# Interaction structures as predictors of outcome in a naturalistic study of psychodynamic child psychotherapy

Sibel Halfon, Geoff Goodman & Pelinsu Bulut

Published online: 06 Sep 2018.

Submit your article to this journal 

View Crossmark data

**EMPIRICAL PAPER**

# Interaction structures as predictors of outcome in a naturalistic study of psychodynamic child psychotherapy

SIBEL HALFON[1], GEOFF GOODMAN[2], & PELINSU BULUT[1]

[1]*Psychology Department, Istanbul Bilgi University, İstanbul, Turkey &* [2]*Clinical Psychology Doctoral Program, Long Island University, Brookville, NY, USA*

**Abstract**
**Objective:** The first aim of this study was to identify interaction structures (IS), which refer to clusters of items characterizing the course of psychotherapy in terms of reciprocal interaction patterns between the therapist and the child, secondly to assess their trends over the course of treatment, and finally investigate which IS predict outcome in long-term psychodynamic child psychotherapy.
**Method:** The sample included 52 children with externalizing and internalizing problems. 192 sessions were rated with the use of the Child Psychotherapy Q-Set (CPQ). Outcome was assessed with the Child Behavior Checklist (CBCL) Total Problems, and Children's Global Assessment Scale (CGAS).
**Results:** A principal components analysis resulted in four IS, theoretically named Therapeutic Alliance, Children's Emotion Expression, Child -Centered Technique and Psychodynamic Technique. Multilevel Modeling (MLM) analyses indicated significant linear growth on Psychodynamic Technique. Multiple regression analyses indicated that Psychodynamic Technique positively predicted changes on CBCL Total Problems and CGAS. In contrast, Child-Centered technique negatively predicted change on CBCL Total Problems, however follow up interaction analyses showed that externalizing children who received more Child-Centered technique showed more improvement on this scale.
**Discussion:** Findings point to empirically derived components of psychodynamic child psychotherapy and provide preliminary answers about which aspects may facilitate change.

**Keywords:** psychodynamic child psychotherapy; interaction structures; Child Psychotherapy Q-Set; therapeutic alliance; technique

**Clinical or methodological significance of this article:** This is one of the first studies to identify core treatment processes in psychodynamic psychotherapy for children with externalizing and internalizing problems. We were able to identify empirically derived change processes that can be used in future research and provided preliminary answers about which aspects may facilitate change, taking into account specific pre-treatment sample characteristics, which provided further evidence that therapist techniques occur as part of a complex interaction with the children's characteristics. These findings highlight the importance of an investigative strategy to study "what works for whom", using a naturalistic process-outcome research design, in order to understand what specifically promotes therapeutic change.

## Introduction

Process research, the means by which one explores why and how change takes place in psychotherapy, adds depth to the question of "what works for whom?" (Fonagy, Target, Cottrell, Phillips, & Kurtz, 2002) and has the potential to help identify the "active ingredients" and change mechanisms that form the basis of a successful psychotherapy.

However, relatively few studies include an analysis of the process of therapy or link specific processes to therapeutic outcome within specific modalities of treatment. In the field of psychodynamic child psychotherapy, there have been some recent publications indicating an evidence base on the effectiveness and efficacy of psychodynamic psychotherapy (see Midgley, O'Keeffe, French, & Kennedy, 2017 for a

---

review); however, research on therapeutic processes with children is substantially limited compared to outcome studies, which do not answer specific pathways associated with change (Kazdin, 2000). There is need for investigation into developmentally specific treatment characteristics, in order to understand putative change processes in psychodynamic child therapy.

The gap between process and outcome research is partly due to the scarcity of detailed and standardized protocols that can measure therapeutic processes in child treatments. Even though there are some measures that focus on aspects of the treatment process (i.e., therapist's interventions, therapeutic alliance, play processes), there has been a need for a measure that can address the entirety of a therapeutic hour, taking into account therapist, patient and therapeutic interaction characteristics (Schneider, Midgley, & Duncan, 2010). In order to address these issues, Schneider and Jones (2004) developed the Child Psychotherapy Process Q-Set (CPQ), which can measure the psychotherapy process at the level of an individual psychotherapy session, consisting of items describing therapist behaviors, patient behaviors and therapist-patient interactions. The CPQ is an adaptation of the Psychotherapy Process Q-Set (PQS; Jones, 1985), which has been used effectively to delineate the complexity of adult psychotherapy process. In order to adapt the PQS to child psychotherapy, Schneider identified 100 items most characteristic of processes occurring in child psychotherapy across theoretical orientations. In preliminary studies, the CPQ has shown adequate reliability and validity (e.g., Goodman & Athey-Lloyd, 2011; Schneider, Pruetzel-Thomas, & Midgley, 2009). The aims of this study were to investigate, with the use of the CPQ, the specific treatment characteristics that emerge in psychodynamic therapy with a group of externalizing and internalizing children, assess their trends over the course of treatment and investigate associations with outcome.

disorder, borderline personality disorder, adjustment disorder, depressive and anxiety disorders, and disruptive behavior disorders (Goodman, 2015; Goodman & Athey-Lloyd, 2011; Ramires, Godinho, & Goodman, 2017; Schneider et al., 2010).

In these studies, there were conceptual similarities in the IS that emerged. The IS included the child's emotional characteristics, describing the child's level of spontaneity and expressiveness (e.g., active and lively child, animated and playful child, expressive and help-seeking child), the child's emotional inhibition (e.g., withdrawn and distant child, emotionally disconnected child, compliant and unspontaneous child), and the child's expression of negative affect, especially anger (e.g., provocative and hostile child, passive-aggressive child, aggressive child), and the therapist's stance toward the child in terms of technique (e.g, interpreting therapist, directive and didactic therapist, nondirective therapist, mentalizing therapist) as well as relationship elements (e.g., reassuring therapist, accepting therapist, sensitive therapist, and nonjudgmental therapist). Moreover, it was found that the IS varied in magnitude over the course of treatment, with some IS becoming more prototypical than others. Goodman and Athey-Lloyd (2011) found that child-centered treatment adherence decreased over the course of treatment.

In the field of child psychotherapy, the direct associations between therapeutic processes that are hypothesized to facilitate change and outcome have not been investigated. To the authors' knowledge, the only study to date was conducted by Goodman, Chung, Fischel, and Athey-Lloyd (2017), who examined the relations between symptomatic improvement, therapeutic alliance, and adherence to child-centered play therapy in a single-case study of a child with autism spectrum disorder, finding that changes in autism symptoms and process factors affected each other bidirectionally.

### The Use of the CPQ in Psychotherapy Research

The CPQ has been used to identify interaction structures (IS), which are "repeated, mutually influencing interactions between analyst and patient that are a fundamental aspect of therapeutic action" (Jones & Ablon, 2005). IS refer to clusters of items that emerge characterizing the course of treatment and specifically identify unique dyadic processes that operate in each psychotherapy. In the case of child psychodynamic psychotherapy, IS have been identified in a series of single-case studies with Asperger's

### Core Components of Psychodynamic Child Psychotherapy for Children with Externalizing and Internalizing Problems

There is preliminary evidence that psychodynamic therapy is effective for children with externalizing and internalizing problems (Midgley & Kennedy, 2011; Midgley et al., 2017). However, the active ingredients of the therapeutic process have not been thoroughly investigated. Prior psychotherapy research has shown that externalizing problems are more resistant to a classical, insight-oriented psychodynamic approach (see Midgley & Kennedy, 2011,

for a review). Eresund (2007) indicated that supportive interventions were more effective with these children in psychoanalytic therapies, which involve the encouragement and facilitation of children's expressions of feelings and the gradual focus on awareness of intentions and behaviors. Hoffman, Rice, and Prout (2016) created a manualized psychodynamic treatment for children with externalizing disorders specifically directed toward enhancing children's emotion regulation strategies via addressing the children's negative emotions. Kernberg and Chazan (1991), using an ego psychology and object relations perspective in their treatment model, also emphasized the importance of helping children regulate their aggression and express their feelings in a way that is both communicative and safe. Halfon and Bulut (2017) have found significant gains in affect regulation in psychodynamic play therapy with behavioral problems.

For internalizing disorders, Muratori, Picchi, Bruni, Patarnello, and Romagnoli (2003) found that psychodynamic treatments that focus on the child's representations in relation to self and others, especially within the attachment relationship, as well as giving words to feelings and their links with mental states, were associated with successful outcomes. They also found partial support that this sort of treatment was effective for externalizing disorders. Göttken, White, Klein, and von Klitzing (2014) created the Short-Term Psychoanalytic Child Therapy (PaCT) – an emotion-oriented play-focused treatment for internalizing disorders that aims to focus on conflictual self-other representations, where the child's feelings toward the therapist and the therapist's feelings toward the child are carefully monitored to create a joint understanding of the child's relational difficulties. Overall, these treatment models share in common the importance of working with underlying disruptive emotions and their modulated expression and representation in a safe therapeutic relationship.

