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Traumatized mothers can change their minds about their toddlers: Understanding how a novel use of videofeedback supports positive change of maternal attributions

Daniel S. Schechter, M.D., Michael M. Myers, Ph.D., Susan A. Brunelli, Ph.D., Susan W. Coates, Ph.D., Charles H. Zeanah Jr., M.D.^{*}, Mark Davies, M.P.H., John F. Grienemberger, Ph.D., Randall D. Marshall, M.D., Jaime E. McCaw, B.A., Kimberly A. Trabka, B.S., and Michael R. Liebowitz, M.D.

Department of Psychiatry, Columbia College of Physicians and Surgeons, Columbia University, New York, NY

^{}Department of Psychiatry and Neurology, Tulane University School of Medicine, New Orleans, LA*

Abstract

This study explored the use of a brief experimental intervention that integrates principles of infant-parent psychotherapy, videofeedback, controlled exposure to child distress in the context of parental posttraumatic stress disorder (PTSD), and stimulation of parental reflective functioning (RF). The *Clinician Assisted Videofeedback Exposure Session* (CAVES) was applied to 32 interpersonal violence-exposed mothers of very young children (8-50 months) with respect to change of maternal perception of her child. While we found no significant reduction over two videotaped assessment visits with a mental health professional, we did find a significant reduction in the degree of negativity of maternal attributions towards her child following the videotaped visit focused on the CAVES ($p < .01$). Maternal RF, a mother's capacity to think about mental states in herself and her child, accounted for 11% of the variance in reduction of maternal negativity after accounting for baseline levels of negativity. Clinician-assisted videofeedback appears to support emotional self-regulation of mothers with violence-related PTSD. Focusing with a therapist on videofeedback of child separation distress exposes mothers to avoided mental states of helplessness and perceived loss of protection. Negative maternal attributions may mark violent trauma-associated emotion dysregulation and projected self-representations of the maltreated mother.

Keywords

Parent-Infant Psychotherapy; Videofeedback; Maternal Perception; Reflective Functioning; Posttraumatic Stress Disorder; Interpersonal Violence

Maternal attributions are a mother's assertions about her child's way of being, acting, or relating. They are indices of her relationship with her child. In terms of attachment theory, they clue the clinician into the mother's mental representations, or working model, of her child and relationship with her child (Bowlby, 1980). This "working model," largely based on a mother's own relational experience, strongly predicts how a mother will behave with her child (Zeanah, Benoit, Barton, Regan, Hirshberg, & Lipsitt, 1993; Schechter, Coots, Zeanah, Myers, Kaminer, Davies, & Liebowitz, 2004).

Negative attributions are generalized, core beliefs that are devaluing to her child and are not differentiated by specific states, actions, or events. As Lieberman (2004, p. 107) states, when maternal attributions towards her present child become “rigid, disconnected from the child’s developmental stage, and negative in their emotional tone, they can ensnare the child’s evolving sense of self and of intimate relationships” in parental conflicts from the past. Studies have linked mothers’ negative perception of their young children with a maternal history of maltreatment (Gara, Allen, Herzog, and Woolfolk, 2000) and with overreactive, harsh discipline (Lorber, O’Leary, and Kendziora, 2003).

While the infant-parent psychotherapy literature often focuses on change of interactive behavior with treatment, only a few examples of significant change of a mother’s attributions towards her child have been published (Fraiberg, Adelson, and Shapiro, 1975; Lieberman, 1999; Toth, Maughan, Manly, Spagnola, and Cicchetti, 2002). Lieberman (1999, p. 754) has compared negative maternal attributions to “symptoms to be used as guides that point out where the psychological conflict resides rather than as targets for direct intervention.” If indeed negative maternal attributions are “symptoms” of a disordered parent-child relationship, we would expect that dyadic interventions would result in reduction of negativity of parental attributions as “symptoms” of that disordered relationship.

Forms of parent-child psychotherapy that use videofeedback as a way of engaging the parent to focus with the clinician on interactive behavior have been documented to result in dramatic change in parent-child behavior in a relatively brief time-period (McDonough, 1995; Van den Boom, 1994; Beebe, 2003; Zelenko and Benham, 2000). Attachment-focused videofeedback has been used with groups of high-risk mothers to increase maternal sensitive caregiving with good effect (Marvin, Cooper, Hoffman, and Powell, 2002). With this in mind, we became interested in the question of whether maternal perceptions could also be changed by a single-session of videofeedback. We were particularly interested given that the traditional target of interventions involving videofeedback has been maternal-child behavior and not maternal perception.

Central to our program of research is the hypothesis that mothers with violence-related posttraumatic stress disorder (PTSD) may experience their very young child’s routine distress as a posttraumatic trigger (Schechter, 2003). Children below the age of 4 years have not yet developed the capacity to articulate their own internal states and those of another, and thus cannot regulate their own negative emotion and arousal (Lemche, Klann-Delius, Koch, & Joraschky, 2004). Instead, they depend on their caregivers for regulation of emotion and arousal (Fonagy et al., 2002; Appleyard & Osofsky, 2003).

