

## Dose-effect on the mothers and babies attending the Programa de Apoyo Psicológico P/Materno-Infantil<sup>©</sup>

Gemma Pons-Salvador\*, M<sup>a</sup> Ángeles Cerezo, and Rosa M. Trenado

*Unidad de Investigación Agresión y Familia. Departamento de Psicología Básica  
Universidad de Valencia*

**Título:** Efecto de la dosis de intervención del Programa de Apoyo Psicológico P/Materno Infantil<sup>©</sup> sobre las madres y sus bebés.

**Resumen:** Se analizan los efectos de la dosis de intervención del Programa de Apoyo Psicológico P/Materno Infantil<sup>©</sup> (Cerezo 1992). Es un Programa dirigido a toda la población, que apoya a los padres durante los primeros 18 meses de vida del bebé, cuyo objetivo es promover sistemas adaptativos protectores en los niños. Los efectos de la dosis de intervención se evalúan sobre las madres, en sus niveles de estrés o malestar psicológico informado por ellas, y sobre sus bebés, en el tipo de apego que desarrollan evaluado con la "Situación Extraña" de Ainsworth y colaboradores (1978). La muestra son 342 familias que acuden al Programa entre 2 y 4 visitas antes de la evaluación post-intervención. Los resultados indican que se requieren al menos 3 sesiones de intervención para que se produzcan descensos significativos de las puntuaciones que obtienen las madres en estrés entre la evaluación pre y post. La proporción de niños con apego seguro es mayor cuando la familia acude 3 ó 4 visitas que cuando acude 2. También, se observa que las madres de niños con apego inseguro tienen puntuaciones más altas en estrés, y en otros factores que afectan la parentalidad, que las madres de niños con apego seguro.

**Palabras clave:** Evaluación Programa de Apoyo Psicológico P/Materno Infantil (PAPMI); efecto de la dosis de intervención; prevención de conflictos familiares y de maltrato infantil.

**Abstract:** This paper presents an analysis of the intervention dose-effect of the Parent Child Psychological Support Program<sup>©</sup> (Cerezo 1990) a program aimed at promoting protective adaptive system in children which is offered to all new-borns in a given catchment area. The program offers support to parents during the first 18 months of the baby's life. The program dose-effect is examined regarding the parents by examining the level of distress reported by them and with babies by examining the development of attachment using the Strange Situation test of Ainsworth et al. (1978). The study is based on 342 families who made between 2 and 4 visits to the Program before being evaluation post-intervention. The results indicate that at least 3 program sessions are required to produce a significant decrease in the distress scores for mothers, between pre and post evaluation. The proportion of children with secure attachment is greater when the family attends 3 or 4 times, compared to those who attend on 2 occasions. It was also noted that mothers of children with insecure attachment had higher scores on the maternal distress and other factors affecting parenting than mothers of children with secure attachment.

**Key words:** Evaluation Parent Child Psychological Support Program (PCPS); intervention dose-effect; prevention of family conflict and child maltreatment.

### Introduction

Psychological intervention programmes with the family put their efficacy and the achievement of their objectives to the test by evaluating the interventions as a whole (e.g., Shaw, Dishion, Supplee, Gardner & Arnds, 2006) and progressively studying the "dose-effect" (Magill-Evans, Harrison, Benzies, Gierl & Kimak, 2007). Thus, they respond to the demand for "evidence-based" programmes, taking into account that financiers demand data and results on which to base their decisions, in an attempt to optimally administer limited resources (see, Nature, 2009). The key lies in being able to carry out programmes that are practical, useful, accessible, appropriate, evaluable, and suited to real life (Chen, 2010).

Research related to the family setting highlights the work with early childhood, due to the great importance of this phase of life for later development (Shonkoff & Phillips, 2000). Intervention with children and their caregivers from an early age prevents possible conflicts in the family setting and problems of anti-social behaviour (Robles & Romero, 201; Spoth, Kavanagh & Dishion, 2002). Moreover, it promotes the child's affective and cognitive development (Magill-Evans, et al., 2007). In this sense, James Heckman, Nobel Prize Winner for Economy, stated that to remedy any

social disadvantages the intervention must focus on families and children before children go to school (Heckman & Masterov, 2007).

Parenting practices have a decisive influence on children's development, especially in early childhood (Collins, Maccoby, Steinberg, Hetherington & Bornstein, 2000). Furthermore, the characteristics of the children themselves, such as temperament or age (for a review, see Ato, Galán & Huesca, 2007), must be kept in mind. For the children, the lack of an affectionate and positive relationship with their parents, insecure attachment, and receiving inadequate emotional and physical care increase their risk of developing emotional and behavioural problems (e.g., Dishion & Patterson, 2006; Spoth, et al., 2002). Furthermore, there are studies that show the role of the primary caregiver in the cerebral development in the first stages of life, functioning as an "external brain" to regulate and stimulate the baby's brain (Shanker, 2009).

