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The patterns and extent of prescribing of medications for alcohol relapse prevention in England

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Executive summary

- Alcohol dependence is a major public health concern in England with annual increases in alcohol related hospital admissions and deaths.

- There are three medications that are recommended to support alcohol relapse prevention that are safe, effective and cost-effective.

- The limited research that is available suggests that these medications are being underutilised in clinical practice in England.

- In order to gain a better understanding of the extent of the problem, we need better estimates of the rates and patterns of prescribing.

- This research aimed to determine the pattern and extent of prescribing of medications for alcohol relapse prevention in England.

Method

- This research used data extracted from the National Drug Treatment Monitoring System (NDTMS), a reporting system of all service users receiving treatment by specialist community and residential publicly funded drug and alcohol treatment providers in England.

- Service users aged 18+ with alcohol reported as their primary substance of dependence and completing a treatment journey between April 2013 and March 2016 (N=188,152) were included.

- Data on the prescription of medications for alcohol relapse prevention during a treatment journey and data on service users' demographics, treatment and clinical characteristics were extracted.

Findings

- The rate of prescribing of medications for alcohol relapse prevention was 2.1% in 2013/14, 6.8% in 2014/15 and 7.8% in 2015/16.

- A greater likelihood of prescription of medications for alcohol relapse prevention was associated with; a later treatment journey year, older age, female gender, white ethnicity, middle regional prevalence of alcohol dependence, greater severity of alcohol dependence, inpatient, Primary Care or residential treatment setting, prior treatment for alcohol dependence, longer treatment journey, more drinking days in the prior 28 days and drinking a higher number of alcohol units in the prior 28 days. Living in a region of England with the lowest alcohol prevalence was associated with a lower likelihood of prescription of medication for alcohol relapse prevention (ARP).

Conclusion

- In England, medications for alcohol relapse prevention are rarely prescribed (e.g., 7.8% in 2015/16) and those prescriptions appear to be associated with specific service user demographics, treatment, and clinical characteristics.

Introduction

Alcohol dependence is a major public health concern in England, contributing to an estimated 1.3 million hospital admissions in 2018/19 (NHS Digital, 2020) and alcohol related deaths are currently at an all-time high (ONS, 2021). Furthermore, the estimated cost of alcohol to the UK economy is £21 billion annually (Murray et al., 2013). Relapse back to drinking is common in those who receive treatment for alcohol dependence with up 70% returning to drinking in the first year following treatment (Brandon et al., 2007, Hunt et al., 1971). This pattern of treatment and resumption of drinking is putting additional pressure on addiction services that are facing cuts to their funding (Drummond, 2017). In order to reduce alcohol relapse rates and the associated harms to health and the economic burden, available treatment options need to be maximised.

The National Institute for Health and Care Excellence (NICE) have produced evidence-based guidelines recommending psychosocial interventions and pharmacotherapy to support alcohol relapse prevention (NCCMH, 2011). In the UK, there are three safe, effective and cost-effective medications that are licenced for use to support alcohol relapse prevention (ARP), acamprosate, naltrexone and disulfiram (Holzbach et al., 2019, Jonas et al., 2014). Jonas et al. (2011), completed a systematic review and meta-analysis and found the number needed to treat (NNT) to prevent return to any drinking was 12 for acamprosate and 20 for naltrexone and the NNT to prevent return to heavy drinking was 12 for naltrexone. NICE recommends the use of acamprosate or naltrexone, in combination with psychosocial therapy as first-line treatments and disulfiram as a second-line treatment to support ARP (NCCMH, 2011).

Despite the therapeutic potential of medications for ARP, it appears that they are being underutilised. In an analysis of Primary Care heath record data collected between 1990 and 2013, Thompson et al. found that that only 11.7% of people were prescribed medications for ARP in the first year following a diagnosis of alcohol dependence (Thompson et al., 2017). Data on the number of prescription items of medications for ARP in England has shown a consistent year on year rise between 2008 and 2015 but this seems to have plateaued more recently (NHS Digital, 2020). The research that is currently available does not give a complete picture of prescribing of medications for ARP in England as prescriptions of these medications are usually initiated by specialist alcohol treatment services and then continued in Primary Care. In order to better understand the extent of the problem of under prescribing of these safe and effective medications for ARP, we need better estimates of the rates and patterns of prescribing.