In a recent paper (Schechter, Coots, Zeanah, Davies, Coates, Trabka, Marshall, Myers, & Liebowitz, 2005), we reported that maternal interpersonal violence-associated PTSD severity is associated with distorted, negative, and poorly integrated maternal mental representations of her child. We also described the role of maternal reflective functioning (RF), the mother’s capacity to think about her own thoughts and feelings and her child’s thoughts and feelings (Slade, 2005). RF is associated with balanced, integrated maternal mental representations of her child.

The confusion of past experience of violence, and present experience—including with their very young child who cannot regulate his emotion, is consistent with the pathophysiology of PTSD (Bremner, 2002, p. 120). The experience of interpersonal violence and subsequent triggers of posttraumatic stress may negatively skew a mother’s perception of her child (Schechter, 2003; Lieberman, Van Horn, and Ippen, 2005). Our clinical observations informed this hypothesis; namely, the majority of PTSD-afflicted mothers tended to label their very young child as one of the three greatest stressors in their lives. Often, caregivers misperceived

their child's separation anxiety as anger, coerciveness, or otherwise a threat and stated that they often try to avoid their child's distress by "tuning out," "blocking out the crying," or "leaving the room" so as to maintain their own emotional regulation (Schechter, Kaminer, Grienberger, & Amat, 2003).

We wanted to know if by jointly focusing attention with PTSD-afflicted mothers on videotaped behavioral observations that include their child's separation reaction and distress-states, we would be exposing them to a potential trigger of posttraumatic stress in a controlled condition. Clinician-guided exposure to trauma-associated stimuli is an intrinsic part of evidence-based efficacious treatments for PTSD (Foa, Dancu, Hembree, Jaycox, Meadows, & Street, 1999). Interestingly, one recent study of interpersonal-violence exposed women has described clinician-guided exposure to a traumatic stimulus as both therapeutic for PTSD patients as well as effecting change in their perception of their past attachments as measured via the Adult Attachment Interview (Stovall-McClough and Cloitre, 2003).

In the present paper, we consider the question of whether violence-related PTSD and capacity for self-regulation via reflective functioning (i.e. the mother's capacity to think about thoughts and feelings in her own mind and that of her child), respectively, might impact the 6 traumatized mother's responsivity to a brief, trial intervention. This intervention would integrate the following: 1) principles of infant-parent psychotherapy using video feedback, 2) a controlled exposure to a child separation reaction as a potential trigger of posttraumatic stress via videofeedback, and 3) modeling and stimulation of reflective functioning following joint attention to the videofeedback excerpts. We called this particular experimental intervention a *Clinician Assisted Videofeedback Exposure Session* or CAVES.

In an effort to stimulate maternal reflective functioning during the CAVES, we asked each mother to think about what she and her child might be feeling in a given moment on the tape. The combined effect of joint attention to videofeedback of mother-child interaction that involves mother and a supportive, reflective clinician-- together with exposure to child distress during separation, and the clinician's modeling of RF during the intervention via a semi-structured interview, distinguishes the CAVES from other parent-infant interventions using videofeedback that have been described in the literature (Silence and Bonham, 2000).

Our specific a priori hypotheses were:

1. The degree of negativity of maternal attributions towards her child will significantly decrease across the whole violence-exposed sample following an open-trial of a clinician-assisted videofeedback exposure session (CAVES).
2. A higher level of RF at baseline will predict greater responsivity to the intervention (i.e. greater decrease of the degree of negativity following the CAVES).

Method

Participants

All biological mothers (66) and their children ages 8-50 months who were registered or presented for evaluation in a hospital-based mental health clinic for very young children (ages birth to 5 years) and their families "The Infant-Family Service at New York-Presbyterian Hospital." Families, who were registered between January, 2000 and December, 2001 were offered the opportunity to participate in the study by their assigned therapist. The therapists were either a psychologist or social worker and not a member of the research team. Medical and mental health professionals, daycare centers, and other community agencies referred families to this clinical service for concerns about potential child maltreatment and family violence.

Entry criteria included a complaint by the mother or others involving concern about potential or actual violence or disruptive behavior in self, child or other household member. Referrals to the clinic most often involved child-related concerns, yet around one-fourth of cases presented with primary concerns about parental mental health, trauma, or severe stress.

Women with active psychotic symptoms, substance abuse, or who were not the primary caregiver for their child for most of that child's life, were excluded.

Of those 66 contacted, 21 (32%) refused to participate, did not follow-up in the clinic prior to signing informed consent, or were found not to meet entry criteria on psychiatric screening due to presence of psychotic symptoms, substance use or not being a primary caregiver for most of their child's life. Forty-five mothers signed the consent form, out of which, one caregiver disclosed that she was the child's grandmother and not the biological mother and one mother did not return after the first visit.

The 43 remaining mothers completed two videotaped visits that were 1-2 weeks apart. These mothers all shared a chief complaint involving violent, aggressive, or disruptive behavior of their preschool-age child or of another household member. However, only forty-one (95%) of them stated that they were exposed to interpersonal violent trauma themselves in childhood and/or adulthood (physical and/or sexual abuse and/or domestic violence during childhood and/or physical and/or sexual assault in adulthood). The history of prior interpersonal violent trauma in the lives of the remaining two mothers proved inconclusive, such that they were excluded from this study, leaving the remaining N of 41 who were included in final analyses.

