

Exploratory behaviour, emotional wellbeing and childcare quality in preschool education

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Título: Conducta de exploración, bienestar emocional y calidad del cuidado en educación infantil.

Resumen: El objetivo del presente trabajo consistió en examinar la relación entre la calidad del cuidado estructural y del proceso en las escuelas infantiles y la conducta de exploración, así como la influencia que ejerce la calidad del cuidado en la relación entre el bienestar emocional y la exploración infantil. En el estudio participaron 206 niños y niñas pertenecientes a 40 aulas de 20 escuelas infantiles de la Comunidad Autónoma del País Vasco, de edades comprendidas entre los 37 y los 64 meses ($M = 50.96$, $DT = 6.54$). Se contó también con la participación de 40 maestras, una por cada aula objeto de estudio. Los resultados pusieron de manifiesto que los niños y niñas que tenían maestras más sensibles mostraban una mayor exploración. Sin embargo, no se halló un efecto moderador de la sensibilidad sobre la relación positiva entre el bienestar emocional y la conducta de exploración. Por último, se observó que otras variables asociadas a la calidad estructural también influyen sobre la exploración infantil, aunque en menor medida.

Palabras clave: Exploración; bienestar emocional; sensibilidad; calidad del cuidado; educación Infantil.

Abstract: The aim of this study was to examine the relationship between children exploratory behaviour and the quality of structural childcare and process in preschools. The study also examined how childcare quality affects the relationship between emotional wellbeing and exploratory behaviour. The sample comprised 206 children from 40 classrooms in 20 preschools, together with their teachers. The children's age ranged between 37 and 64 months ($M = 50.96$, $SD = 6.54$). The results indicated that children cared for by more sensitive teachers engaged in more exploratory behavior. However, no moderating effect was found of teacher sensitivity on the positive relationship between exploratory behavior and wellbeing. Finally, some factors linked to the quality of structural childcare also influenced exploratory behavior, although to a lesser extent.

Key words: Exploratory behavior; emotional wellbeing; sensitivity; childcare quality; preschool education.

Introduction

Physical and social exploration is a basic need, the satisfaction of which is associated with good cognitive development during infancy (López, 1995). In order to explore their physical and social environment, children must be presented with environmental opportunities to come into contact with multiple objects, animals and people. According to López (2009, p.38), failure to adequately satisfy this need "reduces the child's life to an impoverished, boring and limited social and spatial environment, and denies them the affective and social support they require to confidently open up to others".

In relation to the school environment, and more specifically to preschool education, Laevers (1994a) bases his work on the construct "involvement", which can be considered a prolongation of exploratory behaviour and is defined as the child's ability to concentrate on and persevere in school-based activities. Involvement is characterised by a high level of motivation and interest in the action, openness to stimuli and intense sensorial and cognitive activity, as well as by satisfaction with the exploratory task in hand. In short, "involvement" is a state in which the child is totally focused on and engaged in the activity being carried out, operating to the full extent of their capacities. It is through involvement that children acquire deep-level, motivational learning which has positive long-term effects (Pascal & Bertram, 1997).

Laevers (1994a) holds that it is the combination of all these characteristics that makes exploratory behaviour,

alongside emotional wellbeing, one of the best indicators for assessing the quality and efficacy of learning in preschool education. He therefore attaches great importance to the generation of learning spaces in which these factors are promoted and fostered.

Despite difficulties in reaching a consensus on what "quality" actually means in this sense, following the publication of the study by Ruopp, Travers, Glantz and Coelen (1979), the majority of authors have tended to agree that research into quality in preschool education should focus on the study of both structural quality and process quality (Cryer, 2006; Lera, 2007).

Structural quality refers to the relatively stable characteristics which constitute the framework in which educational processes take place. Examples of structural variables include group size, child-caregiver ratio, classroom size, the training and experience of the caregivers themselves and their salaries. Process quality, on the other hand, refers to the dynamic relations established by children with their school environment, and includes curricular aspects such as the way time and space are organised, peer relationships and relationships with caregivers (Cryer, 2006).

