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Alcohol relapse prevention health care after alcohol withdrawal in New South Wales prisons, Australia: A patient file review

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Abstract

Introduction: People who enter custody have complex health issues and comorbidities may include alcohol use disorders. We investigated clinical service provision and comorbidities recorded among individuals with a likely alcohol withdrawal syndrome within prison in New South Wales, Australia.

Methods: For this clinical case series review, electronic medical data were used to identify 50 people entering custody between August and November 2018 who likely had a treated alcohol withdrawal syndrome. We aimed for a 3:2 ratio of men and women, and a 1:1 ratio of Aboriginal and non-Aboriginal individuals. Data were extracted using a purposefully designed tool which included current alcohol withdrawal management, comorbidities and alcohol relapse prevention approaches used or recommended.

Results: Thirty-eight men and 12 women, of whom 22 were Aboriginal, were included. Twenty-nine individuals (58%) reported a history of medical comorbidities. Thirty-five (70%) reported using other substances and over half (60%) had a diagnosis of mental health disorders. Fourteen (28%) individuals had a record of receiving brief intervention and five (10%) of motivational interviewing. Twenty-three individuals (46%) were referred to and seen by drug and alcohol clinicians. Only seven (14%) of the sample had pre-release community care plans.

Discussion and Conclusions: Individuals treated for an alcohol withdrawal syndrome in New South Wales prisons have a high prevalence of medical comorbidities and other substance use. Clinical interventions focused on alcohol withdrawal management, and relapse prevention interventions were not recorded for most individuals. Service innovation and expansion are needed to increase the provision of post-withdrawal management.

KEYWORDS
Aboriginal, alcohol, file review, prison, screening

Key Points

- Individuals who experience an alcohol withdrawal syndrome upon entering prison have a high prevalence of comorbidities and other substance use.
- Polydrug use and mental health disorders were the norm.
- For most individuals, there was no record of alcohol relapse prevention interventions being provided in prison.

1 | INTRODUCTION

Alcohol use disorder (AUD) is a major public health concern worldwide. In Australia, alcohol is one of the most common risk factors contributing to disease burden in men aged between 15 and 44 years [1]. Internationally, there is a strong association between alcohol consumption and an individual's risk of being a perpetrator of violent crime [2]. In Australia, people entering prison were less likely than general community members to report having consumed alcohol in the previous 12 months (60–67% vs. 81–84% of those aged 18–49) [3]. However, those who did drink were more likely to drink at risky levels [3]. Approximately two-thirds of people (67.1% men and 63.3% women) currently in prison in 2015 in the state of New South Wales (NSW) and who participated in a health survey scored eight or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT). This indicates hazardous consumption or an AUD [4, 5] before imprisonment.

Concerningly, Aboriginal and Torres Islander (hereafter Aboriginal) people are imprisoned at 13 times the rate of other Australians. Aboriginal people who are incarcerated are almost twice as likely as non-Aboriginal people to be rated as at high risk of alcohol-related harm [3, 6–9] (e.g., 46% compared with 26% scored 6+ on the three-item AUDIT-C, respectively) [3]. There are multiple reasons for the overrepresentation of Aboriginal people in prison and for risky use of alcohol or other drugs by Aboriginal people. These relate to the intergenerational effects of colonisation and to the ongoing economic and social marginalisation, which can include reported systemic biases, including over-policing [10–12]. Importantly, reducing the overrepresentation of Aboriginal people in prison was added to the Close the Gap initiative which aims to address health and social disparities that affect Aboriginal Australians [13].

Apart from the high prevalence of AUDs among people who enter prison, there are also links between AUD and complex health issues. Almost half (49.2%) of people experiencing incarceration in NSW who participated in the health survey reported they had received some psychiatric care (54.9% of women, 48.8% of men) [4]. Moreover, the prevalence of most chronic health conditions, such as asthma, diabetes and communicable diseases, particularly hepatitis C, was higher in comparison to the community [4]. This makes the correctional system an important place to carry out alcohol screening, offer interventions and arrange follow-up [5, 14]. Currently, with limited resources and high throughput of patients, clinicians need to be as efficient as possible to offer consistent screening and follow-up services for individuals who present with AUDs in prison.

