

## Altering Withdrawn and Intrusive Interaction Behaviors of Depressed Mothers

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**ABSTRACT:** Interaction coaching was given to 44 depressed mothers who had either a withdrawn or intrusive interaction style with their infants. The intrusive and withdrawn mothers were given instructions either to imitate their infants' behavior or to keep their infants' attention. The results suggested that the specific type of interaction coaching for the specific type of depressed mother (imitation for the intrusive mothers and attention-getting for the withdrawn mothers) significantly improved their interaction behaviors with their infants.

**RÉSUMÉ:** Un entraînement à l'interaction a été donné à 44 mères déprimées qui avaient soit un style d'interaction replié ou un style d'interaction importun avec leur nourrisson. L'on a donné aux mères repliées et importunes l'instruction d'imiter le comportement de leur nourrisson ou de retenir l'attention de leur nourrisson. Les résultats ont suggéré que le type spécifique d'entraînement à l'interaction pour le type spécifique de mère déprimée (imitation pour les mères importunes et attraction d'attention pour les mères repliées) améliorerait considérablement leurs comportements d'interaction avec leur nourrisson.

**RESUMEN:** Un entrenamiento de interacción les fue dado a 44 madres depresivas que tenían un estilo de interacción distraído o intruso. Tanto a las madres distraídas como a aquellas madres intrusas se les dijo o que imitaran la conducta de sus infantes o que mantuvieran la atención de sus infantes. Los resultados sugieren que

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This research was supported by an NIMH Research Scientist Award #MH00331 and NIMH Basic Research Grant #MH46586 awarded to Dr. Tiffany Field. We would like to sincerely thank Jeanette Calles, Claudia d Valle, Thomas Nawrocki, and Ian Raisbeck for help in data collection and coding. We would also like to thank all the mothers and infants who participated in this project. Correspondence and reprint requests should be addressed to Tiffany Field, Touch Research Institute, Department of Pediatrics, University of Miami School of Medicine, P. O. Box 016820 (D-820), Miami, Florida 33101.

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tipo específico de entrenamiento de interacción para el tipo específico de madre depresiva (de imitación para las madres intrusas y de atraer la atención para las madres distraídas), mejoró significativamente la interacción de ellas con sus infantes.

抄録：抑うつ気分があり、乳児との交流スタイルが引き廻りか侵入的な母親44人に、交流指導を行った。乳児の行動を観望する、あるいは、乳児の注意を引いておく、という指示を与えたのである。抑うつタイプによって、どのタイプの交流指導が乳児との交流行動を改善するかには有意の違いがあること（侵入的な母親では模倣、引き廻りの母親では注意の引き付け）が分かった

Maternal depression negatively affects infants' social and emotional development (Lyons-Ruth, Zoll, Connell, & Grunebaum, 1986; Zahn-Waxler, Cummings, McKnew, & Radke-Yarrow, 1984). Recent studies have shown that depressed mothers have a more negative and dysfunctional interaction style with their infants than do nondepressed mothers. Depressed mothers typically interact with their infants in either a withdrawn (understimulating) or in an overly intrusive (overstimulating) manner (Cohn, Campbell, Matias, & Hopkins, 1990; Field, Healy, Goldstein, & Guthertz, 1990).

Infants appear to mirror the behavior of their depressed mothers, developing a depressed style of interaction, more negative affect, and lower activity levels as early as 3 months of age (Cohn et al., 1990; Field, 1984; Field, et al., 1988). These depressed mother-infant dyads also share negative behavior states more frequently than positive behavior states (Field, Healy, & LeBlanc, 1989), the mothers are less contingently responsive to their infants (Field, 1984), and both mother and infant show more negative facial expressions (Cohn et al., 1990). The infants' depressed interaction style also generalizes to interactions with nondepressed adults (Field et al., 1988). This study examined different interaction coaching techniques (attention-getting and imitation) for the different types of depressed mothers (withdrawn and intrusive).

