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Effect of video-feedback intervention on Turkish mothers' sensitivity and physical intrusiveness: a randomized control trial

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ABSTRACT

We examined the effectiveness of the video-feedback Intervention to Promote Positive Parenting-Sensitive Discipline (VIPP-SD) in enhancing maternal sensitivity and decreasing maternal physical intrusive behaviors among Turkish mothers. Mothers (N = 68; M_{age} = 29.29, SD = 5.20) with their children (M_{age} = 20.04 months, SD = 6.62) participated in a randomized controlled trial with pre-, post-, and follow-up assessments ($N_{intervention}$ = 40, $N_{control}$ = 28). Maternal sensitivity was assessed using the Ainsworth Sensitivity Scale. A coding schema was developed and used to assess maternal physical intrusiveness. The results indicated that mothers in intervention group benefited from the VIPP-SD in both increasing their global sensitivity (d = 0.51, p =.016) and decreasing the frequency of physical intrusive behaviors (d = 0.56, p =.007) compared to mothers in the control group. Overall, the VIPP-SD program appears to decrease the level of physical intrusiveness, in addition to promoting maternal sensitivity among Turkish mothers.

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Video-based intervention; physical intrusiveness; sensitivity; Turkish culture; randomized controlled trial

1. Introduction

In the recent decades, attachment-based early parenting intervention programs that aim to enhance caregiver sensitivity and child attachment security have proliferated (see Dozier & Roben, 2015; Juffer et al., 2017a, 2017b, 2008a). One of the well-known and effective attachment-based and behaviorally-focused early intervention programs is the Video-feedback Intervention to Promote Positive Parenting-Sensitive Discipline (VIPP-SD). The standardized intervention protocol of the VIPP-SD consists of recording the daily interactions of the mother-child dyad at home and providing video-feedbacks, which are individualized for each mother-child dyad (Juffer et al., 2008b, 2017, 2008a). Recent meta-analyses have shown that this intervention is effective in enhancing maternal global sensitivity and results in a number of positive child outcomes (Bakermans-Kranenburg et al., 2003; Juffer et al., 2017a, 2017b; Van IJzendoorn et al., 1995).

Maternal sensitivity is defined as the mother's capacity to perceive and interpret the child's signals accurately and generate appropriate and prompt responses to these signals

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(Ainsworth et al., 1978). Although sensitive responsiveness has been shown to be a universal characteristic of ideal parenting across cultures (Mesman et al., 2016), the specific sensitive behaviors might vary and function in line with the socialization goals and values of cultures (Mesman et al., 2018; Rothbaum et al., 2006, 2000; Sümer & Kagitcibasi, 2010). In individualistic cultures (e.g., the US), sensitive mothers wait for open signals from their child before responding to nurture autonomy and independence. In collectivistic cultures (e.g., China) sensitive mothers anticipate their child's covert signals and nonverbal situational cues to nurture interdependence and mutuality (Rothbaum et al., 2006, 2002, 2000). In Turkey, which is a relatively collectivistic culture, correctly perceiving and interpreting the covert signals and nonverbal situational cues and responding appropriately to these signals are the defining features of maternal sensitivity (Sümer, 2012). VIPP-SD has been mostly applied in more individualistic cultures and there is limited information regarding its effectiveness in non-Western cultures (i.e., Sümer et al., in press; Yagmur et al., 2014). Therefore, the purpose of this study is twofold. Firstly, we aim to test the effectiveness of VIPP-SD on maternal sensitivity in the Turkish cultural context, a relatively collectivistic culture. Secondly, considering cultural variations in parental control and its reflections on physical intrusiveness (Carlson & Harwood, 2003; Grolnick & Pomerantz, 2009; Ispa et al., 2004; Posada & Jacobs, 2001), we aim to examine the effectiveness of VIPP-SD in preventing mothers' physical intrusiveness toward their children. Ainsworth et al. (1978) define parental intrusiveness as specific insensitive and interfering behavior to an infant's needs and willingness for exploration, which hampers the infant's ability to develop autonomy and capability in his/her activities. Intrusive mothers usually direct the child's behavior frequently and non-contingently (Isabella & Belsky, 1991), use commands frequently instead of sensitive guidance (Klein & Feldman, 2007), solve a particular problem the child is working on (Culp et al., 2000), and provide the child with excessive stimulation (Ainsworth et al., 1978). In other words, intrusive behaviors of mothers do not allow the child to determine the pace and focus of the activity (Ispa et al., 2004).

In the Turkish cultural context, especially among low educated mothers, parental control, intrusiveness, and emphasizing the child's obedience and compliance are prevalent (Aksan et al., 2008; Baydar et al., 2008; Kagitcibasi, 2007; Kagitcibasi & Ataca, 2005; Sümer & Kagitcibasi, 2010; Yagmurlu et al., 2009). Turkish mothers are more intrusive and less authoritative (Yaman et al., 2010), demand more obedience (Sümer & Kagitcibasi, 2010), and use more command sentences though they have higher levels of warmth compared to mothers in the US (Akcinar & Baydar, 2011). Higher levels of parental intrusiveness contribute to disruptions in the synchrony and harmony between the mother-child dyads and hamper children's opportunity to explore and assimilate the information and skills (Assel et al., 2003). A previous study conducted in Turkey revealed that intrusiveness has a nonlinear effect on the cognitive outcomes of children. Specifically, when warmth was high, cognitive outcomes were linked to Turkish mothers' high level of intrusiveness as reflected in physical intrusions, but not to their low level of intrusiveness, which involves verbal intrusions (Civelek, 2012). Considering that maternal physical intrusiveness disrupts the child's exploration, mutuality, and autonomy in the dyadic relationship with the mother and leads to negative outcomes in their socio-emotional and cognitive development (Ainsworth et al., 1978; Grolnick et al., 2002; Hubbs-Tait et al., 2002; Keown et al., 2001;

Mäntymaa et al., 2004), investigating the effectiveness of the VIPP-SD in preventing maternal physical intrusiveness has critical importance in the Turkish context.

