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Examining use of telehealth in jails: linking women to community OUD services



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Abstract

Background Opioid use disorder (OUD) remains a significant health care need for women, particularly those involved in the criminal legal system (CLS). There are no studies to date that focus on the utilization of telehealth as a platform for assessment and linkage to medications to treat opioid use disorder (MOUD) at community re-entry for women, despite the fact that women have unique risk factors that may contribute to opioid relapse in the community. The purpose of this mixed-methods study is to provide an overview of the innovative use of telehealth for linking incarcerated women to community MOUD treatment in the Kentucky-hub of the Justice Community Opioid Innovation Network (JCOIN).

Methods This study incorporates qualitative and quantitative data collection with MOUD providers, recovery staff involved in peer navigation services, and women who are incarcerated to understand perceptions of the use of telehealth prior to jail release as a linkage to community services.

Results Findings from this study suggest overall support for the use of telehealth between community MOUD treatment providers and women who are incarcerated using videoconferencing technology. On average, there was very little variation in provider favorable feedback related to clinical engagement or in face-to-face comparability, as well as how telehealth allowed the participant to discuss personal and sensitive issues during the clinical assessment.

Conclusions Study findings suggest benefits associated with the use of telehealth in increasing access to treatment for women with OUD. Jails are critical venues for telehealth interventions because they provide the opportunity to reach women who have been actively using illicit substances, often have advanced-stage substance use disorders which have compromised their health and mental health, and often have not been previously identified as needing treatment.

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Keywords Women, Opioid use disorder, Jails, Telehealth

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The need for treatment for opioid use disorder (OUD) remains high in the United States (U.S.) with prevalence rates suggesting OUD affects the health of roughly 7 million adults and adolescents [1, 2]. Among individuals who engage in high-risk, chronic opioid use, correlates of OUD diagnosis include using opioids at an early age, being from a rural area, a lower socioeconomic status, and psychological distress [3]. Rates of OUD are fueled by misuse of both prescription opioids [4] and street opioids such as heroin [5] and/or fentanyl [6], all of which have led to increases in the opioid overdose death rate [7]. In addition, most individuals with OUD also engage in polysubstance use [8], which can further increase the risk of overdose [9].

Best practices in the treatment of OUD have been well established [10], including (1) screening within health care settings such as primary care or emergency rooms, (2) targeted assessment to determine criteria consistent with OUD as defined by tools such as the Diagnostic and Statistical Manual (DSM), (3) determining the needed level of care consistent with American Society of Addition Medicine (ASAM) guidelines, (4) targeted acute management of withdrawal symptoms and overdose risk, and (5) treatment with one of three Food and Drug Administration (FDA) approved forms of medication (naltrexone, buprenorphine, or methadone). While the use of medications to treat OUD (MOUD) has grown steadily in the general population in recent years [2], uptake remains generally low with only about one in five individuals with OUD receiving MOUD [11]. MOUD also remains underutilized among individuals in criminal legal system (CLS) settings like jails and prisons [12–14], which may be attributed to systemic barriers to MOUD implementation in carceral settings.

Research on OUD treatment among individuals involved in the CLS is critical because rates of OUD among this population are considerably higher than in the general population [15]. MOUD initiation in carceral settings prior to release has demonstrated successes in the community after release with reductions in relapse to opioid use and subsequent overdose [16]. Of correctional facilities that utilize MOUD, most do so for care for pregnant women, for management of chronic pain, or for detoxification [12, 17-20]. Additionally, individuals on community supervision are also less likely to access MOUD treatment [12]. Continuity of MOUD treatment has also been noted as a challenge among individuals who initiate MOUD during custody, even in treatment-dense urban areas where services are more available [21-23]. This is important due to increased overdose risk among individuals who are incarcerated associated with tolerance loss and non-stable social recovery networks [24, 25]. Thus, it is critical to consider linkages to treatment as individuals with a history of OUD prepare to transition from carceral settings to the community, particularly in institutions which have not implemented MOUD during incarceration.

The majority of research on opioid treatment during incarceration has focused on men, despite studies showing that women may be uniquely susceptible to the development of OUD due to increased sensitivity to pain, overprescribing practices by physicians, self-medicating due to mental health issues, and a faster biological trajectory from exposure to opioids and other substances to the development of a use disorder [26-30]. One study found that the overdose death rate associated with any opioids among women rose 492% between 1999 and 2017 [31]. While national data suggests a higher overdose death rate among men compared to women [32], the gender gap is more narrow among individuals re-entering the community from correctional settings [33]. Yet, Moore and colleagues [34] reported that, in a review of quasi-experimental or randomized controlled trials of all three forms of FDA-approved OUD medications in jails and prisons, males comprised between 60% and 100% of study samples, and only one study focused exclusively on women. Research is needed on increasing OUD treatment access to improve the health of women who are incarcerated, both during custody and upon community re-entry, including more innovative uses of telehealth.

Telehealth has been used as a viable platform for extending services to individuals who have significant barriers to accessing care, including people who are incarcerated [35]. Studies have also demonstrated that telehealth is a cost-efficient linkage option for specialty services, including mental health services, for individuals in jails and prisons [36, 37] and on community supervision [38, 39]. In addition, research examining the efficacy of telehealth in delivery of MOUD and related services has shown no difference in rates of relapse, days of abstinence, and treatment retention compared to face-to-face treatment [40–42]. Telehealth has also been shown to increase access to MOUD [43, 44].