This research will use data collected by the National Drug Treatment Monitoring System (NDTMS). The NDTMS is a reporting system for all publicly funded specialist community and residential alcohol treatment providers in England (Public Health England, 2020). There are two aims to this research, 1) to determine the extent of prescribing of medications for ARP in England and 2) test for associations between prescribing and service user demographic and clinical characteristics.

Method

This research was approved by the Health Research Authority London-Fulham Research Ethics Committee (reference number 18/LO/0644). The NDTMS was designed and is maintained by the National Drug Evidence Centre at the University of Manchester on behalf of Public Health England. Episodes of care are recorded that can be linked to form individual treatment journeys. A treatment journey is defined as "One or more episodes of structured treatment, at one or more providers, where there has been less than 21 days break between treatment episodes. A treatment journey ends once a client has been exited entirely from structured drug/alcohol treatment once all structured interventions and the episode have been closed. A client may be discharged from one provider but if they continue structured treatment (within 21 days of discharge) at another provider, their NDTMS treatment journey is continued" (p68) (Public Health England, 2020). The type of treatment received for each treatment episode that makes up a treatment journey is recorded in the NDTMS as psychosocial or pharmacological. As of November 2012, differentiation of pharmacotherapy for withdrawal or ARP was made.

Data was extracted for service users completing a treatment journey between April 2013 and March 2014, April 2014 and March 2015 and April 2015 and March 2016. Service users who; 1) reported alcohol as their primary substance of concern, 2) were adults aged 18+, 3) had consented to their data contributing to the NDTMS, 4) had treatment type recorded (differentiation of withdrawal and ARP medications) were included. Data was not extracted for services users who were pregnant. Data on the following service user characteristics was extracted; Age group (18-24, 25-34, 35-54, 55+), Gender (male/female), Ethnicity (white, mixed, Asian/Asian British, Black/Black British, Other Ethnic), Local Authority of residence, receiving treatment for a mental health condition (yes/no), acute housing problem (yes/no), adjunctive use of benzodiazepines, cocaine or opiates (yes/no). Due to a small number of service users in non-white ethnic groups, this variable was collapsed to white and other ethnicity. Local Authority of residence was grouped into highest, middle and lowest estimated rates of alcohol dependence (Pryce, 2017). Data on treatment episode and journey were also extracted, which included; intervention setting at the start of the treatment journey (community, inpatient unit, primary care, residential) and prescription of ARP medication during the treatment journey (yes/no), treatment journey length (days), number of drinking days in the previous 28 days at the initial triage and typical units (equivalent to 10 millilitres (8 grams) of pure alcohol) of alcohol consumed on a drinking day at initial triage and whether previous treatment for alcohol dependence has been received (yes/no).

A proxy measure of severity of alcohol dependence was constructed, with four severity of alcohol dependence categories; mild dependence with or without complex needs (drinking 0-15 units/day and 0-3 indicators of complex needs), moderate dependence without complex needs (drinking 16-30 units per day and 0 indicators of complex needs), severe dependence without complex needs (drinking 31+ units per day and 0 indicators of complex needs), moderate or severe dependence with complex needs (drinking 16-30 or 31+ units per day and 1-3 indicators of complex needs) (Brennan et al., 2016). The number of alcohol units consumed was estimated using the number of alcohol units consumed in the past 28 days that is reported at initial triage and an indication of complex needs through the reporting of; 1) treatment for a mental health condition, 2) urgent housing need, or 3) adjunctive use of benzodiazepines, crack cocaine or opiates).

The proportion of service users receiving medications for ARP was calculated for each of the years; 2013/14, 2014/15 and 2015/16. In order to explore the independent association between service user demographic and clinical characteristics and being

prescribed medication for ARP, univariable binary logistic regression was used. All potential predictors were then entered into a multivariable binary logistic regression. Predictor variables included the treatment journey year, age group, gender, ethnicity, regional prevalence of alcohol dependence, journey length, drinking days, severity of dependence, treatment setting, previous treatment and treatment for a mental health condition. Analyses were conducted using IBM SPSS Statistics version 26 (IBM Corp., 2019).

