Using Behavioral Insights to Design Implementation Strategies in Public Mental Health Settings: a Qualitative Study of Clinical Decision-Making

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Abstract

Background: Trauma focused-cognitive behavioral therapy (TF-CBT) is an evidence-based intervention for youth with posttraumatic stress disorder. An important component of TF-CBT is the trauma narrative (TN), a phase in the intervention in which youth are guided to process the memories, thoughts, and feelings associated with their traumatic experience(s). Previous work has shown that only half of TF-CBT clinicians complete the TN with their clients. Drawing from the behavioral insights literature—an interdisciplinary field studying judgment and decision-making—the present study seeks to understand what determines clinician use of the TN and to generate strategies that target these determinants.

Methods: Through semi-structured qualitative interviews, we sought the perspectives of trained TF-CBT clinicians working in public mental health settings across the city of Philadelphia (n=17) to understand their decisions to use the TN with clients. We analyzed the qualitative data using a coding approach informed by the behavioral insights literature. We used an iterative process of structured hypothesis generation, aided by a behavioral insights guide, and rapid validation informed by behavioral insights to uncover the determinants of TN use. We then generated implementation strategies that targeted these determinants using the “Easy Attractive Social Timely” framework, a behavioral insights design approach.

Results: We generated and validated three broad themes about what determines clinician implementation of the TN: decision complexity, clinician affective experience, and agency norms. We hypothesized the behavioral insights that underlie these implementation determinants and generated a list of nine behavioral insights strategies that theoretically may facilitate TN implementation.

Conclusions: Our study investigated why an effective component of an evidence-based intervention is often neglected. We leveraged robust scientific theories and empirical regularities from the behavioral insights literature to understand clinician perspectives on TN implementation. These factors were theoretically linked to implementation strategies. Our work revealed the potential for using behavioral insights in the diagnosis of evidence-based intervention determinants and the design of implementation strategies.

Contributions To The Literature

- Our study identifies several determinants for why the trauma narrative, a core component of trauma focused-cognitive behavioral therapy (TF-CBT), is completed by only half of TF-CBT clinicians in public mental health settings.
- Our work is unique in its integration of clinicians’ perspectives with the behavioral insights literature.
- Our study illustrates a process for how to use behavioral insights—an interdisciplinary corpus of scientific theories and empirical findings—to understand clinicians’ decision-making and to design implementation strategies.

- Our findings contribute to the work of TF-CBT implementation by unveiling the various ways clinicians in public, resource-scarce mental health settings face decision-making challenges.

Background

Implementation Science's Next Frontier: Refining Strategy Development and Selection

Challenges to the implementation of mental health evidence-based interventions (EBIs)—interventions supported by scientific evidence—are numerous. These challenges are often specific to the particular treatment under study, the structural and organizational factors that constitute the ecosystem of mental health service delivery, all individuals who make decisions about implementation, and the client population involved (1,2). The task of implementation science is to develop generalizable methods and theories by which to investigate these contextual challenges and to overcome them (3). Implementation science has developed multiple useful frameworks, identified outcomes of interest, and established the importance of understanding the contexts of clinician and organizational behavior. All of these contributions have significantly advanced our understanding of how to improve quality of care and population health (4). As the field matures, the next set of research questions must focus on how to develop effective implementation strategies with a clear understanding of why and how they work (5). This next step will involve developing and applying causal theories and methods to empirically test what mediates change for effective strategies (6,7). In order to elucidate why and how certain implementation strategies work, implementation research should focus on advancing several key facets of strategy development and selection.

First, mental health interventions are often complex and contain multiple components, which presents challenges for implementation researchers. Most implementation studies on complex interventions tend to focus on entire intervention packages or manualized protocols. Yet, a limited set of core techniques and principles in mental health EBIs are responsible for their effectiveness (8–10). Depending on the intervention, these core components are often the most likely to be underused by clinicians (11–14). With implementation in mind, there is growing recognition by clinical scientists and policy makers that it is essential to understand which EBI components account for their effectiveness (15,16). Once identified, implementation researchers can prioritize the specific components that have garnered the strongest evidence to target impediments to implementation and to design strategies to overcome these barriers.

Second, though all implementation research must begin by deeply understanding stakeholder perspectives and the contexts of their decisions, it is crucial to synthesize this lived experience with scientific theories. Until recently, in clinical psychology it was common to overlook clinicians' perspectives on the challenges of implementing EBIs due to empirical evidence suggesting that statistical models outcompete clinical judgment (17,18). Implementation science has long recognized that though clinicians (like all humans) make errors and lack complete insight into their motivations and behaviors, qualitative research is essential to provide a textured understanding of clinicians' experiences of EBI use (19,20). Given the choice between theory and stakeholders' perspectives, methods to design and select

implementation strategies tend to rely more heavily on stakeholder's self-reported barriers and facilitators (21). One potential way to resolve this seeming tension is to apply scientific theories on judgment and decision-making to the analysis *of* stakeholder perspectives. That is, qualitative data can be leveraged to go beyond merely identifying clinicians' perceptions of EBI implementation—these data can be used in tandem with scientific theories on decision-making to generate falsifiable causal hypotheses for why implementation strategies work.

Behavioral Insights

"Behavioral insights" (an umbrella term referring to theories and empirical findings from diverse fields such as behavioral economics, cognitive science, and social psychology) can offer implementation scientists much-needed concrete specification and synthesis. Behavioral insights comprise a set of theoretical principles, frameworks, empirical regularities and strategies derived from a decades-long, multidisciplinary effort to understand human judgment and decision-making (22). These insights reveal the ways in which individuals make decisions—they tend to have incomplete information, work with enormous constraints on their time and resources, and employ heuristics, or mental shortcuts, to make decisions (23). Behavioral insights help elucidate how people's computational constraints and motivated reasoning shape judgment and decision-making. Importantly, there is compelling evidence that people are not aware of the biases and mental shortcuts they employ to make decisions. This has implications for the interpretation of self-report data and the lived experiences of clinicians. If people are unaware of their motivations, judgments, and decisions, then self-report alone may be insufficient to understand what drives EBI implementation.

