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# The impact of COVID-19 on substance use disorder treatment in California: Service providers' perspectives

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## ABSTRACT

**Background:** The COVID-19 pandemic has had a profound impact on the U.S. health care system, including addiction treatment. The objective of this study is to describe the impact of COVID on the delivery of treatment for substance use disorders (SUDs) from the perspectives of service providers.

**Methods:** Between May and September 2020, 61 service providers from 16 SUD treatment sites in California participated in virtual focus groups that lasted about an hour. We recorded the discussions and transcribed them verbatim. Two qualitative analysts independently conducted content analysis to identify themes from the transcripts.

**Results:** At the beginning of the pandemic, service providers observed a slight decrease in patient admissions, followed by an uptick in patient flow due to increased mental health issues, alcohol use, and relapse. Many of the clinics adopted flexible service delivery modes, such as curbside dosing and extended take-home medication, to enable social distancing in clinic settings. Approximately half of the clinic encounters offered telemedicine, and a considerable proportion of patients preferred to use telephone-based services rather than video-based services. Internet instability and technical difficulties limited the use of telemedicine among their patients.

**Conclusion:** COVID has been challenging for SUD treatment, but health care systems rapidly reacted with adjustments that may result in long-term changes in SUD service delivery. Telemedicine-based services have played a major role in ensuring uninterrupted patient care. Providers need organizational, technical, and logistical support to improve and sustain telemedicine services that increase access to quality care for their patients.

## 1. Introduction

The opioid epidemic is one of the largest drug epidemics recorded in the history of the United States, and the government declared it a national public health emergency in 2017 (Center for Disease Control and Prevention, 2018; Substance Abuse and Mental Health Services Administration, 2019). In 2018, more than 67,300 people in the United States died from drug overdoses, including illicit drugs and prescription opioids (National Institute on Drug Abuse, 2020a). Substance abuse-related crime, lost work productivity, and health issues cost the nation approximately \$740 billion annually (National Institute on Drug Abuse, 2020b).

The substance use disorder (SUD) crisis is likely to worsen as the

world battles the COVID-19 pandemic. The surge of COVID-19 cases and associated fatalities, unemployment, economic downturn, and social isolation exacerbated mental health symptoms, including depression, fear, and anxiety (Heitzman, 2020; Xiong et al., 2020). These mental stressors can trigger increased substance use, polysubstance use, and relapse (Columb et al., 2020). Patients with SUDs are at greater risk of contracting COVID-19 and suffer worse COVID-19 clinical outcomes due to elevated SUD-related pre-existing health conditions (e.g., cardiopulmonary morbidities and compromised immunity) as well as social vulnerabilities (e.g., inadequate access to health care services, housing instability) (Dubey et al., 2020).

Continuity of treatment and care during the pandemic was essential to address emerging and ongoing SUD problems but SUD treatment and

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services faced significant challenges (Dunlop et al., 2020; Ornell et al., 2020). Health care resources and workforce personnel were diverted to COVID-19 prevention and care (Bojdani et al., 2020). Health care professionals are vulnerable to occupation-related infection of COVID-19, and they experienced an elevated level of mental stress as they tried to balance patient care and their well-being and that of their families (Sarwar & Sarwar, 2020). Quarantine, physical distancing, and temporary closure of public facilities that were necessary measures to mitigate consequences of the COVID-19 pandemic may have also undermined SUD patients' access to treatment and recovery services, thus magnifying long-standing health disparities and inequities in society (Basu, 2020).

The purpose of this study was to assess the impact of the COVID-19 pandemic on SUD treatment delivery from the perspectives of treatment providers. This paper describes the changes in patient flow and clinic operations that SUD treatment providers made in response to COVID-19. The findings have implications regarding the means to ensure uninterrupted provision of care for SUD patients during public health crises or other impacts on the health care system (e.g., natural disasters, transportation disruption).

## 2. Methods

This study is part of a larger study, *Patient Decision Aid for Medication-Assisted Treatment*. The goal of the parent study is to assess the short- and long-term outcomes of a patient decision aid to assist patients in making informed decisions at the initial clinical visit about medication for opioid use disorder (Mooney et al., 2020). The study includes 16 treatment sites that provide treatment to individuals with SUD in three counties of California. The study investigators held focus groups to engage study sites and learn more about opportunities and potential barriers to study implementation in light of COVID-19-related circumstances.

