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Disparities in Pharmacotherapy for Alcohol Use Disorder in the Context of Universal Healthcare: A Swedish Register Study

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Abstract

Background and aim—Pharmacotherapy can be an important part of the continuum of care for alcohol use disorder (AUD). The Swedish universal healthcare system emphasizes provision of care to marginalized groups. The primary aim was to test associations of neighbourhood deprivation and disadvantaged social status with receipt of AUD pharmacotherapy in this context.

Design—Data from linked population registers were used to follow an open cohort over 7 years.

Setting—Sweden.

Participants—Alcohol-related ICD-10 codes reported for all hospitalizations in the Swedish Hospital Discharge Register and all clinic/office visits in the Outpatient Care Register between 2005–2012 were used to identify 62,549 cases with AUD.

Measurements—The primary outcome was any AUD pharmacotherapy (naltrexone, disulfiram, acamprosate, nalmefene) picked up by patients between 2005–2012 (vs. none), based on the Swedish Prescribed Drug Register. Neighbourhood deprivation was defined using aggregated data from the Total Population Register; indicators of disadvantaged social status (income, education, country of origin) also came from this source.

Findings—About half of the cases (53.7%) picked up one or more AUD pharmacotherapy prescriptions. In adjusted models, people living in neighbourhoods with moderate (OR=0.90 [95%

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CI: 0.86, 0.95]) or high levels of deprivation (OR=0.75 [95% CI: 0.70, 0.79] compared with low deprivation), those with lower incomes (for example, lowest quartile: OR=0.70 [95% CI: 0.66, 0.73] compared with highest) and less education (for example, <10 years: OR=0.82 [95% CI: 0.78, 0.85] compared with 12+ years), and people born outside Sweden (OR=0.74 [95% CI: 0.71, 0.78] compared with Swedish-born) were significantly less likely to pick up a prescription for AUD pharmacotherapy during the study period.

Conclusions—There appear to be socioeconomic disparities in the receipt of pharmacotherapy for alcohol use disorder in Sweden.

Keywords

alcohol use disorder; pharmacotherapy; treatment disparities; Sweden

Introduction

Alcohol use disorder (AUD) is a chronic health problem [1, 2], with most individuals benefitting from several treatment episodes before achieving long-term remission [3]. Pharmacotherapies and medication-assisted therapy (combining pharmacotherapy with psychotherapy), can be an important part of the continuum of care for AUD. Several approved medications can significantly reduce the risk of relapse [4, 5].

Despite evidence of effectiveness of pharmacotherapy for treatment of AUD, many studies have reported significant barriers to implementation of pharmacotherapy, with salient challenges emerging at the health system, organizational, and provider levels in the United States (U.S.) [6]. In addition to studies identifying training and experience of providers as barriers to use of AUD pharmacotherapies [6–9], U.S. providers also have expressed concerns about prescription prices [10, 11] and time constraints [6, 11] as barriers to prescribing AUD pharmacotherapies.

There also are patient-level barriers to adoption of pharmacotherapy, but relatively few studies have focused on this issue [6] and findings are mixed [12]. Regarding socioeconomic status (SES), Knudsen and colleagues [10] noted providers thought their patients (in this case, clients at publically-funded U.S. treatment programs) would be interested in, but unable to afford, pharmacotherapies for substance use disorders (SUD). Patients in a small U.S. focus group study discussed price and medication availability as barriers to using oral naltrexone for AUD [11]. In the U.S. and other countries, such as Sweden, cost concerns may be less relevant as pharmacotherapies already are or will become more affordable and more widely available.