A number of studies carried out with children aged 0-6 have highlighted the relationship which exists between the quality of structural care and children's development (Huntsman, 2008; NICHD, 2005). Although these studies do not focus exclusively on exploratory behaviour, they do find that high-quality educational environments which guarantee small group sizes, a good child-caregiver ratio and well-qualified caregivers foster children's cognitive and linguistic development, autonomy and social competence (Burchinal et al., 2000; Huntsman, 2008; Ruopp et al., 1979; Textor, 1998). For example, diverse studies have found that

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smaller group sizes and a good child-caregiver ratio are associated with higher scores on scales assessing the different dimensions of child development (Burchinal et al., 2000; De Shipper, Riksen-Walraven & Geurts, 2006; Howes, 1997; Ruopp et al., 1979). This may be due to the quality of children's interactions with their peers and caregivers, as well as to the fact that children's responses to objects may be hampered in groups with a high number of children and a high child-caregiver ratio. Some studies (De Shipper et al., 2006; Deynoot-Schaub & Riksen-Walraven, 2005; Howes, 1997; NICHD, 2000) have provided support for this hypothesis, finding that caregivers working in groups with a lower child-caregiver ratio are warmer and more sensitive and receptive than those with a greater number of children in their care. Moreover, caregivers working in smaller groups encourage their charges more, express more positive emotions and fewer negative ones, adopt a less intrusive style and foster exploratory behaviour, proposing more novel ideas that are appropriate for the children's specific developmental stage.

As regards classroom size, much emphasis has been placed on the need to provide spacious facilities, with a number of studies highlighting the negative consequences of small classrooms and overly large group sizes on children's development (EACA, 2009; Textor, 1998).

In relation to process quality, the majority of studies base their research on an assessment of the dimensions measured by the Early Childhood Environment Rating Scale (ECERS-R, Harms, Clifford & Cryer, 1998). High-quality environments are characterised by the fact that they satisfy three basic early childhood needs, namely security and protection, healthy interpersonal relations and stimulation and learning (Clifford, Reszka & Rossbach, 2010).

Research conducted using the ECERS has highlighted the relationship which exists between childcare quality and the different dimensions of child development. Specifically, high scores on the process-based dimension of quality are associated with greater cognitive and linguistic development and better academic achievement (Burchinal et al., 2008; Lera, 2007; Mashburn et al., 2008; NICHD, 2005; Peisner-Feinberg et al., 2001), as well as with greater social and emotional competence (Burchinal et al., 2008; Montes, Hightower, Brugger & Moustafa, 2005; NICHD, 2005; Peisner-Feinberg et al., 2001).

Despite this, however, few studies to date have focused specifically on the relationship between exploratory behaviour and interaction quality, with special attention being paid to caregiver sensitivity.

Based on the model of preschoolers' needs proposed by López (2009), preschool education should be predominantly child-centred and should focus attention on the present and on children's wellbeing and pleasure. This model is rooted in an awareness of the importance of protection, emotional security, exploration, play and self-esteem during early childhood, which in turn depend mainly on the attachment bonds formed by the child, the relationship they have with their

peers and their self-esteem (López, 2009; Montañés, Aciego & Domínguez, 2012).

Bowlby (1969) was the first to point out the close relationship between the exploratory behaviour system and the attachment behavioural system. The exploratory behaviour system gives children a survival advantage, since it provides them with information about how the environment operates. The complementary although mutually inhibitory nature of the exploratory and attachment systems has evolved in order to ensure that children can gradually learn about their environment through ongoing exploration, while at the same time feeling protected by remaining close to their attachment figures.

The theoretical structure that best elucidates the relationship between the exploratory behaviour system and the attachment system is that which explains how children use their attachment figure as a secure base for exploring their environment (Ainsworth, Blehar, Waters & Wall, 1978). Bowlby (1973) described not only the importance of the physical presence of the attachment figure, but also the child's perception of their availability whenever needed. In other words, the child's perception of having a reference figure that is sensitive to their needs and capable of interpreting and responding appropriately to their signals (Sánchez & Hidalgo, 2003).