### 2.1. Recruitment of focus group participants

This study recruited service providers with knowledge of SUD treatment and clinic workflow in the participating clinics. Service providers in this study included licensed or certified providers from a wide range of fields, including but not limited to, medical doctors, nurses, physician assistants, clinical supervisors, clinical psychologists, case managers, and clinic administrators. To recruit providers to participate in the focus groups, research associates sent emails to study site liaisons at all 16 sites containing instructions to forward recruitment emails and fliers to clinic providers who might be the best informants for the study. Potential participants contacted research associates who verified eligibility, which included (1) age 18 and above and (2) being a service provider at one of the participating study sites. Once study staff confirmed eligibility, the participants received via email an information sheet that described the study (e.g., purpose, participation, voluntary nature, confidentiality, and compensation for time) and an invitation to participate in a one-time virtual focus group. All participants provided verbal consent prior to beginning the focus group.

From May to September 2020, a total of 61 providers from the 16 study sites participated in 13 focus groups. The study held one focus group with each site, with the exception of two focus groups with multiple sites attending. The focus groups ranged in size from 2 to 8 participants, with a mean of 4 participants. Upon completing the focus group, study staff asked participants to complete a short demographic survey via Qualtrics. Participants were 62% female, 64% white, 7% Black or African American, 36% Latino. Approximately 43% of participants identified their role as counselor/social worker, 15% as nurse or medical assistant. More than one-third (39%) of the participants had worked in the SUD treatment field for 1–3 years, and almost one-third (32%) had worked in the field for more than 10 years (Table 1).

**Table 1**  
Demographic characteristics of the focus group participants (N = 61).

	N (%)
Age (year)	
19–24	2 (3.3%)
25–34	9 (14.8%)
35–44	19 (31.2%)
45–54	16 (26.2%)
55 and above	14 (23.0%)
Unknown	1 (1.6%)
Sex	
Male	22 (36.1%)
Female	38 (62.3%)
Unknown	1 (1.6%)
Race	
White	39 (63.9%)
Black and/or African American	4 (6.6%)
Mixed-Race and/or Multi-Race and/or Multi-Ethnic	10 (16.4%)
Other	7 (11.5%)
Unknown	1 (1.6%)
Ethnicity	
Spanish, Hispanic or Latino	22 (36.1%)
Not Spanish, Hispanic or Latino	38 (62.3%)
Unknown	1 (1.6%)
Highest education obtained	
High school diploma	7 (11.5%)
Trade or technical training	20 (32.8%)
Bachelor's degree	18 (29.5%)
Master's degree	11 (18.0%)
Doctorate (Ph.D., M.D., J.D. or professional degree)	4 (6.6%)
Unknown	1 (1.6%)
Job position	
Nurse/physician assistant	9 (14.8%)
Clinical supervisor/psychologist	8 (13.1%)
Counselor/social worker	26 (42.6%)
Manager/administrator	13 (21.3%)
Case manager	2 (3.3%)
Other	2 (3.3%)
Unknown	1 (1.6%)
Years treating substance use and/or misuse	
1–3	24 (39.3%)
4–6	12 (19.7%)
7–9	4 (6.6%)
10+	20 (32.8%)
Unknown	1 (1.6%)

### 2.2. Data collection

All focus groups happened virtually using software (e.g., Zoom or Microsoft Teams) with enhanced security and privacy protections. Once study staff scheduled a focus group, the study coordinator sent the participants an invitation containing the secure meeting details. The email message encouraged participants to attend the meeting using one camera per participant (as opposed to several individuals using one computer) to ensure communication quality. Three researchers with extensive qualitative research experiences facilitated the focus group discussions (at least two in each group). Before the discussion, the focus group facilitators reviewed the ground rules (e.g., maintaining confidentiality, keeping the camera on if possible, welcoming all opinions, etc.) and asked the participants to select an alias during the session to protect their identity.