There are no studies to date that focus on the utilization of telehealth as a platform for MOUD assessment and linkage to community treatment for women who are incarcerated, despite the fact that women have unique risk factors that may contribute to opioid relapse in the community [26–30]. Johnson and colleagues [45] demonstrated the feasibility of a phone-based intervention for women with co-occurring substance use disorders and depression who started the intervention in prison and continued to work with healthcare providers during community re-entry. While results indicated feasibility of the intervention, they also highlighted the critical importance of familiar, nonjudgemental relationships following release, especially among women who may tend to isolate when facing stress/adversity upon community re-entry [45]. Re-entry can be a stressful, chaotic time, and telehealth has the potential to increase support and linkage to treatment for women during community transition, yet studies on the feasibility and acceptability of this approach during re-entry are limited. No research to date has examined whether or not individual-level characteristics may have played a role in the quality of those relationships during the re-entry process.

While the literature demonstrates the viability of telehealth as a platform for service delivery, the use of telehealth for assessment and treatment planning prior to jail release for women with a history of OUD has been limited. The purpose of this mixed-methods study is to provide an overview of the innovative use of telehealth for linking women with OUD to community MOUD treatment through the PreTreatment Telehealth protocol used in the Kentucky-hub of the Justice Community Opioid Innovation Network (JCOIN). In this JCOIN study, the PreTreatment Telehealth protocol was initiated prior to release from jail as an opportunity for assessment prior to entering community-based treatment services upon release. Specific analysis will focus on (1) describing perceptions of service providers (MOUD providers and recovery staff) on the feasibility and acceptability of using telehealth with this sample of women, and (2) identify participant characteristics as they relate to provider perceptions of telehealth utility.

Methods

Participants

Quantitative data was collected from women incarcerated in one of five jails in Kentucky (N=600) as part of a larger parent project under the NIH/NIDA funded JCOIN initiative [30, 46] between December 2020 and January 2024. To be eligible for the larger parent study, women must have endorsed criteria consistent with OUD during a screening session and be planning for jail release within 7–60 days [46].

Qualitative and quantitative data was also collected from MOUD providers (n=4), who conducted psychosocial assessment sessions via telehealth with women in jail. All MOUD providers were women, had master's or doctoral-level training in behavioral health services, and worked for agencies that provided comprehensive substance use disorder services (including MOUD) and mental health treatment. MOUD providers were selected based on their agency's location in proximity to the jail, their agency's offering of community MOUD treatment and other substance use disorder (SUD) services, and willingness to designate one provider for the JCOIN Pre-Treatment Telehealth protocol.

In addition, qualitative data was collected from recovery staff (N=5), including peer navigators (n=3; all women) and their supervisors (n=2; all men), all of whom were employed by a local recovery community organization. Peer navigators met with women before release for re-entry planning and linkage to MOUD treatment in the community and had many key factors in common with study participants -- all peers were women, identified as a person in recovery from OUD, had a history of OUD treatment, and had a history of involvement with the CLS [47].

Measures

General telehealth perceptions. To address the first study objective, general telehealth perceptions were assessed for feasibility and acceptability through a series of semistructured gualitative interviews with MOUD providers and recovery staff. A summary of measures and data collection by study phase is included in Table 1. Research staff (all women) interviewed both providers and recovery staff approximately halfway through study data collection (50% of experimental enrollment) to assess general perceptions of the use of telehealth for this analysis. In addition, using a Likert-type scale, MOUD providers and recovery staff responded to validated scale measures assessing the acceptability, appropriateness, feasibility, and desirability of telehealth as a means to conduct OUD assessments and pre-release planning with incarcerated women [48]. After each set of subscale items, providers and recovery staff were asked "can you tell me a little more about why you chose those responses?" to collect additional qualitative data about their ratings. Analyses for the present paper focus on these qualitative responses related to the acceptability, appropriateness, feasibility, and desirability of telehealth.

JCOIN participant characteristics. To address the second study objective, quantitative measures were collected from JCOIN participants to better understand individual-level factors which may influence telehealth

 Table 1
 Summary of study activities and data collection

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Study activity	Measures	Data collection		
Baseline data collection	Participant-level characteristics	Quantitative interviews with JCOIN study participants within a week following recruitment.		
PreTreatment Telehealth intervention	General telehealth perceptions	Semi-structured qualitative interviews with MOUD providers; Quantitative measures of telehealth feasibility and acceptability ⁴⁸		
	MOUD provider feedback	Quantitative measures of clinical engagement and FTF comparability		
Peer Navigation intervention	General telehealth perceptions	Semi-structured qualitative interviews with recovery staff		

session acceptability and feasibility. JCOIN participant characteristics included demographic information such as age, race/ethnicity (non-White=0, White=1), sexuality (sexual minority=0, heterosexual=1), and whether they were married or living as married prior to incarceration (PTI; not married/living as married=0, married/living as married=1). Women also reported their highest level of education (less than high school/GED=0, at least high school/GED=1), employment status PTI (unemployed=0, employed=1), area where they lived PTI (urban county=0, rural county=1, classified based on rural-urban continuum codes [49]), and specifically whether they lived in a designated Appalachian county PTI (non-Appalachian=0, Appalachian=1) [50].

