

Health Service Research

# Variation in general practitioners' depression care following certification of sickness absence: a registry-based cohort study

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## Abstract

**Background:** Depression is more prevalent among women and people with low socio-economic status. Uncertainties exist about how general practitioner (GP) depression care varies with patients' social position.

**Objective:** To investigate associations between patients' gender and educational status combined and GP depression care following certification of sickness absence.

**Methods:** Nationwide registry-based cohort study, Norway, 2012–14. Reimbursement claims data from all consultations in general practice for depression were linked with information on socio-demographic data, social security benefits and depression medication. The study population comprised all individuals aged 25–66 years with taxable income, sick-listed with a new depression diagnosis in general practice in 2013 ( $n = 8857$ ). We defined six intersectional groups by combining educational level and gender. The outcome was type of GP depression care during sick leave: follow-up consultation(s), talking therapy, medication and referral to secondary care. Associations between intersectional groups and outcome were estimated using generalized linear models.

**Results:** Among long-term absentees (17 days or more), highly educated women were less likely to receive medication compared to all other patient groups [relative risk (RR) ranging from 1.17 (95% confidence interval 1.03–1.33) to 1.49 (1.29–1.72)] and more likely to receive talking therapy than women with medium [RR = 0.90 (0.84–0.98)] or low [RR = 0.91 (0.85–0.98)] education.

**Conclusions:** Our findings suggest that GPs provide equitable depression care regarding consultations and referrals for all intersectional groups but differential drug treatment and talking therapy for highly educated women. GPs need to be aware of these variations to provide personalized care and to prevent reproducing inequity.

**Key words:** Antidepressant treatment, depression, educational status, gender, general practice, sick leave.

## Background

Depression is highly prevalent and a leading cause of ill health and disability worldwide (1). The global burden of depression is rising rapidly and, in high-income countries, depression is among the

top three causes of years lived with disability (2). Depression often occurs in working age, affecting quality of life, psychosocial functioning and work participation, making depression a substantial public health issue. The prevalence of depression is higher in women

### Key messages

- Nearly half the study population returned to work within 2 weeks of sick leave.
- General practitioners provided talking therapy to twice as many patients as they gave drug therapy.
- Highly educated women were less likely to receive medication than other groups.

than in men (3,4) and in people with lower socio-economic status (SES) compared to those better off (5,6).

In European countries, women have higher primary care consultation rates compared to men, especially in deprived areas (7), and higher sick leave rates (8). In Norway, general practitioners (GPs) are often the first health care professionals to whom patients with depression present and, thus, play a key role in diagnosing and managing depression. GP care usually consists of some sort of talking therapy and/or antidepressant medication, depending on severity and patient preferences (9,10). GP talking therapy (11) comprises various approaches from supportive talk (12) to counselling and structured psychotherapeutic methods, such as cognitive behavioural therapy (13). In complex cases, GPs can refer patients to secondary care (psychologist or psychiatrist) (9). Nearly half the working population with a new depression diagnosis in Norwegian general practice was sick-listed (14). Sick-listing requires an encounter where the doctor and the patient discuss work capacity considering the health condition, with no required prior trial of treatment. Intensified GP depression care can reduce sickness absence (15).

Studies suggest that patients' gender and SES influence GPs' treatment choice (16,17). A registry study in Sweden showed that depressed men had slightly higher odds of being prescribed antidepressant drugs and slightly lower odds of being sick-listed compared to women (17). However, to what extent gender and SES combined influence GP care for patients with a new depression diagnosis has been sparsely examined.

Intersectionality is a relatively new research concept (18) that is particularly useful for understanding the relation between social positions and health. A core aspect in intersectionality theory is that social positions, such as gender, age, education and ethnicity, always intersect and do not present as isolated entities. Thus, combining higher status positions and similarly lower status positions will generate population groups differing in their access to good health, well-being and sustainable working capacity (19,20). As depression is related to social positions, particularly female gender or lower SES, the combined effect of gender and SES may relate not only to prevalence of depression (21,22) but also to health care delivery. Educational level is a suitable proxy for SES because education takes account of the variation in occupational social class and largely the variation in income (23). While equitable health care is a core aim for the Norwegian regular GP scheme, we do not know to what extent GP depression care provides this. The aim of this study was to investigate associations between intersections of patients' gender and educational level, and GP depression care, in a working cohort following certification of sickness absence.