Focus group discussion topics included descriptions of the clinics' SUD treatment workflow, starting from patient recruitment, intake, triage, treatment planning, induction, behavioral therapy, monitoring, to follow-up. Questions moved on to the impact of the COVID-19 outbreak on the clinics' provision of SUD services. Specifically, the questions probed if there were changes in patient flow, clinic configuration, and service delivery modalities resulting from COVID-19. The focus group discussion guide also included questions about clinic changes and service provision challenges related to each of the components we mentioned. Each session lasted between 45 and 70 min. The focus group facilitators recorded the focus groups using stand-alone

recorders (i.e., a handheld recorder or a computer application) to avoid automatic capture of participants' faces using Zoom's built-in recorder. Participants received \$100 for their participation; the amount was determined based on the recommendation of compensation for research with providers and comparable compensation for similar target populations in the study areas (Krueger, 2014). The institutional review board at the University of California, Los Angeles, approved all materials and procedures.

### 2.3. Data analyses

A third party transcribed the audio recordings verbatim. Guided by Grounded Theory (Glaser & Strauss, 1967), the study team analyzed the transcriptions to identify and describe changes in SUD treatment in light of COVID-19. The study investigators jointly developed the first draft of the code list based on the focus group guideline. Two research analysts with expertise in qualitative methods independently performed the coding using Microsoft Excel to organize the text segments of the transcripts into a coded structure (Ose, 2016). The team modified the code list based on themes that emerged from the transcripts during analysis. To ensure inter-coder reliability, the two analysts carefully reviewed and clarified the meaning of each code before the coding procedure. After they had coded all the transcripts, the two analysts compared their independent coding results, discussed divergence with other investigators, and reached consensus across team members (Burla et al., 2008).

## 3. Results

### 3.1. Change in patient flow

Most participants from outpatient clinics reported that they did not observe an extreme fluctuation of patient flow due to COVID-19. Some clinics experienced a decline in patient intakes at the beginning of the COVID pandemic, likely due to patients' concerns about getting infected. As time went by and the clinics remained open, a slight upward trend occurred in patient volume as people became less fearful of coming into treatment. As one participant explains:

*We have seen a decline in intakes with the COVID-19 just, I think, probably out of fear, just in the population itself, of fear, so we have seen a decline. Now, I did notice the last week there's been a little bit of pickup. Maybe, with things opening up, people are becoming less fearful of coming into treatment, but we're still here to provide the services.*

(Female; Facility director; Focus group # 2)

Patient flow among the inpatient and residential sites in the study increased during the reporting period (May–September 2020) because of an increase in relapse rates. For example, some residential sites reported being unable to accommodate new patients, and providers occasionally had to find a lower level of care (e.g., outpatient) for their patients. Many providers also reported an increase in mental health problems and alcohol use disorder among patients due to COVID-19-related mental stressors and substance use.

*It's been a revolving door. Two reasons. We're getting a lot more mental health coming in. A lot of people are homeless. A lot of people are coming to treatment for not the right reasons at this time.*

(Male; Counselor; Focus group # 9)

*Depression, anxiety, low self-esteem, the textbook. The actual organic mental health, I would say, are meth users, and their stories are basically the same. They couldn't get diagnosed, couldn't get the right medication, tried methamphetamine, and it works like a charm until it doesn't.*

(Male; Counselor; Focus group # 9)

The providers from residential treatment settings acknowledged a higher patient turnover potentially due to heightened restrictive rules, such as wearing a mask at all times and forbidding outside visitors in the facility.

### 3.2. Change in clinic configuration

Most clinics followed COVID-19 guidelines from the Centers for Disease Control and Prevention (CDC), including mask wearing, sanitizing devices between uses, installing special plastic shields on the front desk, and so on. Clinics had to make structural modifications to enforce physical distancing. For example, to minimize the number of people in the lobby, the providers had to block and separate the chairs in the waiting area and post signs and arrows in the ground to guide six feet of distancing. Clinic staff were in place to offer protection supplies and remind patients about safety strategies. For clinics with limited spaces to ensure six feet of physical distancing, the providers had to creatively utilize space, such as making new entrances and transforming office/conference rooms into counseling rooms.

*They have papers on every few chairs so people can't sit next to each other. We really don't want a lot of people coming into the waiting room if they don't need to be just hanging around. On the line just to see the receptionist, they want them to be six feet apart, so then, definitely, that has changed.*

(Female; Nurse; Focus group # 12)

Most clinics in the study developed and implemented standard procedures to screen COVID-19-related signs, symptoms, travel history, and COVID-19 exposure prior to a patient's arrival. The providers followed protocols by taking patients' temperature outside, and telling patients with symptoms or an elevated temperature that they were not allowed to enter the facility.