Recent research has found empirical evidence of this model (Bernier, Carlson & Whipple, 2010; Simó & D'Ocon, 2011; Sroufe, Egeland, Carlson & Collins, 2005), although it should be pointed out that the vast majority of these studies were all carried out in the family environment, and only very few have been conducted at school. It is perhaps the studies carried out by Belsky and his group (Belsky, 2006; Vandell, Belsky, Burchinal, Vandergrift & Steinberg, 2010) that have come closest to this proposal, finding that high process quality, characterised by the presence of sensitive, non-intrusive caregivers capable of fostering emotional security in order to protect, stimulate and guide the educational process, is associated with high-quality child-caregiver interactions, which in turn predict better long-term cognitive, linguistic and academic performance.

This lack of empirical research is striking, especially in light of the emerging school of thought that emphasises child-caregiver interactions as a key element in children's positive development at school (Sabol & Pianta, 2012). Caregivers or teachers are currently considered "ad hoc attachment figures", particularly during the preschool period. In other words, they are seen as temporary attachment figures that are specific to the school environment (Verschueren & Koomen, 2012). Thanks to this close relationship of support and protection (which is an external source for channelling stress), children can direct all their energy towards ongoing exploration in the classroom and can become involved and engaged in relationships with their peers. The attachment system of preschool children is easily activated, although its capacity for self-regulation is relatively limited (Ato, González & Carranza, 2004). This intensifies

their need for the support provided by caregivers (Hughes, 2012).

As indicated earlier, Laevers (1994a) maintains that, alongside emotional wellbeing, exploratory behaviour is one of the two key variables for assessing quality in preschool education. However, he is unclear as to the exact type of relationship which exists between these variables. Which comes first, wellbeing or exploratory behaviour? Or do they both operate together? Assuming that a sensitive response by the attachment figure is associated with a greater degree of exploratory behaviour, does the sensitivity of the attachment figure moderate the relationship between emotional wellbeing and exploration? According to attachment theory (Ainsworth et al., 1978), children need to feel happy and emotionally secure in order for their exploratory behaviour system to be activated. The theory also postulates that this relationship between wellbeing and exploration is influenced by the degree of sensitivity shown by the attachment figure in responding appropriately to the child's signals and demands during interaction. The sensitivity of the caregiver would therefore be expected to moderate the positive relationship established between emotional wellbeing and exploratory behaviour. Nevertheless, only a few studies have attempted to analyse the moderator effect of a sensitive response by caregivers (Buyse, Verschueren & Doumen, 2011).

In light of this context, the present study aims to provide new data regarding the relationship between childcare quality (both structural and process) in preschools and children's exploratory behaviour.

In relation to process quality, caregiver sensitivity is expected to correlate positively with children's exploratory behaviour, once the positive relationship between emotional wellbeing and exploration has been controlled for. We also believe it is worth analysing whether sensitivity has a moderator effect on the positive relationship between wellbeing and exploratory behaviour, with this relationship being stronger in the case of more sensitive caregivers. High scores in the process-based dimension of quality, measured using the ECERS-R, are expected to be associated with a greater degree of exploratory behaviour.

Finally, other variables linked to structural quality are also expected to influence exploratory behaviour. In specific terms, we expect children in high-structural-quality care environments (characterised by small groups, a low child-caregiver ratio and good classroom size) to engage in more exploratory behaviour.

Method

Participants

Participants were 206 children from 40 classrooms in 20 preschools in the Autonomous Region of the Basque Country. All were aged between 37 and 64 months ($M_{age} = 50.96$, $SD = 6.54$). 47.6% ($n=98$) were boys and 52.4% ($n=108$)

were girls. The sample group also comprised 40 teachers, one from each classroom being studied.

The informed consent of participants, their parents and the directors of the schools involved was requested prior to the commencement of the study.