Out of these 41 mothers and their children who presented for both the Maternal Assessment and Interaction Visits, 32 returned for the clinician-assisted videofeedback exposure session (CAVES) two to four weeks later. The 9 mothers and children who did not return did not differ from those that did return in any statistically significant way in terms of demographic variables, interpersonal violence exposure severity, and psychopathology, involvement with child protective services, baseline level of reflective functioning treatment history, or baseline level of negativity of maternal attributions. Data pertaining to the 32 mothers who completed the CAVES are considered below and are the focus of the present paper. With the sample size limited to 32, we were able to detect effect sizes larger than 0.6, at a two-tailed significance level of $<.05$ at a power of 81% when the correlation between the pre- and post-measures was 0.325.

The 32 mothers ranged in age from 19-45 years, with an average age of 30 years. Their participating children ranged in age from 8-50 months, with an average age of 32 months. The sample was 88% Hispanic, largely of Dominican or Puerto Rican origin. Most were immigrants (61%). The remaining mothers were of American birth and similar descent (39%); 12% were African-American. Fifty-two percent of the mothers had less than a high-school education; over 75% of the mothers received public assistance or were eligible for it; and 67% were single mothers. Forty-one percent of mothers were currently or had previously been involved with child protective services regarding the child participating in the study or another child in the home.

Participation in all phases of the study was, however, voluntary and by informed consent as approved by the Institutional Review Board at Columbia University and the New York State Psychiatric Institute. Mothers received financial compensation for each visit as well as a book and age-appropriate toy for their child.

Procedures

Mothers and their young children participated in three visits conducted by the same clinician (male) and research assistant (female) at each visit: Visit 1 (T1) was a 2.5 hour long *Maternal Assessment Visit* that consisted of administration of a demographic and treatment history questionnaire, a measure of maternal mental representations (Working Model of the Child Interview [WMCI], Zenoah and Benoit, 1995), life events history, and posttraumatic stress symptoms.

One to two weeks after T1, mothers and children returned for Visit 2 (T2), the *Interaction Visit*, which focused on the following modified Crowell Play Procedure (Zeanah, Larrieu, Heller, & Valliere, 2000): Free play (10 mins), separation-reunion #1 (5 mins), clean-up (5 mins), structured joint-attention task (5 mins), and separation-reunion #2 (5 mins). Following this play procedure, content items from the mental representations measure were repeated along with self-report measures regarding psychiatric symptomatology.

One month after the Interaction Visit, mothers were asked to return for Visit 3 (T3), the Clinician Assisted Videofeedback Exposure Session (CAVES). The CAVES is both a research-assessment measure as well as an experimental intervention that involves an active stance by a clinician. The principal investigator and/or research assistant carefully reviewed the videotape of Visit 2 and selected four 30-second excerpts for joint parent-clinician review. The four moments chosen were the following ones presented in the following order: an optimal moment (i.e. containing the most joy, spontaneity, joint attention, and mutuality or transaction), a moment of separation when mother is not in the playroom, a moment of reunion when mother returns, and a moment of sub-optimal play (i.e. when the clinician feels that “things were not working so well” relative to the rest of the interaction paradigm).

After the clinician asked mother to spontaneously recall her memories from the Interaction Visit, he then asked the mother to focus on the first videotaped excerpt. This first excerpt, while not announced as such, is the “optimal moment” which is selected as described above. Following this excerpt, and repeated after each of the subsequent three excerpts, the clinician posed to the mother a series of questions and probes:

“Tell me what happened there. Tell me the story of what happened in that moment. What do you think was going on in your child’s mind? ...In your mind? What were you feeling then? What were you feeling as you were watching the moment with me? What was your child feeling? Why do you think I chose this moment for us to watch?”

In a positive, supportive manner, the clinician underscored whatever capacities the parent demonstrated during the interaction, in terms of engaging her child, following her child’s lead, picking up child cues, responding with joy, spontaneity and mutuality (e.g. “I thought this was a good example of one of those moments in which you and your child were really getting along well together. And I thought you and I might think about what made this moment so much fun.”).

The clinician then administered a content-item from the WMCI, “Choose five words (adjectives) that describe your child’s personality.” The clinician then compared the five words that mother listed to describe her child’s personality during the maternal assessment and interaction visits.

The mothers were in no way prompted for a response but rather were asked to pick five words that described the personality of their child as they saw them in the video. This opportunity was given at the end of each excerpt. If a mother changed how she would describe her child as compared to what she said during Visit 1, the clinician would ask her, “What changed? Do you think that your child changed or that your feelings changed in relation to your child?”

The clinician asked further: “Whom does your child remind you of in this excerpt? Does this moment remind you of any specific moments in your own life? On a scale of 1 to 10, 1 being the easiest, and 10 being the hardest, how was this moment to watch? And why?”

