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Managing In-Session "Surprises:" Provider Responses to Emergent Life Events during Evidence-Based Treatment Implementation

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Abstract

This study aimed to: (1) pilot a psychotherapy coding system for provider responses to emergent life events (ELEs; unexpected events that have a significant negative impact on the client), (2) examine the impact of ELEs on evidence-based treatment (EBT) delivery in community settings. Raters coded 30 randomly-sampled EBT session recordings with and without reported ELEs. Inter-rater reliability and validity for the system were generally high. When an ELE occurred, providers were significantly less likely to deliver the EBT, and when they did, they rarely linked the EBT to the event. Findings highlight the potential for ELEs to disrupt EBT implementation.

Keywords

Emergent life events; Dissemination and implementation; Evidence-based treatment; Community settings; Therapy providers

Introduction

Despite the widespread call for evidence-based care as a public health priority (U.S. Department of Health and Human Services 2007), the vast majority of clients receiving mental health services are not fully benefiting from evidence-based treatments (EBTs) (e.g., Kazdin and Blase 2011; Rotheram-Borus et al. 2012). Some have argued that a lack of fit between EBTs and the needs and values of service environments in which they may be implemented contributes to limited uptake and success of some EBTs in the community (e.g., Aarons et al. 2011; Schoenwald et al. 2008). For instance, community mental health providers have often expressed concern that EBTs are unable to fully address the complexity of their clients (Addis and Krasnow 2000; Reding et al., under review). Consistent with this notion, a study comparing privately-referred (i.e., referred to services by a university clinic,

similar to research samples) with publicly-referred (i.e., referred to services through the public community mental health system, similar to community samples) youth with anxiety disorders found that publicly-referred youth were nearly twice as likely as privately-referred youth to experience impairing life stressors (Southam-Gerow et al. 2008). These types of challenges in routine community populations may contribute to a deterioration in quality of EBT delivery. For instance, in their studies of usual community-based care, Garland and colleagues found that providers frequently used the strategy of "addressing external care" (i.e., providing case management), which likely interfered with the delivery of evidence-based practices (2010b, p. 793). Given the greater complexity demonstrated by community samples in these and other studies (e.g., Southam-Gerow et al. 2003), providers in community settings may face increased challenges in implementing EBTs effectively for these populations.

In particular, research suggests that emergent life events (ELEs) may pose a significant challenge in community populations (Chorpita et al. 2014). Drawing from the life stress literature (e.g., Rudolph and Hammen 1999), ELEs are conceptualized as unexpected events disclosed within a psychotherapy session that have a significant negative impact on the client(s) (e.g., a client's report of suspension from school, death in family, or job loss). ELEs may be especially relevant for high-risk community populations. For instance, families treated in the child welfare system frequently experience unexpected stressors such as custody issues or overdue bills (Urgelles et al. 2012).

Initial findings from a diverse, low-income sample of youth treated in community clinics illustrate the high frequency, varied content, and disruptive nature of ELEs in community samples. Analysis of provider-reported data obtained from weekly interviews with study supervisors revealed that for the majority of cases (69 %), providers reported at least one ELE over the course of treatment (Chorpita et al. 2014). Furthermore, among cases with an ELE, more than one ELE was likely to occur over the course of treatment, yet ELEs only occurred 8 % of the time in any given therapy session. ELEs ranged widely in content, from violence and abuse situations to behavioral issues at school. Importantly, when an ELE was reported in the above study, providers stated that they were not at all able to carry out the intended treatment plan 42 % of the time, partially able to carry out the treatment plan 38 % of the time, and fully able to carry out the treatment plan only 21 % of the time. These findings are consistent with another recent study of providers' open-ended feedback regarding implementation of EBTs in a community mental health setting, in which providers reported that EBTs are generally not well-suited to address the immediate stressors with which their clients are faced (Reding et al., under review). The collective findings from these two studies highlight the potential for ELEs to interfere substantially with successful EBT implementation. Furthermore, emerging data indicate that performing EBTs with integrity can enhance clinical outcomes (e.g., Schoenwald et al. 2004), suggesting that ELE-induced disruption to delivering an EBT could have a detrimental effect on client improvement.

These preliminary findings suggest that ELEs are common, unpredictable across sessions and content, and threatening to implementation of providers' treatment plans. Furthermore, they suggest that ELEs may create a point of ill fit between EBTs and the contexts in which they are delivered and are therefore deserving of more extensive examination. Yet the

previous study (Chorpita et al. 2014) utilized limited data from provider-reported records (e.g., one sentence to describe the ELE; one of three checkboxes to describe ability to carry out the treatment plan). Provider-reported data could be biased in a variety of ways. For instance, the central finding of ELEs causing providers to go off-protocol could have been biased by providers' desire to account for their own performance (e.g., providers who went off-protocol may have been more likely to inaccurately report an ELE afterward to justify their off-protocol activity, such that going off-protocol could increase reporting of ELEs rather than ELEs increasing off-protocol activity). Although the current evidence is thus insufficient to answer whether there is a causal link between ELEs and implementation quality, it clearly points to the value of asking the question with greater precision. This line of inquiry is likely to be advanced using a new methodology for third-party coding of therapy recordings, which can provide more objective documentation of ELE emergence and provider responses in session.

