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Do characteristics of patients with major depressive disorder differ between primary and psychiatric care?

MARIA S. VUORILEHTO[1,2], TARJA K. MELARTIN[1], HEIKKI J. RYTSÄLÄ[3] AND ERKKI T. ISOMETSÄ[1,4]*

[1] *Department of Mental Health and Alcohol Research, National Public Health Institute, Finland*; [2] *Primary Health Care Organization of the City of Vantaa, Finland*; [3] *Department of Psychiatry, HUCH, Peijas Hospital, Finland*; [4] *Department of Psychiatry, University of Helsinki, Finland*

ABSTRACT

Background. Despite the need for rational allocation of resources and cooperation between different treatment settings, clinical differences in patients with major depressive disorder (MDD) between primary and psychiatric care remain obscure. We investigated these differences in representative patient populations from primary care *versus* secondary level psychiatric care in the city of Vantaa, Finland.

Method. We compared MDD patients from primary care in the Vantaa Primary Care Depression Study (PC-VDS) ($n=79$) with psychiatric out-patients ($n=223$) and in-patients ($n=46$) in the Vantaa Depression Study (VDS). DSM-IV diagnoses were assigned by the Structured Clinical Interview for DSM-IV Axis I disorders (SCID-I in PC-VDS) or Schedules for Clinical Assessment in Neuropsychiatry (SCAN in VDS), and SCID-II interviews. Comparable information was collected on depression severity, Axis I and II co-morbidity, suicidal behaviour, preceding clinical course, and attitudes towards and pathways to treatment.

Results. Prevalence of psychotic subtype and severity of depression were highest among in-patients, but otherwise few clinical differences between psychiatric and primary care patients were detected. Suicide attempts, alcohol dependence, and cluster A personality disorder were associated with treatment in psychiatric care, whereas cluster B personality disorder was associated with primary care treatment. Patients' choice of the initial point of contact for current depressive symptoms seemed to be independent of prior clinical history or attitude towards treatment.

Conclusions. Severe, suicidal and psychotic depression cluster in psychiatric in-patient settings, as expected. However, MDD patients in primary care or psychiatric out-patient settings may not differ markedly in their clinical characteristics. This apparent blurring of boundaries between treatment settings calls for enhanced cooperation between settings, and clearer and more structured division of labour.

INTRODUCTION

Meeting treatment needs for depression (Demyttenaere *et al*. 2004; Paykel *et al*. 2005) calls for rational allocation of resources and responsibilities within the health-care system. Primary care lies at the basis of care for depression according to various national practice guidelines (AHCPR Depression Guideline Panel, 2000; Ellis & Smith, 2002; USPSTF, 2002; Isometsä *et al*. 2003; NICE, 2004). Referral to psychiatric care is commonly recommended for patients with psychotic depression and at high risk of suicide and, less consistently, for other patient groups with characteristics related to poor prognosis. Marked clinical differences can

* Address for correspondence: Erkki T. Isometsä, M.D., Ph.D., Professor of Psychiatry, Institute of Clinical Medicine, Department of Psychiatry, PO Box 22, 00014 University of Helsinki, Finland.
(Email: erkki.isometsa@hus.fi)

therefore be expected between patients within primary care and secondary level psychiatric care. However, little is known about the differences in characteristics between patients in these settings.

Only a few studies directly compare patients with major depressive disorder (MDD) in primary care with those in secondary level psychiatric care, and all have important limitations. Even comparisons in large epidemiological general population surveys often lack sufficient statistical power to disentangle differences in characteristics (Hamalainen *et al.* 2004). Moreover, their lay-administered diagnostic interviews focus on caseness rather than on clinical picture. The only large survey with direct comparisons between patients using general medical services for depression and those using specialist mental health services is the US Epidemiologic Catchment Area (ECA) Study, which found greater depressive severity and co-morbidity of dysthymia and anxiety to be related to specialist treatment (Cooper-Patrick *et al.* 1994; Burns *et al.* 2000). In general, psychiatric co-morbidity has in epidemiological studies clustered in specialist care (Kessler *et al.* 2005).

Rarely have studies conducted within healthcare services compared differences between treatment settings. The first such study found primary care depressives who were prescribed a new course of antidepressants considerably less severely ill than the comparison group of psychiatric out-patients, with fewer depressive symptoms and shorter duration of illness (Sireling *et al.* 1985). In the Medical Outcome Study (MOS), psychiatric out-patients with screened MDD or dysthymia had in telephone interviews more often double depression, more symptoms of depression, higher Hamilton Depression Rating Scale (HAMD) scores (Hamilton, 1960), and greater co-morbidity of phobias compared with screened general medical patients (Wells *et al.* 1995). Two other major studies with direct comparisons between settings have shown minimal differences in characteristics. The first included patients with new prescriptions in a relatively unique Health Managing Organization (HMO) setting (Simon *et al.* 2001), and the second compared patients consenting to treatment as a part of the Sequenced Treatment Alternatives to Relative Depression (STAR*D) study (Gaynes *et al.* 2005). However, neither of these studies included primary care patients who were not recognized by the doctor to need treatment, or patients refusing it.