Fortunately, in addition to revealing insights about human judgment and decision-making, the multidisciplinary field of behavioral insights has generated strategies to improve decision-making. Rather than attempting to change the ways in which people are systematically biased, behavioral insights strategies leverage these regularities to optimize decision-making. Behavioral insights strategies have demonstrated remarkable effectiveness across a host of domains including dietary choices, medical decisions, and education (24–26). With some notable exceptions (27,28) few implementation studies leverage these insights, however a new review calls for the integration of behavioral insights into implementation science (26). Behavioral insights strategies can support clinical decision-making and behavior to ultimately improve health services delivery.

Study Context

This study was conducted in a public mental health service delivery system. In the city and county of Philadelphia, public mental health services, financially supported by Medicaid, are overseen by the Department of Behavioral Health and Intellectual disAbility Services (DBHIDS). The majority of youth in the city receive public mental health services; estimates suggest that between 55-80% of Philadelphia's youth are enrolled in Medicaid (29,30).

Due to the high incidence of trauma exposure in Philadelphia, DBHIDS initiated a full-scale effort to develop a trauma-informed behavioral health system in 2011. In 2012, DBHIDS was awarded a National Child Traumatic Stress Initiative Community Treatment and Service Center grant (Category III) grant from the Substance Abuse and Mental Health Services Administration (SAMHSA) to form the Philadelphia Alliance for Child Trauma Services (PACTS). These grants support building the enduring infrastructure necessary to facilitate implementation rather than focusing on increasing the uptake of particular interventions (1). PACTS represents a public-academic partnership that includes policy-makers, leadership from public mental health agencies, and university-based researchers, who have worked for the better part of the past decade to create a network of trauma-informed care in the city of Philadelphia. In addition to efforts to increase trauma screening and assessment and developing a robust crisis response service, PACTS has supported the training of clinicians in evidence-based trauma treatments.

Of these treatments, trauma-focused cognitive behavioral therapy (TF-CBT) has been a particular focus (29). Over twenty randomized controlled trials show that TF-CBT is effective for youth with posttraumatic stress disorder (31–33). Despite its strong research base, TF-CBT is not regularly implemented in public mental health settings (34). Since 2012, PACTS has trained ten cohorts of clinicians in TF-CBT across outpatient public mental health and residential treatment agencies. Training included two days of didactics and ongoing consultation provided via bi-weekly consultation calls for eight months with a TF-CBT certified master trainer. Throughout the year, PACTS-trained clinicians are offered to participate in “booster sessions” to fine-tune skills and seek clinical guidance. See (29) for more details on PACTS and TF-CBT training.

Dismantling research demonstrates that TF-CBT is more effective when the trauma narrative (TN) is used (35). In this phase of treatment, the clinician guides the youth in sharing their memories, thoughts, and feelings related to the traumatic event. The narrative serves several purposes clinically, including systematically desensitizing the child to traumatic memories as well as facilitating emotional processing of the memories to provide the child with a sense of mastery over their traumatic experiences. Previous work with clinicians implementing TF-CBT in Philadelphia who had completed TF-CBT training and consultation found that only half of clinicians reported completing the TN (29).

Objective

The present work aims to leverage a rich contextual qualitative dataset of perspectives from clinicians participating in city-wide implementation efforts in Philadelphia to 1) understand the implementation of an active yet underused component (the TN) of an effective and complex psychological EBI (TF-CBT); and 2) use principles from the behavioral insights literature to theoretically link this understanding to the design of implementation strategies.

Methods

We conducted qualitative interviews with PACTS clinicians working in public mental health settings across Philadelphia in 2018. PACTS clinicians were asked about their decision-making processes in

implementing the TN. We adapted a behavioral insights approach to systematically stage the analysis—Narrow, Understand, Discover, Generate, and Evaluate (NUDGE)—and coded the interview data using a guide from the behavioral insights literature—the Behavioral Economics Guide—to arrive at behaviorally informed hypotheses about the determinants of clinicians' TN use (36,37). We leveraged these hypotheses to generate implementation strategies using the behavioral insights informed "Easy Attractive Social and Timely" (EAST) framework, which organizes strategies for researchers and policy-makers (38).

Participants and Study Procedure

Participants were clinicians who had completed training in TF-CBT through PACTS. Clinicians were contacted either by e-mail or at "booster" training session in spring of 2018 and asked to complete a 10-15-minute survey about their perceptions of and past use of TNs. See (39) for more information about the initial survey clinicians completed. Of the 65 clinicians that completed the survey, a subset (*n*=26) were selected for in-depth qualitative interviews using purposive sampling. Participants who completed qualitative interviews were sampled in order to capture variability in clinician use of the TN. As part of the survey, participants were asked to indicate the percentage of their TF-CBT clients in the past six months with whom they used the TN; whether participants intended to use the TN with their TF-CBT clients in the next six months; and how likely it was that they would use the TN with their TF-CBT clients in the next six months. Clinicians fell into three groups and were purposely sampled from each, including: 1) clinicians with high intentions and high likelihood of using TNs, but who had used TNs with none or few clients in the past (*n*=8); 2) clinicians with high intentions and high likelihood of using TNs who reported using TNs with all or most of the their clients in the past (*n*=5); and 3) clinicians who reported low intentions but medium to high likelihood of using TNs who had variable levels of past TN use (*n*=4). Of the 26 participants who completed the survey and were invited to partake in the qualitative interviews, 17 participants completed interviews by phone or in person (65%). Those who declined either did not respond to attempts to contact them or reported insufficient time to complete an interview. All procedures were approved by the City of Philadelphia and the University of Pennsylvania Institutional Review Boards.

Semi-structured interviews focused on clinician perceptions of the TN, as well as factors that interfere with or assist their use. Several questions prompted clinicians to consider their most recent sessions with a client and the determinants to TN implementation in a single session (40). These questions were intended to elicit in-depth descriptions of clinicians' judgment and decision-making in order to analyze the interviews using behavioral insights (see Appendix A for the interview guide).

Each participant completed one interview lasting between 30-60 minutes. The interviews were audio-recorded and conducted individually in person or over the phone. Interviews were conducted by BSL and HEF, both doctoral students with familiarity with TF-CBT and the PACTS study. Interviews were recorded and later transcribed by undergraduate research assistants. Participants received a $50 gift card for completing the hour-long interview.