*When they're coming into the facility, they have to fill out a screen every day if they had any symptoms, if they've been around anyone who have been diagnosed for COVID, anything at all. If anyone does answer a yes question, we have protocols. We have an isolation room and then check temperatures. We'll assess them, ask them the questions. Then we determine what is the best next plan for them, so we're able to keep everyone safe and continue with treatment.*

(Female; Nursing supervisor; Focus group # 7)

### 3.3. Change in service procedures

COVID-19 impacted service procedures from intake, dosing, toxicology testing, to counseling services. For patient intake, although several participating clinics were granted permission to admit buprenorphine patients via telemedicine and have them complete home-based inductions, other patients (e.g., methadone patients) were still required to be physically examined by an admitting practitioner. The provider participants did not report any difficulties having patients come in person for the intake process.

Some clinics in the study offered curbside dosing for patients who had been exposed, those who had symptoms of COVID-19, or those who were not comfortable coming into the office. For instance, one clinic gave the option to patients to stay in the car and wait for phone calls from the providers to drive up and receive their services. However, curbside dosing did raise confidentiality concerns.

*They're here already. We don't want them outside in the parking lot talking about private information.*

(Male; Clinic director; Focus group # 4)

To reduce the number of patients in the facility, many clinics reported increasing prescription length and amount of take-home medication provided to patients (relaxation of governmental policies allowed for the clinics to implement these internal changes). The amount of take-home medication supply varied from two weeks to one month and was contingent on patients' documented medication adherence and stability, with special considerations given to older adult patients or those with severe comorbidities, such as COPD or heart failure. These changes reduced burdens on patients to commute to the facility to medicate daily but such changes required clinics to adjust their medication procurement and inventory accordingly.

*Take home policy has completely changed, which is a medical supply inventory issue. We're constantly overstocking so that we don't run short of what we're now giving them. Once COVID's over, we'll revert back to the levels that they were prior to COVID.*

(Male; Clinic director; Focus group # 4)

The clinics tried to maintain the same frequency and modality of toxicology testing because it is viewed as an essential component of clinic assessment. If a provider had concerns about a patient, they would have them come in for toxicology screening. Patients who visited the clinics for refills or medication dosing received urine drug testing randomly. Individual counseling sessions occurred behind glass with masks, while group counseling was impacted most drastically. Many clinics had stopped group counseling sessions, while other clinics had to reduce the group size to half based on local policy and physical distancing requirements.

*(Local authority) put it out that we can do ten people in a group. That's including the facilitator, so nine participants and a facilitator.*

(Male; SUD counselor/program coordinator; Focus group # 6)

### 3.4. Telemedicine

The most substantial change that the COVID-19 pandemic posed was the urgency to integrate telemedicine into all aspects of clinical services. The majority of the participating clinics offered some form of services via telemedicine. The clinics primarily offered medication management and one-on-one counseling/assessment virtually. Approximately half of the clinic encounters offered telemedicine, primarily to patients with logistical difficulties that hindered travel to the clinic at the time of stay-at-home orders.

*Telemedicine on some clients that are required to be quarantined, whereas there are some that are—they can't come in because either they live with an elderly family member or because they have kids. A lot of them are in transitional housing and they're on lockdown, so they can't come to treatment.*

(Female; Intake specialist; Focus group # 8)

The clinics used various HIPAA-compliant versions of virtual platforms, such as Zoom, GoToMeeting, Microsoft Team, RingCentral, and Uber Conference, to deliver telemedicine. One clinic used a telemedicine-specific platform, eClinicalWork, because it was linked to their electronic health records. The providers reported that, although these applications allow video features to simulate face-to-face interaction, patients with technical difficulties and/or limited access to broadband internet and suitable devices favored traditional phone calls.

The most prominent barrier to telemedicine was related to inaccessibility of online technology. The providers indicated that many patients had no internet access at home, and open Wi-Fi was blocked in more than half of the participating clinics because of data safety concerns. Patients' internet accessibility was further limited due to the closure of

coffee shops, libraries, and shopping malls where they had been able to use public Wi-Fi before the pandemic. According to the providers, a considerable proportion of patients had traditional flip phones with basic features (i.e., calling and texting). Although the federal government offers free phones to low-income patients, these phones came with limited data and unstable reception and were not compatible with certain telemedicine applications.

