Research article

Reflective parenting home visiting program: A longitudinal study on the effects upon depression, anxiety and parenting stress in first-time mothers

Laura Vismara, Cristina Sechi [*], Loredana Lucarelli

Department of Pedagogy, Psychology Philosophy, University of Cagliari, Via Is Mirrionis 1, 09123, Cagliari, Italy

A R T I C L E   I N F O

A B S T R A C T

Objective: Our study aimed to investigate the effects of a reflective parenting home visiting program in first time-mothers at risk for depression, anxiety, and parenting stress, from three to 12 months after their child's birth.
Study design: The sample was composed by 77 first-time mothers and their healthy babies (53% boys and 47% girls). Mothers filled out the Edinburgh Postnatal Depression Scale, the State-Trait Anxiety Inventory, and the Parenting Stress Index-SF at 3, 6 and 12 months of the child. Thirty-six mothers were assigned to the experimental group and received the reflective parenting home-visiting program, the other 36 constituted the control group.
Results: Analyses showed a significant higher reduction in the level of depression, anxiety and parenting stress among mothers belonging to the experimental group, compared to the control group.
Conclusion: Our findings confirm the benefits of reflective parenting home visiting programs and underline the need to constantly evaluate the levels of depression, anxiety and parenting stress throughout the perinatal period to target effective prevention programs to foster early mother-child attachment bond.

1. Introduction

1.1. Perinatal maternal mental health and child outcomes

Psychological distress may be experienced by first time mothers; indeed, high levels of depression and anxiety are frequent during the perinatal period, and are present in around 10–15 % of women (Dennis et al., 2017; Furtado et al., 2018). These symptoms are known to be associated with negative short, medium and long effects for both mothers and their children (Ammaniti et al., 2006; Deave et al., 2008; Hay et al., 2010; Korhonen et al., 2012; Loomans et al., 2011; Palmer et al.,. 2020; Sandner et al., 2018; Vismara et al., 2016); however, these consequences are not limited to mothers suffering of severe distress or with a mental disorder diagnosis (Glover et al., 2008; LeCroy and Lopez, 2020).

Moreover, several studies have shown that the adverse outcomes may be linked with early to late pregnancy experiences (Hartman et al., 2020; Korja et al., 2017); for such reason, it is important to identify preciously psychological distress, since pregnancy. Indeed, perinatality seems to be a particularly advantageous time to provide preventive and parenting interventions (Glover et al., 2008; Damashek et al., 2020; Tandon et al., 2020).

1.2. Home visiting programs

In such perspective, the evidenced-based home visiting programs (HVPs) are among the most efficacious and effective interventions aimed to support parenting behaviors, to improve maternal psychological distress (mainly, depression, anxiety and parenting stress), to enhance attachment and the infants' health and development (Ammaniti et al., 2006; Berlin et al., 2018; Dozier and Bernard, 2017; Greve et al., 2018; Olds et al., 2019; Slade et al., 2019).

Although HVPs have proved their efficacy in helping children and families at risk (Avellar and Supplee, 2013; Peacock et al., 2013), the statistical power level seems to suggest small to modest, albeit positive, effect sizes (Bilukha et al., 2005; Sweet and Appelbaum, 2004). Therefore, it is important to understand these incongruities in order to increase the benefits of HVPs (Guterman et al., 2018; Korfmacher et al., 2019; LeCroy and Lopez, 2020).

First, it has been proved that HVPs have a higher impact on development and health when mothers are involved from early pregnancy, and an increasing number of visits is offered (Kitzman et al., 2019; Nievar et al., 2010; Peacock et al., 2013).

Furthermore, HVPs are directed mainly at providing support to inexperienced, first time mothers who are at raised risk for depression;

* Corresponding author.
E-mail address: cristina.sechi@unica.it (C. Sechi).

indeed, several studies have shown rates of depression among mothers in HVPs close to 60% (Ammerman et al., 2010; Goodman and Garber, 2017). Interestingly, it has been documented that the presence of mothers with depression may diminish the positive impact of HVPs (Ammerman et al., 2010; McFarlane et al., 2017). Consequently, it would be important to implement HVPs with highly trained perinatal mental health professionals that may target maternal distresses and reinforce their commitment with home visits (Goodman and Garber, 2017).

Overall, it may be stated that home-visiting programs that present specific characteristics may contribute to long-term benefits for both the child and the mothers (Korfmacher et al., 2019; Sama-Miller et al., 2018).

1.3. Reflective parenting program

In such direction, Reflective Parenting Programs (RPPs) have proved to be especially effective (Slade, 2007; Slade et al., 2019; Stacks et al., 2019). RPPs are based on Fonagy's concept of mentalization and target the development of maternal Reflective Functioning (RF) in mothers (Fonagy et al., 2002; Slade, 2005, Slade et al., 2019). Maternal RF has proved to be a core feature of fostering a good parent–child relationship; in particular, maternal sensitivity and security of attachment, which are among the strongest predictors of the child's functioning (Bolwby, 1969; Cassidy and Shaver, 2008; Slade et al., 2019).

In particular, a parent's capacity to understand her/his child's behavior in terms of mental states (feelings, desires, beliefs, and intentions) facilitates the child's capacity to experience, self-regulate and organize her/his own affects and mental states from significant interactional exchanges (Fonagy et al., 2002; Slade, 2005).

Several studies proved that maternal RF is positively associated with mother-child attachment and child's attention, social skills, and adaptability, and negatively with parent distress, parent-child dysfunction, and child withdrawal (Fonagy et al., 2002; Slade et al., 2005). This research suggests that reflective capacities allow mothers to accurately perceive and sensitively respond to their children's internal states.

Home Visitors - who receive training and supervision in the acknowledgment and improvement of RF – support mothers in recognizing their infants' physical and internal states, being themselves a model in their interaction with the mothers and their children. The Home Visitor, for instance, may try to give voice to the child's mental states, starting from the observation of the here and now interaction between the infant and her/his mother, facilitating wondering and eliciting affects. In parallel, the Home Visitor needs to address the mother's mental states in relation to her caregiving role, her child's characteristics and their relationship and must support the mother in acknowledging the impact of her feelings and thoughts upon her child's behavior and emotions (Slade et al., 2005).

Most probably, RPPs' success arises from the ability of the Home Visitor to foster the mother's capacity to acknowledge and regulate her own mental states; such experience may in turn promote her capacity to tolerate and regulate her child inner experiences.

Accordingly, it has been demonstrated that reflective supervision to home visitors has also a significant effect on HVPs, especially improving child maltreatment outcomes (Gatti et al., 2011; Shea et al., 2020).

1.4. Study objectives

In this study, we examined the efficacy of a reflective parenting oriented home-visiting program to reduce perinatal depression, anxiety and parenting stress in a sample of low-risk first-time mothers.

Indeed, the development and evaluation of preventive interventions in the area of perinatal depression has been claimed as a key goal (Murray et al., 2010).

Specifically, the present longitudinal study had the following aims:

- To examine whether there are any differences between the levels of depression, anxiety, and parenting stress in mothers who received a

reflective parenting home visiting program [experimental group] and mothers who received ordinary parental counselling [control group] and to assess their evolution from three to 12 months after their child's birth.