Analytic Approach

We used an integrative approach to code the data informed by thematic analysis and a flexible adaptation of existing approaches from the behavioral insights literature to enrich our interpretation of the qualitative data. As no single approach was sufficient to guide the hypothesis generation process, our study team integrated several guides, coding processes, and frameworks from the behavioral science literature into our analyses. Broadly, our analytic approach had three major phases, elaborated extensively below.

First, in order to distill qualitative interview transcripts, thematic analysis was applied to organize the qualitative data into a manageable and interpretable amount of text (41). Second, in order to systematize the hypothesis generation process, we selectively borrowed elements from the NUDGE framework, which has been used to design behavioral insights-derived implementation strategies based on hypothesized determinants (36). To structure this part of the analytic process, we relied heavily, though not exclusively, on the Behavioral Economics Guide to code hypothesized behavioral insights determinants of TN implementation (37). Third, in order to generate behavioral insights informed implementation strategies, we used EAST as a design framework (38).

NUDGE is a behavioral insights approach to rigorously identify what drives EBI implementation (36). NUDGE lays out a multi-step process from “Narrowing” the focus to a specific behavioral target through “Understanding” the context of the behavior, “Discovering” the underlying behavioral insights, “Generating” implementation strategies, and “Evaluating” them through trials. In previous work, the NUDGE approach was used to analyze qualitative data to discover what drives EBI implementation in publicly funded mental health agencies (36). We adapted the “Discover” step of NUDGE into a coding process in which we applied codes for various behavioral insights largely drawn from “The Behavioral Economics Guide” (37). Note that this guide is not exhaustive, and that given their training, coders were also familiar with other behavioral insights guides that they drew upon in this step (42). To structure the “Generate” step of NUDGE, we used the EAST framework to propose behavioral insights-derived implementation strategies (38). EAST was developed by the UK Behavioral Insights Team, a group of scientists and policymakers who apply findings from cognitive science, social psychology, and behavioral economics to a host of policy domains. EAST was developed as a practical and comprehensive tool for researchers and practitioners to arrange evidence in a digestible format. EAST primarily organizes behavioral insights strategies according to the principles that underlie their effectiveness. These strategies work because they make the optimal choice easier, more attractive, more social, and/or timelier than other choices. EAST offers a structured way to comprehensively consider all the different mechanisms by which to address hypothesized implementation determinants.

It is important to note that in the current study we did not generate an exhaustive list of all potential implementation strategies. Rather, we designed several possible strategies to illustrate the promise of this structured brainstorming process informed by behavioral insights and lived experience.

Behavioral Insights Coding Process. Figure 1 displays the multi-step process we used to analyze the qualitative interviews in detail. In Step 1, three investigators (BSL, CET, and SHS) separately reviewed all

of the qualitative interview transcripts. Investigators met and coded the determinants of TN use. Codes reflected what clinicians stated got in the way and what helped them use the TN with clients and came directly from clinicians' responses to questions about the barriers (i.e., what prevents) and facilitators (i.e., what helps) TN implementation (see Appendix A for interview questions), whereas other TN determinants were inferred. For example, some codes were "complex trauma," "community violence," "back-to-back sessions." In Step 2, using a thematic analytic approachIn Step 3, as a validation check, investigators coded four transcripts together, and further synthesized and deduplicated the codes. Through discussion and consensus, coders distilled and reduced the codes and broad themes.

In Step 4, the three investigators (BSL, CET, and SHS) then mapped the TN determinants, coded in the clinicians' own language, onto a predetermined set of behavioral insights that are described in the "Behavioral Economics Guide of 2018" (37). Table 1 provides definitions of the behavioral insights that we mapped onto the TN determinants (for a full list of the possible insights see the guide). There were a few cases in which well-established behavioral insights were not listed in the guide. For example, "reinforcement" is a psychological principle (43) that is not explicitly in the guide (though related insights such as "incentives" are). When these occasions arose, coders discussed whether it was appropriate to include these behavioral insights in our coding process, which resulted in several additions. We consider the few additions to be behavioral insights insofar as they derive from the behavioral science literature, have been shown to determine behavior, and can be shaped through behavioral insights strategies. In this step, it was possible for several behavioral insights to map onto one TN determinant, which explains why several behavioral insights are associated with one TN code (see Table 3). For example, "social norms" and "defaults" map onto the TN determinant code relating to common practices at a particular agency.

In Step 5, to ensure the validity of the TN determinants and behavioral insights generated from Steps 1-4, we conducted an "expert validation check." The first author (BSL; a graduate student in clinical psychology with clinical experience conducting TF-CBT and research expertise in clinical decision-making) worked with AMB (an expert in behavioral insights) and RSB (a licensed clinical psychologist and expert in implementation science) to validate the TN determinants and behavioral insights based on the literature and their research and clinical expertise. After this final list of hypotheses was validated, for Step 6, BSL and RSB integrated the behavioral insights and implementation science literature to generate implementation strategies, using the EAST framework to structure this process. EAST helps link the hypothesized behavioral insights to the implementation strategies mechanistically.

Results

Demographics Characteristics

Participants who completed the qualitative interviews were all female (*n*=17, 100%), master's level (*n*=17, 100%), predominantly licensed clinicians (*n*=11, 64.71%) with a mean age of 32.24 years (*SD*=9.74). The racial makeup of the sample was predominantly White (*n* =15, 88.24%), with other participants identifying

as Black (*n*=1, 5.88%) and Other (*n*=1, 5.88%). The majority identified as non-Latinx (*n*=13, 76.47%). See Table 2 for the demographic characteristics of the sample.

Forty-one percent of participants reported using the TN with most or all of their TF-CBT clients in the past six months. Seventy-six percent of clinicians said it was “very likely” they would use the TN with their TF-CBT clients in the next six months.

Major Findings

Overall, clinicians reported a variety of factors that influenced their use of the TN with their clients. Three broad themes emerged from our analyses of clinicians’ responses to interview questions. See Appendix B and Table 3 for a fine-grained description of the results.