In the community, clinicians can offer education and brief interventions, with other specific psychological interventions, including cognitive behavioural therapy, being provided by trained staff. There have been meta-analyses and systematic reviews into the delivery of behavioural treatment programs in prisons for alcohol and other drug use [15–17]. In comparison, less appears to be known about education and brief intervention for AUD offered by clinicians in prison settings. Three American studies have investigated psychosocial interventions delivered by trained clinicians in prison for AUD, including alcohol screening and brief intervention [18–20]. Davis et al. found that individuals who were provided with a brief intervention were significantly more likely to schedule follow-up appointments after release [18]. Stein et al. found that women who had received a brief intervention in prison reported significantly more days abstinent at follow-up after release [19]. Begun et al. found a greater reduction in AUDIT score from baseline to follow-up in the group that had received brief intervention in prison, compared to the group that did not [20]. Despite the methodological limitations in these studies, including small sample sizes and short duration of follow-up, health practitioners in prison settings appear to be well placed to conduct alcohol assessment and psychological interventions [21]. This can help individuals experiencing incarceration to improve their health and in addition, to reduce offending behaviour, upon release from prison [21]. Providing better services aligns well with national and international strategies aimed at prevention and treatment of substance misuse, this includes providing quality treatment in the prison setting [22, 23].

Apart from psychological interventions, anti-craving medications, particularly naltrexone and acamprosate, have been found to reduce the likelihood of high-risk alcohol consumption in community settings [24]. These medications have also been found to reduce criminal recidivism in

adults living with alcohol dependence and severe mental illness, who have had criminal justice involvement [25].

The risk of AUD relapse after release from prison is high. The provision of relapse prevention therapies by clinical staff to individuals with alcohol dependence who are in prison could reduce this risk [24] and possibly reduce the risk of further criminal justice involvement [25]. However, there is limited understanding of the provision of evidence-based alcohol relapse prevention therapies by clinical staff in prison. To address this gap, we conducted this study to understand provision of evidence-based alcohol relapse prevention treatments by clinical services in NSW prisons to Aboriginal and non-Aboriginal individuals. The secondary aim of this study was to understand the real-world complexities, including co-occurring drug use, mental health disorders or underlying health issues. Each of these may impact on the delivery of such treatments. To the best of our knowledge our paper is the first clinical case review published on the treatment of individuals entering prison with a likely moderate to severe AUD in Australia, and possibly internationally. We hope this study will be used to inform clinical practice in the resource- and time-poor environment of prison health service delivery. Additionally, we hope the study will inform better practice when providing services for Aboriginal people, who are currently over-represented in prison at unacceptable levels.

2 | METHODS

This is a file review of 50 individuals' paper and electronic medical files from the Justice Health and Forensic Mental Health Network (JHFMHN), the service that provides clinical care to individuals within public prisons in NSW, Australia. Ethics approval for the study was from the JHFMHN Human Research Ethics Committee (G882/18) and the Aboriginal Health and Medical Research Council of NSW Human Research Ethics Committee (1425-18). The paper was approved for publication by the Aboriginal Health and Medical Research Council of NSW Human Research Ethics Committee. Further sharing of data [26] was not appropriate because of the risk of identifying individuals in this small sample.

2.1 | File selection

We used the Justice Health electronic Health System to identify files of individuals entering custody between 1 August and 31 December 2018 with a likely AUD. Electronic data for the 50 selected individuals was also extracted from the Justice Health electronic Health System. This included reception screening assessment, hospital discharge summaries and physical and mental health information. We also extracted electronic data on the separate medical system for recording afterhours clinical support in prison.

The case inclusion criteria were:

1. Had been released by the time this study commenced (to ensure that the medical files were available for data extraction).
2. Self-reported daily or almost daily alcohol consumption of six or more standard drinks per day in the Reception Screening Assessment.
3. Presented with symptoms that were likely to indicate alcohol withdrawal.
4. If polysubstance use was reported, there were sufficient clinical indications that the person's withdrawal symptoms were caused by alcohol.
5. Diazepam was prescribed for the withdrawal symptoms and documented.

Each of the above inclusion criteria needed to be met.