Most importantly, coding of provider behavior within session is useful to identify the mechanisms through which ELEs could disrupt (or not disrupt) a treatment plan. In particular, what are the ways in which providers respond to an ELE, and how might their responses impact their ability to utilize a treatment protocol? Although some have argued that EBTs are intended to be applied flexibly to deal with individual client needs or complex circumstances (e.g., Kendall and Beidas 2007), few if any EBTs currently offer explicit, codified guidance for providers to successfully respond to in-session surprises such as ELEs. It has been proposed that in the absence of structured guidance for how to manage these types of surprises or exceptional events, providers are likely to either: (a) ignore the exceptions (e.g., push ahead with a session when the youth is not ready or is focused on another concern), or (b) improvise and react (e.g., abandon the protocol or session plan and make up something in the moment; Chorpita and Daleiden 2014). Research suggests that neither of these options is likely to be optimal. For instance, overly rigid adherence to therapeutic interventions in the face of client resistance (an example of ignoring exceptions) has been associated with worse clinical outcomes (Castonguay et al. 1996). The "improvise and react" response can be likened to usual-care psychotherapy, which is fully responsive to exceptional events but has rarely been shown to improve clinical outcomes (Garland et al. 2010a).

As an alternative to either of those two options, a preferred "exception management" strategy for ELEs—that is, a method for handling unexpected challenges to EBT implementation posed by the ELE—might consist of using strategies from the protocol, when appropriate, to address the event (i.e., using the event as a "teaching moment"). Provided that the existing protocol contains content relevant to addressing the event, this type of strategy could potentially handle the ELE in a flexible manner while still delivering structured, evidence-based strategies. Such a strategy may offer a middle ground for providers to adapt the EBT in a way that is consistent with the treatment, rather than purely improvising. By first identifying the naturalistic ways in which providers handle ELEs, it will be possible to develop informed adaptations that can improve EBTs' ability to deal with client complexity (e.g., structured, empirically-guided options for providers to adapt the treatment to the ELE; see Chorpita and Daleiden 2014 for a thorough discussion of informed clinical decision-making).

Thus, the present study had three goals as an extension of previous findings based on provider report. The primary goal was to test the reliability and validity of a newly developed coding system for therapy recordings, the Emergent Life Events Coding System (ELECS). The ELECS was developed to objectively identify the occurrence of ELEs in session as well as describe various provider responses to ELEs. Because the only measure of ELEs presently available to validate the ELECS was based on retrospective provider report, we hypothesized that as a measure intended to capture objective session activity from therapy tapes, the ELECS would demonstrate fair but imperfect agreement with provider report of ELEs. As an illustration of the potential utility of the coding system, a secondary goal of this study was to use the ELECS to examine preliminary differences in providers' ability to deliver an EBT protocol across a small sample of sessions with and without ELEs. As the previous study (Chorpita et al. 2014) did not include a control group of sessions without ELEs, it remained unknown whether the rates at which providers carried out their treatment plan in the face of an ELE were lower than base rates of adhering to the treatment plan. Thus, we chose to include a control group with the hypothesis that providers would be significantly less likely to deliver EBT content in sessions with ELEs than in sessions without ELEs. Specifically, as the EBT protocol offered no structured guidance as to how to manage ELEs, it was hypothesized that the majority of providers would ignore the ELE or improvise in response to it, rather than use the ELE as a "teaching moment" for the EBT content. The third goal of this study was to use the ELECS to provide an initial characterization of the responses employed by providers when they did not utilize the EBT. It was hypothesized that the majority of providers would attempt to address the ELE with supportive techniques such as empathy or advice giving.

Method

Participants

Participants were selected from consecutive enrollments to one EBT condition (MATCH-ADTC) of an ongoing clinical trial conducted at three large community mental health clinics in an urban environment. The Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct problems (MATCH-ADTC; Chorpita and Weisz 2009) is a collection of 33 treatment modules that are organized according to five coordinating decision flowcharts. Within the protocol, providers focus on an initial problem area by following a flowchart of suggested treatment modules. If interference arises, for instance in the form of an emergent comorbid problem area, providers can address the interference by systematically employing other treatment modules. See Weisz et al. (2012) for further details about the protocol.

Participants in the clinical trial received outpatient or school-based psychotherapy and were required by their agencies to be eligible for Medicaid. Inclusion criteria for youth participants were as follows: (a) 5–15 years of age, (b) seeking mental health services at the three participating clinics, (c) having resided with current caregiver at least 3 months prior to study consent and anticipated to remain under their care for the next 9 months, (d) requiring treatment for any problems involving disruptive behavior, depression, anxiety, traumatic stress or any combination of these, (e) at time of intake, anticipated to stay within the county

where services were provided for the 6 months following study consent, and (f) ability for caregiver to meet with the youth's therapist on a weekly basis. Youth were excluded from the study if they: (a) had a diagnosis by a doctor of mental retardation, schizophrenia, autism, or psychosis, (b) had attempted or threatened suicide within the past 3 months, (c) were solely seeking mental health services for an eating disorder or for Attention Deficit Hyperactivity Disorder, or (d) were involved in the juvenile justice system.

Provider Participants—The 16 providers included in the present study were 94 % female, with a mean age of 32.50 years ($SD = 4.73$, *range* 25–42). Providers' reported race/ ethnicity was 50 % Latino/Hispanic, 25 % Caucasian, 13 % Mixed Race/Ethnicity, 6 % Asian, and 6 % Black/African–American. Regarding education, 94 % of providers listed their highest degree completed as a master's degree, with the remaining 6 % having completed a doctoral degree. The mean years of therapeutic experience following the completion of their highest degree was 2.63 years ($SD = 2.03$). Additionally, 50 % of providers listed their primary orientation as Eclectic, 25 % as Cognitive-Behavioral, 13 % as Family Systems, and 13 % as Humanistic/Client Centered.