*They have Obama phones. I think one of the big concerns that might be there is that they don't have a lot of data to use.*

(Female; Case manager; Focus group # 13)

Along with internet access issues, technical difficulties represented a major challenge, especially among older patients. The clinic providers offered assistance and guidance to download and install applications on patients' devices, and they walked the patient through the steps to receive telemedicine. These services inevitably became an added burden on providers' workload.

*If you're not technologically inclined, which some people aren't, it can be a bit tricky. There's a distinct generational gap. Younger people, they do it intuitively. Older people, it's not so intuitive. I think I spent probably two hours on the phone one day with someone just explaining how to do a video.*

(Male; Program manager; Focus group # 7)

## 4. Discussion

The COVID-19 pandemic has profoundly impacted health care systems (Stratton, 2020), and SUD treatment and care systems are no exception (Ornell et al., 2020). This study showed that providers in California have worked diligently to provide patients with uninterrupted services throughout the pandemic. Treatment providers in our study stayed open to ensure a continuity of care for patients with SUD. Clinics had to make creative adjustments to their physical configurations and clinical procedures to overcome the obstacles in service delivery during the pandemic. The findings highlight the need to support service providers with ongoing in-service training and to help them adapt to evolving challenges during the pandemic. Moreover, sufficient personal protective equipment and sanitary supplies are required to prevent COVID-19 exposure and infection in SUD treatment settings.

Although the COVID-19 pandemic has changed health care for the entire population, it disproportionately affects underserved and marginalized groups, including patients with SUDs (Melamed et al., 2020). Many of the clinics in this study noted an increase in patient flow, as a surge has occurred of drug relapse, mental health issues, and alcohol use associated with unemployment and social isolation during the pandemic. Providers in SUD treatment settings should network with the broader community to provide holistic care to address the interaction of mental health and housing/economic instabilities for patients with SUD (Dubey et al., 2020).

Given the massive challenges brought on by COVID-19, several policy/regulation changes in SUD treatment have taken place to allow more flexibility, including more flexible appointment scheduling and intake processes, more convenient dosing options, and extended take-home medication. Other regions and countries have also issued similar relaxation of SUD treatment policy to maximize patient retention, adherence, and treatment outcomes in the context of the COVID-19 crisis (Trujols et al., 2020; Vecchio et al., 2020). Rigorously designed research should evaluate the risks and benefits of current treatment practices in light of relaxed regulations to inform ongoing treatment models after the COVID-19 pandemic.

Consistent with the observation of other groups, we also found that telemedicine has taken a more prominent role in SUD treatment and



care during the COVID-19 crisis (Dunlop et al., 2020). All the clinics in this study offered phone or Internet-based counseling. Such change has minimized the risk of COVID-19 infection for both service providers and patients, and reduced logistical barriers for patients previously required to travel to treatment sites (López-Pelayo et al., 2020). Telemedicine is more conveniently accessible for certain groups of patients, such as younger individuals who are digital natives, and telemedicine is feasible to continue after the pandemic (Barney et al., 2020). However, limited connectivity and technical difficulties are major challenges that have to be addressed to enhance the success of telemedicine for SUD treatment.

The study team offers several recommendations to strengthen telemedicine-based SUD treatment and care based on the study findings: 1) multipronged efforts should expand Internet connectivity in the community. Wi-Fi and hotspots should be offered more widely in public open areas, such as parks, bus stations, parking lots, and courtyards of hospitals, to compensate for the loss of free Internet due to the closure of indoor places with free Wi-Fi. The federal government should work with major phone companies to expand the Lifeline Programs across the country. Loaning pre-programmed tablets with data plans to patients is also a strategy to overcome the connection barriers; 2) patients with limited Internet access prefer voice phone calls instead of video calls. Insurance companies should adjust their reimbursement policy by incentivizing providers' flexible model of service delivery; 3) tailored efforts need to support older adults and others with little or no technology literacy in telemedicine utilization; potential strategies could include engaging in clear communication beforehand to reduce skepticism and anxiety, providing step-by-step written or audible instructions, providing large and simple interfaces and ergonomic accessories, and involving family members to provide assistance (Kavandi & Jaana, 2020); and 4) telemedicine-based services in the participating clinics have been primarily limited to medication prescription and behavioral counseling. A wider array of services, including intake evaluation, biological testing, and clinical supervision, should be incorporated within telemedicine-based treatment services to ensure the program is flexibility and comprehensive.

