

Open camera or QR reader and scan code to access this article and other resources online.



Satisfaction with Telehealth Treatment for Opioid Use Disorder Among Individuals Living in Rural and Nonrural Areas

Lauren Hendy, PhD,¹ Amanda Olguin, MSW,¹
Cynthia Jimes, PhD,¹ Eileen Barrett, MD, MPH,¹
M. Justin Coffey, MD,^{1,2} and Marlene C. Lira, MPH^{1,3}

¹Workit Health, Ann Arbor, Michigan, USA.

²Department of Psychiatry, Geisinger Commonwealth School of Medicine, Scranton, Pennsylvania, USA.

³DrPH Program, Health Policy, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA.

Abstract

Background: Telehealth has grown as a common treatment modality for substance use disorders following expanded telehealth flexibilities during the COVID-19 pandemic. Telehealth can increase access to treatment in rural areas, where there are limited local addiction providers.

Methods: We conducted a cross-sectional survey of adults in telehealth treatment for opioid use disorder and compared satisfaction with care and provider–patient relationship quality between participants in rural and nonrural areas.

Results: Respondents scored a mean of 4.51 ± 0.694 on the Telemedicine Satisfaction Questionnaire (range: 1–5) and 27.12 ± 5.633 on the Provider–Patient Depth of Relationship Questionnaire (range: 0–32), indicating high overall satisfaction and a deep provider–patient relationship. There were no significant differences based on rural residence.

Conclusions: Based on high patient satisfaction, our findings support the future expansion of telemedicine treatment platforms across rural and nonrural areas to address the substantial

unmet need for substance use treatment across the United States.

Keywords: satisfaction, provider–patient relationship, substance use disorder, telemedicine, rural populations, telehealth.

Introduction

Telehealth treatment for opioid use disorder (OUD) represents a major advancement in the delivery of addiction care to populations in need. Telehealth treatment for OUD has grown considerably since expanded federal and state policies during the COVID-19 pandemic allowed clinicians to prescribe buprenorphine through virtual care.¹ Studies have found telehealth is an effective platform for OUD treatment; patients treated through telehealth are more likely to receive medications for OUD and have similar or better levels of retention in care as patients treated through in-person settings.^{2–5}

Many individuals with OUD, particularly those residing in rural areas, face barriers to accessing in-person treatment and benefit from the flexibility and privacy offered through telehealth. Patients may live in areas where there is limited in-person OUD treatment or traveling to in-person appointments is too costly in terms of time and transportation expense.⁶ Furthermore, patients in rural areas with OUD may experience greater stigma in in-person settings than patients in urban areas and value the privacy offered by virtual visits at home.⁷

© The Author(s) 2025. Published by Mary Ann Liebert, Inc. This Open Access article is distributed under the terms of the Creative Commons License [CC-BY] (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Telehealth platforms have altered the way patients in treatment for substance use are able to interact with their care team. Through virtual platforms, patients with OUD attend medical visits with physicians and advanced practice providers, behavioral health groups led by counselors, and peer support groups.³ Patients with OUD can receive buprenorphine for at-home initiation and medications for comorbidities such as anxiety, depression, and hepatitis C.³ Finally, treatment also includes urine drug screening, automated recovery assessments, chat messaging with clinic staff, and case management.³

However, telehealth platforms also change the way in which patients see and hear their providers compared to in-person visits, and technical issues can cause difficulties in developing a strong patient-clinician connection and offering patient-centered care.^{8,9} Yet few studies have directly examined patient experiences. One small study ($n = 58$) found high levels of satisfaction with care among patients in treatment for OUD through telehealth.¹⁰ To date, no studies have assessed experiences among larger samples or assessed differences based on rural and urban settings. Furthermore, patients living in rural and nonrural areas may perceive the advantages and disadvantages of telehealth OUD treatment in different ways. The objective of our study was to examine patient-reported satisfaction and quality of the patient-clinician connection while receiving app-based telehealth treatment for OUD between patients residing in rural and nonrural areas.

Methods

We conducted a cross-sectional survey of adults in treatment for OUD at a telemedicine provider of addiction care offered across five U.S. states. Inclusion criteria for the survey required patients to (i) be at least 18 years old, (ii) have a clinical diagnosis of OUD, (iii) be enrolled in care with a valid zip code, and (iv) have completed an intake evaluation and a follow-up, group medical appointment.