There may be differences in physicians' prescribing practices that influence adoption of pharmacotherapies for AUD by different population subgroups. Relatively little research has examined this question in the general population, however. A study of dually-diagnosed U.S. veterans found approximately 70% received psychiatric pharmacotherapies, but only 10% received AUD pharmacotherapies [13], which suggests there may be aspects of physicians' prescribing practices unique to AUD pharmacotherapies. It is unknown whether and to what extent patient characteristics influence physicians' behaviours regarding prescription of

AUD pharmacotherapies, but studies of other health conditions such as cardiovascular disease [14] and diabetes [15] suggest there may be substantial differences by patient SES in receipt of appropriate pharmacotherapies.

Once they have been prescribed, most of these medications require one or more pills to be taken daily to treat AUD. One study conducted in a large U.S. health plan [16] found most patients used oral naltrexone for a much shorter period than recommended; data from the U.S. Veterans Administration [17] found the typical treatment episode for disulfiram or oral naltrexone also was shorter than recommended. Another large U.S. study using prescription data provided by insurance companies also found the majority of users of oral naltrexone only filled one or two prescriptions over a 6-month period [18]. Patients who consistently filled prescriptions were older, less likely to have received prior treatment for AUD, and they lived in higher SES areas [18]. An Australian study using national pharmaceutical benefits claims data found men and patients under age 25 were less likely than their peers to fill multiple prescriptions for AUD pharmacotherapies [19]. Other studies have detected lower rates of adherence to various pharmacotherapies by patients with co-morbid psychiatric or drug use disorders [12] as well as by lower-income patients, older adults and women [20]. To build on these prior studies, the current project uses data from population registries in Sweden to examine pharmacotherapy use in a cohort of people with AUD.

Despite public financing for healthcare that reaches everyone, there are socioeconomic disparities in health outcomes in Sweden. For example, neighbourhood deprivation is associated with increased risk of diabetes [21], heart disease [22, 23] and children's psychiatric disorders [24]. The Swedish universal healthcare system emphasizes provision of care to marginalized groups, and most treatment for substance use disorders is supported by public funds [25]. Even in this supportive policy context, there are disparities in drug outcomes by neighbourhood deprivation [26–28], as well as disparities in alcohol outcomes by level of education [29] and immigrant status [30]. In Sweden, disparities by neighbourhood SES are unlikely to be driven by restricted access to appropriate healthcare, however [31]. One Swedish national study documented that high- and moderate-deprivation neighbourhoods actually had greater access to healthcare resources such as pharmacies, hospitals and clinics than low-deprivation neighbourhoods [31]. In the aforementioned U.S. study using insurance data [18], higher area-level SES was associated with significantly higher persistence with oral naltrexone. It remains to be examined whether neighbourhood or other socioeconomic differences in AUD pharmacotherapy would exist in Sweden.

Using data from a large national cohort of Swedish AUD patients, we investigated whether disparities in pharmacotherapy exist in the context of universal healthcare. Our primary research question was: *Are there differences in filling prescriptions for AUD pharmacotherapies according to neighbourhood deprivation or other indicators of disadvantaged social status?* Based on prior research [18], we hypothesized AUD patients who are residents of deprived neighbourhoods would be less likely to fill a prescription for pharmacotherapy than their counterparts living in more affluent neighbourhoods. We also expected to see disparities for individuals with low SES [10, 11, 14, 18] and for foreign-born residents [30].

Methods

Design

We used a longitudinal design to follow an open cohort of Swedish people who received either inpatient (hospital) or outpatient care for AUD during a 7-year period to assess relationships of neighbourhood deprivation and patient demographic characteristics with filling prescriptions for AUD pharmacotherapy.

Data

To define the cohort, we extracted data from several linked national Swedish population-based registers. Each person in Sweden has a unique 10-digit identification number; this was replaced by a de-identified serial number in order to preserve anonymity while permitting registry linkages. More detail on the registers is provided below. The Regional Ethical Review Board for Lund University granted approval for this study.