## Methods

### Design

We established a nationwide registry-based cohort with data from the 'Norwegian GP-DEP Study', which investigates integrated and equitable pathways of depression care in general practice. Our cohort comprised all individuals sick-listed with a new depression

diagnosis in general practice in 2013. The cohort was examined regarding GP depression care during sick leave up to 12 months after the date of the first depression diagnosis (index date) in 2013.

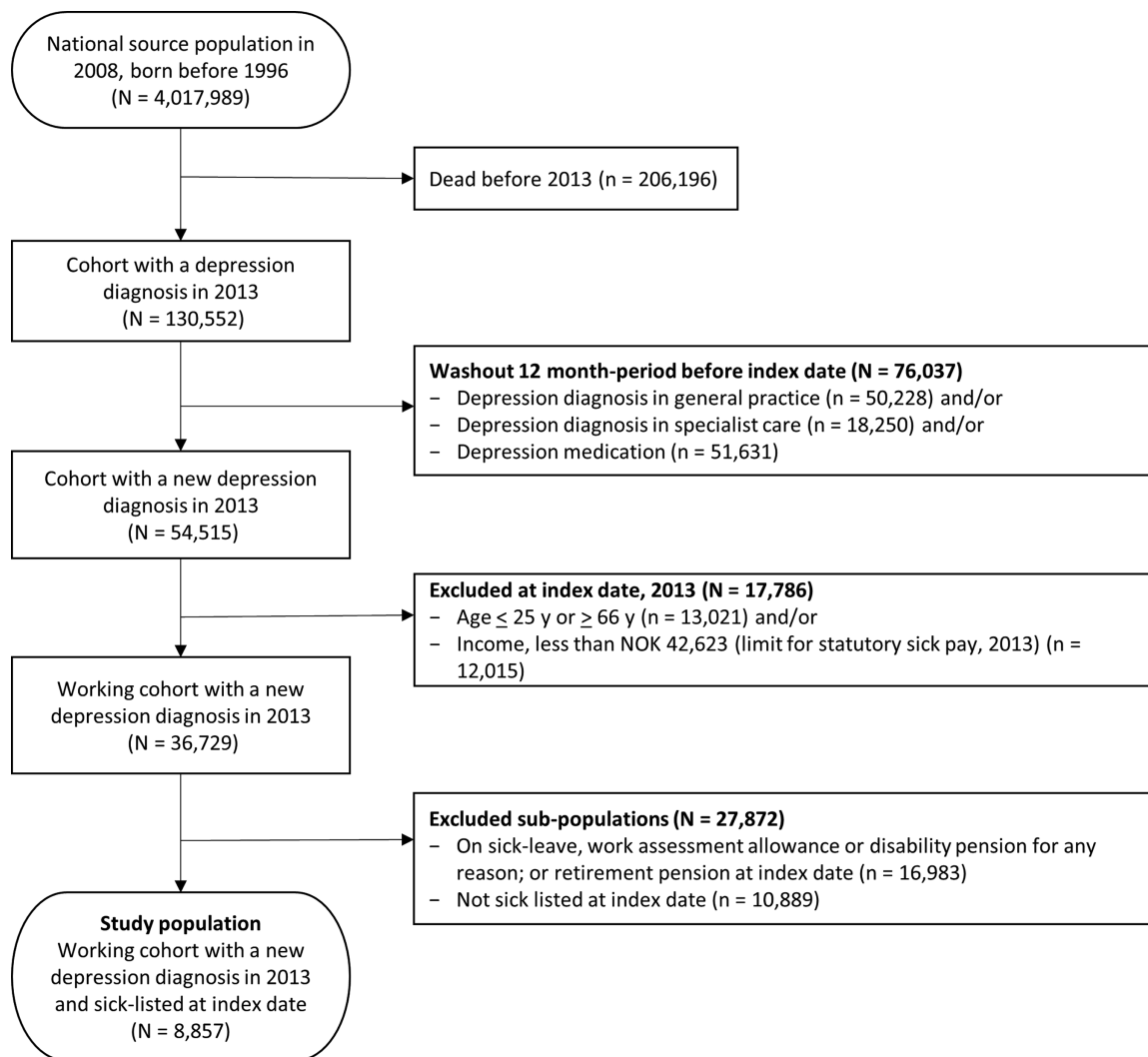
### Data sources

Information from national registries was linked at the individual level using the unique personal identity number (encrypted) assigned to all residents of Norway. 'The Control and reimbursement of health care claims' (KUHR) database stores data on all claims for fee-for-service from GPs. For each contact, the claims contain GP and patient identifier, date of contact, reimbursement code(s) for diagnostic and therapeutic measures and diagnoses according to the International Classification of Primary Care, 2nd version (ICPC-2). The 'Norwegian Prescription Database' (NorPD) contains information on prescription drugs dispensed to individual patients treated in ambulatory care (24). For each prescription, NorPD contains encrypted prescriber and patient identifiers, date of dispensing, generic drug information [Anatomical Therapeutic Chemical (ATC) code] and any reimbursement code. The 'Norwegian Patient Registry' (NPR) comprises information on patient contacts with secondary health care, with diagnoses according to the International Classification of Disease 10th version (ICD-10). The 'National Education Database' stores information about the highest level of completed education. The 'Norwegian Social Insurance Database' stores data on social security benefits: sickness absence, work allowance benefit and disability pension, start date and end date. The 'Population Registry' contains information regarding gender, year of birth, death and emigration.