We aimed to stratify the sample to ensure representation of both Aboriginal and non-Aboriginal persons, and of men and women. Files were selected consecutively from the date of entry to custody within each (gender/Indigeneity) cell with the aim of a 3:2 ratio of male ($n = 30$) and female ($n = 20$) patients, and a 1:1 ratio of Aboriginal ($n = 25$) and non-Aboriginal ($n = 25$) patients. The ratio was used in order to increase the capacity of the sample to give insights into the clinical context for women, who are 10% of the prison population, and also for Aboriginal people, who are 25% of the prison population [27]. No data were available to us on individuals who identified as non-binary, transgender or other. Even if such data were available, describing substance use and health issues for individuals in these gender subgroups would not be possible as individuals could be readily identifiable.

2.2 | Paper medical record review and data extraction

A data extraction tool was developed by co-authors Katherine Conigrave, Jillian Roberts and Yichao Liang (medical practitioners) with input from clinical staff of JHFMHN and researchers at the Universities of Sydney and NSW. The first author, Yichao Liang undertook the data extraction (Data S1, Supporting Information).

2.3 | Data management and analysis

Data were entered into a Microsoft Excel Sheet by a research assistant, then reviewed by another investigator

(Yichao Liang). Visual plotting was conducted to identify outlying data and patterns which could not be explained by clinical expertise. These data were discussed with senior clinicians (Jillian Roberts and Katherine Conigrave) and any issue resolved by consensus. Any data that remained unclear or internally contradictory were further checked by comparison with the Reception Screening Assessment and the Justice Health electronic Health System, to rule out data retrieval errors. Data were transferred from Excel to SPSS Version 26 for final analysis. The analysis was limited to descriptive statistics due to the small sample size.

3 | RESULTS

There were not enough available files for women who met selection criteria (shortfall of five non-Aboriginal and three Aboriginal females) (see Table 1). Accordingly, the sample was supplemented by additional files of non-Aboriginal males, resulting in a 3.16:1.00 ratio of male to female, and a 1.08:1.00 ratio of Aboriginal to non-Aboriginal persons.

The selected individuals' mean age was 43.20 ± 7.28 (mean ± SD) years. Twenty-five individuals (50%) had previously been incarcerated in a NSW prison. Of these, 18 (36% of the sample) had been treated for alcohol withdrawal in one of their most recent imprisonments (up to three imprisonments per person were checked).

A total of 35 individuals (70%) had a history of medical morbidities (Table 2). Two Aboriginal men had complex alcohol-related morbidities during their imprisonment, one with decompensated liver cirrhosis and one with delirium tremens, the latter presenting with hallucinations and paranoid delusions (requiring transfer to hospital for treatment). Five patients (10%) had a known current hepatitis C infection (RNA positive) and a further 13 patients (26%) had a past infection (antibody positive, RNA negative). Other common medical comorbidities were asthma (18%), cardiovascular disease (14%) and epilepsy (12%). A similar number of Aboriginal persons as non-Aboriginal had medical comorbidities (59% and 57%, respectively), but Aboriginal individuals had higher rates of current (14% and 7%, respectively) and past (32% and 21%, respectively) hepatitis C infection, than non-Aboriginal (Table 2).

Based on the Reception Screening Assessment (Table 3), 35 (70%) individuals reported also using other substances (excluding tobacco). Stimulants were the most common class of other substance used (48%) and methamphetamine was the most used stimulant (44%).

TABLE 2 Medical disorders among 50 individuals who were treated for alcohol withdrawal.

Medical disorder	Number of individuals[a]	Percentage
Medical complications of alcohol dependence[b]	2	4
Hepatitis C		
Current infection	5	10
Past infection	13	26
Asthma	9	18
Cardiovascular disease	7	14
Epilepsy	6	12

[a]One individual could have more than one medical disorder. The total number of individuals with one or more of these disorders recorded was 35.
[b]Alcohol-related medical disorder, such as liver cirrhosis, or complication of alcohol withdrawal, such as delirium tremens.

TABLE 1 Characteristics of 50 individuals who were treated for alcohol withdrawal in New South Wales prisons.

Characteristics			Number	Percentage
Gender	Male	Aboriginal	15	30
		Non-Aboriginal	23	46
	Female	Aboriginal	7	14
		Non-Aboriginal	5	10
Had history of previous imprisonment(s)[a]	Had history of treatment for alcohol withdrawal during previous imprisonments		18	36
	Without history of treatment for alcohol withdrawal in previous imprisonments		7	14
			Mean	**SD**
Age, years			43.2	7.3
Alcohol consumption per drinking day prior to arrest, standard drinks			17.6	7.7

[a]Up to 3 imprisonments per individual were checked.

