Opening Doors to Recovery:
A Randomized Controlled Trial of a Recovery-Oriented Community Navigation Service for Individuals With Serious Mental Illnesses and Repeated Hospitalizations

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ABSTRACT

Objective: Opening Doors to Recovery (ODR) is a community navigation and recovery support model created in southeast Georgia by diverse, collaborative stakeholders. Following promising results from a quasi-experimental study, this randomized controlled trial hypothesized that, among patients with serious mental illnesses being discharged from inpatient psychiatric settings, compared to those randomized to traditional case management (CM) services, those randomized to ODR would have (1) lower likelihood of hospitalization, fewer hospitalizations, and fewer inpatient days; (2) lower likelihood of arrest, fewer arrests, and longer time to arrest; and, secondarily, (3) greater housing satisfaction and housing stability; and (4) higher scores on several scales measuring recovery-related constructs.

Methods: 240 individuals with Structured Clinical Interview for *DSM-5* Disorders–based psychotic or mood disorders, functional impairment, and repeated hospitalizations were randomized (December 2014 to June 2018) to ODR or CM. Hospitalization and arrest data were collected from State agencies after 12 months, and housing- and recovery-related measures were collected in person, longitudinally at 4, 8, and 12 months. Intention-to-treat analyses were conducted. Effects of dropout were accounted for, and sensitivity analyses were run.

Results: ODR was associated with fewer days hospitalized (RR = 0.86, $P = .001$), a lower incidence of arrests (OR = 0.35, $P < .0005$), and longer time to arrest (HR = 0.42, $P = .001$). In addition, measures of housing satisfaction (Cohen $d = 0.45$) and recovery (Cohen $d = 0.33$) were significantly more improved in ODR patients compared to CM patients.

Conclusions: The ODR model appears to have advantages over more traditional CM services and could fill a gap in the service array. Studying the mediators of success, cost benefit, dissemination, fidelity, and financing of the model is warranted.

Trial Registration: ClinicalTrials.gov identifier: NCT04612777

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Persons with serious mental illnesses (SMI) often face a series of structural and personal challenges making them susceptible to frequent cycling through hospitals,[1] jails/prisons,[2] and periods of homelessness.[3] When released from inpatient settings, they are often not given the supports needed to successfully reintegrate into their community, navigate services, and thrive in recovery.[4] Transitional care and supportive social networks are crucial to successful community living; yet, many are discharged without holistic supports and end up being admitted again or arrested.[5,6] Indeed, these issues could be seen as a failure of our current treatment system to address the kinds of problems described as long ago as the mid-1800s by Dorothea Dix. While psychopharmacology has advanced symptomatic improvement, a patient-relevant clinical care system has yet to be fully realized.

Today's recovery paradigm empowers people with psychiatric disabilities to live, work, and participate fully in their communities, aligning with the Substance Abuse and Mental Health Services Administration definition of recovery as "a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential."[7] However, given the common institutional cycle, these aspirations have yet to be fully realized for all.[8] Many problems facing persons with SMI are driven by fragmented, inaccessible community services; lack of engaged local stakeholders who could be partners in critical community support after hospitalization; frequent police contacts and poor communication between police and mental health; and limited personal support for recovery. The Opening Doors to Recovery (ODR) model was developed in southeast Georgia to address these and

Clinical Points

- The Opening Doors to Recovery (ODR) model was compared to more traditional case management services in a randomized controlled trial involving 240 patients with serious mental illnesses being discharged from inpatient psychiatric settings.
- The ODR model appears to have advantages over more traditional case management services. Those receiving ODR had fewer days hospitalized, a lower incidence of arrests, a longer time to arrest, more improvements in housing satisfaction, and greater improvements in recovery measures.

related problems.[9] Specifically, ODR was designed primarily by the Georgia affiliate of the National Alliance on Mental Illness (NAMI-Georgia) with extensive input from diverse stakeholder agencies and organizations in academic, public, and nonprofit sectors. The model built upon Georgia's collaborative Crisis Intervention Team (CIT) program (a collaboration between law enforcement, advocacy, and mental health systems)[10] and the State's peer specialist accomplishments.[11] Among the motivations behind creating ODR was a sense of crisis in the state, particularly as perceived by advocacy groups and community mental health providers, exemplified by a planned closure of the local state hospital and concerns that alternate resources in the community would not be adequate.