Interaction coaching has been designed to improve disharmonious mother-infant interactions (Field, 1977). The objective of interaction coaching is to enhance maternal sensitivity and responsivity. Harmonious interactions are usually achieved when mothers increase the frequency of imitation, motherese and infantized behaviors, gameplaying and pausing during infant gaze aversions (Field, 1977, 1982). For example, in a sample of preterm and postterm infants, Field (1977, 1982) found that repetition of phrases, imitation of infant behaviors, and silence during infant pauses were all helpful in "slowing down" overly active mothers and in turn enhancing their infants' visual attentiveness. Instructing a mother to imitate her infant requires greater attentiveness and contingent responsivity on her part. Instructions to maintain the infant's attention, or gameplaying instructions, however, were good manipulations for less active mothers because they increased the mothers' activity, which in turn increased their infants' visual attentiveness (Field, 1977). In a replication study, Clarke and Seifer (1983) also observed that imitation was a successful intervention technique for increasing sensitivity and observational skills in mothers, and attention-getting benefited mothers who had difficulty engaging their babies.

In a recent study using interaction coaching with depressed mothers, Pickens and Field (1993) found that mothers who were instructed to imitate their babies generally slowed

a withdrawn or intrusive instructions either to imitate the specific type of interaction style of intrusive mothers and behaviors with their in-

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their pacing and increased their contingent responsivity during interactions with their infants. Although the mothers in the Pickens and Field (1993) study were not classified as withdrawn or intrusive, the imitation technique might be particularly effective for the intrusive/overstimulating depressed mother. In contrast, mothers instructed to get their infants' attention played more games and displayed more positive affect. For this reason, the attention-getting technique may be particularly helpful for withdrawn and understimulating depressed mothers.

In the present study depressed mothers were randomly assigned to imitation or attention-getting instruction groups. Based on their behavior during spontaneous interactions that preceded the coaching sessions, the depressed mothers were subsequently classified as intrusive or withdrawn by an observer blind to their group assignment. The spontaneous interaction and interaction coaching sessions were then coded and analyzed as a function of the mother's interaction style. We hypothesized that the interactions of intrusive mothers would benefit most from instructions to imitate, whereas withdrawn mothers would benefit more from the attention-getting instructions.

## METHOD

### Subjects

Forty-four mother-infant dyads were recruited from a well-baby clinic. The sample consisted of depressed, low-SES ( $M = 4.6$  on the Hollingshead two-factor index), teenage mothers ( $M = 17.6$  years), from three ethnic groups (40% African American, 30% Hispanic, and 30% Caucasian) (see Table 1). The mothers had a mean BDI score of 15.2 and a mean CES-D score of 22.3. The four groups did not differ on these variables (intrusive and withdrawn groups divided further by imitation and attention-getting conditions = groups,  $N = 11$ /group). The infants, who were full-term and normal, ranged in age from 3 to 6 months ( $M = 4.3$  months).

Table 1  
Background Characteristics ( $N = 11$  Per Group)

Variables	Groups			
	Imitation	Intrusive Attention-getting	Imitation	Withdrawn Attention-getting
Maternal age	18.1	17.2	17.9	17.1
Ethnicity (%)				
• African American	38.0	43.0	41.0	40.0
• Hispanic	33.0	38.0	29.0	30.0
• Caucasian	29.0	29.0	30.0	30.0
SES	4.5	4.3	4.6	4.9
BDI	15.7	14.8	14.9	14.1
CES-D	21.3	23.5	20.9	21.5
Infant age	4.5	4.1	4.3	4.4

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Withdrawn	Attention-getting
	17.1
	40.0
	30.0
	30.0
	4.9
	14.1
	21.5
	4.4

### Procedures

**Interview.** Subjects were administered the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Center for Epidemiological Studies-Depression (CES-D) Scale (Radloff, 1977). The Beck Depression Inventory (BDI) is a 21-item self-report screening inventory designed to indicate the presence and intensity of depressive symptoms. Mothers scoring greater than 12 were classified as depressed. These groupings were made in accordance with the cutoff found valid by other investigators using this scale (Kendall, Hollon, Beck, Hammen, & Ingram, 1987). The Center for Epidemiological Studies-Depression (CES-D) Scale consists of 20 items designed to measure current levels of depressive symptomatology, emphasizing duration of depressed mood. A classification score for depression on the CES-D is 16 or greater.