Previous studies have demonstrated that VIPP-SD is indeed effective in increasing non-intrusiveness (as a dimension of positive parenting) or a comparable construct, non-directiveness, among Turkish minority mothers living in the Netherlands (Yagmur et al., 2014), Portuguese mothers in the poverty context (Negrão et al., 2014), and families of children with autism (Green et al., 2015; Poslawsky et al., 2014, 2015). To our knowledge, no study has addressed the effectiveness of VIPP-SD in decreasing physical intrusiveness. In addition, this study extends the previous findings, since the VIPP-SD was tested in non-Western Turkish cultural context, in which controlling parenting behaviors are prevalent (Kagitcibasi, 2007). Therefore, extending the current findings to physical intrusive behaviors in the Turkish cultural context contributes to the existing literature and further applications of VIPP-SD.

As part of the current study, a new parenting observational instrument for nonsensitive physical intrusiveness was constructed in light of the literature and several observational measures to assess maternal (non)intrusiveness or directiveness, including Emotional Availability Scales (Biringen et al., 1998), the Coding Interactive Behavior Manual (Feldman, 1998), Manchester Assessment of Caregiver-Infant Interaction (Wan, Brooks, Green, Abel, & Elmadith, 2016), Landry Parent-Child Interaction Scales (Landry et al., 2006), and Cooperation vs. Interference with Baby's Ongoing Behavior Scale (Ainsworth et al., 1978). Despite the strengths of these global and comprehensive evaluations of mother-child interactions, these well-validated previous instruments assess global parent-child interactions without specifically focusing on the parent's physically intrusive behaviors. Furthermore, given that parents' controlling attempts take multiple forms, including intrusiveness, domination, and pressure (Grolnick & Pomerantz, 2009), and can be used with a varying degree of sensitivity (Wan et al., 2016), it is unclear what type of parenting control is involved in overall intrusiveness. Therefore, considering that physical intrusiveness is an easily observable behavioral pattern, we specifically focus on this specific behavior to test the effectiveness of VIPP-SD on a culturally prevalent parenting behavior, especially among low to middle SES Turkish mothers.

In sum, the current study aims to examine the effectiveness of VIPP-SD on maternal physical intrusiveness using a novel coding system as well as global maternal sensitivity among Turkish mothers.

2. Methods

Participants and randomization process

Participants were recruited by using the convenience and snowball sampling techniques. Mothers with low to middle SES in Ankara were reached via the records of municipalities and primary health care centers in the disadvantaged districts, announcements on social media, and the snowball sampling method. The inclusion criteria consisted of (1) having children aged between 9 to 30 months, (2) being mothers with an educational level lower than an undergraduate (as an index of socioeconomic status), (3) being in an intact family, (4) being the primary caregiver of the child, and (5) not working outside the home. In total, 272 mothers were reached and 71% of them refused to participate. The most frequent reasons for not being included in the study were living with the extended family, being too

busy, not receiving approval from their husbands, and not trusting a stranger enough to let her in the home.

Randomization was conducted before pre-test assessments through simple randomization with 2:3 allocation using a random-number table by an independent researcher. The motivation for adopting a 2:3 allocation ratio was to obtain more experience in applying the program. A priori power analysis was conducted for estimating sample size. The effect sizes that were reported in meta-analyses (Juffer et al., 2017a, 2017b) were used in this analysis. With a medium effect (d = 0.50), an alpha (p = .05), and power (0.80), G*Power 3.1 for repeated measures, within-between interaction revealed that the sample size is adequate for the group comparison. There is an 83% chance of rejecting correctly the null hypothesis with a total of 60 mother-child dyads. Mothers who agreed to participate and meet the eligibility criteria (N = 79) were listed and randomly assigned either to the intervention group with VIPP-SD (N = 46) or to the control group (N = 33) with a dummy intervention, by using a randomized controlled trial. Mothers were not informed about their assigned condition due to the potential influence of this knowledge on their behavior. Eleven mother-child dyads (6 in the intervention and 5 in the control group) were excluded from the study after pretest assessment due to mothers living with extended family, the age of the target child (30-months-old), technical problems related to videos, and the suitability of videos for coding. In addition, four families in the control group and three families in the intervention group used their right to waive in the follow-up visit due to having difficulty in keeping appointments, moving their house to another city, intervener's concerns about personal security, and husbands' disapproval of the study. Including the dropped-out families in the follow-up test, 28 families in the control and 40 families in the intervention group were analyzed (N = 68). However, the number of participants having pre, post and follow-up assessment was 61 mother-child dyads, 24 were in the control group and 37 were in the intervention group. The flow chart displays the randomization process and participants' progress from pretest to follow-up assessment (see Figure 1).

The final sample, including the drop-out families, consisted of 30 girls and 38 boys, and their mean age was 20.04 (SD = 6.62, range = 10–30 months) at the pretest. Thirty-four children had one or more siblings (50%). Mothers' mean age was 29.29 (SD = 5.20, range = 21–42 years) at the pretest. All had lower than college education degree and 61.8% of them had high school education (N = 42), 25% of them had secondary school education (N = 17), and 11.8% of them had elementary school education (N = 8). There was no difference between the intervention and control groups in terms of maternal education, x^2 (2, N = 67) = 1.00, p > .05. There were no significant differences in the pretest measures (sensitivity and physical intrusiveness) of families, who dropped out of the program and those who stayed on until the end (all ps > .05). Descriptive statistics of participants' demographic information, sensitivity, and physical intrusiveness are displayed in Table 1.

