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A Help or a Hindrance? The Role of Electronic Health Records in Implementing New Practices in Community Mental Health Clinics

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Abstract

Objective—Practice innovation requires adequate organizational resources. Electronic health records (EHRs) are a key organizational resource impacting routine practice delivery, though their capacity to support practice innovation in mental health is largely unknown. This study examined the influence of EHR availability on community mental health clinic (CMHC) providers' fidelity to Person-Centered Care Planning (PCCP), an emergent practice that integrates person-centered principles into the mental health service planning process.

Methods—Participants included direct providers and supervisors implementing PCCP in 7 CMHCs. Fidelity to PCCP was measured using chart reviews of 378 service plans across 3 timepoints. Mixed effect regression models examined the influence of EHR availability on fidelity to PCCP at each timepoint.

Results—Findings suggest EHRs didn't influence PCCP delivery at baseline but was positively associated with fidelity post-implementation.

Conclusions—Findings suggest that EHRs are an organizational resource that can support practice innovation in mental health when paired with clinic-wide implementation efforts.

While practice innovation is a critical component of ensuring the ongoing quality of mental health services, many evidence-based practices (EBPs) are not successfully implemented in practice as intended¹. There is increasing recognition that many complex steps are involved in integrating newly acquired skills into routine clinical workflows². To support this process, implementation science focuses on identifying barriers and facilitators to the adoption of EBPs, and developing tailored strategies that promote the uptake and sustainment of these practices. This work has substantiated the critical role of organizational context in supporting successful adoption of new and innovative practices³. Much of this research has focused on latent organizational attributes influencing uptake, such as culture and climate, with relatively less focus on more tangible organizational resources needed to effectively deliver focal interventions.

Electronic health records (EHRs) have recently emerged as an organizational resource that is substantially influencing clinical practice. In medicine, EHRs have facilitated adherence to

existing clinical guidelines and best practice by standardizing workflows, making information easily accessible, and guiding clinical decision-making⁴. Despite these predominantly positive findings, work examining the effect of EHRs on mental health treatment has been comparatively limited and mixed in their findings. Consequently, some argue that EHRs do not meet the specific needs of current and evolving mental health practices, particularly those that are person-centered⁵. While a recent study associated EHR implementation with positive process outcomes in inpatient mental health⁶, including increased communication between providers, and improved safety in treatment, other work in mental health has concluded that EHR adoption decreased the comprehensiveness, accuracy and efficiency of mental health documentation⁷⁻⁸.

Adding complexity to these conflicting findings, positive outcomes seemed to require a prolonged period of system optimization and adaptation⁹. Given this period of 'experimentation and learning' it difficult to determine whether the EHR carries inherent benefits, or if these positive outcomes are more appropriately attributed to the organization's openness towards accepting and incorporating change into routine practice, a related but distinct organizational characteristic known to facilitate implementation.¹⁰

In sum, though systems are clearly impacting clinical workflows, existing literature has not explicitly conceptualized EHRs as an organizational factor influencing EBP adoption. Given the complex and mixed findings on EHRs in mental health settings, it remains unclear whether EHRs are a facilitator or barrier to practice innovation. Given that 82% of mental health organizations have either adopted or plan to adopt an EHR¹¹, a more complete understanding of how this technology influences practice change in mental health is warranted. To fill this gap, this study examines the effect of EHR availability on provider fidelity to a newly implemented practice, person-centered care planning (PCCP), within community mental health clinics (CMHCs).

Methods

CMHCs included in this study were participants in a larger RTC examining the implementation and effectiveness of person-centered care planning (PCCP). PCCP is a manualized intervention designed to incorporate recovery-oriented principles into the service planning process¹². Consistent with this approach, PCCP provides a structured mechanism for identifying an individual's strengths, eliciting their unique visions of recovery, and translating them into actionable goals that guide treatment. As part of PCCP, the care planning process is highly individualized to reflect personal life goals and relies upon a collaborative relationship between the client and provider. The use PCCP of has been associated with a number of positive outcomes in community mental health settings, including greater continuity of care, and adherence to psychiatric medication¹³.