ODR uses a team of 3 non-traditional Community Navigation Specialists (CNSs): a licensed social worker, a peer specialist, and a family member of someone with SMI. ODR builds on successes of both peer-led[12,13] and family-focused services.[14] While the Professional CNS mainly provides traditional case management services and the Peer CNS focuses on personalized recovery goals, the Family CNS[15]—with lived experience of trying to navigate the mental health, social services, and criminal justice systems—works with the ODR participant, his/her family, and other "circles of support." For those with limited or no familial supports (including those who may be experiencing homelessness) the Family CNS helps the participant define other support persons, which could include friends, acquaintances, neighbors, service providers, mental health clinicians, or others. ODR provides a 12-month period of transitional support, with the CNS team striving to reduce hospitalizations and incarcerations while supporting recovery by always focusing on 4 objectives: ensuring adequate treatment is received, helping with safe and stable housing, helping clients develop a "meaningful day,"[16] and using technology to support recovery.

After an initial quasi-experimental study of ODR involving 100 individuals with SMI,[17] the present study followed on those promising initial results with a randomized controlled trial (RCT) comparing ODR with traditional case management (CM) services. We hypothesized that, among patients with SMI being discharged from inpatient settings, compared to those randomized to CM, those randomized to ODR would have, over a 12-month period, (1) lower likelihood of hospitalization, fewer hospitalizations, and fewer inpatient days; (2) lower likelihood of arrest, fewer arrests, and longer time to arrest; and, as secondary outcomes, (3) greater improvements in housing satisfaction and housing stability; and (4) greater improvements on scales measuring recovery-related constructs.

METHODS

Participants

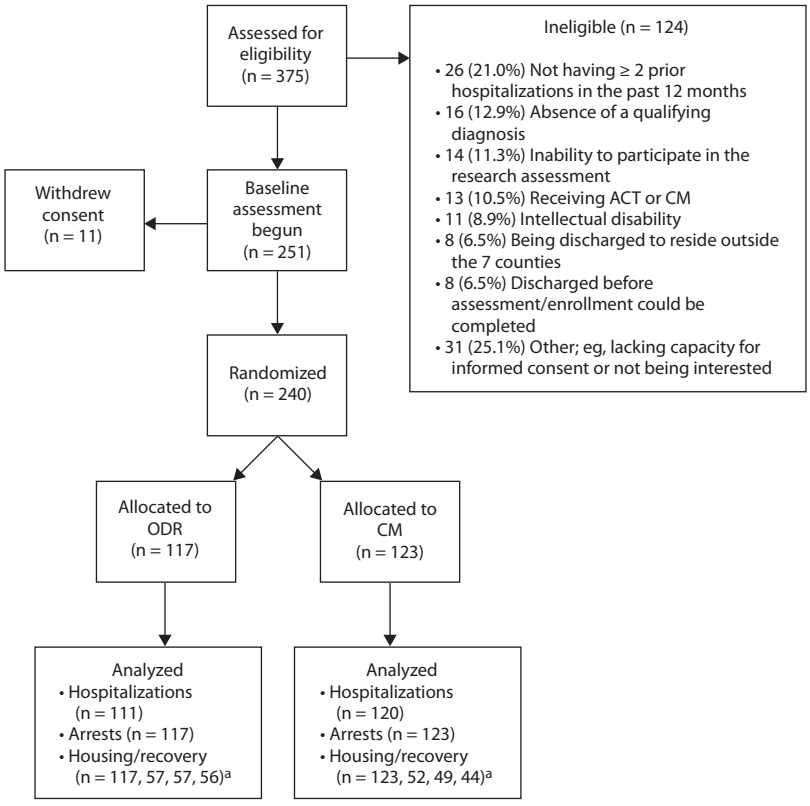
Enrollment occurred between December 2014 and June 2018. Adults with SMI were recruited from 3 inpatient facilities: a state psychiatric hospital in Savannah, Georgia (97, 40.4%) with an average length of stay of 18.5 ± 15.1 days among participants, a crisis stabilization unit (CSU) in Savannah (101, 42.1%) with an average length of stay of 8.8 ± 5.3 days, and a CSU in Brunswick, Georgia (42, 17.5%) with an average length of stay of 10.4 ± 6.2 days.