Youth and Caregiver Participants—The 25 participating youth included in the current analyses were ages 5–15 years at baseline ($M = 9.85$, $SD = 2.41$). Of these participants, 52 % were female. Their reported race/ethnicity was 84 % Latino/Hispanic, 8 % Black/African American, 4 % Caucasian, and 4 % Mixed Race/Ethnicity. Youths' primary problem areas were categorized as 40 % disruptive behavior, 36 % depression, 24 % anxiety, and 0 % traumatic stress.

Participating caregivers were primarily female (80 %) and ranged in age from 27 to 70 years ($M = 36.33$, $SD = 10.40$). Caregivers' marital status was as follows: 33 % never married, 29 % married, 17 % separated, 13 % divorced, and 8 % living with partner. Caregivers' highest level of education completed was as follows: 44 % less than a high school diploma or GED, 20 % high school diploma or GED, 28 % at least one year of college, and 4 % graduate/ professional degree. The majority of families (71 %) reported their household income to be in the range of $0 - $19,000, with the remaining 29 % in the $20,000–$39,000 range.

Measures

Emergent Life Events Coding System (ELECS)—The ELECS was developed to identify the occurrence of ELEs as well as the presence of structured and unstructured activity (defined below) in therapy sessions. All ratings were assigned on an event rather than a time-interval basis, meaning that they were coded as they occurred. Extensiveness ratings for structured and unstructured activity categories were also collected in order to assess for intensity and dosage of activity. The basic structure of the coding system is depicted in Fig. 1 and is described in detail below. If multiple ELEs were reported within a single session, a new set of structured and unstructured activities and extensiveness was coded for each ELE.

Emergent Life Events (ELEs): In listening to the full therapy recording, coders first identified the presence or absence of an ELE in session. To be coded in a recording, an ELE

was operationally defined as an event disclosed during a treatment session that objectively has a significant negative impact on the client(s). Specifically, only events with ratings of 4 (*marked*) or 5 (*severe*) on a 1–5 negative impact scale for coding stressful events (based on the Youth Life Stress Interview; Rudolph and Flynn 2007) qualified as ELEs. The negative impact scale was defined as an objective rating of the negative effects of the ELE when considered in the context of all possible ELEs for all possible clients and was thus independent of the subjective distress expressed by the client(s) in session when describing the event. ELEs rated as 4 (*marked*) were defined as having a significant impact on daily life or functioning, whereas ELEs rated as 5 (*severe*) were defined as having a significant, pervasive, and enduring impact on daily life or functioning.

Provided they met the criteria for negative impact, examples of ELEs in the coding manual included major family- or peer-related problems or losses (e.g., death of close family or friend, domestic conflict, parental separation or divorce, major illnesses and/or hospitalizations, loss of parent job, change of living situation), major emergencies such as natural disasters or major weather problems (e.g., storms, earthquakes), major national or local emergencies (e.g., 9/11, war, terroristic threats), and other major problems in the environment (e.g., fires, car accidents, witnessing of community violence, suspension or expulsion from school, suicide risk, child abuse). ELEs were required to have occurred recently (e.g., since the previous session of treatment). Because we aimed to capture stressful life events, worsening symptoms of psychopathology, treatment engagement issues, and client resistance to treatment in the absence of a significant stressful event were excluded from the definition of an ELE.

Structured and Unstructured Session Activity: Regardless of the presence or absence of an ELE, all coded activities in session were categorized as *structured* or *unstructured*. Because this study utilized data from the MATCH-ADTC condition of a RCT, structured activities encompassed activities employing a portion of the MATCH-ADTC protocol. Conversely, unstructured activities encompassed all other activities (e.g., general discussion of the client's week, playing a game). An activity was coded as structured rather than unstructured if the provider: (a) covered something from a MATCH-ADTC module by name, or (b) covered more than one step in a MATCH-ADTC module. Coders also specified which of the 33 MATCH-ADTC modules were covered in session. While weekly ratings of clients' symptoms and the end-of-session fun activity are steps in each MATCH-ADTC module, they were not included as structured activities given their lack of structured therapeutic content. Additionally, while review of homework from a previous module was included as a structured activity, previews of future sessions were not included unless the provider covered a future module beyond a brief mention.

Provider Responses to Emergent Life Events: When an ELE was identified within session, coding of structured and unstructured activity was further delineated to capture specific provider responses. Structured activity after an ELE was categorized in two ways. First, providers could relate the ELE to a MATCH-ADTC module. In this type of response, providers used statements employing the ELE as a "teaching moment" or springboard for the learning of a MATCH-ADTC skill. A second way of employing structured activity after

an ELE was to teach a MATCH-ADTC module without relating it to the ELE. As with all structured activity, the particular MATCH-ADTC module employed was specified for these two types of responses.

Similarly, unstructured activity after the reporting of an ELE was categorized as either related or unrelated to the ELE. If the provider responded to the ELE with unstructured, related content, coders rated the occurrence of the following specific responses: supportive/empathic statements, information gathering about the event, information gathering about the impact of the ELE on client(s), informal advice giving, informal problem solving, psychoeducation about the ELE, informal reframing statement, safety protocol (not from MATCH-ADTC), provision of supportive resources outside of therapy, or other (with specification of the content of the activity). These unstructured responses were derived from consultation with experts in community-based psychotherapy delivery and an examination of sample ELE session recordings. Responses could consist of brief statements (e.g., "Tell me more about what happened" for information gathering about the event), and multiple responses could be coded in succession. Guidelines were provided for differentiating each specific response, such as informal problem solving or psychoeducation about the ELE, that was similar to a MATCH-ADTC module. Generally, unstructured specific responses to an ELE were less thorough than MATCH-ADTC modules and did not meet criteria for structured activity (i.e., covering something from a MATCH-ADTC module by name or covering more than one step in a MATCH-ADTC module). Conversely, providers could employ unstructured activity unrelated to the ELE after it was reported (e.g., asking about an event unrelated to the ELE; playing a board game without talking about the ELE). Given that brief digressions from treatment content are common, the unstructured activity unrelated to the ELE was required to last more than 2 min.