Measures

Measures used in the study were:

In Visit 1 (T1):

For assessment of background information and life events history—A

Demographic and Treatment History Questionnaire (DTHQ) consisting of 33-items was designed by the authors.

Life Events Checklist (LEC) (Johnson, 1992) is a standard 19-item self-report checklist that asks the subject to rate her experience of a range of life stressors from natural disasters to war-exposure, to the death of a loved one, to physical assault and rape.

Brief Physical and Sexual Abuse Questionnaire (BPSAQ) (Marshall et al., 1998) is a 12-item questionnaire, administered for our study by the clinician. The BPSAQ assesses for the presence or absence of a history of traumatic events before age 16. These items, as well as maternal history of physical and/or sexual assault during adulthood, contributed to a composite Violence Exposure Severity Score. For purposes of validation of this measure, this score was correlated against a comparable, validated measure the Traumatic Life Events Questionnaire (TLEQ) (Kubany et al., 2000) ($r=.79$, $p<.001$) and the Clinician Administered PTSD Scale (CAPS) (Blake et al., 1995), a standard, well validated measure of PTSD, ($r=.69$, $p<.001$) within a new sample of 50 mothers with children ages 12-48 months from primary care sites in the same community in which the pilot study was done (Schechter et al., 2005—For more information on the derivation of this score see Schechter et al., 2005, p. 318).

Determination of exposure to interpersonal violent trauma was based on these three measures. The interpersonal violent event considered most traumatic to the participant mother then became the DSM-IV Criterion A focus for the following measures of PTSD. The most severe past episode of PTSD following the index violent event and then the participant’s self-reported symptoms within one month prior to the current assessment were the focus of the measures.

For assessment of posttraumatic stress disorder—Structured Clinical Interview for the DSM-IV PTSD Module (SCID) (First, Gibbon, et al., 1995) is a well-established semi-structured interview for making the diagnosis of PTSD.

Posttraumatic Stress Symptom Checklist-- Short Version (PCLS) (Weathers, Litz, Keane, Herman, Steinberg, Huska, & Kraemer, 1996) is a brief, self-report questionnaire for evaluating the severity of PTSD with demonstrated good psychometric properties.

For assessment of current depressive symptom severity—Beck Depression Inventory (BDI) (Beck, 1996) is a brief, self-report questionnaire for evaluating the severity of depressive symptoms with good psychometric properties.

For assessment of maternal reflective functioning—Reflective Functioning (RF) was measured by coding maternal narrative responses to the Working Model of the Child Interview (WMCI) on a scale of -1 to 9. The WMCI is a measure designed to elicit caregiver mental representations of the child and relationship with the child, the original coding scheme for which was not applied for the study in this paper (Zeanah & Benoit, 1995).

The RF scale was originally developed for use in coding narratives from the Adult Attachment Interview (AAI) (Fonagy, Target, Steele, & Steele, 1998). The AAI is a measure designed to elicit an adult's mental representations of their caregiver(s) and their relationship with their caregiver(s) retrospectively (George, Kaplan, & Main, 1984, 1996). The RF scale was adapted by Slade and colleagues (Slade, Grienberger, Bernbach, Levy, & Locker, 2005) for use with the Parent Development Interview (PDI; Slade, Belsky, Aber, & Phelps, 1999), which like the WMCI, is a measure of caregiver mental representations of the child and relationship with the child in the present. Like the WMCI, it is loosely modeled on the AAI (Slade, 2005). Coding RF from parental narratives encompasses four essential constructs: 1) awareness of the nature of mental states; 2) the ability to infer mental states underlying behavior; 3) recognition of developmental aspects of mental states; and 4) awareness of mental states in relation to the interviewer. In recent studies of maternal RF, Slade et al., (2005) provided validation for the construct of parental RF and its predictive validity vis-a-vis adult and child attachment security ($p < .001$).

In consultation with Dr. Slade, the authors applied the parental RF coding system to the WMCI. WMCI item-content was not altered, but additional probes to elicit thinking about mental states were included to render the coding condition comparable to that with the PDI. For example, after the WMCI item, "What of your child's behavior is most difficult for you to manage?" After asking the mother for a specific example of such a behavior, we added the probe, "What do you think was going on in his mind when he did that?" An example of a response consistent with low RF would be the following mother's response to that probe: "I don't know. He's crazy."

By contrast, the following mother's response would be consistent with high RF: "I can't be sure...but I think that he feels scared when I leave and so he holds on to me and cries. That makes me feel so guilty that I have trouble leaving."

To code the WMCI items that pull for the mother's thinking about mental states (i.e. "demand items") using the RF coding manual, twenty to thirty minutes of videotaped WMCI responses to four non-content items (i.e. WMCI items 4, 5, 7, and 11) were transcribed by our research staff, and then coded by a co-author of the parental RF coding system at another institution. This coder was naïve to any information about the mother-child dyads except for the child's age. A second co-author of the parental RF coding system, also naïve to any information about the participants, achieved reliability ($>85\%$) with the primary coder on eight randomly selected WMCI transcripts.