In this context, inappropriate interaction between the parents and the baby can be an important risk indicator. Micro-social studies show that faced with complaints, protests or crying of the baby, mothers with high levels of psychological discomfort and other factors that affect parenting, react with less sensitive behaviours than mothers with low levels of these negative factors (Cerezo, Tenado & Pons-Salvador, 2006). Although these mothers show affective behaviours with their children, they are more intrusive and their reactions do not discriminate between the baby's different behaviours or adapt to his/her developmental changes, main-

\* Dirección para correspondencia [Correspondence address]:  
Gemma Pons Salvador. Facultad de Psicología. Universidad de Valencia. Avda. Blasco Ibáñez, 21. 46010. Valencia (España).  
E-mail: [gemma.pons@uv.es](mailto:gemma.pons@uv.es)

taining the same interaction style from 3 to 12 months (Cerezo, Pons-Salvador & Tenado, 2008). Moreover, mothers with more distress have greater probabilities of having children who manifest insecure attachment at 15 months.

The development of secure attachment in children is linked to their experience of sensitive maternal care (Bakermans-Kranenburg, van IJzendoorn & Juffer, 2003). However, this sensitivity can be affected by circumstances and stressors that influence family life, and that the mother can experience with more or less intensity. The social information processing model proposes that these mothers will have difficulties in one or several of the states of processing the signals coming from their children, which can reduce the quality of their performance in everyday child-rearing situations and associated conflicts (Caselles & Milner, 2000).

Therefore, in working with the parents it is important to consider factors that negatively affect parenting, given that parents with high levels of these factors are at a greater risk of performing inappropriately, or even in a physically or emotionally abusive way, with their children (Crouch & Milner, 2005; Pons-Salvador, Cerezo & Bernabé, 2005). Some of these factors can be highlighted, such as psychological distress or discomfort, unhappiness, anxiety and perceived problems with others or even with oneself. The study of these factors, collected in the *Child Abuse Potential* inventory (CAP; Milner, 1986, 2003), indicates that parents with high CAP when faced with ambiguous situations make more negative and global attributions for their children's behaviour (Newman, 1997), and they assign more hostile intentions to them, showing higher levels of anger and aggressiveness (Springer, 2001).

According to the previous considerations, parenting practices, the interaction style between parents and children, and the factors that affect parenting constitute central aspects in the area of child-rearing and in the healthy development of babies. The Programa de Apoyo Psicológico P/Materno Infantil® (PAPMI, Cerezo, 1992) was designed and developed based on the foundations mentioned above. It has been operating in Valencia since the early 1990s and has developed a version that is operating in Dublin, Ireland since 2001, under the name "Parent-Child Psychological Support Programme" (PCPS; Cerezo, 2003). The PAPMI recognizes parents' need for support in the first months of their baby's life, given that child-rearing in this period can be considered a "life transition" stress event. Moreover, it takes into account the vulnerability of early childhood, along with the fact that very young children can be less visible in the community. The Programme's objectives focus on promoting children's well-being in the context of the parent-child relationship, strengthening their adaptive systems, and consolidating and fomenting more appropriate parenting practices in facing the conflicts that can emerge when raising a child.

The Programme is directed towards all parents of children under two years of age in a given geographical community. It has a universal nature, being designed for the whole

population and not just, so-called, risk groups, based on the principles that there are no 'good' or 'bad' parents, only appropriate or risky parenting practices (Cerezo & Pons-Salvador, 1999; Wolfe & Krupka, 1991) and that universal programmes are more economically sustainable than those directed towards subgroups (Barnett, Brown, & Shore, 2004; Morrissey & Warner, 2007). Moreover, the programme is aligned with preventive strategies that consider risk processes to be cumulative; therefore, it is necessary to provide cumulative protection (e.g. Master & Wright, 1999; Yoshikawa, 1994).

The PAPMI consists of a series of 6 individual periodic visits that the parents make with their baby, from 3 months of age until 18 months. In these visits, psychologists specially trained in the Programme model and protocols evaluate the child's development and his/her interaction with objects and with the primary caregiver. Based on this, a personalized intervention adapted to each family situation is carried out from the perspective of supporting the child-rearing process, in a context of 'minding the minders'. Each visit lasts between 45 and 60 minutes. When considered necessary, the number of visits is increased, and they can be prolonged until the child is 24 months old if required. Likewise external referrals can be agreed if necessary. In following the child's evolution, the parents become co-protagonists in the changes in their child. Protective factors are attended to, as well as factors of instability and risk, in a dynamic way, as they evolve over time (Tenado, Pons-Salvador & Cerezo, 2009).