Eligibility criteria included (1) 18–65 years of age; (2) English speaking; (3) diagnosis of a psychotic or mood disorder (confirmed with the Structured Clinical Interview for *DSM-5* Disorders[18]); (4) 2 separate inpatient admissions, each for ≥ 2 days, in the past 12 months; (5) absence of intellectual disability or dementia; (6) capacity to provide informed consent; (7) being discharged to reside within 1 of 7 counties with CM services provided by the public mental health agency hosting the research; (8) not currently receiving assertive community treatment (ACT) or CM; and (9) eligible to receive CM, ie, unable to complete daily living activities in at least 2 areas, despite caregiver or behavioral health staff support, and requires assistance in 1 or more areas of managing their illness.[19] While 240 participants were enrolled, 124 were screened and deemed ineligible or were uninterested (Figure 1). Those ineligible/uninterested did not differ from the 240 enrolled participants in age, gender, race, ethnicity, or referral site (all $P \geq .51$).

Interventions

Opening Doors to Recovery. The CNS team's process of community navigation is a broader function than traditional CM as it includes mapping and connecting clients to all available local resources, which requires being embedded in the community. The CNSs benefit from commitments of diverse collaborative ODR partners (who convene as part of a "Blue Ribbon Taskforce"), including local treatment providers, law enforcement, employers, and housing programs. Those enrolled in ODR consent to information sharing that allows the CNSs to overcome communication barriers in pursuit of their clients' recovery goals. One example of this is a novel Police–CNS Linkage System that allows law enforcement officers to talk directly to a CNS in the event of a police encounter—a component of ODR also being studied separately.[20,21] The CNS team's caseload was capped at 40. Each CNS was expected to meet with the client at home or in community settings at least monthly, with the client having contact with at least 1 CNS weekly.

Figure 1. CONSORT Flow Diagram of the Progress Through the Phases of the Parallel Randomized Trial



[a]Ns represent baseline, 4 months, 8 months, and 12 months, respectively.
Abbreviations: ACT = assertive community treatment, CM = case management, ODR = Opening Doors to Recovery.

Case management. For the control group, we considered both traditional CM and intensive case management (ICM) to be different enough from ODR for the purposes of testing hypotheses. Because we were limited to what was available locally for the control group, patients received CM (n = 28) if being discharged to reside in 6 of the counties, and they received ICM (n = 95) if living in Chatham County, the most urban/populous county, which offered ICM services. CM services, as defined by the State mental health agency, focus on assisting the individual with developing natural supports to promote community integration, identifying service needs, linking to services/resources, and coordinating services to maximize integration and minimize service gaps.[19] Outcome expectations include decreased hospitalizations and incarcerations, as well as increased housing stability, job-related activities, community engagement, and recovery.[19] CM is provided by a licensed practitioner, whose caseload does not exceed 50. Contact must be made with the individual ≥ 2 times per month, at least 1 of which must be in-person, in a non-clinic setting. ICM is very similar, but 4 in-person visits are required monthly, at least 60% of total contacts must be face-to-face, and at least 50% must be delivered in non-clinic/community-based settings.[19] An ICM team includes 9 professionals, and the team's maximum caseload is 200 (22 per team member).

Referral, Assessment, and Randomization

All procedures were reviewed and approved by the university's and the State's Institutional Review Boards, and the clinical trial was registered at ClinicalTrials.gov (NCT04612777). Clinicians at the 3 sites referred potentially eligible patients who were evaluated for their interest in taking part in the study and capacity to give informed consent. Trained research assessors completed the initial/baseline assessment at a mean of 6.1 ± 6.2 days before discharge. After eligibility screening, consent, and the assessment, the patient was randomized at a 1:1 ratio to ODR or CM using a computer-generated algorithm. The study statistician (M.K.) created the randomization list, by randomly alternating blocks of 2 or 4, and the resulting sequential treatment assignments were sealed in opaque envelopes. After the patient was found to meet eligibility criteria, gave informed consent, and completed the baseline assessment, the research assessor opened the next envelope in the sequence and informed the ODR or CM provider of the treatment assignment.

Outcome Data Collection

Primary outcomes (hospitalizations and arrests). Hospitalization data were collected from 3 sources: the Georgia Department of Behavioral Health and Developmental Disabilities (DBHDD, the State's mental health agency), the CSU in Savannah, and the CSU in Brunswick. Because DBHDD operates all state psychiatric hospitals, they had complete admission and discharge data for the study timeframe. However, DBHDD only collected CSU data beginning in January 2017; as such, the 2 CSUs serving as referral sites also provided admission and discharge data for the full study period. Hospitalization data were available for 231 participants (96.2%).