Thus, as depicted in Fig. 1, when an ELE was reported in session, providers' responses were broadly categorized into four types: (a) use of structured activity related to the ELE, (b) use of structured activity unrelated to the ELE, (c) use of unstructured activity related to the ELE, or (d) use of unstructured activity unrelated to the ELE. Importantly, it was possible for a provider to respond in multiple ways to the same ELE, in which case multiple responses would be coded. For instance, a provider might initially respond using unstructured activities related to the ELE (e.g., supportive/empathic statements and information gathering about the event) and then move on to structured activity unrelated to the ELE (e.g., the Relaxation module of MATCH-ADTC that is not proposed as a potential solution to the ELE).

Extensiveness: The extensiveness rating was designed to reflect the intensity or dosage of a provider's activity in session and was defined as a combination of the proportion of time spent on the activity and the thoroughness with which it was pursued. All structured and unstructured activities (e.g., MATCH-ADTC modules, specific unstructured responses such as informal advice giving) were assigned an extensiveness rating of absent, low extensiveness, or high extensiveness. Instructions for determining low versus high extensiveness were outlined in the coding manual for each activity. Specifically, for constructs employed in the analyses below, a low extensiveness rating for a given structured activity was assigned to a provider who covered content from a MATCH-ADTC module for

a few minutes, with little depth, a low concentration of effort, and/or one or two steps from the module. Conversely, a high extensiveness rating for a given structured activity was assigned to a provider who covered content from a MATCH-ADTC module for a moderate to high proportion of the session time, with at least some depth, a moderate to high concentration of effort, and/or with multiple steps from the module.

Given the possibility of multiple structured activities (i.e., MATCH-ADTC modules) occurring within a single session, a session-wide extensiveness rating was calculated to combine across all structured activities. Within this calculation, any session containing at least one structured activity rated at high extensiveness was coded as having a high session-level extensiveness of structured activity. Sessions that did not contain at least one structured activity rated at high extensiveness were coded as having an absent or low extensiveness of structured activity.

Consultation Record—A Consultation Record (Ward et al. 2013) was completed by project consultants during a weekly semi-structured consultation meeting with study clinicians. The measure was developed and employed to keep track of treatment practices and session content, and involves the consultant interviewing the therapist about the most recent therapy session. The "crisis" section of the Consultation Record, which requires consultants to ask about the presence of an ELE and check a box if one was indicated in the previous session, was used in the present study to validate the occurrence of ELEs in session recordings.

Coding Procedure

Coder Training—Coders were three clinical psychology doctoral students trained in MATCH-ADTC who were blind to the purpose of the study. Coders met weekly to review and discuss the coding manual and the MATCH-ADTC protocol as applied to practice tapes. General issues with item content and definitions were also discussed at this time. Following these discussions and consultation with co-authors, a revised version of the coding manual was produced. After demonstrating 80 % or greater agreement on all codes (including within-1 ratings for continuous codes) for three consecutive tapes during the training period, the three coders independently coded 30 MATCH-ADTC session recordings. Coders continued to meet weekly throughout this time to discuss issues and prevent coder drift.

Sampling of Sessions for Coding—In order to ensure a high representation of ELEs in the coded sample, the full sample of MATCH-ADTC session tapes ($N = 1211$) was divided into two groups based on whether the Consultation Record data indicated the presence ($n = 105$) or absence ($n = 1106$) of an ELE in session. From this Consultation Record data, a random sample of 15 recordings with reported ELEs and 15 recordings without reported ELEs was then selected for coding. All 30 tapes were double coded for the purpose of assessing reliability, and no tapes were excluded from analyses due to technical reasons. An index coder completed 30 tapes, while the other two coders completed 20 and 10 tapes, respectively. Discrepancies between coders were resolved by using data from the index coder.

Analyses

Several sets of analyses were employed to test the goals of the present study. All analyses were performed with SPSS 20, with the exception of multilevel logistic regressions which were run in HLM7. Regarding the first goal of the study, inter-rater reliability of ELEs and provider responses to ELEs was calculated across all coders using Cohen's kappa for categorical variables and an intraclass correlation coefficient (ICC) for the ordinal variable of ELE occurrences. A kappa was also calculated to test the validity of the ELECS against the provider-reported data on the Consultation Record.

For the second goal of the study, we used descriptive statistics to calculate frequencies of the four broad categories of provider responses to ELEs. To test for the association between ELE occurrence in session and provider delivery of the EBT protocol, we employed Chi square analyses to compare EBT delivery across cases with and without ELEs. Additionally, we used multilevel logistic regression analyses, with cases (Level 1) nested within therapists (Level 2), to compare the odds of delivering an EBT across cases with and without ELEs. These analyses allowed us to examine the relationship between ELEs and EBT delivery both descriptively and inferentially.

Finally, to address the third goal of the study, we used descriptive statistics to examine frequencies of unstructured responses to ELEs.