This Programme is subject to continuous evaluation mechanisms that have made it possible to validate its effects on the families (Cerezo, Dolz, Pons-Salvador & Cantero, 1999; Cerezo & Pons-Salvador, 1999; Cerezo, 2003; Pons-Salvador et al., 2005; Cerezo, Dasi & Ruiz, 2013). Specifically, the 2005 study showed that the level of participation in the Programme, in terms of visits, was a predictor factor of maintaining a low level of negative factors that affect parenting.

The purpose of the present study, in the series of studies cited to evaluate the PAPMI, is to examine the effect of the dose-effect of the Programme on the factors that negatively affect parenting and on the quality of the children's attachment. At an exploratory level, an analysis is also conducted to find out whether there is a relationship between the factors that affect parenting (before and after the intervention) and the quality of the child's attachment.

Based on previous results, three hypotheses were proposed. First, a significant decrease was expected from the pre-programme evaluation to the post-programme evaluation in the levels of stressors reported by the mothers, starting with the third intervention session. Second, a higher percentage of children with secure attachment was expected in children from groups of mothers who participate in three or more sessions than in the group with only two sessions. Third, the mothers of children with insecure attachment were expected to report higher levels of stressors than the

mothers of children with secure attachment on both the pre- and post-programme evaluations.

## Method

### Participants

The sample is composed of 342 mothers and their babies. The mean age of the mothers was 31.29 years ( $SD = 3.9$ ); 72% of the mothers have basic studies, 9.6% have mid-level studies, and 18.4% have high-level studies. 61.98% work outside the home. These families have between 1 and 3 children ( $M = 1.43$ ;  $SD = .59$ ). Only 1.46% of the families had single-parents. Of the babies who participated in the study, 52.6% were girls and 47.4% boys. All of them obtained an adequate level of development for their chronological age, evaluated by means of the developmental diagnostic tests by Gesell and Amatruda, revised by Knobloch and Pasamanick (1985).

### Variables and Instruments

- *Factors that affect parenting.* This was operationalized in terms of the score obtained on a 77-item questionnaire, adapted from Milner (1986, 1990) and validated in the Spanish population (De Paül, Arruabarrena & Milner, 1991; De Paül & Rivero, 1992). The *items* are structured in 6 factors: distress or psychological discomfort, rigidity, unhappiness, and problems with the children, the family and other people. These factors negatively affect parenting and are associated with potential child abuse. The questionnaire (henceforth CAP) whose total score mainly rests on the first three factors, has adequate levels of internal consistency, a Cronbach's *alpha* of .97, and test-retest reliability that ranges from .67 to .91. This questionnaire is sensitive to change and effects of the intervention, showing predictive validity in clinical and non-clinical populations (Chaffin & Valle, 2003; McNary & Black, 2003).
- *The quality of the affective bond.* For the operationalization of this variable, the situational test called the "Strange Situation" was used. It takes about 20 minutes (see details in Ainsworth, Blehar, Waters, & Wall, 1978), and it deals with a series of episodes of separation and reunion between the primary caregiver and the child that activate a certain level of stress in the child. Trained coders assess the type of attachment, focusing on the meeting episodes where the child's behaviours of seeking proximity, maintenance, contact resistance, and avoidance are rated. The attachment is classified, following the guidelines of Ainsworth, et al. 1978, using three basic categories of attachment: secure (type B), insecure anxious-avoidance (type A), and insecure resistant or ambivalent (type C). Children with type B attachment express positive or negative feelings openly to the caregiver. They can regulate their feelings or ask for help when they are overcome by them. They are calm in

the mother's presence. Children with type A attachment organize their behaviour maintaining superficial contact with the caregiver and avoiding situations of conflict or emotional intimacy. The separations do not seem to be traumatic. They regulate sadness by focusing their attention on neutral objects or on the strange person. Children with type C attachment exaggerate the expression of their feelings in order to get their caregiver's attention, making the caregiver help the child to self-regulate and calm him/herself down. There is an emotional dependence and little interest in objects external to the relationship. The mother's approach usually includes avoidance movements. The present study used the attachment variables with two levels: secure (type B) and insecure (which includes types A and C).

- *Levels of participation.* This was operationalized in terms of the number of sessions in the Programme. Each individual visit/session lasted 45-60 minutes. The dyad's visit consisted of a few minutes of play, an evaluation of the child's developmental progress, and an interview in which results were presented and difficulties and progress were explored. Motivational interviewing techniques (Miller & Rollnick, 2002) were used as well as empowerment to resolve difficulties with child-rearing and the family situation itself. Next, commitments for change were established for the next visit. The dyad could have a maximum of 4 visits/sessions before the one corresponding to the attachment evaluation. The levels of participation considered in this study consisted of 2, 3 or 4 visits/sessions.