This study was part of a larger, ongoing longitudinal study on maternal and paternal depression in first-time parents and the development of their children's affective regulation carried out in Sardinia (Italy). In this paper, we present data concerning mothers who were assessed at three time points (Time 1), (Time 2) and (Time 3) correspondent to the child's third, sixth and twelve months of age.

After voluntarily consent, mothers were assigned randomly to one of two groups (the experimental group or the control group) with a 1:1 allocation ratio.

The reflective parenting home visiting program and the ordinary parental counselling are described in the design section.

2. Method

2.1. Participants

The participants were 77 primiparous mothers who conceived spontaneously and their healthy babies (53% boys and 47% girls). Mothers' ages ranged from 20 to 42 (M = 33.8, SD = 4.9).

All participants were women with no previous pregnancy, live birth, stillbirth, miscarriage, or neonatal death. Participation was voluntary, and participants were recruited from neonatology units and family healthcare services in Italy. No participant was undergoing medical/psychological treatment at the time of assessment. During the first assessment (Time 1), mothers filled up a screening instrument for depression. If their scores were higher than cut-off score, according to the randomized controlled study design, they were randomly assigned to the experimental group or the control group (Figure 1).

Of the 77 participants who had initially entered the study, only 5 (3.9%) dropped out in the course of the study. The randomization procedure was successful, as no socio-demographic variables or outcome measures showed a significant group difference (see Table 1 and Table 2).

2.2. Measures

2.2.1. Depression

The Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987) consists of 10 items addressing depression symptoms occurring within the previous seven days.

The total score is calculated by adding the individual items on a 4-point Likert scale. An example of item is "*I have been so unhappy that I have had difficulty sleeping*".

In the community screenings, the best cut-off to identify Italian women with a diagnosis of a severe or moderate major depression episode is 8/9, with a 94.4% sensitivity, 87.4% specificity and 58.6% positive predictive value (Benvenuti et al., 1999). The adopted cut-off score was 9 as suggested by the Italian validated version (Benvenuti et al., 1999). In the present study, the EPDS had high level of internal consistency throughout the planned assessments of the study (.87 < α > .89).

2.2.2. Anxiety

The State-Trait Anxiety Inventory (STAI; Spielberger et al., 1983; Pedrabissi and Santinello, 1989) is a commonly used self-report measure of trait and state anxiety. STAI has 20 items for assessing trait anxiety (STAI-T) and 20 for state anxiety (STAI-S). All items are rated on a 4-point scale (i.e., from "Almost Never" to "Almost Always"). An example of a STAI-T item is: "*I worry too much over something that really doesn't matter*". An example of a STAI-S item is: "*I am worried*". The adopted cut-off score was >40, as suggested by the Italian validated version
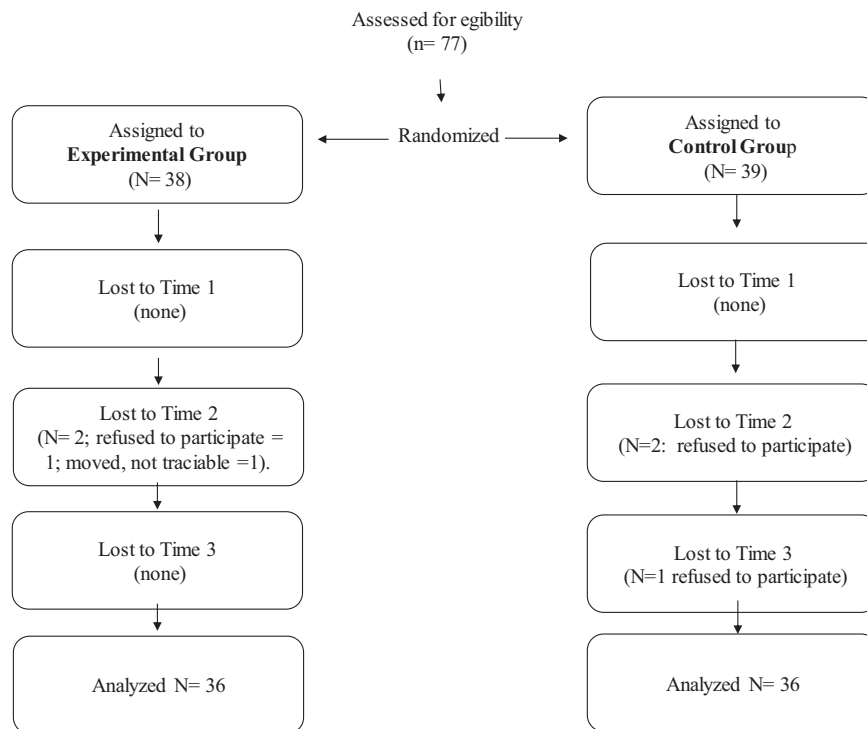
Figure 1. Flow chart of the study's progress, detailing mother numbers during recruitment, distribution, and research developments.

Table 1. The descriptive statistics of total sample, experimental and control groups.

Demographic variables	Total sample	Experimental Group	Control Group	p value
Age (Mean ± SD)	33.8 (±4.9)	33.8 ± 5.3)	33.9 (±4.6)	.96 [a]
Marital status N (%)				
Married	71 (92%)	34 (89.5%)	37 (95%)	.38 [b]
Cohabiting	6 (8%)	4 (10.5%)	2 (5.1%)	
Educational level (%)				
High school	6 (7.8%)	2 (5.3%)	4 (10%)	
University degree	59 (77%)	31 (82%)	28 (72%)	.56 [b]
PhD	12 (13%)	5 (15%)	7 (18%)	
Employment status (%)				
Housewife	9 (12%)	3 (8%)	6 (15%)	
Employed	62 (81%)	31 (82%)	31 (80%)	.44 [b]
Unemployed	6 (7%)	4 (10%)	2 (5%)	

Note: [a] independent *t*-tests, [b] Chi-square test).

Table 2. Descriptive statistics and group's comparisons at Time 1 of the EDPS, STAI and PSI-SF

	Experimental Group	Control Group	t	p value
EPDS (Mean ± SD)	10.7 (±3.8)	9.6 (±2.7)	-1.3	.17
STAI-State (Mean ± SD)	40.3 (±8.9)	39.5 (±11.5)	-.32	.82
STAI-Trait (Mean ± SD)	38.9 (±9.4)	39.4 (±9.2)	.23	.76
PSI-PD (Mean ± SD)	27.7 (±7.8)	27.5 (±7.3)	-.12	.91
PSI -P-CDI (Mean ± SD)	19.3 (±8.8)	19.4 (±8.7)	.08	.94
PSI DC (Mean ± SD)	23.8 (±5.6)	22.3 (±7.9)	.25	.81
Total Stress (Mean ± SD)	69.3 (±21.2)	69.8 (±21.5)	.09	.93

(Pedrabissi and Santinello, 1989). In the present study, the STAI-T and STAI-S had high level of internal consistency throughout the planned assessments of the study (.93 < α > .95 for the STAI-T, and .92 < α > .95 for STAI-S).

2.2.3. Parenting stress

The Parenting Stress Index—Short Form (PSI-SF; Abidin, 1990; Guarino et al., 2008) is a self-report screening instrument that helps providers and families identify the causes and different forms of stress that come with parenting. Mothers report their level of agreement with

36 items that fall into 3 subscales: Parental Distress (PD)—The extent to which mothers feel helped, disagreed, capable, limited or depressed in their role as a mother. Parent-Child Dysfunctional Interaction (P-CDI)—The extent to which mothers feel gratified with their child and their interactions with them. Difficult Child (DC)—How a mother perceives their child to be, whether the child is easy or difficult to take care of. Total Stress—indication of overall level of stress an individual is feeling in their role as a mother.