For assessment of Maternal Attributions in Visits 1, 2, and 3 (T1, T2, T3)

The Maternal Attributions Rating Scale (MARS) We developed the Maternal Attribution Rating Scale (MARS) (Schechter, Brunelli, and Myers, Unpublished Instrument) to provide a continuous measurement of mothers' responses. For the purposes of this study, we used the content items of the Working Model of the Child Interview (WMCI) (Zeanah and Benoit, 1995) to assess maternal attributions when talking to the traumatized mothers and used the MARS to rate the degree of negativity of the mothers' responses.

To keep the MARS simple and brief, we chose to rate continuously only a single WMCI content item that states, "Tell me 5 words or short phrases (adjectives) that describe your child's personality." These descriptors were transcribed independent from any maternal narrative related to these descriptors and coded by four independent developmental specialist-raters naïve to the hypotheses or any information about the dyads except for the child's age. The adjectives were coded along 5-point Likert scales for the dimension of negativity that has been predictive in previous studies (Lorber, O'Leary, and Kendziora, 2003). We defined negativity as applying to descriptors of the child with a negative affective valence, expectation or

judgment of the child regardless of whether it is an age-applicable descriptor or not (e.g. “bad,” “mean,” “spoiled”). A score of 5 (least negative) to 25 (most negative) was derived for each set of words using the MARS.

Interrater reliability on the MARS was good across ratings by the four coders (Intraclass Correlation Coefficient=.76, $p<.005$). Scores were significantly correlated across all three time points (T1, T2, and T3) ($r=.60$, $p<.001$).

To make sure that we were measuring a marker for non-balanced (i.e. negatively valenced and distorted classifications) on the WMCI, the MARS was validated against the WMCI classifications. Higher levels of negativity on the MARS were significantly associated with WMCI classifications coded by independent, history-naïve coders according to the WMCI coding scheme in the predicted direction (i.e. negativity on the MARS was significantly associated with non-balanced (i.e. more negative and distorted) WMCI classifications [ANOVA: $F(1,39)=4.93$, $p<.05$]).

Sample Characteristics

Using the Posttraumatic Symptom Checklist—Short Version (PCLS) and Structured Clinical Interview for the DSM-IV (SCID) PTSD Module, the rate of current PTSD among these 32 mothers was 63%. Using the PCLS as a continuous measure, out of a possible score range of 17- 85, the sample’s range at baseline (T1) was 18-75 with a mean of 42.9 and SD of 16.1.

The rate of lifetime PTSD using the SCID PTSD Module was 91% ($n=29/32$), with the remaining 9% ($n=3/32$) suffering from clinically significant sub-threshold symptoms. These rates would be unusually high were it not for the fact that the study-sample consisted of parents and young children referred for concerns related to violence and maltreatment risk.

The mean severity of current depressive symptoms on the BDI was 14.3, S.D. 8.6. The possible score range was 0-36. Within the sample, the range was 0-34.

Reflective Functioning, RF, relative to continuous measures of maternal trauma severity and psychopathology showed a narrower range. While the possible score range was -1 to 9, in this sample the range was 0-5 with a mean of 3.3, and a SD of 1.7.

While the possible range on the MARS as a continuous measure of maternal negative perception was 5– 25; in this sample, the range, mean and standard deviation for negativity at baseline (T1), the Interaction Visit (T2), and the Videofeedback Visit (T3) are depicted in Table 1. Variance within the dimension of negativity and pattern of reduction are noted in this table.

Data Analysis

Hypothesis 1: Change in the degree of negativity of maternal attributions was tested using a repeated-measures analysis of variance. We then applied the most conservative F-test called the Greenhouse-Geisser Correction to this analysis to correct for the effect of correlated error in the repeated-measures design. When the main effect for time was significant, we performed follow-up paired t-tests (T1 versus T2, T1 versus T3, and T2 versus T3).

Hypothesis 2: The effect of RF was evaluated by performing a regression analysis. Degree of negativity of maternal attributions at T2 was regressed on the same measure assessed at baseline and RF. Inclusion of the baseline assessment of negativity substantially increases the power to detect effects of RF. The distribution of RF was skewed. We performed the regressions using the logarithm of RF to adjust for the skewness. The results did not substantially change.

All analyses were conducted in SPSS. All tests were two-tailed with the Type I error set at 5%. Control for multiple comparisons was not performed as the two hypotheses were specified a priori and may be considered independent.

Results

Testing Hypothesis 1: The degree of negativity of maternal attributions towards her child will significantly decrease across the sample following an open-trial of the CAVES

Maternal negativity significantly decreased post-CAVES (see Table 1). Paired t-tests were then performed in order to look at the change of mean scores (i.e. mean reduction of negativity) across the three visits. These results are consistent with a significant reduction of the degree of negativity of maternal attributions towards her child individually from post-Maternal Assessment to post-CAVES, and more importantly, from post-Interaction to post-CAVES (T2 to T3). However, no significant reduction of negativity occurred from post-Maternal Assessment to post-Interaction (T1 to T2). (see Table 1).