Procedure

After obtaining ethical approval from the Institutional Review Board; mothers, who gave their written permission to participate, were visited at their homes. After the pretest assessments took place, the interveners conducted four home visits to the intervention group to apply VIPP-SD and they made four telephone calls to mothers in the control

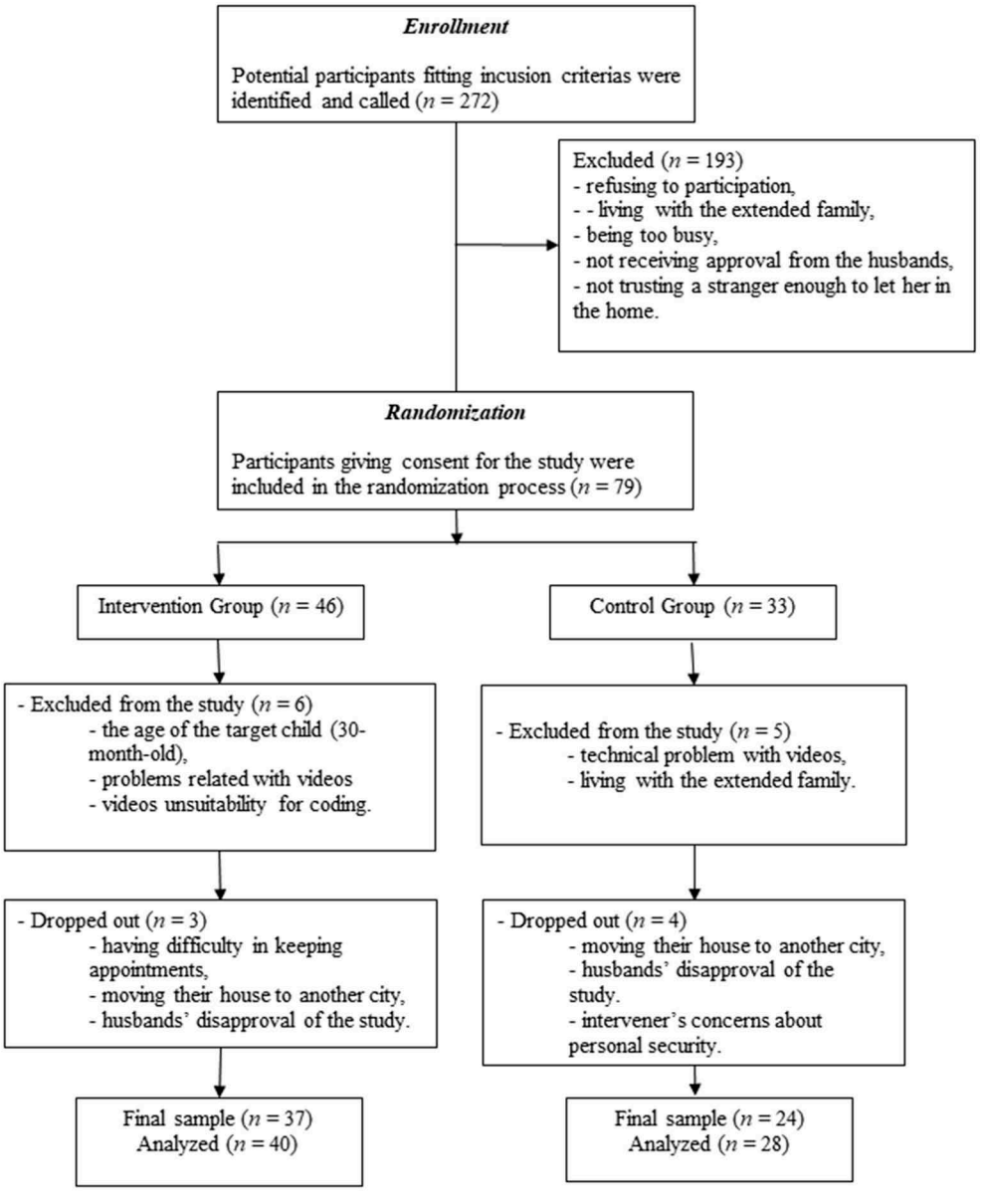


Figure 1. Flow chart for the enrolment, randomization process, inclusion and the reasons of attrition.

group at the same times. Sessions were scheduled approximately two weeks apart. Follow-up visits were conducted approximately three months after the posttest assessments. Similar procedures were followed at the pretest, posttest, and follow-up sessions. First, the interveners videotaped the interaction between the mother-child during a 10-minutes unstructured free play with standard and age-appropriate toys (a potato head and shape sorting toy). Then, the mother filled in the questionnaires. In the follow-up visit mothers were given gifts (a reading book and a tiny feathered duckling) for the child, and

Table 1. Descriptive statistics of participants' demographics, sensitivity, and physical intrusiveness.