To ensure a sufficient sample of patients residing in rural areas, we employed purposive sampling to balance participants residing in rural and nonrural (i.e., urban, suburban) areas. Patient zip codes were linked to Rural Urban Commuting Area (RUCA) codes with patients residing in areas with RUCA codes 4 through 10 considered rural residents.¹¹ Contact information for eligible patients was sourced from electronic health records, and patients were randomly selected within rural and nonrural sampling strata to receive a survey invitation. The 80-question survey was administered through JotForm, a web-based survey tool, and patients received invitations through email and text messages. Respondents who provided a unique email address received \$20 e-gift cards for their time and effort. A small number of duplicate responses

were identified using respondents' email addresses and survey time stamps, and the first submission per respondent was used for analysis. This study was approved as human subjects research through an independent institutional review board (Solutions IRB #0432).

The survey collected self-reported demographic information including age, gender, sexual orientation, insurance type, education, employment status, and health history including months in OUD treatment, years of opioid use, and other diagnosed substance use disorders and chronic health conditions. Respondents completed assessments on their satisfaction with care, connections with clinicians, experience of pharmacy barriers, and preferences for app-based virtual visits. Satisfaction with app-based treatment was assessed using the Telemedicine Satisfaction Questionnaire (TSQ), and connections with clinicians were evaluated with the Provider-Patient Depth of Relationship Questionnaire (PPDRQ).^{12,13} The TSQ and PPDRQ evaluate patient satisfaction and provider relationship quality through a series of statements that respondents rate by the level of agreement. Higher scores indicate greater satisfaction with telemedicine treatment (scale 1–5) and a deeper (vs. shallower) connection between clinicians and patients (scale 0–32) on the TSQ and PPDRQ, respectively. Questions to assess reasons to prefer telehealth treatment from the patient's perspective were adapted from Sugarman et al.¹⁰ Some survey questions collected data on demographics and the patient experience in telehealth OUD treatment that are outside the topic of this article and are not reported here. Means, medians, and frequencies with standard deviations and interquartile ranges were estimated to describe participant characteristics, satisfaction with care, and quality of their relationship with their clinician. Differences in assessment scores between participants in rural and nonrural areas were analyzed using *t*-tests, chi-squared tests, and Kruskal-Wallis equality-of-populations rank tests with a Bonferroni correction for multiple comparisons.

Results

As shown in *Table 1*, 601 patients responded to the survey out of 1,800 patients invited to participate (response rate: 33.4%). Respondents had an average age of 41.44 years \pm 8.6 (standard deviation [SD]), and 59.9% identified as women ($n = 360$). Approximately 90% of respondents identified as White and 7.0% identified as Hispanic/Latino. Over 60% of participants had been in treatment for OUD for at least a year ($n = 358$). Individuals residing in rural areas were more likely to report concurrent stimulant use disorder (19.9% vs. 12.3%) or a depression diagnosis (73.8% vs. 63.0%) compared to respondents in nonrural areas (*Table 1*).