An example of a PSI-SF item is *"My child gets upset easily over the smallest thing"*. In the present study, the three mentioned subscales and Total Stress had adequate internal consistency throughout the planned assessments of the study (.76 < α > .92).

2.3. Design

2.3.1. Experimental group

The mothers who were assigned to the experimental group received a reflective parenting home visiting program (RPP). Within such perspective, the home visitor co-constructs a trusting relationship with the mother and helps her to acknowledge her resources to reinforce her parenting skills. As described in the introduction, starting from the observation of the interaction with their child, mothers are encouraged to improve their capacity to read and interpret the signals and the behaviors of their infant and to promote physical closeness and intimacy; thus, their mentalization and sensitivity are enhanced; consequently, the attachment bond between mother and child. Any direct advice is avoided.

The home-visiting intervention was set up by professionals with a master's degree in psychology and a graduate or postgraduate training in perinatal mental health; they were also supervised on their work during the intervention. This background allowed the home visitor, along with the observation of the interactions, to reflect on the mothers' past and current resources and vulnerabilities, on the child's characteristics and on the relation among these variables, avoiding any direct advice (Fonagy et al, 2002; Slade et al., 2005; Stern, 2004). The RPP was carried out once a week with visits lasting from 60 min during the span of 9 months (from Time 1 to Time 3). The total average number of visits was 35.1 (S.D. = 1.3, range from 32 to 36).

2.3.2. Control group

The mothers who had been allocated to the control group received routine primary care and a marginal, limited psychosocial intervention concerning six telephone calls, each lasting about 15/20 min, by child psychologists, during 9 consecutive months (from Time 1 to Time 3). In the phone calls, the mothers were supported with practical parenting advice and mothers could express their worries about potential difficulties with the child, their partner or economic problems.

2.4. Procedure

The research project obtained approval from the Department of Pedagogy, Psychology, Philosophy - University of Cagliari, ethics committee. Time 1 data were collected approximately 3 months after birth, Time 2 data were collected approximately 6 months after birth and Time 3 data were collected approximately 12 months after birth.

Prior to the collection of data, trained research assistants described the goal of the study. The mothers were informed of their right to voluntary participation and that they could leave the study at any time. All participants signed a written informed consent form.

Mothers who met selection criteria and agreed to participate completed at home a demographics questionnaire, the EPDS, STAI, and PSI-SF at Time 1, Time 2 and Time 3. Specifically, to make sure that all participants understood what would happen in the study, at Time 1, data collection was carried out in the presence of a trained research assistant. Later, at Time 2 and Time 3, questionnaires were accessible as a document emailed to the mothers.

2.5. Data analysis

The data were preliminarily screened for errors and outliers. Preliminary analysis showed that no variable had more than 5% of missing data. Missing data were adjusted according to each test norms or by introducing the scale average for the participant with missing data.

Descriptive statistics were calculated on the assessed variables, reporting mean scores and associated standard deviation.

Characteristics of the experimental and control groups at Time 1 were compared using Chi-square or independent *t*-tests for categorical or continuous variables, respectively.

A 2 (Group: experimental *vs.* control) × 3 (Time: Time 1, Time 2, and Time 3) mixed-model ANOVA were performed on the scores from the EPDS, STAI and PSI-SF. Post-hoc analyses were performed where appropriate. In discussing the results, we report partial eta squared ($\eta_p^{2)}$) for effect size, where .01 is a small effect, .06 is a medium effect, and .14 is a large effect (Cohen, 1988).

3. Results

3.1. Preliminary analysis

Table 2 shows the means and standard deviations for the experimental and control groups at Time 1 for each evaluated variable. Table 3 shows the means and standard deviations for the total sample, the experimental and control groups at each of the three assessments for each of the evaluated dimension.

As shown in Table 2, there was no significant differences in depression, anxiety and parenting stress levels between the mothers belonging to the control and to the experimental groups at the beginning of the study (Time 1).

3.2. Depression levels

Analyses of the EPDS showed a no significant main effect for Group [$F (1, 70) = .82, p > .05$, ($\eta_p^2 = .01$]. Thus, there was no overall difference in the EPDS' scores of experimental group ($M = 7.6$) compared to control group ($M = 8.2$).

A significant main effect of Time was obtained [$F (2, 140) = 39.47, p < .001$, ($\eta_p^2 = .35$]. EPDS' scores decreased significantly from Time 1 ($M = 10.1$) to Time 2 ($M = 6.7$) and to Time 3 ($M = 6.7$) (($p < .001$ and $p < .001$ respectively) with large effect size.

However, a significant Time x Group with a small effect size was also obtained, [$F (2, 140) = 5.6, p < .01$, ($\eta_p^2 = .07$].

The significant interaction effect is graphically presented in Figure 2.

So, to further investigate the effect of time, measures ANOVAs were run separately for the experimental and control groups.

These analyses showed a significant reduction over time in the level of depression both in the Experimental group [$F (2, 70) = 40.34, p < .001$, ($\eta_p^2 = .07$]. and in the Control group [$F (2, 70) = 7.8, p < .01$, ($\eta_p^2 = .28$] with medium and large effect sizes, respectively. These results indicated that both groups the levels of depression were significantly higher at the Time 1 than at Time 2 ($p < .001$ and $p < .01$ in experimental and control groups respectively) and Time 3 ($p < .001$ and $p < .01$ in the experimental and control groups respectively) (see Table 3).

Follow-up univariate analyses further examining group differences on EPDS scores revealed no differences at Time 1 $F (1, 71) = 1.96, p > .05$, ($\eta_p^2 = .03$] and at Time 2 ($F (1, 71) = 1.3 p > .05$, ($\eta_p^2 = .02$] but significant differences at Time 3 $F (1, 71) = 5.6, p < .05$, ($\eta_p^2 = .07$]. The experimental group at Time 3 showed a significant lower EPDS' scores than control group, with medium effect size.

3.3. Anxiety

Analyses of the STAI-Trait showed a no significant main effect for Group [$F (1, 70) = .45, p > .05$, ($\eta_p^2 = .01$]. Thus, there was no overall

Table 3. Shows the means and standard deviations for the experimental and control groups at each of the three assessments for each dimension evaluated.