Results

Inter-Rater Reliability

Inter-rater reliability for all major constructs within the ELECS is presented in Table 1. Reliability was in the excellent range for the identification of ELEs and overarching categories of structured and unstructured session activity. The four broad categories of provider responses when an ELE occurred were in the fair to excellent range of reliability, with the exception of unstructured activities unrelated to the ELE ($\kappa = 0.21$), which fell below standards for acceptable agreement (fair 0.40–0.59, good 0.60–0.74, excellent 0.75–1.00; Cicchetti 1994). One specific response under the unstructured activity related to the ELE category, informal reframing statement, also fell below standards for fair agreement ($\kappa = 0.09$) and was excluded from further analyses.

Validity

As predicted, there was imperfect but fair agreement on the presence of an ELE in session between the provider-reported data (Consultation Record) and data obtained through the ELECS ($\kappa = 0.53$, $p < 0.01$). Thus, the sampling of 15 sessions with ELEs and 15 sessions without ELEs as reported on the Consultation Record yielded 12 ELE recordings with a total of 15 ELEs (due to three tapes having two ELEs each) and 18 recordings without ELEs.

Overall Patterns of ELEs and Responses to ELEs

The ELEs identified in the sampled recordings ranged from family- or peer-related problems or losses, such as physical violence within in the family or loss of a best friend, to major problems in the environment, such as suicide risk or suspension from school. An initial

descriptive analysis of the types of responses used to address an ELE revealed that 60 % of responses included structured activity while 40 % consisted of entirely unstructured activity. Furthermore, when allowing for the presence of multiple responses, unstructured activity related to the ELE occurred most frequently (93 %; e.g., information gathering—"How are you feeling about that?"), followed by unstructured activity unrelated to the ELE (73 %; e.g., playing a game), structured activity related to the ELE (47 %; e.g., "Maybe you were suspended this week and had to stay home… but looking at the Thinking Feeling Doing triangle, what's a positive way you can look at it?"), and structured activity unrelated to the ELE (20 %; e.g., "Now let's go over the Fear Ladder from last week").

EBT Delivery: High-Extensiveness Structured Activity

To rule out alternative explanations for differences in providers' use of EBT content, recordings with and without ELEs were compared across provider, youth, and caregiver characteristics. No significant differences were found between recordings with and without ELEs on provider characteristics (age, gender, race/ethnicity, highest degree completed, years of therapeutic experience post-degree, primary orientation), youth characteristics (age, gender, race/ethnicity, problem area, service setting), or caregiver characteristics (age, gender, marital status, highest level of education). However, youth from recordings with an ELE were significantly more likely than youth from recordings without an ELE to have a household income in the $0–$19,000 range, $\chi^2(2, N = 26) = 6.12, p = 0.047$.

As a broad examination of EBT delivery, the proportion of high-extensiveness structured activity as opposed to absent or low-extensiveness structured activity was compared across cases with and without ELEs. Results are presented in the first half of Table 2. A Chi square test of independence was conducted to examine the relationship between ELE occurrence and the presence of high-extensiveness structured activity. The relationship between these variables was significant, $\chi^2(1, N = 33) = 4.89, p = 0.027$, indicating that high-extensiveness structured activity was less likely to occur in sessions with ELEs (40 %) than in sessions without ELEs (78 %).

Additionally, results from a multilevel logistic regression analysis revealed that when an ELE occurred in session, the odds of having high-extensiveness structured activity decreased by 5.25 times as compared with when an ELE did not occur, an effect that was significant ($b = 1.66, SE\ b = 0.77, OR\ 5.25, 95\ \%\ CI\ [1.02, 27.03], p = 0.048$).

EBT Delivery: Preferred Activity

EBT delivery was also examined using a stricter definition. For sessions without ELEs, as in the previous analysis, preferred session activity was defined as having high-extensiveness structured activity. For sessions with ELEs, preferred session activity was defined as having high-extensiveness structured activity *related to the ELE* - that is, using the ELE as a "teaching moment." The proportion of preferred to non-preferred activity was compared across cases with and without ELEs. Results are presented in the second half of Table 2.[1] A

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[1] Because preferred activity was defined differently for ELE cases than for non-ELE cases, the contingency table in this analysis is not symmetrical.

Chi square test of independence was conducted to examine the relationship between ELE occurrence and the presence of preferred session activity. The relationship between these variables was significant, $\chi^2(1, N = 33) = 6.62$, $p = 0.010$, indicating that preferred session activity was less likely to occur in sessions with ELEs (33 %) than in sessions without ELEs (78 %).

Additionally, results from a multilevel logistic regression analysis revealed that when an ELE occurred in session, the odds of having preferred session activity decreased by 7.00 times as compared with when an ELE did not occur, an effect that was significant ($b = 1.95$, $SE\ b = 0.79$, OR 7.00, 95 % CI [1.32, 37.04], $p = 0.025$).

Unstructured Activities

Lastly, we examined the frequency of specific unstructured activities occurring after the reporting of an ELE in session. Results are presented in Table 3. Supportive/empathic statements and information gathering about the event were the most common unstructured responses, each occurring in 93 % of ELE cases.

Discussion

The major aim of the present study was to describe the reliability and validity of the ELECS, a newly developed coding system for emergent life events and providers' responses to the events in therapy recordings. Results showed that inter-rater reliability for the ELECS was generally in the excellent range and that identification of ELEs within the system was validated by provider report. In addition, the present study used the ELECS to take an initial look at patterns of provider behavior in session; specifically, to compare providers' ability to deliver an EBT across sessions with and without ELEs, and to characterize off-protocol responses to ELEs. When comparing EBT delivery between sessions with and without ELEs, providers were significantly less likely to deliver a high (as opposed to absent or low) dose of on-protocol activity when an ELE was reported in session. Furthermore, providers were even less likely to deliver a high dose of on-protocol activity *related to the ELE*—that is, to use the ELE as a "teaching moment" for the protocol. Finally, results revealed that when providers did not deliver EBT content in the presence of an ELE, they most commonly offered support/empathy, gathered information about the event and its impact, discussed topics unrelated to the ELE, and offered informal advice.