	Intervention group (N = 40)				Control group (N = 28)				Total sample (N = 68)		
Variable	*M*	*SD*	*Min–Max*	*Skewness–Kurtosis*	*M*	*SD*	*Min–Max*	*Skewness–Kurtosis*	*M*	*SD*	*Min–Max*
Pretest											
Child age (in months)	20.38	7.24	10–30	.23 – −1.39	19.86	6.28	11–30	.06 – −1.14	20.04	6.62	10–30
Maternal age	29.35	5.31	21–42	.54 – −.10	29.19	5.13	21–42	.49 –.22	29.29	5.20	21–42
Sensitivity	5.90	1.25	3.5–7	−.06 – −.31	6.39	0.98	4–8	−.34 – −.01	6.10	1.16	3.5–8.5
Intrusiveness	7.92	4.87	1–21	1.08 –.98	7.75	5.10	1–22	1.21–1.19	7.85	4.93	1–22
Posttest											
Sensitivity	6.67	1.17	4–9	−.20 –.02	6.20	0.89	4–8	−.35 –.26	6.47	1.08	4–9
Intrusiveness	4.60	4.30	0-17	1.32–1.28	7.46	4.67	0–19	.82 –.26	5.78	4.64	0–19
Follow-up											
Sensitivity	6.84	1.21	5–9	−.28 – −.63	6.70	0.88	4–8	−.33 – −.21	6.78	1.08	4–9
Intrusiveness	4.33	4.08	0–21	1.41–1.58	6.64	4.76	0–19	.91 –.32	5.27	4.49	0–19

a booklet including information, and tips for sensitive parenting, which were discussed during the thematic sessions (Juffer et al., 2008b).

The videotapes recorded in the pretest, posttest, and follow-up test were utilized to rate maternal global sensitivity and physical intrusiveness. To ensure independency between the ratings, two researchers who were blind to randomization and time of the assessment and who were not involved in the data collection process, rated global maternal sensitivity. Also, when these researchers coded the pre-test videos, they did not code the videos from posttest, or vice versa. A specific physical intrusiveness coding scheme (explained below) was developed and coded by the first author. It should be noted that maternal physical intrusiveness and sensitivity were coded by different independent coders. In addition, 20% of the cases was rated by an independent second coder to check for interrater reliability.

Intervention program

VIPP-SD aims to enhance the sensitive reactions of mothers to child's behaviors by giving positive feedbacks to mothers based on their videotaped interactions with their child (Juffer et al., 2008b). This program also provided mothers with written information, detailing sensitive responses in everyday situations (Mesman et al., 2008). While VIPP-SD is a standardized protocol, yet it is individualized and tailored in keeping with the general structure of the protocol. In other words, a general protocol for the mother was applied; but the intervener could still resort to specific themes and guidelines for the individual mother-child dyad.

The VIPP-SD consisted of four biweekly thematic sessions, which all had their theme regarding sensitivity and sensitive discipline, and two booster sessions, in which all main themes were reviewed with mothers in order to strengthen the effectiveness of the intervention. Sensitivity themes were exploration and attachment behaviors, understanding the perspective of the child, sensitive responding to the child's signals, and emotion sharing with the child. Discipline themes were using inductive discipline and distraction, positive reinforcement, using sensitive time-out, and empathy for the child's emotions. As a working method, the interveners focused on child behavior and aimed to build a positive mother-child relationship in each of the first two sessions. Third and fourth sessions aimed at improving positive maternal behavior, interaction chains between mother and child, and emotion sharing (Juffer et al., 2008b; Mesman et al., 2008).

As described in the standardized manual for VIPP-SD, as a starting point, the daily interactions of the mother and infant were videotaped in short episodes at home to be discussed with the mother in the next thematic session. Then, interveners gave feedback about the interactions videotaped in the previous session to the mothers. The interveners prepared feedback in advance by reviewing the videotaped interactions in keeping with the theme of the session, and guided by the information provided by the intervention protocol. The intervener and the mother watched the short videos together, by focusing on specifically selected fragments, which represented the instances of the theme of the session. The selected fragments were used for reinforcing sensitive parenting behaviors and showing the mother that she is a competent mother, who is able to act sensitively. Also, video-feedback enabled several opportunities for practicing observational skills, developing empathy for the child, and reinforcing positive mother-child relationship (Juffer et al., 2008b, 2008a). Intervention was delivered by five female graduate students,

who completed a weeklong training and online supervision by a VIPP-SD expert from Leiden University in the Netherlands. Interveners had peer review meetings to discuss their intervention work.

The standardized VIPP-SD protocol was translated and applied with minor changes. Selcuk et al. (2010) found that Turkish mothers have a moderate level of sensitivity (M = 0.54). Therefore, we expected that mothers' initial level of sensitivity would be moderate in this study. In addition, this study included nonclinical community samples, who were not diagnosed with any psychological and chronic health problems. Therefore, four thematic sessions were conducted in the intervention group without the last two booster sessions. In addition, the *singing* activity, which was videotaped for giving feedback regarding the sensitivity theme of sharing of emotions, was replaced with *playing with a tea set* activity, since the singing activity did not induce emotion sharing in the Turkish cultural context as opposed to playing with a tea set activity.

Control intervention

A control group, who received dummy intervention, was included in the study. To stay in contact with the mothers and prevent attrition (Juffer et al., 2005), mothers in the control group received four telephone calls at two-week intervals. During these telephone calls, the interveners asked questions to the mothers regarding general child development. When mothers asked for any advice or information, the interveners either postponed answering these questions until the last telephone call or referred them to a specialist or health service provider. Most of the mothers did not ask any further questions. At the end of the follow-up test, the mother received a booklet on sensitive parenting. In addition, the researchers delivered brief information regarding sensitive parenting and discipline to support mothers' parenting quality.