In terms of pretreatment characteristics, Midgley and Kennedy (2011) and Midgley et al. (2017) found that younger children appeared to benefit more from psychodynamic therapy than older ones; however, there were other studies that suggested otherwise. Children with externalizing and more severe behavioral problems were more difficult to engage in treatment and responded more poorly than children with internalizing problems. Target and Fonagy (1994) found that for children with more serious emotional disturbance, the frequency of treatment was associated with better outcome. Moreover, children showed differences in the area of improvement, with some studies showing improvement in behavior problem levels, and others showing improvement in global functioning (e.g., Muratori et al., 2003).

## Aims of the Study

The first aim of this study was to investigate the specific IS that emerge in psychodynamic therapy with a group of children with externalizing and internalizing problems. The second aim was to assess the trends of IS over the course of treatment. Finally, the third aim was to investigate associations between IS and outcome. For this purpose, sessions from different phases of treatment (early, middle and late phases) were rated using the CPQ to extract IS. Given that very few studies investigated the process of psychodynamic psychotherapy with this population using the CPQ, we set forth exploratory research questions and hypotheses based on prior literature. We sought to answer three research questions and to test related hypotheses:

1.  First, we investigated the nature of the psychotherapy process in our data set:
    a.  Prior research in child psychotherapy has shown that the CPQ is able to distinguish between psychodynamic therapy process (PDT; Goodman, Midgley, & Schneider, 2016). Therefore, we expected to find an IS reflecting PDT process.
    b.  Research has also shown that psychodynamic treatments that enhance children's affective expression and toleration of negative affect are associated with successful outcome. Moreover, prior research using the CPQ found IS that described the children's emotional characteristics (see Ramires et al., 2017 for a review). Therefore, we expected an IS associated with children's emotional characteristics, vis-a-vis emotional expressiveness, emotional inhibition, and the child's expression of negative affect, especially anger.
2.  The second research question investigated whether there would be a change in the IS over the course of treatment. Literature has shown that that many IS changed over time in that some became more characteristic, whereas others became less characteristic. Using multilevel growth curve modeling, we tested linear growth models for each IS.
3.  The final research question aimed to identify IS predicting outcome. The multilevel growth model defines two basic parameters of IS evolution: (a) intercept, representing the average IS level (b) linear slope, describing the positive or negative linear trend of IS. We expected that the IS intercept, and the linear

slope (in case we find significant growth in IS) would be significantly associated with outcome. Research showed differences in improvement depending on type of outcome measure, therefore we assessed outcome on two dimensions, as CBCL Total Behavior Problems and global functioning [CGAS score]. Research has also shown that children respond to psychodynamic treatment differently depending on their age and symptom severity. Moreover, given that the type of problem affects the children's outcomes at the end of psychodynamic treatment, we investigated whether the changes in outcome were differentially associated with CBCL Internalizing, Externalizing and comorbid (both Internalizing and Externalizing characteristics) category memberships, age and gender. In case of significant associations, we further assessed whether there was an interaction between IS, demographic characteristics, and problem type.

## Method

### Participants

**Patient characteristics.** The source of data used for this study comes from the Istanbul Bilgi University Psychotherapy Research Laboratory, which provides low-cost outpatient psychodynamic psychotherapy. Referrals were made by parents themselves or by mental health, medical, and child welfare professionals. The parents and the children were screened by a licensed clinical psychologist in order to determine whether the patients fit the study protocol inclusion criteria: ages 4–10 years old, no psychotic symptoms, no significant developmental delays, no significant risk of suicide attempts, and no drug abuse. A group of 84 consecutively admitted patients[1] from Fall 2014 to Spring 2016 who met inclusion criteria were approached for data collection purposes. Of these 84 patients, 59 consented to research and video recording of sessions. The patients and their parents were extensively informed before commencing therapy about research procedures, and parents provided written informed consent, with the children providing oral assent concerning use of their data, including questionnaires, videotapes and transcripts of sessions for research purposes. This research was approved by the Istanbul Bilgi University Ethics Committee.

Out of the 59 patients, 7 dropped out of treatment before or during the assessment. The final sample included 52 patients. All the children were born in Turkey and came from relatively homogeneous urban neighborhoods and belonged to low to middle socioeconomic status (SES): 25% of the children were 4–5 years old, 27% were 6–7 years old, and 48% were 8–10 years old, with an equal ratio of males to females. They were referred most frequently due to problems such as rule-breaking and aggressive acts (42%), followed by anxiety and depressive complaints (38%), and finally social problems (20%). A series of standardized outcome measures filled out by parents and treating clinicians were used in order to assess problem areas at pre and posttreatment (see Table I).

The sample was relatively homogeneous in terms of problem levels, and 78% of children were at "clinical" levels of functioning (mean Total Problems $T$-score = 63.69, SD = 8.61) on the Child Behavior Checklist (CBCL; Achenbach, 1991) where $T$-scores over 60 indicate clinical functioning. In order to evaluate treatment changes, we conducted a Repeated Measures Multivariate Analysis of Variance (MANOVA). These results are also displayed in Table I. Children showed significant changes on CBCL Total Problems with a medium effect size and in global functioning on Children's Global Assessment Scale with a small effect size (CGAS; Schaffer et al., 1983).

**Therapists.** The therapists were 22 clinical psychology master's-level clinicians who were all female, with ages ranging from 23 to 27. Each therapist was extensively educated in the theoretical background of psychodynamic play therapy with mentalization principles (e.g., Verheugt-Pleiter, Zevalkink, & Schmeets, 2008). All therapists had the same experience level (one to two years of supervised psychotherapy experience). On average, therapists treated three patients (range: 1–5). Each therapist received a minimum of four hours of supervision per week (i.e.; one hour of individual and three hours of group supervision) by licensed psychodynamic supervisors with at least 10 years of experience.

**Treatment.** The standard treatment applied at Bilgi University Psychological Counseling Center is psychodynamic play therapy informed with mentalization principles (Verheugt-Pleiter et al., 2008). Cases were assigned to therapists on the basis of therapists' availability. The treatment process includes a standard assessment phase in the first session where a clinical interview is conducted in order to learn about the history of the presenting problem, the child's developmental history; and family background. At the end of this session, the parents fill out the relevant symptom assessment

Table I. Comparison of pre-treatment and post-treatment outcome scales ($N = 52$).

| Outcome Scales | Pre-treatment scores (current study) | | Previous pre-treatment mean scores[a] | | Previous pre-treatment SDs[a] | | Post-treatment scores (current study) | | Previous post-treatment mean scores[a] | | Previous post-treatment SDs[a] | | Change in current study | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | M | SD | Median | Range | Median | Range | M | SD | Median | Range | Median | Range | F | Partial $\eta^2$ |
| CBCL Total Problems | 63.69 | 8.61 | 63.56 | 60.81–68.00 | 10.06 | 8.44–18.61 | 53.08 | 9.58 | 54.58 | 51.04–60.57 | 12.27 | 9.92–18.88 | 90.99** | 0.64 |
| CGAS | 62.90 | 10.08 | 55.2 | 46.20–66.19 | 7.94 | 1.39–9.21 | 73.88 | 8.60 | 69.56 | 61.2–75.34 | 8.81 | 1.64–10.57 | 15.19** | 0.23 |

*Notes.* **$p < 0.01$. CBCL = Child behavior checklist; CGAS = children's global assessment scale.
[a]The means and standard deviations are from previous studies using CBCL and/or CGAS as their outcome scales.

measures. In the second session, the therapist meets with the child and tells him/her that he/she is free to play with any toys and notes the rule of safety. After this session, the therapist presents a clinical formulation and a treatment plan. The standard treatment plan at the clinic involves weekly therapy sessions of 50 minutes with the child, along with once monthly parent sessions. The treatments are open-ended in length, which is determined based on progress toward goals, life changes and patients' families' decisions. On average patients receive 40 sessions over a 10 month period. The treatment lengths varied among the children in the current study, with a mean of 37 sessions (SD = 20.62, min = 20, max = 56).

