Published in final edited form as:

Psychotherapy (Chic). 2019 March ; 56(1): 115–125. doi:10.1037/pst0000188.

Practical solutions for sustaining long-term academic-community partnerships

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Abstract

The science-practice gap in the treatment of mental health is most pronounced in community settings, where clients with the highest needs often receive their care. Implementation science and community-based participatory research (CBPR) strategies aim to effectively address this gap by establishing partnerships that focus on scientifically rigorous as well as clinically and socially relevant research. Despite significant benefits, the CBPR implementation framework has a unique set of challenges. The current paper describes evidence-based implementation strategies that were deployed to address various barriers to implementation and long-term sustainability of an innovative cognitive behavioral theory (CBT) life skills program identified during a feasibility trial. Through the committed work of an established partnership between a community-based non-profit organization and researchers, barriers were jointly identified as well as the strategies for mitigating these obstacles. Specific challenges included fidelity (variability in staff's CBT competency and delivery), sustainability, and cost of guideline implementation (data collection, time, and resources) of the CBT curriculum. We also provide details on the partnership solutions

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to these major obstacles, including the development of an intensive three-month training and coaching phase. The results of this rigorous training suggest improvement in staff's overall CBT competency and fidelity, increased participant engagement in the CBT curriculum, and enhanced data collection procedures, yet sustainability difficulties remained. General recommendations for long-term community research partnerships include early organizational buy-in, comprehensive needs assessments including the organization's research building capacity, and sustained training and coaching models.

Keywords

implementation science; community based participatory research; sustainability; training; coaching

The science-practice gap continues to be a significant challenge in the field of mental health, with evidence showing that it takes more than 20 years for evidence-based treatments (EBTs) to reach community settings (Balas & Boren, 2000; Institute of Medicine, 2006). This gap is especially heightened for clients with highest need and risk, such as those involved in the criminal justice system (Steadman & Naples, 2005). To address the science-practice gap, the field of implementation science relies on well-established conceptual models and frameworks, mixed-methods evaluation techniques, and utilizes a variety of study design options (e.g., randomized controlled trials, comparative effectiveness trials, pilot studies) (Brownson, Colditz, & Proctor, 2012) to evaluate specific implementation outcomes such as adoption, fidelity, feasibility, and sustainability (Proctor et al., 2011). These outcomes evaluate if, and how, an intervention can be successfully integrated within a specific setting (Proctor et al., 2009).

Despite the strengths of implementation science in addressing the science-practice gap, it still has its own challenges, such as translating findings from controlled settings into communities with diverse contexts, the unidirectional approach of translation of knowledge and the research process, differences in language-use between academia and community settings, long-term sustainability of implemented interventions, and difficulties with trust between researchers and communities (Wallerstein and Duran, 2010). To complement these difficulties, community-based participatory research (CBPR) is a framework within implementation science that can help address barriers and conflicts that may emerge when working towards integrating evidence-based interventions, by changing practice patterns in community settings (Wallerstein and Duran, 2006). Specifically, CBPR emphasizes the equitable partnership between community members, organizational representatives, and researchers in all aspects of the research process, highlighting their respective strengths and sharing responsibilities (Minkler and Wallerstein, 2011). This kind of true partnership is possible when adhering to core principles, including the recognition of the community as its own entity, building upon existing strengths and resources within the community, facilitating an active collaborative partnership during all phases of research, knowledge development, dissemination, and integration of research results in a beneficial manner for all partners, promotion of a co-learning process, and an iterative process that allows for a long-term committed partnership (Israel, Schulz, Parkers, & Becker, 1998). The current paper

highlights how a strong community-researcher partnership allows for the members to overcome real-life difficulties faced by community organizations while maintaining scientific integrity that is appropriate for community work.

A CBPR partnership example: Roca, Inc. and Community Psychiatry PRIDE

Founded in 1988, Roca, Inc. is a community-based non-profit organization that aims to reduce recidivism and increase pro-social skills and employment retention for high-risk young men between the ages of 17–24 years old. These youths are actively engaged in gang violence, shootings and street activity, have a significant history of trauma, and increased risk for future engagement in violence, both as victims and perpetrators. Participants are eligible for services at Roca if they meet criteria for high-risk: a) history of arrest or incarceration, gang involvement, high school dropout, and/or difficulties with substance use; b) they are not ready, willing, or able to participate in traditional programming or maintain employment (Baldwin & Zeira, 2017). Roca's mission and delivery of services is informed by evidence-based principles for reducing recidivism, and includes relentless outreach to engage high-risk youth in programming, life skills education, employment, and academic instruction.