Screened MDD patients in both settings, to our knowledge, has been investigated in only one large clinical study (Schwenk *et al.* 1996) with face-to-face diagnostic interviews. Among primary care patients this study reported less prior treatment despite a higher prevalence of lifetime anxiety and substance use disorders. However, according to the authors, the psychiatric patients in this study who sought treatment in a tertiary university clinic were too mildly depressed to effectively represent typical secondary care psychiatric patients (Schwenk *et al.* 1996). Overall, based on these studies, depressive primary care patients seem to be older, more often female, and less educated than specialists' patients. Compared with specialists' patients their functional limitations may be different (Stewart *et al.* 1993) or slighter (Schwenk *et al.* 1996), and the risk for recurrent depression equal (Coyne *et al.* 1999) or smaller (Burns *et al.* 2000). However, no differences between these two populations were found in current co-morbid substance use disorders (Cooper-Patrick *et al.* 1994; Burns *et al.* 2000). The available studies give no information, to our knowledge, about differences in co-morbid Axis II disorders and only a fragmentary view of other differences between depressed primary care patients and psychiatric out-patients.

Finally, besides sociodemographic and clinical factors, patients' preferences, attitudes and choices influence help-seeking, the way of entering the services, and pathways within services, especially if self-referral is possible. The probability of active help-seeking increases if depression is severe, co-morbid, prolonged, or causes intense suffering (Galbaud du Fort *et al.* 1999; Alonso *et al.* 2004; Hamalainen *et al.* 2004). Help-seeking may also be enhanced by favourable attitudes towards professional help (Coyne *et al.* 1999) or by attributing the perceived distress to a mental health problem (Hamalainen *et al.* 2004). The impact of attitudes on the site where treatment is sought has not been investigated. While the stigma associated with depression is known to be a major obstacle to seeking help (Docherty, 1997),

information about factors related to patients' preferences is scarce.

In this study, we investigated differences in patients with MDD in representative samples from primary care *versus* secondary level psychiatric out-patient and in-patient care, in terms of severity of depression, Axis I and II comorbidity, suicidal behaviour, previous clinical course, attitudes towards treatment, and pathways of care.

METHOD

Study subjects came from two separate but comparable cohorts from the same catchment area: primary care patients from the Vantaa Primary Care Depression Study (PC-VDS) and psychiatric out- and in-patients from the Vantaa Depression Study (VDS). Both are collaborative research projects of the Mood Disorder Research Unit of the Department of Mental Health and Alcohol Research of the National Public Health Institute, Helsinki, Finland, with E.T.I. as the principal investigator. PC-VDS was carried out in the Primary Healthcare Organization of the City of Vantaa, and VDS in the Department of Psychiatry of the Peijas Medical Care District. The Ethics Committee of the Helsinki University Central Hospital approved the study protocols in 1996 (VDS) and 2001 (PC-VDS).

The detailed methodology and baseline findings of PC-VDS (Vuorilehto *et al*. 2005) and VDS (Melartin *et al*. 2002, 2004, 2005) have been reported elsewhere. Table 1 presents an outline of the methodology of the two studies. In both studies, patient sampling was based on screening for depression. In primary care (PC-VDS), 1119 patients were offered a screen in the waiting rooms of the general practitioners irrespective of the reason for their visit (Vuorilehto *et al*. 2005). In psychiatric care (VDS), 806 patients were screened for an incident major depressive episode if they were seeking help by self-referral, referred to treatment, or were already in treatment but had an acute deteriorating clinical state (Melartin *et al*. 2002). In PC-VDS eight patients refused screening and 29 screening-positive patients refused further participation. In VDS of the screening-positive patients, 23% refused to participate. The patients who refused did not differ significantly ($p>0{\cdot}05$) in age or gender from those who consented to participate in VDS and PC-VDS. After screening positive and before the second phase, all participants provided written informed consent.

In the second phase, current MDD was diagnosed in a face-to-face interview in PC-VDS using the Structured Clinical Interview for DSM-IV Axis I disorders, research version, patient edition with psychotic screen (SCID-I/P; First *et al*. 2001) and in VDS using the World Health Organization Schedules for Clinical Assessment in Neuropsychiatry, version 2.0 (SCAN; Wing *et al*. 1990). To exclude substance-induced mood disorder, patients who were currently abusing alcohol or other substances were interviewed after 2–3 weeks of abstinence.

In the third phase of both studies, the current symptomatology of the index episode was assessed (Table 1). The researcher made full DSM-IV Axis I diagnoses (SCID-I in PC-VDS, SCAN in VDS). Because of differences between the diagnostic tools in assessing substance use disorders, we only used them to compare current alcohol dependence. The SCID-II for DSM-III-R (Spitzer *et al*. 1987) (VDS) or DSM-IV (First *et al*. 1997) (PC-VDS) personality disorders was used to assess all co-morbid diagnoses on Axis II. The severity of depressive symptoms was assessed with the Hamilton Depression Scale (HAMD; Hamilton, 1960) and the Beck Depression Inventory (BDI; Beck *et al*. 1961), and the severity of anxiety symptoms with the Beck Anxiety Inventory (BAI; Beck *et al*. 1988). Suicidal behaviour was assessed using the Scale for Suicide Ideation (SSI; Beck *et al*. 1979) and interviews (Sokero *et al*. 2003; Vuorilehto *et al*. 2006), hopelessness with the Beck Hopelessness Scale (BHS; Beck *et al*. 1974), level of functioning with the Social and Occupational Functioning Assessment Scale (SOFAS; First *et al*. 2001), and social support with the Perceived Social Support Scale–Revised (P-SSSR; Blumenthal *et al*. 1987).