	Time 1 (3 Months) M ±SD	Time 2 (6 Months) M ±SD	Time3 (12 Months) M ±SD
Total group (N= 72)			
EPDS	10.1 ± 3.3 [a]	6.7 ± .4.1 [b]	6.7 ± .3.3 [b]
STAI-State	39.9 ± 10.2 [a]	37.5 ± 8.4 [ab]	36.2 ± 6.5[b]
STAI-Trait	39.2 ± 9.2 [a]	37.9 ± 8.8 [a]	38.2 ± 7.4 [a]
PSI-PD	27.6 ± 7.5 [a]	26.9 ± 7.6[a]	25.3 ± 6.4 [b]
PSI -P-CDI	19.4 ± 8.7 [a]	16.7 ± 4.6 [b]	16.5 ± 3.1 [b]
PSI DC	22.6 ± 8.0 [a]	22.1 ± 5.3 [a]	20.1 ± 6.3 [b]
Total Stress	69.5 ± 21.1 [a]	63.1 ± 14.1 [b]	63.9 ± 10.6 [b]
Experimental group (N= 36)			
EPDS	10.7 ± 3.8[a]	6.2 ± 3.7 [b]	5.9 ± 2.6[b]
STAI-State	40.3 ± 8.9[a]	36.8 ± 8.8 [b]	34.3 ± 5.1[b]
STAI-Trait	38.9 ± 9.4 [a]	37.4 ± 9.3[a]	37.3 ± 6.8 [a]
PSI-PD	27.7 ± 7.8 [a]	26.4 ± 6.5 [a]	24.1 ± 5.5 [b]
PSI -P-CDI	19.3 ± 8.818 [a]	16.6 ± 4.6 [b]	16.1 ± 2.8 [b]
PSI DC	23.8 ± 5.6 [a]	22.8 ± 8.2 [ab]	20.39 ± 6.5 [a]
Total Stress	69.3 ± 21.2	61.7 ± 13.1	60.6 ± 8.1
Control group (N= 36)			
EPDS	9.6 ± 2.7 [a]	7.3 ± 4.4 [b]	7.6 ± 3.7[b]
STAI-State	39.5 ± 11.5 [a]	38.4 ± 7.9 [a]	38.1 ± 7.3 [a]
STAI-Trait	39.4 ± 9.2 [a]	38.4 ± 8.3 [a]	39.3 ± 7.9[a]
PSI-PD	27.5 ± 7.3 [a]	27.4 ± 8.5 [a]	26.4 ± 7.1 [a]
PSI -P-CDI	19.4 ± 8.7 [a]	17.8 ± 4.7 [a]	16.9 ± 3.5 [a]
PSI DC	22.3 ± 7.9 [a]	20.4 ± 4.4 [a]	19.8 ± 6.0 [a]
Total Stress	69.8 ± 21.5	64.6 ± 15.1	67.1 ± 11.8

Note: EPDS, Edinburgh Postnatal Depression Scale; STAI, State and Trait Anxiety Inventory; PSI, Parenting Stress Index—Short Form, PD, Parental Distress, P-CDI, Parent-Child Dysfunctional Interaction, DC, Difficult Child.
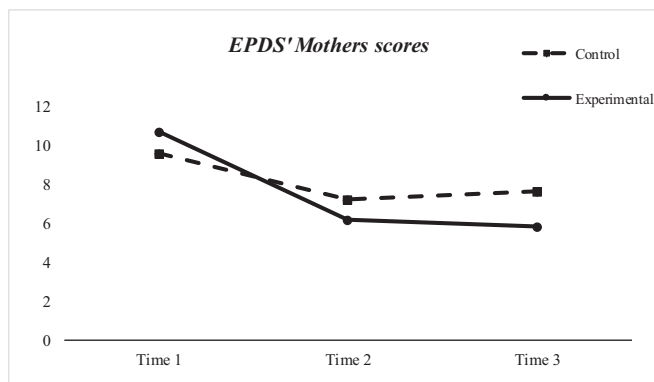Means in rows not sharing a common letter differ significantly ($p < .05$).

Figure 2. Mean scores for EPDS for the experimental and control groups at the three assessments.

difference in the STAI-Trait' scores of experimental group ($M = 37.9$) compared to control group ($M = 39$).

No significant main effect of Time was obtained [$F (2, 140) = .77, p > .05, (\eta_p^2 = .02$]. STAI-Trait' scores no decreased significantly from Time 1 ($M = 39.2$) to Time 2 ($M = 37.9$) and to Time 3 ($M = 38.2$). Also, no significant Time x Group was obtained, [$F (2, 140) = .32, p > .05, (\eta_p^2 = .01$].

Analyses of the STAI-State showed a no significant main effect for Group [$F (1, 70) = 1.17, p > .05, (\eta_p^2 = .02$]. Thus, there was no overall difference in the STAI-State' scores of experimental group ($M = 37.1$) compared to control group ($M = 38.7$).

A significant main effect of Time was obtained [$F (2, 140) = 4.74, p < .01, (\eta_p^2 = .36$]. STAI-State' scores decreased significantly from Time 1 ($M = 39.9$) to Time 3 ($M = 36.2$) ($p < .01$), with large effect size.

Also, no significant Time x Group was also obtained, [$F (2, 140) = 1.9, p > .05, (\eta_p^2 = .03$].

So, to further investigate the effect of time, measures ANOVAs were run separately for the experimental and control groups.

These analyses showed a significant reduction over time in the level of State Anxiety only in the Experimental group [$F (2, 70) = 8.35, p < .01, (\eta_p^2 = .34$]. These results indicated that in the experimental group, the levels of State anxiety were significantly higher at the Time 1 than at either Time 2 or Time 3 ($p < .01$ and $p < .05$ respectively) (see Table 3), with large effect size.

3.4. Parenting stress

Analyses of the PD showed a no significant main effect for Group [$F (1, 70) = .68, p > .05, (\eta_p^2 = .01$]. Thus, there was no overall difference in the PD' scores of experimental group ($M = 26.1$) compared to control group ($M = 27.1$). A significant main effect of Time was obtained [$F (2, 140) = 3.69, p < .05, (\eta_p^2 = .10$]. PD' scores decreased significantly from Time 1 ($M = 27.6$) to Time 3 ($M = 25.3$) ($p < .01$), with medium effect size. No significant Time x Group was obtained, [$F (2, 140) = .88, p > .05, (\eta_p^2 = .03$].

So, to further investigate the effect of time, measures ANOVAs were run separately for the experimental and control groups.

These analyses showed a significant reduction over time in the level of Parental Distress only in the Experimental group [$F (2, 70) = 3.4, p < .05, (\eta_p^2 = .18$]. These results indicated that in the experimental group the levels of Parental Distress were significantly higher at the Time 1 than Time 3, with large effect size (see Table 3).

Respect to the P-CDI analyses showed a no significant main effect for Group [$F (1, 70) = .16, p > .05, (\eta_p^2 = .00$]. Thus, there was no overall difference in the P-CDI' scores of experimental group ($M = 17.3$) compared to control group ($M = 17.7$). A significant main effect of Time

was obtained [F (2, 140) = 3.99, $p < .05$, (η_p^2 = .10]. P-CDI' scores decreased significantly from Time 1 (M = 19.4) to Time 2 (M = 16.7) and to Time 3 (M = 16.5) ($p < .01$ and $p < .01$ respectively) with medium effect size. No significant Time x Group was obtained, [F (2, 140) = .21, $p > .05$, (η_p^2 = .01].

So, to further investigate the effect of time, measures ANOVAs were run separately for the experimental and control groups.

These analyses showed a significant reduction over time in the level of Parent-Child Dysfunctional Interaction only in the Experimental group [F (2, 70) = 4.1, $p < .05$, (η_p^2 = .10]. These results indicated that in the experimental group the levels of Parental Distress were significantly higher at the Time 1 than Time 2 and Time 3 ($p < .05$ and $p < .05$ respectively), with medium effect size.