Measures

Ainsworth maternal sensitivity scale

The Ainsworth Sensitivity Scale, which was developed by Ainsworth et al. (1978), was used to assess maternal global sensitivity. This scale reflects four components of sensitivity; correctly perceiving and interpreting the child's signals, and responding promptly and appropriately to these signals. This scale was translated into Turkish by the researchers of the broader study. Levels of maternal sensitivity were described in this scale by using a 9-point scale ranging from (1) *highly insensitive* to (9) *highly sensitive*. Each point on the scale includes explanations about the behavioral features of either insensitive, inconsistently sensitive, or sensitive mothers during their interaction with their child. The two researchers of the broader study independently assigned a composite numerical rate for each videotape of 10-minutes of interaction between the mother-child dyad during unstructured free play. All of the coders were trained on using this scale and were unaware of/blind to the group status and time of the measurement. The second coder rated 29% of the videos. The intraclass correlation coefficient (ICC) estimates between raters were calculated based on the two-way mixed effects and absolute agreement (Koo & Li, 2016). ICC estimates were .75 for pretest (95% CI [.15 – .92]), .66 for posttest (95% CI [.12 – .87]), and .85 for follow-up test (95% CI [.56 – .95]).

Coding scheme for maternal physical intrusiveness

A coding scheme, grounded on Ainsworth et al.'s (1978) *Cooperation vs. Interference with Baby's Ongoing Behavior Scale*, was developed for the present study. Maternal physical intrusiveness was operationalized as the mother's observable and physical interfering behaviors with the infant's ongoing activity, state, or interest, without taking the separateness and autonomy of the child into account. Physical intrusive behaviors might be directly or indirectly obstructing and interrupting for the child. Examples of physical intrusive behaviors included grabbing or taking the toy that the child was paying attention to, doing the task for the child, grabbing or manipulating the hands/legs of the child while he/she is paying attention to an activity, providing the child with excessive stimulation, holding/kissing/tickling/feeding the child during play, and redirecting the child's attention from his/her ongoing activity/toy to another activity/toy.

Physical intrusiveness was evaluated during the interaction of the mother-child dyad, which is described as the consecutive and continuous string of behavior and reactions in the parent-child relationship. Mothers' intervening behaviors could not be considered independently from children's behaviors and reactions. Therefore, the physical intrusive behaviors of the mothers were coded on the basis of the behavioral and nonverbal signals of the child. Therefore, each parent-child interaction had two dimensions: mother's behavior and child's engagement/disengagement signals. Mothers' behaviors were coded as intrusive or nonintrusive, based on the *engagement* or *disengagement* signals of the child. Observing the mother's activity, interactive gaze, smiling, reaching forward, trying, or getting close to the activity could be given as examples of the child's engagement signals. Such behaviors of children indicated that they would like to keep the interaction going. Loss of concentration and effort, a shift of gaze to a different subject, getting away, and crying could be considered as indicators of disengagement. Disengagement signals indicated that the children did not want to continue further the interaction.

The harmony between mothers' behaviors and children's engagement or disengagement signals were separated using the *taking over rule*. Mothers' each coherent physical behavior was considered as a unit which continued until a reaction from the child. Videos recorded during mother-child interaction were examined *scene by scene* in order to discern the child's engagement/disengagement signals. The video was paused after each interaction depicting the mother behavior and child behavior. If the physical behavior of the mother was followed by engagement signals from the child, then the maternal behavior was coded as nonintrusive. In all interactions, those involving the mother's physical behavior being followed by the child's disengagement reactions were coded as intrusive behavior. The number of mothers' physical intrusive behaviors following the child's disengagement signals was added up to obtain the *score of maternal physical intrusiveness*.

Maternal physical intrusiveness was coded by taking into account the ongoing context, developmental stage, and age of the child. When the children's age and developmental level were adequate to complete the task, mothers' completion of the task for the child was considered as intrusive behavior. Maternal protective reactions following toddlers' risky behaviors (e.g., putting objects in the mouth) were not counted as physical intrusive behavior. In addition to the age and developmental stage of children, maternal verbalization and vocalization that accompanied the behaviors were taken into account. Mother's directive or requesting utterances about the activity that the child was paying attention to

were not coded as the components of physically intrusive interaction. Yet, the behaviors accompanied by direct commands were coded as intrusive behavior. Verbal directives and controlling behaviors were not considered intrusive behavior as long as they were not accompanied by physical intrusive behaviors.

Coding scheme for maternal physical intrusiveness was developed by the authors of this study. The first author coded all data. Being blind on the group status and the time of the measurement, the second coder rated 20% of the cases. In terms of maternal physical intrusiveness, ICC estimates between raters were calculated based on single rater and absolute agreement (Koo & Li, 2016). ICC estimates were .67 for pretest (95% CI [.28 – .87]), .92 for posttest (95% CI [.79 – .98]), and .74 for follow-up test (95% CI [.29 – .93]), all of which could be evaluated as moderate to high levels of intercoder reliability (Portney & Watkins, 2000).

Fidelity check

To ensure the fidelity of the program and the implementation of testing the effectiveness of interventions adequately, the research assistants, who were extensively trained on the VIPP-SD program and completed online supervision, delivered the intervention program by utilizing the standardized intervention manual. Interveners also had peer review meetings to discuss their work on applying the intervention program. Moreover, the *Intervention Fidelity Checklist* was developed and used to check the extent to which these interveners implemented the program as planned in the manual. The Intervention Fidelity Checklist consisted of questions regarding the structure, specific methods, techniques and messages, which were delivered in each thematic session. The main source of information for evaluating fidelity was the written feedbacks, which were prepared in advance by interveners for each thematic session. The interveners each selected one to three families among those they gave training. All four thematic sessions of the intervener with these families were evaluated by an independent researcher, who was not involved in the data collection process. The fidelity score was rated using a 3-point scale (0 = No, 1 = Partially yes, 2 = Yes). The mean of the fidelity among all the interveners was 1.86 (range = 1.34–1.98).