### Study population

The source population comprised all inhabitants of Norway born before 1 January 1996 (4 017 989 individuals). First, we identified all individuals with a depression diagnosis in general practice (ICPC-2 code P76 Depression in KUHR) in 2013 ( $n = 130\,552$ ). Second, to establish a 'work-participating cohort sick-listed for a new depression diagnosis', we conducted: (i) washout of 76 037 individuals with a depression diagnosis in general practice (P76 in KUHR) or specialist care (ICD-10 codes F32, F33, F34 or F41.2 in NPR) and/or dispensed drug treatment for depression (NorPD) during the 12 months 'prior to index date', (ii) exclusion of 17 786 patients aged <25 or >66 years and those with taxable annual income below the limit for statutory sick pay (NOK 42 623 or EURO 5485 in 2013), (iii) exclusion of 27 872 patients already on sick leave, work assessment allowance, disability pension or retirement pension at index date and those who were not sick-listed (tariff code L1 in KUHR) 'at index date' or within the subsequent 14 days. The study population comprised 8857 individuals (Fig. 1).

The population was divided into short-term absentees (absence 1–16 days paid for by the employer) and long-term absentees (17–365 days paid for by the Social Insurance). Patients with a tariff code L1 in KUHR and no registration in the Social Insurance Database after 16 days were defined as short-term absentees. KUHR stores the start date of GPs' certification of sick leave but holds no information



**Figure 1.** Flow chart illustrating the definition of the study population; patients in Norway, aged 25–66, who were sick-listed with new depression diagnosis in 2013 ( $n = 8857$ ).

of the number of days in a sickness absence episode. Patients with a start date and an end date in the Social Insurance Database were defined as long-term absentees. As long-term sick leave is compensated for by the Social Insurance, this database holds detailed information on start and end dates of sick leave (after the initial 16 days compensated for by the employer). Both short-term and long-term sickness absence was linked to a P76 diagnosis in KUHR. This study does not distinguish between full and graded sick leave.

### Exposure

The National Education Database is based on the International Standard Classification of Education (ISCED 2011). We recoded 11 levels into three categories: low [primary school (Grades 1–7) and lower secondary school (Grades 8–10) or less], medium (11–13 years, upper-secondary school) and high (>13 years, university and higher education). We defined six intersectional exposure groups by combining educational level and gender.