Table 1. Demographic and Health Characteristics of Adults Receiving Telemedicine Treatment for Opioid Use Disorder				
CHARACTERISTIC	ALL PARTICIPANTS N (%) 601 (100%)	RURAL N = 301 (50.1%)	NONRURAL N = 300 (49.9%)	P VALUE
Age* [mean (SD)]	41.44 (8.597)	40.98 (8.473)	41.90 (8.709)	0.189
Gender				
Man	236 (39.3%)	111 (36.9%)	125 (41.7%)	0.088
Woman	360 (59.9%)	188 (62.5%)	172 (57.3%)	
Transgender woman	3 (0.5%)	0 (0.0%)	3 (1.0%)	
Nonbinary/gender queer	2 (0.3%)	2 (0.7%)	0 (0.0%)	
Sexual orientation*				
Bisexual	36 (6.1%)	18 (6.0%)	18 (6.1%)	0.850
Gay	6 (1.0%)	4 (1.3%)	2 (0.7%)	
Heterosexual or straight	545 (91.8%)	274 (91.6%)	271 (91.9%)	
Lesbian	7 (1.2%)	3 (1.0%)	4 (1.4%)	
Race*				
Asian	1 (0.2%)	0 (0.0%)	1 (0.3%)	0.027
Black	17 (2.9%)	3 (1.0%)	14 (4.8%)	
Native American or Alaska Native	2 (0.3%)	2 (0.7%)	0 (0.0%)	
Two or more races	37 (6.3%)	21 (7.0%)	16 (5.5%)	
White	534 (90.4%)	272 (91.3%)	262 (89.4%)	
Hispanic/Latino*	40 (7.0%)	17 (5.8%)	23 (8.1%)	0.288
In a relationship*	347 (58.0%)	187 (62.3%)	160 (53.7%)	0.032
Education*				
Some high school	66 (11.0%)	35 (11.6%)	31 (10.4%)	0.024
High school diploma	242 (40.4%)	128 (42.5%)	114 (38.3%)	
Some college	172 (28.7%)	83 (27.6%)	89 (29.9%)	
Associate's degree or trade school	79 (13.2%)	45 (15.0%)	34 (11.4%)	
Bachelor's degree	34 (5.7%)	9 (3.0%)	25 (8.4%)	
Graduate degree	6 (1.0%)	1 (0.3%)	5 (1.7%)	
Nicotine use				
Current use	521 (86.7%)	267 (88.7%)	254 (84.7%)	0.340
Past use	55 (9.2%)	23 (7.6%)	32 (10.7%)	
No past or current use	25 (4.2%)	11 (3.7%)	14 (4.7%)	
Cannabis use disorder	50 (8.3%)	29 (9.6%)	21 (7.0%)	0.242
Stimulant use disorder	97 (16.1%)	60 (19.9%)	37 (12.3%)	0.011
Alcohol use disorder	82 (13.6%)	44 (14.6%)	38 (12.7%)	0.486
Anxiety diagnosis	439 (73.0%)	226 (75.1%)	213 (71.0%)	0.259
Depression diagnosis	411 (68.4%)	222 (73.8%)	189 (63.0%)	0.005
continued →				

Table 1. Demographic and Health Characteristics of Adults Receiving Telemedicine Treatment for Opioid Use Disorder *continued*

CHARACTERISTIC	ALL PARTICIPANTS N (%) 601 (100%)	RURAL N = 301 (50.1%)	NONRURAL N = 300 (49.9%)	P VALUE
Length of time in treatment*				
Less than 1 month	3 (0.5%)	2 (0.7%)	1 (0.3%)	0.123
1–2 months	25 (4.3%)	12 (4.1%)	13 (4.5%)	
3–5 months	86 (14.8%)	35 (11.9%)	51 (17.7%)	
6–11 months	110 (18.9%)	53 (18.0%)	57 (19.8%)	
12–17 months	77 (13.2%)	41 (13.9%)	36 (12.5%)	
18–23 months	60 (10.3%)	38 (12.9%)	22 (7.6%)	
24–29 months	73 (12.5%)	34 (11.6%)	39 (13.5%)	
30–36 months	82 (14.1%)	38 (12.9%)	44 (15.3%)	
36+ months	66 (11.3%)	41 (13.9%)	25 (8.7%)	

* Denotes means and frequencies provided only for subset of respondents with available data.
SD, standard deviation.

The most common reasons patients reported preferring telehealth OUD treatment to in-person programs emphasized the convenience and privacy offered by telehealth (Table 2). The most prevalent reason for preferring telehealth was a lack of time to attend in-person visits (“I do not have enough time to attend in-person visits,” 42.3%, $n = 254$), followed by greater privacy in telehealth than in-person visits (“I feel like I have more privacy than I do with

in-person appointments,” 41.8%, $n = 251$) and a lack of flexibility in work schedules for in-person appointments (“My work schedule isn’t flexible enough for in-person visits,” 40.8%, $n = 245$). Participants in rural areas were more likely to prefer telehealth to in-person treatment due to a lack of clinicians in their local area compared to patients in nonrural areas (“There are no available providers in my local area,” 33.2% vs. 13.3%, $p < 0.001$).