Even though the treatments are not manualized, the supervisors and therapists follow similar procedures for each case, and treatment adherence is checked in supervision sessions using therapist reports, videotapes and audiotapes. The core treatment principles can be summarized under five headings: (1) The therapist draws attention to the play process by listening actively and inviting the child to communicate in play, encouraging the child to express and reflect on his/her perceptions, feelings and thoughts. (2) The therapist clearly identifies the boundaries of the play situation where disruptive and potentially harmful actions are differentiated from symbolic aggression with a mentalizing stance. For example, when the child starts to actually harm the toys, the intentions and feelings behind this behavior are verbalized with the aim of helping the child regulate disruptive affect. (3) The therapist mentalizes the play context by asking questions about the play setting, temporal ordering, and the details of the characters, their thoughts, feelings and behaviors in terms of mental states. (4) The therapist cautiously interprets the play context with a wondering stance to help the child see the links between conflicting needs and emotions about self and others that find reflection in play behaviors and in the therapeutic relationship, with the purpose of bringing feelings, attitudes, assumptions and beliefs into consciousness. (5) The therapist identifies specific play content that has been repetitive in treatment and suggests possible links with what the child could be feeling, thinking or experiencing in real life as a way of helping the child express and explore mental states regarding difficult life experiences using his/her play as a starting point. Parallel parental work takes place once a month with the main goal of helping the parent to think about the child's mind, underscoring links between behavior and mental states, and noting the relations between the parent's and child's mental states.

**Outcome measures.** The Child Behavior Checklist (CBCL; Achenbach, 1991) is a widely used method of identifying problematic behaviors in children with two separate versions for ages 1.5–5 and 6–18. The CBCL asks the parents to indicate how true a series of 112 problem behavior items are for their child in the past two months on a 3 point scale (0 = "not true", 1 = "sometimes true", and 2 = "very true or often true") including questions such as "my child can't get his/her mind off certain thoughts; obsessions", "my child can't sit still, is restless or hyperactive", or "my child cries a lot". Outcomes can be determined for significant problems for Internalizing (e.g., depression, anxiety), Externalizing (e.g., aggression, violence) or Total Problems. This scale has high levels of internal consistency (CBCL 1.5–5 and 6–18: $\alpha = 0.97$) and one-week test–retest reliability (CBCL 1.5–5: $r = 0.90$; CBCL 6–18: $r = 0.94$; Achenbach & Rescorla, 2000). The scale has been adapted to Turkish with good internal consistency for Total Problems ($\alpha = 0. 88$) and one-week test-retest reliability ($r = 0.84$) (Erol, Arslan, & Akçakın, 1995). In the current study, the Total Problems scale of the CBCL 6–18 and CBCL 1.5–5 was used, which had alphas of 0.94 and 0.82, and test-retest reliabilities of 0.90 and 0.88, respectively.

***Therapist measures.*** The Children's Global Assessment Scale (CGAS; Schaffer et al., 1983) is a numeric scale (from 1 to 100) used by mental health clinicians to rate the global functioning of children under the age of 18 on a scale of 0 to 100. For example, 90–81 range is scored when there is "good functioning in all areas; security in family, school, and with peers with only transient difficulties and everyday worries"; 50–41, when there is "moderate degree of interference in functioning in most social areas or severe impairment of functioning in one area (e.g., suicidal preoccupations and ruminations, school refusal, frequent anxiety attacks, poor social skills, frequent episodes of aggressive behavior)"; and 20–11, when there is "need for considerable supervision to prevent hurting others or self or to maintain personal hygiene or gross impairment in all forms of communication". The scale has shown moderate interrater reliability ($\alpha = 0.73$), good stability over time ($r = 0.85$) (Schaffer et al., 1983).

### Process measures
***The child psychotherapy process Q-sort (CPQ).*** The Child Psychotherapy Process Q-Sort (CPQ; Schneider & Jones, 2004) is used to analyze the psychotherapeutic process among 3- to 13-year-olds. This instrument consists of 100 items, containing statements that describe a relevant feature of the treatment process corresponding to (a) the child's attitudes (e.g., feelings, behaviors, or experience (e.g., "Child expresses negative feelings (e.g., criticism, hostility) toward therapist [vs. expresses approval or admiration]"); (b) the therapist's actions and attitudes (e.g., "Therapist comments on the child's nonverbal behavior (body posture, gestures"); and (c) the nature of the patient-therapist interaction (e.g., "Therapist and child demonstrate a shared vocabulary or understanding when referring to events or feelings"). After watching a videotape of a therapy session, the raters Q-sort the 100 items into nine piles in a forced-choice procedure ranging from most uncharacteristic (pile 1) to most characteristic (pile 9). A fixed number of items must be placed in each category resulting in a normal distribution, such that 5 cards are placed in the most characteristic pile (pile 9), 8 cards into pile 8, 12 cards into pile 7, 16 cards into pile 6, 18 cards into pile 5, representing the neither characteristic or characteristic pile, towards the most uncharacteristic pile (pile 1) following the same distribution.

The CPQ's reliability and validity have been demonstrated in various ways. Previous studies presented strong interrater agreement on the coding of CPQ items (e.g., Goodman & Athey-Lloyd, 2011). Discriminant validity was demonstrated between two sets of PDT and CBT sessions (Schneider et al., 2009). The CPQ distinguished between the treatments of two different patients with the same therapist (Schneider et al., 2009) and the treatments of two different therapists with the same patient (Goodman, 2015; Goodman & Athey-Lloyd, 2011). The coders in this study consisted of 10 trained research assistants by the second author. They were not associated with the treating clinicians or the cases, and were blind to the purposes of the study. They Q-sorted practice videos until their intraclass correlations (ICC) reached a benchmark of 0.70. Afterwards, pairs of coders independently coded the sessions and reached satisfactory ICCs varying between 0.71 and 0.91 (M = 0.82, SD = 0.06). The two sets of independent ratings were then composited by taking their average.

**Procedures.** All outcome measures (CBCL and CGAS) were administered during intake and after the final session. All psychotherapy sessions were videotaped and transcribed. Videotapes and transcripts of sessions were arranged in random order, and entire sessions were watched and rated by judges independently. For CPQ ratings, one session randomly chosen from sessions 1–10, 11–20, 21–30, 31–40 and 41–50 was rated, and sessions from the later phases of treatment were added when available, for a total of 192 rated sessions.

**Data analytic strategy.** Two methods were used to analyze the CPQ process data. To answer the first research question (1a and 1b), a component analysis of the CPQ ratings of 52 randomly selected psychotherapy sessions (only one session representing each patient in order to have independent observations) was conducted to extract the clusters of items (IS) that accounted for the most variance in the treatment process.

To answer the second research question, all 192 psychotherapy sessions from the 52 children enrolled in this study (please see procedures for session selection criteria) were rated using the CPQ (i.e., 140 additional CPQ ratings). We used multilevel growth modeling (MLM) to assess whether there was linear growth in the IS. In order to account for demographic and pre-treatment characteristics, we also included CBCL category memberships (Internalizing-only, Externalizing-only and the comorbid Externalizing/Internalizing groups), children's gender and age as level-2 predictors in the multilevel model. The membership categories were dummy coded such that a code of 1 was assigned to the Externalizing-only group if the child had a *T*-score of 60 or higher on the CBCL Externalizing scale but not the Internalizing scale; to the Internalizing-only group if the child had a *T*-score of 60 or higher on the CBCL Internalizing scale but not the Externalizing scale; and to the comorbid Externalizing/Internalizing group if the child has a *T*-score of 60 or higher on both the CBCL Externalizing and the Internalizing scale, and a code of 0 was assigned if the child's *T*-score was below 60 on Internalizing and Externalizing scales.

In order to investigate the third research question, we derived latent intercept (representing the average level of IS over the course of treatment) and linear slope (representing the growth rate of IS over the course of treatment) values of IS per each child. These linear growth rates were included in the model only if we found significant growth in IS after answering the second research question. Afterwards, in order to assess the third research question, we conducted multiple regression analyses with the IS intercept scores attained via MLM, CBCL category memberships, age and gender as predictors and CBCL Total Problems and CGAS as the dependent variables. Follow-up exploratory interaction analyses were conducted in case of significant main effects. Continuing with the third research question, in order to get a reliable score of clinically significant change on the CBCL Total problems and CGAS measures, we calculated Reliable Change Index scores (RCI; Jacobson & Truax, 1991), which measures the amount of change between pre and post treatment while accounting for the measurement error of the instrument. Prior to the calculation of RCI, to address concerns of pre treatment score regression to the mean, each of the pre treatment scores was adjusted to attenuate any regression effects using the formula below (Speer, 1992):

Adjusted baseline score $= [r_{xx} (X - M)] + M$ where $r_{xx}$ is the test-retest reliability of the assessment measure, X is the individual pre treatment score of a patient, and M is the mean score for all patients' pre treatment scores. These adjusted baseline scores were then used to calculate the adjusted RCI:

Adjusted RCI = Adjusted baseline score – Post treatment score / Standard error of measurement.

## Results

### Extracting IS

In order to investigate the first research question, a principal components analysis with varimax rotation resulted in four IS that accounted for 33% of the shared variance. Factor scales were created using items that loaded above 0.40 (see Table II).