The two studies were designed to be comparable with some minor modifications. For the comparability with VDS including only MDD patients, we excluded from the PC-VDS cohort patients with current subsyndromal depression ($n=46$) and those aged over 59 years ($n=17$),

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Table 1. *Methods used in the Vantaa Primary Care Depression Study (PC-VDS) and the Vantaa Depression Study (VDS)*

Phase	PC-VDS	VDS
Timing of screening	Between 1 January 2002 and 31 December 2002	Between 1 February 1997 and 31 May 1998
Catchment area	Two districts in the city of Vantaa (population of 63 400 in 2002)	City of Vantaa (population 169 000 in 1997)
Setting	Primary Health Care Organization of the City of Vantaa, Finland Three health centres Two maternity clinics served by 30 GPs with population-based responsibility	Department of Psychiatry of the Peijas Medical Care District, Helsinki University Central Hospital, Vantaa, Finland One psychiatric in-patient unit One general hospital out-patient clinic Six community mental health care centres Two day hospitals
Diagnosticians	A psychiatrist	Three psychiatrists and two psychologists
Target group	Consecutive primary care patients aged 20–59 years in GPs' waiting rooms[a]	All psychiatric patients aged 20–59 years (1) seeking treatment, (2) referred to treatment, or (3) already in treatment with an acute deteriorating clinical state
Exclusion criteria	Poor general health status prohibiting completion of screening form	ICD-10 schizophrenia, bipolar I
Screening procedure	(*a*) PRIME-MD: one positive mood disorders item, and (*b*) telephone interview: one or more main symptoms of depression according to the SCID-I/P	(*a*) Five screening questions for depression from the WHO SCAN: one positive, and/or (*b*) SSI: a score of six or more
Total screened	1111 (eight refused)	806
Screened positive	402	703
Refusals, total	37 (9·2%)	161 (22·9%)
Diagnostic interview	After informed consent DSM-IV (SCID-I/P and SCID-II)	After informed consent DSM-IV (axis I, SCAN), and DSM-III-R (SCID-II)
Inclusion criteria	DSM-IV MDD with no current treatment in psychiatric care	DSM-IV MDD
The cohort	74 primary care patients with MDD	223 out-patients and 46 in-patients with MDD
Diagnostic reliability	20 videotaped diagnostic interviews, κ coefficient for current MDD 1.0; not tested for co-morbidity	Twenty videotaped diagnostic interviews, κ coefficient for current MDD 0.86 (0·58–1·00); not tested for co-morbidity
Symptom assessment	HAMD, BDI, BAI, BHS, SSI, SOFAS, P-SSSR	HAMD, BDI, BAI, BHS, SSI, SOFAS, P-SSSR

GP, General practitioner; PRIME-MD, Primary Care Evaluation of Mental Disorders; SCID-I/P, Structured Clinical Interview for DSM-IV Axis I Disorders, research version, patient edition with psychotic screen; MDD, major depressive disorder; HAMD, Hamilton Depression Rating Scale; BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory; BHS, Beck Hopelessness Scale; SSI, Scale for Suicide Ideation; SOFAS, Social and Occupational Functioning Assessment Scale; P-SSSR, Perceived Social Support Scale – Revised; WHO SCAN, World Health Organization Schedules for Clinical Assessment in Neuropsychiatry, version 2.0.

[a] From the primary PC-VDS cohort, only patients meeting the full criteria of MDD and aged under 60 years were included.

thus including in this comparison study only patients aged 20–59 years with MDD. Using comparable question-forms, all available medical and psychiatric records and interviews, we gathered information about demographic characteristics, clinical history of the depressive illness both during the ongoing episode and during previous possible episodes, and treatment history. Age at illness onset was defined as onset of the first mood episode that fulfilled DSM-IV criteria for a major depressive episode. Attitudes towards antidepressant and psychotherapeutic treatments were assessed separately in the interview with the following response alternatives: (1) actively wants treatment, (2) passively accepts treatment, (3) has reservations about treatment, (4) has clearly negative attitude towards treatment, and (5) could not answer. In the analysis, items 1 and 2 were considered positive attitudes and items 3 and 4 were considered negative (Melartin *et al.* 2005). The point of first contact with health-care services for depressive symptoms was classified as either (*a*) general medical or (*b*) mental health contact. Contacts involving either the patient actively seeking help or recognition of depression by a health-care professional were included as first contacts. General medical contact was defined as seeing a non-psychiatric physician or other health professional in any primary care or medical setting (including substance use treatment services in the case of one PC-VDS

and five VDS patients). Mental health contact was defined as either seeing a psychiatrist or psychologist (irrespective of setting) or other professional (e.g. nurse or social worker) in psychiatric care.