Table 2. Reasons for Preferring Telehealth Treatment for Opioid Use Disorder by Rurality

REASON	ALL PARTICIPANTS	RURAL	NONRURAL	P VALUE
I do not have enough time to attend in-person visits.	254 (42.3%)	128 (42.5%)	126 (42.0%)	0.896
I feel like I have more privacy than I do with in-person appointments.	251 (41.8%)	125 (41.5%)	126 (42.0%)	0.907
My work schedule isn’t flexible enough for in-person visits.	245 (40.8%)	130 (43.2%)	115 (38.3%)	0.226
I do not have transportation to in-person visits.	208 (34.6%)	103 (34.2%)	105 (35.0%)	0.841
It takes too long for me to get an in-person appointment.	204 (33.9%)	114 (37.9%)	90 (30.0%)	0.042
There are no available providers in my local area.	140 (23.3%)	100 (33.2%)	40 (13.3%)	<0.001
I do not feel comfortable with the providers in my local area.	138 (23.0%)	67 (22.3%)	71 (23.7%)	0.682
I do not have childcare.	90 (15.0%)	51 (16.9%)	39 (13.0%)	0.176
The providers in my local area do not accept my insurance.	59 (9.8%)	29 (9.6%)	3 (10.0%)	0.880

Table 3. Respondent Scores on the Telemedicine Satisfaction Questionnaire by Rurality

STATEMENT	ALL PARTICIPANTS (<i>n</i> = 601) MEAN (SD)	RURAL (<i>n</i> = 301) MEAN (SD)	NONRURAL (<i>n</i> = 300) MEAN (SD)	P VALUE
Total score	4.51 (0.694)	4.47 (0.773)	4.55 (0.603)	0.157
Factor: Quality of care provided	4.54 (0.685)	4.50 (0.763)	4.59 (0.596)	0.142
I do not need assistance while using the app.	4.35 (0.956)	4.26 (1.070)	4.44 (0.818)	0.018
I feel the health care provided via telemedicine is consistent.	4.54 (0.836)	4.49 (0.908)	4.593 (0.755)	0.136
I obtain better access to health care services by use of telemedicine.	4.46 (0.859)	4.39 (0.944)	4.53 (0.760)	0.039
I do receive adequate attention.	4.48 (0.947)	4.47 (0.964)	4.48 (0.931)	0.847
Telemedicine provides for my health care needs.	4.54 (0.793)	4.52 (0.855)	4.57 (0.726)	0.424
I find telemedicine an acceptable way to receive health care services.	4.62 (0.782)	4.60 (0.861)	4.65 (0.695)	0.446
I will use telemedicine services again.	4.71 (0.699)	4.67 (0.800)	4.75 (0.578)	0.166
Overall, I am satisfied with the quality of the service being provided via telemedicine.	4.65 (0.755)	4.64 (0.820)	4.67 (0.685)	0.602
Factor: Similarity to face to face care	4.47 (0.780)	4.43 (0.852)	4.51 (0.701)	0.216
I can easily talk to my health care provider.	4.36 (1.062)	4.35 (1.096)	4.37 (1.028)	0.778
I can hear my health care provider clearly.	4.48 (0.949)	4.43 (1.019)	4.53 (0.871)	0.205
My health care provider is able to understand my health care condition.	4.45 (0.948)	4.41 (1.005)	4.49 (0.886)	0.313
I can see my health care provider as if we met in person.	4.35 (0.979)	4.30 (1.014)	4.40 (0.940)	0.178
Telemedicine saves me time traveling to a hospital or a specialist clinic.	4.73 (0.713)	4.68 (0.806)	4.77 (0.604)	0.141
Factor: Perception of the interaction				
I feel comfortable communicating with my health care provider.	4.48 (0.916)	4.44 (0.984)	4.51 (0.844)	0.340

Individual constructs were rated by respondents on a scale of 1–5.

SD, Standard Deviation.

Participants reported a mean overall score of 4.51 ± 0.694 and a median score of 4.79 (Interquartile Range: 4.29–5) on the TSQ on a scale of 1–5, indicating patients in telehealth treatment for OUD were highly satisfied with their care experience (Table 3; Supplementary Table S1). The mean overall score on the TSQ among patients in rural areas was 4.47 ± 0.773 , while the mean overall score by respondents in nonrural areas was slightly higher at 4.55 ± 0.603 , although the difference was not statistically significant ($p = 0.157$). There were also no significant

differences in individual factor scores on the TSQ between rural and nonrural participants. The factor with the highest level of agreement among respondents was “Telemedicine saves me time traveling to a hospital or a specialist clinic” with a mean score of 4.73 ± 0.713 , while the factor with the lowest level of agreement was “I do not need assistance while using the app” with a mean score of $4.35 \pm (0.956)$.