Other characteristics included severity of opioid use prior to incarceration as measured by the DSM-5 OUD Checklist (range 0-11) [51] and NM-ASSIST (range 0-39) [52]. The DSM-5 OUD Checklist screened participants for severity of symptoms consistent with OUD in the 30-day PTI and 12-month PTI. The NM-ASSIST was split into two sections asking about the severity of opioid use in the 90 days before incarceration including both street opioids (e.g., heroin, fentanyl) and prescription opioids (e.g., oxycodone).

Mental health and past victimization experiences were also assessed as JCOIN participant characteristics. Questions were derived from the Global Appraisal of Individual Needs—Initial (GAIN-I) [53] mental and emotional health section and asked participants to report on past 12-month depressive symptoms (range 0–9), anxiety/fear-related symptoms (range 0-12), and traumatic stress symptoms (range 0-13). The number of symptoms reported were then summed for each scale, with higher scores indicating more serious symptom profiles. Experiences of lifetime victimization were measured using the GAIN General Victimization Scale (GAIN GVS) [53], which was also summed with higher scores indicating more severe lifetime victimization experiences. Regarding childhood stressful events, participants completed the Adverse Childhood Experiences Questionnaire (ACEs; summed items for number of experiences) [54]. For descriptions of each of these scales for the larger sample of JCOIN participants, see Annett and colleagues [55].

MOUD provider feedback. MOUD provider feedback on the telehealth clinical assessment session was assessed using a standardized feedback form (developed by clinical staff) completed at the end of each telehealth psychosocial assessment with each participant. The first section of this form consisted of 10 questions to ascertain *clinical engagement* – defined as how well the telehealth session facilitated rapport between the provider and participant as well as client engagement. Specifically, providers were asked, "During your session with the JCOIN participant today, how well did the use of telehealth facilitate your ability to do the following ... " Providers were then given a list of five characteristics of engagement in the psychosocial assessment and asked to rate each on a scale of 0 (not at all) to 10 (a great deal). Providers were also asked to rate five statements about how well they thought the use of telehealth facilitated participant engagement in the session, using a scale of 1-10 (1=very low, 10=very high; see Table 2). Responses to these 10 questions asking about perceptions of both provider and client engagement in the clinical assessment session were averaged to create a total *clinical engagement* score (α =0.98), where higher scores were indicative of more engagement from both the provider and the client, as well as supportive, favorable ratings of the use of telehealth to achieve engagement.

The second section of the MOUD provider feedback form consisted of items to assess perceptions of comparability between telehealth and face-to-face (FTF) assessments, as well as the impact of technology issues on the assessment. To assess FTF comparability, providers were asked, "Overall, how would you compare your intake assessment today using telehealth with an intake assessment you typically conduct in a face-to-face interview?" Providers responded on a scale from 0 (not at all as good as face-to-face) to 10 (exactly as good as face-toface). Providers were then asked specifically about any technology issues that might have impacted the session including, "Overall, did any technical issues with the telehealth session today related to the technology, internet connection, or anything else impact the session?" (coded as 0=no, 1=yes). If providers responded yes, they were then asked, "If yes, to what extent did technology issues impact the overall assessment process using telehealth?" Providers responded on a scale from 1 (slightly) to 10 (extremely disruptive). Provider responses to these final two questions were combined into one item response (technology issues) for which providers who responded 'no' to the initial question about technical issues were coded as a '0' on the question asking about the extent of impact of technology issues on the assessment to minimize missing data.

Procedure

Recruitment. A detailed overview of the larger JCOIN protocol and participant recruitment including random selection procedures can be found in Staton et al. [30] and Staton et al. [46] Women with a history of OUD who were incarcerated were randomly selected, screened either face-to-face or via Zoom[®] videoconferencing (depending on the jail's COVID-19 restrictions) for study inclusion criteria, and consented for research participation. Screening questions included the DSM-5 OUD Checklist and NM-ASSIST to assess opioid use severity

Table 2 Study participant characteristics

	M (SD)/%
Demographics	(/V-407)
Age (years; range 19–62)	37.2 (8.8)
Race (% White, non-Hispanic)	92.0%
Marital status (% married/cohabitating as married)	39.4%
Education level (% HS diploma/GED or more)	72.3%
Employment (% employed)	23.2%
Sexuality (% heterosexual)	75.6%
Lived in a rural county PTI (%)	73.9%
Lived in an Appalachian county PTI (%)	48.5%
OUD Severity	
OUD 12-month Score (range 0–11)	10.4 (1.3)
OUD 30-day Score (range 0–11)	9.8 (2.7)
NM-ASSIST Street Opioids (range 0–39)	26.1 (15.3)
NM-ASSIST Prescription Opioids (range 0–39)	29.5 (12.0)
Victimization and Mental Health	
ACEs (range 0–10)	5.0 (3.0)
GAIN Victimization (range 0–15)	7.7 (3.5)
GAIN Depressive symptoms (range 0–9)	6.4 (2.7)
GAIN Anxiety symptoms (range 0–12)	7.1 (3.2)
GAIN Traumatic Stress symptoms (range 0–13)	9.0 (4.0)

prior to incarceration. A NM-ASSIST opioid score of 4+ (identified as being at moderate risk with potential benefit from receiving an intervention) or a DSM-5 OUD Checklist score of 2+were used as the cutoff score for study enrollment. Following study screening and eligibility determination, participants were asked to complete baseline data collection to assess their lifetime and recent opioid use, high-risk behaviors such as injection drug use and history of non-fatal overdose, history of CLS involvement, mental health, and other family/social factors. Data collection took about 88 min on average (SD=28.8, range 30–221), and participants were paid \$45 for their time.