Community Psychiatry Program for Research in Implementation and Dissemination of Evidence-Based Treatments (Community Psychiatry PRIDE) is an academic institution that uses a community-based implementation framework to address mental health disparities. Primary clinical research activities include curriculum development, training, consultation, and supervision, to guide the implementation and sustainability of EBTs in community settings.

As an example of addressing the science practice gap, Roca and Community Psychiatry PRIDE established a partnership in 2014 to develop and pre-test an innovative life skills program informed by cognitive behavioral theory (CBT) that met the needs of young men served at Roca, Inc. (for detailed description of the CBT curriculum, see Baldwin et al., submitted manuscript, 2018). Briefly, the CBT curriculum includes core skills related to emotion regulation, interpersonal functioning, and problem solving, and it differs from other available interventions used across correctional agencies as it was specifically developed through a joint partnership between Roca and Community Psychiatry PRIDE with the purpose of being used in high-risk community-based settings. For example, the 10 CBT skills were designed to be taught in short 15–45-minute lessons, and to be delivered by paraprofessionals wherever the need for CBT arises. The curriculum is designed to be flexibly delivered through “formal delivery”, including in classroom settings with the use of teaching slides, or during conversations en route to activities with transportable visuals in app format in staff's smartphones and/or keychains (“informal delivery with visuals”) (Baldwin et al., submitted manuscript, 2018). Main implementation findings from curriculum development, pilot testing, and a preliminary feasibility trial (see Figure 1 for timeline) suggest good feasibility and acceptability of the CBT curriculum from the perspective of Roca staff, as well as good satisfaction with the program from the perspective of Roca's young men (for full detail on development and feasibility testing of the intervention, see Valentine et al., 2019).

However, the “how-to” of applying CBPR strategies to implementation research is not without difficulties (e.g., Roussos and Fawcett, 2000). This process paper will focus on three implementation outcome domains as examples of the challenges faced by the Roca-Community Psychiatry PRIDE partnership during the implementation of the intervention: fidelity, sustainability, and cost of guideline implementation (Proctor et al., 2011). For each of these domains, the paper will describe the obstacles that were identified during the feasibility testing phase (see Figure 1) of implementing the CBT curriculum at Roca, as well as the evidence-based implementation strategies (e.g., Powell et al., 2015) that were deployed to address the challenges as part of the training and coaching phase (see Figure 1). Each of the challenges was addressed through the concerted effort of both members of the partnership to arrive at a scientifically based solution that was viable to the community partner.

Implementation outcome: Fidelity

Challenges to fidelity

Fidelity measures the degree to which an intervention is delivered relative to what it was intended to be delivered (Proctor et al., 2011). One of the difficulties that emerged during the feasibility trial phase was related to staff’s adherence and competence to the CBT curriculum, and the impact that these had on the consistency with which the program was implemented within the organization. For example, in order to assess staff’s CBT competency, Roca staff completed a 56-item self-assessment CBT knowledge quiz aimed at evaluating staff’s level of proficiency with the CBT curriculum content as it applied to situations faced by the young men at the organization. The results of the quiz showed that, overall, there was a high level of CBT knowledge among the staff, but that there was variability in individual staff’s competency levels.

Additionally, there were adherence-related challenges in terms of how the CBT curriculum was delivered. As mentioned above, the optimal CBT curriculum delivery method is through formal lessons using teaching slides, or informal delivery, with the use of visuals. However, an organizational-level challenge that emerged was the significant variability in how staff were reporting having delivered CBT. Discussions between members of the partnership identified the need for clarifications related to what types of situations and activities would qualify as “doing CBT” for staff, and that this absence had led to various encounters getting labeled as having included CBT when they didn’t, such as engaging in formal CBT lessons without the use of teaching slides, or informal encounters without using visuals

Widened variability in competency and fidelity across staff were also due to the amount of time staff were allocated for continued CBT-specific training and coaching after initial training (training-practice gap). Roca’s significant resources and time invested in the initial CBT training of staff (Valentine et al., 2019) led to the high overall staff competency level mentioned above. However, as the partnership continued to evaluate the feasibility of sustaining the CBT curriculum long-term, it became apparent that staff needed dedicated time to prepare for delivery of CBT formal classes, as well as continue their CBT knowledge development. This highlighted the need for additional, ongoing opportunities for staff to

develop their CBT skills and to address any difficulties that arose in the implementation of the curriculum.