On the PPDRQ with a scale ranging from 0 to 32, the mean score was 27.17 ± 5.633 among participants in rural areas and

Table 4. Respondents Scores on the Provider–Patient Depth of Relationship Assessment

STATEMENT	ALL PARTICIPANTS (<i>n</i> = 601) MEAN (SD)	RURAL (<i>n</i> = 301) MEAN (SD)	NONRURAL (<i>n</i> = 300) MEAN (SD)	P VALUE
Provider–Patient Depth of Relationship Questionnaire	27.12 (5.633)	27.17 (5.633)	27.06 (5.641)	0.812
I know this medical provider very well.	3.00 (1.054)	3.03 (1.023)	2.97 (1.086)	0.463
This medical provider knows me as a person.	3.17 (1.039)	3.24 (0.995)	3.10 (1.079)	0.109
This medical provider really knows how I feel about things.	3.14 (0.994)	3.16 (0.994)	3.12 (0.994)	0.627
I know what to expect with this medical provider.	3.45 (0.821)	3.44 (0.841)	3.46 (0.802)	0.749
This medical provider really cares for me.	3.37 (0.903)	3.35 (0.914)	3.40 (0.892)	0.546
This medical provider takes me seriously.	3.63 (0.699)	3.63 (0.722)	3.64 (0.676)	0.743
This medical provider accepts me the way I am.	3.69 (0.685)	3.66 (0.720)	3.73 (0.648)	0.241
I feel totally relaxed with this medical provider.	3.65 (0.693)	3.66 (0.681)	3.64 (0.706)	0.709
Additional constructs				
This medical provider respects my cultural background and needs.	3.61 (0.846)	3.59 (0.866)	3.62 (0.827)	0.610

Individual constructs were rated by respondents on a scale of 0–4.

SD, Standard Deviation.

27.06 ± 5.641 among participants in nonrural areas with no significant differences ($p = 0.812$), indicating patients overall experienced a deep connection with their telehealth OUD providers. The median overall score on the PPDRQ was 29 with an interquartile range of 25–32, similarly representing a deep connection between patients and providers (Supplementary Table S2). Individual factors were rated on a scale of 0–4, and all individual factors received mean scores between 3 and 4 (Table 4). The statement “I know this medical provider very well” received the lowest individual agreement score with a mean of 3.00 ± 1.054 . Statements indicating patients felt accepted and respected by their provider received high individual agreement scores with “This medical provider accepts me the way I am” as the highest with a mean score of 3.69 ± 0.685 .

Discussion

Our study examined patient preferences for and satisfaction with telehealth treatment for OUD and the strength of the clinician–patient relationship between patients living in rural and nonrural areas. Overall, there were no differences in

patients’ perceived connection with clinicians and satisfaction with care between patients in rural areas compared to nonrural areas. Rather, patients expressed high satisfaction with telehealth OUD care and reported establishing a positive connection with their clinicians regardless of geographic rurality. These findings were consistent using means and medians to account for potential ceiling effects in high scores on the TSQ and PPDRQ.

Prior qualitative studies among patients with OUD using telehealth have reported decreasing time to care, reducing transportation needs, and preventing social stigma as advantages of telehealth.^{14,15} Similarly, we identified that patients across rural and nonrural areas receiving telehealth treatment for OUD preferred telehealth to in-person care due to its convenience for them. Of the five most commonly reported reasons for using telehealth, four reasons emphasized convenience: telehealth saved time compared to in-person appointments, adapted to work schedules, accommodated transportation needs, and reduced wait times.

However, patients were also less likely to agree that they knew their provider well and that their provider understood

them well. Fully virtual care limits nonverbal cues such as body language between patients and their care team members.⁹ Teaching communication techniques for virtual environments to clinicians could help engage patients as individuals during virtual visits and foster greater connection.¹⁶ Additionally, on the TSQ, patients were less likely to agree with statements that they could see and talk to their provider clearly and use the app without assistance. Telehealth platforms for OUD treatment could be enhanced by user-centered design emphasizing simple interfaces and prioritizing capabilities for communication. These findings are consistent with several studies, which encourage careful consideration of vulnerable populations, such as those with substance use disorders, when designing telemedicine technologies.¹⁷

Approximately 90% of respondents identified as White in this study and other racial and ethnic groups were underrepresented despite higher OUD prevalence in these populations.^{18,19} Our findings provide limited insight into satisfaction with telehealth OUD treatment among individuals identifying as Black, Asian, and Native American, and may not be generalizable to these populations. Other studies have found greater racial diversity in nonrural communities, and the 2023 National Survey on Drug Use and Health reported no significant differences in the reported uptake of telehealth substance use treatment by race and ethnicity.^{20,21} Future research should prioritize understanding barriers and facilitators to the use of telehealth OUD care among underrepresented racial and ethnic groups to improve engagement.