Random assignment. Following the baseline data collection, women were randomly assigned to one of two PreTreatment Telehealth intervention groups: (1) Pre-Treatment Telehealth Only (n=299), or (2) PreTreatment Telehealth+Peer Navigation (n=301). PreTreatment Telehealth was defined as the initial psychosocial assessment, MOUD education, and re-entry planning session conducted between a woman with a history of OUD who was currently incarcerated and a community MOUD treatment provider in preparation for jail release and community treatment engagement. In each intervention condition, the research coordinator worked closely with each provider and each jail facility to schedule the telehealth session based on the provider's clinical schedule and the availability of rooms at the jail. Sessions were also scheduled based on a priority of projected release dates from jail. Once a session was scheduled, the research coordinator forwarded study paperwork to the provider in preparation for the session which included screening assessment forms, baseline data collection summary report, locator form, an authorization for release of information, and other relevant agency intake forms.

Intervention delivery. Intervention sessions were scheduled within a week of baseline data collection (ranging from the same day of data collection to within 6 days after enrollment). On the day of the scheduled telehealth session, a JCOIN study staff member visited the jail, met the participant in the designated private office, and set up the computer and webcam for telehealth. In cases where facilities had a COVID-19 restriction protocol in place preventing staff from physically accessing the jail, designated jail staff would escort the participant to the room and set up the telehealth computer and camera and research staff would log on for the beginning of the remote session to facilitate a warm hand-off to the provider. In both types of cases, the participant was reminded about confidentiality before the telehealth session and no jail staff were present during the telehealth session. Headphones were also available upon participant request to ensure additional confidentiality.

PreTreatment Telehealth Only. In each intervention condition, the PreTreatment Telehealth session opened with an overview of agency services and a review of agency forms and documentation needed to ensure the woman could be enrolled as a client in community services upon her release from jail. Agencies were provided with a sample assessment form to confirm assessment content and verify consistency across agencies, but the content of the PreTreatment Telehealth session was purposefully not scripted. Providers were encouraged to complete their usual first appointment psychosocial assessment, which was the traditional standard of care at each of the agencies. Providers were asked to specifically assess any facilitating factors or barriers (Medicaid re-enrollment, other insurance coverage, transportation, childcare, etc.) that may affect the woman's participation in community services as part of re-entry planning. If providers became concerned about anything the participant reported during the assessment, they let participants know that they had the option to complete a medical release form to enable research staff to make a referral to the jail medical staff.

Providers closed the telehealth session with general education about MOUD and a transitional re-entry plan for accessing community services at the agency, including the first appointment day/time for after release. Locator information was verified to stay in touch with the participant following jail release, and the participant was encouraged to stay in touch with the provider following release to begin treatment in the community. Contact information for the provider and the agency, as well as a detailed referral guide for community resources, were left in the participant's property at the jail by JCOIN study staff to be available at release.

Peer Navigation. Participants in both study experimental conditions received PreTreatment Telehealth. In addition, women randomized to one experimental arm also had the opportunity to meet with a peer navigator via telehealth to assess re-entry needs and resources following release to facilitate treatment entry and to build recovery capital [47]. The overall goals of the JCOIN Peer Navigation sessions were to identify potential barriers and obstacles for sustaining recovery during the critical re-entry period from jail to the community and discuss strategies for linkage to treatment and recovery support services, as well as how peers could serve as mentors, guides, and companions to women during this transition. Telehealth sessions between the peer navigators and study participants were scheduled by the JCOIN research coordinator, and ideally scheduled right after the PreTreatment Telehealth sessions for convenience at the jail. Peer navigators were also sent participants' summary paperwork in advance of the session to prepare resources.

On the day of the scheduled telehealth appointment, peer navigators focused on two primary goals: (1) introduction and rapport building, and (2) orientation to the JCOIN Peer Navigation services. The peer navigator introduced herself as a person in long-term recovery who has "been there" and explained that she was a certified peer support specialist working with a recovery community organization. As appropriate, the peer navigator shared her own experience being in treatment, perhaps being on MOUD, or having been incarcerated, to build rapport. The peer navigator explained that she understood from personal experience that there are barriers to staying in recovery, but also supportive services that could help, and explained the plan for her to continue to work with the woman during community re-entry for 12 weeks.

Following the overview of JCOIN Peer Navigation Services, the peer pavigator talked with the participant about barriers and facilitating factors associated with recovery and goals once she is released from jail. During the session, participants typically selected up to three goals they deemed as most important upon re-entry and talked about short-term and long-term strategies to meet those goals. At the conclusion of the session, the peer navigator asked the participant if there was anything else she wanted to discuss prior to ending the session. If not, locator information was verified to stay in touch after jail release and resources following jail release were shared (either during the call and/or left in the participant's property to access after jail release).

Analytic plan

This study used a convergent mixed-methods approach, including simultaneous analysis of both qualitative and quantitative data, to describe an innovative telehealth intervention for linking incarcerated women with OUD with community MOUD treatment. To meet the first study objective (describe general perceptions of telehealth feasibility and acceptability among service providers), qualitative responses to the open-ended questions collected from MOUD providers and recovery staff at study mid-point (50% of enrollment complete) were analyzed using a deductive analysis approach [56] to specifically identify themes related to positive and negative perceptions of telehealth. Interview transcripts were reviewed by a graduate research assistant (MML) and staff scientist (MT). MML identified instances of positive and negative telehealth perceptions within transcripts and developed thematic groupings, which were reviewed by MT and the principal investigator (MS). Feedback from MT and MS was used to refine thematic groupings and selected quotations, which were used as the basis for the results presented below.