Respect to the DC, analyses showed a no significant main effect for Group [F (1, 70) = 1.69 $p > .05$, (η_p^2 = .02]. Thus, there was no overall difference in the DC' scores of experimental group (M = 20.8) compared to control group (M = 22.3). A significant main effect of Time was obtained [F (2, 140) = 6.33, $p < .01$, (η_p^2 = .16]. DC' scores decreased significantly from Time 1 (M = 22.6) to Time 3 (M = 20.1) ($p < .01$), with large effect size. No significant Time x Group was obtained, [F (2, 140) = .21, $p > .05$, (η_p^2 = .01].

So, to further investigate the effect of time, measures ANOVAs were run separately for the experimental and control groups.

These analyses showed a significant reduction over time in the scale of Difficult Child only in the Experimental group [F (2, 70) = 3.3, $p < .05$, (η_p^2 = .09]. These results indicated that in the experimental group the levels of Difficult Child were significantly higher at the Time 1 than Time 3, with medium effect size.

Finally, analyses of the Total Stress showed a no significant main effect for Group [F (1, 70) = 1.42, $p > .05$, (η_p^2 = .02]. Thus, there was no overall difference in the Total Stress' scores of experimental group (M = 63.9) compared to control group (M = 67.1). A significant main effect of Time was obtained [F (2, 140) = 3.62, $p < .05$, η^2 = .10]. Total Stress' scores decreased significantly from Time 1 (M = 69.5) to Time 2 (M = 63.9) and to Time 3 (M = 63.1) ($p < .05$ and $p < .01$ respectively), with medium effect size. No significant Time x Group was obtained, [F (2, 140) = 1.01, $p > .05$, (η_p^2 = .03].

So, to further investigate the effect of time, measures ANOVAs were run separately for the experimental and control groups.

These analyses showed a significant reduction over time in the overall level of stress only in the Experimental group [F (2, 70) = 5.0, $p < .05$, (η_p^2 = .13]. These results indicated that in the experimental group the levels of stress were significantly higher at the Time 1 than Time 2 and Time 3 ($p < .05$ and $p < .05$ respectively), with medium effect size.

4. Discussion

Home visiting programs have shown to be effective preventive programs in providing support to mothers and children in at risk conditions (Nievar et al., 2010; Peacock et al., 2013; Sweet and Appelbaum, 2004; Doyle et al., 2017; Hjort, 2017; Hughes-Belding et al., 2019; Sandner, 2019). In the current study, we examined its impact in first time mothers vulnerable to depressive, anxiety and parenting stress symptoms.

4.1. Depression

Out study showed that mothers who received home visiting showed a significant decrease in the group with depression compared to control group.

Currently, a multitude of data confirms the negative influence of maternal depression on children's cognitive, emotional, and behavioral development (Goodman et al., 2011; Madigan et al., 2018; Murray et al., 2010; Stein et al., 2014). Chronical maternal depression is strongly related with later problems in child development, whereas transient perinatal depressive symptoms are not so significant (Prenoveau et al.,

2017; Park et al., 2018). Hence, we believe that out study emphasizes the utility of HVPs targeting women at risk for depression.

However, it is widely recognized that women with depressive symptoms often suffer from anxiety disorders; therefore, anxiety may contribute to the association between maternal perinatal depression and children's developmental problems (O'Connor et al., 2002).

4.2. Anxiety

Anxiety disorders are experienced by 4–8% of mothers in the perinatal period (Ross and McLean, 2006). Several studies have established that perinatal maternal anxiety may be linked with child's negative emotionality, negative responses to stress, lower mental development scores, and internalizing behaviors (Field, 2017; Glasheen et al., 2010; Paul et al., 2013).

In our study, only the experimental group showed a significant reduction of anxiety levels over time; specifically, they presented a decrease in the level of state anxiety, whereas no difference emerged as concerns trait anxiety in the two groups. Actually, trait anxiety is a stable measure of anxiety, while momentary anxious feelings, as measured by state anxiety, are frequent during the perinatal period (Matthey and Ross-Hamid, 2012). Therefore, our findings support the need to assess the persistence of anxiety symptoms and they emphasize the utility of home visiting in supporting maternal temporary mood oscillations.

4.3. Parenting stress

Parenting stress may be defined as a perceived inability to respond to the expected demands and actual resources related to parenthood (Deater-Deckard, 2004). A number of studies have demonstrated an association between high parental stress and children's externalizing (Baker et al., 2003; Blader, 2006; Briggs-Gowan et al., 2001; Pinquart, 2017; Stone et al., 2016; Williford et al., 2007) and internalizing problems (Anhalt et al., 2007https://onlinelibrary.wiley.com/doi/full /10.1111/sjop.12045; Bayer et al., 2019; Costa et al., 2006; Hart and Kelley, 2006; Rodriguez, 2011).

Mothers who report elevated parenting stress refer less positive feelings towards their child, are less sensitive to their infants' signals and perceive their infants as more difficult (Molfese et al., 2010).

In addition, parenting stress is related with parent depression (Fredriksen et al., 2019; Hastings et al., 2006), marital conflict (Crnic and Ross, 2017; Kersh et al., 2006), poorer physical health (Eisenhower et al., 2009; Oelofsen and Richardson, 2006), and less effective parenting (Coldwell et al., 2006; Crnic and Ross, 2017).

Our analyses showed a significant reduction over time in the level of Parent-Child Dysfunctional Interaction, Difficult Child and overall level of stress scores in the experimental group.

Such findings underline the efficacy of home visiting in supporting mothers who are feeling stressed with respect to their parenting role and identity.

4.4. Limitations

It is important to interpret our findings while considering some limitations. First, the relatively small sample size and the effect sizes ranging from low to large values, may influence generalizability of our results and requires to be replicated in order to confirm the significant effects that we have found.

It is also important to increase validity of our findings by investigating children's outcomes; indeed, this is the main objective of our future research. Also, future studies should extend our analyses by examining the potential effect differences of HVPs in relation to young maternal age or advanced maternal age.

In addition, research on the perceived maternal social support should be considered, with the aim of understanding the mediating or moderating impact of grandparents, friends and, mainly, the partner on the

efficacy of intervention. In fact, several studies demonstrated that fathers' involvement might contribute to mothers' commitment (Stargel et al., 2020; Eckenrode et al., 2000; Fals-Stewart et al., 2004; Paine et al., 2020) and shows to ameliorate outcomes (Bagner and Eyberg, 2003; Gervan et al., 2012; Goodman et al., 2014; McGinnis et al., 2019).

5. Conclusion

Overall, our study, confirms the benefits of HVPs. In particular, depression, anxiety and parenting stress should be constantly be evaluated within parenting preventive intervention.

Reflective parenting program appears to be particularly effective. Exploring maternal thoughts, experiences and feelings, promoting her mentalization capacity, supporting sensitive, responsive parenting skills seem crucial in promoting maternal mental health (Allen and Fonagy, 2006; Ammerman et al., 2010; Fonagy and Target, 1998; Slade, 2005, 2007; Slade et al., 2019; Stacks et al., 2019).

Providing a reflective supervision to home visitors also hiughmay contribute to the realization of HVPs. The possibility to be listened and supported by a supervisor may provide a model for the home visitor to help the mothers and their infants (Heffron et al., 2005).

Finally, we believe that the active engagement and participation of mothers was essential for the success of our HVP and contributed to the validity of our research effects.

Mothers, supported by the respectful relationship with the home visitor, acknowledged that the HVP helped them in becoming good parents and that endorsed a deep commitment.