**Interaction sessions.** Mothers were instructed to engage in spontaneous play as they normally would at home for 2 minutes to establish baseline behavior and to provide an assessment of interaction styles. The interaction style of the mother (e.g., intrusive or withdrawn) was undetermined at this time, and therefore the random assignment to coaching condition (e.g., imitation or attention-getting) could be made blindly. Prior to the coaching phase, the coach elaborated on the instructions that would be given via an earpiece speaker (e.g., "imitate everything your baby does," or "do whatever you can to keep your baby's attention"). During the 2-minute coaching phase, the coach gave the mother feedback every 10 seconds. Positive reinforcement (e.g., "good" or "great") was given when the mother was following the instructions, and a reminder of the instructions (e.g., "remember to imitate" or "get your baby's attention") was given when she was not following the directions. Compliance with the instructions for the intrusive mothers was 55% of the interaction time, and for the withdrawn mothers compliance was 60% of the interaction time. At the end of the 2-minute coaching interval, the mother was instructed to remove the earpiece and to continue playing with her baby as she normally would at home. This final 2-minute spontaneous play interaction was used to determine whether the mothers persisted in following the coaching instructions. Based on the study by Pickens and Field (1993), the imitation coaching procedure was expected to facilitate more infantized (imitative) behavior and contingent responsivity in the intrusive mothers, and the attention-getting instruction was expected to facilitate facial expressions, vocalizations, and gameplaying in the withdrawn mothers.

**Videotape coding.** Following the sessions, videotapes of the interactions were viewed the first time to classify the mothers based on a dichotomous rating of intrusive or withdrawn interaction style. For the purpose of this rating, *intrusive* mothers were operationally defined as having staccato-like movements, looming behavior, no contingent responsivity, and noncontingent talking. *Withdrawn* mothers were defined as having little or no play interaction with the infant, and disengaged and flat facial and vocal expressions.

The tapes were then coded using the Global Ratings (Affect and Physical), the Interaction Rating Scale (Field, 1980), and the Behavior States Scale (positive, neutral, and negative). The Global Ratings were designed to assess the global quality of the interaction and whether the mothers' physical activity and affect (facial expressions and vocalizations) were intrusive or withdrawn. The Interaction Rating Scale (IRS) (Field, 1980) was

used to code mother behaviors, which included state, physical activity, head orientation, gaze, silence during infant gaze aversion, facial expressions, vocalizations, physical activity, infantized behavior, contingent responsivity, and gameplaying. Each of these is assigned a rating ranging from 1 to 3 (nonoptimal to optimal) based on the item rating descriptors. For example, the *state* rating is scored 1 for flat or angry affect and 3 for an imated positive affect. Finally, the videotapes were coded for behavior states (positive, neutral, negative) that occurred second by second. A laptop computer was used for this purpose, and the printout featured the percentage of time that mothers spent in each of these states. Interobserver reliability was assessed by having independent coders score 30% of the sample for each coding scheme and compute kappa coefficients (Bartko & Carpenter, 1976). Kappa coefficients were .76 for the global ratings, .77 for the IR scores, and .77 for the behavior states.

## RESULTS

Multivariate analyses of variance were used with mother's interaction profile (intrusive vs. withdrawn) and condition (imitation vs. attention-getting) as between-subjects variable and phase (baseline, coaching, and follow-up interaction phases) as a within-subject variable. The MANOVA on the Global Ratings was significant ( $F_m = 12.83, p < .001$ ), as were the MANOVA on the Interaction Rating Scale scores ( $F_m = 10.11, p < .005$ ) and the MANOVA on the Behavior States ( $F_m = 13.19, p < .001$ ). Following significant Interaction Profile by Condition by Phase interaction effects, post hoc ANOVAs and Bonferroni  $t$  tests were performed to compare mean scores across phases and between profiles across conditions.