Instruments

The Leuven Involvement Scale for Young Children (LIS-YC; Laevers, 1994b). The LIS-YC assesses the level of children's exploratory behaviour. Initially, three two-minute periods are recorded for each participating child in the classroom. These recordings are later examined and the degree of involvement demonstrated by the child is assessed for each sequence on a 5-point scale (1 to 5). Finally, the mean value of all three observations is calculated for each child. The lowest score indicates a very low level of exploration, while the highest score indicates a high level of this behaviour. Indicators such as concentration level, the effort and energy invested in the activity, the creativity and complexity of the activity, facial expression and posture, persistence, verbal utterances and satisfaction are used to help categorise subjects. The scale has been used in a number of different research studies and cultures (Ebbeck et al., 2012; Ulich & Mayr, 2002; Uren & Stagnitti, 2008).

An inter-rater agreement analysis was conducted, with the result being a mean intraclass correlation coefficient (two mixed effects factors, absolute agreement) of .83 (in a range oscillating between .77 and .87). The internal consistency of the scale was .83.

The NCKO Wellbeing Scale (De Kruif et al., 2007). This instrument assesses children's emotional wellbeing in the classroom. The evaluation consists of analysing three video-fragments of 10 minutes each. Every 2 minutes a wellbeing score is registered, resulting in five scores for each fragment. Next, the mean score for each fragment is calculated and finally, the mean score for all three values is given. Wellbeing scores are presented on a 7-point scale, ranging from (1) very low emotional wellbeing (e.g. crying, screaming) to (7) very high emotional wellbeing (signs of enjoyment and happiness). The Wellbeing Scale has been widely used in different research studies (Groeneveld, Vermeer, van IJzendoorn & Linting, 2010, 2012a).

An inter-rater agreement analysis was conducted, with the result being a mean intraclass correlation coefficient (mixed ANOVA, absolute agreement) of .75 (in a range oscillating between .61 and .83). The internal consistency of the rating scale was .78.

The NCKO Sensitivity Scale (De Kruif et al., 2007). This rating scale assesses the sensitivity of the responses provided by caregivers. First, three 10-minute sessions are videotaped in the classroom. Next, these sessions are analysed and scores are awarded on a 7-point scale (1-7), depending on how the caregiver responds to the children's signals. The mean score for all three observations is then calculated. The lowest score indicates a very insensitive response by the

caregiver, while the highest score indicates a very high level of sensitivity. Caregivers are deemed to be sensitive when they are able to provide the children in their charge with ongoing emotional support, correctly interpret their signals and respond to their needs appropriately. The sensitivity scale has been widely used in diverse research studies to assess the sensitivity of attachment figures (Groeneveld et al., 2010, 2011, 2012b).

The inter-rater reliability score was obtained using the absolute agreement mixed ANOVA model. The mean intra-class correlation coefficient was .88 (in a range of between .84 and .91). The internal consistency of the rating scale was .88.

Spanish version of the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms et al., 1998). The ECERS-R assesses process quality in care environments for children aged between 30 and 60 months. The instrument comprises a total of 43 items, organised into 7 subscales: Space and Furnishings, Personal Care Routines, Language-reasoning, Activities, Interaction, Programme Structure and Parents and Staff. The items included in each of the subscales are assessed on a 7-point scale, depending on the degree to which the aspect observed is inadequate (1), minimal (3), good (5) or excellent (7). These scores are then used to calculate the mean quality for each subscale; the values obtained enable comparisons between subscales in order to determine the areas in which the environment is offering higher/lower quality care. Finally, the mean scores for each subscale are used to calculate a global score for process quality in the classroom.

Assessors observe the classroom for a period of at least two hours. Item scores are awarded in situ, although the observer later interviews the caregiver in order to fill in any missing information.

The Spanish version of the ECERS-R has a high internal consistency level. The *Cronbach's alpha* for global quality is .94, while those of the subscales oscillate between .70 and .88 (Mathiesen, Merino, Herrera, Castro & Rodríguez, 2011).

The ECERS-R has been the object of various validity studies (convergent validity, divergent validity and criterion validity), with satisfactory results (Mathiesen et al., 2011).