The generally high inter-rater reliability for items in the ELECS provides support for the utility of this system in measuring a common challenge within community mental health populations—ELEs—and its effects on subsequent provider behavior in therapy sessions. In addition to support for the system's reliability, the present study offers some support for its validity. As expected, there was fair but imperfect agreement between provider report of ELEs and third-party coding of therapy recordings using the ELECS. Additionally, results from the small sample of recordings using the ELECS provide preliminary, behavior-based confirmation of previous provider-reported findings that ELEs are substantially disruptive to the delivery of an EBT protocol (Chorpita et al. 2014). Importantly, initial findings from the ELECS not only corroborate provider report, but extend beyond the previous data by offering information on specific provider responses to ELEs, such as relating the ELE to

EBT content, as well as information on dosage of EBT content in sessions with and without ELEs. Thus, the development of the ELECS allows for an objective and fine-grained examination of some of the mechanisms (i.e., provider responses) through which ELEs may affect EBT implementation, which in turn should facilitate the creation of structured guidance for providers to effectively handle these events.

Results from the current study were consistent with our hypothesis that providers would be significantly less likely to deliver EBT content in sessions with ELEs than in sessions without ELEs. When EBT delivery was defined broadly as any on-protocol (i.e., structured) activity delivered at a high dose, the odds of delivering an EBT decreased by over five times in the presence of an ELE. When EBT delivery was defined more narrowly as on-protocol activity related to the ELE delivered at a high dose, the odds of delivering an EBT decreased by seven times in the presence of an ELE. These findings are situated within a clinical trial in which the majority of providers (78 %) delivered the EBT at a high dose when an ELE did not occur, thereby demonstrating that ELEs can significantly interfere with EBT delivery even with providers who are typically adherent. Also worth noting, the modular protocol employed in this study, MATCH-ADTC, was designed to address four major problem areas commonly experienced by youth (anxiety, depression, traumatic stress, and conduct problems), and therefore may have offered a greater choice of therapeutic interventions to address an ELE in comparison with EBTs designed to address only one problem area. Even in the context of this modular protocol, less than half of providers related the ELE to EBT content (i.e., "structured activity related to the ELE"). However, given that the EBT protocol offered no structured guidance as to how to achieve such a transition from ELE to EBT content, and the best way of addressing a particular ELE may not have been through use of one of the available modules, this finding was not surprising.

Also as hypothesized, in contrast to the less frequent use of on-protocol activity related to the ELE, our findings suggest that the vast majority of providers used some off-protocol activity related to the ELE (i.e., "unstructured activity related to the ELE"). These responses could be conceptualized as improvising and reacting, one of two strategies theorized to occur when structured guidance is unavailable to manage a surprise or exceptional event (Chorpita and Daleiden 2014). The second strategy, ignoring the exceptions and pushing ahead with the protocol in spite of an ELE (i.e., "structured activity unrelated to the ELE" in the present study), occurred far less commonly in this small sample. When providers improvised, the specific unstructured techniques they employed varied widely but were comparable to some of the strategies identified in usual care settings (e.g., information gathering; Garland et al. 2010b). Results suggest that by delivering a greater dose of off-protocol strategies in the presence of an ELE, providers reduced the likelihood of simultaneously delivering a high dose of on-protocol strategies. Indeed, in our study, ELEs prompted absent to low doses of on-protocol activity in the majority of cases. ELE sessions of an EBT were thus more similar to usual care, which tends to be characterized by a wide array of evidence-based and non-evidence-based strategies delivered at a low dose (Garland et al. 2010b). The higher intensity with which providers cover evidence-based practice elements in EBT protocols as compared with usual care may contribute to the generally greater clinical improvements shown by many EBTs over usual care (Garland et al. 2010a). Thus, although the small sample size of the present study precluded our ability to examine

the impact of ELEs on clinical outcomes, it is possible that when ELEs occur, providers' tendency to deliver lower doses of EBT content has detrimental effects on clients' progress - especially given previous findings that ELEs tend to recur over the course of treatment, thereby disrupting multiple sessions (Chorpita et al. 2014). Such questions would be a fruitful area for future investigation, as would questions regarding the nature of ELEs' disruption (e.g., is EBT delivery delayed by more than one session for each ELE?).

Our initial findings suggest that in the face of an ELE, providers are more likely to respond by improvising than by relating the ELE to the protocol. The latter response is expected to provide the preferred balance of structure (i.e., use of EBT content) and flexibility (i.e., application to client-specific concerns) towards ELEs that was previously demonstrated to be superior to a fully structured (i.e., standard EBT) or fully flexible (i.e., usual care) strategy for handling other exceptions such as comorbidity (Weisz et al. 2012). However, research has yet to examine whether such an approach of informed adaptation conveys similar clinical benefits over fully structured or fully flexible options with regard to ELEs. As the present study was unable to examine providers' rationale for choosing specific responses to ELEs, it remains unknown whether providers chose to employ off-protocol (i.e., improvisatory) strategies because they felt the protocol was incapable of addressing the concerns at hand (Reding et al., under review) or because they simply lacked the guidance necessary to recognize how the protocol could be applied to the ELE. Given the unpredictable nature of these events, it is possible that some ELEs were more difficult or not appropriate to address with the available EBT skills than others, and the development of additional structured content (e.g., case management modules) to guide providers could be warranted. In addition, legal or agency requirements, such as suicide risk assessment and safety planning, may have understandably taken precedence over the planned EBT content in some cases. Thus, a single preferred strategy for handling ELEs may not always be appropriate. Further research is needed to delineate the effects of various ELE management strategies on overall treatment progress.