Strategies to address fidelity challenges

Based on the strong commitment from both the community organization and its academic partner, an intensive 3-month training and coaching phase was developed to address the implementation outcomes challenges identified during the feasibility testing phase (see Figure 1). Overall, the goals of the training and coaching phase included (1) improving staff's overall CBT curriculum knowledge through basic skill building training seminars, (2) increasing their application of the CBT skills with the young men through coaching sessions, (3) increasing the "dosage" of CBT that the young men received at Roca through formal lessons or informal encounters with the use of visuals, and (4) decreasing the delivery of CBT as conversation-only to address the specific fidelity related challenges.

In order to specifically address the fidelity challenges listed above, a total of seventeen CBT curriculum training sessions lasting two hours each were conducted during the 3-month period by the Roca coaches. Trainings followed a stage-based approach to facilitate knowledge acquisition, practice, and retention: the Roca CBT coaches taught staff a few skills once every two weeks to allow for staff to practice the learned skills with their young men. Community Psychiatry PRIDE staff were in attendance, and occasionally assisted the CBT coaches during these training sessions, as needed. A total of 197 individual coaching sessions lasting about one hour each were conducted. The goal of coaching was to improve staff's CBT competency so that they could more readily deliver the CBT curriculum with the participants. Coaching included discussions of past examples of skill use, and assistance in forward planning of how to use the curriculum more effectively with the young men. 85% of staff attended all four coaching sessions, and 95% attended three coaching sessions.

Several assessments were used to evaluate whether the strategies employed improved staff's fidelity and competency of the CBT curriculum. First, in order to assess fidelity of the delivery methods, the partnership used Roca's "CBT Engagement Report", which summarizes programmatic data reported by Roca staff, including CBT encounters with young men, and the method of delivery of CBT (i.e., formal, informal with visuals, or conversation only). The report tracked the percentage of eligible young men who received CBT by each delivery method during the three-month training and coaching phase, as well as the subsequent two months. As can be seen in Figure 2, CBT delivery type changed as expected, with an overall increase in formal CBT delivery across time. There was also an increase in the delivery of informal CBT with visuals. However, there was no change in the delivery of CBT as conversation only (i.e., no visual aids used) after the training and coaching phase.

Second, all staff were administered a pre-training and coaching phase assessment of their CBT knowledge to identify each staff member's strengths and weaknesses, and provide individualized support during the coaching sessions. A post-training and coaching phase assessment was also conducted to evaluate change, and areas of improvement. The results of the pre-and post-training and coaching phase CBT assessment comparison showed an

increase in CBT proficiency for staff. In other words, it appeared that the training and coaching sessions were effective in increasing the CBT knowledge acquired by staff.

In addition, the Roca CBT coaches and Community Psychiatry PRIDE jointly created a measure that assessed staff's proficiency using CBT in each example brought in for coaching, as well as how much they learned during the coaching session. The coaches at Roca completed this measure after each individual coaching session to evaluate change during the 3-month phase. While the initial results did not show a measureable change in either the competency or the coaching scores, the sessions were helpful in identifying coaching needs and strategies to support competency building to increase staff's application of the CBT curriculum with their participants over time. It should also be noted that there was significant missing data for the coaching assessments, and thus, the results should be interpreted with caution.

Implementation outcome: Sustainability

Challenges to sustainability

Despite Roca's full buy-in and commitment to sustaining the delivery of CBT within the organization, there were significant obstacles related to the curriculum's sustainability, or the extent to which the intervention is integrated and maintained within the organizations' ongoing procedures (Proctor et al., 2011) identified during the feasibility trial. Roca staff reported difficulties when delivering formal lessons due to feeling ill-equipped to manage groups in general (Valentine et al., 2019). For example, staff described differing levels of engagement in the young men during the formal CBT lessons, especially when the group being taught was comprised of various levels of motivation. They also identified challenges balancing how to address the everyday concerns brought up by the young men, while ensuring they were covering the content needed to teach the CBT skills. Furthermore, given the high-risk nature of the participants, the significant psychosocial stressors experienced, and comorbid difficulties such as attention problems, the staff also discussed concerns that the CBT materials would be "triggering" for the young men, which they felt they were not trained to appropriately deal with in a group setting.