Findings

Participant demographics and characteristics of the 188,152 people who met inclusion for this research are presented in Table 1. Only 2.1% of the sample had been prescribed medication for alcohol relapse prevention during a treatment journey that ended in the year 2013/14, which rose to 6.8% in 2014/15 and 7.8% in 2015/16.

Table 1: Participant demographic and clinical characteristics for those prescribed and not prescribed alcohol relapse prevention medication during a treatment journey.

	No ARP medication	ARP medication
Year journey ended		
2013/14	57,055 (97.9)	1,230 (2.1)
2014/15	61,281 (93.2)	4,440 (6.8)
2015/16	59,133 (92.2)	5,013 (7.8)
Age, n (%)		
18 - 24	9,036 (97.7)	217 (2.3)
25 – 34	34,814 (95.4)	1,673 (4.6)
35 – 54	103,217 (93.6)	7,005 (6.4)
55+	30,402 (94.4)	1,788 (5.6)
Gender, n (%)		
Male	118,311 (94.4)	6,977 (5.6)
Female	59,158 (94.1)	3,706 (5.9)
Ethnicity, n (%)[1]		
Other	6,998 (95.1)	359 (4.9)
White	167,256 (94.3)	10,173 (5.7)
Prevalence of alcohol dependence, n (%)		
Highest	9,942 (93.4)	708 (6.6)
Middle	143,878 (94.0)	9,136 (6.0)
Lowest	23,649 (96.6)	839 (3.4)
Severity of dependence, n (%)[2]		
Mild dependence with or without complex needs	62,872 (96.2)	2,472 (3.8)
Moderate dependence without complex needs	52,945 (93.2)	3,833 (6.8)
Severe dependence without complex needs	22,013 (92.1)	1,882 (7.9)
Moderate or severe dependence with complex needs	26,735 (93.3)	1,927 (6.7)
Treatment setting, n (%)		
Community	160,727 (96.4)	6,038 (3.6)
Inpatient	7,817 (67.8)	3,711 (32.2)
Primary care	6,303 (91.7)	569 (8.3)
Residential/recovery house	2,622 (87.8)	365 (12.2)
Previous treatment, n (%)[3]		
No	70,040 (96.0)	2,939 (4.0)
Yes	98,915 (93.3)	7,119 (6.7)
Treatment for a mental health condition, n (%)[4]	133,988 (94.2)	8,322 (5.8)
No	33,149 (94.5)	1,915 (5.5)

Yes		
Number of complex needs, N (%)[5]		
0	123,490 (94.2)	7,610 (5.8)
1	38,515 (94.4)	2,265 (5.6)
2	3,028 (92.5)	246 (7.5)
3	138 (92.6)	11 (7.4)
Number of drinking days, mean (IQR)[6]	27 (16)	28 (6)
Typical units per drinking day, median (IQR)[7]	20 (19)	24 (16)
Journey length (days), median (IQR)	120 (138)	182 (231)

Missing data: [1]3,366 (1.8%), [2]13,473 (7.2%), [3]9,139 (4.9%), [4]10,778 (5.7%), [5]12,849 (6.8%) [6]2,701 (1.4%), [7]2,701 (1.4%)

The results of the univariable binary logistic regression are presented in Table 2. Completing a treatment journey in a later year, older age group, female gender, white ethnicity, greater severity of alcohol dependence, receiving treatment as an inpatient, residential or in Primary Care, having received treatment for alcohol dependence prior to their current journey, a higher number of drinking days prior to treatment initiation, drinking a higher number of alcohol units prior to treatment initiation and a longer treatment journey length was associated with a greater likelihood of being prescribed medication for ARP. Receiving treatment for another mental health condition and living in a region of England with the lowest or middle rates of prevalence was associated with a lower likelihood of being prescribed medication for ARP. The number of complex needs that a service user had was not associated with prescription of medication for ARP.

