

# Understanding the Effect of the COVID-19 Pandemic on Substance Use Disorder Treatment Facility Operations and Patient Success: Evidence From Mississippi

Devon Meadowcroft<sup>1</sup>  and Will Davis<sup>2</sup>

<sup>1</sup>Delta Research and Extension Center, Mississippi State University, Stoneville, Mississippi, MS, USA.

<sup>2</sup>Department of Agricultural Economics, Mississippi State University, Starkville, Mississippi, MS, USA.

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## ABSTRACT

**BACKGROUND:** The COVID-19 pandemic has led to disruptions in the provision of care at substance use disorder (SUD) treatment facilities. Stresses associated with the pandemic could also negatively impact treatment outcomes for clients. The aim of this study is to evaluate how SUD treatment facilities in Mississippi changed their operations following the start of the pandemic. The change in client success rates at the facilities is also assessed.

**METHODS:** An online survey was completed by 12 SUD treatment facilities in Mississippi between February and May 2021.

**RESULTS:** Generally, the facilities' capacity to provide treatment to clientele was moderately affected by the pandemic. Facilities in the sample also adapted a variety of policies to limit the spread of COVID-19. Changes in the services provided by facilities was observed in the survey responses. For client success rates reported by the facilities, there was a decrease in the number of facilities stating that more than 80% of their clients completed treatment across the pre- and post-pandemic periods. However, the number of facilities with more than 80% of their clients successfully finishing treatment has increased in recent months.

**CONCLUSIONS:** To continue serving their clientele during the pandemic, facilities enacted COVID-19-related policies and began offering new services such as telehealth. Although client success rates decreased at the beginning of the pandemic, they have returned to pre-pandemic levels in recent months. Our results indicate that SUD treatment facilities and clients have improved in terms of giving and receiving care as the pandemic has progressed.

**KEYWORDS:** substance abuse treatment centers, coronavirus, Mississippi

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**CORRESPONDING AUTHOR:** Devon Meadowcroft, Delta Research and Extension Center, Mississippi State University, Stoneville, Mississippi, MS 38776, USA. Email: d.meadowcroft@msstate.edu

## Introduction

The COVID-19 pandemic has caused significant disruptions to medical care, with patients experiencing changes in service accessibility and delivery. One area in healthcare where the effects of COVID-19 could be particularly severe is the treatment of persons with a substance use disorder (SUD). Significant hurdles existed prior to the pandemic for certain individuals seeking SUD treatment, including long travel times to treatment facilities, extensive waiting lists, and the high cost of treatment if uninsured.<sup>1-3</sup>

Recent studies have identified barriers to accessing SUD treatment during the COVID-19 pandemic. Kedia et al<sup>4</sup> performed several interviews and meetings with rural SUD treatment facilities in Tennessee following the beginning of the pandemic. They found that several facilities had to reduce their client capacity by 50% to comply with social distancing guidelines. Directors of SUD treatment programs in California reported that clients experienced delays in terms of admission or receiving care in interviews conducted at the beginning of the pandemic.<sup>5</sup> These delays were caused by clients having to show a negative COVID-19 test or being required to quarantine

before being able to access services. Lin et al<sup>6</sup> conducted focus groups with SUD treatment facilities in California between May and September 2020. In the focus groups, providers at inpatient residential facilities noted that in some instances, new clients were not being accepted due to an increase in patient volume caused by high relapse rates.

Changes in healthcare-related policies caused by the pandemic have also affected operations at SUD treatment facilities. Specifically, the relaxing of telehealth policies have led to an increase in SUD treatment facilities utilizing such services. About three-fourths of 133 surveyed SUD treatment providers in California stated that their facilities administered services using telehealth following the state's stay-at-home mandate.<sup>7</sup> One SUD treatment facility in North Carolina moved all its operations to telehealth at the beginning of the pandemic in March 2020.<sup>8</sup> By moving to telehealth, the facility found that its number of clients not attending treatment as a fraction of total appointments decreased. Similarly, a SUD and mental health treatment facility in South Carolina transitioned its screening and treatment services to telehealth as a result of COVID-19.<sup>9</sup> Two harm reduction programs based in New



York were able to use telehealth to begin buprenorphine treatment for those with a SUD.<sup>10</sup> Buprenorphine is a medication that can be used in the treatment of an opioid use disorder. Wang et al<sup>10</sup> noted that by using telehealth, it reduced the amount of time it took to start taking buprenorphine, as previously clients had to wait until an in-person evaluation to begin the medication.