One major theme was decision complexity. Decision complexity refers to the dimensions of a decision-problem; the more dimensions of the problem, the more complex it is. These dimensions can include: the number of steps involved, the interdependence between steps, the dynamics of the problem over time and the involvement of other actors; and the resources available to solve the decision problem (44). Behavioral insights suggest that more complex decisions lead clinicians to take longer to decide, to make more errors when they do, and to feel less confident in their decisions (45). Further, the more decisions clinicians make, the poorer their clinical judgement—a phenomenon called decision fatigue (46). Overall, most clinicians voiced decision complexity as a factor influencing their use of the TN. Clinicians who were overwhelmed by the complexity (e.g., the complexity of clients and the context of the environment) cited it as a major barrier to TN use. Whereas, other clinicians were able to reduce the complexity of decisions through processes like staging (i.e., breaking the decision up into its essential parts) or using decision aids (47). Using both EAST and clinician’s self-reported strategies, we generated implementation strategies to reduce decision complexity (e.g., providing templates and models so that clinicians have decision aids). Other strategies that clinicians did not generate involved reducing complexity by shifting certain non-therapeutic tasks away from clinicians, such as case management.

Another major theme was the affective experience of the clinician. Invariably, implementing psychological EBIs can provoke intense emotions in clinicians. Trauma therapy is especially well-known to induce distress in clinicians. All of these emotions can, in turn, influence the quality of clinical decisions (48–50). In addition, prior work has shown that clinicians working in high poverty contexts tend to experience emotional distress given the enormous needs of their clients and the feeling of powerlessness this can engender (51). Our qualitative interviews revealed that clinicians experienced a variety of emotions that they believe account for their use of the TN. Some clinicians described feeling overwhelmed by their clients’ economic hardships or by the severity of their psychopathology and traumatic experiences. Other clinicians described the emotional distress of listening to the TN that, by design, is graphic. Several others indicated that the model itself leads to anxiety because it is insufficiently concrete, which leads them to feel overwhelmed and uncertain. Several clinicians reported ways to manage these challenges by seeking support from peers and supervisors. Using EAST, we designed an implementation strategy to address clinicians’ anxiety by providing a peer support model and a strategy to reduce clinicians’ anxiety

therapeutically through imaginal exposure to feared outcomes (52). Using both EAST and clinicians' self-reported strategies, we also designed implementation strategies that might prevent clinician anxiety (ensuring client attendance through attendance contracts and providing clinicians with user-friendly resources).

The final broad theme was agency norms. Agency norms describe the social norms of clinicians' agency leaders, supervisors, and peers. Converging evidence suggests that social norms strongly influence behavior (53). Thus, many reported that if it was standard practice to use the TN in their agencies, clinicians would employ the TN. When agency leaders, supervisors, and colleagues were less inclined to prioritize TNs, clinicians reported that they were less likely to use the TN with their TF-CBT clients. The behavioral insights informed implementation strategy leverages social norms and the default bias, which describes people's preference for the status quo, by making the TN common practice.

Discussion

Our study uniquely combines an in-depth qualitative analysis and a systematic application of theoretical principles to understand EBI implementation. We applied a novel approach informed by behavioral insights (36) to analyze a rich data set of interviews from a cadre of clinicians trained in TF-CBT, an effective EBI for youth with posttraumatic stress disorder. We used these qualitative interviews to identify implementation determinants of a core component of TF-CBT, the TN. We generated implementation strategies to target the hypothesized behavioral insights determining implementation behavior. The study identified three major themes relating to why clinicians do or do not use the TN. First, clinicians working in public mental health settings feel they are faced with particularly complex clients and contexts and have trouble translating clinical guidelines to practice. This maps on to the theme of decision complexity. We generated implementation strategies that reduce decision complexity through different decision aids and offloading responsibilities from clinicians. Second, the affective experience of clinicians implementing the TN in resource-scarce environments with severe clients leads them to feel overwhelmed and anxious. The affective experience of clinicians can be targeted through anxiety prevention strategies and therapeutic and emotionally supportive practices at the organizational level. Third, agency norms reflect clinician perceptions of what is considered standard practice in their agencies and determines TN use. The behavioral-insights informed strategy involves changing agency practices to facilitate TN implementation.

These results broaden our understanding of EBI implementation by combining a contextual understanding of clinician lived experience with classical theories on judgment and decision-making to design targeted and novel implementation strategies. Why integrate theory with lived experience, specifically behavioral insights theory, in implementation research? Scientific theories organize empirical observation facilitating the emergence of knowledge "out of seeming chaos" and establish criteria by which to evaluate and revise the theories when they are implemented (54, 55). Our study is proof of concept that behavioral insights can provide a coherent theoretical guide across the implementation research continuum (from identifying determinants to practical guidance for implementation strategy

design and selection). This approach allowed us to go beyond the face-value understanding of clinicians' first-person accounts and to develop hypotheses about the behavioral insights that may explain both clinicians' behavior and clinicians' understanding of their own implementation behavior. This manner of analyzing qualitative data is less common in the canonical implementation literature which emphasizes the lived experiences of clinicians. Both have their advantages and disadvantages and lead to different conclusions about what determines behavior.

One advantage of extending qualitative data beyond their immediate and literal meaning, particularly through the use of behavioral insights theory, can be demonstrated by example. Some clinicians in our study reported that their clients had more complex and frequent traumas than "most" clients—presumably than the typical child seeking trauma therapy. This barrier might be coded as "clinician attitudes and beliefs" under other widely used implementation frameworks. Analyzing our data using behavioral insights offers us a different lens by which to understand implementation behavior. We determined that this commonly voiced refrain may instead reveal clinicians' choice overload (56). When faced with an overwhelming amount of information, individual decision-makers tend to give up on their intended behaviors and offer post-hoc rationalizations for why they did not engage in them. Undoubtedly, clinicians in public mental health settings do encounter more severe and more complex clients than TF-CBT randomized controlled trial (RCT) participants—indeed, we have data to support this belief in Philadelphia (57). However, little data support the notion that more severe clients would not benefit from the TN, though their symptoms may not fully remit (58). The hypothesis that choice overload is the underlying psychological driver of clinicians' behavior does not map onto an attitudinal implementation strategy, as other frameworks would suggest; rather it maps onto designing a decision aid to distill a complex decision into a simpler, more digestible format. Decision aids are known to reduce complexity and simplify clinical decisions to optimize and improve clinical judgment (59). Thus, through using this behavioral insights informed approach, we were able to generate hypotheses about what drives implementation behavior that is latent in the qualitative data, but not literally stated by clinicians. This interpretative leap has its pitfalls—the most obvious of which is that the hypothesized determinant may be wrong—but we can justify our understanding through the extensive empirical literature that validate behavioral insights. Further, in future work the behavioral-insights informed implementation strategies we propose can be evaluated for their effectiveness and our hypotheses about the behavioral insights serving as the mediating pathways can be tested.