Statistics

The analyses included 74 primary care patients, 223 psychiatric out-patients and 46 psychiatric in-patients. Univariate analyses were conducted to examine between-group differences in primary care patients, psychiatric out- and in-patients, as well as the associations between first point of entry into services and demographic and clinical variables. Pearson's χ^2 and Fisher's exact tests, Student's *t* test, the Mann–Whitney *U*-test, analysis of variance (ANOVA) and the Kruskal–Wallis test were used where appropriate. For descriptive purposes, in the tables we present all *p* values that are significant at the $<0{\cdot}05$ level, irrespective of the number of statistical tests. The proportion of missing data in each group was less than 5%, unless stated otherwise. Our main findings were tested in multinomial regression models. Models were created by classifying the dependent variable of treatment setting into three categories: primary care patients, psychiatric out-patients, and psychiatric in-patients. The predetermined independent variables comprised HAMD (alternative models were also made where observer-rated HAMD was replaced with subjective symptoms as measured with the BDI), phobic anxiety disorders (agoraphobia, social phobia, and simple phobia), alcohol dependence, cluster A and B personality disorders, lifetime suicide attempts, and positive attitude towards psychotherapeutic treatment. From the final models, we discarded variables that were not significantly associated with independent variables, and then forced into the model the duration of the episode before intake to adjust for the effect of differences in participant selection. SPSS version 12.0 (SPSS Inc., Chicago, IL, USA) was used.

RESULTS

Sociodemographic characteristics

The primary care patients, the psychiatric out-patients, and the psychiatric in-patients did not differ significantly by age (mean 41·7 *v.* 39·5 *v.* 40·3 respectively), gender (women 76% *v.* 74% *v.* 70%), marital status (married or cohabiting, 58% *v.* 51% *v.* 46%), or social support as measured with the P-SSSR ($41{\cdot}6 \pm 12{\cdot}7$ *v.* $38{\cdot}7 \pm 12{\cdot}3$ *v.* $41{\cdot}0 \pm 14{\cdot}3$). The patients in the three settings were equally educated (university level education, 7% in all three), unemployed (18% *v.* 22% *v.* 17%, N.S.), and on disability pension for mental health reasons (5% *v.* 3% *v.* 9%, N.S.). The primary care patients were, however, more often on disability pension for medical reasons than the out- and in-patients [7% (5/74) *v.* 1% (2/223) *v.* 2% (1/46), $\chi^2 = 7{\cdot}135$, df = 2, $p = 0{\cdot}016$].

Clinical characteristics

In Table 2, comparisons of symptom scores revealed that, based on clinician-rated HAMD scores, the primary care patients and the psychiatric out-patients were equally depressed, but primary care patients had less self-reported symptoms in BDI. Compared with the other two groups, the in-patients had higher scores in HAMD and a lower level of functioning in the SOFAS. Among the in-patients, the prevalence of psychotic subtype was also markedly higher than in the other two groups [1% (1/74) *v.* 5% (10/223) *v.* 26% (12/46), $\chi^2 = 32{\cdot}77$, df = 2, $p < 0{\cdot}001$].

Axis I and Axis II co-morbidity

Table 3 shows the differences present between the three groups in Axis I co-morbidity. Compared with primary care patients, the out-patients had more agoraphobia, the in-patients more alcohol dependence, and both had more specific phobias. However, somatization disorders were seen only in primary care. Concerning Axis II co-morbidity, the prevalence of cluster B personality disorders was highest in primary care; *post-hoc* tests between primary care and out-patient care revealed higher prevalence of borderline personality disorders [27% (37/74) *v.* 10% (23/223), $\chi^2 = 25{\cdot}3$, df = 1, $p < 0{\cdot}001$], antisocial personality disorders [5% (4/74) *v.* 0% (1/223), $\chi^2 = 8{\cdot}248$, df = 1, $p = 0{\cdot}015$] and narcissistic personality disorders [7% (5/74) *v.* 1% (2/223), $\chi^2 = 5{\cdot}940$, df = 1, $p = 0{\cdot}012$] among primary care patients. Cluster A predominated in psychiatric care; among both out- and in-patients, paranoid personality disorder was more common [4% (3/74)

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Table 2. *Current symptom scores of 343 patients with major depressive disorder*

	Primary care patients (PC)[a] ($n=74$)		Out-patients (OP)[b] ($n=223$)		In-patients (IP)[b] ($n=46$)		Significance				
							PC *v.* OP *v.* IP		PC *v.* OP		PC *v.* IP
	Mean	S.D.	Mean	S.D.	Mean	S.D.		*p*	*p*		*p*
HAMD	17·9	4·6	18·1	5·8	24·9	5·0	df=2, $F=31·25$	<0·001[c]	—		<0·001[d]
BDI	23·5	9·8	27·5	8·4	28·9	9·5	df=2, $F=6·94$	0·001[c]	0·004[d]		0·009[d]
BAI	21·1	14·0	22·0	11·0	24·4	10·1	—	—	—		—
BHS	10·3	5·1	10·3	4·7	10·1	5·3	—	—	—		—
SOFAS	54·9	11·4	53·9	9·1	41·7	13·1	df=2, $F=29·95$	<0·001[c]	—		<0·001[d]
SSI median (25;75 percentiles)	1	(0;7)	0	(0;11)	16·5	(3;21)	$\chi^2=31·14$	<0·001[e]	—	$Z=-4·691$	<0·001[f]

HAMD, Hamilton Depression Rating Scale; BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory; BHS, Beck Hopelessness Scale; SOFAS, Social and Occupational Functioning Assessment Scale; SSI, Scale for Suicide Ideation; S.D., standard deviation.