IS 1 accounted for 10% of the variance ($\alpha = 0.86$) and was labeled Therapeutic Alliance. Positive-loading items include therapeutic tasks referring to the child's understanding of his/her internal problems and achieving new insight, and therapist's interventions that emphasize the meaning of others' behaviors as well as the impact of self on others. Items with a negative loading suggest a negative bond between the patient and the therapist, where patient expresses negative affect toward the therapist, ignores his/her comments, and is unwilling to work on his/her problems. IS 2, labeled Children's Emotion Expression, accounted for 10% of the variance ($\alpha = 0.88$). Items loading positively on this IS describe the child's spontaneous affective communication and expression of positive (curiosity, excitement) as well as negative (anger, aggression) affect. Items with a negative loading capture the child's depressed affect, anxiety as well as emotional inhibition. The third IS, labeled Child-Centered Technique, accounted for 7% of the shared variance ($\alpha = 0.72$). Items loading positively on this IS describe the therapist's sensitivity to the child's feelings and developmental needs in the therapeutic interaction as well as encouragement of expression of internal states and feelings. Items loading negatively include the therapist's focus on cognitive distortions, homework as well as the therapist's lack of neutrality and acceptance of the patient. The final IS, named Psychodynamic Technique, accounted for 6% of the shared variance ($\alpha = 0.79$) and reflected psychodynamic interventions such as interpreting the child's warded-off unacceptable feelings, pointing out the use of defenses, interpreting the

Table II. Four-factor solution and item loadings (*N* = 52).

| Q-item | Loading | Item definition |
|---|---|---|
| | | IS 1: Therapeutic Alliance |
| 43 | 0.62 | Therapist suggests the meaning of the behavior of others |
| 33 | 0.58 | Child expresses feelings about needing someone or being close to someone |
| 53 | 0.56 | Child conveys awareness of own internal difficulties |
| 29 | 0.56 | The quality of child's play is fluid, absorbed [vs. fragmented, sporadic] |
| 54 | 0.52 | Child is clear and organized in verbal expression |
| 63 | 0.50 | Child explores relationships with significant others |
| 32 | 0.47 | Child achieves a new understanding or insight |
| 69 | 0.46 | Child's current or recent life situation is emphasized |
| 23 | 0.46 | Therapy session has a specific focus or theme |
| 87 | 0.40 | Therapist informs child of the potential impact of his behavior on others |
| 34 | −0.40 | Child blames others or external forces for difficulties |
| 5 | −0.40 | Child has difficulty understanding therapist's comments |
| 1 | −0.43 | Child expresses negative feelings toward therapist |
| 44 | −0.53 | Child feels wary or suspicious [vs. trusting and secure] |
| 58 | −0.60 | Child appears unwilling to examine thoughts, reactions, or motivations related to problems |
| 26 | −0.65 | Child is socially misattuned or inappropriate |
| 41 | −0.66 | Child does not feel understood by the therapist |
| 42 | −0.67 | Child ignores or rejects therapist's comments and observations |
| | | IS 2: Children's Emotion Expression |
| 72 | 0.73 | Child is active |
| 13 | 0.73 | Child is animated or excited |
| 8 | 0.56 | Child is curious |
| 84 | 0.48 | Child expresses anger or aggressive feelings |
| 88 | 0.46 | Material of the hour is meaningful and relevant to child's conflicts |
| 95 | −0.45 | Child's play lacks spontaneity |
| 7 | −0.58 | Child is anxious and tense [vs. calm and relaxed]. |
| 61 | −0.73 | Child feels shy and embarrassed [vs. un-self-conscious and assured]. |
| 56 | −0.73 | Child is distant from his or her feelings |
| 94 | −0.73 | Child feels sad or depressed [vs. cheerful and joyous]. |
| 40 | −0.82 | Child communicates without affect |
| | | IS 3: Child-Centered Technique |
| 47 | 0.61 | When the interaction with the child is difficult, the therapist accommodates the child |
| 65 | 0.50 | Therapist clarifies, restates, or rephrases child's communication |
| 97 | 0.49 | Therapist emphasizes verbalization of internal states and affects |
| 6 | 0.47 | Therapist is sensitive to the child's feelings |
| 38 | 0.47 | Therapist and child demonstrate a shared vocabulary or understanding when referring to events or feelings |
| 77 | 0.43 | Therapist's interaction with child is sensitive to the child's level of development |
| 3 | 0.43 | Therapist's remarks are aimed at encouraging child's speech |
| 21 | −0.40 | Therapist self-discloses |
| 57 | −0.41 | Therapist attempts to modify distortions in child's beliefs |
| 18 | −0.41 | Therapist is judgmental and conveys lack of acceptance |
| 24 | −0.50 | Therapist's emotional conflicts intrude into the relationship |
| 48 | −0.52 | Therapist sets limits |
| 27 | −0.58 | There is a focus on helping the child plan behavior outside the session |
| | | IS 4: Psychodynamic Technique |
| 46 | 0.65 | Therapist interprets the meaning of child's play |
| 36 | 0.61 | Therapist points out child's use of defenses |
| 76 | 0.59 | Therapist makes links between child's feelings and experience |
| 50 | 0.57 | Therapist draws attention to feelings regarded by the child as unacceptable (e.g., anger, envy, or excitement) |
| 81 | 0.55 | Therapist emphasizes feelings to help child experience them more deeply |
| 82 | 0.55 | Therapist helps child manage feelings |
| 67 | 0.53 | Therapist interprets warded-off or unconscious wishes, feelings, or ideas |
| 98 | 0.44 | Therapy relationship is discussed |
| 79 | 0.42 | Therapist comments on changes in child's mood or affect |
| 93 | 0.41 | Therapist is neutral |
| 28 | 0.40 | Therapist accurately perceives the therapeutic process |
| 62 | 0.40 | Therapist points out a recurrent theme in the child's experience or conduct |
| 89 | −0.55 | Therapist acts to strengthen existing defenses |
| 17 | −0.62 | Therapist actively exerts control over the interaction (e.g., structuring, introducing new topics) |
| 37 | −0.69 | Therapist behaves in a didactic manner |

*Note.* IS = Interaction structure.

meaning of the child's play as well as emphasizing feelings and linking them to the child's experience. Items loading negatively on this factor describe the therapist's active control during the session and assuming an educative stance. The first research question was partially confirmed in that we found an IS associated with children's emotion expression and psychodynamic technique.

### Associations with outcome

*Growth in IS.* In our data psychotherapy sessions ($N = 192$) were nested within patients ($N = 52$) who were nested within therapists ($N = 22$). Therefore, we used a multivariate multilevel modeling approach for all analyses using MLwin Version 3 (Rasbash, Steele, Browne, & Goldstein, 2017) in order to assess the second research question. Since multiple patients were treated by the same therapists, we investigated the degree of interdependency due to the therapists in IS. We used two-level (sessions nested within patients) and three level (sessions nested within patients nested within therapists) "empty" multilevel linear models, where the IS were entered as dependent variables with no predictor variables. The therapist level ICCs were 0.08, *ns.*, 0.09, *ns.*, 0.06, *ns.*, and 0.04, *ns.* for the IS respectively, which showed that therapists accounted for less than 1% of the variance, suggesting that the variance in IS is not attributable to differences between therapists. In contrast, the between patient ICCs were 0.45, $p < 0.01$, 0.40, $p < 0.01$, 0.17, $p < 0.01$, and 0.24, $p < 0.01$, accounting for 17 to 45% of the variance in the IS respectively, which suggest that a two-level model is appropriate, because not all variance is attributable to session-level variables.

Before running the model, a time variable was created to model the linear change IS over the course of treatment. Time was measured in terms of session numbers. We also controlled for fixed patient characteristics that are children's pre-treatment CBCL category memberships (Internalizing-

only, Externalizing-only and the comorbid Externalizing/Internalizing groups), pre-treatment CGAS score, age, and gender adding them as level-2 predictors. All variables were grand mean centered. The means, standard deviations and inter-correlations of the variables in the study are presented in Table III. Table IV represents the results of the full model.

After accounting for individual child characteristics, the main effect of time on Psychodynamic Technique (IS 4) indicated a significant linear growth indicating an increase in the use of these interventions over the course of treatment. However, there was no change in IS 1, 2 and 3 over the course of treatment (see Table IV). The second research question was partially confirmed in that we found significant growth in one of the IS.

In light of these findings, we followed two strategies. In order to assess the third research question, first, we calculated IS intercept scores, which were grand-mean centered, representing each child's average level of IS over the course of treatment. Because we observed significant growth in IS 4, we also calculated each child's individual rate of change (slope) in IS 4 over the course of treatment, in order to test whether the increase in the use of psychodynamic interventions was predictive of outcome.

*Average IS (intercept) and outcome associations.* In order to assess the third research question, we conducted two separate multiple regression analyses with the CBCL Total Problems RCI and CGAS RCI as the dependent variables, the average values (intercept) of four IS, children's CBCL category memberships (Internalizing-only, Externalizing-only and the comorbid Externalizing/Internalizing), age, and gender as predictors.