Arrest data were provided by the Georgia Crime Information Center (GCIC), within the Georgia Bureau of Investigation (the lead state law enforcement agency), in the form of the participants' record of arrests and prosecutions (RAP sheets). GCIC receives monthly arrest reports from > 600 state and local law enforcement agencies; this information is stored in GCIC's crime database and is summarized in the RAP sheet. To test our arrest-related hypotheses, we extracted all arrests for the 12 months after enrollment. Arrest data were available for all participants.

Secondary outcomes (housing and recovery). Data for the 2 secondary outcomes were collected in person, and retention was expected to be difficult based on the serious psychosocial impairment of the study sample and experience in the initial study.[17] Retention rates were 109 (45.4%) at 4 months, 106 (44.2%) at 8 months, and 100 (41.7%) at 12 months (Figure 1). (Thus, dropout from research data collection was 54.6%, 55.8%, and 58.3% at 4, 8, and 12 months.) Retention versus dropout across these 3 timepoints did not differ between the ODR and CM groups (Fisher exact $P = .44$, .36, and .12, respectively).

Two housing-related measures were used. The Housing Satisfaction Scale[22] has 19 items covering choice, safety, privacy, and proximity.[22–24] The Housing Instability Index is a sum of 10 items that ask participants about their housing situations over the past 6 months[25]; the time frame was adapted to 4 months for this study to match the follow-up timepoints.

To thoroughly assess recovery, we examined 5 measures of constructs aligned with recent conceptualizations of recovery and the goals of ODR. First, the Multnomah Community Ability Scale is a 17-item instrument that measures social and community functioning, with documented good inter-rater and test-retest reliability and validity.[26] We added 5 items covering several areas deemed important for the study's purposes. Second, the Maryland Assessment of Recovery in People with Serious Mental Illness is a 25-item instrument addressing recovery experiences,[27] with documented excellent internal consistency and test-retest reliability, as well as construct validity and divergent validity.[28] Third, the Herth Hope Scale is a 30-item measure widely used to assess hope,[29] and with well-documented psychometric properties.[30] Fourth, the Empowerment Scale is a 28-item measure assessing self-esteem, perceived power, optimism/control over the future, and related constructs, with documented reliability and validity.[31–33] Finally, the 21-item Community Navigation Scale was developed for the initial and current study—preliminary psychometric research suggests good internal consistency reliability and construct validity.[34]

Recovery Summary Score

Because the recovery measures were highly correlated, we derived a summary measure to conserve power, which we call the overall Recovery Summary Score (RSS). We first assessed the validity of the summary measure by examining the results of a principal component analysis (PCA) with possible rotation, to see if a 1-factor solution was valid. We then calculated a patient-specific summary measure by standardizing each of the 5 measures and then averaging for each subject and timepoint. This approach was chosen over the use of factor scores, as they are sample-specific and therefore not reproducible in future studies.

Data Analyses

Between-group comparisons relied on intention-to-treat analyses. Analyses involving hospitalizations and arrests were performed using both binomial and Poisson generalized linear models for binary outcomes and counts, respectively. Analyses of change in housing and recovery measures were performed using linear mixed models on all available data at each timepoint. Time in months was used as a continuous predictor (growth curves) with measures at baseline and 4, 8, and 12 months. For the primary outcome analysis (12-month endpoint), the model structure included group (ODR vs CM), time, and group-by-time interactions, with a random intercept for subject. For those measures that indicated significant 2-group differences, we compared ODR against ICM specifically, to further define effects (post hoc analyses). For count/duration of hospitalizations and number of arrests, we did conditional tests (comparing only those with non-zero values) to reduce the effects of zero inflation and get meaningful effect sizes across groups.

Due to the significant dropout rate during the study, we compared completers to non-completers to verify and support the missing at random (MAR) assumption for the longitudinal analysis. Subsequently, the primary (intention to treat) analysis was corrected for effects of dropout by adjusting for predictors of dropout in all analyses, so that the MAR assumption would be valid. In addition, we performed formal sensitivity analysis using controlled multiple imputation.[35] This method imputes data based on a reference group from the trial (in this case the CM group) to simulate the post-dropout pattern for the missing data and then assess the effect on the results. We assessed effect sizes for all comparisons rather than relying only on *P* values.

