was divided into three categories ($0 < 45$, $1 = 45$–64, $2 > 64$), were dichotomized as follows: sex (0 male, 1 female); marital status (0 married, 1 unmarried including divorced and widowed); cohabiting (0 living with others including partner, parents and others, 1 living alone); children (0 children at home, 1 children not at home); employment status (0 working including sick-leave, 1 not-working including pension and others); diagnosis (0 not psychosis, 1 psychosis including ICD-9 nos. 290–298); previous psychiatric care (0 yes including earlier in-patient, out-patient and daycare, 1 no); care level at index contact (0 out-patient, 1 in-patient including daycare); planned admission to psychiatric care (0 yes, 1 no); voluntary admission (0 yes, 1 no); number of out-patient contacts (0 < one contact, 1 one contact); duration of in-patient treatment (0 > three days, 1 one–three days).

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Only patients with a complete data set were included in the analysis, i.e. 1413 of 1441 patients.

RESULTS

The total sample

Most of the variables showed significant association with referring agent in the univariate analyses, the only exceptions were marital status and previous psychiatric treatment (see Table 2). The older, females, those living alone, with no children at home, not employed, with a psychosis and in-patient status at index contact were more likely to have been referred by the GP.

The multivariate logistic regression on the total sample (Table 2) revealed that of the sociodemographic factors, only age remained significant. The chance of being referred by a GP increased with increasing age. Of the clinical factors, those with psychosis, no previous treatment and being in-patient at index contact were more likely to have been referred by the GP.

Differences by sex and diagnostic group

Multiple logistic regression was then performed for strata defined by sex and by diagnostic group respectively. Only significant factors are depicted in the tables in addition to sex.

Table 3. *Sociodemographic and clinical factors associated with referral by the GP* (*by sex*). *Multivariate odds ratios*† *and* 95% *confidence intervals* (*significant factors only are shown*)

	Men		Women	
	OR	95% CI	OR	95% CI
Age (years)				
15 (18)–44	1		1	
45–64	1·58	(1·00–2·50)	1·69*	(1·12–2·54)
65–94	4·22**	(1·96–9·07)	3·63**	(2·12–6·21)
Cohabiting				
Living with others	1		1	
Living alone	1·54**	(0·34–0·86)	1·44	(0·97–2·12)
Diagnosis				
Not psychosis	1		1	
Psychosis	1·38	(0·84–2·25)	1·64*	(1·09–2·46)
Previous psych. treatment				
Yes	1		1	
No	1·51*	(1·00–2·28)	1·27	(0·90–1·80)

† Adjusted for all the variables presented in Table 2.
* $P < 0·05$; ** $P < 0·01$.

The sex differences are shown in Table 3. For both sexes there is an age effect. There also is an effect of cohabital status for men; those living with others were more likely to be referred by a GP. For both sexes, in addition, those with psychosis were more likely to be referred by a GP although this is only significant for women. Patients without previous treatment were more likely to be referred by a GP (only significant for men).

There are differences with regard to diagnostic groups, as shown in Table 4. For both diagnostic groups there is an age effect, this is strongest, however, for those with psychosis. Among the patients with psychosis those without previous treatment and in-patient care at index contact were more likely to be referred by a GP.

Characteristics of admission and duration of treatment

The results are shown in Table 5. With regard to the out-patients, those with planned admission were more likely to be referred by the GP. The same holds for involuntary admitted in-patients.

When it comes to duration of treatment we found that out-patients with more than one contact were more likely to be referred by the GP (although only significant in the univariate

Table 4. *Sociodemographic and clinical factors associated with referral by the GP* (*by diagnostic group*). *Multivariate odds ratios*† *and* 95% *confidence intervals* (*significant factors only are presented together with sex*)

	Not psychosis		Psychosis	
	OR	95% CI	OR	95% CI
Age (years)				
15 (18)–44	1		1	
45–64	1·45*	(1·02–2·06)	2·32**	(1·26–4·27)
65–94	2·79**	(1·56–5·02)	8·09**	(3·94–16·58)
Sex				
Male	1		1	
Female	1·04	(0·75–1·36)	1·19	(0·71–1·99)
Previous psych. treatment				
Yes	1		1	
No	1·27	(0·93–1·74)	1·69*	(1·02–2·82)
Care level at index contact				
Out-patient	1		1	
In-patient	1·09	(0·64–1·84)	1·84*	(1·11–3·07)

† Adjusted for all the variables presented in Table 2.
* $P < 0·05$; ** $P < 0·01$.