The results of the regression with CBCL Total Problems RCI as dependent variable indicated that the predictors explained 44% of the variance ($R^2 = 0.44$, $F(9,42) = 3.69$, $p < 0.01$), and IS 3, IS 4, and the comorbid category were significant predictors

Table III. Descriptive statistics and intercorrelations of measures.

| Variables | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) Gender | 0.49 | 0.50 | – | | | | | | | | | |
| (2) Age | 7.08 | 2.13 | −0.05 | – | | | | | | | | |
| (3) Internalizing-only | 0.23 | 0.42 | −0.14 | 0.24** | – | | | | | | | |
| (4) Externalizing-only | 0.15 | 0.36 | 0.11 | −0.14 | −0.23** | – | | | | | | |
| (5) Comorbid | 0.46 | 0.50 | 0.16* | −0.07 | −0.50** | −0.39* | – | | | | | |
| (6) CGAS | 62.71 | 9.80 | 0.04 | 0.29** | 0.24** | 0.08 | −0.13 | – | | | | |
| (7) IS 1 | 5.46 | 0.85 | −0.32** | 0.29** | 0.17* | −0.21** | 0.03 | 0.29** | – | | | |
| (8) IS 2 | 6.06 | 1.25 | 0.03 | −0.17* | 0.03 | 0.18* | −0.01 | −0.17* | 0.19** | – | | |
| (9) IS 3 | 6.41 | 0.53 | 0.02 | 0.10 | 0.03 | 0.01 | −0.01 | 0.10 | 0.07 | −0.13 | – | |
| (10) IS 4 | 5.98 | 0.74 | −0.11 | −0.14 | 0.10 | 0.13 | −0.04 | −0.14 | 0.17* | 0.11 | 0.22** | – |

*Notes.* *$p < 0.05$; **$p < 0.01$. CGAS = Children's global assessment scale; IS = interaction structures.

Table IV. Summary of multilevel multivariate model predicting interaction structures (IS).

| | IS 1 | | | IS 2 | | | IS 3 | | | IS 4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | t-Ratio | $\beta$ | SE | t-Ratio | $\beta$ | SE | t-Ratio | $\beta$ | SE | t-Ratio |
| Intercept ($\beta_{00}$) | 5.627 | 0.168 | 33.494** | 5.513 | 0.297 | 18.562** | 6.392 | 0.112 | 57.071** | 5.751 | 0.150 | 38.340** |
| Gender ($\beta_{01}$) | −0.534 | 0.136 | −3.926** | −0.031 | 0.243 | −0.128 | 0.009 | 0.090 | 0.100 | −0.220 | 0.121 | −1.818 |
| Age ($\beta_{02}$) | 0.067 | 0.033 | 2.030* | −0.114 | 0.058 | −1.966 | 0.014 | 0.022 | 0.636 | −0.074 | 0.029 | −2.551* |
| Internalizing-only ($\beta_{03}$) | 0.176 | 0.217 | 0.811 | 0.724 | 0.383 | 1.890 | 0.017 | 0.144 | 0.118 | 0.478 | 0.194 | 2.463* |
| Externalizing-only ($\beta_{04}$) | −0.243 | 0.245 | −0.992 | 0.954 | 0.434 | 2.198* | 0.027 | 0.161 | 0.168 | 0.509 | 0.217 | 2.346* |
| Comorbid ($\beta_{05}$) | 0.209 | 0.191 | 1.094 | 0.504 | 0.336 | 1.500 | 0.024 | 0.127 | 0.189 | 0.320 | 0.170 | 1.882 |
| CGAS ($\beta_{06}$) | 0.021 | 0.007 | 3.00** | −0.007 | 0.013 | −0.538 | 0.007 | 0.005 | 1.400 | 0.011 | 0.006 | 1.833 |
| Time ($\beta_{10}$) | 0.004 | 0.004 | 1.00 | −0.003 | 0.006 | −0.500 | −0.002 | 0.003 | −0.666 | 0.009 | 0.004 | 2.250* |

*Notes.* * $p < 0.05$; ** $p < 0.01$. CGAS = Children's Global Assessment Scale; IS = Interaction Structures.

($\beta = -0.26$, $p < 0.05$; $\beta = 0.26$, $p < 0.05$; $\beta = 0.60$, $p < 0.05$; respectively). The regression in prediction of CGAS RCI explained 35% of the variance ($R^2 = 0.35$, $F(9,42) = 2.48$, $p < 0.05$), and IS 4, and Externalizing-only were significant predictors ($\beta = 0.29$, $p < 0.05$; $\beta = -0.53$, $p < 0.05$; respectively).

Based on the results of the initial models, we calculated four interaction terms between significant CBCL category memberships (Externalizing-only and comorbid groups), and significant IS (IS 3 and IS 4). Only the comorbid category, and the IS3 Externalizing-only interaction were significant predictors of CBCL Total Problems RCI ($R^2 = 0.53$, $F(13,38) = 3.25$, $p < 0.05$; $\beta = 0.61$, $p < 0.05$; $\beta = 0.28$, $p < 0.05$, respectively). Externalizing-only was a significant predictor of CGAS RCI ($R^2 = 0.41$, $F(13,38) = 2.00$, $\beta = -0.53$, $p < 0.05$). Because of the high number of predictors, the significant interaction was kept in the final models.

The results of the final models (see Table V) indicated that IS 4, the comorbid category, and the interaction between IS 3 and the Externalizing-only group significantly and positively predicted, whereas IS 3 significantly and negatively predicted CBCL Total Problems RCI. Externalizing-only significantly and negatively predicted, and IS 4 significantly and positively predicted CGAS RCI. The interaction indicated that Externalizing-only children made more gains than others under high IS 3 (see Figure 1). Age and gender were not associated with CBCL RCI, however girls scored higher on CGAS RCI.

The third research question was partially confirmed in that we found that IS 3 and IS 4 significantly predicted outcome, however IS 1 and IS 2 were not uniquely related to outcome.

***Change of rate of IS 4 and outcome associations.*** Resuming with the third research question, since we observed a significant linear growth in Psychodynamic Interventions (IS 4), we checked to see whether the growth in IS 4 (i.e., the individual slope of IS 4 per each child) was predictive of outcome, controlling for children's age, gender and CBCL category memberships. The results of the regression with CBCL Total Problems RCI as dependent variable indicated that the predictors explained 39% of the variance ($R^2 = 0.39$, $F(6,45) = 3.69$, $p < 0.05$), however only the comorbid category was a significant predictor ($\beta = 0.58$, $p < 0.05$). The regression in prediction of CGAS RCI explained 26% of the variance ($R^2 = 0.26$, $F(6,45) = 2.44$, $p < 0.05$), however only Externalizing-only was a significant predictor ($\beta = 0.49$, $p < 0.05$). The rate of change in IS 4 did not significantly predict either outcome.

Table V. Summary of multiple regression analysis predicting CBCL total problems RCI and CGAS RCI (*N* = 52).

| | CBCL Total Problems RCI | | | CGAS RCI | | |
|---|---|---|---|---|---|---|
| | *B* | SE | *β* | *B* | SE | *β* |
| Age | 0.05 | 0.09 | 0.07 | −0.06 | 0.07 | −0.11 |
| Gender | −0.15 | 0.38 | −0.05 | −0.75 | 0.32 | −0.32* |
| Internalizing-only | 0.16 | 0.57 | 0.04 | −0.84 | 0.47 | −0.31 |
| Externalizing-only | −0.14 | 0.67 | −0.03 | −1.81 | −0.55 | −0. 52* |
| Comorbid | 1.95 | 0.51 | 0.59** | −0.83 | 0.43 | −0.35 |
| IS 1 | −0.01 | 0.87 | −0.00 | −0.62 | 0.72 | −0.12 |
| IS 2 | −0.42 | 0.35 | −0.14 | −0.18 | 0.29 | −0.08 |
| IS 3 | −4.62 | 1.69 | −0.35* | −0.65 | 1.40 | −0.07 |
| IS 4 | 2.89 | 1.25 | 0.29* | 2.10 | 1.03 | 0.29* |
| IS 3*Externalizing-only | 12.71 | 5.32 | 0.29* | 1.30 | 4.40 | 0.04 |
| *R²* | | 0.51 | | | 0.35 | |
| *Model F* | | 4.26** | | | 2.19* | |

*Notes.* *p < 0.05, **p < 0.01. CBCL = child behavior checklist; CGAS = children's global assessment scale; RCI = reliable change index; IS = interaction structures.
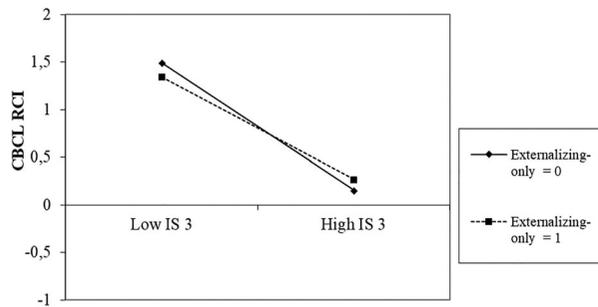


Figure 1. Regression lines of IS 3 predicting CBCL RCI for non-externalizing and externalizing-only groups. *Notes.* IS = interaction structures; RCI = reliable change index. Low category refers to 1 standard deviation below, and high category refers to 1 standard deviation above the mean of IS.