Procedure

The classrooms were selected randomly from all the classrooms in the participating schools, and then within each classroom, the children included in the study were also selected randomly. Participating caregivers were those working in the selected classrooms.

As regards the application of the instruments, the ECERS-R was administered first, and data was gathered in relation to the structural variables being studied. Next, the various sessions were videotaped and then analysed to determine the level of exploratory behaviour and emotional wellbeing among participants, as well as the degree of satisfaction felt by caregivers.

Data analysis

Firstly, we conducted a series of descriptive and correlation analyses. Secondly, given that the structure of the data required two levels of analysis, since the children (level 1) were grouped into classrooms (level 2), we used hierarchical linear models which enable cross-level relationships to be estimated assuming the hierarchical structure of the data (Cerezo & Ato, 2010; Hernández, Colmenares & Martínez, 2003). It is worth highlighting that, due to this hierarchical structure, children from the same classroom were probably not independent of each other. This constitutes a serious non-compliance with the basic assumption of the general linear model, namely independence between observations. Mixed models enable us to approach this type of hierarchical structure by focusing on the covariance of the data (Pardo, Ruiz & San Martín, 2007).

All analyses were carried out using the MIXED procedure in SPSS version 19.

Results

Preliminary analyses

As shown in Table 1, positive, statistically significant ($p < .01$) correlations of a moderate magnitude ($r = .43$ and $r = .44$, respectively) were observed between exploratory behaviour and infant emotional wellbeing and caregiver sensitivity. Also, a weak negative correlation was found between this variable and ratio ($r = -.22$; $p < .01$). Contrary to what we expected, no statistically significant relationship was found between exploratory behaviour and the other factors linked to childcare quality.

Table 1. Descriptive and correlation analyses.

Variable	M	DT	1	2	3	4	5	6	7
1. Exploratory behaviour	3.39	0.79	1						
2. Wellbeing	4.36	0.51	.43**	1					
3. Sensitivity	4.55	0.81	.44**	.13	1				
4. ECERS-R	2.98	0.27	.19	.03	.12	1			
5. Ratio	20.34	4.01	-.22**	-.23**	-.18**	-.19**	1		
6. Group size	21.05	3.57	-.1	-.09	-.30**	-.13	.71**	1	
7. m ² per child	2.61	0.66	.13	.08	.39**	.23**	-.43**	-.59**	1

** $p < .01$.

Weak negative correlations were found between caregiver sensitivity and both ratio ($r = -.18$, $p < .01$) and group size ($r = -.30$; $p < .01$), and a positive correlation was observed between this variable and classroom size (m² available per child in the classroom) ($r = .39$; $p < .001$). Process quality measured using the ECERS-R correlated negatively with ratio ($r = -.19$; $p < .01$) and positively with m² available per child in the classroom ($r = .23$; $p < .01$). In both cases, the correlations were weak. Finally, a weak negative correlation

was observed between emotional wellbeing and ratio ($r = -.23; p < .01$).

Multilevel analysis

With the aim of determining the possible existence of interclass or intraclass differences in the criterion variable exploratory behaviour, a one-way random effects ANOVA was carried out. Table 3 (REA model) shows the estimated intercept value. This is an estimate of the populational mean

of the 40 classrooms for the criterion variable exploratory behaviour. Based on the variance of the factor "class" (0.17) and the variance of the residuals (0.46), we calculated the *intraclass correlation coefficient* (ICC). The value obtained for the ICC was .27, which indicates that of the total variability of the criterion variable, approximately one third corresponds to the difference between class means. This in turn suggests that children's exploratory behaviour depends, to a certain extent, on the classroom to which they belong.

Table 2. Estimates of the fixed effects parameters.