Although HVP has shown to be positive for the mothers of our study, it is important to remember that home visiting alone is not sufficient to take care of multi-problematic mothers; however, we believe that it is the best channel to connect mothers with severe difficulties to community specialized services.

Declarations

References

Abidin, R.R., 1990. Parenting Stress index-short Form. Pediatric Psychology Press, Charlottesville, VA, p. 118.

Allen, J.G., Fonagy, P. (Eds.), 2006. The Handbook of Mentalization-Based Treatment. John Wiley & Sons.

Ammaniti, M., Speranza, A.M., Tambelli, R., Muscetta, S., Lucarelli, L., Vismara, L., et al., 2006. A prevention and promotion intervention program in the field of mother–infant relationship. Infant Ment. Health J. 27 (1), 70–90.

Ammerman, R.T., Putnam, F.W., Bosse, N.R., Teeters, A.R., Van Ginkel, J.B., 2010. Maternal depression in home visitation: a systematic review. Aggress. Violent Behav. 15 (3), 191–200.

Anhalt, K., Telzrow, C.F., Brown, C.L., 2007. Maternal stress and emotional status during the perinatal period and childhood adjustment. Sch. Psychol. Q. 22 (1), 74.

Avellar, S.A., Supplee, L.H., 2013. Effectiveness of home visiting in improving child health and reducing child maltreatment. Pediatrics 132 (Supplement 2), S90–S99.

Bagner, D.M., Eyberg, S.M., 2003. Father involvement in parent training: when does it matter? J. Clin. Child Adolesc. Psychol. 32 (4), 599–605.

Baker, B.L., McIntyre, L.L., Blacher, J., Crnic, K., Edelbrock, C., Low, C., 2003. Pre-school children with and without developmental delay: behaviour problems and parenting stress over time. J. Intellect. Disabil. Res. 47 (4-5), 217–230.

Bayer, J.K., Morgan, A., Prendergast, L.A., Beatson, R., Gilbertson, T., Bretherton, L., et al., 2019. Predicting temperamentally inhibited young children's clinical-level anxiety and internalizing problems from parenting and parent wellbeing: a population study. J. Abnorm. Child Psychol. 47 (7), 1165–1181.

Benvenuti, P., Ferrara, M., Niccolai, C., Valoriani, V., Cox, J.L., 1999. The Edinburgh postnatal depression scale: validation for an Italian sample. J. Affect. Disord. 53 (2), 137–141.

Berlin, L.J., Martoccio, T.L., Harden, B.J., 2018. Improving early head start's impacts on parenting through attachment- based intervention: a randomized controlled trial. Dev. Psychol. 54 (12), 2316–2327.

Bilukha, O., Hahn, R.A., Crosby, A., Fullilove, M.T., Liberman, A., Moscicki, E., et al., 2005. The effectiveness of early childhood home visitation in preventing violence: a systematic review. Am. J. Prev. Med. 28 (2), 11–39.

Blader, J.C., 2006. Which family factors predict children's externalizing behaviors following discharge from psychiatric inpatient treatment? JCPP (J. Child Psychol. Psychiatry) 47 (11), 1133–1142.

Bolwby, J., 1969. Attachment and Loss, I. Attachment, New York: Basic.

Briggs-Gowan, M.J., Carter, A.S., Skuban, E.M., Horwitz, S.M., 2001. Prevalence of social-emotional and behavioral problems in a community sample of 1-and 2-year-old children. J. Am. Acad. Child Adolesc. Psychiatr. 40 (7), 811–819.

Cassidy, J., Shaver, P.R., 2008. Handbook of Attachment: Theory, Research, and Clinical Applications. The Guilford Press, New York.

Cohen, J., 1988. Statistical Power Analysis for the Behavioral Sciences, second ed. Lawrence Erlbaum Associates, Publishers, Hillsdale, NJ.

Coldwell, J., Pike, A., Dunn, J., 2006. Household chaos–links with parenting and child behaviour. JCPP (J. Child Psychol. Psychiatry) 47 (11), 1116–1122.

Costa, N.M., Weems, C.F., Pellerin, K., Dalton, R., 2006. Parenting stress and childhood psychopathology: an examination of specificity to internalizing and externalizing symptoms. J. Psychopathol. Behav. Assess. 28 (2), 113–122.

Cox, J.L., Holden, J.M., Sagovsky, R., 1987. Detection of postnatal depression: development of the 10-item Edinburgh postnatal depression scale. Br. J. Psychiatr. 150 (6), 782–786.

Crnic, K., Ross, E., 2017. Parenting stress and parental efficacy. In: Deater-Deckard, K., Panneton, R. (Eds.), Parental Stress and Early Child Development. Springer, Cham, pp. 263–284.

Damashek, A., Kothari, C., Berman, A., Chahin, S., Lutzker, J.R., Guastaferro, K., Whitaker, D.J., Shanley, J., Self-Brown, S., 2020. Engagement in home visiting services during the transition from pregnancy to postpartum: a prospective mixed methods pilot study. J. Child Fam. Stud. 29 (1), 11–28.

Deater-Deckard, K., 2004. Parenting Stress. Yale University Press, New Haven, CT.

Deave, T., Heron, J., Evans, J., Emond, A., 2008. The impact of maternal depression in pregnancy on early child development. BJOG An Int. J. Obstet. Gynaecol. 115 (8), 1043–1051.

Dennis, C.L., Falah-Hassani, K., Shiri, R., 2017. Prevalence of antenatal and postnatal anxiety: systematic review and meta-analysis. Br. J. Psychiatry 210 (5), 315–323.

Doyle, O., Delaney, L., O'Farrelly, C., Fitzpatrick, N., Daly, M., 2017. Can early intervention improve maternal well-being? Evidence from a randomized controlled trial. PloS One 12 (1), e0169019.

Dozier, M., Bernard, K., 2017. Attachment and biobehavioral catch-up: addressing the needs of infants and toddlers exposed to inadequate or problematic caregiving. Curr. Opin. Psychol. 15, 111–117.

Eckenrode, J., Ganzel, B., Henderson Jr., C.R., Smith, E., Olds, D.L., Powers, J., et al., 2000. Preventing child abuse and neglect with a program of nurse home visitation: the limiting effects of domestic violence. JAMA 284 (11), 1385–1391.

Eisenhower, A.S., Baker, B.L., Blacher, J., 2009. Children's delayed development and behavior problems: impact on mothers' perceived physical health across early childhood. Soc. Sci. Med. 68 (1), 89–99.

Fals-Stewart, W., Fincham, F.D., Kelley, M.L., 2004. Substance-abusing parents' attitudes toward allowing their custodial children to participate in treatment: a comparison of mothers versus fathers. J. Fam. Psychol. 18 (4), 666.

Field, T., 2017. Prenatal anxiety effects: a review. Infant Behav. Dev. 49, 120–128.

Fonagy, P., Target, M., 1998. Mentalization and the changing aims of child psychoanalysis. Psychoanal. Dialogues 8, 87–114.

Fonagy, P., Gergely, G., Jurist, E., Target, G., 2002. Affect Regulation, Mentalization, and the Development of the Self. Other Press, New York.

Fredriksen, E., von Soest, T., Smith, L., Moe, V., 2019. Parenting stress plays a mediating role in the prediction of early child development from both parents' perinatal depressive symptoms. J. Abnorm. Child Psychol. 47 (1), 149–164.