### *Intrusive Mothers During Imitation*

As can be seen in Table 2, intrusive mothers receiving the imitation condition received better Global Ratings, including: (a) less *intrusive affect* from pre to coaching phases ( $t = 3.21, p < .01$ ) and (b) less *intrusive physical activity* from the pre to coaching phases ( $t = 7.41, p < .001$ ) as well as in the post phases ( $t = 2.12, p < .05$ ).

Intrusive mothers who received the imitation condition received better ratings on the Interaction Rating Scale including (a) less *physical activity* from pre to coaching phases ( $t = -2.46, p < .05$ ); (b) more *silence during gaze aversion* from pre to coaching phases ( $t = -4.84, p < .001$ ); (c) more *infantized behavior* from pre to coaching ( $t = -3.2, p < .01$ ) and from pre to post phases ( $t = -2.12, p < .05$ ); (d) more *contingent responsivity* from pre to coaching phases ( $t = -2.86, p < .01$ ); (e) more *gameplaying behavior* ( $t = 2.28, p < .05$ ) from pre to coaching phases; and (f) better *total scores*, which improved from pre to coaching phases ( $t = -3.89, p < .01$ ) and pre to post phases ( $t = -2.33, p < .05$ ).

Intrusive mothers who received instructions to imitate spent more time in optimal behavior states including: (a) less time in a *negative behavior state* from pre to coaching phases ( $t = 4.83, p < .001$ ), (b) less time in a *neutral behavior state* from pre to coaching phases ( $t = 3.04, p < .01$ ), and (c) more time in a *positive behavior state* from pre to coaching phases ( $t = -5.06, p < .001$ ) and pre to post phases ( $t = -2.64, p < .05$ ).

Table 2  
Means for Global Ratings, IRS Scores, and Behavior States for Intrusive Mothers During Imitation and Attention-Getting Conditions

	Pre	Imitation During	Post	Pre	Attention-getting During	Post
Global ratings						
Intrusive affect	2.5 (.66) <sup>2</sup>	1.6 (.77) <sub>1</sub>	2.2 (.80)	2.1 (.64)	2.0 (.76)	1.9 (.69)
Intrusive physical	2.8 (.38) <sup>1</sup>	1.6 (.65) <sub>1</sub>	2.4 (.65) <sup>1</sup>	2.8 (.46)	2.3 (.71)	2.4 (.54)
Withdrawn affect	1.2 (.44)	1.5 (.78)	1.4 (.65)	1.5 (.54)	1.5 (.54)	1.7 (.49)
Withdrawn physical	1.0 (.00) <sup>1</sup>	1.5 (.88) <sub>1</sub>	1.1 (.36)	1.0 (.00)	1.0 (.00)	1.3 (.49)
IRS scores						
State	2.3 (.73)	2.6 (.51)	2.4 (.65)	2.3 (.71)	2.5 (.54)	2.1 (.84)
Physical activity	1.8 (.58) <sup>1</sup>	2.3 (.61) <sub>1</sub>	1.8 (.58) <sup>1</sup>	1.9 (.35)	2.0 (.54)	2.4 (.74)
Head orientation	2.9 (.27)	2.9 (.27)	3.0 (.00)	2.9 (.35)	3.0 (.00)	3.0 (.00)
Gaze	2.9 (.27)	3.0 (.00)	2.9 (.27)	2.8 (.46)	3.0 (.00)	3.0 (.00)
Silence during gaze aversion	1.4 (.65) <sup>1</sup>	2.3 (.61) <sub>1</sub>	1.9 (.77)	1.7 (.76)	1.7 (.76)	2.3 (.76)
Facial expressions	2.0 (.68)	2.1 (.27)	2.1 (.54)	2.0 (.54)	2.4 (.52)	2.3 (.46)
Vocalizations	1.5 (.65)	2.1 (.73)	2.0 (.78)	2.0 (.54)	1.6 (.52)	1.8 (.71)
Infantized behavior	1.8 (.69) <sup>2</sup>	2.5 (.65) <sub>1</sub>	2.2 (.58) <sub>1</sub>	2.0 (.76)	1.8 (.71)	1.9 (.84)
Contingent responsiveness	1.7 (.47) <sup>2</sup>	2.4 (.63) <sub>1</sub>	2.0 (.68)	2.0 (.54)	2.0 (.54)	2.1 (.64)
Gameplaying	1.4 (.50) <sup>1</sup>	1.1 (.27) <sub>1</sub>	1.3 (.47)	1.3 (.71)	1.5 (.76)	1.6 (.74)
Total	2.0 (.33) <sup>2</sup>	2.3 (.25) <sub>1</sub>	2.2 (.31) <sub>1</sub>	2.1 (.38)	2.1 (.24)	2.2 (.42)
Behavior states						
Negative	38.7 (20.7) <sup>1</sup>	7.6 (21.2) <sub>1</sub>	27.5 (29.7) <sup>1</sup>	38.2 (22.9)	16.7 (28.5)	25.9 (27.9)
Neutral	31.5 (17.6) <sup>1</sup>	22.7 (18.8)	17.2 (13.9) <sub>1</sub>	29.5 (14.6)	20.9 (13.9)	28.5 (18.9)
Positive	29.8 (12.2) <sup>1</sup>	69.7 (25.4) <sub>1</sub>	55.2 (28.1) <sub>1</sub>	32.3 (15.6) <sub>1</sub>	62.4 (26.9) <sub>1</sub>	45.6 (27.8)