RESULTS

Sociodemographic and clinical characteristics of the study sample are given in Table 1.

Table 1. Sociodemographic and Clinical Characteristics of the Study Sample (n = 240)

	Overall (n = 240)		ODR (n = 117)		CM (n = 123)	
	Mean/n	SD/%	Mean/n	SD/%	Mean/n	SD/%
Sociodemographic characteristics						
Age, mean ± SD, y	35.9	11.6	35.8	11.8	36.0	11.4
Sex, male	155	64.6	81	69.2	74	60.2
Ethnicity, non-Hispanic	228	95.0	112	95.7	116	94.3
Race						
Black/African American	114	47.5	56	47.9	58	47.2
White/Caucasian	116	48.3	55	47.0	61	49.6
Other	10	4.2	6	5.1	4	3.3
Marital status						
Single and never married	148	61.7	65	55.6	83	67.5
Divorced, separated, or widowed	78	32.5	45	38.4	33	26.8
Married or living with a partner	14	5.8	7	6.0	7	5.7
Years of school completed, mean ± SD	11.0	2.7	10.8	2.6	11.2	2.9
Living situation						
With parents, siblings, or other family members	83	34.6	38	32.5	45	36.6
Homeless, or staying in a homeless shelter	69	28.8	38	32.5	31	25.2
With friends, boyfriend/girlfriend, or spouse/partner	43	17.9	21	17.9	22	17.9
Alone	31	12.9	14	12.0	17	13.8
Other	14	5.8	6	5.1	8	6.5
Has children (n = 239)	122	51.0	65	56.0	57	46.3
Currently unemployed (n = 239)	208	87.0	103	88.0	105	85.4
Monthly income, including those with no income, mean ± SD USD	450.5[a]	653.0	380.2	543.8	517.3	738.3
Monthly income, among those with an income (n = 153), mean ± SD USD[b]	706.6[c]	698.9	593.1	579.3	815.7	785.5
Does not have health insurance (n = 239)	176	73.6	90	76.9	86	70.5
Clinical characteristics						
SCID-5 psychotic and mood disorder diagnoses						
Psychotic disorder	155	64.6	70	59.8	85	69.1
Bipolar disorder	51	21.3	30	25.6	21	17.1
Depressive disorder	34	14.2	17	14.5	17	13.8
Admission legal status, involuntary	161	67.1	75	64.1	86	69.9
Length of stay (n = 236), mean ± SD days	13.1	11.5	12.9	9.8	13.3	13.0

[a]Median income = $194.0.
[b]Eighty-seven reported an income of $0.
[c]Median income = $566.0.
Abbreviations: CM = case management, ODR = Opening Doors to Recovery, SCID = Structured Clinical Interview for *DSM-5* Disorders.

Verifying the MAR Assumption

Completers were more likely to be older (mean age 37.7 vs 34.8 years; $t = -1.72$, $P = .086$), non-white (49.6% vs 35.0%; $\chi^2 = 5.20$, $P = .023$), and female (50.6% vs 38.1%; $\chi^2 = 3.52$, $P = .061$). Thus, we adjusted for these 3 covariates in all subsequent analyses to ensure the validity of the MAR assumption.

Primary Outcomes

ODR and CM groups did not differ with regard to 12-month incidence or number of hospitalizations. However, the ODR group had a shorter duration of hospitalization in those hospitalized, indicating the effect of the intervention is on severity more than incidence. In contrast, the effect of the intervention on arrests was more preventive in that the ODR group had lower incidence of arrests and longer time to arrest (Table 2).

Secondary Outcomes

ODR participants exhibited significantly greater improvements in housing satisfaction; however, decreases in housing instability were not different across treatment groups (Table 2).

The PCA resulted in 1 factor (71% of variance explained), with factor loadings ranging from 0.79–0.91. The RSS showed larger increases in overall recovery in the ODR group. Of the 5 individual recovery scales, empowerment and the community navigation showed the most significant improvements (Table 2).

Sensitivity Analysis

For the current trial, we assumed that subjects who drop out would no longer maintain the effects of the treatment and therefore be similar to the case management group following dropout ("jump to reference" option). Data simulated under this scenario were examined for both the RSS and community navigation. The results showed that even with dropout subjects losing benefit, the significance of the group-by-time interaction was still maintained for community navigation ($t = 1.96$, $P = .051$) and slightly less significantly for RSS ($t = 1.69$, $P = .091$), indicating that even in the worst-case scenario, the results are robust.