Cohort definition

Based on alcohol-related International Classification of Disease (ICD-10) codes [32], cases of AUD registered between July 2005–June 2012 were identified using all hospitalizations in the Swedish Hospital Discharge Register and all clinic/office visits in the Outpatient Care Register. Both of these registries are nationally inclusive. The relevant ICD-10 codes included both alcohol abuse (F10, excluding acute alcohol intoxication, F10.0) and alcohol-related somatic diagnoses (E24.4, G31.2, G62.1, G72.1, I42.6, K29.2, K70.0–K70.9, K85.2, K86.0, O35.4, T51.0–T51.9). We identified 62,549 individuals with AUD during the study period.

Measures

Outcomes—*Receipt of pharmacotherapy* was based on the Swedish Prescribed Drug Register to identify all prescriptions for disulfiram, naltrexone, acamprosate, and nalmefene picked up by patients in the AUD cohort between 2005–2012. The primary outcome was ever picking up a prescription for one or more AUD pharmacotherapies (versus not).

An important question is whether findings represent physician differences in prescribing pharmacotherapy according to levels of neighbourhood deprivation or patient characteristics, or whether findings illustrate reduced prescription compliance by socially disadvantaged patients. Using data from the Primary Healthcare Registers for 75 primary healthcare centres in mid-West Sweden between July 2005–December 2007, we ascertained a secondary outcome, ***prescription compliance***, which was defined as picking up a pharmacotherapy prescription known to have been issued in primary care. As a validity check, we ascertained this secondary outcome for a subsample of 1,186 patients from the AUD cohort who were prescribed one or more of the pharmacotherapies at a primary care visit during the study period.

Predictors—*Neighbourhood deprivation* was calculated for geographic areas defined by the Swedish government statistics bureau, Statistics Sweden, known as SAMS (small areas for market statistics). SAMS boundaries are defined by natural borders such as rivers or

highways, and they often contain homogeneous building types; the average population is approximately 1,000 residents. Small geographic areas are consistent with how people define their neighbourhoods [33]. Over 97% of the population can be geocoded to a SAMS. Neighbourhood deprivation was defined using aggregated data from the Total Population Register. The neighbourhood measure included data for all residents ages 25–64, as these working-age residents are key to defining an area's SES. As in prior studies [26, 31, 34], indicators included the proportions of residents with less than 10 years of education, incomes less than half the national median, unemployed residents and individuals on financial assistance. Neighbourhood deprivation for the SAMS of residence in 2005 was classified into three groups based on the national population mean and standard deviation. Low deprivation (most affluent) was below one standard deviation (SD) from the mean (analytic referent); moderate deprivation was within one SD of the mean; and high deprivation (most deprived) was above one SD from the mean, as in previous studies [34]. In our cohort of AUD patients, only 14.6% were in the low neighbourhood deprivation group and 25.7% were in the high deprivation group. A large majority of AUD patients (90.0%) stayed in a neighbourhood of the same level of deprivation between 2005 and 2006; neighbourhood deprivation was not available after this point.

Other indicators of disadvantaged social status also were drawn from the Total Population Register. We included family income in 2005 (categorized into quartiles, with highest income as the referent), highest level of education (three groups: compulsory high school or less [<10 years], practical high school or some theoretical high school [10–11 years], theoretical high school completion and college or post-graduate study [≥ 12 years]), and country of origin (Sweden vs. foreign-born).

Covariates—Individual-level demographics drawn from the Total Population Register were age (by decade from 30–39 to 60+ years, with <30 as referent) and gender (male as referent). Additional covariates were drawn from the Hospital Discharge and Outpatient Registers. **Co-morbid drug use disorders (DUD)** were based on ICD-10 codes for mental and behavioural disorders due to use of psychoactive substances other than alcohol or tobacco (F11–F16; F18–F19). **Co-morbid mental health/psychiatric disorders** were based on ICD-10 codes for mental, behavioural and neurodevelopmental disorders, mood disorders and anxiety/stress-related disorders, among others (F20–F99). **Number of AUD registrations** in the Hospital Inpatient and Outpatient Registers (one versus two and three or more registrations during study period) was included as an indicator of severity [35].