Model*	Parameter	Estimate	SE	df	t	Sig.
REA	Intercept	3.40	0.08	37.67	41.64	.000
RRC	Intercept	3.41	0.07	36.02	48.29	.000
	Emotional wellbeing	0.53	0.11	27.48	5.02	.000
RMO	Intercept	3.40	0.05	36.57	66.04	.000
	Emotional wellbeing	0.52	0.10	29.12	5.03	.000
	Caregiver sensitivity	0.39	0.06	39.06	6.10	.000
RMSO	Intercept	3.41	0.05	36.78	67.46	.000
	Emotional wellbeing	0.50	0.10	29.04	4.92	.000
	Caregiver sensitivity	0.39	0.06	38.80	6.22	.000
	Wellbeing*Sensitivity	-0.20	0.14	43.62	-1.46	.152

*REA: One-way random effects ANOVA; RRC: Random coefficient regression; RMO: Regression with means-as-outcomes; RMSO: Regression with means and slopes-as-outcomes.

The results of the null model suggest that the development of a multilevel model is appropriate, since the intercept

varies significant between classrooms (Wald $Z = 2.804; p < .05$) (see Table 3).

Table 3. Estimates of the covariance parameters.

Model	Parameter		Estimate	SE	Wald Z	Sig.
REA	Residuals		0.46	0.05	9.08	.000
	Classroom	variance	0.17	0.06	2.80	.005
	Residuals		0.39	0.05	8.43	.000
RRC	Intercept + wellbeing (subject = classroom)	NE (1,1)	0.12	0.05	2.50	.013
		NE (2,1)	-0.06	0.05	-1.11	.266
		NE (2,2)	0.07	0.08	0.82	.412
		Residuals		0.38	0.04	8.61
RMO	Intercept + wellbeing (subject = classroom)	NE (1,1)	0.03	0.03	1.08	.282
		NE (2,1)	-0.01	0.03	-0.01	.989
		NE (2,2)	0.07	0.08	0.90	.366
		Residuals		0.39	0.05	8.54
RMSO	Intercept + wellbeing (subject = classroom)	NE (1,1)	0.02	0.02	0.89	.376
		NE (2,1)	-0.01	0.03	-0.03	.975
		NE (2,2)	0.05	0.08	0.65	.517
		Residuals		0.39	0.05	8.54

*REA: One-way random effects ANOVA; RRC: Random coefficient regression; RMO: Regression with means-as-outcomes; RMSO: Regression with means and slopes-as-outcomes.

Next, with the aim of estimating the individual relationship between emotional wellbeing and exploratory behaviour, as well as the variability in the intercepts across classrooms, a random coefficient regression analysis (RRC) was carried out. In order to ensure that the constant had a clear significance, we opted to rescale the values of the level 1 predictor variable (wellbeing). We also used differential-centred scores instead of direct ones.

In the estimates of the fixed effects parameters (see Table 2), the relationship between emotional wellbeing and exploratory behaviour was found to be statistically significant ($p < .001$) and positive.

As regards the estimates of the covariance parameters (see Table 3), when emotional wellbeing was included in the regression model, using a separate equation for each classroom, the intraclass variability was reduced to 16%. It is worth highlighting that the variance of the intercepts (0.12) was greater than zero ($p = .013$). Therefore, it can be concluded that the mean level of exploratory behaviour was different across classrooms. Also, neither the variance of the slopes nor the relationship between the regression intercepts and slopes were statistically significant, which indicates that the relationship between emotional wellbeing and exploratory behaviour does not vary across classrooms, and that the

intraclass relationship between emotional wellbeing and degree of exploratory behaviour neither increases nor decreases in accordance with mean sizes.

As regards the -2LL statistics associated with both models, the result for the null model was $-2LL = 471.39$. When the covariable wellbeing was included, the result was $-2LL = 437.462$. Thus, we can conclude that after controlling for the effect of emotional wellbeing, the mean level of exploratory behaviour differed across classrooms ($\chi^2(3) = 33.93; p < .001$). The ICC value of .24 indicates that after controlling for the effect attributable to mean emotional wellbeing, 24% of the total variance was still attributable to differences between classroom means. Remember that in the null model the ICC was .27. When the covariable emotional wellbeing was included, the ICC value dropped to .24, the reason being that some of the differences observed between classrooms were explained by differences in the emotional wellbeing of the children in those classrooms.

