

Longitudinal trends in service utilisation of alcohol and other drugs services (AODS) during COVID-19: A scoping review

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Abstract

Background: COVID-19 has affected service delivery and utilisation of Alcohol and Other Drugs Services (AODS) worldwide with a potential negative impact on service users.

Objectives: To understand the trends of service utilisation of AODS during COVID-19 (2019-2022), identify knowledge gaps, and provide directions for future research and planning, during COVID-19.

Methods: Five databases and grey literature were searched for quantitative studies on service utilisation of AODS during COVID-19. After de-duplication of 1546 articles, 938 were screened and 43 underwent full-text review. Data extracted from 30 studies informed this review.

Results: Twenty-eight studies were from high-income countries and 15 focused on medication for opioid use disorders (MOUD). An initial reduction of service utilisation followed by gradual improvement was seen in most treatment types. The greatest disruptions were seen in residential programs, outreach services, home visits, group therapy and needle syringe programs (NSP) with fewer disruptions in individual counselling and MOUD. Although treatment initiations decreased, improved treatment adherence was noted. This was linked to increased flexibility in accessing MOUD and NSP. An increased tendency to use the buprenorphine long-acting injection (LAIB) was also evident. Telehealth and policy changes were associated with improved service utilisation. Telehealth contributed to catchment expansion and broadening of service-user profiles.

Conclusions: Findings from a few high-income countries show that the impact of COVID-19 on AODS changed over time according to factors such as service modifications, drug/treatment type and geographical remoteness. Policy changes, telehealth, and newer treatment modalities minimised disruptions and should be effectively adapted during the post-COVID period. Global studies on longitudinal trends and outcomes, and regional/rural services are recommended.

Introduction

The pandemic caused by COVID-19 viral infection substantially impacted global healthcare utilisation and alcohol and other drugs services (AODS) were no exception (Pujolar et al., 2022; World Health Organization [WHO], 2020). A review evaluating access to general health services found a reduction in service utilisation, in the early stage of the COVID-19 pandemic (2020 to 2021) with exacerbations of pre-existing barriers for marginalised populations and the emergence of new barriers such as digital inequalities related to telehealth (Pujolar et al., 2022). Although evidence regarding service use broadly is available, the impact on specific health services such as AODS has not been closely examined and the need for further studies on specific areas

and subsequent stages of COVID-19 has been emphasised (Pujolar et al., 2022).

Substance use disorder (SUD) treatment services or AODS are specialised services for those with substance use disorders or problems. The AODS are heterogeneous across the world, and the overarching principle may differ from country to country. In countries such as Australia, AODS operate under the broad principle of harm minimisation and offer a range of hospital- and community-based programs such as counselling services, case management, medications for opioid use disorders (OUD), needle syringe programs (NSP), and court/police diversion programs (Australian Institute of Health and Welfare [AIHW], 2021; Dunlop et al., 2020). Disruption of services for SUDs can impact existing and potential service users (Alexander et al., 2020;

Dunlop et al., 2020). Service users of AODS often present with complex psycho-social vulnerabilities and were recognised as being at high risk of COVID-19 infection and related complications (European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], 2020). At the same time, substantial shifts in the illicit drug market and substance use patterns in the community were anticipated during COVID-19, and the demand for services such as counselling and detoxification was predicted to increase (AIHW, 2021; Dietze & Peacock, 2020). Alongside changes in consumption, an increase in misadventures and overdoses was predicted following the disruption of opioid treatment and the NSP (Center for Disease Control and Prevention [CDC], 2020). Studies in countries such as the USA have supported these latter predictions evidencing increased calls for emergency services and presentations to emergency departments due to opioid overdose during COVID-19 (Alexander et al., 2021; Burgess-Hull et al., 2022; Slavova et al., 2020).

During the initial phase of the pandemic in 2020, health experts reported substantial disruptions in the service delivery of AODS worldwide (Canadian Centre on Substance Use and Addiction [CCSA], 2021; Radfar et al., 2021; WHO, 2020). A survey by the World Health Organization (WHO) from June to August 2020, reported that harm reduction services such as NSP were completely or partially disrupted in 65% of the 130 countries surveyed (WHO, 2020). Another survey of 77 countries by Radfar and colleagues (2021) conducted one week after the announcement of the pandemic found a similar impact, including 37.5% of countries reporting shortages of methadone or buprenorphine for the treatment of OUD (Radfar et al., 2021). A review of the use of all healthcare services by those using opioids identified a sharp reduction in the utilisation of services including AODS during the initial three-month period of COVID-19 (Alexander et al., 2021). Although the initial impact has been evaluated, further studies are needed to understand the impact over the protracted course of the pandemic.