[a] Vantaa Primary Care Depression Study.

[b] Vantaa Depression Study.

[c] Tested with analysis of variance (ANOVA).

[d] Tested with ANOVA with the Scheffe method.

[e] Tested with the Kruskal–Wallis test.

[f] Tested with the Mann–Whitney test.

v. 17% (37/223) *v.* 22% (10/46), $\chi^2=9·2$, df=2, $p=0·006$] than among primary care patients.

Suicidal behaviour

Table 2 demonstrates that current suicidal ideation measured with the SSI was most frequent among psychiatric in-patients. A steep gradient from primary care through out-patient care to in-patient care appeared in the reported suicide ideation or the reported attempts during the ongoing episode [ideation 19% (14/74) *v.* 50% (111/223) *v.* 72% (33/46), $\chi^2=35·39$, df=2, $p<0·001$; attempts 5% (4/74) *v.* 9% (20/223) *v.* 46% (21/46), $\chi^2=49·95$, df=2, $p<0·001$]. The reported suicide ideation and suicide attempts during lifetime showed a similar gradient [ideation 30% (22/74) *v.* 44% (97/223) *v.* 72% (33/46), $\chi^2=20·42$, df=2, $p<0·001$; attempts 18% (13/74) *v.* 28% (63/223) *v.* 63% (29/46), $\chi^2=29·18$, df=2, $p<0·001$].

Clinical history

In all three settings, the age at MDD onset was similar [years 28·7 (S.D. 12·0) *v.* 31·4 (12·4) *v.* 31·7 (13·0), N.S.]. In two-thirds of patients in all settings, MDD was recurrent (69% *v.* 66% *v.* 61%, N.S.). During the preceding major depressive episodes, markedly fewer primary care patients and out-patients had been hospitalized than the current in-patients [14% (10/74) *v.* 6% (14/223) *v.* 26% (12/46), $\chi^2=16·897$, df=2, $p<0·001$]. Other aspects in the treatment history of earlier episodes were similar: one-half had received treatment from any doctor (51% *v.* 47% *v.* 41%, N.S.), one-third had received antidepressive medication (33% *v.* 37% *v.* 35%, N.S.), and more than one-third had received specialist mental treatment (43% *v.* 34% *v.* 44%, N.S.).

The duration of the current episode prior to the study interview was significantly longer in primary care [median 6·1 months (25;75 percentiles 1·5;19·0) *v.* 3·5 (2·0;6·0) *v.* 2·5 (1·0;5·0) Kruskal–Wallis test, $\chi^2=12·35$, df=2, $p=0·002$]. A chronic course of MDD (duration of more than 24 months) was almost exclusively found in primary care [22% (16/74) *v.* 2% (5/223) *v.* 0%]. Of current primary care patients, nearly one-quarter [22% (16/74)] had also contacted mental health services at some point during the ongoing episode, but thereafter returned to primary care. The majority of these patients had a chronic course [63% (10/16)] and severe symptoms of depression [HAMD 21.3 (S.D. 4·56)], with co-morbid personality disorder [75% (12/16)]; during the current episode half had considered suicide [50% (8/16)] and a quarter attempted it [25% (4/16)]. There were significant differences in the proportions of patients having received antidepressants during the current episode, between patients in primary care, out-patients and in-patients [51% (38/74)

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Table 3. *Co-morbid DSM-IV Axis I and II disorders in patients with major depressive disorder*

	Primary care patients (PC)[a] ($n=74$)		Out-patients (OP)[b] ($n=223$)		In-patients (IP)[b] ($n=46$)		Significance					
							PC *v.* OP *v.* IP[c]		PC *v.* OP[d]		PC *v.* IP[d]	
	n	%	*n*	%	*n*	%	χ^2	*p*	χ^2	*p*	χ^2	*p*
Any axis I diagnosis	47	64	143	64	35	76	—	—	—	—	—	—
Dysthymia	8	11	27	12	5	11	—	—	—	—	—	—
Any anxiety disorder	37	50	123	55	29	63	—	—	—	—	—	—
Panic disorder	8	11	33	15	12	26	—	—	—	—	—	—
Agoraphobia without panic	2	3	25	11	6	13	—	—	3·89	0·049	—	—
Social phobia	14	19	42	19	11	24	—	—	—	—	—	—
Specific phobia	7	10	52	23	16	35	11·43	0·003	5·86	0·015	10·16	0·001
OCD	2	3	14	6	4	9	—	—	—	—	—	—
GAD	12	16	33	15	4	9	—	—	—	—	—	—
PTSD	2	3	2	1	0	0	—	—	—	—	—	—
Any eating disorder	1	1	2	1	0	0	—	—	—	—	—	—
Any somatoform disorder	9	12	0	0	0	0	24·36	<0·001	23·98	<0·001[e]	—	—
Alcohol dependence	3	4	24	11	14	30	19·62	<0·001	—	—	14·14	<0·001
Any axis II diagnosis	41	55	94	42	23	50	—	—	—	—	—	—
Cluster A	4	5	39	18	12	26	10·01	0·007	5·61	0·018	8·79	0·003
Cluster B	28	38	27	12	12	26	24·86	<0·001	22·70	<0·001	—	—
Cluster C	22	30	67	30	13	28	—	—	—	—	—	—
No co-morbidity	18	24	54	24	8	17	—	—	—	—	—	—