Despite limitations, our study corroborates previous work highlighting patient satisfaction with telehealth OUD treatment^{10,15} and illuminates that the convenience and flexibility in telehealth models support patients whose resources, responsibilities, or residence limit in-person treatment opportunities. The acceptability of telehealth OUD treatment presents an opportunity to expand OUD treatment in the United States. As the Drug Enforcement Administration considers how to implement a new rule authorizing telehealth buprenorphine prescribing for 6 months without an in-person visit, policymakers should prioritize the creation of a clear process to provide long-term prescriptive authority to telemedicine OUD providers, thus expanding access to OUD care for patients.²²

Conclusions

Patients across rural and nonrural areas in telehealth treatment for OUD are highly satisfied with their care experience and appreciate the increased flexibility offered by telehealth. Telehealth providers of OUD treatment can continue to strengthen telehealth care models by leveraging technological

enhancements for video and audio communication and emphasizing personalized approaches to patient care.

Acknowledgments

The authors would like to acknowledge Alaine Sepulveda and Jaclyn Jutras for their support in organizing survey implementation and data collection.

Authors' Contributions

L.H.: Conceptualization, methodology, data collection, software, formal analysis, writing—original draft, and writing—review and editing. A.O.: Conceptualization, methodology, data collection, and writing—review and editing. M.C.L.: Conceptualization, methodology, data collection, formal analysis, writing—review and editing, funding acquisition, and supervision. E.B.: Conceptualization, methodology, and writing—review and editing. C.J.: Conceptualization, methodology, writing—review and editing, and funding acquisition. M.J.C.: Conceptualization, methodology, writing—review and editing, and funding acquisition.

Disclosure Statement

M.J.C., E.B., and M.C.L. hold equity interests in Workit Health. M.J.C. receives author royalties from UpToDate and Medlink Neurology. L.H., A.O., and C.J. have no conflicts of interest to disclose.

Funding Information

This work was supported by grant #HB1RH49881 from the Health Resources and Services Administration.

Supplementary Material

Supplementary Table S1

Supplementary Table S2

REFERENCES

1. Substance Abuse and Mental Health Services Administration. Key Substance Use and Mental Health Indicators in the United States: Results from the 2022 National Survey on Drug Use and Health. NSDUH Series H-58. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration; 2023.
2. Morgan JR, Schackman BR, Leff JA, et al. Injectable naltrexone, oral naltrexone, and buprenorphine utilization and discontinuation among individuals treated for opioid use disorder in a United States commercially insured population. *J Subst Abuse Treat* 2018;85:90–96; doi: 10.1016/j.jsat.2017.07.001
3. Lira MC, Jimes C, Coffey MJ. Retention in telehealth treatment for opioid use disorder among rural populations: A Retrospective Cohort Study. *Telemed J E Health* 2023;29(12):1890–1896; doi: 10.1089/tmj.2023.0044
4. Hammerslag LR, Mack A, Chandler RK, et al. Telemedicine buprenorphine initiation and retention in opioid use disorder treatment for medicaid enrollees. *JAMA Netw Open* 2023;6(10):e2336914; doi: 10.1001/jamanetworkopen.2023.36914
5. Jones CM, Han B, Baldwin GT, et al. Use of medication for opioid use disorder among adults with past-year opioid use disorder in the US, 2021. *JAMA Netw Open* 2023;6(8):e2327488; doi: 10.1001/jamanetworkopen.2023.27488