Baseline negativity positively correlated with current PTSD (.34, $p=.06$) and depressive symptom severity in the context of comorbid lifetime PTSD (.44, $p=.01$), yet fell short of significant associations with maternal reduction of negativity with respect to both current PTSD and current depressive symptom severity ($p>.4$).

Testing Hypothesis 2: A higher level of RF will predict greater responsivity to the intervention (i.e. greater decrease of the degree of negativity following the CAVES)

We entered into a linear regression as independent variable RF, as well as the degree of negativity of maternal attributions during T2 to control for a baseline effect (see Table 2.). The increase of the R-square beyond that of the equation in which the T2 value was entered as an independent variable alone, was considered equivalent to the variance attributable to RF.

RF accounted for 11% of the variance related to the reduction of negative attributions from T2 to T3 (pre- to post-CAVES). Thus, the second hypothesis was supported, indicating that RF differentially predicts maternal responsivity to the intervention tested as hypothesized. Severity of current PTSD symptoms on the PCLS was not significantly associated with reduction of negativity from T2 to T3 ($p>.4$).

Discussion

The results indicate that mothers had significantly less negative attributions towards their children after a single session of clinician assisted videofeedback exposure. We also found that greater maternal RF at the time of initial assessment was associated with greater reduction of negativity. RF was likely a change-promoting or *resilience* factor during this trial intervention. RF may support the caregiver's ability to tolerate and integrate the negative, trauma-associated emotions stirred up by routine stresses such as separation and tantrums, inherent to caring for very young children.

The question remains: What about the CAVES specifically led to a reduction of maternal negativity? A number of mothers reported that what they felt contributed most to their change of perception of their child during the CAVES was seeing the expression of the child's face and seeing their own response to their children in the video. The error in maternal reading of child affect was most often to attribute anger and desire to control the mother to the child's expression during distress and to be blind to or deny their child's separation anxiety (Schechter, 2003).

When the mother and clinician jointly attended to the heretofore avoided facial expressions, some mothers reported very vivid memories from their own childhood that were suddenly recalled in a “new” way in the context of time, place, mental state, and an increasingly coherent self-narrative (Schechter et al., 2003). We think that maternal anxiety aroused in the violence-exposed parent with PTSD in response to her child’s protest to her leaving, could prevent her from accurately reading her child’s fearful expression and distress. We note that with directed joint attention to her child’s mental state by the reflective clinician during the CAVES the traumatized mother becomes able to tolerate her own anxiety and therefore read her child’s expression and other behavioral cues more empathically.

An alternative albeit compatible explanation to be tested would be that the traumatized mother needs to defend herself from a fearful, helpless state of mind and so avoids or denies this in herself as well as her child. In her work, Lieberman (1999, 2004) emphasizes the role of projective identification as a psychological defense mechanism that involves the mother projecting onto her child such intolerable mental contents and affects (i.e. as marked by maternal attributions), then unconsciously provoking her child to conform to her projected attributions. This provocation is often followed by the child’s compliance with the maternal expectation to maintain an intense bond with the mother. The mother’s projected attributions often include the negative self-representations that formed when her caregivers and/or partners maltreated her.

In summary, the negative quality of maternal perception was significantly reduced from the baseline visit (T1) to the post-CAVES assessment (T3). RF accounted for a significant but small percentage of the variance of negativity following the CAVES.

We are cautious in attributing the reduction of negativity to the single-session CAVES versus to the entire three-session assessment protocol (i.e. baseline evaluation, parent-child interaction, and CAVES visits), which, as a whole, may also be viewed as an intervention that addresses symptoms and stimulates RF. Nevertheless, the reduction of negativity was evident only after videofeedback.

The capacity of many caregivers and infants to respond rapidly to parent-infant intervention and to sustain effects of the intervention, such as increased maternal sensitivity and increased security of child attachment, are phenomena that were documented in multiple studies (Van den Boom, 1994; Juffer, Hoksbergen, Riksen-Walraven, & Kohnstamm, 1997; Bakermans-Kranenburg MJ, 2003). The immediacy of effects has been attributed to the caregiver’s increased motivation to change and to reflect upon her own and her child’s internal worlds. This occurs while her very young child is developing so rapidly and evoking intense emotional responses (Lieberman, 2004; Schechter, 2003).

Importantly, the CAVES, unlike other interventions involving videofeedback, involved clinician-guided exposure to parent-child separation in addition to the clinician highlighting positive mutual affect in an “optimal moment” of interaction. Both extremes of positive and negative affect may trigger anxiety and avoidance for the violence-exposed parent with PTSD.

This is illustrated in the case examples below. Loving interactions can remind the traumatized parent of that which they did not receive sufficiently.

Focusing jointly on the “optimal moment” was associated with the reduction of negativity of maternal attributions for most participants. By contrast, jointly focusing on the moment of child distress-- especially that linked to separation from the primary attachment figure, can be a potentially potent trigger of posttraumatic stress for mothers with histories of violent trauma and related PTSD. In support of our hypothesis, several mothers reported that seeing their children in states of separation distress reawakened avoided feelings of helplessness and loss

of parental protection that was associated with their exposure to violence. Following joint attention to the separation, most mothers maintained their reduction of negativity or became even less negative.