Table 2: Univariable binary logistic regression of participant demographic and clinical characteristics associated with the prescription of medications for alcohol relapse prevention for participants completing their treatment journey

	OR (95% CI)	p
Year journey ended		
2013/14		
2014/15	3.361 (3.152 to 3.584)	<0.001
2015/16	3.932 (3.691 to 4.190)	<0.001
Age		
18 - 24		
25 – 34	2.001 (1.734 to 2.309)	<0.001
35 – 54	2.826 (2.465 to 3.240)	<0.001
55+	2.449 (2.123 to 2.825)	<0.001
Gender		
Male		
Female	1.062 (1.020 to 1.107)	0.004

Ethnicity
    Other
    White
	
	1.186 (1.064 to 1.321)
		
		0.002

Prevalence of alcohol dependence
    Highest
    Middle
    Lowest
	
	0.892 (0.824 to 0.965)
	0.498 (0.450 to 0.552)
		
		0.005
		<0.001

Severity of dependence
    Mild dependence with or without complex needs
    Moderate dependence without complex needs
    Severe dependence without complex needs
    Moderate or severe dependence with complex needs
	
	1.841 (1.748 to 1.939)
	
	2.174 (2.044 to 2.313)
	
	1.833 (1.724 to 1.949)
		
		<0.001
		
		<0.001
		
		<0.001

Treatment setting
    Community
    Inpatient
    Primary care
    Residential/recovery house
	
	12.637 (12.060 to 13.242)
	2.403 (2.197 to 2.628)
	3.706 (3.311 to 4.147)
		
		<0.001
		<0.001
		<0.001

Previous treatment
    No
    Yes
	
	1.715 (1.641 to 1.792)
		
		<0.001

Treatment for a mental health condition
    No
    Yes
	
	0.930 (0.884 to 0.979)
		
		0.005

Number of complex needs	1.013 (0.972 to 1.055)	0.549
Number of drinking days	1.047 (1.045 to 1.050)	<0.001
Typical units per drinking day	1.009 (1.009 to 1.010)	<0.001
Journey length (days)	1.003 (1.002 to 1.003)	<0.001

All variables of interest were included in a multivariable logistic regression model, the results of which are presented in table 3. Characteristics that were associated with a greater likelihood of being prescribed medication for ARP during a treatment journey were; completing a treatment journey in the year 2014/15 or the year 2015/16, being in an older age group, female gender, white ethnicity, living in a region of England with a middle-rate of prevalence of alcohol dependence, a greater severity of alcohol dependence, receiving treatment as an inpatient, residential or in primary care, receiving treatment for alcohol dependence prior to the current journey, a higher number of drinking days prior to treatment initiation, drinking a higher number of alcohol units prior to treatment initiation and a longer treatment journey length. Living in a region of the UK with the lowest rates of prevalence of alcohol dependence was associated with a lower likelihood of being prescribed medications for ARP. Receiving treatment for another mental health condition and the number of complex needs were not significantly associated with ARP medication prescribing when controlling for other factors. The model

fitted the data well χ^2=125.363 (8), p<0.001 (Nagelkerke R^2=0.206, Cox and Snell R^2=0.073).

Table 3: Multivariable binary logistic regression of participant demographic and clinical characteristics associated with the prescription of medications for alcohol relapse prevention for participants completing their treatment journey

	OR (95% CI)	p
Year journey ended		
2013/14		
2014/15	3.269 (3.044 to 3.510)	<0.001
2015/16	3.823 (3.560 to 4.106)	<0.001
Age		
18 - 24		
25 – 34	1.622 (1.380 to 1.907)	<0.001
35 – 54	1.901 (1.628 to 2.220)	<0.001
55+	1.700 (1.446 to 1.999)	<0.001
Gender		
Male		
Female	1.129 (1.077 to 1.184)	<0.001
Ethnicity		
Other		
White	1.219 (1.077 to 1.380)	0.002
Prevalence of alcohol dependence		
Highest		
Middle	1.121 (1.024 to 1.228)	0.014
Lowest	0.491 (0.436 to 0.552)	<0.001
Severity of dependence		
Mild dependence with or without complex needs		
Moderate dependence without complex needs	1.329 (1.244 to 1.419)	<0.001
Severe dependence without complex needs	1.308 (1.188 to 1.441)	<0.001
Moderate or severe dependence with complex needs	1.131 (1.020 to 1.255)	0.020
Treatment setting		
Community		
Inpatient	10.512 (9.950 to 11.104)	<0.001
Primary care	2.264 (2.050 to 2.500)	<0.001
Residential/recovery house	3.216 (2.807 to 3.685)	<0.001
Previous treatment		
No		
Yes	1.242 (1.183 to 1.304)	<0.001
Treatment for a mental health condition		
No		
Yes	0.951 (0.862 to 1.049)	0.316
Number of complex needs	0.990 (0.899 to 1.091)	0.846
Number of drinking days	1.021 (1.018 to 1.024)	<0.001