Broadly, this scoping review aimed to understand global trends in service utilisation in AODS during COVID-19 from 2019 to 2022, according to drug and treatment types, and other related factors. Another objective was to identify the gaps in knowledge, inform research directions, and guide preparedness planning for similar infectious outbreaks.

Methods

Protocol and Registration

The protocol was developed according to Joanna Briggs Institute's (JBI) methodology for scoping reviews and registered under the Open Science Framework in December 2022 (<https://doi.org/10.17605/OSF.IO/MXTCB>; Arksey & O'Malley, 2005; Peters et al., 2020).

Inclusion Criteria

Published articles and grey literature (e.g., government reports and dissertations) in English, reporting quantitative analysis on service utilisation of specialised AODS, by

adults (18 years or older) during COVID-19 (since 2019) were included. The review focused on specialist treatment services for substance use disorders or problems such as opioid treatment programs, drug and alcohol counselling, residential detoxification, and rehabilitation centres, among others. All quantitative study designs were considered.

Exclusion Criteria

Qualitative studies assessing perceptions of service users/providers, commentaries, correspondences, opinion pieces, editorials, and case reports without any objective data analysis were excluded. Studies based in non-specialist service settings such as emergency departments and primary care were not considered. Reviews were excluded but the references were searched and included if applicable.

Search Method

The search strategy was developed with input from librarians of the Central Queensland Hospital and Health Services (CQHHS) and Central Queensland University. A search on Google Scholar and PubMed identified keywords and MeSH terms for the three clusters of service utilisation, AODS and COVID-19. The first search strategy was developed for Medline ([Supplement 1](#)) and subsequently adapted to the other databases. This was complemented by a manual search of references and grey literature on websites of reputed international organisations and government institutions. The search was conducted in December 2022 and the last date was 29th December 2022.

Selection of Sources of Evidence

The search yielded 1524 results and 22 articles were identified after a manual search of grey literature. The search results were added to the reference manager software, Endnote version 20, and exported to the COVIDENCE software for review. Out of the 1546 results and articles, 608 duplicates were removed, 938 articles were screened via title and abstract, and 895 articles were excluded, including reviews, letters, conference abstracts and commentaries. Two reviewers independently reviewed 43 studies in full text, excluding a further 13 studies and extracted data from 30 studies. A PRISMA flow chart was maintained (see Figure 1).