To meet the second study objective (participant-level characteristics as they relate to MOUD provider perceptions of clinical engagement and FTF comparability during the clinical assessment), descriptive statistics were first computed for all quantitative study variables of interest using univariate descriptive analyses in IBM SPSS 27.0. Of the 600 participants enrolled in the experimental arms of the larger parent study, 529 completed a telehealth session with a MOUD provider. Noncompletion was due to release (n=54) or transfer (n=7) before

the scheduled session or declining to meet with the provider (n=10). One additional participant completed a session but did not have a feedback form submitted from the provider. Missing data from completed forms were addressed using case-wise deletion, resulting in an additional 41 participants being excluded from analysis. The final sample for this analysis consisted of 487 participants.

Analyses examining the relationships between participant-level characteristics (including demographic, substance use, and mental health variables) and MOUD provider feedback scores used Spearman's rho and t-tests to assess bivariate associations, followed by two multivariate linear regression models. Multivariate models included only independent variables that were significant at the bivariate level. Results from preliminary ANOVA analyses indicated significant differences in clinical engagement and FTF comparability by MOUD provider and jail site (all p < .001). Thus, in both linear regression models, jail site, provider, and telehealth technology issues were included as controls to allow for examination of the independent contribution of participant-level factors on the dependent variables of clinical engagement (Model 1) and FTF comparability (Model 2). Issues of multicollinearity were assessed using variance inflation factors (VIFs). All VIFs were less than 4.1. Heteroscedasticity issues that arose for each regression model were corrected by applying robust standard errors. Influential cases were assessed using Cook's Distance, however no issues with influential cases were found.

Results

General perceptions of telehealth

The first study objective focused on general perceptions of the feasibility and acceptability of telehealth derived from qualitative analysis of study mid-point interviews with MOUD providers and recovery staff, including peer navigators. Perceptions of the use of telehealth included both the benefits and limitations in using telehealth to connect women incarcerated in jails with community treatment. General themes and illustrative quotes are summarized below on quality of clinical interactions using telehealth, technology challenges, and telehealth to increase access to treatment.

Quality of telehealth clinical interactions. Providers spoke to the issue of clinical interactions from both the perception of the clients, as well as their own perceptions as a provider. Some providers thought women who are incarcerated may be more comfortable with face-to-face interaction. For example, one recovery staff member stated, "Some people just feel more comfortable doing things in person, especially an older generation. [Staff #1]" In general, recovery staff believed that the provider would feel more connected to the woman or be able to

get a more complete clinical picture if they were seen inperson as opposed to on telehealth:

[Telehealth is] great, but then there's sometimes where I know like some people that they're not familiar with doing telehealth that makes them nervous. So I would think that maybe they might get their perception of how whatever's going on might be a little off, not really in person or something, you know, because things are looked at more than just what people are saying. [Staff #1]

Alternatively, providers and recovery staff described telehealth as good as, or even better than in-person appointments. One provider said that they "haven't heard from anybody that, 'Man, I wish I could have seen you face to face'. [Provider #1]" The perception that telehealth could be better at times than in-person meetings was also expressed by one provider as it specifically relates to telehealth for women during incarceration:

I also think that telehealth in women who are incarcerated, there is there is a sense of comfort and ease, because I'm not necessarily taking up their space or I'm not, you know, part of the system that is oppressing them or, you know, barring them from their life. I'm, you know, I think that I'm seeing as somebody who is part of the solution, so I think that's another added benefit to telehealth.[Provider #2].

This view was shared by a recovery staff member who felt this degree of comfort with telehealth compared to faceto-face may be related to women's history of SUD and shame:

I think about someone who is being asked to be vulnerable and talk about their SUD, their experiences, their cravings, their desires, and so for someone that maybe is not socially comfortable, or still has a lot of shame, it may be very easy, much easier for someone just to have it at a screen and a telehealth as opposed to be sitting one-on-one face to face and maybe feeling uncomfortable. [Staff #2]

Telehealth technology challenges. The use of telehealth requires reliance on technology for the provider to connect with clients, which can be significantly affected if the technology used is not reliable or stable. In this study, the ability to conduct the telehealth session was dependent upon functioning hardware (e.g., a laptop with a working webcam, microphone, and speaker) but also on stable internet access in the jail to conduct the videoconferencing session. One provider noted that internet connectivity issues could completely halt a meeting, stating, "I had one [participant] that just said just forget it, for that day [after connection issues caused the videovideo call to be disconnected; Provider #1]." Technology issues were relatively rare, but when they occurred, they were particularly problematic for participation incarcerated in rural communities:

I think the only issue that we really had was with [county jail] like their Internet. Because I mean, it's a rural community. So we've had like connection problems there, but they always work them out for us. [Staff #3]

As well as when continuing with community services post-release:

It [telehealth] does seem doable, but I think there might be... like, with people that are living out in [town]. One of the things was sometimes they don't have reception, and that can be a barrier as well. [Staff #4]

Telehealth as a tool to increase access to treatment Despite these noted issues with telehealth, providers and recovery staff overall viewed telehealth as a critical tool for reducing barriers to accessing needed treatment. This included barriers that occur for participants during incarceration, such as providers not being able to physically get inside of the jail. Two providers described these issues, with one stating.