Our study fits well within the growing literature on TF-CBT implementation in a variety of settings. TF-CBT has been disseminated and implemented through various methods including remote web-based learning, live training, ongoing phone consultation, learning collaborative models, and some combination therein (60–63). These efforts have been undertaken in a variety of public mental health settings in the US and in low-and middle income countries around the world (64–66). Many of these studies' results are consistent with our findings on clinicians' self-reports of the challenges to TF-CBT implementation. For example, clinicians across settings believe that their contexts are quite different from the contexts of RCT trial participants. Our work also validates research from TF-CBT national trainers, expert TF-CBT clinicians who trained over 5,000 TF-CBT providers (13). These trainers suggested that fidelity, or adherence to the

specific components of TF-CBT, was overall quite poor—notably, the majority of trainers voiced concerns that the component most likely to be underused was the TN. Thus, our work's focus on the TN, considered an active component of TF-CBT by treatment developers and national trainers, is an essential contribution to TF-CBT implementation research and can be of practical utility to policymakers implementing TF-CBT.

Limitations

There were several limitations to our study. One central limitation is that our analysis was generated based on clinician self-report. There is an inherent tension between attempting to discover the often unconscious psychological drivers of TN implementation, while relying on clinicians' self-report (67). For example, data from the national trainers suggests that general psychotherapy competence is a core challenge for TF-CBT implementation (13). Yet, none of the clinicians in our study reported feeling incompetent. This is line with the behavioral insight that people prefer causal attributions that are self-enhancing over those that are self-deprecating (68). Qualitative data, even when analyzed beyond their immediate meaning, should be used in tandem with quantitative and observational measures of clinicians' effectiveness and ongoing needs for support.

A second limitation is that our approach primarily addresses individual clinician decisions. Though we generated some implementation strategies that target organizations (e.g., developing peer consultation models, transforming the electronic health record, hiring staff to do case management, etc.), behavioral insights are less well-suited to address organizational challenges or structural barriers (e.g., scarcity of resources) of which there are many in publicly funded behavioral health systems (69, 70). As recent work has established, the broader ecology of public mental health settings calls for an attention to not just individual clinician decisions, but to a broader structural understanding of implementation that takes all levels of analysis into account (1). Public mental health agencies in Philadelphia have benefited from a receptive and fertile ecology on the policymaking level, which has incentivized the implementation of TF-CBT. How these factors as well as organizational and broader social factors interact with clinical decision-making has not yet been illuminated. Ultimately, all solutions to serious public health concerns involve transforming human behavior as the final link in the chain. Thus, an understanding of judgment and decision-making is critical. Future work should uncover not just the potential, but also the boundaries, inherent to examining individual decision-making as the unit of analysis to understand EBI implementation.

The last limitation is that this work stems from TF-CBT trained clinicians in a particular behavioral health system in one part of the country. This system has universally favored and invested in TF-CBT, which may not be representative of other environments. Thus, the inferred insights and implementation strategies may not generalize to public mental health settings at large. Our approach lays out a method that can be applied to many contexts to generate behavioral insights about what determines EBI implementation and to design strategies; the extent to which the insights from our study generalize to other populations remains an open empirical question.

Conclusions

We generated a diverse set of hypothesized behavioral insights related to the implementation of the TN, an active component of an effective EBI, TF-CBT. Through in-depth qualitative interviewing, we developed a novel method to generate behavioral insights informed hypotheses about what determines implementation behavior and to design implementation strategies using an established behavioral insights framework (EAST). This analysis revealed that clinicians implementing the TN in public mental health settings are faced with challenges relating to: decision complexity, their affective experiences, and agency norms. We generated behavioral insights informed implementation strategies to target the determinants of TN implementation.

This study represents some of the early stages in using behavioral insights to develop implementation strategies in mental health contexts. Future directions will include testing these implementation strategies, first in formative piloting, and ultimately in RCTs to understand their effectiveness and what mechanisms account for their effectiveness. Future research will also necessarily involve integration of the behavioral insights discovered from this approach with more traditional implementation science frameworks and methods, which focus more on structural and organizational contexts. Ultimately, the goal of our work is to leverage the knowledge gained from different disciplines to determine the most important factors that impede and facilitate EBI implementation, and to test methods to increase their implementation. Understanding clinical judgment and decision-making will serve to enhance implementation science, and will continue to allow us to design relevant and effective approaches to improve healthcare quality.

List Of Abbreviations

DBHIDS = Department of Behavioral Health and Intellectual disAbility Services; EAST = Easy Attractive Social and Timely; EBI = Evidence-based Intervention; NUDGE = Narrow, Understand, Discover, Generate, and Evaluate framework; PACTS = Philadelphia Alliance for Child Trauma Services; TF-CBT = Trauma-Focused Cognitive Behavioral Therapy; TN = Trauma Narrative

Declarations

Ethics Approval and Consent to Participate

All procedures were approved by the City of Philadelphia (2012-47) and the University of Pennsylvania (817282) Institutional Review Boards. All participants provided written or verbal consent to participate in our research study.

Consent for Publication

Not applicable.

Availability of Data and Materials

The dataset generated and analyzed during the current study is not publicly available due to the highly sensitive nature of interview transcript data. Publication of entire transcripts risk identifying research participants.

Competing Interests

The authors declare no financial or non-financial competing interests.