### Procedure

This research was carried out with the population that attended the PAPMI and gave their consent to participate in the study. The Programme is directed toward mothers and fathers with their babies, but the majority of the visits were attended only by mothers, so that the study was carried out with mothers and babies. These mothers filled out, along with other tests, the CAP questionnaire at two different points in time: in the first visit, when the baby was approximately 3 months old (pre-programme evaluation), and during the penultimate visit, when the baby was 15 months old (post-programme evaluation). The attachment was evaluated using the "Strange Situation" test at 15 months. The evaluators of the "Strange Situation" did not know how many visits the family had attended.

Of a total of 520 families who attended the programme, 342 were selected who, in addition to giving their consent for the study, had attended at least two visits and had completed the pre and post evaluations and the attachment test.

Using these criteria, families were selected that had not dropped out from the Programme, given that they had attended at least two visits, in addition to the session at 15 months. The families who attended 4 visits before the attachment test completed the entire schedule, while those that attended three or two visits missed at least one session.

These families, in all cases, contacted the program to explain that they could not attend on the scheduled day and re-scheduled a new appointment. The number of families attending the Programme made it difficult to find an open slot near the cancelled appointment, so that the new date offered corresponded to the next session for the child's age, thus skipping one of the visits.

### Design and analysis

In order to find out whether the three groups of mothers were homogeneous, previous analyses were performed in which the socio-demographic variables were compared, using the Leven statistic, which makes it possible to find out the homogeneity of the variances. Tukey *t* and Kruskal-Wallis tests were also performed, depending on the type of variable.

The relationship between the level of participation and the factors that affect parenting (CAP), before and after the programme, were analysed by means of a repeated-measure ANOVA (CAP pre and CAP post), whose factor or independent variable was the number of visits to the programme. Given the study's interest in comparing the groups by pairs, in all cases the Tukey *t* test was applied, where the Bonferroni correction method was used with an adjusted alpha equal to .008. The relationship between participation and attachment was measured using the Pearson Chi-squared test.

To find out the relationship between the level of factors that affect parenting (CAP) and the attachment quality, the means obtained on the CAP by the two attachment groups were compared using the Tukey *t* test, with a Bonferroni alpha of .01. Following APA recommendations (2010), together with the *p* values of probability, the values of the effect size estimation obtained from the results of the partial Eta squared (Frías-Navarro & Pascual, 2000) were reported and interpreted. The programme used was SPSS 17.

## Results

### Analyses of socio-demographic aspects

The analyses showed similar socio-demographic profiles in the three groups of mothers in terms of age, the mothers' educational level, the percentage of mothers who work, and the percentage of single-parent families. The only difference was found in the number of children, so that the mothers who made three visits to the Programme had a significantly higher number of children than the other two groups of mothers, while the differences between the 2 and 4 visit groups was not significant. Table 1 shows the means or percentages obtained on each of the socio-demographic variables with the results of the comparison analyses. The results of the homogeneity of variances test, using the Leven statistic, also showed that the three groups of mothers were homogeneous in terms of age ( $L(2, 339) = .335, p = .71$ ), but not in the number of children ( $L(2, 339) = 4.18, p = .01$ ).

**Table 1.** Means or percentages obtained on the socio-demographic variables for each of the groups of mothers, and between-group comparisons.

	2 visits	3 visits	4 visits	Comparison analyses
Mother's age	<i>MD</i> =30.49 ( <i>SD</i> =4.45)	<i>MD</i> =31.60 ( <i>SD</i> =3.49)	<i>MD</i> =31.31 ( <i>SD</i> =3.94)	2 vs 3 $t = -1.53, p = .12$ 2 vs 4 $t = -1.19, p = .23$ 3 vs 4 $t = -.60, p = .54$
Num. of Children	<i>MD</i> =1.34 ( <i>SD</i> =.57)	<i>MD</i> =1.59 ( <i>SD</i> =.65)	<i>MD</i> =1.39 ( <i>SD</i> =.56)	2 vs 3 $t = -2.09, p = .03^*$ 2 vs 4 $t = -.51, p = .60$ 3 vs 4 $t = 2.69, p = .00^*$
Mother's educational level	Basic 73.17% Mid-level 9.7% High-level 17.07%	Basic 76.74% Mid-level 10.46% High-level 12.79%	Basic 68.83% Mid-level 10.23% High-level 20.93%	$K-W = 2.32, g/2, p = 0.31$
The mother works	52%	64%	65%	$K-W = 2, g/2, p = .37$
Single-parent family	0	2.3%	1.4%	$K-W = 2, g/2, p = 0.36$

*MD*: mean, *SD*: standard deviation, *t*: Tukey *t* test, *K-W*: Kruskal-Wallis test, \* $p < .05$

### Descriptive analyses

Table 2 shows the mean scores on the CAP obtained by the 342 mothers at the two evaluation points (CAP pre and

post), distributed by level of participation in the programme (two, three or four visits) and by the type of attachment the child shown at 15 months (secure vs. insecure).