An increase in the rate of substance use has been observed in adults throughout the pandemic, a change which may dramatically increase the demand for SUD treatment. In a survey of 1,405 U.S. and Canadian adults in June 2020, 37.5% of the sample admitted to using alcohol and/or substances as a coping mechanism for the pandemic.<sup>11</sup> In an analysis of U.S. emergency medical facilities, more visits occurred for drug-related overdoses between March and October 2020 in comparison to the same period in 2019.<sup>12</sup> Likewise, in an emergency department in Virginia, Ochalek et al<sup>13</sup> observed that the number of nonfatal opioid overdoses increased between 2019 and 2020 when evaluating the same period of time.

The primary objective of this study was to survey inpatient and outpatient SUD treatment facilities in Mississippi and assess the state of their operations both before and after the start of the COVID-19 pandemic. Because of the potential challenges with SUD treatment availability during the pandemic, it is important to evaluate how treatment facilities adapted to the complications brought on by COVID-19 to remain operational and serve their clients. Facilities were also asked how client success, measured in terms of treatment completion, changed during the pandemic. Programs have indicated that social isolation caused by COVID-19 guidelines can negatively affect SUD treatment outcomes for clients.<sup>4,5</sup> Pandemic-related anxiety, job loss, and changes in childcare responsibilities have also been identified as deterrents to SUD treatment success.<sup>5,14,15</sup> The results from this study will provide some insight into whether the pandemic impacted client behaviors.

## Methods

### *Facility recruitment and survey distribution*

A list of 54 Mississippi Department of Mental Health (DMH)-certified SUD treatment facilities was provided to the researchers by the Mississippi DMH. The list contained contact information for the primary representative of each facility, typically the facility's executive director or Chief Executive Officer (CEO). Each facility representative was contacted via e-mail with a description of the project and a request for their participation in the study. To adequately cover the interests of key stakeholders, facility representatives were asked for input on survey questions and topic areas they would like included in the survey. Initial e-mails seeking facility participation and survey input were sent to facilities in October 2020, with follow-up emails sent to non-respondents in January 2021. In total, roughly 20 facilities initially agreed to take part in the survey.

Survey questions for this study came from a variety of sources. The 2019 National Survey of Substance Abuse Treatment Services (N-SSATS) was used as a template for questions regarding what forms of payment were accepted at the facilities and what services were offered.<sup>16</sup> Pandemic-related questions on client capacity, the admissions process, visitor restrictions, telehealth, physician referrals, and staff member and/or clinician loss were the result of facility suggestions. A survey report from The Louisiana Center for Evidence to Practice at Louisiana State University was also used as a template for telehealth-related survey questions.<sup>17</sup> Additional questions came from conversations between the researchers and individuals with experience working in the field of SUD treatment.

After completing the list of questions, questions were separated into 6 broad categories on the survey: (1) facility characteristics, (2) payment, (3) operational changes caused by the COVID-19 pandemic, (4) COVID-19-related precautionary measures, (5) telehealth, and (6) client success. Due to the importance of capturing how facility operations and patient behaviors changed during the pandemic, many of the survey questions asked the facilities to consider different time periods when thinking about their responses. Questions were asked regarding the twelve months prior to the start of the COVID-19 pandemic in March 2020. Questions related to the post-pandemic time period corresponded to 1 of 3 periods: following the beginning of the COVID-19 pandemic in March 2020, during the start of the COVID-19 pandemic (March 2020 through May 2020) only, and in the past month.

Prior to distributing the survey, the survey instrument was reviewed by the Mississippi State University Institutional Review Board (IRB) and was determined to be exempt from full review. The survey was launched in February 2021. Representatives at facilities who agreed to participate in the study were sent an e-mail with a link to take the online survey. The survey was closed in May 2021. In total, 12 facilities completed the survey, approximately 22% of all DMH-certified SUD treatment facilities operating in the state of Mississippi at the time of data collection.

### *Facility characteristics*

Figure 1 provides a county-level map of Mississippi showing where the 12 facilities who participated in the survey were located. Facilities in our sample were dispersed throughout the state, but 4 of the facilities were in the 3 central counties that make up the Jackson metropolitan area.<sup>18</sup> This representation of the Jackson metropolitan area in our sample is consistent with the provided list of Mississippi DMH-certified facilities. Of the 54 DMH-certified facilities in the state, 24 (44%) were in the Jackson metropolitan area. Following U.S. Office of Management and Budget definitions for metropolitan statistical areas, half of the facilities were in counties classified as metropolitan.<sup>18</sup>