Data analysis

To prepare the data for the analysis, first, normality assumptions were checked and outliers were screened in the data. The skewness and kurtosis values indicated a normal distribution (see Table 1) and there were no outliners exceeding the absolute number of 3.29 (Tabachnick & Fidell, 2007). Next, missing values were screened in the data. There were four missing values in the pretest scores of maternal global sensitivity and physical intrusiveness in the intervention group due to technical problems with the video recordings. These values were replaced with the mean scores of those particular variables in the intervention group. In addition, missing data due to drop out from post-test to follow-up (four families in the control group and three families in the intervention group) were filled in by using intention to treat analysis in such a way that all the missing values were substituted with the last remained post-test score for the particular group (Fisher et al., 1990; Gupta, 2011). Descriptive analyses were performed to test for possible correlations among demographics, maternal sensitivity, and physical intrusiveness. To test the

hypotheses of this study, two separate repeated measures multivariate analysis of variance with group status (intervention vs. control) as between-subjects factor and time (pre-test, post-test, and follow-up) as within-subjects factor were performed. The within x between interaction was tested to gauge intervention efficacy. In addition, Cohen's *d* effect sizes were reported as the interaction effects.

3. Results

Preliminary analyses

In order to compare the intervention and control groups at pre-test in terms of child gender, a 2 × 2 Chi square test was performed. Results showed that there were differences according to gender between the two groups x^2 (1, N = 68) = 7.06, p = .01, although all children were randomly assigned to each group. The number of girls was higher in the intervention group (N_{girl} = 23, N_{boy} = 17) than it was in the control group (N_{girl} = 7, N_{boy} = 21). In addition, mothers of boys did not significantly differ from those of girls regarding sensitivity and physical intrusiveness in both groups.

Correlations among demographics and all measured variables were calculated for both the intervention and control group (see Table 2). Pre-test measure of maternal sensitivity was positively associated with post-test (r = .49, p = .008) and follow-up test (r = .39, p = .043) measures of sensitivity, and negatively associated with physical intrusiveness (r = −.66, p < .001) in the control group. Pre-test measure of maternal intrusiveness was positively correlated with post-test and follow-up measures of maternal intrusiveness in the control group (respectively; r = .67, p < .001; r = .55, p = .003). In the intervention group, maternal intrusiveness in the pre-test was correlated negatively with post-test and follow-up test measures of maternal sensitivity (respectively; r = .40, p = .01; r = .34, p = .03), and positively with post-test and follow-up measures of maternal intrusiveness (respectively; r = .59, p < .001; r = .37, p = .02).

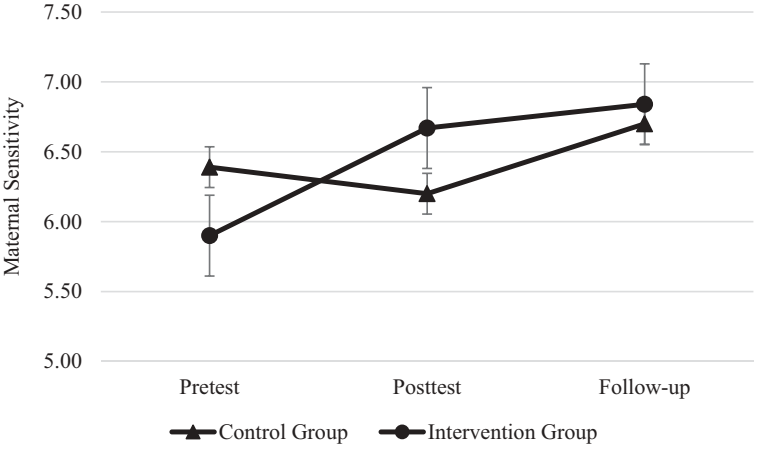
Table 2. Correlations among demographic variables, sensitivity, and physical intrusiveness of the intervention and control groups.

Variable	1	2	3	4	5	6	7	8	9	10
Intervention group (N = 40)										
Child characteristics										
1. Age	-	−.07	−.03	.10	.24	−.21	.28	−.24	.08	−.19
2. Gender	−.11	-	−.20	−.03	−.10	−.09	.05	−.10	−.20	−.08
Mother characteristics										
1. Age	.02	.13	-	−.05	.42**	−.09	.21	.14	.21	.05
2. Education	.07	.10	−.01	-	.08	−.26	.21	−.40*	.18	−.43**
Pretest										
1. Sensitivity	−.06	−.02	.32	.24	-	−.30	.21	−.05	.17	−.10
2. Intrusiveness	.23	−.26	−.20	−.13	−.66**	-	−.40*	.59**	−.34*	.37*
Posttest										
1. Sensitivity	−.21	−.15	−.15	.18	.49**	−.40*	-	−.52**	.20	−.48**
2. Intrusiveness	.32	−.19	−.34	.01	−.36	.67**	−.27	-	−.15	.80**
Follow-up										
1. Sensitivity	−.22	−.01	.38	.37	.39*	−.11	.24	−.13	-	−.18
2. Intrusiveness	.30	−.20	−.32	−.07	−.31	.55**	−.10	.76**	−.31	-
Control group (N = 28)										

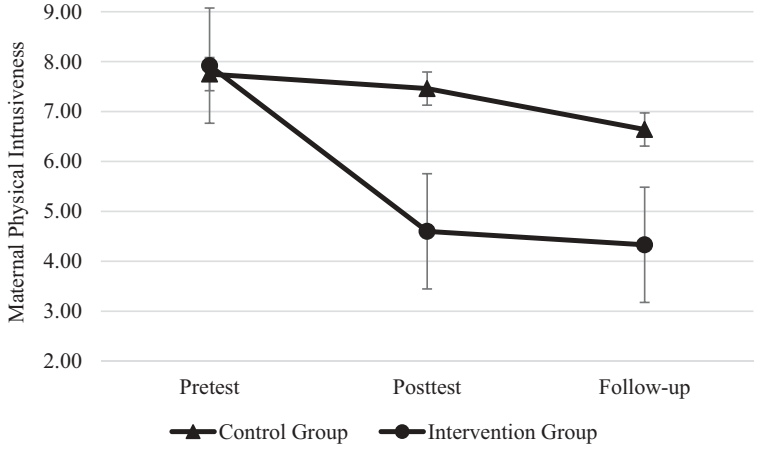
Note. *p <.05, **p <.001.