Note. Subscript letters represent differences between columns (i.e., <sub>1</sub> is significantly different from <sub>2</sub> and <sub>3</sub> is not significantly different from <sub>1</sub> but is significantly different from <sub>2</sub>). Superscript numbers in 1st column represent the significance level (i.e., <sup>1</sup> =  $p < .05$ , <sup>2</sup> =  $p < .01$ , <sup>3</sup> =  $p < .001$ ) of differences between columns 1 and 2; superscript numbers in 2nd column represent significance level of differences between columns 2 and 3; superscript numbers in 3rd column represent significance level of differences between columns 1 and 3.

#### Intrusive Mothers During Attention-Getting

Finally, intrusive mothers who received attention-getting instructions were in a *positive behavior state* a greater percentage of the time during the coaching phase ( $t = -3.44$ ,  $p < .01$ ). However, the intrusive mothers showed no other changes when receiving attention-getting instructions.

#### Withdrawn Mothers During Attention-Getting

As can be seen in Table 3, withdrawn mothers who received attention-getting instructions received better Global Ratings including: (a) less *withdrawn affect* from pre to coaching phases ( $t = 4.20$ ,  $p < .001$ ) and from pre to post phases ( $t = 2.59$ ,  $p < .05$ ) and (b) reduced *withdrawn physical activity* from pre to coaching phases ( $t = 4.16$ ,  $p < .001$ ) and pre to post phases ( $t = 2.59$ ,  $p < .05$ ).

Withdrawn mothers receiving attention-getting instructions also had better ratings on the *Interaction Rating Scale* including: (a) an improvement in *state* from pre to coaching

Table 3  
Means for Global Ratings, IRS Scores, and Behavior States for Withdrawn Mothers During Imitation and Attention-Getting Conditions