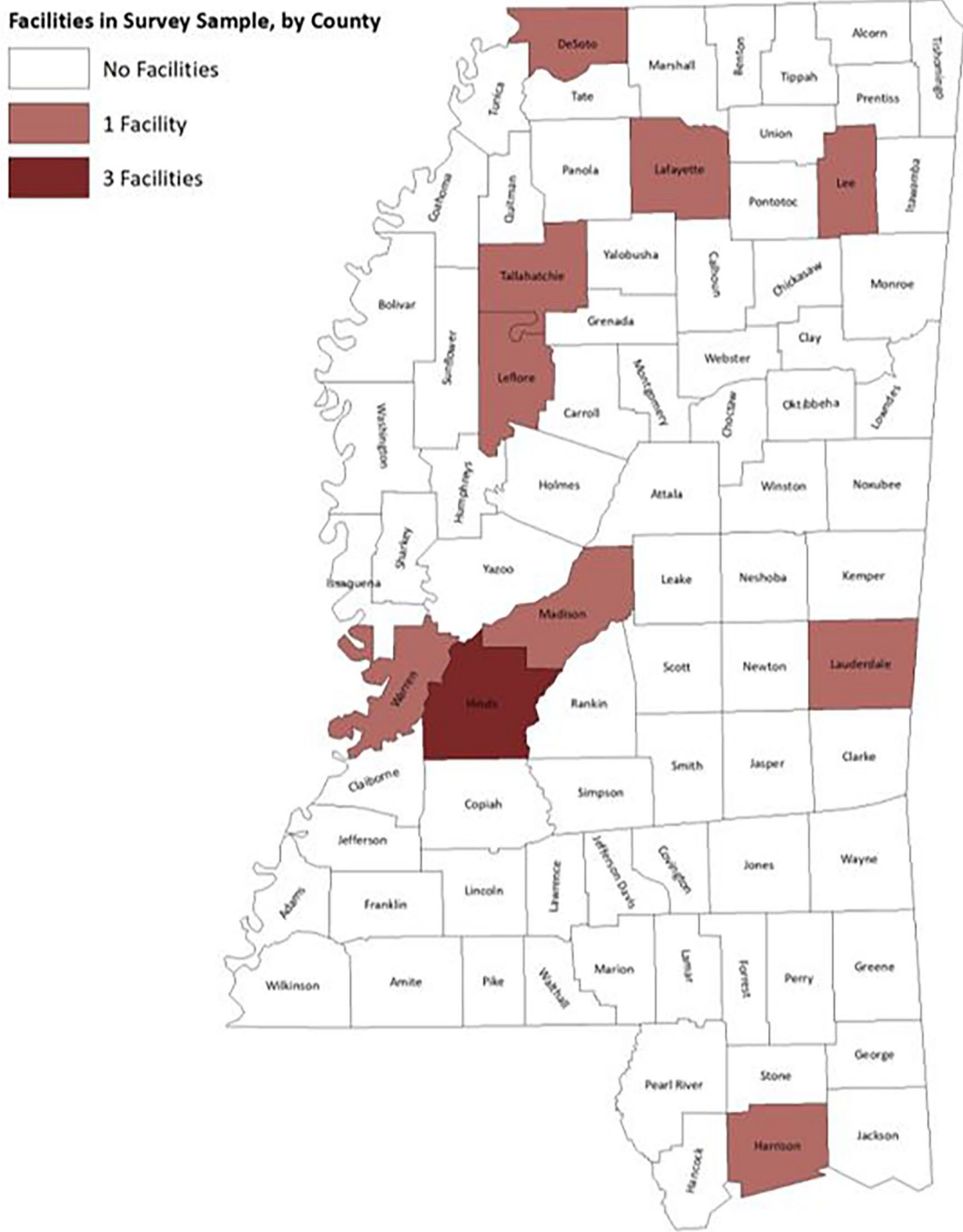


Figure 1. Locations of survey respondents, by county.

Table 1 shows the characteristics of the 12 facilities in the sample. The majority of the sample (8 facilities) offer residential inpatient services, with over half serving around 31 to 60 clients at a given time. All but 1 facility offered outpatient services. The number of patients receiving outpatient services at facilities in the sample was generally split between small (4 facilities with less than 15 clients) and large operations (5 facilities with more than 61 clients).

When asked what type of provider they are, evidence-based, general, or a combination of both models, 8 of the facilities classified themselves as evidence-based providers and 4 offered both general and evidence-based practices. No facilities in our sample offered general services with no evidence-based care component. Facilities were also asked about their provider setting, with 3 of the facilities being home/community-based, 4 clinic-based, and 4 being both home/community-based and clinic-based.