This study has several limitations. First, the findings may not be generalizable to other areas of California or other states, where the COVID-19 pandemic and health care policies may differ. In addition, the study team conducted the study between May and September 2020; this study did not capture additional changes in clinic workforce and procedures during the COVID-19 spike in the winter of 2020. Second, the focus groups included providers of various professions and titles. Some participants may not have expressed their honest opinion due to status/power imbalance and social-desirability concerns. Third, some of the patient-level challenges, such as technical barriers and difficulties, were reported by service providers. Additional studies are required to understand patients' perspectives and experiences during the COVID-19 pandemic.

## 5. Conclusions

COVID-19 has unquestionably presented enormous challenges for service providers who treat patients with SUD. In response, providers have made rapid changes to policies and procedures that have enabled patients to receive continued treatment and care. Telemedicine has become an essential tool during the pandemic. These changes should be sustained post-pandemic, given the potential to increase access to SUD treatment and care. Rigorous research should evaluate the quality of care and patient satisfaction with telemedicine-based care compared to traditional in-person service provision modalities. Service providers need technical support and accommodative policies to maintain and improve their telemedicine-assisted service delivery.

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**Chunqing Lin:** Conceptualization, data collection, data analysis, and original draft.

**Sarah E. Clingan:** Data collection, data analysis, writing, review, and editing.

**Sarah J. Cousins:** Data collection, project administration, writing, review, and editing.

**Jonathan Valdez:** Project coordination, data collection, writing, review, and editing.

**Larissa J. Mooney:** Funding acquisition, investigation, review, and editing.

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## Declaration of competing interest

All authors report no financial or other conflicts of interest.

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## References

- Barney, A., Buckelew, S., Meshriakova, V., & Raymond-Flesch, M. (2020). The COVID-19 pandemic and rapid implementation of adolescent and young adult telemedicine: Challenges and opportunities for innovation. *The Journal of Adolescent Health, 67*(2), 164–171. <https://doi.org/10.1016/j.jadohealth.2020.05.006>.
- Basu S. (2020). Non-communicable disease management in vulnerable patients during Covid-19. *Indian Journal of Medical Ethics, 14*(2), 103–105. doi:10.20529/IJME.2020.041.
- Bojdani, E., Rajagopalan, A., Chen, A., Gearin, P., Olcott, W., Shankar, V., ... DeLisi, L. E. (2020). COVID-19 pandemic: Impact on psychiatric care in the United States. *Psychiatry Research, 289*, Article 113069. <https://doi.org/10.1016/j.psychres.2020.113069>.
- Burla, L., Knierim, B., Barth, J., Liewald, K., Duetz, M., & Abel, T. (2008). From text to codings: Intercoder reliability assessment in qualitative content analysis. *Nursing Research, 57*(2), 113–117. <https://doi.org/10.1097/01.NNR.0000313482.33917.7d>.
- Centers for Disease Control and Prevention. (2018). Opioid overdose [Internet]. Retrieved from <https://www.cdc.gov/drugoverdose/epidemic/index.html>. Accessed January 27, 2021.
- Columb, D., Hussain, R., & O'Gara, C. (2020). Addiction psychiatry and COVID-19: Impact on patients and service provision. *Irish Journal of Psychological Medicine, 37*(3), 164–168. <https://doi.org/10.1017/ipm.2020.47>.
- Dubey, M. J., Ghosh, R., Chatterjee, S., Biswas, P., Chatterjee, S., & Dubey, S. (2020). COVID-19 and addiction. *Diabetes & Metabolic Syndrome, 14*(5), 817–823. <https://doi.org/10.1016/j.dsx.2020.06.008>.
- Dunlop, A., Lokuge, B., Masters, D., Sequeira, M., Saul, P., Dunlop, G., Ryan, J., Hall, M., Ezard, N., Haber, P., Lintzeris, N., & Maher, L. (2020). Challenges in maintaining treatment services for people who use drugs during the COVID-19 pandemic. *Harm Reduction Journal, 17*(1), 26. <https://doi.org/10.1186/s12954-020-00370-7>.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine de Gruyter.
- Heitzman, J. (2020). Impact of COVID-19 pandemic on mental health. Wpływ pandemii COVID-19 na zdrowie psychiczne. *Psychiatria Polska, 54*(2), 187–198. <https://doi.org/10.12740/PP/120373>.
- Kavandi, H., & Jaana, M. (2020). Factors that affect health information technology adoption by seniors: A systematic review. *Health & Social Care in the Community, 28*(6), 1827–1842. <https://doi.org/10.1111/hsc.13011>.
- Krueger, R. A. (2014). *Focus groups: A practical guide for applied research*. Sage Publications.
- López-Pelayo, H., Aubin, H. J., Drummond, C., Dom, G., Pascual, F., Rehm, J., ... Gual, A. (2020). "The post-COVID era": Challenges in the treatment of substance use disorder (SUD) after the pandemic. *BMC Medicine, 18*(1), 241. <https://doi.org/10.1186/s12916-020-01693-9>.