Data Extraction and Charting

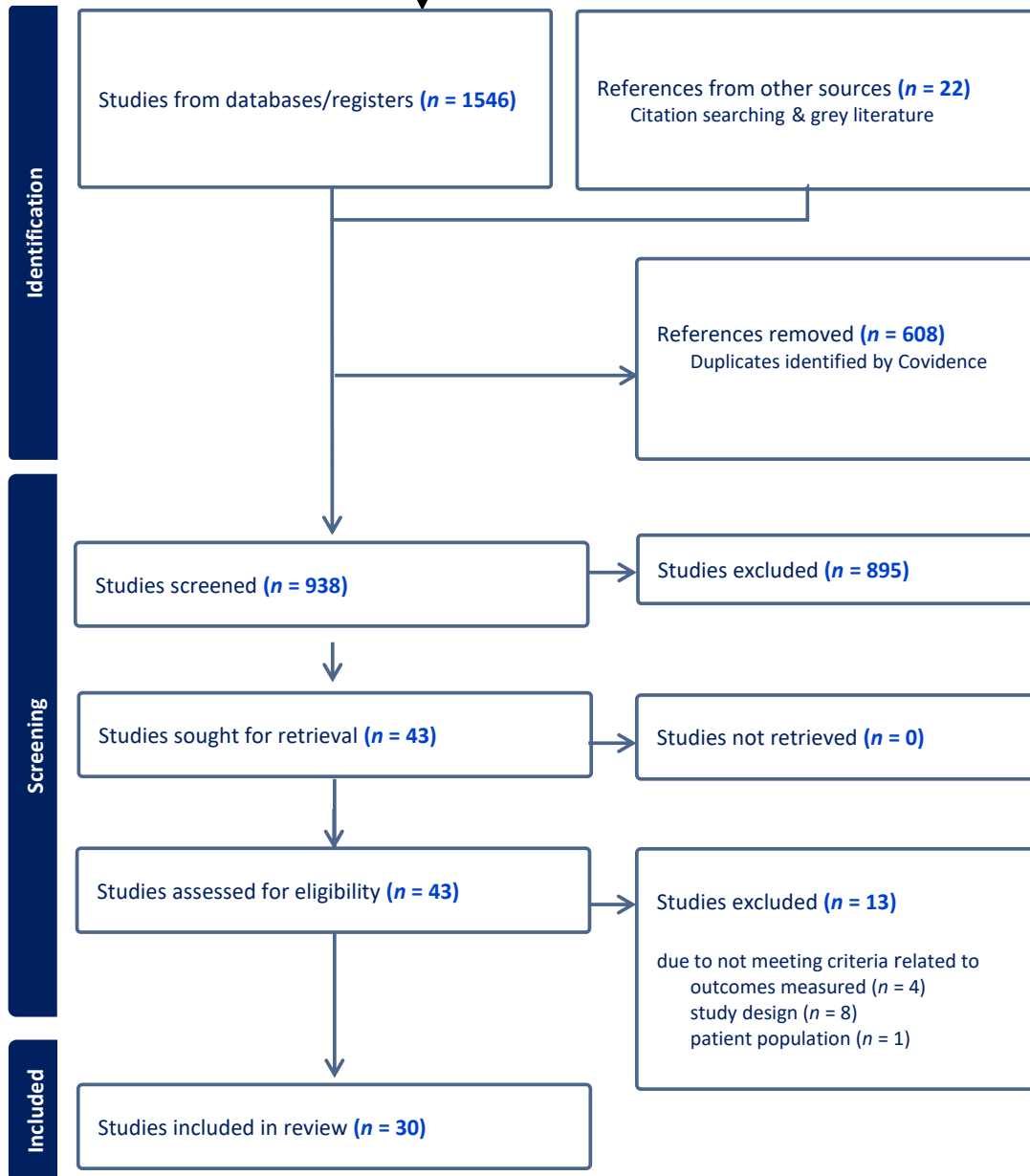
Data was extracted to a template created in Microsoft Excel, including information related to methodological aspects (methods, period of the study, study location, population, sample, type of AODS) and study results, and mapped according to drug/treatment types to understand service utilisation.

Data Analysis/Synthesis

The analysis was focused on the main themes of the studies and synthesised data were tabulated. Criteria from the checklist - Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Extension for Scoping Reviews (PRISMA-ScR), were used for reporting.

Figure 1

PRISMA Flowchart



Results

The studies included in the review covered a variety of service areas and treatment types including services for SUD broadly, services specific for conditions such as AUD/OD, and for those with co-morbid mental illnesses (Busch et al., 2023; Livingston et al., 2022; Mancheño-Velasco et al., 2022; Yang et al., 2020). Most of the reviewed studies had been conducted in four high-income countries i.e. the USA, Australia, Spain, and the UK, which highlights a substantial knowledge gap particularly regarding low- and middle-income countries. Nigeria and Ukraine are the only other

countries from which studies are included in this review. The survey from Nigeria, the only study from the African continent, was related to services of community drop-in centres for SUD operated by an NGO, which highlighted the poor access to digital technologies, while the Ukrainian study was on OUD treatment programs of a public health service (Meteliuk et al., 2021; Nelson et al., 2021). It is also important to note that most of the studies included in this review were conducted in the first six to twelve months of COVID-19 in 2020 to 2021. The categories of the studies according to main characteristics have been tabulated below in Table 1. In addition, [Supplement 2](#) summarises the key

aspects and findings of the studies according to drug and treatment type. The main trends of service use identified have been summarised below.