	Imitation			Attention-getting		
	Pre	During	Post	Pre	During	Post
Global ratings						
Intrusive affect	1.0 (.00)	2.0 (.00)	1.1 (.38)	1.1 (.36)	1.3 (.61)	1.6 (.76)
Intrusive physical	1.1 (.38) <sup>1</sup>	2.1 (.38) <sub>b</sub>	1.4 (.54)	1.5 (.65)	1.8 (.70)	1.9 (.73)
Withdrawn affect	2.3 (.49)	2.1 (.38)	2.4 (.54)	2.6 (.49) <sup>1</sup>	1.9 (.54) <sub>b</sub>	2.0 (.78) <sub>c</sub>
Withdrawn physical	2.0 (.82)	1.7 (.76)	1.9 (.69)	2.1 (.86) <sup>1</sup>	1.3 (.47) <sub>b</sub>	1.5 (.86) <sub>c</sub>
IRS scores						
State	1.9 (.38)	2.1 (.38)	2.3 (.49)	1.6 (.76) <sup>1</sup>	2.2 (.70) <sub>b</sub>	2.0 (.80) <sub>c</sub>
Physical activity	1.1 (.38) <sup>1</sup>	1.6 (.54)	1.7 (.49) <sub>b</sub>	1.4 (.51) <sup>1</sup>	1.9 (.48) <sub>b</sub>	2.1 (.77) <sub>c</sub>
Head orientation	3.0 (.00)	3.0 (.00)	3.0 (.00)	2.8 (.43)	3.0 (.00)	3.0 (.00)
Gaze	2.9 (.38)	2.7 (.49)	3.0 (.00)	2.6 (.50) <sup>1</sup>	2.9 (.27) <sub>b</sub>	3.0 (.00) <sub>c</sub>
Silence During	2.0 (.00)	2.3 (.76)	2.3 (.76)	1.7 (.75)	1.3 (.48)	1.8 (.60)
Gaze Aversion						
Facial expressions	1.9 (.38)	2.0 (.00)	2.0 (.00)	1.6 (.7) <sup>1</sup>	2.4 (.63) <sub>b</sub>	2.0 (.68)
Vocalizations	2.0 (.00)	2.0 (.82)	1.7 (.49)	1.5 (.52) <sup>1</sup>	1.8 (.56)	1.8 (.38) <sub>b</sub>
Infantized behavior	1.3 (.49) <sup>1</sup>	2.1 (.38) <sub>b</sub>	1.9 (.38) <sub>c</sub>	1.4 (.51) <sup>1</sup>	2.3 (.61) <sub>b</sub>	2.1 (.66) <sub>c</sub>
Contingent responsivity	1.9 (.38)	2.0 (.00)	2.0 (.00)	1.8 (.80) <sup>1</sup>	1.9 (.62)	2.1 (.54) <sub>b</sub>
Gameplaying	2.7 (.68)	1.0 (.00)	1.2 (.48)	1.4 (.36) <sup>1</sup>	1.6 (.76) <sub>b</sub>	1.6 (.85)
Total	1.9 (.14)	2.1 (.18)	2.0 (.24)	1.8 (.32) <sup>1</sup>	2.2 (.16) <sub>b</sub>	2.1 (.36) <sub>c</sub>
Behavior states						
Negative	16.3 (10.7) <sup>1</sup>	4.4 (10.9)	.36 (.95) <sub>b</sub>	25.9 (26.5) <sup>1</sup>	8.2 (19.8) <sub>b</sub>	14.2 (26.6)
Neutral	50.4 (18.4)	39.5 (25.6)	50.7 (35.1)	49.9 (25.5) <sup>1</sup>	32.2 (22.6) <sub>b</sub>	33.6 (25.5) <sub>c</sub>
Positive	33.3 (21.9) <sup>1</sup>	56.1 (28.6) <sub>b</sub>	48.9 (35.0)	24.2 (24.7) <sup>1</sup>	59.5 (27.4) <sub>b</sub>	52.2 (30.7) <sub>c</sub>

Note. Subscript letters represent differences between columns (i.e., <sub>1</sub> is significantly different from <sub>2</sub> and <sub>3</sub> is not significantly different from <sub>1</sub> but is significantly different from <sub>2</sub>). Superscript numbers in 1st column represent the significance level (i.e., <sup>1</sup> =  $p < .05$ , <sup>2</sup> =  $p < .01$ , <sup>3</sup> =  $p < .001$ ) of differences between columns 1 and 2; superscript numbers in 2nd column represent significance level of differences between columns 1 and 3; superscript numbers in 3rd column represent significance level of differences between columns 1 and 3.