A unique obstacle that emerged with Roca's staff is that they themselves had also been exposed to high levels of trauma and were struggling with their own emotional difficulties. These added to significant feelings of burnout in the staff, which then increased the likelihood of staff turnover. These frequent changes in staff also added to the challenges in ensuring sustainability of the CBT curriculum at Roca.

Strategies to address sustainability challenges

In order to facilitate the long-term sustainability of the CBT curriculum at Roca, the partnership employed a train-the-trainer (TTT) model at the organization. The TTT model is a sustainable, cost-effective training method where a partner that has specific expertise (in this case Community Psychiatry PRIDE) identifies and trains specific staff from the community targeted for integrating the new intervention (in this case, Roca) (Orfaly et al., 2005). During the training and coaching phase, the identified staff became Roca's CBT

coaches, and were responsible for holding training sessions to teach the CBT curriculum content to staff, as well as deliver four individual coaching sessions with each staff member. Staff were, in turn, responsible for delivering CBT to the young men served at Roca.

To aid the training and coaching, Community Psychiatry PRIDE provided the CBT coaches at Roca with education, instructional tools, and programmatic guidelines. In addition, Community Psychiatry PRIDE provided training on how to manage group behaviors during CBT classes, including three principles of group management: communication (Barlow, Hansen, Fuhrman, & Finley, 1982), cohesion (Burlingame, Fuhrman, & Johnson, 2001), and emotions. Staff were taught skills about how to increase motivation and engagement (Burlingame et al., 2001), and redirect participants to the focus of each lesson (Jennings & Sawyer, 2003). In addition, staff were encouraged to use behavior modeling (Barlow et al., 1982), group language (Jennings & Sawyer, 2003), nonverbal communication (Jennings & Sawyer, 2003), eye contact (Jennings & Sawyer, 2003), rephrasing, and summarizing as tactics for managing a CBT class.

To assess whether the training and coaching phase addressed the sustainability related challenges, Roca tracked the proportion of young men who engaged in any CBT related encounters during the three months of the training and coaching phase, as well as the two subsequent months using Roca's electronic data capturing system. As can be seen in Figure 2, the overall percentage of young men who participated in CBT (regardless of the delivery method) increased over the course of five months. This trend was significantly more noticeable during the two months after the conclusion of the training and coaching phase. This increase was due to an organizational alignment. Roca management supported the consistent application of the CBT curriculum through specific resources dedicated to ensuring the delivery of the intervention, including having supervisors attend CBT trainings, help their staff set expectations regarding minimum CBT encounters per week, and address problems related to the delivery of the CBT skills.

The TTT model employed at Roca showed to be a sustainable model as it related to the problems to fidelity and sustainability encountered previously due to frequent staff turnover at the organization. The TTT model implemented at Roca included knowledge distributed across multiple staff within Roca, with no person serving as the "gatekeeper" of CBT. This process ensures that all staff who interact with young men are trained in the CBT curriculum, increasing sustainability and maintenance of the CBT curriculum within the organization, even if there is frequent staff turnover. This model also helped staff to use the CBT skills learned to manage and reduce their own feelings of burnout through self-practice.

Implementation outcome: Cost of guideline implementation

Challenges to cost of guideline implementation

A common obstacle in these kinds of community implementation initiatives is the cost of guideline implementation (e.g., Gimshaw et al., 2004; Vale, Thomas, MacLennan, & Grimshaw, 2007). These refer to the costs associated with the implementation procedures of the CBT curriculum (Proctor et al., 2011), including time, resources (human and otherwise), and financial. As an organization, Roca has significant strengths that made it an optimal

community partner. For example, prior to the partnership with Community Psychiatry PRIDE, Roca already had a process in place to collect data as part of their routine programming. These included questions developed to aid the operation of Roca's comprehensive model, to manage program delivery, and to assist with determining eligibility for services. Roca is highly innovative in that it uses an electronic data capturing system to facilitate their data collection, which informs day-to-day programming as well as continuous evaluation of their program's services for improvement, highly atypical in community settings. Representative of the commitment to the CBT curriculum, Roca also made a significant financial investment to develop and implement the intervention. Thus, the organization's values and infrastructure were primed for the integration of the CBT curriculum, including measures to assess its effectiveness.