OCD, Obsessive compulsive disorder; GAD, generalized anxiety disorder; PTSD, post-traumatic stress disorder.
[a] Vantaa Primary Care Depression Study.
[b] Vantaa Depression Study.
[c] df = 2.
[d] df = 1.
[e] Fisher's exact test.

v. 83% (186/223) *v.* 98% (45/46), $\chi^2=45{\cdot}563$, df = 2, $p<0{\cdot}001$].

Attitude towards treatment

The majority of patients in all groups had a positive attitude towards antidepressive medication (58% *v.* 58% *v.* 72%, N.S.), but towards psychotherapeutic treatment slightly fewer patients in primary care had a positive attitude [69% (51/74) *v.* 83% (186/223) *v.* 78% (36/46), $\chi^2=6{\cdot}817$, df = 2, $p<0{\cdot}033$].

Characteristics associated with the treatment settings

Table 4 displays odds ratios (ORs) for treatment in psychiatric care calculated using logistic regression to control for age, gender and the duration of the current episode before study inclusion. Higher objective symptom severity measured with HAMD was a strong predictor of in-patient but not out-patient status. However, when HAMD was replaced by BDI in the model, self-perceived symptom severity proved to predict out-patient status as well [OR 1·071, 95% confidence interval (CI) 1·019–1·126, $p=0{\cdot}007$]. Suicide attempts, alcohol dependence and cluster A personality disorder predicted receiving treatment in psychiatric care; cluster B personality, by contrast, was very strongly associated with primary care. Phobic anxiety disorders (see Method section) or patients' attitudes towards treatment did not have an independent predictive value.

Point of first contact with health care

The initial pathways of current primary care patients with MDD were of three kinds: over one-third [37% (27/74)] reported no health-care contacts for depressive symptoms. They had sought help for somatic reasons but their depressive symptoms had not been recognized by the attending professionals. The clinical picture of their depression was markedly milder; moreover, fewer of them had positive attitudes towards medication (Table 5). Half [50%

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Table 4. *The multinomial regression model of factors predicting treatment in psychiatric out- and in-patient settings among patients with MDD*

Variable	Primary care[ab] ($n=74$) OR	Psychiatric out-patient care[c] ($n=223$) OR	95% CI	Wald	p	Psychiatric in-patient care[c] ($n=46$) OR	95% CI	Wald	P
Age	1·0	0·96	0·93–0·99	5·35	0·021	0·97	0·93–1·02	1·26	—
Male gender	1·0	1·01	0·48–2·11	0·001	—	1·47	0·52–4·23	0·53	—
Duration of depressive episode, months	1·0	0·93	0·90–0·97	15·40	<0·001	0·86	0·79–0·94	11·04	0·001
Clinical status					—				
Hamilton rating scale scores	1·0	1·03	0·97–1·10	0·76	—	1·26	1·14–1·38	22·29	<0·001
Axis I co-morbidity					—				
Alcohol dependence	1·0	8·36	1·56–44·72	6·16	0·013	14·09	2·24–88·53	7·96	0·005
Axis II co-morbidity									
Cluster A personality disorder	1·0	5·88	1·76–19·70	8·25	0·004	5·23	1·22–22·39	4·97	0·026
Cluster B personality disorder	1·0	0·08	0·03–0·20	31·34	<0·001	0·13	0·04–0·46	10·41	0·001
Lifetime suicide attempt	1·0	2·62	1·11–6·19	4·84	0·028	2·51	2·51–21·82	13·12	<0·001

MDD, Major depressive disorder; OR, odds ratio; CI, confidence interval.
[a] Reference category.
[b] Patients with MDD in the Vantaa Primary Care Depression Study.
[c] Patients with a new episode or deteriorating state of MDD in the Vantaa Depression Study.

(37/74)] of the primary care patients had initially contacted general medical services. The remaining 13% (10/74) had directly approached mental health services but thereafter returned to primary care without remission; compared with those who contacted general medical services, they had more suicidal behaviour (ideation or attempt) during the current episode [50% (5/10) *v.* 16% (6/37), $\chi^2=5{\cdot}012$, df=2, $p=0{\cdot}039$] and tended to have more functional limitations [SOFAS mean 45·3 (S.D. 11·7) *v.* 52·1 (9·4), $t=1{\cdot}911$, $p=0{\cdot}062$]. In addition, one-tenth (6/74) of patients later in the episode had been in specialist care. Overall, of the currently primary care patients, 42% (31/74) were diagnosed and treated purely in primary care, 22% (16/74) had also contacted specialist care, the remaining 37% (27/74) had had no health-care contacts for depression.