## Discussion

### IS Characterizing the Treatment

Our first research question concerned the nature of the treatment process in our data set. As expected, we found IS associated with Psychodynamic Technique (IS 4) and Children's Emotion Expression (IS 2). The other IS that emerged were named Therapeutic Alliance (IS 1), and Child-Centered Technique (IS 3). We have not observed any significant change in IS 1, 2 and 3, indicating that they are characteristic of the overall treatment, whereas there was significant growth in Psychodynamic Technique, indicating an increase in the use of these interventions.

The first IS, named Therapeutic Alliance, included CPQ items describing patient commitment to work in psychodynamic therapy (positive loadings on awareness of internal difficulties, achieving new understanding and insight, negative loadings on unwillingness to explore thoughts, reactions and motivations, blaming others for difficulties, ignoring therapist's comments), and CPQ items describing the quality of the therapeutic bond (negative loadings on child does not feel understood by the therapist, expresses negative feelings toward the therapist, is wary and suspicious). These items significantly correlated with therapeutic alliance, when associations were explored between the PQS and other alliance measures (Lingiardi, Colli, Gentile, & Tanzilli, 2011; Price & Jones, 1998). Moreover, therapeutic alliance accounted for the highest variance in the data set. As Karver, Handelsman, Fields, and Bickman (2006) noted, relationship variables account for a substantially higher percent of variance in youth treatments, above and beyond the variance accounted for by specific therapeutic techniques.

There are few factor analytic structures and little is known about the factor structure of alliance measures for youth psychotherapy. To our knowledge, only four studies have evaluated the factor structure of self-report alliance measures and all found support for a one-factor solution combining the bond (affective aspects of the alliance) and task (level of engagement in therapeutic activities) dimensions (DiGiuseppe, Linscott, & Jilton, 1996; Faw, Hogue, Johnson, Diamond, & Liddle, 2005; Fjermestad et al., 2012; Hogue, Dauber, Stambaugh, Cecero, & Liddle, 2006). Moreover, the positive and negative alliance factors that emerge in adult literature cannot be reliably distinguished in child literature (Fjermestad et al., 2012). Our findings also indicate a single factor with strong bond and task item correlations, suggesting that therapeutic alliance may be a unitary construct in youth psychotherapy. However, further research is needed to confirm that these different dimensions of alliance can be unified

under one factor in child psychotherapy. Future research also needs to investigate associations between the CPQ Therapeutic Alliance factor using validated therapeutic alliance measures.

Shirk, Karver, and Brown (2011) indicated that the therapeutic alliance can facilitate child involvement in therapy tasks. In our data set, specific therapeutic tasks regarding exploring the meaning of others' behaviors, informing the child of the potential impact of his/her behaviors on others, and the child's exploration of relationships with significant others also loaded on this factor. These items are related to adopting a mentalizing stance, where one reworks one's perspective of self and others in an attachment relationship (Gergely, Fonagy, Jurist, & Target, 2002). In a secure therapy relationship, thinking about feelings and behaviors and understanding social causality might be experienced to be safe, perhaps for the first time. These therapeutic tasks are crucial for children with behavioral problems, who suffer from mentalization deficits (Sharp, 2008). Even though causal associations cannot be derived from these results, it is possible that the therapeutic alliance provided a safe attachment context within which therapeutic tasks that enhance mentalization became possible. Future research can address the associations between mentalization-based techniques and the therapeutic alliance.

As expected, our data suggested a second IS, named Children's Emotion Expression, associated with children's spontaneous emotions (activity, excitement, curiosity) as well as expression of negative emotions, specifically anger. Contemporary psychodynamic therapies emphasize the importance of affectively involved treatments in bringing about enduring change. In two comparative reviews of psychotherapy approaches, Blagys and Hilsenroth (2000, 2002) argued that an affective emphasis was a main characteristic of psychodynamic therapy and could reliably distinguish it from both CBT and interpersonal approaches. The child psychodynamic treatments for behavioral problems all emphasize the importance of emotion expression, and especially disruptive emotions such as anger, where intense affect is contained and reflected back in the therapeutic relationship (i.e., Eresund, 2007; Hoffman et al., 2016). Adult psychodynamic psychotherapy research using the PQS found that processes aimed at bringing troublesome feelings to awareness, and facilitating expression of the patient's negative affect were all characteristic of psychodynamic treatments (Ablon, Levy, & Katzenstein, 2006; Jones & Pulos, 1993). Children's emotional characteristics also emerged as IS in prior studies using the CPQ in psychodynamic child psychotherapy (see Ramires et al., 2017 for a review). Our findings also underscore the importance of emotion expression in psychodynamic child therapy.

The third IS in our data set, named Child-Centered Technique, included interventions where the therapist helped the child express himself or herself, staying attuned to the child and attending to the child's communication without explicit interpretations or modifications of the child's expressions (Axline, 1964; Landreth, 2012). Previous studies using the CPQ also found IS associated with nondirective techniques in psychodynamic therapy (Goodman & Athey-Lloyd, 2011; Ramires et al., 2017). In addition, Goodman et al. (2016) found that PDT and CBT prototypes included six shared items that corresponded with characteristics of a client-centered Rogerian approach. They hypothesized that the core relational features of a client-centered approach that emphasize using unconditional positive regard, affective engagement, and close mirroring of the child's linguistic mannerisms may provide a conceptual unity across child treatment models. Eresund (2007) and Kernberg and Chazan (1991) stressed the importance of supportive elements alongside expressive ones in the treatment of children with externalizing disorders, who might be more resistant to interpretation-centered approaches in the initial stages of treatment, and similar findings were reported by Ramires et al. (2017).

The final IS, named Psychodynamic Technique, brought together therapist interventions that interpret the child's play and unconscious wishes, point out defenses, make links between the child's feelings and experience, and point out a recurrent theme in a neutral manner, which are among the most characteristic items of the PDT prototype (Goodman et al., 2016). This finding provides preliminary support for the discriminant validity of the CPQ in empirically distinguishing the PDT process. At the same time, we have found that PDT can contain ingredients from other forms of therapy (i.e., Child-Centered Technique). The linear increase in psychodynamic interventions is also consistent with the treatment model prescribed for behavioral disorders, advising a gradual increase of interpretative methods (Eresund, 2007).

## Associations between IS and Outcomes

The final research question aimed to identify IS predicting outcome. Psychodynamic Technique positively predicted clinically significant change on both CBCL Total Problems and CGAS, whereas Child-Centered Technique negatively predicted clinically significant change on CBCL Total Problems. The interaction indicated that the Externalizing-only

children, who scored higher on Child-Centered Technique made higher gains on CBCL Total Problems. Externalizing-only category membership negatively predicted changes on CGAS, whereas the comorbid category positively predicted changes on CBCL Total Problems.

Turning our attention to the significant findings associated with the CBCL Total Problems Scale, the fact that Child-Centered Technique (IS3) negatively, whereas Psychodynamic Technique (IS4) positively predicted symptomatic relief indicates that most of these children required more interventions than unconditional positive regard, affective attunement, and close mirroring. Specifically, these children needed greater understanding of their unconscious wishes and defenses as well as a greater facility with making linkages between their own and others' mental states and behaviors. In contrast, the children with only externalizing problems might also need a treatment approach that privileges total acceptance over understanding in order to engage in a more interpretive psychodynamic process. Eresund (2007) also found that a supportive approach was beneficial for these children, especially in the early stages of treatment. Children with a mixed clinical picture also experienced significant symptomatic relief, supporting Target and Fonagy's (1994) finding that child PDT is particularly effective for children with a complex clinical picture.

With regard to the CGAS Scale, more Psychodynamic Technique predicted more improvement in global function. Psychodynamic Technique is particularly good at offering containment for externalizing behaviors and connecting these behaviors with underlying feelings (see Hoffman et al., 2016) as well as encouraging emotional expression for internalizing behaviors (see Göttken et al., 2014). Children thus eventually become more aware of the feelings underneath their behaviors and therefore no longer need to rely on defensive processes to conceal how they feel. Even though direct causal associations cannot be made from these results, psychodynamic processes seem to have improved their global function.