Despite these significant assets and Roca's dedication in implementing and including the CBT curriculum as part of its core programming, time and allocation of resources continued to be a challenge in the process of integrating the intervention during the feasibility trial phase, given the scope of the changes needed. For example, Roca staff had to balance the time spent learning and improving their skills in delivering the CBT curriculum with their other responsibilities. Specifically, given the high risk of the young men served by Roca, the organization has addressed the participants' needs using a "crisis" response mode most of the time. As such, it is not surprising that it was challenging for staff to learn how to balance attending to the immediate, acute needs of the men they serve, with the time needed to learn the CBT skills that would lead to significant and sustainable changes in the participants' lives.

Collection of reliable data to be used to evaluate the effectiveness of the CBT curriculum was also another significant cost associated with the process of embedding the intervention within the organization. Consistent with other partnerships conducting transdisciplinary sustainability research, data collection obstacles were primarily due to differing, and at times, even conflicting methodological expectations and standards between Community Psychiatry PRIDE and Roca (e.g., Lang et al., 2012). Within our partnership, the attempts to select and use data collection instruments that would be helpful for Roca's day-to-day operations, as well as for assessing the CBT curriculum's effectiveness led to frequent changes to measures during the early phases of the implementation, increasing confusion and high rates of non-response to questions, both from participants and staff.

Furthermore, it was noticed that different data collection procedures were used to assess similar constructs during the feasibility trial. For example, some questions were administered as self-report to the young men, whereas the same questions were also administered as interview questions to other participants. These procedural modifications were primarily due to emerging service-related needs at the time, such as staff having to read the questions to a young man over the phone. These highlight the constant tension that community organizations face in collecting data needed for research as well as to maintain operations.

Additionally, the costs of data collection outweighed the perceived immediate benefits at the participant level. Staff were especially impacted by the opportunity cost of collecting more

data as they had to balance the paperwork that needed to be completed with their other responsibilities. For example, most of the measures related to the CBT curriculum were being collected via paper and pencil format, which not only required significant resources, but also time from staff as they had to enter it within Roca's electronic data capturing system. This process led to additional obstacles in data collection: staff were inconsistently entering data in the electronic data capturing system due to competing demands from their other responsibilities. When they had time to enter data, it was incorrectly collected and inputted, such as using outdated measures, and collecting redundant data across several different questionnaires, which led to discrepant responses. The partnership's attempts to address these redundancies also at times added to staff's confusion. For example, some of the proposed strategies offered only short-term resolutions in terms of who was supposed to collect what kind of data, and where to enter the data within the electronic data capturing system, depending on differing staff roles and responsibilities at Roca. This led to frequent changes in procedures and at times, contradicting practices, which increased misunderstandings. In addition, staff expressed concerns that data collected to assess CBT fidelity and competency would be used to negatively evaluate them and/or impact their job.

These data collection related difficulties could have been lessened had Community Psychiatry PRIDE evaluated key constructs related to the organization's research capacity building ability during the initial comprehensive needs assessment (see Figure 1 for timeline). This information, for example, could have been used to clarify the purposes of data collection, and addressed the variability in documenting the types of CBT interaction. One of the main lessons here is to remember that the burden of "optimal data collection" should not rest within the community partner but be a continuous conversation within the partnership until a mutually agreeable, feasible, and scientifically sound solution is established.

Strategies to address cost of guideline implementation challenges

Roca and Community Psychiatry PRIDE jointly conducted assessments in order to better understand the challenges associated with cost of guideline implementation, specifically data collection protocol, and to generate actionable recommendations. For example, focus groups and interviews with key stakeholders at Roca highlighted the importance of having clear guidelines regarding the process of data collection available for all staff and administrators at the organization at all times. Thus, the partnership updated procedures to include standardized instructions on how to administer and complete survey questions, including how and when these instruments should be administered as a self-report compared to interview-format, and ensuring the privacy of participants' responses by conducting survey administrations in a private room. The design of the measures was also improved so that self-report questions were clear and easy to read, included clear instructions for "refused to answer/not applicable" response options, and the content assessed aligned with the experiences of the participants served at Roca.