Watching the separation scene together with a reflective clinician, who asks mothers to think about what may be going on in their child's and their own minds, allowed the mother to attain sufficient emotional distance and to thus be able to think about what is going on in her child's mind with greater awareness of her child's developmental perspective. Many mothers additionally recalled painful, often traumatic memories after seeing their child's separation distress. We think that this phenomenon is a maternal response to confronting the child's helpless state of mind and perceived loss of maternal protection, which in turn triggers posttraumatic stress in the wake of violent trauma.

Limitations

We did not examine responses from a control group of mothers without interpersonal violence exposure or PTSD. So, we could not answer the important question of the effect of interpersonal violence-exposure or PTSD on responsivity to the CAVES in this study. Further research employing the CAVES should explore 1) reduction of negativity of maternal perceptions with respect to maternal PTSD and reflective functioning, and 2) the dose-response relationship with respect to sustaining positive effects that impact mother-child interaction and demonstration of true integration of dissociated mental contents and affects. In future studies, we plan to assess maternal motivation for change.

Statistical vs. Clinical Significance

While the reduction of negativity was statistically significant, the question might arise as to whether change is clinically significant. The following case-example from the sample illustrates change and the process involved in change of maternal attributions across the three videotaped visits (for additional examples of change of perception across visits and within the videofeedback visit, see (Schechter, 2003; Schechter et al., 2003). Scores in parentheses following each set of maternal attributions reflect the degree of negativity at that assessment point. Maternal responses follow from the WMCI item that reads: "Give me five words (adjectives) that describe your child's personality."

Case Example

Ms. A. and Nila—Ms. A. was a 25-year-old Dominican mother of three daughters, the youngest of whom, Nila, was age 40-months. Ms. A. had presented to the clinic with the complaint that Nila was "out of control," which was to say in her own words, "too hyper," "demanding," and "impossible to keep out of food—she's always eating so that she's fat." Ms. A. also reported Nila to have delayed speech and language development. Ms. A. stated that she wanted help to "understand her daughter."

On further history, it was apparent that Ms. A. had experienced physical abuse from early childhood through age 16 by her own mother, and the loss of her own father "before I was able to remember." More recently, within two months of Nila's birth, Ms. A.'s boyfriend-- Nila's father, was brutally murdered during a robbery. Ms. A. saw his bullet-riddled corpse at the morgue. Since her boyfriend's murder, Ms. A. had been living with her mother, who competed with Ms. A. for Nila's affection. Ms. A.'s mother was often critical of Ms. A. and, while no longer physically abusive, had been emotionally abusive towards Ms. A. Despite a tendency to minimize her suffering, Ms. A. met criteria for current and past posttraumatic stress disorder without comorbid depression. She was among the most reflective mothers within the sample, with an RF score of 5 to support this clinical observation.

In visit 1, when asked on the WMCI, “At this point, whom does your child remind you of?” Ms. A. said immediately, “My mother! She does things like my mother...she eats like my mother...I don’t see Nila like me. No, she’s exactly like my mother...I was the opposite [when I was a child]. I didn’t like to eat.” Ms. A. saw in her child characteristics of her physically and emotionally abusive mother.

When asked to list five words (adjectives) to describe Nila’s personality, Ms. A. offered the following sets of words at Visit 1 and Visit 2:

- Visit 1: “Dominating, impatient, got to be her way, doesn’t listen, nervous” (19)
- Visit 2: “Aggressive, dominating, can’t stay still, too curious, and not good listener” (21)

Visit 3, prior to the videofeedback, began with a spontaneous comment by Ms. A. about life at home: “Nila wants to control the TV now. She puts the volume up to the max and now we have to have her hearing tested.” Ms. A.’s perception of her child was consistent with her previous descriptions.

After the first “optimal” excerpt of videofeedback during which Ms. A. and Nila took turns listening to each other’s heart with a toy stethoscope, Ms. A. said the following:

- Visit 3 “Happy, hyperactive, playful, smart, open-minded” (11)

Ms. A. maintained these descriptions of Nila throughout the CAVES without changes such that her negativity score remained at 11.

Together we viewed the separation in which, on cue, Ms. A. got up and went to the door without warning to Nila. Nila protested by throwing pop-beads on the ground and sulked with her head on the table after Ms. A. sent Nila back to play with instructions to wait for her. Ms. A. did not respond to the little girl’s distress that mounted as mother left the room and shut the door. Nila then pretended to attack the research assistant with a toy lizard, after which in an excited state she put the lizard in her mouth.

After viewing this excerpt, Ms. A. said, while laughing, “She looks like my mother there. She didn’t want me to leave her alone maybe because she misses me or something... She reminds me of my mother. Oh yeah! My mother gets that same fat and sad face. She misses me—she’s loving me too much!”