phases ( $t = -2.59, p < .05$ ) and from pre to post phases ( $t = -2.59, p < .05$ ); (b) improved *physical activity* ratings from pre to coaching phases ( $t = -2.46, p < .05$ ) and from pre to post phases ( $t = -2.92, p < .01$ ); (c) increased *gaze behavior* from pre to coaching phases ( $t = -2.28, p < .05$ ) and from pre to post phases ( $t = -2.69, p < .05$ ); (d) increased *facial expressions* from pre to coaching phases ( $t = -3.68, p < .005$ ); (e) increased *vocalizations* from pre to post phases ( $t = -2.13, p < .05$ ); (f) increased *infantized behavior* from pre to coaching phases ( $t = -4.16, p < .001$ ) and from pre to post phases ( $t = -3.68, p < .005$ ); (g) increased *contingent responsivity* from pre to post phases ( $t = -2.69, p < .05$ ); (h) increased *gameplaying* behavior from pre to coaching phases ( $t = -2.28, p < .05$ ); and (i) better *total* scores from pre to coaching phases ( $t = -4.67, p < .001$ ) and pre to post phase ( $t = -3.07, p < .01$ ).

Withdrawn mothers instructed to get their baby's attention were also in optimal *behavior states* a greater percentage of the interaction time, including: (a) spending less time in a *negative behavior state* from pre to coaching phases ( $t = 3.00, p < .01$ ); (b) spending less time in a *neutral behavior state* from pre to coaching phases ( $t = 4.02, p < .001$ ) and

pre to post phases ( $t = 2.71, p < .05$ ); and (c) more time in a *positive behavior state* from pre to coaching phases ( $t = -5.60, p < .001$ ) and pre to post phases ( $t = -4.16, p < .001$ ).

#### *Withdrawn Mothers During Imitation*

When withdrawn mothers received imitation instructions, they also: (a) received less *withdrawn physical activity* ratings from pre to coaching phases ( $t = -4.12, p < .001$ ); (b) received higher *physical activity* ratings from pre to post phases ( $t = -2.83, p < .05$ ); (c) received higher *infantized behavior* ratings from pre to coaching phases ( $t = -3.29, p < .01$ ) and pre to post phases ( $t = -2.83, p < .05$ ); (d) were in a *negative behavior state* less often from pre to post phases ( $t = 3.72, p < .01$ ); and (e) were in a *positive behavior state* more often from pre to coaching phases ( $t = -3.91, p < .01$ ).

### DISCUSSION

The results of this study indicate that the use of appropriate coaching interventions specific to the profile of the mother in question can facilitate mothers' interaction behaviors. Intrusive mothers who were instructed to imitate learned to reduce their intrusive stimulation, whereas withdrawn mothers instructed to try to elicit their infants' attention learned to increase their stimulation. These results support previous research that has indicated the efficacy of different techniques to "speed up" or "slow down" and increase appropriate interaction behaviors of understimulating and overstimulating mothers (Field, 1977, 1982; Pickens & Field, 1993). However, previous studies did not attempt to match interventions to specific interaction styles.

Both intrusive mothers who were instructed to imitate and withdrawn mothers who were instructed to get their baby's attention improved their interaction behaviors from pre to coaching phases. The withdrawn mothers receiving attention-getting instructions sustained these changes on more behaviors than did the intrusive mothers during the post phase. The intrusive mothers' behavior typically returned to baseline in the post phase. Additional coaching sessions may be necessary to have more sustained effects on the intrusive mothers' behaviors. Intrusive behaviors may be more difficult to alter (Field, 1977). These results are consistent with baseline data from this study indicating that intrusive mothers had characteristically more negative interaction behaviors, whereas withdrawn mothers were predominantly neutral in their behaviors. These profiles may represent different manifestations of depression. In addition, other co-morbid diagnoses and personality characteristics might further complicate these patterns. Intrusive mothers might have additional diagnoses, such as borderline personality disorder, that would make those mothers less amenable to direction in a laboratory situation. Withdrawn mothers, on the other hand, might have more passive personality characteristics that would make them more responsive to directions from an experimenter. These considerations are important in establishing the mothers' profiles and, in turn, designing different interventions.

Future research should investigate the longitudinal effects of providing multiple coaching sessions. This may provide enough time and experience for mothers to master new techniques of interaction behavior and integrate those techniques into their repertoires. By the use of new interaction behaviors, mothers may learn to provide more optimal early stimulation for their infants.



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