Furthermore, Roca and Community Psychiatry PRIDE jointly reviewed all existing questionnaires that were being administered as part of the organization's routine paperwork, CBT related measures to be collected to assess for CBT's effectiveness in general, as well as

the questionnaires listed above during the training and coaching phase. Together, they identified areas of redundancy and discrepancies, and developed a streamlined packet of measures that would serve both to capture the necessary information needed for Roca's day-to-day programming, and to evaluate the overall CBT effectiveness at the organization. When possible, measures were embedded into the electronic data capturing system to facilitate more efficient data collection and decrease time and resources required.

Following these changes, Roca conducted internal trainings with existing staff on how to collect reliable data, and included this type of training as part of the onboarding process for any future new hires. Additionally, the organization developed procedures to continue checking and tracking data collection, such as during internal supervision or general meetings. Procedurally, Roca adopted the system of immediately notifying all staff when any changes to measures were made, so that everyone would be using the most updated versions of the questionnaires.

To address staff's concerns related to the potential of data being used in an evaluative manner, Roca adopted precautions in addition to the organization's policy assuring the privacy of all responses. All staff were explicitly informed that the data collected would not be used to negatively impact anyone's employment status. The data collection training also included the purposes of the data collected, the importance and benefits of accurate reporting.

Community Psychiatry PRIDE clarified guidelines for specific CBT curriculum related data collection, including what content had to be discussed during an encounter between staff and a young man to be considered as a CBT meeting. The electronic data capturing system was also edited to include information such as what CBT skill(s) was delivered, by whom, and using what delivery method (e.g., formal lesson vs. informal delivery). Given lack of established benchmarks for how much CBT needed to be implemented ("dosage"), Roca set expectations for how many CBT encounters each staff had to complete in a given week, dependent on their responsibilities and job descriptions (Valentine et al., 2019). Supervisors were entrusted to support their staff by addressing any problems that made it difficult to achieve these expectations, including balancing other responsibilities.

Lessons learned: Recommendations for other CBPR partnerships

The current process paper described the challenges encountered during the implementation of an innovative CBT life skills program at Roca, a community-based non-profit organization within the context of a long-term CBPR partnership with Community Psychiatry PRIDE. The significant commitment from both the organization and its academic partner provided the foundational base where emerging obstacles were discussed and strategized towards an actionable solution. This kind of a CBPR relationship allows for a continuous feedback loop that builds on each partner's strengths to address ongoing challenges that are present in any initiative focused on bringing EBTs into community settings, and bridging the gap between science and practice.

There were several implementation outcome obstacles faced during the implementation of the CBT curriculum. Despite the overall high level of CBT competency, there was significant variability in staff's CBT knowledge, and the fidelity with which the curriculum was being delivered to the participants served at Roca. Staff's lack of dedicated time to CBT related activities, and access to continued CBT-specific training and coaching widened the variability in fidelity and competency. Relatedly, organizational-level communication difficulties and staff's varying degree of comfort with the curriculum also lessened the sustainability of the intervention within Roca. Despite Roca's strengths as an organization, and commitment to the CBT curriculum, its integration to Roca's programming was not without significant cost of implementation guidelines. Similar to other community implementation initiatives, time and resource-related challenges exacerbated data collection difficulties.

The partnership conducted an intensive three-month training and coaching phase to address these obstacles. The strategies that were successful were rooted in the principles of CBPR, through the active collaboration between Roca and Community Psychiatry PRIDE. The results of this CBT-dedicated training showed improvement in staff's overall CBT competency and fidelity, increased participant engagement in the CBT curriculum, and enhancements to the data collection procedures. Despite these significant gains, the curriculum's sustainability within the organization remains an ongoing difficulty, and supervisors continued to work with staff to ensure data was entered in a timely manner within the electronic data capturing system.

Overall, our experiences highlight the importance of shared ownership and respect from both the community organization and the academic institution for long-term sustainability of the partnership. Roca and Community Psychiatry PRIDE's strong commitment to helping the lives of the high-risk youth allowed for the expertise brought by the two members to complement each other in developing and bringing resolution to difficulties that will be present in any kind of CBPR partnership. For example, our partnership illustrates the importance of having early organizational buy-in and leadership support at all stages when implementing interventions into routine programming. This allows for early structural and organizational changes that are crucial in order to reduce staff burden and confusion associated with procedures, as well as increase the opportunities for reliable data collection and introduction of initiatives to amplify the intervention's penetration and long-term sustainability, such as ongoing training and coaching. The academic partner can aid this process by conducting a comprehensive assessment that includes both the needs of the participants' being served (which was done in this partnership), but also the community organization's research building capacity. This includes but is not limited to (a) understanding the organization's existing infrastructure, (b) if data is already being collected, what constructs are being assessed, by whom, and how this data is being used, (c) what changes would be needed in order to introduce new measures into routine programming, and (d) how to integrate these in a manner that does not increase undue burden on staff, and is also scientifically rigorous. These types of information would aid in lessening the cost-related burden of implementing the intervention in the community, such as ensuring that the data collected could be used to both evaluate the interventions'

effectiveness, as well as provide feedback that is helpful to day-to-day programming to the organization.