In this study, 7 CMHC sites across 2 northeastern states were assigned to the experimental condition. These clinics provided a range of services, including outpatient therapy, intensive case management, medication management, and residential programming. In the experimental condition, supervisors and direct care providers from participating programs received a two-day in-person training on PCCP, followed by 12 months of technical

assistance (TA) led by external, expert consultants. Two TA meetings occurred each month; one call supported program supervisors in the implementation of PCCP, while the second focused on enhancing direct care providers' PCCP related knowledge and skills. All study activities were approved by a university institutional review board.

Participants in the experimental condition completed a baseline survey (N=273) including measures of organizational capacity for implementation. Fidelity to PCCP was measured through a chart review of service plans created at baseline, 12 month, and 18 month timepoints. A total of 378 unique patient charts were reviewed (N=126 from each time point). To achieve this sample, 60 charts were abstracted from each CMHC, with one exception where only 18 charts were reviewed due to the small size of the organization. The subsample of service plans was selected randomly from a larger pool of plans completed by trained supervisors or direct care workers at each timepoint. Abstracted data included client's demographic and diagnostic information and PCCP fidelity.

Fidelity to PCCP was measured by the PCCP Assessment Measure (PCCP-AM), a tool developed by experts using the PCCP manual¹². The PCCP-AM includes 13 items that are given a score of not-proficient (0) or proficient (1). Scores ranged from 1–13, with higher values reflecting higher fidelity to the intervention. In order to ensure reliable fidelity ratings within the larger RTC, 12 service plans at each of the 14 participating CMHCs sites (N=798) were co-coded by two research team members trained in PCCP, yielding an inter-rater reliability of 80% and a Cronbach's Alpha of .70.

CMHCs were stratified by their use of an EHR system. In the current study EHRs were considered available if a system was operational at the baseline timepoint and was used for charting and service planning purposes. Using this criterion, 4 clinics (N=240 service plans) were included in the 'EHR' category, and 3 clinics (N=138 service plans) were included in the 'No EHR' category.

Openness to change was included in this measure as a potential confounder affecting the relationship between EHR use and fidelity. This construct was measured using the 5 item Change subscale of the Organizational Readiness for Change (ORC) measure¹⁴. Items relate to an organization's acceptance of change and capacity to implement change. Sample items include "you are encouraged here to try new and different techniques", and "it is easy to change procedures here to meet new conditions". Possible scores range from 10–50, with higher scores reflecting higher endorsement of an item. Individual ratings were aggregated to the program level in order to establish an organizational estimate of openness to change for each site¹⁴.

Three separate analytic models estimated the association between EHR use and PCCP fidelity and baseline, 12, and 18 months. Chi square analyses demonstrated no significant differences in sample demographic characteristics across time points. Organizational openness to change was examined as a covariate in the fully adjusted model. Binary measures of client demographics, including whether the client was non-white, female, young adult (≤ 35 years) or diagnosed with a serious mental illness (schizophrenia, bipolar disorder, or other psychosis) were present in the final model. To account for the nesting of

plans within sites, a mixed effects linear regression model with a random intercept at the site level was used to analyze the data. Stata version 16 was used to complete analyses.

Results

Of the client population reflected in the complete pool of sampled service plans (N=378), 35% (N=131) identified as a non-white racial or ethnic minority. Within this group, 8% (n=10) were Latinx; 70% (N=92) were Black, 15% (n=20) reported Other and 7% (N=9) declined to specify. Additionally, 17% (N=63) were young adults (≤ 35 years), and 55% (N=207) were diagnosed with an SMI. Organizational estimates suggested moderate openness to change (M=34.8, SD=2.04) among CMHCs. PCCP fidelity scores ranged from 1–12, with a mean of 6.3 at baseline (SD=2.3), 7.3 (SD=2.5) at 12 months, and 7.2 (SD=2.5) at 18 months. Regression analyses indicate that the presence of an EHR system was not significantly associated with PCCP fidelity among service plans at baseline (Table 1). EHR use predicted higher PCCP fidelity at both 12 ($\beta=3.24$, $p<.001$) and 18-months ($\beta=3.63$, $p<.001$). Post-estimation commands from the fully adjusted models were used to plot predicted PCCP fidelity means among sites with and without EHRs at each timepoint (Figure 1). Organizational openness to change was negatively associated with fidelity 12 ($\beta=-.88$, $p<.001$) and 18 months ($\beta=-1.02$, $p<.001$). Client characteristics did not predict fidelity.