Trends in Utilisation of Treatment Specific for Opioid Use Disorders (OUD)

Twelve studies from the United States of America (USA), two from Australia and one from Ukraine focused on the service utilisation for OUD. These studies were conducted at the national/state level, and on specific populations such as veterans, and found that treatment with buprenorphine for existing patients either plateaued or increased during the first year of COVID-19 (Clement et al., 2021; Cremer et al., 2022; Currie et al., 2021; Huskamp et al., 2020; Thornton et al., 2020). In-person visits were substantially reduced and an estimated reduction of 54% in mean visits per patient was reported in a buprenorphine treatment program in USA (McIlveen et al., 2021; Meteliuk et al., 2021). In addition, a reduction in urine toxicological testing was noted in opioid treatment programs (Hughes et al., 2021; Huskamp et al., 2020). Meanwhile, treatment initiations on buprenorphine either plateaued or decreased relative to the pre-COVID-19 period (Clement et al., 2021; Currie et al., 2021; Huskamp et al., 2020; Livingston et al., 2022). This was despite policy changes allowing telehealth inductions to relax previous restrictions (Hughes et al., 2021). Another change noted in Australia was an increasing trend of using buprenorphine long-acting injections (LAIB), mainly seen in the local health services with prior research experience (Arunogiri & Lintzeris, 2021). In the five months (May to September 2020) after the implementation of the new guidelines in Australia, the proportion of patients on LAIB increased from 12% to 24% in a public health service in New South Wales (NSW; Lintzeris et al., 2022).

Policy Changes Affecting Treatment and Service Utilisation Trends of OUD

The opioid treatment-related policy changes reported in all three countries that conducted studies on OUD (USA, Australia, and Ukraine), showed a positive impact on trends in service utilisation (Lintzeris et al., 2022; Meteliuk et al., 2021; Thornton et al., 2020). Common themes in policy changes included allowing the use of telehealth for treatment inductions, increasing access and flexibility of takeaway doses, and reducing the need for toxicological tests (Meteliuk et al., 2021). These changes were similar to those seen across other countries during COVID-19 (Ostinelli et al., 2022). The study conducted in NSW, Australia found that policy changes implemented by the public health services in April 2020 helped maintain OUD treatment and improved the flexibility of access for the service users (Lintzeris et al., 2022). In addition to an increase in the proportion of telehealth patient contacts (14% to 24%), an increase was seen in the number of patients accessing takeaway doses (24% to 69%) and six or more takeaways (7% to 31%), and dosing at community pharmacies (24% to 54%; Lintzeris et al., 2022). Overall, these changes contributed to improving service access for existing patients on buprenorphine treatment (Clement et al., 2021; Huskamp et al., 2020).

Trends in Utilisation of Treatment Specific for Alcohol Use Disorders (AUD)

The two studies focused on AUD were conducted among insured populations in the USA (Busch et al., 2023; Palzes et al., 2022). Busch and colleagues (2023) reported an initial maximal reduction of service utilisation (22.5%) in all care settings, for alcohol use disorders/problems in March 2020 followed by rapid recovery to the previous year's level after four weeks. Outpatient sessions for therapy declined initially and then rebounded, but the impact was more pronounced and longer for group therapy than individual therapy (Busch et al., 2023). In contrast to OUD treatment, an increase in treatment initiations was reported in 2020 (32.4%) compared to 2019 (24.2%) in a cohort study (Palzes et al., 2022). Interestingly, some subgroups had a greater increase in odds than others for treatment initiations for AUD, including younger adults (18-34 years) and those without medical comorbidities or prior-year psychiatric disorders (Palzes et al., 2022). Both studies showed that the transition to telehealth modalities substantially contributed to minimising disruptions in service delivery for AUD, but telehealth utilisation was relatively less for group therapy sessions (Busch et al., 2023; Palzes et al., 2022).

Trends in Utilisation of Needle Syringe Programs

A decrease in the use of Needle Syringe Programs (NSP) was found during the initial period of COVID-19 in all three studies included (O'Keefe et al., 2022; Picchio et al., 2020; Whitfield et al., 2020). In England, the reduction of NSP utilisation was reported as 36% in both the number of clients and visits, 29% in needle distribution, and 50% in total coverage, in the first four-week period following restrictions in mid-March 2020, which remained low level for the next 4 months (Whitfield et al., 2020). Similarly, reduced distribution of equipment from NSPs and dispensing machines was reported in Spain (40%) and Australia (O'Keefe et al., 2022; Picchio et al., 2020). The decreased use of NSPs has raised concerns about the possible reuse and sharing of needles by service users who inject substances, thereby increasing the risks of negative consequences for an already complex and vulnerable group (O'Keefe et al., 2022; Picchio et al., 2020; Whitfield et al., 2020).