Additionally, although it was not an explicit aim of the study, in our preliminary analyses of differences between ELE and control clients, we found that clients in the ELE group tended to have lower incomes than those in the control group. This finding is consistent with previous research suggesting that at-risk community populations may be especially likely to experience significant stressors (Southam-Gerow et al. 2008; Urgelles et al. 2012) and highlights the continued need to fit EBTs with the complex populations they are likely to serve. Whether the disruption caused by ELEs has more detrimental effects on certain groups, such as low-income families, remains a question for future investigation.

Limitations

Several limitations regarding this study should be noted. First, as a preliminary study, the sample size of 30 tapes was small, which limits the extent to which conclusions can be drawn regarding impact of ELEs on EBT delivery. For instance, the small sample resulted in wide confidence intervals for the odds ratios in the logistic regression analyses. Thus, the findings that ELE occurrence strongly decreased the likelihood of providers delivering the EBT protocol with high extensiveness should be interpreted with caution until they can be

replicated in larger samples. The small sample also precluded a more in-depth exploration of the specific types of provider responses employed in session. For instance, given the low base rate of each of the 33 MATCH-ADTC modules in our sample, we were unable to examine whether certain MATCH-ADTC modules, such as Problem Solving or Cognitive Coping, were more likely to be employed than other modules in response to an ELE. The sample size also prevented inter-rater reliability from being calculated for a few items, as one or more variables was constant (e.g., one or both coders indicated that a given response never occurred). However, it is notable that in spite of the small sample size, significant differences in EBT delivery were found between sessions with and without ELEs, which suggests that these differences are deserving of further investigation in larger samples.

An additional limitation is that delivery of the EBT protocol in this study was defined relatively narrowly. For instance, in order for a structured activity to be coded, providers were required to cover a portion of a MATCH-ADTC module by name or to cover more than one step in the module. This definition may have excluded, for example, providers who were covering evidence-based content but did not specifically mention MATCH-ADTC (e.g., using general cognitive behavioral techniques). However, given that the sessions coded in this study were part of a clinical trial of MATCH-ADTC, it was decided that a strict definition was needed to provide reasonable certainty that the protocol being tested was in fact being used. Furthermore, in order for a session to be coded as having high-extensiveness structured activity, providers were required to employ at least one MATCH-ADTC module at high extensiveness. Providers who employed multiple MATCH-ADTC modules, each at low extensiveness, therefore did not qualify as delivering a high dose of structured activity. Thus, the percentage of providers employing high-extensiveness structured activity may represent an under-reporting of actual structured activity in sessions both with and without ELEs. While this definition of an appropriate dose of EBT delivery was conservative, given previous findings suggesting the ineffectiveness of low doses of multiple evidence-based strategies in usual care (Garland et al. 2010a), as well as the general recommendation in MATCH-ADTC to cover each module in its full content (Chorpita and Weisz 2009), it is believed that this type of structured activity is most representative of what the treatment developers intended to promote maximum effectiveness.

Also worth noting is that provider age and years of experience were relatively low in this study, potentially limiting the generalizability of the findings on ELE response rates. It is possible that younger providers with less therapeutic experience are more likely to get thrown off-protocol by an ELE than more experienced providers, although this question has yet to be empirically investigated.

A final limitation is that inter-rater reliability for one of the four categories of provider responses to ELEs, unstructured activities unrelated to the ELE, fell below standards for acceptable agreement. As such, this category was not included in the major findings of the study (i.e., findings on EBT delivery and frequencies of specific unstructured responses related to the ELE), and the finding that 73 % of ELE cases employed this type of response should be interpreted with caution. The low reliability for this item indicates that further refinement of its definition is warranted.

Future Directions

Using an objective coding system for therapy sessions, the present study offers an important albeit preliminary examination into provider responses as a mechanism through which ELEs disrupt delivery of an EBT in diverse community settings. Through sharing this coding system with other researchers, we hope to facilitate future studies investigating these commonly occurring events in therapy. One valuable avenue for future research will be to identify the differential impact of ELE characteristics (e.g., client distress in session, dependence/controllability of the event, content area) on EBT delivery. In addition, provider characteristics such as attitudes towards the EBT, years of clinical experience, and training background may differentially affect providers' choice of response to ELEs. Furthermore, as the present study only examined one EBT, MATCH-ADTC, it is likely that the characteristics of the EBTs available for use will also impact providers' responses. An examination of these factors will be important to enhance our understanding of how and why ELEs are disruptive to implementation of EBTs in service populations.

Another beneficial path for future research will be to measure the addressability of the ELE to identify which specific EBT modules could address the ELE at hand. This expansion will enable a more thorough understanding of whether and which ELEs can be addressed using existing protocol material, as well as the type of protocol material used (e.g., a Problem Solving vs. a Relaxation procedure). Further, it is expected that the relationship between ELEs and EBT delivery will be moderated by addressability, in that providers will be less able to use EBT content when an ELE is viewed as not addressable by the protocol.