[Telehealth is] more practical, you know, especially during COVID, it was difficult going into the jails. However, you know doing the telehealth, it was easier to see the participants and assess the participants. So I just, I feel like telehealth is an easier option then going into the different detention centers. [Provider #1]

A major barrier that was described by several providers and navigators outside of the jail setting was the lack of transportation upon release, which many stated was eliminated with the use of telehealth. One recovery staff described telehealth as a "game changer because you have people in rural areas that cannot get to one place. [Staff #3]" Another noted that telehealth not only eliminates the need for transportation, but it also reduces the amount of time needed to dedicate to getting to appointments:

Well, I think so many people come through the criminal justice system with opioid use disorder, right. That, you know, improving access to good quality evidence-based care. It's just it's paramount, really. And I think telehealth helps accomplish that. You might get people to log on way quicker than you can get somebody to get dressed or find transportation to come to an office. So, I think it's sort of an invaluable tool, I would imagine. [Staff #5]

Participant characteristics and provider perspectives

The second study objective focused on understanding the relationship between participant-level characteristics and MOUD provider perceptions of the use of telehealth in conducting the clinical assessment.

Participant-level characteristics. As shown in Table 2, participants were an average of 37.2 years old (SD=8.8) and a majority identified as White (92.0%). Most participants had attained a high school diploma or GED (72.3%), identified as heterosexual (75.6%), and lived in a rural county in the 90 days prior to their incarceration (PTI; 73.9%). About half of study participants (48.5%) reported living in a county designated as Appalachian. Only 39.4% of participants were married or living as married PTI and 23.2% were employed PTI.

Regarding opioid use severity before incarceration, participants scored an average of 10.4 (SD=1.3, range 1–11) on the 12-month OUD Checklist and 9.8 (SD=2.7, range 0–11) on the 30-day OUD Checklist. On the NM-ASSIST measures, participants scored an average of 26.1 (SD=15.3, range=0–39) on the street opioid scale and 29.5 (SD=12.0, range 0–39) on the prescription opioids scale. Lastly, incidences of victimization and mental health symptoms across categories were relatively high in the sample.

MOUD provider perceptions. Regarding scores on the provider perception feedback forms, there was very little variation between scale items (see Table 3). On average, providers' total scores on the clinical engagement scale were 9.0 (SD=1.2, range 0.7–10.0), suggesting very favorable ratings across each category. When asked to rate perceptions on FTF comparability in conducting the clinical assessment using telehealth, providers rated the telehealth assessments a 9.1 (SD=1.3, range 0–10) on average, indicating a high degree of perceived comparability to face-to-face assessment. Lastly, providers reported *very* little impact of technical issues on the overall assessment process (range 0–10; M=0.5, SD=1.7), with 91% of providers stating that there was no impact of technology issues on the session at all.

Bivariate relationships. Table 4 displays findings from the bivariate analyses to better understand the relationship between participant-level characteristics and provider perceptions of clinical engagement and FTF comparability using telehealth. Results indicate that ratings of clinical engagement were negatively associated with technology issues during the assessment (r_s =-0.19,

Table 3 Summary of items on provider feedback forms for telehealth assessment ratings

	M (SD)
	(N=487)
General MOUD Provider Feedback Questions	
Rate how well telehealth facilitated your ability to(range 0–10)	
Conduct the psychosocial assessment	9.1 (1.2)
Discuss sensitive topics	8.7 (1.5)
Establish rapport	8.9 (1.4)
Introduce stages of change talk	8.5 (1.7)
Obtain sufficient information to inform an OUD diagnosis	9.4 (1.0)
Rate the use of telehealth for facilitating the participant's (range1-10)	
Ability to talk about her problems	8.8 (1.4)
Ability to disclose critical historical information	8.8 (1.4)
Ability to provide evidence of OUD symptoms	9.4 (0.9)
Interest in OUD treatment	9.1 (1.2)
Openness to the possibility to change	9.1 (1.2)
Clincal Engagement Total score (range 0–10)	9.0 (1.2)
Telehealth-Related Questions	
Face-to-Face Comparability (range 0–10)	9.1 (1.3)
Technology Issues (range 0–10)	0.5 (1.7)

Table 4 Bivariate associations between client characteristics and provider telehealth ratings (N=487)

	Clinical Engagement		Face-to-Face Comparability	
	rho	t	rho	t
Techology Issues	-0.19***		-0.32***	
Age	0.01		-0.08	
Non-Hispanic White		-2.57*		2.62*
Married or cohabiting		-1.19		0.64
Have HS diploma/GED or more		0.61		-0.92
Employed PTI		2.22*		-5.40***
Heterosexual		-2.31*		2.20*
Rural county PTI		-4.00***		5.59***
Appalachian county PTI		-4.67***		7.46***
OUD 12-month Score	-0.04		-0.03	
OUD 30-day Score	0.06		-0.04	
NM-ASSIST Street Opioids Score	0.01		-0.04	
NM-ASSIST Prescription Opioids Score	0.03		-0.07	
ACEs	0.11*		0.07	
GAIN Victimization	0.13**		0.08	
GAIN Depressive Symptoms	0.01		-0.08	
GAIN Anxiety Symptoms	0.06		-0.06	
GAIN Traumatic Stress Symptoms	0.04		-0.08	

p*<.05; *p*<.01; ****p*<.001

p<.001), suggesting that when technology issues were present, the clinical engagement between the provider and client was negatively impacted. Providers rated the clincal engagement score as significantly higher when the participant was employed PTI (t[485]=2.22, p=.027). Clinical engagement scores were rated as significantly lower by the provider when the participant was white (t[51.2] = -2.57, p=.013), heterosexual (t[276.1] = -2.31, p=.022), living in a rural county PTI (t[485] = -4.00, p<.001), and living in an Appalachian area PTI (t[485] = -4.66, p<.001). High total scores on the clinical engagement ratings were also correlated with higher ACE scores (r_s = 0.11, p=.015) and higher GAIN victimization scores (r_s = 0.13, p=.004).