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Authors' Contributions

BSL conceived of and designed the research study; acquired and analyzed the data; interpreted the data; drafted the manuscript and substantially revised it. SHS analyzed the data; interpreted the data; and substantially revised the manuscript. CET analyzed the data; interpreted the data; and substantially revised the manuscript. HEF helped design the research study; acquired and analyzed the data; and substantially revised the manuscript. AMB helped design the research study; analyzed the data; interpreted the data; and substantially revised the manuscript. BNR acquired the data and substantially revised the manuscript. SFM substantially revised the manuscript. CC substantially revised the manuscript. SS substantially revised the manuscript. RSB helped conceive of and design the research study; interpreted the data; and substantially revised the manuscript. All authors approved the submitted version; have agreed to be accountable for the contributions; attest to the accuracy and integrity of the work, even aspects for which the authors were not personally involved.

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Footnotes

Not applicable.

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Tables

Table 1
Behavioral Insights Identified Through Coding Process

Behavioral Insights	Definition	How Behavioral Insight Can Determine TN Implementation
Base Rate Fallacy/Mental models	Base rate fallacy refers to when individuals ignore probabilities when making decisions and instead use the similarities between events to make predictions. Mental models are internal representations of the world.	Clinicians who experience the base rate fallacy may believe that aggregated data from efficacy trials, which are used to develop clinical practice guidelines, do not apply to their individual clients because of the perceived dissimilarity between their clients and trial participants. TF-CBT clinicians may have mental models of a “straight forward” or “typical” TF-CBT case, whereas other clients may align less with their image of the model of a typical TF-CBT case.
Choice Overload/Decision Fatigue	Choice overload occurs when decision-makers are faced with too many choices—the more choices, the more likely decision-makers will employ heuristics in lieu of reason. This relates to decision fatigue, or when people become fatigued the more decisions they make, which leads to poorer decisions.	Clinicians may feel that they don’t know how to choose among the many different intervention options (i.e., modality of the narrative, how to structure the narrative, etc.) they have at their disposal for a given client. They may feel psychologically taxed by the multiple decisions.
Default bias	Default bias is the tendency for decision-makers to prefer the current state of affairs and an aversion to change.	Clinicians may prefer the current practices they implement in their clinical work. This occurs because the current treatments they are implementing are taken as a reference point, and any change from that baseline is perceived as less preferable.
Fear Avoidance/Ostrich Effect	Fear avoidance is the tendency to avoid thoughts or actions that cause people fear. The ostrich effect is related to fear avoidance; it describes people’s tendency to ignore or fail to seek, often negative, information.	Clinicians may avoid implementing the trauma narrative because it is difficult for them—they may not be as skilled in the trauma narrative as the practices they have been trained in, and therefore do not want to engage in something that makes them feel less competent or nervous. They may also fear the difficulty in hearing details they may learn during the trauma narrative.

Note. Behavioral insights are largely selected from the “Behavioral Economics Guide 2018” (37), with several additions included by study coders with expertise in behavioral insights.

Behavioral Insights	Definition	How Behavioral Insight Can Determine TN Implementation
Functional fixedness	Functional fixedness is the tendency to conceptualize an object (broadly construed) only in terms of its most common use.	Clinicians may believe that the trauma narrative can only be done in the way that it has been taught to them. For example, if a clinician is only taught to implement the trauma narrative verbally, they may struggle to consider other methods/modalities by which to implement it.
Hopelessness/Helplessness	Hopelessness and helplessness are the feelings that things will not get better and that there are no ways to improve the situation.	Clinicians may feel "stuck" when attempting to implement the trauma narrative because several other barriers or challenges have intervened their ability to implement it. Clinicians may feel that despite their attempts to implement the trauma narrative, due to factors outside of their control (e.g., the client's psychosocial stressors, their inability to attend sessions) they are being insufficiently rewarded for their work, and therefore may be less inclined to attempt it with some clients.
Lack of reinforcement	The lack of reinforcement is the absence of a reward that can strengthen a response or action.	Clinicians may feel they are not being rewarded for the uncompensated work they have to do to prepare for the trauma narrative session.
Risk/Loss Aversion	Loss aversion refers to the idea that losses are more painful than similar gains. This leads people to avoid risks when losses are involved.	Clinicians may perceive the risk of harm in conducting the trauma narrative as more salient than the benefits it may offer.
Social Norms	Social norms represent a psychological phenomenon in which people do something primarily because other people like them are doing it.	Clinicians may feel that if others at their agency are/are not using the trauma narrative, then they will be less/more likely to use it.

Note. Behavioral insights are largely selected from the "Behavioral Economics Guide 2018" (37), with several additions included by study coders with expertise in behavioral insights.

Table 2. Demographic Characteristics

Characteristic	*N (%) or Mean (SD, range)*
Age	32.24 (9.74, 21-62)
Gender (Female)	17 (100%)
Hispanic/Latinx	
Yes	4 (23.53%)
Race	
American Indian/Alaskan Native	0
Asian	0
Black or African American	1 (5.88%)
Native Hawaiian or Pacific Islander	0
White	15 (88.24%)
Other	1 (5.88%)
Licensed	
Yes	11 (64.71%)
Which License?	
Professional Counselor	2 (11.76%)
Clinical Social Worker	5 (29.41%)
Licensed Social Worker	3 (17.65%)
Marriage and Family Therapy	1 (5.88%)
Not Licensed	6 (35.29%)
Highest Degree?	
MA	4 (23.53%)
MS	4 (23.53%)
MEd	1 (5.88%)
MSW	6 (35.29%)
DSW	1 (5.88%)
MSS	1 (5.88%)
Profession	
Social Worker	8 (47.06%)

Professional Counselor	9 (52.94%)
Years Practicing	6.00 (7.84, 0.83-31.17)
Completion of PACTS Training	
2011	1 (5.88%)
2015	3 (17.65%)
2016	2 (11.76%)
2017	4 (23.53%)
2018	6 (35.29%)
No Response	1 (5.88%)

Note. Many clinicians in public mental health settings work under the license of their supervisor (often a licensed social worker or licensed professional counselor).