**Table 2.** Means obtained by the groups of mothers on the pre and post CAP, established according to the number of visits and based on the quality of the child's attachment at 15 months old.

	CAP pre			CAP post			N
		CAP-pre SECURE	CAP-pre INSECURE		CAP- post SECURE	CAP -post INSECURE	
2 visits	114.66 SD 77.42 N 41	111.74 SD 73.66 N 27	120.29 SD 86.83 N 14	110.17 SD 71.27 N 41	103.63 SD 63.68 N 27	122.79 SD 85.20 N 14	41
3 visits	81.40 SD 52.52 N 86	78.29 SD 54.20 N 68	93.11 SD 45.04 N 18	78.71 SD 56.79 N 86	74.85 SD 49.38 N 68	93.28 SD 78.92 N 18	86
4 visits	79.32 SD 53.59 N 215	77.59 SD 53.26 N 185	90.00 SD 55.27 N 30	67.85 SD=47.11 N 215	66.89 SD 45.63 N 185	73.73 SD 55.89 N 30	215
Total	84.08 SD 57.63 N 342	81.05 SD 57.63 N 280	97.74 SD 61.46 N 62	75.65 SD 54.56 N 342	72.37 SD 49.53 N 280	90.48 SD 71.75 N 62	342

SD: standard deviation, N: sample size.

### Relationship between level of participation and level of factors that affect parenting (CAP) before and after the Programme

Table 3 shows the results of the repeated-measure ANOVA, specifying the *F* values for the within- and between-subjects contrasts. The table also includes the results of the Tukey *t* tests.

**Table 3.** ANOVA de medidas repetidas CAPpre-CAPpost en relación con la variable número de visitas. Se incluye los valores de *F* de los contrastes intra y entre sujetos y las pruebas *t* de Tukey.

	<i>F</i>	<i>p</i>	Pot. $\eta^2$	<i>t</i>	<i>p</i>
WITHIN	1.42	.19	.30	.008	
CAP pre					
2 visits vs 3 visits				.97	.33
2 visits vs 4 visits				1.99	.06
3 visits vs 4 visits				.76	.44
CAP post					
2 visits vs 3 visits				2.91 <sup>(*)</sup>	.006
2 visits vs 4 visits				3.85 <sup>(*)</sup>	.001
3 visits vs 4 visits				.99	.32
BETWEEN	10.26*	.000	.98	.057	
CAPpre2v vs CAPpost2v				.22	.83
CAPpre3v vs CAPpost3v				3.26*	.001
CAPpre4v vs CAPpost4v				4.40*	.000

Pov.: Statistical power.  $\eta^2$ : Partial Eta squared. \* $p < .05$ , (\*) *a* *ajd* = .008.

The *within-subjects* contrast revealed that the three groups of mothers, established according to the number of visits, did not show significant differences in their CAP scores ( $F(2,339) = 1.42, p = .19$ ). The partial Eta squared ( $\eta^2 = .008$ ) was very low. Therefore, in order to avoid a possible type II error, the analyses were conducted by pairs, with a Bonferroni adjusted alpha equal to .008. The results of the Tukey *t* tests confirmed that before participating in the Programme, the sample of mothers was fairly homogenous on the factors that negatively affect parenting, given that there were no significant differences in the CAP scores between the groups. However, in the post-programme evaluation, signifi-

cant differences were found on the CAP scores, so that the mothers who had 2 visits obtained a higher score than the mothers who had 3 visits ( $t = 2.91, p = .006$ ) and those who had 4 visits ( $t = 3.85, p = .001$ ). No significant differences were found between those who attended 3 visits and those who attended 4.

The *between-subjects* comparisons showed that the differences found between the scores on the CAP obtained by the mothers in the pre evaluation and those obtained in the post evaluation were significant when taking into account the number of visits ( $F(2,339) = 10.26, p < .000, \eta^2 = .05$ ). Post-hoc comparisons made it possible to see that the significant differences occurred when the family had attended 4 visits ( $t = 4.40, p = .001$ ) and when they had attended 3 visits ( $t = 3.26, p = .001$ ), but not after 2 visits. These results indicated that in order to produce significant changes in the CAP, with a decline from the pre to the post evaluation, the family had to make at least 3 visits to the Programme.

### Relationship between level of participation and the child's attachment quality

Figure 1 presents the proportion of children who show secure attachment and insecure attachment, separated by the number of visits the family made to the Programme. It was observed that the proportion of children with secure attachment was greater when the family made 4 visits to the programme, followed by 3 visits, and finally 2. This relationship between the number of visits and attachment was significant  $\chi^2(2, N = 342) = 10.06, p = .007$ .