Typical units per drinking day	1.002 (1.001 to 1.004)	0.007
Journey length (days)	1.002 (1.002 to 1.002)	<0.001

Conclusion

Although there was a 5.7% increase in the rate of prescribing of medications for ARP between the years 2013/14 and 2015/16, it remained low at just 7.8% in 2015/16. Completing treatment for alcohol in more recent years (i.e. 2014/15 or 2015/16), older age, female gender, white ethnicity, living in a region of England with a middle-rate prevalence of alcohol dependence, greater severity of alcohol dependence, receiving treatment in an inpatient, residential of Primary Care setting, having received prior treatment for alcohol dependence, longer treatment journey length, more drinking days in the 28 days prior to treatment initiation and drinking more units of alcohol in the 28 days prior to treatment initiation were associated with an greater likelihood of being prescribed medications for ARP. Living in a region of England with the lowest prevalence rate was associated with a lower likelihood of being prescribed medication for ARP.

The low rates of prescribing of medications for ARP found in this research are in keeping with research in Primary Care in the UK (Thompson et al., 2017) and the low rates of prescribing reported internationally, e.g. Australia (Morley et al., 2016), Germany (Holzbach et al., 2019) and the United States (Ehrie et al., 2020). NICE recommends the use of medications for ARP to be used as first or second-line treatments but the results of this research suggest that this is not translating to clinical practice with older age, longer treatment journey length and having received treatment previously for alcohol dependence associated with a greater likelihood of being prescribed medications for ARP. The low rates of prescribing of medications for ARP indicates a missed opportunity to provide additional evidence-based treatment to support those in recovery from alcohol dependence.

Medications for ARP are recommended for those who are moderately or severely dependent (NCCMH, 2011). This research found that those who were more severely dependent were more likely to be prescribed medication for ARP. This was also supported by a greater likelihood of being prescribed medications for ARP for those who were drinking on more days at treatment entry and those who received treatment as an inpatient or in a residential setting.

Limitations to skills and knowledge of medications for ARP and access to a prescriber have been identified as potential barriers to prescribing (Hagedorn et al., 2019, Williams et al., 2018). Cuts to the budget to provide specialist alcohol services in England has raised concerns about a reduction in specialist addiction psychiatrists, clinical psychologists and nurses, which may have a negative impact on prescribing (Drummond, 2017). Concerns about the safety and efficacy of medications for ARP, perceptions of service user demand and the costs of medications have also been identified as potential barriers to prescribing (Abraham et al., 2011). Another potential barrier may be comorbid physical health conditions, for example severe hepatic impairment, that may preclude prescribing (NCCMH, 2011). Research into service users perceptions of medications for ARP have found barriers to taking these medications include a willingness to take medications in general, perceptions of the addiction potential of these medications, awareness of the medications and concerns of their effectiveness and side-effects (Haley et al., 2019, Mark et al., 2003). There has been some research in the United States using a multifaceted educational outreach approach to increase prescribing of medications for ARP (Hagedorn et al., 2015). Although there was an increase in rates of prescribing of medications for ARP following introduction of the intervention, it was not significant compared to rates of prescribing at control sites.

Limitations

The research results must be interpreted while considering some limitations. The NDTMS does not record a formal diagnosis of alcohol dependence using ICD or DSM criteria and it only begun recording Severity of Alcohol Dependence Questionnaire (SADQ) scores as of April 2017.Therefore there is no severity of alcohol dependence measure available prior to this year. A proxy measure for severity of alcohol dependence was used. that had been established through expert consultation (Brennan et al., 2016), however, it may still not be an accurate reflection of dependence severity. The NDTMS only records data from publicly funded alcohol treatment providers in England, it does not capture prescriptions initiated in privately funded drug and alcohol services. A further limitation that must be considered is that differentiation between the medications for ARP was not possible. There may be variations in prescribing rates and correlates that could not be identified in this research.

Recommendations

Medications for ARP are underutilised for the treatment of alcohol dependence in England. Strategies to increase their use in clinical practice are needed to support service users' efforts to remain alcohol free and reduce the health and social harms associated with relapse back to drinking.

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