**Table 1.** Facility characteristics.

	COUNT
Residential inpatient services	
Yes	8
Less than 15 clients	1
16-30 clients	1
31-45 clients	3
46-60 clients	2
More than 61 clients	1
No	4
Outpatient services	
Yes	11
Less than 15 clients	4
16-30 clients	0
31-45 clients	1
46-60 clients	1
More than 61 clients	5
No	1
Type of provider	
Evidence-based	8
Both evidence-based and general	4
General	0
Provider setting	
Home/Community based	3
Clinic based	5
Both home/community based and clinic-based	4
Accepted forms of payment	
No payment accepted (free treatment for all clients)	1
Cash or self-payment	12
Medicare	3
Medicaid	7
State-financed health insurance plan other than Medicaid	2
Federal military insurance (eg, TRICARE)	2
Private health insurance	5
IHS/Tribal/Urban (ITU) funds	0
Grants	4

Information was also gathered regarding which forms of payment and insurance each facility accepted for a client's treatment. For this question, facilities could select more than 1

response. All 12 of the facilities in the sample accepted cash or self-payment. Seven facilities accepted payment through Medicaid and only 3 accepted Medicare. Five facilities accepted private health insurance. Grants are accepted at 4 facilities as a form of payment for client treatment.

## Results

### *Operational changes following the beginning of the COVID-19 pandemic*

Table 2 displays responses to survey questions regarding operational changes the facilities made following the beginning of the COVID-19 pandemic in March 2020. Facilities were asked if they started accepting any new forms of payment following the start of the pandemic, with about 33% of the sample stating that they did. When facilities were asked if they began offering any new services following the beginning of the pandemic, roughly 42% said yes. A follow-up question asked these facilities what specific services they began offering after the start of the pandemic. The new services offered by facilities included outcome follow-up after treatment completion, recovery coaches, individual counseling, family counseling, and transportation assistance to treatment. When facilities were asked if they stopped offering any services following the start of the COVID-19 pandemic only 1 in the sample said yes, stating that they stopped offering self-help groups (eg, AA, NA, SMART recovery).

The next set of responses shown in Table 2 is for a question asking if facilities ever had to completely shut down their operations following the beginning of the COVID-19 pandemic in March 2020. Only 1 facility in the sample stated that they had to close. It is important to note that this facility indicated only closing once during the pandemic period. In a follow-up question, the facility stated that the reason they had to shut down was due to a high number of COVID-19 cases in the area surrounding the facility as opposed to financial constraints or patient loss stemming from the pandemic. Facilities were also asked about changes in facility staffing following the beginning of the COVID-19 pandemic. About 17% of the sample answered that they permanently lost staff members and/or clinicians due to illness or financial constraints. Additionally, about 83% of the sample stated that they were forced to operate with fewer staff members and/or clinicians than normal due to illness or financial constraints following the start of the pandemic.

Facilities were also asked if they required new clients to self-quarantine prior to beginning treatment. About 33% of the sample stated that they required new patients to quarantine. Facilities were then prompted to answer questions about COVID-19 testing. Twenty-five percent of facilities in the sample were able to provide their own COVID-19 testing in-house. When asked if they required COVID-19 testing for new clients following the beginning of the pandemic, about 58% of the sample said yes. Only 25% of facilities, however,

**Table 2.** Operational changes at facilities following beginning of COVID-19 pandemic in March 2020.

	COUNT (%)	
	YES	NO
Started accepting new forms of payment	4 (33)	8 (67)
Started offering new services	5 (42)	7 (58)
Stopped offering services	1 (8)	11 (92)
Had to shut down operations	1 (8)	11 (92)
Permanently lost staff members and/or clinicians	2 (17)	10 (83)
Forced to operate with fewer staff members and/or clinicians	10 (83)	2 (17)
Required new clients to quarantine	4 (33)	8 (67)
Provided COVID-19 testing	3 (25)	9 (75)
Required COVID-19 testing for new clients	7 (58)	5 (42)
Required COVID-19 testing for existing clients	3 (25)	9 (75)
Required COVID-19 testing for staff members and/or clinicians	2 (17)	10 (83)
Required staff members and/or clinicians to wear masks at facility	12 (100)	0 (0)
Required clients to wear masks at facility	11 (92)	1 (8)

stated that they required COVID-19 testing for existing clients. A follow-up question asked those 3 facilities how often they required COVID-19 testing for their existing clients. The facilities stated that they required testing when there was a possible COVID-19 exposure, when requested by the client, and at time of patient admission. About 17% of facilities in the sample responded that they required COVID-19 testing for their staff members and/or clinicians following the beginning of the pandemic. One of those two facilities required testing once a week and the other required testing only when symptoms presented themselves or in the case of a known COVID-19 exposure. All 12 facilities in the sample required masks be worn by staff members and/or clinicians while at the facilities. When asked about their client mask policy, there was only 1 facility that did not require clients to wear masks while at the facility.