### Relationship between the level of factors that affect parenting (CAP) before and after the Programme and the child's attachment quality

This section includes two types of comparisons. The first comparison showed that the CAP scores of mothers of children with insecure attachment were significantly higher than those of mothers of children with secure attachment, both

on the pre evaluation (*CAP-pre INSECURE vs CAP-pre SECURE*,  $t = 3.39$ ,  $p = .001$ ) and on the post evaluation (*CAP-post INSECURE vs CAP-post SECURE*,  $t = 3.19$ ,  $p = .002$ ).

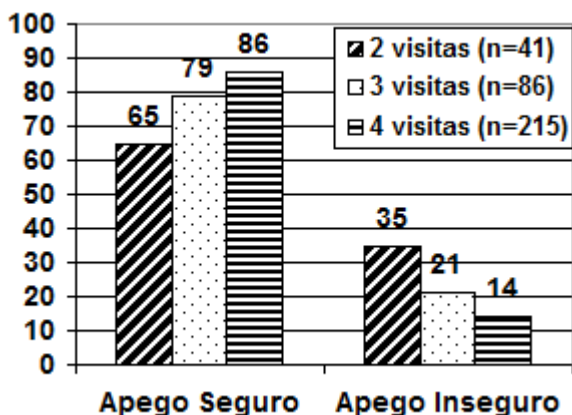


Figure 1. Proportion of children who show secure and insecure attachment, organized by the number of visits.

The second comparison showed that the mothers of children with secure attachment had a significantly higher pre CAP score than their post CAP score (*CAP-pre SECURE vs CAP-post SECURE*,  $t = 3.24$ ,  $p = .001$ ). In the case of mothers of children with insecure attachment, there were no significant differences between the pre and post CAP scores (*CAP-pre INSECURE vs CAP-post INSECURE*,  $t = 1.22$ ,  $p = .23$ ).

In other words, the children who showed secure attachment had mothers whose scores on the CAP declined from the pre to post evaluation, while this decline did not occur in the mothers of children with insecure attachment.

## Discussion

The present study was carried out to determine the effect of the PAPMI intervention dose on mothers and their babies. The results confirm the hypotheses proposed, indicating that the Programme has positive effects starting with the third intervention session with the family. The Programme supports the mothers in their child-rearing task, teaching them in each session about questions related to the care and development of their baby, and helping them to improve their ability to recognize and respond to their child's behavioural signals. All of this was carried out taking into account the specific characteristics and problems of each family and, specifically, focusing on those factors that can negatively affect parenting and that are evaluated by the CAP questionnaire by Milner (1986). The results show that in order for significant changes to occur in the CAP between the pre and post evaluations, the family has to attend at least three visits. These results coincide with those obtained in a previous study where mothers with clinical scores on the CAP (above 166) were compared to mothers with low scores (Pons-

Salvador, et al., 2005). The novelty of the present study is that the comparisons were made with all the mothers, confirming that changes occurred in both mothers with more stressors and those with fewer. It should be pointed out that the mothers in the pre evaluation of this study make up a fairly homogenous group on the CAP scores, as only 9.35% of them (32 of the 342) obtained a clinical score, approaching the 10% that other studies have found in the normal population (Milner, 1986).

In addition, the effect of the Programme's intervention on the children was evaluated according to the type of attachment shown at the age of 15 months. The development of secure attachment, which can act as a basic protective system, is considered an indicator of a satisfactory interaction throughout the first year of life (Belsky, Fish & Isabella, 1991; Cerezo, Trenado & Pons-Salvador, 2012). According to various studies carried out in the United States and Europe, in the non-clinical population the percentage of children with secure attachment is 67 %, while 33 % have insecure attachment (Brisen, 2002 for a review). This proportion is quite similar to the percentage obtained in the present study for the children who attended the Programme with their parents twice, which indicates that our initial sample had similar results to the normal population. However, when the parents attended the Programme 3 times, the proportion of insecure attachment declined to 21.6%, and when they attended 4 times it declined to 14.6%. These differences, compared to those who attended twice, are significant, showing that from the third intervention session, the Programme has an effect on the probability of developing secure attachment, a probability that increases with the fourth visit.

These results indicate that working with parents on aspects related to interaction, as occurs in the Programme (in each intervention session, there is individual work with the parents to support them in their capacity to recognize and respond appropriately to their baby's signals), has positive effects on the development of secure attachment, starting with the third intervention session.

We observe, therefore, that before the effects of the Programme intervention can be noted, both the level of the sample of mothers (in their level of stressors) and the level of the children (in the attachment they develop) are close to the normal population, with significant changes observed after three intervention sessions. These results support the idea that a Programme of these characteristics should be directed to the entire population, not only because it aids in the detection of high-risk cases, which require more specific work, but also because it provides support for all families, making it possible to work on the prevention of child maltreatment and the promotion of appropriate parenting practices (Cerezo & Pons-Salvador, 1999; Wolfe & Krupka, 1991). Thus, the importance of establishing universal programmes directed towards early childhood is confirmed, as they are politically and economically more sustainable (Bar-

nett, et al., 2004; Heckman & Masterov, 2007; Morrissey & Warner, 2007).