In the previous model a statistically significant variation was observed in the intercepts across classrooms. With the aim of determining whether caregiver sensitivity was positively related to exploratory behaviour in children, once the positive relationship between wellbeing and exploration had been controlled for, a multilevel regression analysis was performed with means-as-outcomes (RMO).

As regards the -2LL statistics associated with both models, the result for model 2 was $-2LL = 437.46$. When the covariable caregiver sensitivity was included, the result was $-2LL = 414.68$. This model therefore had a significantly better fit ($\chi^2(1) = 22.78; p < .001$). In model 2, the ICC was .24. When the covariable caregiver sensitivity was included, the value of the ICC dropped to .07, indicating that a considerable percentage of the differences observed between classrooms was due to differences in the sensitivity of the different caregivers. Moreover, the results obtained indicate that, as expected, after controlling for the relationship between emotional wellbeing and exploratory behaviour, the cross-level relationship between caregiver sensitivity and exploratory behaviour was found to be both positive and statistically significant ($p < .001$). Thus, the data observed support hypothesis 1.

Once hypothesis 1 had been confirmed, we added other level 2 predictor variables to the model (process quality measured using the ECERS-R and structural quality). The results of the fixed effects estimates revealed that after controlling for process quality as measured using the ECERS-R, along with ratio, group size and classroom size, caregiver sensitivity was found to influence children's exploratory behaviour ($p < .001$). Moreover, after controlling for the other predictors, ratio ($-0.05; p = .031$) and group size ($0.05; p = .039$) were observed to influence children's exploratory behaviour. Finally, once the other predictor variables had been controlled for, the relationships between the process quality variables, as measured by the ECERS-R scale, and classroom size and the criterion variable were found not to be statistically significant.

When the new level 2 covariables were included, the -2LL statistic obtained for the model was 425.249. This value is higher than that obtained in the previous model (414.682). Thus, despite including 4 additional parameters, this latter model does not represent any significant improvement. The same occurs if we eliminate the new level 2 variables one by one, regardless of whether or not they are statistically significant, thus indicating that the additional parameters included in this model are not relevant. Consequently, in accordance with the principle of parsimony, we chose the simplest model, namely model 3.

One of the results found in relation to the third model in the sequence was a lack of statistically significant variation in the regression slopes across classrooms; in other words, the relationship between wellbeing and exploratory behaviour did not vary from classroom to classroom, meaning that it was not necessary to calculate the means-and-slopes-as-outcomes model. Nevertheless, this model was calculated in an exploratory manner. As expected, the -2LL statistic obtained was slightly higher (414.825) than that obtained for model 3. Therefore, despite including one parameter more, model 4 did not represent any significant improvement. Moreover, in the estimates of the fixed effects parameters the estimated coefficient ($\hat{\gamma}_{11}$) was found not to be statistically significant. We can therefore conclude that the relationship between emotional wellbeing and children's exploratory behaviour does not depend on caregiver sensitivity.

Discussion

The aims of this study were to analyse the relationship between childcare quality in preschools and children's exploratory behaviour, and to study the influence of childcare quality on the relationship between emotional wellbeing and exploratory behaviour.

In relation to the first aim, the results indicate that emotional wellbeing is associated with a greater degree of exploration, and that children cared for by more sensitive caregivers tend to explore more than those whose caregivers are less sensitive.

Based on these results, we would like to highlight the importance of having sensitive practitioners working in schools, especially at the preschool level. As postulated by attachment theory (Bowlby, 1969) and empirically proven by diverse studies carried out in the family environment (Bernier et al., 2010; Simó & D'Ocon, 2011; Sroufe et al., 2005), the sustained sensitivity of carers, across both time and contexts, provides children with the secure base that is so vital to adequate social-emotional and cognitive development.