Table 3. Results from the Behavioral Insights informed Analysis of Interview Data

Broad Theme	TN Determinant	Evidence from Interview	Behavioral Insights	Potential Implementation Strategy
Decision Complexity (i.e., dimensions of clinicians' decisions)	Decision complexity surrounding the incorporation of other evidence-based interventions	"I feel like sometimes I might get a little bit stuck in the structure part and have a little bit of a harder time figuring out how to be flexible."	Functional Fixedness Mental Models	Distribute stories/guides from similar clinicians (or peers) describing how they incorporate EBP with existing therapy routines.
		"I'm getting trained in theraplay which is an evidence-based play therapy practice and because of the age group I'm working with right now I feel like that's very helpful…I also employ, obviously, a lot of art therapy techniques"		
	Decision complexity surrounding client characteristics	"I find older children tend to be easier to do trauma narratives with than younger kids. I have a 4-year-old right now and it's been kind of a process to figure out how to adapt TF-CBT to do a narrative with them. And then I also work with a 6 year old who doesn't read yet, so I definitely feel like it's easier when a kid is more verbal, and is of age to read on his own."	Base Rate Fallacy /Mental Models Choice overload/Decision fatigue	Show clinicians narratives of kids with challenging presenting symptoms, or who may seem ill-suited for the narrative initially.
		"[My client is]		

	juvenile justice-involved, and they said like her IQ's 76 and verbal comprehension is by far her lowest competency, so that's helped us reframe our whole therapeutic approach. We're just doing so much more attachment-oriented things with her mom, who's also intellectually disabled. And so it's like this kid needs it."		
Decision complexity surrounding the clients' social context and resource depravation	"They are constantly . . . they were displaced for a long time, and they are constantly about to be displaced. I feel like she is at a point right now, where it's not . . . we could process the trauma with mom, but I don't think that what's happening for him substantiates doing TF-CBT."	Lack of reinforcement Helpless/hopelessness Mental models	Assign case managers/lay peer specialists to provide support around basic needs so clinician can focus on clinical/therapeutic work (i.e., task shifting)
	"Look, we cannot get to this deeper work until Mom stops kicking the kid out of the house and locking the door."		
	"But dad threatened him with a gun, so that shook up		

everything that we were doing… In those moments, I switch hats: I go into DV counselor mode and then immediately go into safety planning and really working hard with the parent to make sure we're supporting whatever they need to do…We haven't been able to get back on track with the components, and…we haven't . . .been doing trauma narrative even though technically with the timing I should be doing that now."

"And, you know, I've been meeting with him [my client] way longer than TF-CBT suggests. Really, since February, and I feel a lot of that is building that rapport…He, after seven months, was able to do the trauma narrative and talk about what happened, but it really did take that long, and I think sometimes the impression in the [TF-CBT supervision] call's is that this is short-term, you know. Bam, bam, bam.

	You’re doing all the things, and they’re done and cured…This really showed me the amount of trust that you have to engender in your clients in order for it to be effective…I’m lucky because my agency does give me a lot of leeway…But just the mentality around, ‘we should be doing short-term intervention.’ Right?. . . every kid has a different time line		
Decision complexity surrounding client psychopathology and/or complexity of trauma.	“[Barriers:] Cases where there’s just like a lot of complex trauma. They were sexually abused, and they witnessed someone kill someone, and domestic violence. You’re like, how am I going to ever get to all of these things? Which ones are the things that are worth prioritizing?”	Base rate fallacy/Mental Models Choice overload/Decision Fatigue	Develop a decision aid (such as a checklist, trauma hierarchy, or flowsheet) which uses the client’s symptoms and other clinical characteristics to guide trauma narrative priorities.
	“I guess [I prioritize] just going based off of what they were sharing and prioritizing interventions to meet what they identified as bothering them the most.”		
	“I’ve had one kid		

		who has had one singular trauma and it's kind of been a process where we've really been able to follow TF-CBT to a T, it's kind of progressing as expected and so forth."		
Clinician Affective Experience (i.e., emotions of the clinician)	Clinician affective experience of the structure and/or flexibility of TF-CBT	Clinician: I think maybe a template or something that can be given to clinicians to... you know, like "this chapter is about me" or, I don't know, something to make it more user friendly. To feel like even though it's unstructured, there's some parameters around it. Interviewer: from your experience supervising, do you find that some therapists have more or less difficulty with the unstructured aspect of it? Clinician: definitely. And I feel their own hesitation and worries about doing it creates… it takes longer to get there for their clients, and that's not ok. "I love the lack of structure,	Risk Aversion Fear Avoidance	Develop a toolkit or workbook of resources for each module that makes it easy to be creative, while also being a template for those who are unsure as to how to implement the narrative.

	cause I'm creative"		
	"I know some of my staff that I supervise have [faced a lot of challenges]. Sometimes it's more of this unstructured creativity part that they do not feel like they have the skill to do. One of the worries is where is it going to go, and if it goes somewhere we don't want it to go, is that too much? We talked about the avoidance for me."		
	"My supervisor is really helpful, my co-worker is really helpful. Also, I just go back the material, like a cheatsheet I keep with me."		
Clinician affective experience of client attendance	"Not only do gaps in attendance interrupt the therapeutic process, but some of my clients might have other behavioral issues, or other mental health issues, like poor recall, or they might be dealing with ADHD, so it's almost like you've got to start over again"	Lack of reinforcement Hopeless/helplessness	Incentivize clients to attend session with compensation and arrange transportation to bring the client to session.
	"It was really hard for clients		