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Table 5. *Characteristics of admission and duration of treatment associated with referral by the GP (by care level at index contact). Univariate odds ratios and multivariate odds ratios*† *(OR) and 95% confidence intervals*

	Sample *N*	GP referrals %	Univar. OR	95% CI	Multivar. OR	95% CI
Out-patients	(*N* = 1176)	(*N* = 309)				
Planned admission						
Yes	572	39·7	1		1	
No (acute)	604	13·6	0·24**	(0·18–0·32)	0·18**	(0·12–0·27)
Number of contacts						
> 1 contact	739	28·3	1		1	
1 contact	437	22·9	0·75*	(0·57–0·99)	0·92	(0·66–1·28)
In-patients	(*N* = 236)	(*N* = 88)				
Planned admission						
Yes	42	47·6	1		1	
No (acute)	194	35·1	0·59	(0·30–1·16)	0·81	(0·22–2·98)
Voluntary admission						
Yes	192	31·3	1		1	
No (involuntary)	44	63·6	3·85**	(1·94–7·64)	7·42**	(2·53–21·72)
Duration of treatment						
> 3 days	195	41·0	1		1	
1–3 days	41	19·5	0·35*	(0·15–0·79)	0·23*	(0·07–0·80)

† Adjusted for all the variables in Table 2. Significant sociodemographic and clinical factors are not shown.
* $< 0{\cdot}05$; ** $P < 0{\cdot}01$.

analysis). Only nine in-patients were treated for 1 day. Therefore, in-patient episodes lasting > 3 days were compared with episodes of 1 to 3 days. Those with longer duration were significantly more likely to be referred by the GP.

Survival analysis using the Cox regression technique gave no significant differences in duration of treatment, either for out-patients or in-patients when adjusting for all the sociodemographic, clinical and contact variables.

Catchment area differences

The most striking feature is that the age effect is the same in the different catchment areas, reaching the level of significance four times, the only exception being Oulu, where the middle-aged are more likely than the oldest to be referred by a GP. For the other sociodemographic factors the picture is not so homogeneous. The only other significant factor is found in Frederiksberg where the unmarried are more likely to be referred by a GP than the married.

Concerning the clinical characteristics, the picture is much more homogeneous. There is a tendency to have been referred by the GP for the psychotics in all sectors except Frederiksberg (this was significant in Oulu); for those without previous treatment in all sectors except Stockholm (this was significant in Skellefteå); for in-patients in all sectors except Skellefteå (this was significant in Oulu).

In all sectors there is a tendency that the planned out-patient admissions are referred by the GP, this reaches the level of significance in Oulu, Skellefteå and Frederiksberg. For the in-patients it was not possible to do the analyses for Stockholm and Greve because of low patients numbers and empty cells. For the remaining three sectors the only clear picture is that involuntary admitted patients are more likely to be referred by the GP, this reaches the level of significance in Oulu.

DISCUSSION

The factors associated with GP-referral in this study indicate that the more disabled patients are more likely to be referred by the GP. This is particularly shown by the results from the univariate analysis. This finding seems to be the opposite of that reported by other investigators using a similar approach of comparing groups (Lim, 1983; Blaney, 1987; Marriot *et al.* 1993). Marriott *et al.* (1993) concluded that their finding may indicate that those with more severe mental

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health problems are largely bypassing the conventional referral pathway through primary care. However, they compare GP-referrals with all other referrals so local factors concerning the other referring agents could be of greater importance in explaining this than the actual role of the GP.

The task of this study was to elucidate the role of the GP as gatekeeper (Goldberg & Huxleys' 2nd and 3rd filter) in communities with an open referral system. Therefore, GP-referrals were compared with self-referrals only, which is supposed to be the most obvious consequence of an open referral system, with regard to referring agent. Furthermore, the design of this study excluded more chronic patients. In an open referral system, they are expected to bypass the GP to a greater extent than new patients, which is supported by our finding that patients with previous psychiatric treatment (> 18 months ago) are more likely to refer themselves. The different findings presented by Lim (1983), Blaney (1987) and Marriot *et al*. (1993) could simply be explained by the fact that they have included chronic patients.

In the multivariate analysis, age was the only significant sociodemographic factor, the likelihood of being referred by the GP increased with increasing age. This finding seems to be the most consistent in our study, which holds both for men and women and for both diagnostic groups (not psychosis, psychosis). It is also a remarkably constant finding across the participating sectors and it seems unlikely that the different inclusion criteria between the centres could have affected the results as only 20 patients were between 15- and 18-years-old.