These arguments do not rule out the need to work more specifically with risk groups. In fact, in our study, even though the Programme's intervention positively affected a high percentage of children, some of them required a follow-up and/or further work. For example, 14 % (30 cases) developed insecure attachment even after attending 4 intervention sessions, and they coincided with mothers who maintained a high CAP level after the Programme. The literature indicates that some circumstances can maintain stressors in the mother's life, and they can reduce her capacity to put herself in her child's place, leading to an inadequate interpretation of the child's signals (Newman, 1997; Springer, 2001). These cases require a more individualized study that takes into account specific characteristics of these families, a topic that exceeds the objectives of the present study and could form part of a future investigation. It should be pointed out that, after finishing the Programme, those families in which the parents maintain a high level of factors that negatively affect parenting and/or the children have developed insecure attachment are referred to the corresponding community services for follow-up and/or intervention (Trenado et al., 2009).

## References

- Ainsworth, M. D. S., Blehar, M. C., Waters, E. & Wall, S. (1978). *Patterns of attachment*. Hillsdale, NJ: Lawrence Erlbaum.
- American Psychological Association (2010). *Publication Manual of the American Psychological Association (6<sup>th</sup> Ed.)*, Washington, DC: American Psychological Association.
- Ato, E., Galián, M. D. & Huéscar, E. (2007). Relaciones entre estilos educativos, temperamento y ajuste social en la infancia: una revisión. *Anales de Psicología*, 23(1), 33-40. doi:10.6018/analesps
- Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, 29, 195-215. doi:10.1037/0033-2909.129.2.195
- Belsky, J., Fish, M. & Isabella, R. (1991). Continuity and discontinuity in infant negative and positive emotionality. *Developmental Psychology*, 27, 421-31. doi:10.1037/0012-1649.27.3.421
- Brisen, K. H. (2002). *Treating attachment disorders: from theory to therapy*. NY: The Guilford Press.
- Caselles, C. E. & Milner, J. S. (2000). Evaluations of child transgressions, disciplinary choices, and expected child compliance in a no-cry and a crying infant condition in physically abusive and comparison mothers. *Child Abuse and Neglect*, 24(4), 477-491. doi: 10.1016/S0145-2134(00)00115-0
- Cerezo, M. A. (1992). *Programa de Apoyo Psicológico Materno-Infantil*<sup>®</sup>. Documento no publicado. Universitat València.
- Cerezo, M. A. (2003). *PCPS. Parent-child psychological support program. Evaluation Program 18 months later*. Documento no publicado. Southwestern Area Health Board. Irlanda.
- Cerezo, M. A., Dasi, C. & Ruiz, J. C. (2013). Supporting parenting of infants: Evaluating outcomes for parents and children in a community-based program. *Evaluation and Program Planning*, 37, 12-20. doi: 10.1016/j.evalprogplan.2012.12.003
- Cerezo, M. A., Dolz, L., Pons-Salvador, G. & Cantero, M. J. (1999). Prevención de maltrato en infantes: evaluación del impacto de un programa en el desarrollo de los niños. *Anales de Psicología*, 15(2), 239-250. doi:10.6018/analesps
- Cerezo, M. A., & Pons-Salvador, G. (1999). Supporting appropriate parenting practices. A preventive approach of infant maltreatment in a community context. *International Journal of Child and Family Welfare*, 99, 42-61.
- Cerezo, M. A., Pons-Salvador, G. & Trenado, R. M. (2008). Mother-infant interaction and children's socio-emotional development with high- and low-risk mothers. *Infant Behavior and Development*, 31, 578-589. doi: 10.1016/j.infbeh.2008.07.010
- Cerezo, M. A., Trenado, R. M., & Pons-Salvador, G. (2006). Factores que afectan negativamente la parentalidad e interacción temprana. Un estudio observacional con bebés de tres meses. *Psicothema*, 18(3), 543-549. Recuperado de <http://www.psicothema.com/>
- Cerezo, M. A., Trenado, R. M., & Pons-Salvador, G. (2012). Mother-infant Interaction and Quality of Child's Attachment: A Nonlinear Dynamical Systems Approach. *Nonlinear Dynamics, Psychology, and Life Sciences*, 16(3) 243-267. Recuperado de <http://www.societyforchaostheory.org/ndpls/>
- Chen, H. T. (2010). The bottom-up approach to integrative validity: A new perspective for program evaluation. *Evaluation and Program Planning*, 33, 205-214. doi: 10.1016/j.evalprogplan.2009.10.002
- Collins, W. A., Maccoby, E. E., Steinberg, L., Hetherington, E. M. y Bornstein, M. H. (2000). Contemporary research on parenting: the case for nature and nurture. *American Psychologist*, 55, 218-32. doi: 10.1037//0003-066X.55.2.218
- Crouch, J. L. & Milner, J. (2005). The social information processing model of child physical abuse. A conceptual basis for prevention and intervention strategies. In K. Kendall-Tackett & S. Glacomoni (Eds.), *Child Victimization: Maltreatment, Bullying and dating violence- prevention and intervention strategies* (pp. 1-19). Kingston, NJ: Civic research Institute.
- De Paül, J., Arruabarrena, I. & Milner, J. S. (1991). Validación de una versión española del Child Abuse Potential Inventory. *Child Abuse and Neglect*, 15, 495-504. doi: 10.1016/0145-2134(91)90033-A
- De Paül, J. & Rivero, A. (1992). Versión española del Inventario Child Abuse Potential: validez convergente y apoyo social. *Revista de Psicología General y Aplicada*, 45, 49-54.
- Dishion, T. J. & Patterson, G. R. (2006) The Development and Ecology of Antisocial Behavior in Children and Adolescents. En D.Cicchetti y