Trends in Utilisation of General Treatment for SUD in Different Settings and Associated Factors

Five studies examined trends in the use of general outpatient services and three studies examined both inpatient and outpatient services for SUD broadly (Mark et al., 2021; Meadowcroft & Davis, 2022; Van De Ven et al., 2021). Another two studies focused on integrated/dual diagnosis service settings in which co-occurring SUD and mental health problems were managed. A common reducing trend of general service utilisation of AODS was reported during the early COVID-19 period in 2020, in areas such as assessments, case management, and residential and day programs (Mancheño-Velasco et al., 2022; Mark et al., 2021; Meadowcroft & Davis, 2022; Nelson et al., 2021; Van De Ven et al., 2021). This was especially evident in terms of initiating treatment for new patients (28% reduction; Mark et al., 2021). A greater decline in service use was noted in

residential facilities than in outpatient services (45% vs 3%; Mark et al., 2021; Van De Ven et al., 2021). Services such as home visits, outreach services, and psychological group therapy sessions were completely discontinued or

substantially reduced in 2020 (Nelson et al., 2021; Van De Ven et al., 2021). Meanwhile, increasing trends in the use of counselling (12%) and detoxification (10%) were reported in Australia (Van De Ven et al., 2021).

Table 1

Main Characteristics of the Included Articles (n = 30)

Main Characteristic	Details	n
Focus of analysis and data source	Service delivery trends using electronic medical records/ service data	24
	Prescription filling trends using US national/ state-wide/ regional databases of retail pharmacies or insurance claims	5
	Service availability trends using US national survey data of Substance Abuse and Mental Health Services (SAMHSA)	1
Study Population	General service users	23
	Targeted service user populations	
	- National Veteran Health Administration (VHA) - Commercially insured	2
Study design	Retrospective longitudinal studies	5
	Cross-sectional studies	21
	Cohort studies	4
	Surveys of service providers	3
Period of study	Within the early part of COVID-19 only (January-June 2020)	2
	Extending up to the period - July-December 2020	13
	Extending up to the period - January-June 2021	10
	Extending up to the period - July-December 2021	7
	Extending up to the year 2022	-
Study location	United States of America	-
	Australia	20
	Spain	5
	United Kingdom	2
	Ukraine	1
	Nigeria	1
Type of services studied	Services for Substance Use Disorder (SUD)	1
	Services specific for Opioid Use Disorders (OUD)	8
	Services specific for Alcohol Use Disorders (AUD)	15
	Integrated services for mental health and/ or SUD	2
	Addiction services for those with dual pathology of substance use and mental health disorders	1
	Needle Syringe Programs (NSP)	1
		3

According to the remoteness of the geographical area, a higher reduction of service use for SUD in NGO settings was noted in metropolitan than in rural/regional areas in the state of NSW, Australia (Van De Ven et al., 2021). In comparison to pre-COVID levels in 2019, Van De Ven and colleagues (2021) found a differential pattern of utilisation of treatment services according to the area, with reduced use of counselling and detoxification in metropolitan areas, and conversely increased use of detoxification services in rural/regional areas. A greater reduction in service utilisation was noted among certain categories of service users such as females (Mark et al., 2021; Nelson et al., 2021). In 2020, a larger decline in service use was seen among those of younger age, those having criminal justice involvement,

those referred by community sources or police/court diversion programs, and individuals recently released from prison (Mark et al., 2021; Van De Ven et al., 2021). This observation of reduced referrals from other sources is compatible with the previous finding of a reduction in treatment initiations. In an integrated non-profit health service for mental illness and SUD, comparatively lower service utilisation among ethnic and racial minorities was noted (Yang et al., 2020). In addition, the rate of recovery of service utilisation over time for SUD was slower compared to mental illnesses, raising concerns about possible additional barriers to accessing services (Yang et al., 2020).

Trends in Utilisation of Services for SUD via Telehealth

Telehealth availability increased by 143% in outpatient facilities in USA and was noted to contribute to the expansion of catchment, especially in rural services (Cantor et al., 2022; Hughes et al., 2021). The use of telehealth was a main contributor to maintaining effective treatment for OUD during COVID-19 in USA (Barsky et al., 2022; Cremer et al., 2022; Lin et al., 2022; Livingston et al., 2022; Nguyen et al., 2021). Similarly, in Australia the use of telehealth for patient contacts for OUD increased from 14% to 24% from April to September 2020 (Lintzeris et al., 2022). Notably, most telehealth consults for OUD were conducted via telephone rather than audio-visual platforms (Lintzeris et al., 2022). It was less used for sessions of group therapy compared to individual therapy for AUD (Busch et al., 2023). Interestingly, tele-visits had better compliance than in-person visits in outpatient programs (69% vs. 38%) in New York, USA in 2020 (Avalone et al., 2022). Service user preference for telehealth modality varied with factors such as age, with those of younger age preferring videoconferencing over telephone (Meshberg-Cohen et al., 2022).