The univariate analysis showed that women are more likely to be referred by the GP than men, a finding also reported by Lim (1983). However, in the multivariate analysis this association disappeared. Wilkinson (1989) and Verhaak (1993) reported higher referral rates for men. But, it is also reported that males are more likely to bypass the GPs and refer themselves (Lim, 1983; Hutton, 1985). If both these trends are present in the sectors participating in this study, they could outweigh each other in a design like ours, giving the impression that the GPs treat both sexes equally, which need not be the case. A peculiar sex difference concerning cohabiting status showed up when we stratified by sex. Men living with others are more likely to be referred by the GPs while the opposite trend although not significant, was found for women. This finding seems difficult to interpret in the context of our study and needs further elucidation.

All the clinical variables remained significant in the multivariate analysis. From Table 4 (stratifying for diagnostic group) we can see that those with psychosis, who are never treated before and are in need of in-patient services are more likely to be referred by the GPs. These associations seem remarkably constant across the different sectors. This consistency across the participating sectors concerning age and the clinical factors, independent from the great differences in the proportions referred by GP and self (Table 1), is also of further interest. It indicates a general pattern where the GP seems to play an important role as gatekeeper towards the most disabled with regard to age and psychiatric illness (new psychotics in need of in-patient treatment). This is in accordance with the findings of Ormel *et al*. (1990) that the GPs' detection rates for severe mental disorders were higher than those for less severe disorders, and the findings of Farmer & Griffiths (1992) that severity of illness is determining the GPs' decision to refer to psychiatry.

One interpretation about this gatekeeper function of the GP might be that the findings simply reflect which patients are most likely to consult their GPs when in need of mental health services: namely, females; aged people; and those with highest level of psychiatric morbidity (Vázquez-Barquero, 1990; Gallo *et al*. 1995; Verhaak, 1995). There are, however, reasons to believe that the GP plays a more active role than this. Findings from the Epidemiological Catchment Area-survey (ECA) in the USA (Marino *et al*. 1995) indicate that most persons in the community with newly-incident psychiatric disorder have consulted a GP, so that there was little evidence for the bypass effect postulated in the Goldberg and Huxley model. Furthermore, they found that it is at first hand the schizophrenics the GP refers to psychiatry. In our study it is not known to what degree the self-referred have first consulted a GP and then refer themselves at the GP's request. But, if it is assumed that this is the case in the participating sectors, then a reasonable interpretation of the

findings would be that the GP plays a more active role as gatekeeper towards those patients who otherwise would not come into contact with specialized psychiatric care, i.e. those patients who do not recognize their symptoms as being related to psychiatric disorder (aged, psychotic, new to psychiatry). Such a conclusion is in concordance with that of Fink *et al*. (1970). They found that the less well educated and non-psychiatrically orientated patients are brought to the psychiatric services by their family doctor. With regard to the elderly, one could also assume that lack of knowledge and prejudices about psychiatry makes them less prone to refer themselves to the psychiatric services.

One should expect that planned admissions, to a greater degree, are referred by the GP. Although it is not recorded in this study, acute admissions could be regarded as crisis intervention. It is not surprising that most of them are self-referrals in communities with an open referral system underpinning the accessibility of the psychiatric services. On the other hand, most involuntary admissions were referred by the GP. This is also what one should expect and indicates the role of the GP in crisis intervention, where the patient and his surroundings are in a serious crisis and the patient does not want to admit voluntarily to psychiatic services. In such circumstances one asks the GP for help.

Duration of treatment could be looked upon as an indicator of the appropriateness of the referral, longer duration indicating more need for help. Table 5 shows some indication that the GP referrals are more appropriate in this sense both concerning out-patient and in-patient treatment. However, the survival analysis (Cox-regression) does not give support to these results, so this point needs further research.

In conclusion, it seems that the GP brings the most disabled patients to psychiatric treatment. Both the sociodemographic and clinical variables as well as the contact variables and duration of treatment indicates this. Thus, the importance of the GP in mental health care in communities with an open referral system is emphasized in our study.

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The Nordic Comparative Study on Sectorized Psychiatry Research Group

In addition to the authors the following people are participants in the research group: Frederiksberg, Denmark – Marianne Kastrup and Hanne Randskov Vinding; Greve, Denmark – Sten Muus; Stockholm, Sweden – Olle Lönnerberg; Oulu, Finland – Erkki Väisänen and Helinä Hakko.

REFERENCES

Arreghini, E., Agostini, C. & Wilkinson, G. (1991). General practitioner referral to specialist psychiatric services: a comparison of practices in North- and South-Verona. *Psychological Medicine* **21**, 485–494.

Blacker, C. V. R. & Clare, A. W. (1987). Depressive disorder in primary care. *British Journal of Psychiatry* **150**, 737–751.

Blaney, D. (1987). Out of hours referrals to a general psychiatric hospital. *Health Bulletin* **45**, 67–70.