### Outcome

From KUHR, we included information on GP depression care linked to the ICD-10 code P76 Depression received during sick leave.

Outcome variables were binary (yes or no): one or more follow-up consultations after index date, talking therapy and referral to secondary care. From NorPD, we included all medications reimbursed by the Social Insurance for the treatment of depression (giving all patients equal access to this treatment) to provide a complete picture: antidepressants (ATC code N06A), selected antiepileptic drugs (N03A), selected antipsychotic drugs (N05A) and dispensed during sick leave (yes or no).

### Covariates

We recoded patient age into four groups: 25–34, 35–44, 45–54 and 55–66 years.

### Statistical analysis

Descriptive statistics were used to examine the distribution of demographic variables. Corresponding distributions were presented for the source cohort and the excluded populations. The distribution of patients being certified short-term or long-term sick leave or transferred to other social security benefits was presented for the six intersectional groups. For long-term absentees, number of days from index date to the end of sick listing was

calculated, and mean number of sick-listed days and 95% confidence intervals (CIs) were presented. Due to the lack of data on the length of short-term sick leave periods, we only calculated associations between exposure group and outcome (provision of various GP depression care measures) among the long-term sick-listed patients. Associations were estimated using log binomial regression in generalized linear models (GLMs). The results are presented as relative risk (RR) with 95% CIs using women with high education as reference. Crude estimates (Supplementary Table 1) and estimates adjusted for age and number of sick-listed days were presented (Table 3). Individuals were excluded if death ( $n = 6$ ) or emigration ( $n = 4$ ) occurred before the end of sick leave. End of sick listing was used as a proxy for return to work. For all statistical analyses, we used  $\alpha = 0.05$  as significant level. SPSS software version 25.0.0.2 was used (PASW Statistics for Windows, SPSS Inc., Chicago, IL).

## Results

The study population comprised 8857 individuals in paid work and sick-listed with a new depression diagnosis, 60.1% women, and mean age 41.8 (standard deviation = 10.3) years. Educational attainment was high among 34.7% of the patients, medium among 42.7% and low among 22.6% (Table 1). Women with high education constituted the largest group (25.5%). Distributions for source cohort and excluded populations are also provided in Table 1.

Table 2 shows that 3775 patients (44.0%) were short-term sick-listed (<16 days) and 4706 (54.8%) long-term sick-listed (17–365 days), while 106 patients (1.2%) were transferred to other social security benefits. The distribution of short-term and long-term absentees, respectively, across intersectional groups had a quite similar pattern. The mean number of sickness absence days among long-term absentees was 132.

Among long-term absentees, 88.0% had follow-up consultation(s), 62.7% talking therapy, 31.5% medication and 19.7% referral. Highly educated women were less likely to receive medication compared to all other intersectional groups, adjusted RRs ranging from 1.17 (95% CI: 1.03–1.33) to 1.49 (1.29–1.72), and more likely to receive talking therapy compared to women with medium [RR = 0.90 (0.84–0.98)] or low [RR = 0.91 (0.85–0.98)] education (Table 3).

## Discussion

### Main findings

In a nationwide cohort of sick-listed patients with depression, we examined the associations between six intersectional groups, defined by gender and education, and GP depression care during a sickness absence episode. The distribution of sickness absentees across intersectional groups showed that highly educated women made up the largest group and their male counterparts the smallest. Among long-term absentees, highly educated women were less likely to receive medication compared to all other intersectional groups, and more likely to receive talking therapy, compared to women with low and medium education. With respect to the length of sickness absence, nearly half the sick-listed patients returned to work within 2 weeks.