A more comprehensive understanding of ELE characteristics and provider responses to them is vital to informing the ultimate development of a structured, yet flexible, algorithm for optimally managing ELEs, with the focus always on best overall treatment progress. Ideally, when appropriate content is available within the protocol, an ELE management strategy would encourage clients and providers to use ELEs as "learning opportunities" to apply and rehearse elements of the protocol, as opposed to having ELEs serve as distractions or obstacles. Given the likely frequency of ELEs in many clinical settings, this type of general procedure could ultimately improve the delivery of almost any treatment, as well as improve provider and client perceptions of the suitability of a given treatment. It could be conditionally triggered within many existing EBTs, serving to make treatment more robust in the face of the surprises and challenges so often encountered in everyday service settings.

Acknowledgments

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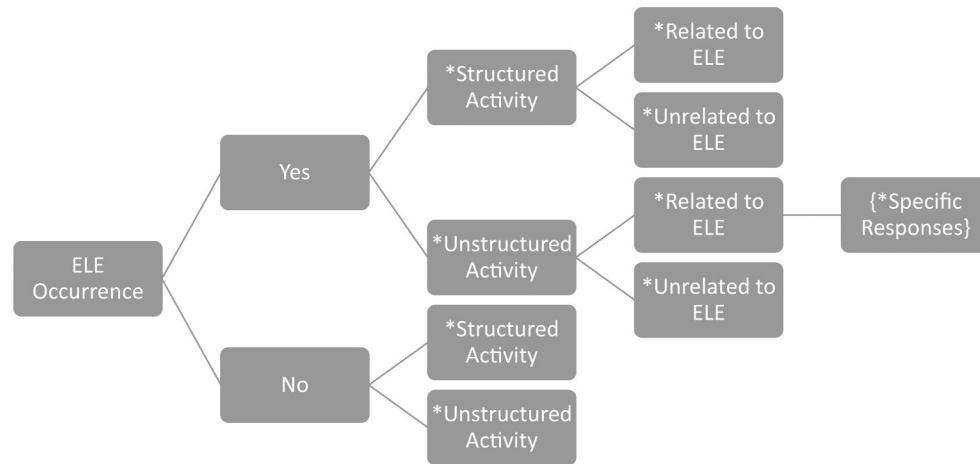
Fig. 1.
Basic Structure of the Emergent Life Events Coding System (ELECS). Structured Activity: Provider coverage of a MATCH module. Unstructured Activity: Provider coverage of any other content. Items marked with an *asterisk* indicate activities for which extensiveness ratings (absent, low, or high) were coded

Table 1

Inter-Rater Reliability of the Emergent Life Events Coding System (ELECS)

Item description	Kappa (% agreement)
ELE negative impact	1.00
ELE occurrence (number of ELEs per session)	0.88 (ICC)
ELE occurrence → yes → structured activity	1.00
Extensiveness	0.84
ELE occurrence → yes → structured activity → related to ELE	1.00
Extensiveness	0.94
ELE occurrence → yes → structured activity → unrelated to ELE	0.58
Extensiveness	0.44
ELE occurrence → yes → unstructured activity	1.00
Extensiveness	0.46
ELE occurrence → yes → unstructured activity → related to ELE	1.00
Extensiveness	0.94
Specific responses	
Supportive/empathic statements	1.00
Information gathering about the impact of the ELE on client(s)	0.76
Informal advice giving	0.71
Informal problem solving	0.65
Psychoeducation about the ELE	0.42
Informal reframing statement	0.09
Safety protocol (not from MATCH-ADTC)	0.84
Provision of supportive resources outside of therapy	–(93 %)
Other	–(86 %)
ELE occurrence → yes → unstructured activity → unrelated to ELE	0.21
Extensiveness	0.20
ELE occurrence → no → structured activity	1.00
Extensiveness	1.00
ELE occurrence → no → unstructured activity	–(100 %)
Extensiveness	0.90

Items correspond to Fig. 1

ICCs are denoted with (ICC) after the reliability estimate. For items with no kappa or ICC reported, reliability estimates could not be calculated because one or both raters coded the item as a constant; percent agreement is reported in parentheses for these items

ELE: emergent life event, MATCH-ADTC: Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct problems, ICC: intraclass correlation coefficient

Table 2

EBT delivery across cases with and without ELEs

Type of EBT delivery	ELEs ($n = 15$)	No ELEs ($n = 18$)	$\chi^2(1, N = 33)$
High-extensiveness structured activity	6 (40 %)	14 (78 %)	4.89 *
Absent or low-extensiveness structured activity	9 (60 %)	4 (22 %)	
Preferred activity	5 (33 %)	14 (78 %)	6.62 *
Non-preferred activity	10 (67 %)	4 (22 %)	

EBT: evidence-based treatment, ELE: emergent life event

High-extensiveness structured activity = High proportion of time and thoroughness spent on at least one MATCH-ADTC module in session. Preferred activity for sessions with ELEs = High-extensiveness structured activity related to the ELE. Preferred Activity for sessions without ELEs = High-extensiveness structured activity

*
$p < 0.05$

Table 3

Frequencies of unstructured activities after ELE occurrence

Type of activity	ELE cases (*n* = 15)
ELE occurrence → yes → unstructured activity → related to ELE	
Supportive/empathic statements	14 (93 %)
Information gathering about the event	14 (93 %)
Information gathering about the impact of the ELE on client(s)	11 (73 %)
Informal advice giving	10 (67 %)
Psychoeducation about the ELE	7 (47 %)
Safety protocol (not from MATCH-ADTC)	5 (33 %)
Informal problem solving	4 (27 %)
Provision of supportive resources outside of therapy	1 (7 %)
Other	1 (7 %)
ELE occurrence → yes → unstructured activity → unrelated to ELE	11 (73 %)

ELE: emergent life event, MATCH-ADTC: Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct problems