Therapist-rated improvements in global function might take longer than 10 months of treatment (the average treatment length in the present sample) for externalizing-only children. For these children, symptomatic gains were not immediately followed by gains in global function. Perry and Bond (2009) also found that it took 2 to 3 times longer for GAF scores to respond to long-term psychodynamic psychotherapy than symptom scores in a cohort of adult patients with various types of psychopathology, although Perry, Bond, and Békés (2017) found no differences in rates of change in a small adult sample. We believe that with this high-risk group of children showing externalizing psychopathology, observed improvements in global function would also require long-term therapy, possibly in the context of an ongoing therapy relationship. Future studies need to include treatments of open-ended length with long-term follow-up to document changes that can occur long after treatment has ended (the so-called "sleeper effect"; Fonagy, 2003). These results also suggest that using child-centered techniques within a broad PDT for externalizing-only children will produce the most effective symptom reduction, at least for a 40-session treatment. The trio of genuineness, empathy, and unconditional positive regard (Rogers, 1957) are especially important therapeutic qualities to promote for children prone to feeling misunderstood and blamed. Although this study did not focus on parents, a logical extension of these findings would be to teach child-centered play techniques to parents of externalizing-only children. Child Parent Relationship Therapy (CPRT; Landreth & Bratton, 2018) trains parents to act as therapeutic agents with their own children at home. Future research could explore the differential effectiveness of Child-Centered Play Therapy (CCPT; Landreth, 2012) and CPRT for externalizing-only children.

Therapeutic Alliance (IS1) and Children's Emotion Expression (IS2) were not directly associated with outcome. Even though meta-analytic reviews identify significant relations between therapeutic alliance and treatment outcome (Shirk et al., 2011; Shirk & Karver, 2003), findings have been mixed in this area, and there has been criticism because of the inclusion of methodologically weak studies which may have produced inflated effect sizes (McLeod, 2011). Of particular relevance to this study, prior studies using observational measures found weaker associations between therapeutic alliance and observer-report measures than parent or youth report of alliance (McLeod, 2011). Moreover, a number of significant moderators were identified showing higher effect sizes for externalizing and comorbid children than internalizing children (McLeod, 2011; Shirk et al., 2011; Shirk & Karver, 2003). Inconsistent results were reported depending on timing (e.g., early vs. late alliance) and frequency of measurement (e.g., multiple vs. one-time assessments; McLeod, 2011). Future studies need to assess the associations between Therapeutic Alliance and different types of clinical problems at different phases of treatment.

It is also possible that Therapeutic Alliance and Children's Emotion Expression, which yielded null findings, are necessary but not sufficient for symptomatic or global functioning change. For therapeutic change to occur, these interaction structures need

to take place with awareness and understanding within a PDT treatment model (Ablon & Jones, 1998; Coombs, Coleman, & Jones, 2002; Jones & Pulos, 1993). Regarding Children's Emotion Expression, it is also possible that it is not simply the expression but also the regulation of emotion in an interpersonal context that contributes to symptomatic change (Hoffman et al., 2016).

### Limitations and Future Directions

Several limitations of this study should be noted. First, the sample size was relatively small. An improved methodology would be based on a larger sample and preferably with more time points. This study was designed as a naturalistic study of patients in psychodynamic therapy without a control group. However, although this type of design is inherently limited in its internal validity, it benefits from substantial external validity, as it more accurately reflects the reality of clinical work with children in clinics. However, causal statements between the IS and outcome cannot be made. The reliance on novice therapists limits the generalizability of the findings. Moreover, due to the small sample size, we were not able to divide the data to investigate different process characteristics of children with internalizing and externalizing disorders. Even though we were able to account for some of the differences with our dummy variables, an improved methodology would be to divide the data based on symptom characteristics, and conduct component analyses to extract idiographic IS associated with each type of clinical problem. Future research can take this route. Moreover, the theoretical names assigned to IS such as Therapeutic Alliance and Psychodynamic Technique need verification with other measures that contain items specifically operationalized to measure these constructs.

This study was one of the first studies to investigate the essential ingredients of psychodynamic child psychotherapy, and to assess their relations with outcome. The potential associations between therapeutic alliance and interventions, and their differential impact on outcome, can now be tested in a more unified model, taking into account pre treatment characteristics, such as symptom severity and demographic factors. It is possible that the therapists started off using Child-Centered Technique with externalizing children to gain their trust, build the Therapeutic Alliance, and stimulate symptom relief, then gradually shifted into Psychodynamic Technique to address the underlying conflicts manifested by their acting-out behaviors, which in turn brought improvements in overall global function; however, this sequence needs to be tested empirically in a

mediational study. It is possible that two phases of treatment are indicated for these children: an understanding phase (Child-Centered Technique) and an explanatory phase (Psychodynamic Technique). These findings have clinical implications for disposition of care. If a child is diagnosed with externalizing problems and needs short-term symptom relief, then he or she should be placed in child-centered therapy. On the other hand, if this child needs long-term improvement in adaptation, then he or she should eventually be placed in PDT. Further research could test this clinical hypothesis by using IS from different phases of treatment to investigate their differential impact on outcome.

This study was conducted with a sample of Turkish children, therefore the IS that emerged may have also been influenced by the cultural characteristics. For example, the fact that Therapeutic Alliance accounted for the largest variance in the data could also point to the collectivistic roots, where emotional interdependence is prioritized over autonomy, and a self-construal with closely knit interpersonal ties is characteristic (Kağıtçıbaşı, 1996). Moreover, the task items in IS 1 mostly included interpersonal concerns (i.e., "Child explores relationships with significant others" or "Therapist informs child of the potential impact of his behavior on others"), which could also be related to the interpersonal emphasis in the Turkish self-structure. It would be important to test whether these IS are characteristic with other cultures as well.

This study was able to identify empirically derived change processes that can be used in future research and provided preliminary answers about which aspects may facilitate change. We have shown preliminary evidence for the applicability of these IS in a process-outcome design, taking into account specific pre-treatment sample characteristics, which provided further evidence that therapist techniques occur as part of a complex interaction with the children's characteristics. These findings highlight the importance of an investigative strategy to study "what works for whom", using a naturalistic process-outcome research design, to understand what specifically promotes therapeutic change.

### Note

[1] Part of the data reported in this manuscript was collected as part of a larger data collection at Istanbul Bilgi University Psychotherapy Center from a group of 135 consecutively admitted patients from Fall 2014 to 2017, who met inclusion criteria and consented to research. Depending on data availability and research questions, different subsamples of patients and their sessions from different time points have been used to investigate different variables and published in separate manuscripts from our Psychotherapy Research Lab (please see https://www.psikoterapiarastirmalari.bilgi.edu.tr for a list of publications).

## References

Ablon, J., & Jones, E. (1998). How expert clinicians' prototypes of an ideal treatment correlate with outcome in psychodynamic and cognitive-behavioral therapy. *Psychotherapy Research*, 8(1), 71–83.

Ablon, J. S., Levy, R. A., & Katzenstein, T. (2006). Beyond brand names of psychotherapy: Identifying empirically supported change processes. *Psychotherapy: Theory, Research, Practice, Training*, 43(2), 216–231.

Achenbach, T. M. (1991). *Manual for the child behavior checklist/4-18 and profile*. Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms and profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.

Axline, V. M. (1964). *Dibs*. New York, NY: Ballantine Books.

Blagys, M. D., & Hilsenroth, M. J. (2000). Distinctive features of short-term psychodynamic-interpersonal psychotherapy: A review of the comparative psychotherapy process literature. *Clinical Psychology: Science and Practice*, 7(2), 167–188.

Blagys, M. D., & Hilsenroth, M. J. (2002). Distinctive activities of cognitive–behavioral therapy: A review of the comparative psychotherapy process literature. *Clinical Psychology Review*, 22(5), 671–706.

Coombs, M. M., Coleman, D., & Jones, E. E. (2002). Working with feelings: The importance of emotion in both cognitive-behavioral and interpersonal therapy in the NIMH treatment of depression collaborative research program. *Psychotherapy: Theory, Research, Practice, Training*, 39(3), 233–244.

DiGiuseppe, R., Linscott, J., & Jilton, R. (1996). Developing the therapeutic alliance in child—adolescent psychotherapy. *Applied and Preventive Psychology*, 5(2), 85–100.

Eresund, P. (2007). Psychodynamic psychotherapy for children with disruptive disorders. *Journal of Child Psychotherapy*, 33(2), 161–180.

Erol, N., Arslan, B. L., & Akçakın, M. (1995). The adaptation and standardization of the child behavior checklist among 6-18 year-old Turkish children. In J. A. Sergeant (Ed.), *Eunethdis: European approaches to hyperkinetic disorder* (pp. 97–113). Zurich: Fotoratar.