TABLE 3 Other substance use among 50 individuals who were treated for alcohol withdrawal.

Frequency of use	Type of drug	Number of individuals[a]	Percentage
Opioid			
<3 days/week	Street oxycontin[b]/fentanyl	1	2
≥3 days/week	Heroin	4	8
	Prescribed methadone	2	4
	Street methadone	1	2
	Street morphine	1	2
	Street codeine	1	2
Subtotal		10	20
No use		40	80
Total		**50**	**100**
Route of use	Intravenous	5	10
	Smoked/oral	5	10
	Intravenous + smoked/oral	0	0
Stimulant			
<3 days/week	Methamphetamine	7	14
	Amphetamine	1	2
	MDMA[c]	1	2
≥3 days/week	Methamphetamine	15	30
Subtotal		24	48
No use		26	52
Total		50	100
Route of use	Intravenous	17	34
	Smoked/oral	5	10
	Intravenous + smoked/oral	2	4
Benzodiazepine			
<3 days/week	Diazepam	1	2
≥3 days/week	Diazepam	6	12
	Alprazolam	1	2
	Clonazepam	1	2
Subtotal		9	18
No use		41	82
Total		**50**	**100**
Route of use	Oral	–	–
Cannabis			
<3 days/week		5	10
≥3 days/week		16	32
Subtotal		21	42
No use		29	58
Total		50	100
Route	Smoked	–	–

(Continues)

TABLE 3 (Continued)

Frequency of use	Type of drug	Number of individuals[a]	Percentage
Tobacco			
No		13	26
Yes		37	74

[a]One individual can use more than one substance; a total of 35 individuals reported use of a substance other than tobacco or alcohol.
[b]OxyContin is a controlled-release oral formulation of oxycodone.
[c]MDMA: 3,4-methylenedioxymethamphetamine, widely known as ecstasy.

Intravenous use was more commonly reported than smoking or oral (34% and 10%, respectively) stimulant use. The second most common substance used was cannabis (42%), followed by an opioid (20%). The most commonly reported opioid was heroin (four patients). Half of the individuals who used an opioid reported intravenous use. One in five (18%) of the 50 patients reported comorbid benzodiazepine use, and diazepam was the most used (14%). The majority (74%) of the 50 individuals reported a history of cigarette smoking.

There was indication that Aboriginal individuals had greater complexity of substance use and hence greater need for support. A higher proportion of Aboriginal persons had used one or more other substances than non-Aboriginal (82% and 61%, respectively), with the difference in prevalence greatest for tobacco (91% and 61%, respectively). Compared with non-Aboriginal, Aboriginal individuals were also more likely to use substances by intravenous injection (59% and 39%, respectively).

Over half (60%) of the individuals had received a clinical diagnosis of a mental health condition (Table 3). The most common was major depressive disorder (34%), followed by anxiety disorder (22%), schizophrenia (12%) and bipolar affective disorder (10%). Again, there was evidence of greater complexity of health needs among Aboriginal persons, with Aboriginal individuals more likely to have reported a history of schizophrenia than non-Aboriginal (18% and 7%, respectively). However, the prevalence of reported self-harm was similar between Aboriginal and non-Aboriginal individuals (5% and 4%, respectively). Among the 30 persons reporting a history of mental illness, 13 (26% of the sample) had a history of comorbid substance use, excluding tobacco. Apart from reporting anxiety and agitation during withdrawal, mental health symptoms reported included psychosis (8%) and self-harm ideation (4%).

The mean duration of diazepam treatment was 3.74 ± 2.09 days and its mean dose on the second day was 14.20 ± 10.84 mg. During alcohol withdrawal, 36 individuals (72%) had a thorough alcohol or other drugs use assessment. Nine persons (19%) had a record of receiving education about alcohol use from a clinician, and five (10%) had motivational interviewing. In most cases, the clinician delivering that intervention was a nurse working in the drug and alcohol field. Only five persons (10%) received both education about alcohol use and motivational interviewing (Table 4).

TABLE 4 Comorbid mental disorder and current psychiatric symptoms among 50 individuals who were treated for alcohol withdrawal.