#### *Facility operations at varying points before and after the start of the pandemic*

Table 3 displays survey responses for questions where the facilities were asked to consider different points in time for their responses. To measure changes in physician referrals, facilities were asked what percentage of their clients came from referrals in the year prior the start of the pandemic, during the start of

the pandemic (March 2020 through May 2020), and in the past month. The time-periods can be interpreted as “pre-pandemic,” “early pandemic,” and “late pandemic.” Across the 3 time periods, most facilities stated that less than 20% of their clients came from physician referrals.

Facilities were also asked if they reduced their client capacity, and if so by how much, during both the start of the COVID-19 pandemic (March 2020 through May 2020) and in the late pandemic period. Six facilities answered that they reduced their client capacity during the early pandemic period, with 4 of those facilities reducing their capacity by 41-60%. One facility stated that they experienced a decrease in their client capacity during the late pandemic, with a reduction of 41% to 60%. A McNemar test was conducted to determine if the proportion of facilities who reduced their client capacity during the early and late pandemic periods was statistically different.<sup>19</sup> The test statistic was found to be statistically significant at the 10% level, indicating that there is a statistically significant difference in the proportion of facilities who reduced their client capacity between the early and late pandemic periods.

The next set of survey findings in Table 3 concern whether facilities allowed outside persons (eg, family, friends, etc.) to visit clients while they were receiving inpatient treatment. It is important to note that these questions regarding visitors were only asked for the 8 facilities in the sample that offered residential inpatient services. During the 12 months prior to the start of the COVID-19 pandemic, 6 facilities allowed clients to have outside visitors. There was approximately an 83% decrease in the number of facilities allowing outside visitors following the early pandemic period (March 2020 through May 2020). Similarly, during the late pandemic, there was a roughly 67% decrease from the pre-pandemic period in the number of facilities allowing outside visitors in the past month. A Cochran's *Q* test was performed to determine if the proportion of facilities who allowed visitors was statistically different across the 3 time periods.<sup>20</sup> The test statistic for the Cochran's *Q* test was statistically significant at the 5% level. Our results imply that the proportion of facilities who allowed outside persons to visit clients was statistically different across the 3 time periods considered.

The last set of responses in Table 3 are for survey questions asking about telehealth services offered by facilities. Each facility was asked about telehealth usage in the pre-pandemic, early pandemic, and late pandemic periods. If facilities stated that they provided telehealth during any of these time periods, they were further prompted with questions regarding what services they offered via telehealth, what percentage of their services were provided through telehealth, and what telehealth platforms they used to deliver care. In the 12 months prior to the start of the COVID-19 pandemic, 6 of the 12 facilities in the sample offered telehealth services. A mix of telehealth services were provided by these 6 facilities before the pandemic, including new patient screenings, general healthcare, therapy or counseling, medication management, and outpatient care.

**Table 3.** Facility operations at varying points in time before and after beginning of the COVID-19 pandemic.

	PRE-PANDEMIC	EARLY PANDEMIC	LATE PANDEMIC	TEST STATISTIC
<b>Physician referrals</b>				
Less than 20%	10	12	11	
21%-40%	2	0	1	
41%-60%	0	0	0	
61%-80%	0	0	0	
More than 80%	0	0	0	
<b>Reduced client capacity</b>				
Yes		6	1	3.6 <sup>a</sup>
Less than 20%		1	0	
21%-40%		1	0	
41%-60%		4	1	
61%-80%		0	0	
More than 80%		0	0	
No		6	11	
<b>Allowed outside persons to visit clients</b>				
Yes	6	1	2	8.4 <sup>**b</sup>
No	2	7	6	
<b>Offered telehealth services</b>				
Yes	6	11	11	10.0 <sup>*b</sup>
<b>Services offered</b>				
New patient screening	2	7	7	
General healthcare	3	4	3	
COVID-19-related healthcare	N/A	1	1	
Therapy or counseling	3	9	9	
Treatment plan management or evaluation	0	6	6	
Medication management	3	6	7	
<b>Percentage of services</b>				
Less than 20%	5	5	6	
21%-40%	0	3	2	
41%-60%	0	2	1	
61%-80%	1	1	2	
More than 80%	0	0	0	
<b>Telehealth platforms</b>				
Phone calls	3	9	9	
Text messages	1	1	1	
E-mail	0	3	2	
Video conferencing	4	9	9	
No	6	1	1	

\*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively

<sup>a</sup>McNemar test statistic.

<sup>b</sup>Cochran Q's test statistic.

Most of the 6 facilities that used telehealth prior to the pandemic stated that less than 20% of their services were offered via telehealth. Video conferencing was the most popular telehealth platform for these facilities.