As expected, there remain time and resource related difficulties associated with the intervention implementation. For example, staff continued to have to balance their various competing needs, such as providing support to the young men and attending coaching sessions. These types of challenges are not unique to Roca, but will need to be addressed in all organizations servicing high-risk participants. In our partnership, Roca's strong commitment in the CBT curriculum led to financial investment and organizational changes to align its values and priorities with its successful implementation. For example, protected time was provided for staff to attend all CBT-related activities, such as trainings on how to collect reliable data, CBT curriculum trainings for new and existing staff, and attending dedicated individualized CBT coaching meetings. The organization also allocated human resources to CBT-specific coaching meetings, including hiring staff to be trained as CBT coaches. Additionally, Roca's data management specialist worked closely with Community Psychiatry PRIDE members to collect data within Roca, as well as export the necessary data to assess the CBT curriculum's effectiveness. Given that supervision has been found to be an integral component of all CBT training (Rakovshik & McManus, 2010), it is hypothesized that additional coaching-related support will aid the sustainability-related challenges.

However, this kind of sustained training and coaching model may be difficult to maintain long term as it is resource and time consuming. Strategies to support long-term sustainability of the implementation require organizations to budget for the added time and resources for ongoing training, data collection and management, and continued assessment. Added funding would also help train data management staff at the community organization in the skill set essential to conduct these responsibilities. This kind of organizational support is not just financial or logistic, in terms of having a full-time staff member whose position is to do data-related tasks, but it also has to be principle-based. For long term sustainability to be possible, the ownership of this kind of ongoing monitoring needs to be transferred from the academic research team to the community organization. As evidenced in our partnership, the organization has to *want to* and be invested in using data to continuously monitor themselves and constantly move towards change and improve their services to better serve their participants.

Building on the challenges struggled through together, and the lessons learned collaboratively, the Roca and Community Psychiatry PRIDE partnership will continue to innovatively address the science-practice gap for high-risk justice-involved young men using a community-based implementation framework. For example, the partnership is in the process of evaluating the effectiveness of the CBT curriculum by conducting a difference-in-differences analysis to compare any changes in outcomes at Roca before and after the implementation of the intervention (Bertrand, Duflo, & Mullainathan, 2004). Additionally, given the lack of evidence-based supervisory model for paraprofessionals in community settings, Roca and Community PRIDE will collaboratively develop a coaching model that incorporates scientifically identified principles of supervision and is sustainable in the community setting to increase uptake and sustainability at Roca.

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Figure 1.
Timeline of the various implementation phases of the CBT curriculum at Roca

Figure 2.

Percentage of Roca young men engaged in CBT per month, and by delivery type per month.

Table 1.

Challenges identified during the Feasibility phase of the CBT Curriculum at Roca, and Strategies Applied during the Training and Coaching Phase to address the obstacles.

Challenges	Strategies
Implementation outcome: Fidelity	
Time to prepare for CBT curriculum delivery	Intensive three-month training seminars
Variability in CBT competency and delivery	Intensive three-month coaching sessions
Access to continued CBT-specific training	Pre-post-training assessment of CBT knowledge
	Pre-post-training assessment of CBT delivery
	Pre-post-training assessment of CBT competency and application
	CBT dedicated time and human resource allocation
Implementation outcome: Sustainability	
Group management	Group management training
Staff burnout	Train-the-Trainer model
	Pre-post-training assessment of participant engagement
	Enhanced organizational-level communication procedures
Implementation outcome: Cost of guideline implementation	
Time	Standardized procedural instructions for data collection
Resources	Streamlined data collection procedures, including use of electronic data capturing system
Data collection	Training on data collection
Concerns regarding data used for evaluative purposes	Procedure development for ongoing tracking and checking data collection
	Recommended guidelines for CBT encounters
	Additional precautions with privacy
	Supervisory support for CBT delivery