	Number of individuals[a]	Percentage
Comorbid mental disorder		
Anxiety disorder	11	22
Major depressive disorder	17	34
Bipolar affective disorder	5	10
Schizophrenia	6	12
Personality disorder	3	6
ADHD	4	8
PTSD	4	8
Suicide attempt/self-harm	2	4
Current mental health symptoms		
Anxiety	17	34
Agitation	7	14
Psychosis (delusions/hallucinations)	4	8
Self-harm ideation	2	4

Abbreviations: ADHD, attention deficiency and hyperactivity disorder; PTSD, post-traumatic stress disorder.
[a]One individual could have more than one mental health disorder and/or symptom. The total number of individuals with one or more of the listed disorders recorded was 30.

Interventions provided after withdrawal and prior to the patient's release from prison are primarily aimed at reducing alcohol relapse on return to the community, because access to alcohol is very limited in prisons. However, only a small proportion of the sample received these interventions prior to release. Eighteen patients (36%) had post-withdrawal clinical follow-up, including 13 (26%)

TABLE 5 Interventions recorded during alcohol withdrawal[a] and afterwards for relapse prevention.

	Number of individuals[b]	Percentage
Interventions during alcohol withdrawal		
Thorough drug and alcohol assessment	36	72
Brief intervention (education + motivational interviewing)	5	10
Education about alcohol use	9	18
Motivational interviewing	5	10
Interventions after alcohol withdrawal		
Post withdrawal follow-up	18	36
Medication for relapse prevention	1	2
Arrange for follow-up in community	4	8
Arrange for community support group	3	6
Discussion of relapse prevention techniques	3	6
Delivery of education materials	1	2
Provision of contact number for support	4	8

[a]Excluding treatment primarily focused on the withdrawal period (e.g., diazepam, thiamine).
[b]One individual can receive more than one type of intervention.

who had one follow-up, two individuals (4%) with two follow-ups and 3 (6%) with three. Only one person (2%) was prescribed an anti-craving medication (acamprosate) prior to release. Four (8%) had a follow-up in a community drug and alcohol service arranged and four (8%) were provided with contact numbers for support services in their community; three (6%) were provided details of an Alcoholics Anonymous group; three (6%) were involved in the discussion of relapse prevention techniques; and one (2%) was provided with educational materials (Table 5).

4 | DISCUSSION

This is the first study to investigate the extent of implementation of alcohol relapse prevention treatment in clinical services in prison settings. The sample ($n = 50$) included male and female, and Aboriginal and non-Aboriginal individuals with features of alcohol withdrawal. This study highlights the complexity of the medical and mental health needs of people in prison who are being treated for alcohol withdrawal. More importantly, this is the first study to our knowledge to report the gap in current clinical service provision in NSW prisons, between treating alcohol withdrawal symptoms and providing interventions prior to the person's release to prevent alcohol relapse in the community.

4.1 | Complexity of presentations

In the Australian community, individuals living with AUD were 10 times more likely to be living with another substance use disorder than other Australians [28]. In the current study in prisons, 70% of individuals experiencing alcohol withdrawal reported a history of drug use. Similar to the community-based study, stimulants were the most common class of substance used (48%). The prevalence of comorbid substance use among those entering prison could be even higher than reported in this study. This is because substance use can be minimised by people in their responses to the Reception Screening Assessment due to stigmatisation of use and due to their fear of being detained in a detoxification cell if they disclose significant substance use. The findings of this study highlight the importance of substance use assessment when individuals with a potential AUD enter custody. Computer-based assessment is one approach that may increase the accuracy of substance use assessment [29], to avoid the stigma of reporting use face-to-face.

The links between alcohol dependence and comorbid psychiatric disorders are well-established in both community and prison settings [30, 31]. In this study, the most common comorbid psychiatric disorders were depression (34%) and anxiety disorder (22%). While it is difficult to confirm the temporal sequence of these dual diagnoses, studies have supported the benefits of both antidepressants and alcohol medications (e.g., naltrexone) for the treatment of co-occurring AUD and depressive disorder [32–34]. In correctional settings, the effectiveness of these medications for dual diagnosis may still need further research.