Analyses

We used unadjusted and multivariable alternating logistic regression models to assess relationships between neighbourhood deprivation and pharmacotherapy. Only 35% of neighbourhoods contained more than 8 individuals with AUD, so multilevel analysis strategies were not appropriate. We also chose not to use multilevel models because the second-level residuals were not normally distributed. Alternating logistic regression accounts for the dependence of cases within neighbourhoods when estimating regression coefficients, and it also provides the pairwise odds ratio (PWOR), an indicator of neighbourhood differences that are not accounted for by deprivation or other common

unmeasured environmental factors [36]. The PWOR represents the increase in the odds of filling a pharmacotherapy prescription for AUD given that another AUD patient randomly selected from the same neighbourhood also fills a prescription; it is higher than 1.0 if picking up prescribed pharmacotherapy within a given neighbourhood were more frequent than would be expected under random distribution across neighbourhoods.

In sensitivity analyses, we generated additional adjusted models, with the first using only cases with incident AUD during the study period (thus excluding all cases with an AUD registration prior to July 1, 2005), because newly-diagnosed patients may have higher adherence to pharmacotherapy [18], and the second using only cases without co-occurring DUD, because naltrexone is used for treatment of opioid dependence as well as AUD [5]. Finally, we assessed associations between neighbourhood deprivation and other indicators of disadvantaged social status with picking up prescriptions for each of the pharmacotherapies separately.

Results

During the study period, 53.7% of AUD patients picked up pharmacotherapy prescriptions. Of those, 25.1% only picked up one prescription, 16.0% picked up two prescriptions, and 58.9% picked up three or more prescriptions. Patients' first pharmacotherapy prescriptions were split between disulfiram 30.0%, naltrexone 31%, and acamprosate 38%, with nalmefene at less than 1%. A large proportion (44.4%) of patients who picked up a prescription did so for more than one medication; 68.0% of these patients picked up at least one prescription for disulfiram during the study period, compared to 48.7% for acamprosate and 39.7% for naltrexone. Patient characteristics associated with filling a prescription are in Table 1.

Adjusted models (Table 2) revealed people with AUD who were living in neighbourhoods with moderate or high levels of deprivation were significantly less likely to pick up pharmacotherapy prescriptions than their counterparts in affluent neighbourhoods. In this cohort of AUD patients, people with lower incomes (compared to those in highest income quartile), those with less education (compared to those with 12+ years), foreign-born patients, and women also were significantly less likely to pick up prescriptions. Additionally, older patients, patients with a greater number of AUD registrations, and those with co-occurring psychiatric diagnoses were significantly more likely to pick up pharmacotherapy prescriptions. The PWOR indicates picking up prescribed pharmacotherapy within a given neighbourhood was significantly more frequent than would be expected under random distribution across neighbourhoods.

In the validity check using data from primary care, a total of 1,890 prescriptions were issued to AUD patients, and 1,569 were picked up (83% compliance rate). Most indicators of disadvantaged social status (neighbourhood deprivation, income, education, country of origin) were not significantly related to prescription compliance (Table 3), although those in the lowest income quartile were significantly less likely to pick up an issued prescription for AUD pharmacotherapy than patients in the highest income quartile. Women also were

significantly less likely than men to pick up AUD pharmacotherapy prescriptions issued in primary care.

When analyses were limited to individuals with incident AUD (Supplemental Table 1) or without a known history of DUD (Supplemental Table 2), results were very similar to the overall findings. Supplemental Table 3 shows regression models for each medication separately; findings for neighbourhood deprivation were consistent for acamprosate and naltrexone. However, people with AUD living in neighbourhoods with moderate levels of deprivation were significantly *more* likely to pick up prescriptions for disulfiram than those in affluent neighbourhoods. Patterns for other indicators of disadvantaged social status were consistent across the three pharmacotherapies.