We then watched the reunion and observed the following: Ms. A. entered the room and Nila ran towards her. Nila showed her how she had been eating the lizard and put it in her mouth. Ms. A.’s smile faded and she shouted, “No!” Ms. A. then came after Nila trying to grab her, saying, “It’s dirty!” Nila shouted in opposition and ran away from her mother saying, “But I like it!” Ms. A. sat down and Nila sat far from her. Ms. A. asked Nila if she wanted to play with the doctor’s kit. Nila said “No!” and picked another toy. At that point, Ms. A. grabbed the lizard away from Nila and reinforced, “It’s dirty!”

During the interview following this sequence, Ms. A. reflected, “ She got happy when she saw me—she was like thinking “I’m safe again. I’ve got my mother. And I saw she really missed me and when she saw me she got really happy...I was feeling good...happy. She was feeling happy too. But when I move towards her, she moved away.” Initially, Ms. A thought that Nila moved away because she did not want to play with her. The clinician felt she had completely avoided both her own and her daughter’s mutual frustration during the struggle over the lizard-toy. He replayed the sequence and directed her attention to the struggle over the lizard-toy.

The clinician then asked Ms. A to think again about what might have been going on in Nila's mind when Nila ran away from her. After pausing to think and sobering her expression, Ms. A responded, "She probably thinks I'm going to do something there because she got that toy in her mouth. She got scared..." When asked if that moment reminded Ms. A. of other moments in her life, she answered, "When I went to the Dominican Republic and left her with my mother (for a month)...maybe she [Nila] was mad I left her."

By the end of the CAVES, Ms. A. stated in response to seeing her daughter distressed during a tantrum (i.e. during clean-up), "Maybe she reminds me of me when I was little with my mother and I wanted something. I'd cry and cry." As was evident by the end of the videofeedback session, Ms. A., who at the start of the session could only see her narcissistic mother when looking at her daughter, spoke differently of her daughter.

In this case, decrease of negative maternal attributions was noted across visits. Perhaps of greater salience, in terms of shift in mental representation at a deeper level, Ms. A.'s rigidly held, unempathic view of her daughter as being like her traumatizing mother begins to budge within the videofeedback session. This *budging* occurred only after Ms. A. was asked to focus jointly with the clinician on Nila's displays of intense negative emotion: frustration, separation anxiety, and rage. The clinician had worked with Ms. A. to overcome her impulse to avoid thinking about her daughter's and her own unhappiness as can be seen in her responses as the session progressed. Ms. A. was able to maintain the focus inwardly and outwardly. These displays function as triggers of traumatic memories linked to her relationship with her abusive and emotionally unavailable mother, along with subsequent losses.

In this example, Ms. A. associated reunion with "being safe again." Separation represented the loss of the good, protective mother. In the case of Ms. A. as in the case of many other mothers who participated in this study, loss of the good, protective mother signaled vulnerability to the perpetrator of violence—sometimes Ms. A.'s mother herself. Ms. A., in avoiding Nila's separation distress, avoided mental states of helplessness and rage in her daughter and in herself. After jointly attending with the clinician on the videotape to that which had been avoided, Ms. A.'s subsequent attributions suggested greater complexity and differentiation of her mental representations of her daughter from those of her controlling, abusive mother. This coincided with improved self-regulation of trauma-associated affects and greater empathy towards Nila.

Summary and Clinical Implications

Our results suggest that a single psychotherapy session involving videofeedback (e.g. the Clinician Assisted Videofeedback Exposure Session [CAVES]), which includes a scene of parent-child separation, results in significant reduction of negative maternal perception as marked by personality attributions. In the CAVES, mothers focus with a therapist on the mother-child interaction. The CAVES encourages joint attention to normally avoided child distress, separation, and loss as well as heightened moments of mutual joy during play. The CAVES models and stimulates reflective functioning during both conditions.

We have considered child distress-- especially that linked to separation and loss of the primary attachment figure, to be a potentially potent traumatic reminder for mothers with histories of violent trauma and related PTSD. We noted that reflective functioning likely supports positive change with intervention. At the very least, the CAVES may be a useful assessment tool to test the capacity of a mother to view her child more sensitively and to respond to more standard parent-infant interventions. We need to conduct further research including controlled trials and dose-response testing to understand what sustains change in parental mental representations and behavior over time, as well as what contributes to positive child outcomes.

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Table 1
Reduction of Maternal Negativity on the MARS across Three Time-Points

	Time 1 (Pre-CAVES)	Time 2 (Pre-CAVES)	Time 3 (Post-CAVES)
Mean	14.41	14.30	12.35
Standard Deviation	3.96	2.76	2.59
FTime(df= 2, 61) = 9.0, $p \leq 0.001$			

Paired t-tests: Time 1 vs. Time 2, $t=0.17$, $df=31$, NS

Time 1 vs. Time 3, $t=3.65$, $df=31$, $p \leq 0.001$

Time 2 vs. Time 3, $t=3.51$, $df=31$, $p \leq 0.001$

Table 2

Predictors of Negativity at Time 3 (Post-CAVES)

Predictors	<i>B</i>	<i>t</i>	<i>df</i>	<i>p</i>
Negativity at Time 2	.29	1.78	29	≤0.10
RF	-.34	-2.05	29	≤0.05

R^2 (overall) = .21;

ΔR^2 due to RF = .11