- D.J.Cohen (Eds.), *Developmental Psychopathology*, vol. 3 (pp.505-533). NY: Wiley.
- Frías-Navarro, D. & Pascual, J. (2002). Tamaño del efecto del tratamiento y significación estadística. *Psicothema*, 12, 236-240. Recuperado de <http://www.psicothema.com/>
- Gesell, A. & Amatruda, C. (1985). *Diagnóstico del desarrollo normal y anormal del niño* (edición ampliada H.Knobloch y B.Pasamanick). México: Paidós.
- Heckman, J. & Masterov, D. (2007). The productivity argument for investing in young children. Congreso anual de *Allied Social Sciences Association*, Chicago, USA. Recuperado de <http://jenni.uchicago.edu/Invest>
- Magill-Evans, B. J., Harrison, M. J., Benzies, K., Gierl, M. & Kimak, C. (2007). *Effects of parenting education on first-time fathers' skills in interactions with their infants*. Recuperado de <http://www.mywire.com/a/Fathering/Effects-of-parenting-education-firsttime/3486374/>
- Miller, W. R. & Rollnick, S. (2002). *Motivational interviewing. Preparing people for change*. NY: Guilford Press.
- Milner, J. S. (1986). *The Child Abuse Potential Inventory: Manual*. Webster, NC: Psytec
- Milner, J. S. (1990). *An Interpretative Manual for the Child Abuse Potential Inventory*. Webster, NC: Psytec.
- Milner, J. S. (2003). Social information processing in high risk and physically abusive parents. *Child Abuse and Neglect*, 27, 7-20. doi: [10.1016/S0145-2134\(02\)00506-9](https://doi.org/10.1016/S0145-2134(02)00506-9)
- Nature (2009). Psychology: a reality check. *Nature*, 461, 847.
- Newman, G. (1997). The relationship of cognitive attributions and parental attitudes to child abuse potential. *Dissertation Abstracts International*, 57, 6616.
- Pons-Salvador, G., Cerezo, M. A., & Bernabé, G. (2005). Cambio y estabilidad en los factores que afectan negativamente la parentalidad. *Psicothema*, 17(1), 31-36. Recuperado de <http://www.psicothema.com/>
- Robles, Z. & Romero, E. (2011). Programas de entrenamiento para niños con problemas de conducta: una revisión de su eficacia. *Anales de Psicología*, 27(1), 86-101. doi:10.6018/analesps
- Shaw, D. S., Dishion, T. J., Supplee, L., Gardner, F. & Arnds, K. (2006). Randomized Trial of a Family-Centered Approach to the Prevention of Early Conduct Problems. *Journal of Consulting and Clinical Psychology*, 74(1), 1-9. doi:[10.1037/0022-006X.74.1.1](https://doi.org/10.1037/0022-006X.74.1.1)
- Shanker, S. (2009). *The Science of Early Brain Development*. Conferencia en Child is born. Youngballymun Project, Irlanda. Recuperado de <http://youngballymun.com>
- Shonkoff, J. P. & Phillips, D. A. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. NY: National Academy of Sciences.
- Spoth, R. L., Kavanagh, K. & Dishion, T. J. (2002). Family-centered preventive intervention science: Toward benefits to larger populations of children, youth, and families. *Prevention Science*, 3, 145-152.
- Springer, C. A. (2001). The role of attribution of intent in child abuse. *Dissertation Abstracts Internacional*, 61, 3862.
- Trenado, R., Pons-Salvador, G. & Cerezo, M. A. (2009). Proteger a la infancia: apoyando y asistiendo a las familias. *Papeles del Psicólogo*, 30(1), 24-32. Retrieved from <http://www.cop.es/papeles>

(Artículo recibido: 12-12-2011; revisado: 21-2-2013, aceptado: 2-8-2013)