In addition, in psychiatric care about half of both out-patients (48%) and in-patients (52%) had initially contacted general medical services about their depressive symptoms. They had at the time of interview more anxiety [BAI mean 24·2 (S.D. 9·9) *v.* 21·0 (10·9), $t=-2{\cdot}420$, df=47, $p=0{\cdot}016$] and personality disorders (60/122 *v.* 44/127, $\chi^2=5{\cdot}405$, df=2, $p=0{\cdot}020$) than those who had approached mental health services directly. The choice for first point of entry into health care was not influenced by sociodemographic characteristics, suicidal behaviour or treatment in former episodes, severity of depression, or attitudes towards treatment at the time of interview.

DISCUSSION

We compared patients with MDD in primary care with those in secondary level psychiatric care. In accordance with national practice guidelines, most suicidal or psychotic patients had received psychiatric treatment, and those with the most severe symptoms and functional limitations were appropriately hospitalized. In other clinical aspects, patients with MDD in primary care were surprisingly similar to those in psychiatric out-patient care. Services had in half of all cases been entered through general medical services, but mental health contacts earlier in the current episode were also common among primary care patients.

In this study we were able to comprehensively compare patients with MDD in primary care with those in secondary psychiatric care, evaluating out- and in-patients separately. A major strength of the comparison is the large pooled sample of MDD patients ($n=343$) who effectively represented primary care and psychiatric

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Table 5. *Clinical characteristics of 74 primary care patients with major depressive disorder (MDD) according to contact with health care during the current episode*

	No contacts due to depressive symptoms ($n=27$)		Any health-care contact due to depressive symptoms ($n=47$)		Comparison of patients with no contacts *versus* any contact	
	mean/*n*	S.D./%	mean/*n*	S.D./%		*p*
Current symptom scores						
HAMD	15·1	13·7	19·4	4·4	$t=4·279$	<0·001
BDI	18·1	5·7	26·6	10·3	$t=4·602$	<0·001
BAI	15·3	9·9	24·5	15·0	$t=3·138$	0·003
SOFAS	62·3	9·4	50·6	10·2	$t=4·966$	<0·001
Current co-morbidity						
Any axis I co-morbidity	12	44	32	68	$\chi^2=3·976$	0·046
Any axis II co-morbidity	13	48	28	60		—
Current attitude towards treatment						
Positive towards antidepressive medication	9	33	34	72	$\chi^2=10·715$	0·001
Positive towards psychotherapy	17	63	34	72		—
Recurrence of MDD						
Single episode	10	37	13	28		—
Clinical history in former episodes						
Suicidal ideation	4	15	17	36		—
Suicide attempt	1	4	10	21	$\chi^2=4·185$	0·048
Antidepressive medication	7	26	17	36		—
Treatment in psychiatric care	6	22	26	55	$\chi^2=7·654$	0·06

HAMD, Hamilton Depression Rating Scale; BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory; SOFAS, Social and Occupational Functioning Assessment Scale; S.D., standard deviation.

patients in a health district that provides free-of-charge secondary care psychiatric services in community mental health centres. Representativeness was ensured by screening eligible patients of the catchment area, thus also uncovering the previously undiagnosed patients in primary care (Melartin *et al.* 2002; Sokero *et al.* 2003; Vuorilehto *et al.* 2005). All patients were systematically diagnosed with use of semistructured interviews, complemented with medical and psychiatric records. Inter-rater reliability of the mood disorder diagnoses was excellent, although the reliability of the co-morbid diagnoses was not determined. Besides depression severity, comparisons were made of other characteristics thought to be associated with prognosis, such as co-morbidity of both DSM-IV Axis I and II disorders, suicidal behaviour, clinical course of MDD, and attitudes towards treatment.

There were also some major methodological limitations. First, the main limitation is the unavoidably different screening procedure of the two studies from which the samples were drawn. The VDS in secondary level psychiatric care included patients at the beginning of more intensive treatment, and thus probably in their worst phase of depression. However, MDD in psychiatric care might already have been somewhat alleviated due to treatment effects. The PC-VDS in primary care, by contrast, focused on the cross-sectional load of MDD, thus comprising cases with a deteriorating or already remitting phase of illness, or stable non-responders to treatment, despite all currently fulfilling the criteria of a major depressive episode. With cross-sectional screening in primary care, we also obtained in the cohort undetected cases of MDD and patients with only physical complaints, both without treatment for depression. Overall, the psychiatric VDS sample comprises incident episodes of MDD, whereas the PC-VDS sample reflects prevalence of MDD in primary care. Subsyndromal cases in the PC-VDS were excluded from this study to ensure comparability with the VDS, although most of them turned out to be MDD cases in a lifetime perspective (Vuorilehto *et al.* 2005). Possible inclusion of more chronic cases in the PC-VDS has been taken into account in the regression models, which have been adjusted for the duration of the current episode.