Subgroup Comparisons

For those outcomes that differed significantly between treatment and control groups, we did a post hoc examination of the differences between ODR and ICM, as it is considered more intensive than CM, in order to further define clinical utility of ODR. Participants randomized to ODR were significantly less likely to be arrested (21%) than those in

Table 2. Outcomes at 12 Months by Domain

Domain	Measure	Overall (n = 240)	ODR (n = 117)	CM (n = 123)	ODR vs CM effect size[a]	Statistic	*P* value
Endpoint measures/primary outcomes						Wald χ^2_1	
Hospitalizations	12-month incidence rate, n (%)	111 (48.1)	53 (47.8)	58 (48.3)	OR = 0.96	−0.15	.884
	No. of hospitalizations, mean (SD)[b]	2.2 (1.7)	1.9 (1.5)	2.3 (1.8)	RR = 0.79	−1.77	.077
	No. of days hospitalized, mean (SD)[b]	19.4 (22.1)	18.0 (15.1)	20.7 (27.0)	RR = 0.86	−3.40	.001
Arrests	12-month incidence rate, n (%)	73 (30.4)	24 (20.5)	49 (39.8)	OR = 0.35	−3.50	< .0005
	No. of arrests, mean (SD)[b]	2.0 (1.3)	1.7 (1.1)	2.0 (1.3)	RR = 0.74	−1.59	.113
	Time to arrest, mean (SD), mo	9.8 (5.3)	11.0 (4.7)	8.9 (5.5)	HR = 0.42	−3.46	.001
Repeated measures/secondary outcomes[c]		Mean (SD)	Mean Δ (SE)	Mean Δ (SE)	Cohen *d*	*t*	
Housing	Housing Satisfaction Scale (1–5)	2.44 (0.78)	−0.88 (0.09)	−0.52 (0.10)	0.45	−2.59	.010
	Housing Instability Index (0–10)	2.57 (2.47)	−2.97 (0.27)	−2.48 (0.30)	0.20	−1.21	.228
Recovery	Recovery Summary Score (average *Z* score)	−0.04 (0.79)	0.56 (0.08)	0.30 (0.09)	0.33	2.10	.037
	Multnomah Community Ability Scale (1–5)	3.49 (0.65)	0.47 (0.07)	0.32 (0.08)	0.23	1.34	.182
	Maryland Assessment of Recovery Scale (1–5)	4.05 (0.76)	0.22 (0.08)	0.05 (0.09)	0.22	1.43	.152
	Herth Hope Scale (1–5)	2.18 (0.52)	0.24 (0.06)	0.14 (0.06)	0.19	1.22	.225
	Empowerment Scale (1–4)	2.89 (0.31)	0.11 (0.03)	0.00 (0.03)	0.32	2.18	.030
	Community Navigation Scale (1–7)	4.63 (1.16)	1.15 (0.13)	0.75 (0.14)	0.35	2.15	.033

[a]All effect sizes adjusted for age, gender, and non-white race for valid missing at random assumption.
[b]Conditional means in those with a hospitalization or arrest.
[c]Repeated measures effects for housing (lower is better) and recovery measures (higher is better). Overall means (for reference) are for all subjects at all timepoints through 12 months. Group effects are shown as the mean difference (Δ) from baseline to 12 months per group, but estimates are derived from fitted linear slope of change over all data (baseline, 4 months, 8 months, and 12 months). Because the differences of the recovery measures are all in different ranges, the effect size is shown for comparison and is represented by Cohen *d* = 12 months—baseline/overall standard deviation. Sample sizes over time: baseline: n = 240; 4 months: n = 109; 8 months: n = 102; and 12 months: n = 100.
Abbreviations: CM = case management, HR = hazard ratio, ODR = Opening Doors to Recovery, OR = odds ratio, RR = rate ratio.

ICM (36%, OR = 0.41, *P* = .005) and had longer time to arrest (11.0 vs 9.4 months; HR = 0.47, *P* = .005) and longer duration of hospitalization, in those hospitalized (21.2 days vs 18 days; RR = 0.85, *P* < .001). Similarly, the ODR group showed a significantly greater improvement in housing satisfaction (−0.88 ± 0.09 vs −0.57 ± 0.11; *d* = 0.39, *P* = .036) and the RSS (0.56 ± 0.09 vs 0.28 ± 0.10; *d* = 0.33, *P* = .033) compared to ICM.