Discussion

Findings demonstrate no significant baseline differences in PCCP fidelity between service plans completed with or without an EHR. Following implementation, the presence of an EHR system was associated with higher PCCP fidelity at 12 and 18 months. Organizational openness to change had a slight negative association with fidelity at post-implementation timepoints, though not at baseline.

Non-significant baseline differences in PCCP fidelity between plans completed with and without an EHR suggests that these systems did not provide an inherent advantage to the delivery of person-centered practices like PCCP. This is consistent with previous work suggesting that typical EHR design may not be aligned with individualized, client driven approaches to treatment⁵. While the presence of EHRs alone may not be sufficient to support PCCP, these findings suggest that, when used in tandem with deliberate, practice-wide efforts to enact change, these systems can support person-centered practice innovation.

Beyond PCCP, these findings also suggest that EHRs may be an organizational resource that can meaningfully impact practice innovation in CMHCs. Consequently, more deliberate examination of the EHR's role in implementing a range of emergent EBPs is warranted. The negative association between openness to change and PCCP fidelity was unexpected. It is possible that openness to change may overburden clinicians by encouraging multiple change activities, making them less able to achieve fidelity in one practice¹⁵. Alternatively, change openness may be more reflective of providers' *uptake* of a practice (ie, their decision to implement or not), rather than their *fidelity* to the model (ie, adherence to intervention protocol or guidelines).

There are several limitations to the current study that can inform future work. Primarily, the relatively small number of unique CMHCs in the experimental condition (n=7) limited between site variation across a number of organizational characteristics relevant to EBP implementation, including program size and function, and indicators of organizational culture or climate. Consequently, future work in this area would benefit from a more robust examination of these agency characteristics in relation to EHR use and EBP adoption. In addition, EHR availability was measured dichotomously; a more nuanced understanding is needed of how diversity in system design and implementation impact fidelity. While this study indicates that EHRs play a role in implementation, more research is needed to elaborate the nature and extent of this relationship.

Conclusion

This study found that the presence of EHRs was associated with greater fidelity to PCCP over time. This adds to a limited body of knowledge about the impact of EHRs on practice innovation in community mental health. Future work in implementation research may benefit from more explicit examination of EHRs as a unique organizational resource impacting efforts to support practice change.

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Highlights

- Providers employed within community mental health clinics where electronic health records were present demonstrated greater, sustained fidelity to a newly implemented person-centered intervention, person-centered care planning (PCCP).
- These findings suggest that, when paired with deliberate, practice-wide efforts to roll out PCCP, these systems can support person-centered practice change
- Results also suggest that implementation research may benefit from further examining the unique role of EHR systems in the implementation of a broader range of new mental health practices.

FIGURE 1.

Predicted person-centered care planning (PCCP) fidelity scores from adjusted models. EHR, electronic health record. Possible scores on the PCCP Assessment Measure range from 0 to 13, with higher scores reflecting higher PCCP fidelity.

Table 1.

Association Between EHR Availability and Fidelity to PCCP

Characteristic	Baseline (N=126)		12 Month (N=126)		18 Month (N=126)	
	<i>B</i>	<i>95% CI</i>	<i>B</i>	<i>95% CI</i>	<i>B</i>	<i>95% CI</i>
EHR Present	1.50	-.82–3.79	3.24 [*]	1.32–5.16	3.63 [*]	1.95–5.32
Openness to Change ⁺	–0.33	–.89–.23	–.88 [*]	–1.35–-.40	–1.02 [*]	1.45–-.59
Serious Mental Illness	0.84	–.02–1.70	0.51	–.44–1.46	0.05	–0.87–0.96
Young (<= 35 years)	0.76	–.18–1.70	0.90	–.04–1.84	0.40	–.50–1.30
Female	0.41	–.39–1.21	0.12	–.71–.94	0.37	–.41–1.16
Nonwhite	0.24	–.62–1.10	–0.72	–1.55–.11	–0.53	1.34–0.27

All figures represent OLS Beta Coefficients from a fully adjusted model

^{*} p<.001⁺ Measured at Baseline Only