- Melamed, O. C., Hauck, T. S., Buckley, L., Selby, P., & Mulsant, B. H. (2020). COVID-19 and persons with substance use disorders: Inequities and mitigation strategies. *Substance Abuse, 41*(3), 286–291. <https://doi.org/10.1080/08897077.2020.1784363>.
- Mooney, L. J., Valdez, J., Cousins, S. J., Yoo, C., Zhu, Y., & Hser, Y. I. (2020). Patient decision aid for medication treatment for opioid use disorder (PtDA-MOUD): Rationale, methodology, and preliminary results. *Journal of Substance Abuse Treatment, 108*, 115–122. <https://doi.org/10.1016/j.jsat.2019.08.006>.
- National Institute on Drug Abuse. (2020a). Overdose death rates. Retrieved from <https://www.drugabuse.gov/drug-topics/trends-statistics/overdose-death-rates>. Accessed January 27, 2021.
- National Institute on Drug Abuse. (2020b). Costs of substance abuse. Retrieved from <https://www.drugabuse.gov/drug-topics/trends-statistics/costs-substance-abuse>. Accessed January 27, 2021.
- Ornell, F., Moura, H. F., Scherer, J. N., Pechansky, F., Kessler, F., & von Diemen, L. (2020). The COVID-19 pandemic and its impact on substance use: Implications for prevention and treatment. *Psychiatry Research, 289*, Article 113096. <https://doi.org/10.1016/j.psychres.2020.113096>.
- Ose, S. O. (2016). Using excel and word to structure qualitative data. *Journal of Applied Social Science, 10*(2), 147–162. <https://doi.org/10.1177/1936724416664948>.
- Sarwar, M., & Sarwar, H. (2020). The impact of COVID-19 on the mental health of healthcare professionals. *Journal of the College of Physicians and Surgeons–Pakistan, 30*(6), 83. doi:10.29271/jcpsp.2020.Supp1.S83.
- Stratton, S. J. (2020). COVID-19: Not a simple public health emergency. *Prehospital and Disaster Medicine, 35*(2), 119. <https://doi.org/10.1017/S1049023X2000031X>.
- Substance Abuse and Mental Health Services Administration. (2019). Key substance use and mental health indicators in the United States: Results from the 2018 National Survey on Drug Use and Health. Retrieved from <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHNationalFindingsReport2018/NSDUHNationalFindingsReport2018.pdf>. Accessed January 27, 2021.
- Trujols, J., Larrabeiti, A., Sánchez, O., Madrid, M., De Andrés, S., & Duran-Sindreu, S. (2020). Increased flexibility in methadone take-home scheduling during the COVID-19 pandemic: Should this practice be incorporated into routine clinical care? *Journal of Substance Abuse Treatment, 119*, Article 108154. <https://doi.org/10.1016/j.jsat.2020.108154>.
- Vecchio, S., Ramella, R., Drago, A., Carraro, D., Littlewood, R., & Somaini, L. (2020). COVID19 pandemic and people with opioid use disorder: Innovation to reduce risk. *Psychiatry Research, 289*, Article 113047. <https://doi.org/10.1016/j.psychres.2020.113047>.
- Xiong, J., Lipsitz, O., Nasri, F., Lui, L., Gill, H., Phan, L., ... McIntyre, R. S. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders, 277*, 55–64. <https://doi.org/10.1016/j.jad.2020.08.001>.