Farmer, A. E. & Griffiths, H. (1992). Labeling and illness in primary care: comparing factors influencing general practitioners' and psychiatrists' decisions regarding patient referral to mental illness services. *Psychological Medicine* **22**, 717–723.

Fink, R., Shapiro, S. & Goldensohn, S. (1970). Family physician referrals for psychiatric consultation and patient initiative in seeking care. *Social Science and Medicine* **4**, 273–291.

Gallo, J. J., Marino, S., Ford, D. & Anthony, J. C. (1995). Filters on the pathway to mental health care, II. Sociodemographic factors. *Psychological Medicine* **25**, 1149–1160

Goldberg, D. & Huxley, P. (1980). *Mental Illness in the Community: the Pathways to Psychiatric Care*. Tavistock Publications: London.

Hansson, L. Øiesvold, T., Göstas, G., Kastrup, M., Lönnerberg, O., Saarento, O. & Sandlund, M. (1995). The Nordic comparative study on sectorized psychiatry, I. Treated point prevalence and characteristics of the psychiatric services. *Acta Psychiatrica Scandinavica* **91**, 41–47.

Hutton, F. (1985). Self-referrals to a community mental health centre: a three year study. *British Journal of Psychiatry* **147**, 540–544.

Joukamaa, M., Lehtinen, V., Karlsson, H. & Rouhe, E. (1994). SCL-90 and recognition of mental disorders reported by primary health care physicians. *Acta Psychiatrica Scandinavica* **89**, 320–323.

Lim, M. H. (1983). A psychiatric emergency clinic: a study of attendances over six months. *British Journal of Psychiatry* **143**, 460–466.

Marino, S., Gallo, J. J., Ford, D. & Anthony, J. C. (1995). Filters on the pathway to mental health care, I. Incident mental disorders. *Psychological Medicine* **25**, 1135–1148.

Marks, J. N., Goldberg, D. P. & Hillier, V. F. (1979). Determinants of the ability of general practitioners to detect psychiatric illness. *Psychological Medicine* **9**, 337–353.

Marriott, S., Malone, S., Onyett, S. & Tyrer, P. (1993). The consequences of an open referral system to a community mental health service. *Acta Psychiatrica Scandinavica* **88**, 93–97.

Ormel, J., Van den Brink, W., Koeter, M. V. J., Giel, R., Van der Meer, K., Van de Willige, G. & Wilmink, F. W. (1990). Recognition, management and outcome of psychological disorders in primary care: a naturalistic follow-up study. *Psychological Medicine* **20**, 909–923.

Robertson, N. C. (1979). Variations in referral pattern to the psychiatric services by general practitioners. *Psychological Medicine* **9**, 355–364.

Saarento, O., Øiesvold, T., Göstas, G., Lindhardt, A., Sandlund, M., Vinding, H. R., Zandrén, T. & Hansson, L. (1995). The Nordic comparative study on sectorized psychiatry, II. Resources of the psychiatric services and treated incidence. *Acta Psychiatrica Scandinavica* **92**, 202–207.

Saarento, O. Øiesvold, T., Göstas, G., Christiansen, L. W., Lindhardt, A., Lönnerberg, O., Sandlund, M. & Hansson, L. (1996*a*). The Nordic comparative study on sectorized psychiatry, III. Accessibility of psychiatric services, degree of urbanization and treated incidence. *Social Psychiatry and Psychiatric Epidemiology* **31**, 259–265.

Saarento, O., Hansson, L., Sandlund, M., Göstas, G., Kastrup, M., Muus, S., Nieminen, P., Zandrén, T. & Øiesvold, T. (1996*b*). The nordic comparative study on sectorized psychiatry. Utilization of psychiatric hospital care related to amount and allocation of resources to psychiatric services.*Social Psychiatry and Psychiatric Epidemiology* **31**, 327–335.

Shepherd, M., Cooper, B., Brown, A. C. & Kalton, G. (1966). *Psychiatric Illness in General Practice*. Oxford University Press: London.

Vázquez-Barquero, J. L., Wilkinson, G., Williams, P., Diez-Manrique, J. F. & Peña, C. (1990). Mental health and medical consultation in primary care settings. *Psychological Medicine* **20**, 681–694.

Verhaak, P. F. M. (1993). Analysis of referrals of mental health problems by general practitioners. *British Journal of General Practice* **43**, 203–208.

Verhaak, P. F. M. (1995). Determinants of the help-seeking process: Goldberg and Huxley's first level and first filter. *Psychological Medicine* **25**, 95–104.

Wilkinson, G. (1989). Referrals from general practitioners to psychiatrists and paramedical mental professionals. *British Journal of Psychiatry* **154**, 72–76.