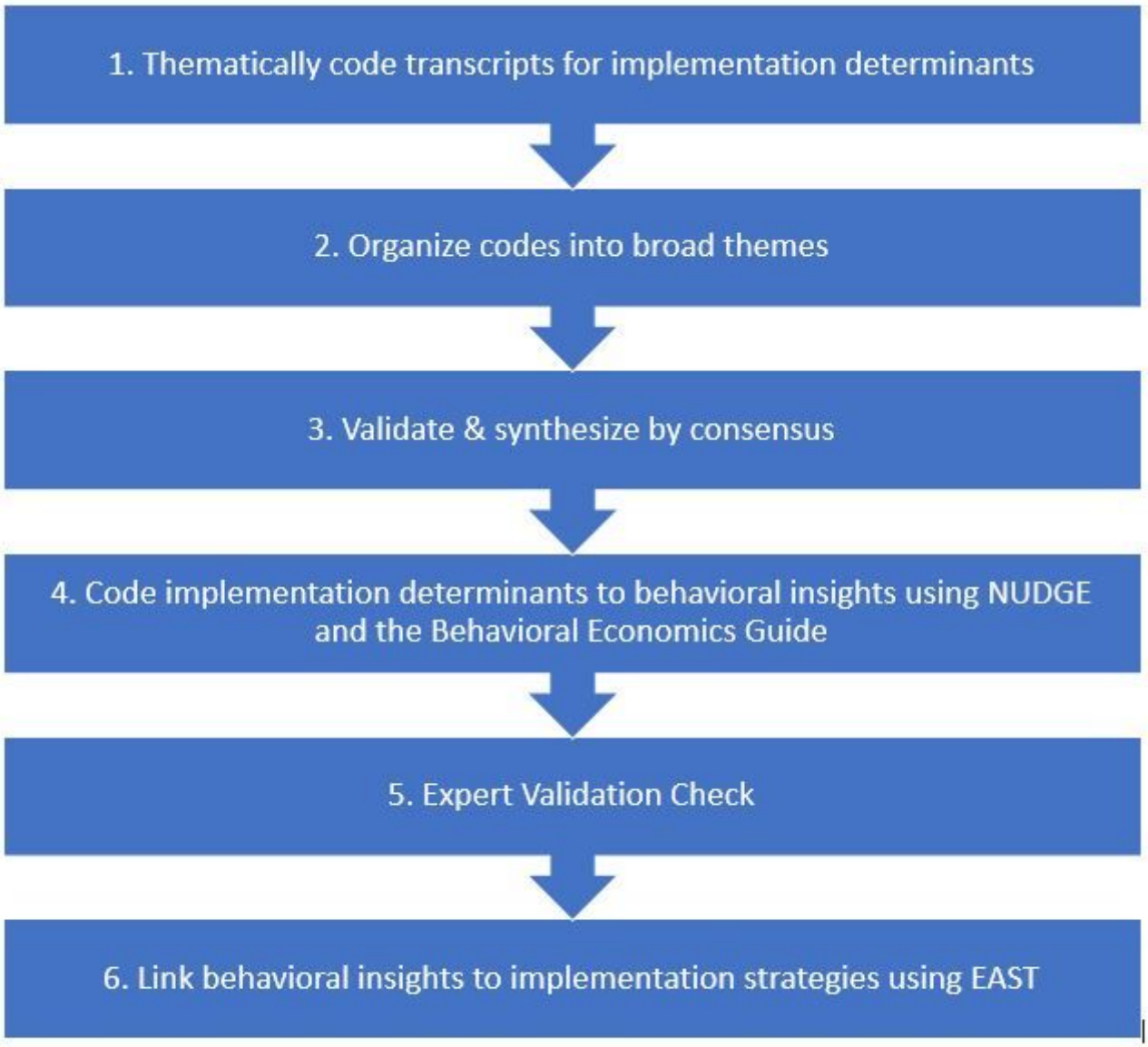
	and families to really be able to retain the information when there were gaps between the different skills we were learning as well as the gradual exposure that's so paramount when you're doing a narrative. And then it was also harder to see that hope of the more and more you do narrative and gradual expose the less distressed a kid is while hearing it and that was not really happening because there is too long of a period in between."		
	"You explain the attendance contract. You say this is really important and the reasons why we're doing trauma work. This is something that has to be built upon. You have to practice it. You're coming every week to make sure the skills are being set, and if you're not being consistent, then it is really hard to move forward."		
Clinician experience of the possibility of	[Clinician reported that in the middle of the session she	Risk aversion	Use clinical supervision to do an imaginal exposure about a

	clients decompensating.	decided against doing the TN because the caregiver relapsed on substance abuse problems.] Interviewer: “What do you think would have happened if you had just gone forward with using the trauma narrative with that patient against your clinical gut?” Clinician: Probably a break in the relationship. Some transference would have probably . . . Yeah.		client decompensating.
		“That was something I really got supervision with my supervisor from and she was kind of supporting me in that and I felt like he was a kid that I could pull more from and really push whereas other kids again, I don’t know if I would be that comfortable doing that.”		
	Clinician affective experience of hearing the gory and difficult details of the trauma narrative.	“The murder part, the shooting that he witnessed was the goriest thing I’ve ever heard.”	Fear Avoidance/Ostrich Effect	Develop a peer consultation model where clinicians can support one another and discuss challenging cases.
		“The intensity of asking the specifics, just		

		the acuteness in the moment when someone's telling a story, you know…This idea that we're sharing a story; we pass around stories; we learn from this. There are so many examples of how narratives are so healing and art in the world."		
Agency Norms (i.e., social norms and practices at the workplace)	Norms related to whether clinicians, supervisors, or agency leaders do or do not prioritize TF-CBT.	"We recently just . . . I think devoting time specifically to talking about TF-CBT is a barrier. I think the administrative piece takes precedent sometimes, and sometimes the clinical work or—I don't want to say the quality of the clinical work but—the supervision of the clinical work, sometimes can get lost in the administrative piece."	Social norms Default bias	Supervisors set an expectation that implementing the trauma narrative is a default by using templates in the Electronic Health Record, with a prompt for clinicians to make an accountable justification if they did not attempt the trauma narrative in session.
		"I guess if I were to go to another organization where TF-CBT was not so heavy, maybe I would stray away from it…maybe if I were to go into private practice, I don't know how much I'd use them…yeah, if I changed jobs, or went to private practice something like		

	that I might not do it to the extent that I am."	
	"Where I work we do employ TF-CBT, that's kind of what they do there. So I do a trauma narrative with every single kid."	

Figures



Note. See Table 3 for details on the final themes, TN determinants, behavioral insights, and implementation strategies developed out of this process.

Figure 1

Steps of the Qualitative Analysis Process

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- AppendixA.docx
- ISSMCOREQChecklistPACTS.pdf