Moving to the time periods following the beginning of the pandemic, there was an approximately 83% increase in number of facilities stating that they provided telehealth services during the early pandemic period (March 2020 through May 2020). Of the facilities offering telehealth services during the early pandemic period, 9 used telehealth for therapy or counselling, and 7 used telehealth for new patient screenings. When asked what percentage of their services were offered via telehealth during the early pandemic period, 5 facilities answered less than 20% and 3 facilities answered 21% to 40%. Regarding the telehealth platforms used, phone calls and video conferencing were the 2 most popular options in the early pandemic. Eleven of the facilities in the sample also stated that they offered telehealth services in the late pandemic period. For the specific services that were offered through telehealth in the late pandemic period, 9 facilities stated that they used telehealth for therapy or counseling in the late pandemic. New patient screening and medication management were provided via telehealth by 7 facilities during the same period. Six of the eleven facilities stated that less than 20% of their services were offered via telehealth in the late pandemic. Phone calls and video conferencing were the most popular telehealth platforms used by the facilities in the late pandemic period. A Cochran's  $Q$  test was conducted to determine if the proportion of facilities who offered telehealth services was statistically different between the pre-pandemic, early pandemic, and in late pandemic periods. The test statistic for the Cochran's  $Q$  test was statistically significant at the 1% level, indicating that the proportion of facilities who offered telehealth services was statistically different across the 3 time periods.

#### *Client success rates at varying points before and after the start of the pandemic*

Facility responses related to client success rates measured in terms of successfully completing treatment are shown in Table 4. Facilities were questioned about their client success rates for the 12 months prior to the start of the pandemic, during the start of the pandemic (March 2020 through May 2020), and in the past month. Again, these 3 time periods are designated as "pre-pandemic," "early pandemic," and "late pandemic." For all 3 time periods, none of the facilities responded that less than 20% of clients successfully completed treatment at their facilities. In the pre-pandemic period, a third of the sample responded that more than 80% of their clients successfully completed treatment and a third of facilities in the sample responded that 41% to 60% of their clients finished treatment. When asked about client success rates during the early pandemic period, there was a 50% decrease in the number of facilities answering that more than 80% of their clients completed

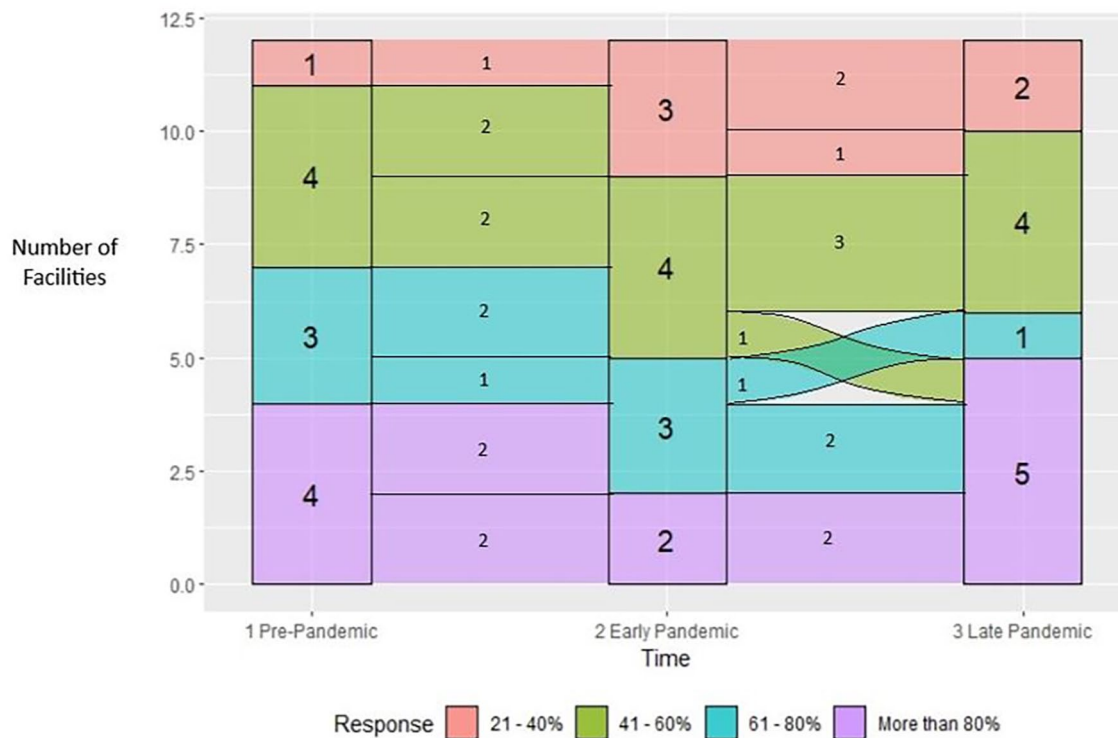
**Table 4.** Client success rates at varying points before and after the start of the pandemic.