With regard to FTF comparability ratings, scores were significantly correlated with occurrences of technology issues (r_s =-0.32, p<.001), where experiencing more issues negatively impacted perceptions of FTF comparability. FTF comparability scores were rated as higher when the participant was employed PTI (t[327.7]=5.40, p<.001). Providers working with participants who were non-Hispanic White (t[50.8] = -2.62, p=.012),

heterosexual (t[281.1] = -2.20, p=.028) rated the telehealth assessments as less comparable to face-to-face assessments. In addition, living in a rural county PTI (t[287.8]=5.59, p<.001) and living in an Appalachian county PTI (t[472.8]=7.46, p<.001) were also significantly associated with lower FTF comparability scores.

Multivariate models. In the regression models, findings indicate that when controlling for jail site, MOUD provider, and the impact of technology issues, no participant-level factors remained significantly associated with the clinical engagement scale (see Table 5). The only participant-level factor that was significantly and uniquely associated with FTF comparability was employment PTI (B=0.22, p=.009), such that providers rated FTF comparability as higher when working wth participant who were employed PTI.

Discussion

The purpose of this mixed-methods study was to provide an overview of the innovative use of telehealth as a platform for linking incarcerated women with a history of OUD with medication treatment in the community through the JCOIN PreTreatment Telehealth protocol. Other studies have shown positive outcomes associated with telehealth use for women's treatment in the areas of obstetrics and maternal health, gynecology and reproductive health, disease management, and prevention [57-60]. Research has also shown significant promise for the use of telehealth to increase MOUD utilization and access [41]. However, to our knowledge, this is the first study to utilize telehealth for MOUD PreTreatment assessment and re-entry planning, including peer navigation, for women who are incarcerated and preparing for release -a vulnerable group of women with high rates of OUD and related health care needs.

The majority of women in this sample lived in a rural area prior to release. Telehealth has benefits for rural areas that may have limited access for face-to-face contact between a provider and a client. Early studies on the effectiveness of telehealth were done with rural populations since it addresses barriers to existing service delivery systems including availability, accessibility, and affordability of community treatment services [61-64]. Telehealth has historically demonstrated benefits to patients who do not have to commit to the time and expenses associated with traveling long distances for treatment, as transportation is a significant barrier for

treatment [65, 66]. Early studies in correctional settings also demonstrated the benefits of telehealth for individuals with substance use and mental health issues by providing a way to monitor progress on psychotropic medications and reducing the need for transport to distant clinics for specialty care services [67]. More recent research has futher demonstrated successful linkages to quality medical care and mental health treatment for correctional populations via telehealth [68, 69]. The utilization of telehealth increased considerably during the height of the COVID-19 pandemic [70], including the use of telehealth in jails to increase access to MOUD [71]. However, studies focused on the use of telehealth as a platform for re-entry planning and linkage to care for women have been limited.

treatment utilization among individuals in need of SUD

Findings from this study suggest overall support for the feasibility and acceptability of using telehealth between community MOUD treatment providers and women who are incarcerated with a history of OUD using videoconferencing technology. On average, there was strong support from providers for the use of telehealth to engage participants in the clinical assessment, and favorable perceptions of the use of telehealth compared to face-to-face sessions. Providers provided positive ratings associated with being able to relate to and build rapport with clients in the clinical assessment, as well as how telehealth allowed the participant to discuss personal and sensitive issues during the clinical assessment. Similarly, providers overall rated telehealth as being highly comparable to face-to-face assessment with the women. This theme was

	Clinical Engagement			Face-to-Fac	Face-to-Face Comparability		
	В	Robust SE	95% CI	B	Robust SE	95% CI	
Non-Hispanic White ^a	-0.01	0.15	-0.31, 0.28	0.05	0.10	-0.14, 0.24	
Employed PTI	0.07	0.11	-0.14, 0.28	0.22**	0.08	0.06, 0.37	
Heterosexual	-0.06	0.08	-0.22, 0.10	-0.13	0.07	-0.27, 0.01	
Rural county PTI	-0.15	0.17	-0.49, 0.19	-0.22	0.14	-0.49, 0.05	
Appalachian county PTI	0.15	0.23	-0.29, 0.60	0.14	0.21	-0.27, 0.55	
ACEs	0.03	0.02	-0.002, 0.06				
GAIN Victimization	0.03	0.02	-0.01, 0.07				
R ²	0.37			0.61			

Table 5 Multivariate models examining independent correlates of telehealth perceptions (N=487)

**p<.01

^a Multivariave models included jail site, MOUD provider, and technology issues as covariates which are not depicted in the table as their associations with clinical engagement and perceptions of face-to-face comparability were not of primary interest in the present study

consistent across both the quantitative and qualitative findings, with the nature of clinical interactions being interactive and engaging, which is consistent with previous findings for telehealth [72, 73].