In terms of medical comorbidities, 70% of individuals in this study were living with chronic physical conditions, including one patient with liver cirrhosis and one with delirium tremens. These medical morbidities may have been made more likely by alcohol toxicity, poor health maintenance and comorbid substance use. This highlights the necessity of routine screening for those common medical morbidities related to alcohol and substance use, including liver function, screening for blood-borne viruses, cancers, cardiac disease and metabolic disease. This screening for physical disorders,

combined with alcohol and substance use assessment, provides useful information that can be used in early intervention, as medical morbidities detected via screening may help motivate patients to change their alcohol consumption behaviour, providing opportunities for early intervention [35, 36].

4.2 | Gaps and their implications for services

Most (72%) of the individuals with alcohol withdrawal had a thorough drug and alcohol assessment. In terms of alcohol relapse prevention, only 10% had received brief intervention (e.g., education and motivational interviewing); 34% received post-withdrawal follow-up; and less than 10% had interventions prior to their release from prison to help them plan for relapse prevention. However, it may be that clinics are providing brief interventions but not recording these in patients' notes. This could include during clinic visits for other reasons. A tick-a-box system for recording any alcohol brief intervention could potentially improve recording or even act as a reminder to action.

Relapse rates after alcohol withdrawal management is high in alcohol dependence [37, 38]. In a community setting, after the first month following an alcohol detoxification, relapse rates range between 19% for inpatients and 34% for outpatients and increase to about 46% and 48% respectively, after 6 months [39]. In the correctional context, the relapse rates for AUD after release from prison are still unknown. However, this study suggests a clear gap between alcohol withdrawal management and the subsequent relapse prevention services in JHFMHN in NSW. This gap is contributed to by a combination of factors, including constrained resources in alcohol prevention services and overwhelming demands for opioid agonist treatment, putting pressure on clinical staff.

Brief interventions are widely recommended for prevention and early intervention for AUD [40]. In JHFMHN, brief intervention is conducted by clinicians, mainly nurses. Although there is evidence that nurse-led motivational interviewing and health education effectively reduce alcohol use [35, 41], nurses may sometimes feel reluctant to initiate discussions about alcohol due to practical constraints, including time that can be spent with each patient, alcohol-related stigma and uncertainty about how to assist patients with more severe alcohol problems [42, 43]. Implementing brief intervention in jail needs a major and ongoing effort in training clinicians, including primary health clinicians, to acquire and maintain their motivational interviewing skills [36]. It also needs collaboration between primary health and specialist addiction services in screening and referring individuals with more severe alcohol problems [36].

Another factor affecting the implementation of alcohol relapse prevention in prison is the duration of stay in custody. In JHFMHN, some people enter custody and stay only for a short time—for example, those on remand who are detained while awaiting their trial or sentencing [44]. There were 4282 males on remand on any given day in NSW in June 2022, accounting for nearly 40% of the total male prison population of 11,530, with an average length of stay in custody of less than 70 days [45]. After their court hearing, a person may be released unexpectedly without the medical team being notified. In these situations, it is very difficult for clinicians to plan for alcohol relapse prevention, and they are less likely to be able to coordinate effective referral between correctional facilities and community health services [46]. Alcohol prevention intervention should be delivered at the earliest possible time after withdrawal management to ensure the opportunity is not missed. In the meantime, collaboration between addiction, correctional and parole services is crucial so that (when agreed to by the person in prison) a specialist drug and alcohol service can be notified when that person is unexpectedly released.

The figures on behavioural relapse prevention interventions provided to this sample may under-represent the true number of interventions provided, as clinics may opportunistically provide a brief intervention, for example, but not record this in the health record. At the time of writing, measures are being taken by JHFMHN to enhance their responses to alcohol use disorders, including the incorporation of AUDIT-C into intake screening to standardise assessment of consumption. Staff are being provided with ongoing training in alcohol brief intervention. A tick-a-box for alcohol brief intervention could potentially help recording of interventions, and also act as a prompt to clinician action. Utilisation of electronic screening with electronic tailored brief intervention may also, with time, provide an approach to upscale responses to hazardous drinking and AUDs in the prison setting [47, 48].

4.3 | Aboriginal persons in prison

Aboriginal people are imprisoned at 13 times the rate of other Australians and make up more than 25% of the Australian prison population [49]. Alcohol and drug use among Aboriginal people involved in the criminal justice system has been previously researched [6, 9]. Some of the factors underlying substance use are understood, and include intergenerational and ongoing trauma from colonisation. The current study has now documented the complexities and comorbidities that need to be addressed

in an integrated way for Aboriginal persons with alcohol use disorders.