Discussion

In this cohort of patients receiving either inpatient or outpatient care for AUD, approximately half picked up a pharmacotherapy prescription during the study period. There were significant differences in picking up pharmacotherapy prescriptions by neighbourhood deprivation, with those in moderately deprived neighbourhoods showing approximately 10% reduction in the odds, and those in highly deprived neighbourhoods showing approximately 25% reduction in the odds, compared to those in low-deprivation neighbourhoods. (Given the high prevalence of picking up pharmacotherapy prescriptions, the odds ratios presented in this study may overestimate the relative risk.) The pattern of results was consistent for incident AUD cases, as well as for the sub-group of AUD patients without co-morbid drug problems. These results for Sweden are similar to earlier findings from the U.S. [18]. By contrast, there was not strong evidence of socioeconomic disparities in prescription compliance in the subgroup of AUD patients who were issued prescriptions in primary care. Results from this subgroup analysis suggest factors other than patient compliance may be driving disparities in picking up prescriptions for AUD pharmacotherapies.

In addition to disparities by neighbourhood deprivation, we observed lower rates of picking up prescriptions for AUD pharmacotherapy for patients with lower (versus the highest) SES (indexed by both income and education). Budhiraja and Landberg [29] observed significant increases in alcohol-related mortality for Swedes with less than ten years of education, with relatively little difference between those with intermediate education and those with college education. Disparities in AUD pharmacotherapies could contribute to long-term disparities in alcohol-related mortality among socially disadvantaged groups.

Lower rates of pharmacotherapy for foreign-born (compared to Swedish-born) AUD patients may be due to a variety of factors, including lower integration with primary or specialty/psychiatric care [37], as well as communication challenges that may reduce the likelihood a physician would initiate the detailed discussions that should accompany prescription of AUD pharmacotherapy [5]. There also may be unique barriers to using AUD pharmacotherapy by foreign-born (or other ethnic minority) patients, such as distrust of health care providers [38], and this deserves further study.

Women were less likely to pick up pharmacotherapy prescriptions in the full dataset, as well as in the subset of primary care cases to whom we know prescriptions were issued. These findings differ somewhat from those of an Australian study, in which men were less likely than women to pick up more than one naltrexone prescription to treat AUD [19]. Further research should investigate whether AUD is more stigmatizing for women than for men in Sweden.

Older patients, those with more AUD registrations (especially those with three or more inpatient or outpatient care episodes during the study period) and those with co-occurring psychiatric diagnoses were significantly more likely to receive AUD pharmacotherapy. Morley and colleagues [19] also found older Australians were more likely than younger patients to return for a second AUD pharmacotherapy prescription, and Kranzler and colleagues [18] found a similar pattern for naltrexone prescriptions picked up in the U.S. In a study of 12,000 Swedes assessed for SUD between 2002–2008, Grahn and colleagues [1] found patients with psychiatric co-morbidities reported a significantly greater number of voluntary treatment episodes. Our findings suggest physicians may be prescribing AUD pharmacotherapies to help patients with non-remitting alcohol problems who may not be sufficiently served by other treatment modalities [11]. Physicians also may prescribe AUD pharmacotherapy in concert with pharmacotherapies for other complicated psychiatric co-morbidities [39], although we did not assess this here.

In one U.S. study [9], in a subset of sampled alcohol and drug treatment programs that used pharmacotherapies for either substance use disorders or psychiatric conditions, average rates of adoption of AUD pharmacotherapy were quite low (about 24%), which was in stark contrast to medication prescribing practices for psychiatric conditions (about 70%). It also was lower than rates of DUD pharmacotherapy (about 34%) at the same facilities [9]. In the present Swedish study, the rates of AUD pharmacotherapy were much higher than data suggest may be the case for the U.S., and detailed examination of Swedish healthcare system factors that promote the use of AUD pharmacotherapy may help improve care delivery in other national contexts. For example, medication cost may not be a salient issue for Swedish AUD patients, as financial assistance and cost caps (SEK2,200 or US\$240/month maximum) help keep the patient burden lower than in the U.S. [40]. Furthermore, the healthcare system is designed so there are qualified prescribers in all geographic regions of Sweden [40]; in the U.S. and other countries, there are geographic disparities in availability of qualified AUD treatment providers [7, 41].