### Strengths and limitations

The linkage of data from six registries at the individual level provides a rich source of information, eliminating recall bias. Reimbursement

claims data on drug treatment and sick leave certification are informative in health service research in primary care (14,25). The study population was drawn from a work-participating cohort that probably comprised relatively more healthy workers than the population outside work. Thus, the workers who were sick-listed with a depression diagnose might have characteristics that differ slightly from those with depression outside work. Clear information regarding GP-diagnosed depression is another strength, defined as a GP consultation with the ICPC-2 code P76, after 1-year washout. However, the individual GPs determine the diagnosis and the KUHR database has no formal control on diagnostic categories. Differing coding behaviour may challenge the internal validity. However, potential misclassification would be non-differential and linked to the GP, not intersectional group.

We have no information on the severity of depression because ICPC-2 does not allow for severity grading. Severity probably influences GPs' choice of treatment and could serve as an explanatory variable. However, including only patients who were sick-listed due to depression could ensure a certain homogeneity in severity across the exposure groups. Another limitation is the lack of information about whether sick leave was complete or partial. Graded sick leave can be a good solution to maintain contact with the workplace depending on patient preferences and type of work. This may be unevenly distributed in the intersectional patient groups and explain some of the variation in GP care. The NorPD contains complete data on all prescription drugs 'dispensed'. Although we may have slightly underestimated 'prescribed' depression medication due to primary non-compliance, the use of drug dispensing data is recognized as an acceptable proxy for drug use in epidemiological studies (26).

The intersectional approach combining gender and education provides new insight into the effect of social position on health care delivery for depression. The study design does not allow for conclusions about causal relationship between the length of sick leave and GPs' provision of depression care.

### Comparison with existing literature

Considering the distribution of patients with depression in the study cohort, the contrast between highly educated women and men is surprising. Our study reflects the prevalence of patients diagnosed with depression in general practice among working adults on sick leave. The relatively large share of highly educated women is probably due to several factors. First, women in Norway have a 10% higher share of completed higher education than men (27). Second, women in general have a higher prevalence of depression than men (3,4). Third, women and men have different health-seeking behaviour; that is, women consult their GP more often (7) and, thereby, increase the likelihood of being diagnosed with depression. In sum, these factors probably influence the larger inflow of women with depression to the study cohort (8).

We found that nearly half the study population returned to work within 2 weeks of sick leave, which is in line with governmental policy, urging GPs to limit the certification of sick leave in patients with mild mental disorders. Considering the length of sick leave as a proxy for severity, our findings may indicate that patients with low educational level have more severe depression. Another explanation may be that individuals with low educational level have less flexibility and autonomy regarding adjustments in the workplace that can facilitate partial work and less job strain. Two registry-based studies from Finland found a consistent socio-economic gradient in work disability due to depression (28,29). Return to work was slower for employees with

**Table 1.** The source cohort<sup>a</sup> (the working cohort aged 25–66 in 2013) and the working cohort with a new depression diagnosis split into (i) the excluded populations and (ii) the study population, distributed by gender, age, education and intersectional groups