One unique facet of this study is that women in jail were randomly selected for study participation and screened for OUD, but not necessarily interested in entering treatment. Women may have been in different stages of treatment readiness, which could have impacted perceptions of the clinical interaction. While findings support the feasibility of using telehealth in this capacity with women in jails, it may be important to consider treatment motivation as a critical factor for treatment engagement both pre- and post-release in future research on MOUD treatment linkage.

One issue that was raised across the findings was the impact of technology issues, which can be an important limitation in the delivery of telehealth. While not terribly common, when technology issues did arise, they had a negative impact on perceptions of the telehealth session. Technology issues associated with internet connectivity issues in the jail may have been affected by bandwidth for other activities in the jail, hardware limitations (e.g., old routers), reduced wireless signal in different areas within the jail (e.g., if telehealth sessions were conducted in rooms far from the jails' administrative offices, where internet would not typically be needed, separated by thick walls), or by limited capability for high-speed internet in some rural communities. Efforts were made to equip research staff with hot-spot internet access when needed (and available), which helped resolve some of the connectivity issues. This is a critical issue for future research since study data also indicated that connectivity issues can impact both provider and client perceptions of clinical engagement based on the nature of the session.

This study also identified certain characteristics of women that may be associated with differential engagement in telehealth interventions. In the quantitative analysis, several demographic differences were noted including lower perceptions of engagement with women from rural areas, but most of these differences went away when controlling for site and provider (except employment). This finding may be related to the fact that although providers delivering the telehealth assessment were all women, they may not have been from the same geographic area as some study participants. Previous work has suggested that when there is congruence between providers and clients in cultural references and language used in clinical interaction (particularly for rural clients), the perceptions of those interactions may be stronger [74, 75]. The finding that providers rated higher FTF comparability among employed women was not expected, does not appear to be a consistent finding in the literature, and should be explored in future Page 11 of 14

research. While telehealth provided the platform for clinical assessment and interaction, future research should also focus on provider and client characteristics which may influence the quality of clinical interventions delivered via telehealth.

This study did have noteworthy limitations. Study providers were purposefully selected as study partners due to their proximity to the jails and availability of services. Other than gender, no additional provider characteristics were collected. Their opinions and perceptions expressed here may have limited generalizability to other providers and peers in other areas serving other populations. Similarly, while women were randomly selected and screened for the larger parent study, they were housed in five jails in one southern state, mostly white, and mostly heterosexual - all factors which may limit generalizability to other samples of women. Perceptions related to technology issues may have also been influenced by the rural location of some of the jails, which should also be interpreted with that understanding. It is also important to note that there may have been several other contextual factors about conducting the session during incarceration that could have affected perceptions of clinical engagement - such as women's perception of confidentiality, security issues at the facilities, COVID lockdown procedures, and limited space in the jails which may be prioritized for attorney visits. Finally, while telehealth session feedback quantitative data collected from MOUD providers about their clinical assessment sessions, no analogous information was collected from peer navigators. Although qualitative data suggests there may be similarities in the benefits associated with telehealth use, these findings may not generalize to other types of service providers.

Conclusions

Despite these challenges, study findings demonstrate that providers of MOUD and other SUD treatment services perceive telehealth services as beneficial in increasing access to treatment for women in jails with OUD, particularly given that SUD treatment for women was not available in jails otherwise. Jails are critical venues for intervention because they provide the opportunity to reach women who have been actively using illicit substances, often have advanced-stage substance use disorders, have compromised health and mental health associated with use, and in many cases, have not been identified as needing treatment [76]. Jails are different from prisons and often lack the resources and staffing to provide specialty health and behavioral health services for women [76]. The use of telehealth to not only provide necessary services, but also linkages to community services upon release, provides a critical opportunity for women's healthwhich can increase opportunities for

service delivery among vulnerable, hard to reach populations in desparate need of services.

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Author contributions

M.S. conceptualized and designed the study. M.L. conducted study analysis and assisted with interpretation of the data and drafting sections of the manuscript. E.W. assisted with data acquisition and monitoring. C.O. contributed to the overall review of study findings and finalizing the manuscript draft. A.F. contributed to the overall review of study findings and finalizing the manuscript draft. M.D. contributed to the overall review of study findings and finalizing the manuscript draft. J.W. contributed to the overall review of study findings and finalizing the manuscript draft. C.L. contributed to the overall review of study findings and finalizing the manuscript draft. M.T. contributed to data acquisition, data analysis, overall review of study findings and finalizing the manuscript draft. All authors approved the submitted version of the manuscript. All authors agree to be accountable for their own contributions and to ensure that guestions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

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Data availability

The datasets generated and/or analyzed during the current study will be publicly available upon study completion through the JCOIN Data Commons/ HEAL Ecosystem, or upon request from the corresponding author.

Declarations

Ethics approval and consent to participate

This study was approved by full review of the University of Kentucky Institutional Review Board (Protocol #94958), in accordance with ethical standards established through the Belmont Report. The approved protocol included an informed consent form which was reviewed with study participants prior to initiation of any research activities.

Consent for publication

Not applicable.

Competing interests

Amanda Fallin-Bennett is a co-founder of Voices of Hope, the local recovery community organization that was contracted to provide the peer navigation services. No other authors have any competing interests.

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