Second, minor differences between the two diagnostic interviews, SCAN and SCID, both generating DSM-IV Axis I diagnoses, could affect the prevalence of single diagnostic groups slightly. Therefore, in comparisons of Axis I co-morbidity, we included current alcohol dependence instead of total substance use disorders. Third, for Axis II disorders in the PC-VDS we used, instead of the DSM-III-R version as in the VDS, the DSM-IV with a slightly altered number of items for antisocial and borderline personality disorders; this may increase the prevalence of cluster B disorders in primary care with some percentages (Mantere *et al*. 2004), but is unlikely to markedly influence the findings. Furthermore, even though Axis II disorders were carefully assessed with use of multiple sources of information and focusing on longitudinal personality traits, the possibility of slight overestimation of prevalence during MDD cannot be excluded. Any overestimation would, however, affect both cohorts and is therefore unlikely to cause any bias in comparison. Fourth, concerning clinical history, besides patient recall, all possible medical and psychiatric records were used to ensure correctness. In addition, the variable time interval between the first contact with services and study inclusion may have confounded some of the current clinical features. Finally, health-care systems can differ widely, even within a single country. Finland is characterized by a relatively high density of psychiatrists and comprehensive out-patient services. At the time of study sampling, self-referral to secondary care was allowed. The generalizability of our findings remains unknown, but they are probably most relevant to settings in which patient's own choices are important determinants of the eventual treatment provider.

Some differences between settings seem rational and consistent with the widely accepted principle that specialist treatment should be provided for depression accompanied by severe suicidal behaviour or psychotic symptoms. We found psychotic depression almost exclusively in the psychiatric hospital. Moreover, the prevalences of suicidal ideation and attempts were highest there, in line with the report by Simon & VonKorff (1998) of the highest suicide mortality being found in hospitalized MDD patients. This gradient of clinical severity and complexity was not, however, associated with professional help in all aspects; we did not find differences in the severity of depression between primary care and psychiatric out-patient care in HAMD. The subjective BDI scores were higher in psychiatric out-patient care when compared with all patients in primary care with MDD; after excluding unrecognized MDD cases, however, the difference lost significance. A few earlier studies have described differences in symptom scores; higher HAMD scores among those who had used mental health services were reported in the MOS, which included patients with dysthymia as well as those with MDD (Wells *et al*. 1995), and also in a study in which primary care patients who met general practitioners' concept of depression and received a new course of treatment were compared with psychiatric out-patients (Sireling *et al*. 1985). By contrast, comparisons of patients with MDD in need of treatment (Gaynes *et al*. 2005) or beginning antidepressive medication (Simon *et al*. 2001) revealed no significant differences in severity scores between settings. In complexity, only modest differences were found in terms of Axis I co-morbidities, notwithstanding current alcohol dependence, which formed a strong predictor for in-patient treatment and to a lesser extent also for out-patient treatment. This contradicts earlier reported similarities in current substance use disorders between settings (Cooper-Patrick *et al*. 1994; Burns *et al*. 2000).

To our knowledge, no previous study has comprehensively compared Axis II co-morbidity between primary care and psychiatric settings. We found personality disorders to be present in about half of patients in all settings; the clusters were, however, unevenly distributed. Nearly a quarter of patients in psychiatric care had a cluster A disorder, which might be related to its 'odd' appearance. In one-third of primary care patients, surprisingly, a cluster B disorder, mostly borderline personality disorder, was present. This might to some extent be related to the rather high prevalence of chronic depression in primary care. Whether it also reflects reluctance of primary care doctors to refer patients with poor motivation or suspected non-adherence to more intensive treatment remains unknown.

In this study, patients' choice for the first point of contact due to current depressive

symptoms was only slightly associated with their current clinical characteristics and not at all with their treatment history before the contact or attitudes towards treatment methods. After entry, however, in the light of the two study samples, traffic between settings may explain the relative similarity of patients. The patients may, according to their pathways in treatment, be traced in various phases. First, those with no contacts due to depression made up one-third of primary care MDD with a milder clinical picture, in line with many former reports (Schwenk *et al*. 1996; Hamalainen *et al*. 2004). Thereafter, there are the patients who receive all of their treatment for depression in only primary care, in contrast to those who are later referred to specialist care due to acute need or because treatment in primary care appears to be insufficient. The final number of patients and their characteristics in these two groups will, besides depending on the recommendations for referrals set forth in the national guidelines, also depend on local cooperation and allocation of responsibilities. In our primary care sample, only two-thirds of patients who had sought help had so far received treatment purely in primary care. Half of the psychiatric care sample, especially those with anxiety and personality disorders, had first addressed general medical services. Finally, the last group in primary care comprises patients without remission of MDD who are returning from specialist care as a consequence of treatment resistance, use of insufficient treatment methods (Alonso *et al*. 2004), or perhaps deliberate interruption of treatment by the patients themselves (Melartin *et al*. 2005). In our study, this group was characterized by rather severe symptoms, comorbidity, and suicidal behaviour. While accounting for a large proportion (22%), this complicated group does not explain all of the severity of primary care MDD.

In conclusion, our comparison of MDD patients in primary care and psychiatric care found that patients with the most severe, suicidal or psychotic depression were correctly clustered in psychiatric and in-patient settings. However, MDD patients appear to differ little in characteristics between primary care and psychiatric out-patient settings. Primary care and other medical services commonly serve as the first point of contact for depressive symptoms, and a group of patients also return there without remission from specialist care. The blurred boundaries between primary care and psychiatric settings call for enhanced cooperation between settings, and a clearer, more structured division of labour to promote effective treatment.

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DECLARATION OF INTEREST

None.

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