Furtado, M., Chow, C.H., Owais, S., Frey, B.N., Van Lieshout, R.J., 2018. Risk factors of new onset anxiety and anxiety exacerbation in the perinatal period: a systematic review and meta-analysis. J. Affect. Disord. 238, 626–635.

Gatti, S.N., Watson, C.L., Siegel, C.F., 2011. Step back and consider: learning from reflective practice in infant mental health. Young Except. Child. 14 (2), 32–45.

Gervan, S., Granic, I., Solomon, T., Blokland, K., Ferguson, B., 2012. Paternal involvement in multisystemic therapy: effects on adolescent outcomes and maternal depression. J. Adolesc. 35 (3), 743–751.

Glasheen, C., Richardson, G.A., Fabio, A., 2010. A systematic review of the effects of postnatal maternal anxiety on children. Arch. Wom. Ment. Health 13 (1), 61–74.

Glover, V., Bergman, K., O'Connor, T.G., 2008. The effects of maternal stress, anxiety, and depression during pregnancy on the neurodevelopment of the child. In: Stone, S.D., Menken, A.E. (Eds.), Perinatal and Postpartum Mood Disorders: Perspectives and Treatment Guide for the Health Care Practitioner. Springer Publishing Co, pp. 3–15.

Goodman, S.H., Garber, J., 2017. Evidence-based interventions for depressed mothers and their young children. Child Dev. 88 (2), 368–377.

Goodman, S.H., Lusby, C.M., Thompson, K., Newport, D.J., Stowe, Z.N., 2014. Maternal depression in association with fathers' involvement with their infants: spillover or compensation/buffering? Infant Ment. Health J. 35 (5), 495–508.

Goodman, S.H., Rouse, M.H., Connell, A.M., Broth, M.R., Hall, C.M., Heyward, D., 2011. Maternal depression and child psychopathology: a meta-analytic review. Clin. Child Fam. Psychol. Rev. 14 (1), 1–27.

Greve, R.A., Braarud, H.C., Skotheim, S., Slinning, K., 2018. Feasibility and acceptability of an early home visit intervention aimed at supporting a positive mother–infant relationship for mothers at risk of postpartum depression. Scand. J. Caring Sci. 32 (4), 1437–1446.

Guarino, A., Di Blasio, P., D'Alessio, M., Camisasca, E., Sserantoni, G., 2008. Parenting Stress Index SF. Giunti Organizzazioni Speciali, Firenze.

Guterman, N.B., Bellamy, J.L., Banman, A., 2018. Promoting father involvement in early home visiting services for vulnerable families: findings from a pilot study of "Dads matter". Child Abuse Negl. 76, 261–272.

Hart, M.S., Kelley, M.L., 2006. Fathers' and mothers' work and family issues as related to internalizing and externalizing behavior of children attending day care. J. Fam. Issues 27 (2), 252–270.

Hartman, S., Eilertsen, E.M., Ystrom, E., Belsky, J., Gjerde, L.C., 2020. Does prenatal stress amplify effects of postnatal maternal depressive and anxiety symptoms on child problem behavior? Dev. Psychol. 56 (1), 128–137.

Hastings, R.P., Daley, D., Burns, C., Beck, A., 2006. Maternal distress and expressed emotion: cross-sectional and longitudinal relationships with behavior problems of children with intellectual disabilities. Am. J. Ment. Retard. 111 (1), 48–61.

Hay, D.F., Pawlby, S., Waters, C.S., Perra, O., Sharp, D., 2010. Mothers' antenatal depression and their children's antisocial outcomes. Child Dev. 81 (1), 149–165.

Heffron, M.C., Ivins, B., Weston, D.R., 2005. Finding an authentic voice— use of self: essential learning processes for relationship-based work. Infants Young Child. 18, 323–336.

Hjort, J., 2017. Universal investment in infants and long-run health: evidence from Denmark's 1937 home visiting program. Am. Econ. J. Appl. Econ. 9 (4), 78–104.

Hughes-Belding, K., Peterson, C.A., Clucas Walter, M., Rowe, N., Fan, L., Dooley, L.J., Steffensmeier, C., Wang, W., Bao, J., Goodman, S., 2019. Quality home visits: activities to promote meaningful interactions. Infant Ment. Health J. 40 (3), 331–342.

Kersh, J., Hedvat, T.T., Hauser-Cram, P., Warfield, M.E., 2006. The contribution of marital quality to the well-being of parents of children with developmental disabilities. J. Intellect. Disabil. Res. 50 (12), 883–893.

Kitzman, H., Olds, D.L., Knudtson, M.D., Cole, R., Anson, E., Smith, J.A., Hopfer, C., 2019. Prenatal and infancy nurse home visiting and 18-year outcomes of a randomized trial. Pediatrics 144 (6).

Korfmacher, J., Frese, M., Gowani, S., 2019. Examining program quality in early childhood home visiting: from infrastructure to relationships. Infant Ment. Health J. 40 (3), 380–394.

Korhonen, M., Luoma, I., Salmelin, R., Tamminen, T., 2012. A longitudinal study of maternal prenatal, postnatal and concurrent depressive symptoms and adolescent well-being. J. Affect. Disord. 136 (3), 680–692.

Korja, R., Nolvi, S., Grant, K.A., McMahon, C., 2017. The relations between maternal prenatal anxiety or stress and child's early negative reactivity or self-regulation: a systematic review. Child Psychiatr. Hum. Dev. 48 (6), 851–869.

LeCroy, C.W., Lopez, D., 2020. A randomized controlled trial of healthy families: 6-month and 1-year follow-up. Prev. Sci. 21 (1), 25–35.

Loomans, E.M., van der Stelt, O., van Eijsden, M., Gemke, R.J.B.J., Vrijkotte, T., Van den Bergh, B.R.H., 2011. Antenatal maternal anxiety is associated with problem behaviour at age five. Early Hum. Dev. 87 (8), 565–570.

Madigan, S., Oatley, H., Racine, N., Fearon, R.P., Schumacher, L., Akbari, E., et al., 2018. A meta-analysis of maternal prenatal depression and anxiety on child socio-emotional development. J. Am. Acad. Child Adolesc. Psychiatr.

Matthey, S., Ross-Hamid, C., 2012. Repeat testing on the Edinburgh Depression Scale and the HADS-A in pregnancy: differentiating between transient and enduring distress. J. Affect. Disord. 141 (2-3), 213–221.

McFarlane, E., Burrell, L., Duggan, A., Tandon, D., 2017. Outcomes of a randomized trial of a cognitive behavioral enhancement to address maternal distress in home visited mothers. Matern. Child Health J. 21 (3), 475–484.

McGinnis, S., Lee, E., Kirkland, K., Smith, C., Miranda-Julian, C., Greene, R., 2019. Engaging at-risk fathers in home visiting services: effects on program retention and father involvement. Child Adolesc. Soc. Work. J. 36 (2), 189–200.

Molfese, V.J., Rudasill, K.M., Beswick, J.L., Jacobi-Vessels, J.L., Ferguson, M.C., White, J.M., 2010. Infant temperament, maternal personality, and parenting stress as contributors to infant developmental outcomes. Merrill-Palmer Q. (1982-) 49–79.

Murray, L., Arteche, A., Fearon, P., Halligan, S., Croudace, T., Cooper, P., 2010. The effects of maternal postnatal depression and child sex on academic performance at age 16 years: a developmental approach. JCPP (J. Child Psychol. Psychiatry) 51 (10), 1150–1159.