Intervention effects on maternal sensitivity and physical intrusiveness

We conducted a 2 (intervention vs. control) x 3 (pretest vs. posttest vs. follow-up test) repeated measures multivariate analysis of variance (ANOVA) on *global maternal sensitivity*. The main effect for time was significant, $F(2, 132) = 7.05$, $p = .001$, partial $\eta 2 = .10$. The main effect for group, however, was not significant, $F(1, 66) = 0.03$, $p = .86$, partial $\eta 2 = .00$. Supporting the intervention effect, there was a significant time x group interaction effect, $F(2, 132) = 4.26$, $p = .016$, partial $\eta 2 = .06$, (see Figure 2(a)). Cohen's *d* effect size for intervention effect on maternal sensitivity was 0.51, indicating a moderate effect size (Cohen, 1988). Results demonstrated that maternal sensitivity scores in the intervention group increased significantly, compared to the control group.



a. The effectiveness of the VIPP-SD in maternal global sensitivity.



b. The effectiveness of the VIPP-SD in the frequency of maternal physical intrusive behaviors.

Figure 2. a) The effectiveness of the VIPP-SD in maternal global sensitivity. b) The effectiveness of the VIPP-SD in the frequency of maternal physical intrusive behaviors.

We applied another 2 (intervention vs. control) x 3 (pre-test vs. post-test vs. follow-up test) repeated measures ANOVA on frequency of *physical intrusive behaviors*. The main effect for time was significant, $F(2, 132) = 12.08$, $p < .001$, partial $\eta 2 = .16$. The main effect for group, however, was not significant, $F(1, 66) = 2.92$, $p = .09$, partial $\eta 2 = .04$. The significant time x group factor supported the interaction effect, $F(2, 132) = 5.22$, $p = .007$, partial $\eta 2 = .07$, indicating that intervention efforts were effective in decreasing frequency of maternal intrusive behaviors in the intervention group, compared to control group (see Figure 2(b)). Cohen's *d* effect size for intervention effect on maternal physical intrusiveness was 0.56, indicating a moderate effect size (Cohen, 1988). Results revealed that the frequency of maternal physical intrusive behaviors in the intervention group decreased significantly, compared to the control group.

4. Discussion

The current study tested the effectiveness of VIPP-SD in enhancing maternal sensitivity and decreasing physical intrusiveness in Turkish cultural context using a randomized controlled design. The findings lead to the evaluation that the VIPP-SD was effective in promoting positive parenting practices, not only by enhancing maternal sensitivity but also by decreasing physical intrusiveness. This study has replicated and broadened existing VIPP studies, which have shown the effectiveness of the positive parenting program in promoting maternal sensitivity and decreasing intrusiveness in a number of Western cultures and various groups (e.g., Green et al., 2015; Juffer et al., 2014, 2017a, 2017b; Negrão et al., 2014; Poslawsky et al., 2014; Yagmur et al., 2014).

The VIPP-SD proved effective in promoting maternal sensitivity among Turkish mothers, with a moderate effect size for intervention effect, which is in line with those reported in the previous meta-analysis (Bakermans-Kranenburg et al., 2003; Juffer et al., 2017a, 2017b; Van IJzendoorn et al., 1995). The results revealed that random allocation to the intervention group led to a stronger increase in global sensitivity than allocation to the control group. These findings were consistent with the previous studies, which assessed global maternal sensitivity using the Ainsworth Sensitivity Scale (e.g., Bakermans-Kranenburg et al., 1998; Kalinauskiene et al., 2009; Klein Velderman et al., 2006) and Emotional Availability Scale (e.g., Cassibba et al., 2015; Yagmur et al., 2014).

The themes of the VIPP-SD program were in line with Ainsworth et al. (1978)'s conceptualization of maternal sensitivity (Juffer et al., 2017, 2008a) and Turkish mothers' views on effective parenting (Ekmekci et al., 2015). Guided by this theoretical background, interveners provided mothers with video-feedback regarding how to anticipate and respond to the child's verbal and nonverbal situational cues. For instance, mothers were given guidance on using the *speaking for the child* (describing the child's emotional expressions and behaviors) technique to correctly interpret both open and subtle signals of their child. In addition, the *sensitivity chain* (parental sensitive responding to a child signal, which leads to the child's positive reaction) technique empowered mothers to respond to the child's needs adequately and promptly (Juffer et al., 2008b). In addition, mothers developed their observational skills and empathy for their child through video-feedback. Video-feedback using short videos of mother-child interactions under the constructive guidance of an intervener might help mothers become more aware of the reciprocal relationship between them and their child, the importance of sensitive

responding, and support them in acting sensitively (Balldin et al., 2018; Hedenbro et al., 2006; Yagmur et al., 2014). Furthermore, mothers observe and reflect on subtle signals of their child more easily through watching their own interaction with their child, which allowed them to build greater capacity to meet the child's needs in a sensitive way in everyday situations.