One limitation is that we do not have nationally-inclusive data on prescriptions issued in the inpatient or outpatient care settings. Thus, it is not clear whether our findings represent differences in prescribing practices, differences in patient compliance, or both. When we linked the prescription registry data with information from primary healthcare providers in a smaller geographic area, we found high patient compliance, as over 80% of issued prescriptions were picked up. This suggests geographic and socioeconomic variability in pharmacotherapy may, at least in part, reflect differences in prescribing practices.

There are some limitations pertaining to measurement of the outcome and exposure variable, as well as our case ascertainment definition. Regarding the outcome: Nalmefene was

approved in Europe for treatment of AUD in 2013, and our study period ended in 2012. Thus, the few AUD patients who received nalmefene are likely to have been receiving treatment for a co-morbid DUD. The number of cases receiving nalmefene was very small (<1% of all prescriptions), so findings are driven by the other pharmacotherapies. Future studies will be informative about the use of nalmefene for AUD treatment in Sweden. Also, neighbourhood deprivation and individual SES were measured at the beginning of the study period, and they may have changed by the time someone received either inpatient or outpatient treatment for AUD or when they received their first (or subsequent) pharmacotherapy prescriptions. Unfortunately, we do not have neighbourhood data available after this point, which is a limitation of the present analyses. Our data suggest dramatic changes in neighbourhood SES are not common in Sweden, however. Finally, given our case definition of AUD, these findings represent patients with more severe AUD who have developed physical health problems due to prolonged heavy drinking. Future research should examine whether physical health problems are related to prescriptions for and adherence to AUD pharmacotherapies, as some medications are contraindicated for patients with severe hepatic issues (although others are not) [5].

There are many benefits that accrue from AUD pharmacotherapy [18, 42]. Future research should determine whether long-term benefits are equally conferred across population subgroups or whether disparities in alcohol outcomes widen due to a mismatch between clinical need and pharmacotherapies received by patients [43]. Interventions with physicians and other healthcare providers who can prescribe medications may help increase use of pharmacotherapy as part of the AUD treatment regimen. Targeting these interventions and other forms of outreach to clinics in deprived neighbourhoods and to those that serve women and foreign-born residents may help prevent relapse and reduce the burden of AUD among disadvantaged population subgroups in Sweden.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Basic characteristics of patients with alcohol use disorders (AUD)

	Picked up pharmacotherapy prescription		Full cohort	
	N	%	N	p-value
Total	33563	53.7	62549	
Neighbourhood deprivation				<0.0001
Low deprivation	5331	58.4	9124	
Moderate deprivation	20295	54.3	37357	
High deprivation	7937	49.4	16068	
Individual income (quartiles)				<0.0001
Lowest income group	7955	50.3	15811	
Middle low	8294	52.3	15865	
Middle high	8271	53.9	15341	
Highest income group	9043	58.2	15532	
Education				<0.0001
< 10 years	8870	49.5	17909	
10–11 years	13110	55.0	23823	
12+ years	11583	55.6	20817	
Country of origin				<0.0001
Sweden	29547	54.8	53910	
Abroad	4016	46.5	8639	
Age				<0.0001
< 30	1908	40.9	4664	
30–39	5402	55.9	9667	
40–49	10443	59.8	17471	
50–59	10122	54.6	18554	
60+	5688	46.6	12193	
Gender				0.0008
Men	23341	54.0	43214	
Women	10222	52.9	19335	
Co-morbid psychiatric disorder				<0.0001
No	22687	52.1	43574	
Yes	10876	57.3	18975	
Co-morbid drug use disorder				0.002
No	29711	53.5	55554	
Yes	3852	55.1	6995	
Number of AUD registrations				<0.0001
1	9496	38.1	24919	
2	5586	52.7	10592	
3+	18481	68.4	27038	

Note: Pharmacotherapy for alcohol use disorder (AUD) includes naltrexone, disulfiram, acamprosate and nalmefene. *P*-values based on chi-square tests.