Source cohort <sup>a</sup>		Working cohort with a new depression diagnosis				Excluded populations				Study population, <i>n</i> = 8857				
	<i>n</i>	%	<i>n</i>	%	On some social security benefit <sup>b</sup> , <i>n</i> = 16 984	%	<i>n</i>	%	Not sick-listed for new depression episode <sup>c</sup> , <i>n</i> = 10 889	%	<i>n</i>	%	<i>n</i>	%
Gender														
Women	1 226 682	49.0	10 695	63.0	6302	57.9	5322	60.1	5322	57.9	5322	60.1	5322	60.1
Men	1 276 346	51.0	6289	37.0	4587	42.1	3535	39.9	4587	42.1	3535	39.9	3535	39.9
Age group, years														
25–34	559 755	22.4	3817	22.5	3828	35.2	2542	28.7	3828	35.2	2542	28.7	2542	28.7
35–44	656 060	26.2	5126	30.2	3138	28.8	2784	31.4	3138	28.8	2784	31.4	2784	31.4
45–54	664 439	26.5	4644	22.3	2437	22.4	2282	25.8	2437	22.4	2282	25.8	2282	25.8
55–66	622 754	24.9	3397	20.0	1486	13.6	1249	14.1	1486	13.6	1249	14.1	1249	14.1
Educational level														
High	926 816	37.8	4700	28.1	4236	39.4	3038	34.7	4236	39.4	3038	34.7	3038	34.7
Medium	1 037 795	42.4	6988	41.8	4184	38.9	3727	42.7	4184	38.9	3727	42.7	3727	42.7
Low	485 303	19.8	5036	30.1	2332	21.7	1970	22.6	2332	21.7	1970	22.6	1970	22.6
Missing	53 114		260		137		122		137		122		122	
Intersectional group														
Women/high education	519 399	21.2	3529	21.2	2810	26.1	2221	25.4	2810	26.1	2221	25.4	2221	25.4
Men/high education	407 417	16.6	1171	7.0	1426	13.3	817	9.4	1426	13.3	817	9.4	817	9.4
Women/medium education	455 171	18.6	4140	24.8	2219	20.6	2052	23.5	2219	20.6	2052	23.5	2052	23.5
Men/medium education	582 624	23.8	2848	17.0	1965	18.3	1675	19.2	1965	18.3	1675	19.2	1675	19.2
Women/low education	230 529	9.4	2898	17.3	1199	11.2	991	11.3	1199	11.2	991	11.3	991	11.3
Men/low education	254 774	10.4	2138	12.8	1133	10.5	979	11.2	1133	10.5	979	11.2	979	11.2

Educational level: low = primary school (Grades 1–7) and lower secondary (Grades 8–10) school or less; Medium = upper-secondary school; High = university and higher education.

<sup>a</sup>Source cohort: age 25–66 years in 2013 and income ≥NOK 42 623 in 2013.

<sup>b</sup>Excluded population: on sick leave, work assessment allowance, disability pension or retirement pension at index date.

<sup>c</sup>Excluded population: not sick-listed at index date or the subsequent 14 days.

**Table 2.** Distribution of short- and long-term sickness absence (days) and transition to other social security benefits among patients with a new depression diagnosis in 2013 by intersectional groups (defined by gender and education; *n* = 8587)

Intersectional group	Sick-listed period						Transition to other social security benefits	
	Short (≤16 days)			Long (17–365 days)			<i>n</i>	%
	<i>n</i>	%	Mean (95% CI)	<i>n</i>	%	Mean (95% CI)		
Women/high education	2199	22.4	1318	28.0	124 (118–129)	36	34.0	
Men/high education	806	9.9	423	9.0	120 (110–140)	11	10.4	
Women/medium education	2010	22.2	1136	24.1	135 (128–142)	33	31.1	
Men/medium education	1641	20.1	873	18.6	133 (125–140)	11	10.4	
Women/low education	970	12.5	489	10.4	140 (130–160)	8	7.6	
Men/low education	961	12.9	467	9.9	141 (130–152)	7	6.5	
Total	8587	100	4706	100	132	106	100	

Educational level: low = primary school (Grades 1–7) and lower secondary school (Grades 8–10); medium = upper-secondary school; high = university and higher education  
<sup>a</sup>270 patients were lacking information on education or censored during follow-up.

**Table 3.** Likelihood<sup>a</sup> of receiving GP depression care<sup>b</sup> during long-term sick leave (17–365 days) among patients with a new depression diagnosis in 2013, adjusted for age and number of sick leave days, by intersectional groups