	PRE- PANDEMIC	EARLY PANDEMIC	LATE PANDEMIC	COCHRAN Q'S TEST STATISTIC
Percentage of clients successfully completing treatment				
Less than 20%	0	0	0	
21%-40%	1	3	2	3.0
41%-60%	4	4	4	0.4
61%-80%	3	3	1	2.0
More than 80%	4	2	5	4.67*

\*Represents statistical significance at the 10% level.

treatment in the early pandemic period. There was no change in the number of facilities who stated that 41% to 60% of clients finished treatment between the pre-pandemic period and the early pandemic period. Moving to the late pandemic, there was a 25% increase in the number of facilities stating that more than 80% of clients finished treatment between the pre-pandemic and late pandemic periods. Again, there was no change in the number of facilities stating that 41% to 60% of their clients completed treatment in the late pandemic period going from the pre-pandemic period to the late pandemic period. A Cochran's  $Q$  statistical test was performed with the facilities' responses for client success rates. The Cochran's  $Q$  test determined if there were any statistical differences in the number of facilities for each response category throughout the 3 time periods. For the 21% to 40%, 41% to 60%, and 61% to 80% client success rate responses, there was not enough evidence to suggest that there were any statistically significant differences in the proportion of facilities in each category across the 3 time periods. On the other hand, the test statistic applied to the proportion of facilities reporting that more than 80% of their clients successfully completed treatment was statistically significant at the 10% level. This result indicates that the proportion of facilities stating that more than 80% of their clients successfully completed treatment was statistically different for the 3 time periods.

Figure 2 represents an alluvial plot showing the changes in reported client success rates within the facilities across the 3 time periods. Looking at the changes in responses between the pre-pandemic and early pandemic period, 6 facilities in our sample reported lower client success rates. None of the facilities stated that they had higher client success rates between the 2 time periods. Going from the early pandemic to late pandemic time periods, 4 facilities stated that they had higher client success rates as the pandemic progressed. One of the facilities stated that 41% to 60% of their clients successfully completed treatment in the early pandemic period and then that more than 80% of their clients completed treatment in the late pandemic period, which is a notable increase. No facilities in our



**Figure 2.** Changes in facility reported client success rates across the pre-pandemic, early pandemic, and late pandemic periods.

sample reported lower client success rates between the early pandemic and late pandemic periods.

## Discussion

The results from this survey explore how the COVID-19 pandemic impacted the operations of 12 Mississippi Department of Mental Health (DMH)-certified SUD treatment facilities in Mississippi. Additionally, this study sheds light on how the pandemic affected client success rates in terms of completing treatment at the surveyed facilities. Facilities in our sample implemented several different precautionary measures to prevent the spread of COVID-19 among their clients and staff. A third of facilities in our sample required new clients to quarantine, and over half of the facilities required COVID-19 testing for new clients. Furthermore, all facilities in the sample required masks be worn by their staff members and/or clinicians, and all but 1 facility required masks for their clients. Among inpatient facilities, the pandemic also reduced the number of facilities allowing outside visitors to visit clients receiving treatment. Existing work has shown that individuals with a SUD are more susceptible to hospitalization or death after contracting COVID-19,<sup>21,22</sup> so the preventative measures taken by the sampled facilities may have helped to ensure patient safety during the pandemic.

When evaluating how COVID-19 affected the facilities' capacity to provide care, only 1 facility in the sample had to completely shut down operations following the start of the pandemic. Two facilities in the sample indicated that they

permanently lost staff members and/or clinicians during the pandemic due to illness or financial constraints. Many of the facilities, however, stated that they were forced to operate with fewer staff members and/or clinicians after the beginning of the pandemic. Staff exhaustion at SUD treatment programs has been observed during the pandemic due to similar staffing reductions at facilities.<sup>5</sup> Therefore, it is possible that the remaining staff members working at facilities in this sample were negatively impacted following the workforce reductions. In terms of changes in capacity, half of the sampled facilities reduced their client capacity during the start of the pandemic. Alternatively, only 1 facility stated that they had a reduced client capacity in the late pandemic compared to the pre-pandemic period, indicating that capacity had largely returned to normal by the late pandemic period.

The services provided to clients also changed between the early and late periods of the pandemic. Nearly half of all facilities responded that they started offering additional services following the beginning of the pandemic with only 1 facility stating that they stopped offering an existing service. The utilization of telehealth services also significantly increased for facilities in our sample following the start of the pandemic. More specifically, the number of facilities providing telehealth services to clients roughly doubled between the year prior to the start of the pandemic and the first few months of the pandemic (March 2020 through May 2020). Similar increases in telehealth usage by SUD treatment facilities throughout the beginning of the pandemic has been documented in the



literature. In the early pandemic period (June and July 2020), 81% of a sample of 373 opioid treatment programs had telehealth as an available service.<sup>23</sup> Alternatively, in April 2020 it was found that only about 27% of SUD treatment facilities in the U.S. provided telehealth.<sup>24</sup> Facilities in the sample also indicated that they have continued to offer telehealth services as the pandemic has progressed, with almost all facilities stating that they offered telehealth to their clients during the late pandemic period.