6. Stopka TJ, Estadt AT, Leichtling G, et al. Barriers to opioid use disorder treatment among people who use drugs in the rural United States: A qualitative, multi-site study. *Soc Sci Med* 2024;346:116660; doi: 10.1016/j.socscimed.2024.116660
7. Franz B, Dhanani LY, Miller WC. Rural-urban differences in physician bias toward patients with opioid use disorder. *Psychiatr Serv* 2021;72(8):874–879; doi: 10.1176/appi.ps.202000529
8. Orrange S, Patel A, Mack WJ, et al. Patient satisfaction and trust in telemedicine during the COVID-19 pandemic: Retrospective Observational Study. *JMIR Hum Factors* 2021;8(2):e28589; doi: 10.2196/28589
9. Andreadis K, Muellers K, Ancker JS, et al. Telemedicine impact on the patient-provider relationship in primary care during the COVID-19 pandemic. *Med Care* 2023;61(Suppl 1):S83–S88; doi: 10.1097/MLR.0000000000001808
10. Sugarman DE, Busch AB, McHugh RK, et al. Patients' perceptions of telehealth services for outpatient treatment of substance use disorders during the COVID-19 pandemic. *Am J Addict* 2021;30(5):445–452; doi: 10.1111/ajad.13207
11. U.S. Department of Agriculture Economic Research Service. USDA Rural-Urban Commuting Area Codes—Documentation. n.d. Available from: <https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/documentation/> (last accessed: December 9, 2024).
12. Yip MP, Chang AM, Chan J, et al. Development of the Telemedicine Satisfaction Questionnaire to evaluate patient satisfaction with telemedicine: A preliminary study. *J Telemed Telecare* 2003;9(1):46–50; doi: 10.1258/135763303321159693
13. Ridd MJ, Lewis G, Peters TJ, et al. Patient-doctor depth-of-relationship scale: Development and validation. *Ann Fam Med* 2011;9(6):538–545; doi: 10.1370/afm.1322
14. Wyte-Lake T, Cohen DJ, Williams S, et al. Patients' and clinicians' experiences with in-person, video, and phone modalities for opioid use disorder treatment: A Qualitative Study. *J Gen Intern Med* 2024;39(12):2179–2186; doi: 10.1007/s11606-023-08586-6
15. Sousa JL, Raja P, Huskamp HA, et al. Perspectives of patients receiving telemedicine services for opioid use disorder treatment: A qualitative analysis of user experiences. *J Addict Med* 2022;16(6):702–708; doi: 10.1097/ADM.0000000000001006
16. White SJ, Nguyen AD, Roger P, et al. Tailoring communication practices to support effective delivery of telehealth in general practice. *BMC Prim Care* 2024; 25(1):232; doi: 10.1186/s12875-024-02441-1
17. Talal AH, Sofikitou EM, Jaanimägi U, et al. A framework for patient-centered telemedicine: Application and lessons learned from vulnerable populations. *J Biomed Inform* 2020;112:103622; doi: 10.1016/j.jbi.2020.103622
18. Ali MM, Creedon T, Bagalman E, et al. Substance Use and Substance Use Disorders by Race and Ethnicity, 2015–2019 (Issue Brief). U.S. Department of Health and Human Services Office of Minority Health Office of the Assistant Secretary for Planning and Evaluation: Washington, DC; 2023.
19. Nedjat S, Wang Y, Eshtiaghi K, et al. Is there a disparity in medications for opioid use disorder based on race/ethnicity and gender? A systematic review and meta-analysis. *Res Social Adm Pharm* 2024;20(3):236–245; doi: 10.1016/j.sapharm.2023.12.001
20. Zahnd WE, Hung P, Crouch EL, et al. Health care access barriers among metropolitan and nonmetropolitan populations of eight geographically diverse states, 2018. *J Rural Health* 2025;41(1):e12855; doi: 10.1111/jrh.12855
21. Substance Abuse and Mental Health Services Administration. Key Substance Use and Mental Health Indicators in the United States: Results from the 2023 National Survey on Drug Use and Health. HSDUH Series H-59. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration; 2024.
22. Drug Enforcement Administration, Department of Health and Human Services. Expansion of Buprenorphine Treatment via Telemedicine Encounter. 2025. Available from: <https://www.federalregister.gov/documents/2025/01/17/2025-01049/expansion-of-buprenorphine-treatment-via-telemedicine-encounter> (last accessed: February 2, 2025).

Address correspondence to:
Marlene C. Lira, MPH
Director of Research
Workit Health
3300 Washtenaw Avenue
Suite 280
Ann Arbor
Michigan 48104
USA

E-mail: mlira@workithealth.com

Received: December 17, 2024

Revised: March 4, 2025

Accepted: March 5, 2025

Online Publication Date: March 27, 2025