Discussion

This review shows that the impact of the prolonged COVID-19 pandemic on service utilisation of AODS has been heterogeneous and has changed over time. An initial reduction was followed by a gradual improvement in most treatment types, with fewer disruptions in individual counselling and MOUD, and higher disruptions in residential programs, outreach services, home visits, group therapy and needle syringe programs. Treatment initiations decreased for new service users, especially for OUD, but treatment adherence of existing users improved. The use of telehealth and treatment-related policy changes were associated with improved service utilisation.

The initial finding of disruptions confirms the predictions by experts at the outset of COVID-19 (Radfar et al., 2021; WHO, 2020). Initial negative trends in service utilisation appear to have been impacted by COVID-19-related public health guidelines and the practicalities of implementing social distancing. Strategic service modifications appear to have affected certain treatments such as residential facilities, home visits, and outreach services, more than others (Busch et al., 2023; Pagano et al., 2021; Van De Ven et al., 2021). In the background of potential shifts in the illicit drug market during COVID-19 increasing risks of misadventure, and evidence of increasing patterns of opioid overdoses in countries such as USA, reduced access to specialised treatment could be detrimental to potential service users. (Burgess-Hull et al., 2022; Rezaeiahari & Fairman, 2022; Slavova et al., 2020). Therefore, strategies to maintain service delivery to high-risk groups should be included in the contingency plans for future infectious disease outbreaks.

Reduced referrals from other agencies such as custodial settings raise concerns as to how other public services including prisons and courts were impacted during COVID-19, leading to delays in early identification and referral

(Meshberg-Cohen et al., 2022). Therefore, opening targeted emergency referral pathways in collaboration with other stakeholder services such as prison, police and judicial services should be a priority in future contingency planning. In contrast to other substances, the increase in treatment initiations for alcohol use problems indicates increased treatment seeking for alcohol drinking and may indirectly suggest increased use of alcohol in the community during COVID-19 (Palzes et al., 2022). However, substantial heterogeneity has been reported across countries related to alcohol use and treatment seeking during COVID-19 (Andersson & Håkansson, 2022; Sohi et al., 2022). Expanding telehealth-based counselling, improving collaboration with other service providers such as general practitioners, and encouraging participation in online mutual support groups could be added to contingency plans to improve services for those with alcohol use problems during future infectious disease outbreaks.

Regarding NSP, the initial reducing trend of service utilisation is consistent with the concerns raised at the onset of the COVID-19 outbreak (G. C. Alexander et al., 2020; Dunlop et al., 2020; WHO, 2020). However, the lack of evidence beyond the first six months of 2020 is a barrier to understanding the subsequent trends (Picchio et al., 2020). On the other hand, reduced visits to NSP do not necessarily correlate to reduced use of clean equipment by the service users, as the number of kits accessed on one visit may have increased and other methods including. Syringe Dispensing Machines (SDMs) have been utilised to acquire stocks (Uthurralt et al., 2022). This emphasises the need for longitudinal studies on NSP service use and exploring the contribution of alternative sources to improve contingency planning in future.

The widening of pre-existing disparities among the service user subgroups such as those of ethnic minorities and those in rural communities was a concern raised by researchers during COVID-19 (Palzes et al., 2022; Yang et al., 2020). However, no consistent evidence of worsening disparities was found in this review (Nelson et al., 2021; Yang et al., 2020). Although a greater decline in service delivery and utilisation can be anticipated in resource-limited rural areas, the evidence from this review does not support that speculation (Moran et al., 2019). The differential service use reported in Australia according to the remoteness of the area suggested possible contribution of factors such as substance availability and accessibility (Van De Ven et al., 2021). Thus, further exploration of rural/regional AODS and understanding of trends of service use is important to make recommendations for disaster preparedness planning specific to remote areas.