Our results also suggest that client success rates in terms of completing treatment changed somewhat throughout the pandemic. During the pre-pandemic period, 4 facilities stated that more than 80% of their clients successfully completed treatment. There was a 50% decrease in the number of facilities indicating that more than 80% of their clients finished treatment during the early pandemic period. The number of facilities reporting client success rates similar to the pre-pandemic period increased during the late pandemic period, with a 25% increase in the number of facilities claiming a client success rate above 80% between the pre-pandemic and late pandemic periods. The individual changes in client success rates across time also provided interesting findings. Moving from the pre-pandemic to early pandemic time periods, half of our sample reported lower rates of clients successfully completing treatment at their facilities. Conversely, a third of the sample stated higher client success rates going from the early pandemic to late pandemic period. The other two-thirds of the sample reported the same client success rates between the early and late pandemic periods, implying that no facilities saw decreases in their client success rates as the pandemic progressed.

Overall, the results of this study suggest that the ability of SUD treatment facilities to provide care was moderately impacted by the pandemic in terms of reducing the number of clients receiving care and operating with fewer staff members and/or clinicians. Alternatively, nearly all facilities in our sample continued their operations throughout the pandemic without having to shut down. Thus, for the facilities in our sample, treatment was still being provided to clients throughout the pandemic albeit at a reduced capacity. To better serve their clientele during the pandemic, treatment facilities in the sample indicated that they began offering new services to clients following the start of the pandemic. One of these new services was telehealth. The utilization of telehealth as an offered service is a prime example of how facilities in our sample adapted to the challenges brought on by the pandemic. Due to the rise in telehealth availability at these facilities, it is important to also consider how telehealth adoption by clients could be limited. Issues with broadband access, computer literacy, and owning an adequate computing device have all been identified as barriers to utilizing telehealth for clients in SUD treatment programs during the pandemic.<sup>4,6,25</sup> According to recent estimates, about 20% of the population in Mississippi does not have broadband access and 12% of Mississippi households do not own a computing device.<sup>26,27</sup> Therefore, SUD treatment

facilities in Mississippi should ensure that their clientele have the appropriate resources to access telehealth given the increased reliance on telehealth services during the pandemic.

Treatment facilities also took several measures to limit the spread of COVID-19 among their clients, with most requiring mask compliance and COVID-19 tests for new clients. For the inpatient facilities in the sample, many ceased allowing outside persons to visit clients receiving inpatient care during the pandemic. This reduction in the number of outside visits may have a detrimental effect on the likelihood of treatment success if visits from family members and friends have a beneficial impact on the outcomes of clients receiving inpatient treatment. The number of facilities in the sample reporting high rates of client treatment completion (over 80%) decreased directly after the start of the pandemic. During the late pandemic period, however, client success rates increased to levels comparable to the pre-pandemic period. These results suggest that client treatment completion rates decreased during the first few months of the pandemic, potentially due to pandemic-related lifestyle or financial changes. Despite the decrease observed during the early pandemic, high client success rates at facilities in the sample have since returned to pre-pandemic numbers in the late pandemic period. This finding suggests that facilities and clients have become better equipped at handling COVID-19-related obstacles in receiving and providing treatment for those with a SUD as the pandemic has continued.

Limitations to this study should also be considered. The findings from this survey are only applicable to SUD treatment facilities located in the state of Mississippi. This study is similar to previous work that has focused on the COVID-19 pandemic's impacts on SUD treatment facility operations in a single state.<sup>6,7,28</sup> A promising avenue for future research would be to assess how SUD treatment facilities in other states and regions of the U.S. responded to the pandemic throughout different points in time. Another limitation to this study is the small sample size of facilities whose responses are used in the analysis. In total, about 22% of all Mississippi DMH-certified facilities participated in the survey. Although the sample size for this study is small, the survey responses provide an important first look at how a portion of SUD treatment facilities in Mississippi adapted to the pandemic.

### Author Contributions

DM and WD both developed the survey instrument for this study and recruited survey participants. DM conducted preliminary data analysis and wrote an initial draft of the manuscript. WD assisted with data analysis and manuscript edits. DM and WD were both involved with the revision process for manuscript publication.

### ORCID iD

Devon Meadowcroft  <https://orcid.org/0000-0001-7320-9823>

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