Nievar, M.A., Van Egeren, L.A., Pollard, S., 2010. A meta-analysis of home visiting programs: moderators of improvements in maternal behavior. Infant Ment. Health J. 31 (5), 499–520.

O'Connor, T.G., Heron, J., Glover, V., Alspac Study Team, 2002. Antenatal anxiety predicts child behavioral/emotional problems independently of postnatal depression. J. Am. Acad. Child Adolesc. Psychiatr. 41 (12), 1470–1477.

Oelofsen, N., Richardson, P., 2006. Sense of coherence and parenting stress in mothers and fathers of preschool children with developmental disability. J. Intellect. Dev. Disabil. 31 (1), 1–12.

Olds, D.L., Kitzman, H., Anson, E., Smith, J.A., Knudtson, M.D., Miller, T., et al., 2019. Prenatal and infancy nurse home visiting effects on mothers: 18-year follow-up of a randomized trial. Pediatrics 144 (6).

Paine, A.L., Cannings-John, R., Channon, S., Lugg-Widger, F., Waters, C.S., Robling, M., 2020. Assessing the impact of a family nurse-led intervention on young mothers' references to internal states. Infant Ment. Health J. 1–12.

Park, M., Brain, U., Grunau, R.E., Diamond, A., Oberlander, T.F., 2018. Maternal depression trajectories from pregnancy to 3 years postpartum are associated with children's behavior and executive functions at 3 and 6 years. Arch. Wom. Ment. Health 21 (3), 353–363.

Paul, I.M., Downs, D.S., Schaefer, E.W., Beiler, J.S., Weisman, C.S., 2013. Postpartum anxiety and maternal-infant health outcomes. Pediatrics 131 (4), e1218–e1224.

Peacock, S., Konrad, S., Watson, E., Nickel, D., Muhajarine, N., 2013. Effectiveness of home visiting programs on child outcomes: a systematic review. BMC Publ. Health 13 (1), 17.

Pedrabissi, L., Santinello, M., 1989. Verifica della validità dello STAI forma Y di Spielberger. Giunti Organizzazioni Speciali, Firenze.

Pinquart, M., 2017. Associations of parenting dimensions and styles with externalizing problems of children and adolescents: an updated meta-analysis. Dev. Psychol. 53 (5), 873.

Prenoveau, J.M., Craske, M.G., West, V., Giannakakis, A., Zioga, M., Lehtonen, A., et al., 2017. Maternal postnatal depression and anxiety and their association with child emotional negativity and behavior problems at two years. Dev. Psychol. 53 (1), 50.

Rodriguez, C.M., 2011. Association between independent reports of maternal parenting stress and children's internalizing symptomatology. J. Child Fam. Stud. 20 (5), 631–639.

Ross, L.E., McLean, L.M., 2006. Anxiety disorders during pregnancy and the postpartum period: a systematic review. J. Clin. Psychiatr. 67 (8), 1285–1298.

Sama-Miller, E., Akers, L., Mraz-Esposito, A., Zukiewicz, M., Avellar, S., Paulsell, D., Del Grosso, P., 2018. Home Visiting Evidence Of Effectiveness Review: Executive Summary. Office of Planning, Research and Evaluation, Administration for Children and Families. U.S. Department of Health and Human Services, Washington, DC.

Sandner, M., 2019. Effects of early childhood intervention on fertility and maternal employment: evidence from a randomized controlled trial. J. Health Econ. 63, 159–181.

Sandner, M., Cornelissen, T., Jungmann, T., Herrmann, P., 2018. Evaluating the effects of a home visiting programme for at-risk mothers during pregnancy on mother and child health outcomes. J. Health Econ. 58, 269–283.

Shea, S.E., Jester, J.M., Huth-Bocks, A.C., Weatherston, D.J., Muzik, M., Rosenblum, K.L., The Michigan Collaborative for Infant Mental Health Research, 2020. Infant mental health home visiting therapists' reflective supervision self-efficacy in community practice settings. Infant Ment. Health J. 41 (2), 191–205.

Slade, A., 2005. Parental reflective functioning: an introduction. Am. J. Bioeth. 7 (3), 269–281.

Slade, A., 2007. Reflective parenting programs: theory and development. Psychoanal. Inq. 26 (4), 640–657.

Slade, A., Holland, M.L., Ordway, M.R., Carlson, E.A., Jeon, S., Close, N., Mayes, L.C., Sadler, L.S., 2019. Minding the Baby®: enhancing parental reflective functioning and infant attachment in an attachment-based, interdisciplinary home visiting program. Dev. Psychopathol. 32 (1), 123–137.

Slade, A., Sadler, L.S., Mayes, L.C., 2005. Minding the baby: enhancing parental reflective functioning in a nursing/mental health home visiting program. In: Berlin, L.J., Ziv, Y., Amaya-Jackson, L., Greenberg, M.T. (Eds.), Duke Series in Child Development and Public Policy. Enhancing Early Attachments: Theory, Research, Intervention, and Policy. Guilford Press, pp. 152–177.

Spielberger, C.D., Gorsuch, R.L., Lushene, R., Vagg, P.R., Jacobs, G.A., 1983. Manual for the State-Trait Anxiety Inventory. Consulting Psychologists Press). Inc, Palo Alto, CA.

Stacks, A.M., Barron, C.C., Wong, K., 2019. Infant mental health home visiting in the context of an infant—toddler court team: changes in parental responsiveness and reflective functioning. Infant Ment. Health J. 40 (4), 523–540.

Stargel, L.E., Fauth, R.C., Goldberg, J.L., Easterbrooks, M.A., 2020. Maternal engagement in a home visiting program as a function of fathers' formal and informal participation. Prev. Sci. 21 (4), 477–486.

Stein, A., Pearson, R.M., Goodman, S.H., Rapa, E., Rahman, A., McCallum, M., et al., 2014. Effects of perinatal mental disorders on the fetus and child. Lancet 384 (9956), 1800–1819.

Stern, D., 2004. The Present Moment in Psychotherapy and Everyday Life. W.W. Norton, New York.

Stone, L.L., Mares, S.H., Otten, R., Engels, R.C., Janssens, J.M., 2016. The co-development of parenting stress and childhood internalizing and externalizing problems. J. Psychopathol. Behav. Assess. 38 (1), 76–86.

Sweet, M.A., Appelbaum, M.I., 2004. Is home visiting an effective strategy? A meta-analytic review of home visiting programs for families with young children. Child Dev. 75 (5), 1435–1456.

Tandon, D., MacKrain, M., Beeber, L., Topping-Tailby, N., Raska, M., Arbour, M.C., 2020. Addressing maternal depression in home visiting: findings from the home visiting collaborative improvement and innovation network. PloS One 15 (4), e0230211.

Vismara, L., Rollè, L., Agostini, F., Sechi, C., Fenaroli, V., Molgora, S., et al., 2016. Perinatal parenting stress, anxiety, and depression outcomes in first-time mothers and fathers: a 3-to 6-months postpartum follow-up study. Front. Psychol. 7, 938.

Williford, A.P., Calkins, S.D., Keane, S.P., 2007. Predicting change in parenting stress across early childhood: child and maternal factors. J. Abnorm. Child Psychol. 35 (2), 251–263.