DISCUSSION

Although our pilot study showed a lowering of the number of hospitalizations in a single group study,[17] the current randomized study revealed that the effects of the intervention were more focused on duration of hospitalization rather than incidence. In contrast, ODR participants had fewer arrests, and, thus, undoubtedly, less subsequent criminal legal involvement in terms of court proceedings, sentencing, jail detention, prison time, and probation/parole terms. Although number of arrests and number of hospitalizations were not significantly different between groups, the effects show the possibility for efficacy as they are in the right direction and perhaps with less dropout, or a more severe population, we would be able to demonstrate these effects statistically. We propose that a measure consisting of days of "recidivism" (sum of days hospitalized or incarcerated) might be more targeted to the success of ODR; unfortunately, we did not have days of incarceration in the current dataset.

The arrest-related findings contribute to literature showing that not all behavioral health treatment approaches reduce criminal legal involvement equally.[36,37] Behavioral health services that promote high-quality relationships between the patient and provider, as well as emphasis on patient agency in decision-making, are more likely to prevent re-arrest and technical probation violations.[37,38] ODR's navigators advocate for their clients to probation officers and aid clients with meeting the demands of probation. ODR's flexible and holistic approach also allows navigators to target criminogenic risk factors (eg, unemployment, lack of prosocial recreation activities).[39] A separate analysis is being conducted in conjunction with a health economist to estimate the cost savings of ODR in comparison to CM, driven largely by reduced arrests for charges such as probation violations, possession of controlled substances/drugs, criminal trespass or damage to property, and public order offenses. Such data may be particularly relevant to State and local agencies tasked with providing services to individuals with SMI. Clinical models like ODR complement community and policy approaches such as sequential intercept mapping at the community level, the national Stepping Up Initiative for counties, and the One Mind Campaign for police agencies.

Secondary measures of recovery and housing satisfaction also showed more improvement in ODR subjects compared to CM. These data indicated the most significant improvements were seen in community navigation and increases in sense of empowerment and autonomy. ODR was designed with recovery principles in mind, and the results of this trial indicate success.

Several limitations are noteworthy. First, although RAP sheets provided high accuracy regarding arrests, we did not have data on subsequent criminal legal involvement, including durations of incarcerations, nor did we have data on arrests that occurred outside of Georgia. Second, it is possible that comorbid substance use disorders had an impact on the various outcomes; future research should closely track substance use over time as a possible mediator

or moderator of outcomes. Finally, the third (housing-related) and fourth (recovery-related) hypotheses relied on longitudinal, in-person research assessments, and retention rates were low despite numerous measures to optimize retention, which may lower the representativeness of the sample. However, we were able to bolster the MAR assumption analytically and demonstrate the robustness of the longitudinal effect to dropout.

The ODR model has advantages over similar, more traditional CM services. It clearly excelled at reducing arrests, and superiority is demonstrated for the housing- and recovery-related variables that are likely key in reducing institutional recidivism and promoting successful recovery. Although navigation models have been tested for other chronic conditions (eg, cancer,[40] diabetes[41]), and although peer specialists have been embedded fairly broadly into mental health services,[42,43] ODR is innovative in its approach of joining navigation and the beneficial lived experience and support of Family and Peer CNSs, working with a clinician. Aside from its staffing structure, ODR is not just a different iteration of intensive case management, ACT, or other health navigator models that exist, in part due to its philosophy; for example: an intentional and recovery-oriented focus, the Family CNS's goal of bolstering participants' "circles of support," the CNSs' constant attention to helping clients develop a "meaningful day," CNSs' mapping of and connecting clients to all available local resources, the novel Police–CNS Linkage System, and the convening of diverse collaborators in a "Blue Ribbon Taskforce."

The CNSs' primary aims of reducing jail time and hospital admissions are consistent with recent trends around mental health service reforms designed specifically to reduce arrests[44,45] and hospital readmissions. While both CM and ICM are crucial elements within the full array of outpatient mental health care—as are ACT, crisis intervention services, peer support, etc—ODR might serve as another approach to filling gaps in the service array. ODR is currently being implemented, aside from formal research, in another county in Georgia, specifically for those with SMI being released from the county's jail.

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