Faw, L., Hogue, A., Johnson, S., Diamond, G. M., & Liddle, H. A. (2005). The adolescent therapeutic alliance scale (ATAS): Initial psychometrics and prediction of outcome in family-based substance abuse prevention counseling. *Psychotherapy Research*, 15(1-2), 141–154.

Fjermestad, K. W., McLeod, B. D., Heiervang, E. R., Havik, O. E., Öst, L. G., & Haugland, B. S. (2012). Factor structure and validity of the therapy process observational coding system for child psychotherapy–alliance scale. *Journal of Clinical Child & Adolescent Psychology*, 41(2), 246–254.

Fonagy, P. (2003). The research agenda: The vital need for empirical research in child psychotherapy. *Journal of Child Psychotherapy*, 29(2), 129–136.

Fonagy, P., Target, M., Cottrell, D., Phillips, J., & Kurtz, Z. (2002). *What works for whom: A critical review of treatments for children and adolescents*. New York, NY: Guilford.

Gergely, G., Fonagy, P., Jurist, E., & Target, M. (2002). *Affect regulation, mentalization, and the development of the self*. New York, NY: Other Press.

Goodman, G. (2015). Interaction structures between a child and two therapists in the psychodynamic treatment of a child with borderline personality disorder. *Journal of Child Psychotherapy*, 41(2), 141–161.

Goodman, G., & Athey-Lloyd, L. (2011). Interaction structures between a child and two therapists in the psychodynamic treatment of a child with Asperger's disorder. *Journal of Child Psychotherapy*, 37(3), 311–326.

Goodman, G., Chung, H., Fischel, L., & Athey-Lloyd, L. (2017). Simulation modeling analysis of sequential relations among therapeutic alliance, symptoms, and adherence to child-centered play therapy between a child with autism spectrum disorder and two therapists. *Clinical Child Psychology and Psychiatry*, 22(3), 455–466.

Goodman, G., Midgley, N., & Schneider, C. (2016). Expert clinicians' prototypes of an ideal child treatment in psychodynamic and cognitive- behavioral therapy: Is mentalization seen as a common process factor? *Psychotherapy Research*, 26, 590–601.

Göttken, T., White, L. O., Klein, A. M., & von Klitzing, K. (2014). Short-term psychoanalytic child therapy for anxious children: A pilot study. *Psychotherapy*, 51(1), 148–158.

Halfon, S., & Bulut, P. (2017). Mentalization and the growth of symbolic play and affect regulation in psychodynamic therapy for children with behavioral problems. *Psychotherapy Research*, 77, 1–13.

Hoffman, L., Rice, T., & Prout, T. (2016). *Manual of regulation-focused psychotherapy for children (RFP-C) with externalizing behaviors: A psychodynamic approach*. London: Routledge/Taylor & Francis Group.

Hogue, A., Dauber, S., Stambaugh, L. F., Cecero, J. J., & Liddle, H. A. (2006). Early therapeutic alliance and treatment outcome in individual and family therapy for adolescent behavior problems. *Journal of Consulting and Clinical Psychology*, 74(1), 121–129.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59(1), 12–19.

Jones, E. E. (1985). *Manual for the Psychotherapy Process Q-Set*. Unpublished manuscript. Berkeley: University of California.

Jones, E. E., & Ablon, J. S. (2005). On analytic process. *Journal of the American Psychoanalytic Association*, 53(2), 541–568.

Jones, E. E., & Pulos, S. M. (1993). Comparing the process in psychodynamic and cognitive-behavioral therapies. *Journal of Consulting and Clinical Psychology*, 61(2), 306–316.

Kağıtçıbaşı, Ç. (1996). The autonomous-relational self: A new synthesis. *European Psychologist*, 1(3), 180–186.

Karver, M. S., Handelsman, J. B., Fields, S., & Bickman, L. (2006). Meta-analysis of therapeutic relationship variables in youth and family therapy: The evidence for different relationship variables in the child and adolescent treatment outcome literature. *Clinical Psychology Review*, 26(1), 50–65.

Kazdin, A. E. (2000). Developing a research agenda for child and adolescent psychotherapy. *Archives of General Psychiatry*, 57(9), 829–835.

Kernberg, P. F., & Chazan, S. E. (1991). *Children with conduct disorders: A psychotherapy manual*. New York, NY: Basic Books.

Landreth, G. L. (2012). *Play therapy: The art of the relationship*. New York, NY: Routledge.

Landreth, G. L., & Bratton, S. C. (2018). *Child parent relationship therapy (CPRT), 2nd edition: A 10-session filial therapy model* (2nd ed.). New York: Routledge.

Lingiardi, V., Colli, A., Gentile, D., & Tanzilli, A. (2011). Exploration of session process: Relationship to depth and alliance. *Psychotherapy*, 48(4), 391–400.

McLeod, B. D. (2011). Relation of the alliance with outcomes in youth psychotherapy: A meta-analysis. *Clinical Psychology Review*, 31(4), 603–616.

Midgley, N., & Kennedy, E. (2011). Psychodynamic psychotherapy for children and adolescents: A critical review of the evidence base. *Journal of Child Psychotherapy*, 37(3), 232–260.

Midgley, N., O'Keeffe, S., French, L., & Kennedy, E. (2017). Psychodynamic psychotherapy for children and adolescents: An updated narrative review of the evidence base. *Journal of Child Psychotherapy*, 43(3), 307–329.

Muratori, F., Picchi, L., Bruni, G., Patarnello, M., & Romagnoli, G. (2003). A two-year follow-up of psychodynamic psychotherapy for internalizing disorders in children. *Journal of the American Academy of Child & Adolescent Psychiatry*, *42*(3), 331–339.

Perry, J. C., & Bond, M. (2009). The sequence of recovery in long-term dynamic psychotherapy. *The Journal of Nervous and Mental Disease*, *197*(12), 930–937.

Perry, J. C., Bond, M., & Békés, V. (2017). The rate of improvement in long-term dynamic psychotherapy for borderline personality disorder. *The Journal of Nervous and Mental Disease*, *205*(7), 517–524.

Price, P. B., & Jones, E. E. (1998). Examining the alliance using the psychotherapy process Q-set. *Psychotherapy: Theory, Research, Practice, Training*, *35*(3), 392–404.

Ramires, V. R. R., Godinho, L. B. R., & Goodman, G. (2017). The therapeutic process of a child diagnosed with disruptive mood dysregulation disorder. *Psychoanalytic Psychology*, *34*(4), 488–498.

Rasbash, J., Steele, F., Browne, W. J., & Goldstein, H. (2017). *A user's guide to MLwiN*. Bristol: Centre for Multilevel Modelling, University of Bristol.

Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology*, *21*, 95–103.

Schaffer, D., Gould, M. S., Brasic, J., Ambrosini, P., Fisher, P., Bird, H., & Aluwahlia, S. (1983). A children's global assessment scale (CGAS). *Archives of General Psychiatry*, *40*(11), 1228–1231.

Schneider, C., & Jones, E. E. (2004). *Child Psychotherapy Q-Set coding manual*. Unpublished manuscript. Berkeley: University of California.

Schneider, C., Midgley, N., & Duncan, A. (2010). A "motion portrait" of a psychodynamic treatment of an 11-year-old girl: Exploring interrelations of psychotherapy process and outcome using the child psychotherapy Q-set. *Journal of Infant, Child, and Adolescent Psychotherapy*, *9*(2-3), 94–107.

Schneider, C., Pruetzel-Thomas, A., & Midgley, N. (2009). Discovering new ways of seeing and speaking about psychotherapy process: The child psychotherapy Q-set. In N. Midgley, J. Anderson, E. Grainger, T. Vuckovic-Nesic, & C. Urwin (Eds.), *Child psychotherapy and research: New approaches, emerging findings* (pp. 72–84). New York, NY: Routledge.

Sharp, C. (2008). Theory of mind and conduct problems in children: Deficits in reading the "emotions of the eyes". *Cognition and Emotion*, *22*, 1149–1158.

Shirk, S., & Karver, M. (2003). Prediction of treatment outcome from relationship variables in child and adolescent therapy: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, *71*(3), 452–464.

Shirk, S. R., Karver, M. S., & Brown, R. (2011). The alliance in child and adolescent psychotherapy. *Psychotherapy*, *48*(1), 17–24.

Speer, D. C. (1992). Clinically significant change: Jacobson and Truax (1991) revisited. *Journal of Consulting and Clinical Psychology*, *60*(3), 402–408.

Target, M., & Fonagy, P. (1994). The efficacy of psychoanalysis for children: Prediction of outcome in a developmental context. *Journal of the American Academy of Child & Adolescent Psychiatry*, *33*(8), 1134–1144.

Verheugt-Pleiter, A. J. E., Zevalkink, J., & Schmeets, M. G. C. (2008). *Mentalizing in children therapy*. London: Karnac.