Intersectional group	Follow-up consultation(s)		Depression medication		Talking therapy		Referral to secondary care	
	<i>n</i> (%)	RR (95% CI)	<i>n</i> (%)	RR (95% CI)	<i>n</i> (%)	RR (95% CI)	<i>n</i> (%)	RR (95% CI)
		Reference		Reference		Reference		Reference
Women/high education	1178 (87.0)	Reference	332 (24.5)	Reference	861 (63.6)	Reference	266 (19.6)	Reference
Men/high education	369 (85.0)	1.04 (0.81–1.34)	146 (33.6)	1.40 (1.19–1.64)	269 (62.0)	1.01 (0.93–1.09)	82 (18.9)	1.02 (0.83–1.25)
Women/medium education	994 (85.0)	1.12 (0.93–1.34)	346 (29.6)	1.17 (1.03–1.33)	685 (58.6)	0.90 (0.84–0.98)	218 (18.6)	0.88 (0.76–1.02)
Men/medium education	769 (87.0)	0.98 (0.80–1.20)	312 (35.3)	1.43 (1.26–1.63)	539 (61.0)	0.96 (0.90–1.01)	171 (19.3)	0.99 (0.84–1.16)
Women/low education	423 (85.1)	1.22 (0.96–1.54)	167 (33.6)	1.33 (1.14–1.55)	296 (59.6)	0.91 (0.85–0.98)	88 (21.1)	0.83 (0.68–1.02)
Men/low education	409 (86.3)	1.11 (0.87–1.42)	180 (38.0)	1.49 (1.29–1.72)	300 (63.3)	0.97 (0.90–1.04)	100 (15.5)	0.99 (0.82–1.25)

Bold values represent statistically significant findings.

Educational level: low = primary school (Grades 1–7) and lower secondary school (Grades 8–10) or less; medium = upper-secondary school; high = university and higher education.

<sup>a</sup>Results from generalized linear model estimating RR.

<sup>b</sup>Patients may have received more than one GP initiative.

lower educational level compared to those with higher. However, none of these studies focused on GP depression care, nor did they apply an intersectional approach.

### Medication

Among long-term absentees, highly educated women were less likely to receive medication than all other intersectional groups. A Finnish registry study found less antidepressant use among lower-educated men compared to higher-educated men, whereas such differences were not evident among women (16). However, Kivimäki *et al.* based their findings on drug prescription data with no diagnostic information included. These conflicting results could be due to differing study populations and measures of SES or to cross-national differences in access to treatment among disadvantaged inhabitants. Turning to gender differences, a Swedish registry-based study found that men had slightly higher odds of collecting prescribed antidepressants within the first 3 weeks of sick leave compared to women (30). These findings are partly consistent with ours and confirm that gender is an important variable in studies of drug treatment for depression. However, our findings point to the significance of not treating gender as the main line of division but combining gender with education.

### Other GP treatments

GPs provided talking therapy to twice as many sick-listed patients as they gave medication. Psychological treatment being GPs' main tool in depression care is in line with national and international guidelines (9,31). Most long-term absentees received talking therapy, although there was an educational gradient with highly educated women being more likely than other women to receive this treatment. Possibly, GPs offer talking therapy more seldom to those with low education because such treatment demands experience with analytical thinking and may represent a greater obstacle for lower-educated patients. Furthermore, we found no substantial differences across the intersectional patient groups in GPs' follow-up consultations and referral to secondary care. The latter finding may indicate homogeneity in severity across the intersectional groups as referral is related to more severe depression.

A high prevalence of depression requiring long-term sick leave but less antidepressant treatment among highly educated women found in this study raises the question whether they are undertreated or followed up insufficiently. However, our study design and data do not provide a basis for whether the given treatment was appropriate for the individual patient. GPs' choice of treatment may be influenced by patients' preferences. A Canadian study investigating patient preferences revealed that talking therapy was the preferred treatment mode among individuals with first depression episode, particularly among women and those with university degree, while men more often preferred drug treatment (32). Antidepressants may be perceived as having limited effectiveness and potential side effects, which may affect women's preferences of talking therapy. Therefore, GPs need to provide information on benefits and disadvantages to ensure equity in providing drug treatment to depressed patient based on clinical needs.

### Conclusions

The results of our study suggest that GPs deliver equitable depression care regarding consultations and referral for all intersectional groups, but differential care regarding drug treatment and talking therapy for highly educated women. Highly educated women stand

out as they receive less drug treatment and more talking therapy compared to other patient groups. These differences may reflect unwarranted variation in treatment that GPs need to be aware of to prevent replicating inequity. Clinical studies need to further explore reasons for, and consequences of the observed variation across intersectional groups.

### Supplementary material

Supplementary material is available at *Family Practice* online.

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