Schools cannot be an exception in this sense; quite the opposite in fact, they should be a key factor in this process (Sabol & Pianta, 2012; Spilt, Koomen, Thijs & van der Leij, 2012). Children start school at an increasingly early age and spend more and more time there (Montañés et al., 2012). It is therefore essential that they receive sensitive care that helps them transition successfully between the family and

school environments, and encourages them to engage in complex, ongoing relational experiences with other children, adults, spaces and materials, since in the long run this will increase the likelihood of adequate cognitive, linguistic and social-emotional development. We therefore believe that it is vital for good sensitivity skills to be developed during preschool practitioner training. In other words, preschool practitioners should be trained to perceive and correctly interpret children's signals, and to respond to those signals appropriately. This in turn entails being emotionally available (Ribes, Bisquerra, Agulló, Filella & Soldevila, 2005) and alert to children's needs.

It is also worth highlighting that diverse structural quality variables, such as ratio and group size, also influence children's exploratory behaviour, although to a lesser extent. Children from classrooms with a lower ratio engaged in more exploratory behaviour than those from classrooms with higher ratios. This result is consistent with those found in other studies which observed better child-teacher interaction (De Shipper et al., 2006) and better verbal (Burchinal et al., 2000) and social competence (Volling & Feagans, 1995) in classrooms with a lower child-caregiver ratio. Therefore, a greater degree of exploratory behaviour, so closely linked to children's cognitive development, can be achieved by reducing the child-caregiver ratio. As regards group size, in contrast to what we expected to find, children from larger groups tended to engage in more exploratory behaviour.

Furthermore, and again in contrast to what we expected, no statistically significant relationship was found between either children's exploratory behaviour and process quality measured using the ECERS-R, or exploratory behaviour and classroom size. As regards the ECERS-R, we believe this result may be linked to the quality assessment obtained. In accordance with the ECERS-R assessment criteria (Harms et al., 1998), the process quality scores obtained by the classrooms in our study were low and minimal, with no classroom obtaining good or high scores. We therefore believe that this result would have been different if classrooms with good and high quality scores had been included in our study. Nevertheless, it is important to note that it is not usual to find classrooms with such high scores in this assessment. In our study, the mean process quality score was fairly low ($M = 2.98$), and corresponds, according to the ECERS-R, to minimal quality conditions. Although this result is lower from a quantitative perspective, from a qualitative point of view it is similar to those obtained in other research studies

carried out in Spain (Cryer, Tietze, Burchinal, Leal & Palacios, 1999; Lera, 2007; Tietze, Cryer Bairoa, Palacios & Wetzel, 1996; Vermeer et al., 2010). It is, however, lower than those obtained in other European (Cryer et al., 1999; Sylva et al., 2006; Tietze et al., 1996) and North American studies (Cassidy, Hestenes, Hegde, Hestenes & Mims, 2005; Cryer et al., 1999; Mashburn et al., 2008; Peisner-Feiberg et al., 2001). Thus, bearing in mind the positive influence of good childcare quality during early childhood on later long-term development (Vandell et al., 2010) and the key role played by the school in children's development (Burchinal et al., 2000, López, 2009), we would like to highlight the importance of taking steps to improve global process quality in preschools.

In relation to the influence of childcare quality on the relationship between emotional wellbeing and children's exploratory behaviour, the interaction between emotional wellbeing and caregiver sensitivity was not found to be statistically significant. Consequently, based on the results of our study we cannot conclude that sensitivity has a moderating effect on the influence of emotional wellbeing on exploratory behaviour. It can therefore be deduced that caregiver sensitivity is not enough to palliate the negative effects of poor emotional wellbeing on exploratory behaviour.

Before concluding, we would like to outline some of the study's limitations. Firstly, the results obtained here would have greater external validity if they were replicated with larger sample groups. This is particularly important in studies requiring multilevel analysis.

Secondly, certain structural quality variables such as caregiver training and experience, satisfaction with working environment and salary, were not measured. High childcare quality has been related to specialist preschool training, low staff turnover and caregiver satisfaction with both their working environment and their salary (Huntsman, 2008; NICHD, 2000; Phillips, Mekos, Scarr, McCartney & Abbott-Shim, 2000). Future studies should therefore consider including these variables in their analyses.

It is also important to point out that the aims and hypotheses established would also benefit from a longitudinal design charting participants' progress throughout the whole preschool period.

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