Table 2
Odds ratios for filling pharmacotherapy prescription in patients with AUD (N=62,549)

	Crude		Adjusted	
	OR	95% CI	OR	95% CI
Neighbourhood deprivation (Low as referent)				
Moderate deprivation	0.85	0.81 0.89	0.90	0.86 0.95
High deprivation	0.70	0.66 0.73	0.75	0.70 0.79
Income (Highest quartile as referent)				
Lowest income group	0.73	0.70 0.76	0.70	0.66 0.73
Middle low	0.79	0.75 0.82	0.74	0.70 0.77
Middle high	0.84	0.80 0.88	0.81	0.77 0.85
Education (12+ years as referent)				
< 10 years	0.78	0.75 0.81	0.82	0.78 0.85
10–11 years	0.98	0.94 1.01	0.95	0.91 0.99
Country of origin (Sweden as referent)				
Abroad	0.72	0.68 0.75	0.74	0.71 0.78
Age (< 30 as referent)				
30–39	1.83	1.70 1.96	1.59	1.48 1.71
40–49	2.15	2.01 2.29	1.74	1.62 1.86
50–59	1.73	1.63 1.85	1.37	1.28 1.47
60+	1.26	1.18 1.35	1.01	0.94 1.09
Gender (Male as referent)				
Female	0.96	0.92 0.99	0.96	0.93 0.99
Psychiatric disorder				
Yes	1.24	1.20 1.28	1.23	1.18 1.28
Drug use disorder				
Yes	1.07	1.01 1.12	0.99	0.93 1.04
Number of AUD registrations (1 as referent)				
2	1.81	1.73 1.90	1.81	1.73 1.90
3+	3.51	3.38 3.64	3.52	3.39 3.65

Crude		Adjusted	
OR	95% CI	OR	95% CI
PWOR		1.07	1.05 1.09

Notes: Pharmacotherapy for alcohol use disorder (AUD) includes naltrexone, disulfiram, acamprosate and nalmefene. OR = odds ratio. CI = confidence interval. PWOR = pairwise odds ratio from alternating logistic regression reflects differences between neighbourhoods.

Table 3

Odds ratios for filling pharmacotherapy prescription issued to primary care patients with AUD (N=1,186)

	Adjusted		
	OR	95%CI	
Neighbourhood deprivation (Low as referent)			
Moderate deprivation	1.09	0.67	1.79
High deprivation	0.87	0.51	1.51
Income (Highest quartile as referent)			
Lowest income group	0.53	0.30	0.94
Middle low	0.64	0.38	1.10
Middle high	0.70	0.40	1.21
Education (12+ years as referent)			
< 10 years	1.19	0.74	1.93
10–11 years	1.46	0.92	2.32
Country of origin (Sweden as referent)			
Abroad	1.39	0.73	2.64
Age (< 30 as referent)			
30–39	1.02	0.46	2.26
40–49	0.78	0.39	1.57
50–59	0.70	0.35	1.40
60+	1.06	0.49	2.28
Gender (Male as referent)			
Female	0.60	0.41	0.88
PWOR	0.94	0.64	1.37

Notes: Pharmacotherapy for alcohol use disorder (AUD) includes naltrexone, disulfiram, acamprosate and nalmefene. OR = odds ratio. CI = confidence interval. PWOR = pairwise odds ratio from alternating logistic regression reflects differences between neighbourhoods.