Our findings showed that VIPP-SD was effective in decreasing the frequency of maternal physical intrusive behaviors in the Turkish cultural context, with a moderate effect size. Specifically, consistent with the hypothesis, mothers in the intervention group appeared to become physically less intrusive compared to the mothers in the control group at the end of the intervention. This finding was consistent with previous randomized controlled trials, showing that video-feedback intervention is effective in increasing maternal non-intrusiveness and non-directiveness (Green et al., 2015; Negrão et al., 2014; Poslawsky et al., 2014, 2015; Yagmur et al., 2014). It should be noted that unlike previous studies, we were interested in the obvious physical intrusive behaviors of mothers, with our focus mainly on the interfering and forcing behaviors of mothers during their interactions with the child. Since we utilized a newly developed unobtrusive assessment of physical intrusiveness, the finding that VIPP-SD is effective in decreasing maternal physical intrusiveness is only preliminary and cannot be generalized. This finding may be attributed to at least three factors. First, the themes of the sessions, together with the constructive use of video-feedback, provided mothers with anticipation of their child's autonomy and competence needs during daily activities, which might have led them to follow the child's lead and/or participate in activities in the child's pace etc. Second, since parental control is normative in collectivistic cultures, such as the Turkish cultural context (Aksan et al., 2008; Baydar et al., 2008; Kagitcibasi, 2007; Kagitcibasi & Ataca, 2005; Sümer & Kagitcibasi, 2010; Yagmurlu et al., 2009), video recordings usually included highly frequent and easily observable physically intrusive behaviors. Similarly, Negrão et al. (2014) also stated that relative to much more abstract construct of sensitivity, intrusive behaviors are more likely to be identified in videos. Therefore, interveners in this study frequently adjusted their positive feedback to work on these physically intrusive behaviors as opportunities for change. Lastly, considering the highly related constructs of sensitivity and non-intrusiveness, the overall increase in maternal global sensitivity might have contributed to a decrease in physical intrusive behaviors, and vice a versa. In other words, by reinforcing positive parenting practices and promoting more respectful, relaxed, and joyful mother-child interactions, the VIPP-SD contributes to minimize specific insensitive behaviors, such as physical intrusiveness, which is not uncommon among Turkish mothers (Yaman et al., 2010).

Strengths of this study consist of its randomized controlled trial with pre-, post-, and follow-up test design, a unique coding scheme for physical intrusiveness, and a distinctive sample from a non-Western culture. There are also certain limitations to the study. First, the newly-developed physical intrusiveness measure lacks validation, therefore the results of this study should be considered as preliminary. Second, we used only a behavior coding scheme for assessing physical intrusiveness. Verbal intrusiveness was not being evaluated as a dimension in this study, and it should be explored by attachment researchers. Third, the 2:3 allocation ratio in this study led to a difference in the number of participants in the intervention and control groups. Fourth, this study included a nonclinical community sample and participating mothers lived in low to middle socioeconomic areas of Ankara/Turkey. All participants were married and living with their nuclear family. Our results should

be replicated with other groups, such as clinical samples, single parent households, and other potential groups in society. Finally, the last two booster sessions of the intervention protocol could not be included in the present study. Booster sessions would have been beneficial for summarizing all the main themes for the mothers and may enhance the stability of effect at the follow-up assessment. Nevertheless, the shorter VIPP-SD program did result in significant effects on promoting positive parenting.

This study has implications for future applications and effectiveness studies of this intervention program. The results of this study supported the idea that the VIPP-SD could be applied not only to increase sensitive responding but also to decrease maternal physical intrusiveness. This study provides a focus for future studies aiming to test the effectiveness of VIPP-SD to decrease frequently observed specific insensitive parenting behaviors. Future studies should focus on the effectiveness of VIPP-SD in promoting other positive parenting practices and decreasing negative ones, which might contribute to positive child outcomes through enhancing the harmony and synchrony between the mother and child. In addition, this study demonstrated that VIPP-SD could be effectively used to promote positive parenting in collectivistic non-Western cultures, in which sensitivity is featured in subtle, nonverbal, and mostly physical cues. Given that cultural variations are observed in specific sensitive behaviors; it is important to take culturally-sensitive early care behaviors into consideration when implementing parenting intervention programs. In particular, applications of VIPP-SD in a collectivistic culture may include feedback, which will be used for anticipating nonverbal situational cues of the infant promptly and adequately. Furthermore, the messages of the main themes may be conveyed by considering culturally-relevant sensitive behaviors. Furthermore, a comprehensive appreciation of parents' values and goals in raising children should be taken into consideration when design and apply parenting interventions by paying careful attention to ethical issues (Morelli et al., 2018). For example, given that a moderate level of parental control is prevalent and normative in Turkey, encouraging Turkish mothers to apply parenting practices that are normative only in Western societies without understanding their aspirations for caregiving would be potentially harmful. Therefore, to effectively apply VIPP-SD, interveners should be highly aware of the culturally-sensitive features of sensitivity and control constructs. Future studies should test the effectiveness of VIPP-SD in non-Western cultural contexts in order to provide support for its applicability in different cultures.

Taken together, the present study shows the effectiveness of the short-term VIPP-SD in increasing maternal sensitivity. More importantly, VIPP-SD could also be used to decrease different aspects of insensitive responding. Considering that VIPP-SD is effective to decrease maternal physical intrusiveness, which is highly frequent in Turkish cultural context, one may carefully conclude that increasing maternal sensitivity contributes to decrease specific insensitive parenting practices, which are widespread and normative in different cultural contexts. Overall, this study indicates that the video-feedback intervention is not only effective in Western cultures, but is also effectively applicable for mothers in non-Western cultures.

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