We found that Aboriginal people had a higher prevalence of overall co-occurring substance use, and a higher prevalence of using substances intravenously than their non-Aboriginal peers in the cohort. Other research indicates similar findings, that a greater proportion of Aboriginal people compared to non-Aboriginal had used illicit drugs, injected drugs and had consumed alcohol at hazardous levels prior to imprisonment [3, 4, 50]. What is unique with our research is it is the first-time clinical data is available that illustrates the complexity of co-morbid health issues for Aboriginal people being treated with an AUD.

Our study demonstrated a higher prevalence of complex alcohol-related and other medical morbidities, and of schizophrenia in Aboriginal individuals in the sample. This highlights the importance of holistic care and early intervention both for alcohol use, and for concurrent physical or mental health conditions. For example, 10 Aboriginal persons in this sample had past or current hepatitis C virus (HCV). There is a higher prevalence of HCV among Aboriginal people than non-Aboriginal people in prison [4, 51], alongside the higher prevalence of hazardous alcohol use or AUD. Excess alcohol consumption in combination with current HCV (or potential scarring following past viral hepatitis) places a major strain on the liver. This stresses the importance of having readily available assessment and action for both issues. Accurate screening for alcohol use disorders and assessment of co-morbid drug use, mental health problems and viral hepatitis can allow earlier detection and intervention. These screening and assessment processes need to be appropriate for Aboriginal people. Ideally, they would be followed up with multidisciplinary and culturally secure care. Further research and action is needed in this area.

The current study also illustrates the apparent underuse of alcohol-specific relapse prevention approaches, including relapse prevention medications. Six Aboriginal patients in our study had previously experienced imprisonment. While outside the scope of this research to examine their alcohol use over the years, we suspect that their alcohol consumption may have been ongoing, with a cyclical pattern of remissions and relapses, throughout their period of entering, leaving and re-entering prison. We believe that such a pattern of unaddressed alcohol use disorders is likely to have national implications.

4.4 | Limitations and strengths

The sample size was relatively small, which affects the generalisability of the findings. However, as there are no similar published studies, this data provides an important starting point. There was a range of ways in which psychosocial interventions were recorded. As mentioned above, psychoeducation and motivational interviewing may not be recorded at all when given; therefore, the gap in relapse prevention service provision may not have been as big as this study estimated.

Some data in this study, such as other substance use and the quantity of daily alcohol consumption, were based on the person's self-report. Recall bias could have impacted on the quality of information about alcohol and other substance use. Moreover, patients may not fully disclose their alcohol and substance use due to fear of detention in a detoxification cell, away from their peers, and fear of stigmatisation. The focus of the study was alcohol treatment and as such we did not record if patients were also undergoing HCV treatment. This study also did not examine the participation in (non-clinical) group programs addressing substance use within the prison. The focus of the study was to observe differences with Aboriginal and non-Aboriginal patients. The sample size (and number of women) was not large enough to also warrant comparison between male and female patients. It also did not examine the integration between health services in prison and community-based health services. Integrating future studies across these different domains and seeking feedback from individuals who have been in prison about the care they received across each would be useful.

5 | CONCLUSION

Comorbid substance use, and medical and psychiatric disorders are prevalent among individuals experiencing alcohol withdrawal after entering a NSW prison. Currently, the majority of interventions provided by health staff in NSW prisons are focused on alcohol withdrawal management and provision of relapse prevention interventions remains limited. Opportunistic brief interventions may be being offered but not recorded, and approaches to encourage both the delivery and recording of brief interventions are suggested. Consistent funding, service innovation and extension are needed. This could potentially include the use of a computerised system to better detect hazardous alcohol use or AUD and offer tailored brief intervention. Integrated care for both AUD and comorbid physical and mental health conditions is a priority. For Aboriginal clients, this should involve culturally secure care.

AUTHOR CONTRIBUTIONS

All authors contributed to this manuscript as per ISAJE Guidelines.

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CONFLICT OF INTEREST STATEMENT

Michael Doyle and Katherine Conigrave had no competing interests. Yichao Lang, Jillian Roberts and Sobi Kim all work for the Justice Health and Forensic Mental Health Network which is the government department responsible for the health care of the patients whose data was used in this study. No author has made personal gain from this study.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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