Policy changes substantially contributed to improving trends in service use, especially regarding buprenorphine treatment for existing OUD patients (Cremer et al., 2022; Currie et al., 2021; Lintzeris et al., 2022; Meteliuk et al., 2021). The timely implementation of policy changes that relaxed restrictions can be seen as a turning point which changed the pre-existing strictly regulated model of care (Barsky et al., 2022; Lin et al., 2022; Livingston et al., 2022; Nguyen et al., 2021). Evaluating both positive and negative outcomes of

these policy changes for service users should be an area of future studies, which can inform the suitability for permanent adaptation during the post-acute COVID-19 period, as well as guide on necessary precautions to be taken in future outbreaks.

Dealing with COVID-19 has also encouraged the use of newer treatment options such as LAIB for OUD (Arunogiri & Lintzeris, 2021; Lintzeris et al., 2022). While the buprenorphine treatment benefitted most from the mentioned policy changes, the use of naltrexone for opioid treatment in the USA appeared to reduce and there is minimal evidence related to the use of methadone during this period (Cremer et al., 2022). This highlights the importance of improving access to all available options of treatment during a future infectious outbreak, allowing maximum choices and supporting individualised treatment.

Telehealth undoubtedly contributed to maintaining service delivery in AODS and improving service use in certain treatment types during COVID-19 (Hughes et al., 2021; Lin et al., 2022; Nguyen et al., 2021). Although there were concerns about digital inequalities and digital literacy early in the pandemic, studies with longer study periods found better service utilisation with telehealth modalities (Barsky et al., 2022; Hageman et al., 2022; Hew et al., 2021). Telehealth attracted subgroups with previous poor engagement with AODS, such as young adults, and contributed to improved treatment adherence and retention rates (Avalone et al., 2022; Meshberg-Cohen et al., 2022; Palzes et al., 2022; Yang et al., 2020). The contribution of telehealth in overcoming geographical barriers and expanding the catchment area in the rural/regional services is important to note, as it can be effectively applied in the post-COVID period (Hughes et al., 2021). Difficulties in service delivery with telehealth such as concerns about privacy and confidentiality, and difficulties in verification of self-reports are aspects that should be noted and need to be addressed in future (Hughes et al., 2021; Livingston et al., 2022). Comparative research on outcomes of telehealth and face-to-face encounters would be invaluable in establishing directions for future service development.

Limitations

This review is subject to several limitations. The inclusion and exclusion criteria have limited the type of studies included in the review with implications for certain conclusions. For example, non-English studies were excluded, and 26 out of the 30 studies reviewed are from the same English-speaking high-income countries (USA, Australia, and UK) thereby reducing the generalisability of findings. In addition, the review was limited to studies with quantitative data analysis as the main objective was to understand the trends of service utilisation of the specialist AODS. Therefore, qualitative aspects related to changes in service utilisation have not been explored. Qualitative studies would be useful to understand perceived barriers to service access and utilisation for service users and perceived challenges for service providers (Efunnuga et al., 2022; Jacka et al., 2021). As studies published after December 2022 were not included, this review may have missed studies

covering the period after mid-2021. Therefore, understanding the longitudinal trends of change in service use throughout the period of COVID-19 is restricted effectively to 2019 to mid-2021. Care also needs to be taken when considering the findings drawn from studies of specific sub-populations (e.g., insured and veterans in a specific country) or those using narrow data sources (e.g., prescription filling) to understand the applicability and generalisability of conclusions. However, collating all available evidence in this area is helpful to identify the common themes and contributing factors, which have been attempted in this review.

Conclusions

COVID-19 has impacted service delivery and utilisation of specialist AODS around the world over a protracted period. Despite initial disruptions, over time most of the service areas recovered and certain treatment types have reported increased service use. Timely measures at the policy-making level, innovative implementation of telehealth and new treatment modalities appear to have helped to substantially minimise disruptions of service utilisation. Some of the changes during COVID-19 have been advantageous not only to maintaining services but also to improving service utilisation which can be effectively applied in the post-COVID period. Several knowledge gaps that warrant further exploration were identified in this review, including the need for further studies across other high-, middle- and low-income countries, over a longer period to assess subsequent periods of COVID-19 beyond mid-2021, especially in rural/regional areas. The synthesised evidence from this review can guide contingency planning in AODS in areas such as the development of emergency referral and care pathways for targeted populations, collaboration with other stakeholders, enhancement of combining telehealth and face-to-face service delivery modalities and improving flexibility of pharmacological treatment during infectious outbreaks. Further studies on outcomes of AODS during COVID-19 will benefit effective contingency planning for infectious disease outbreaks in future.

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