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Quality of institutional care and early childhood development

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Abstract

Institutional rearing adversely affects children's development, but the extent to which specific characteristics of the institutional context and the quality of care provided contribute to problematic development remains unclear. In this study, 72 preschoolers institutionalised for at least 6 months were evaluated by their caregiver using the Child Behavior Checklist and the Disturbances of Attachment Interview. Distal and proximate indices of institutional caregiving quality were assessed using both staff reports and direct observation. Results revealed that greater caregiver sensitivity predicted reduced indiscriminate behaviour and secure-base distortions. A closer relationship with the caregiver predicted reduced inhibited attachment behaviour. Emotional and behavioural problems proved unrelated to caregiving quality. Results are discussed in terms of (non)-shared caregiving factors that influence institutionalised children's development.

Keywords

attachment disturbed behaviour, emotional and behavioural problems, institutional rearing

Institutional care remains a major intervention in many countries for children whose parents, for various reasons, cannot adequately care for them. Nevertheless, research consistently chronicles adverse effects of institutional rearing on children's development, particularly in the social–emotional domain (Bakermans-Kranenburg et al., 2011). Indeed, increased emotional/behavioural problems in general and disturbed attachment behaviour in particular are consistently reported among institutionally-reared children. Compared to home-reared children, post-institutionalised adoptees present more total, externalising and internalising behaviour problems, and are consistently overrepresented in mental health services (Juffer & van IJzendoorn, 2005; Zeanah & Gleason, 2010).

A critical and distinctive disturbance commonly associated with institutional rearing is disordered or atypical attachment behaviour (Zeanah & Smyke, 2008). Atypical attachment behaviours have long been reported among children who have experienced major disruptions in parental care or were placed in residential care in early life (e.g. Goldfarb, 1945; Provence & Lipton, 1962; Tizard & Rees, 1975). Empirical studies identified two distinct types of disturbed attachment behaviour that may arise in the context of institutional care: (1) a disinhibited or indiscriminate pattern, characterised by indiscriminate social approach and lack of wariness of strangers, and (2) an inhibited pattern, characterised by extreme social withdrawal and lack of emotional reciprocity (Oosterman & Schungel, 2008; Smyke, Dumitrescu, & Zeanah, 2002; Zeanah, Smyke, Koga, Carlson, & The Bucharest Early Intervention Project Core Group, 2005).

Despite its name, indiscriminate behaviour has nevertheless been described in children with a selective attachment relationship (Boris et al., 2004; Chisholm, 1998; Lyons-Ruth, Bureau, Riley, & Atlas-Corbett, 2009; O'Connor, Bredenkamp, Rutter, & the ERA Study Team, 1999; Zeanah, Smyke, & Dumitrescu, 2002). Indiscriminate behaviour also appears to be unrelated to the degree of development of attachment to the caregiver, in contrast to the inhibited pattern of behaviour (Zeanah et al., 2005). These empirical

observations resulted in the classification, in the new edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V; American Psychiatric Association, 2013), of inhibited attachment behaviour as Reactive Attachment Disorders (RAD), and indiscriminate behaviour as a separate entity called Disinhibited Social Engagement Disorder. Because the work reported herein is not based on any such formal diagnoses, these clinical labels are not used any further herein.

In addition to the indiscriminate and inhibited patterns of disturbed attachment behaviour, Zeanah, Boris, and Lieberman (2000) proposed the inclusion of relationship-specific psychopathology that is seen in children who have an attachment relationship with a discriminated caregiver, but a relationship that is seriously disturbed (Zeanah & Smyke, 2009). These scholars identified self-endangering, clinging, vigilant/hyper-compliant, and role-reversed behaviour, conceptualising them as secure-base distortions after Lieberman and Pawl (1988). Evidence that such disturbances in attachment are lawfully a result of disturbed relationship processes comes from research linking presence and severity of maternal violence-related post-traumatic stress disorder with preschool children's secure base distortions (Schechter & Willheim, 2009).

Beyond disturbances in attachment behaviour, children reared in institutions tend to show a wide range of emotional and behavioural problems, which vary in their breadth and severity (e.g. Merz &

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McCall, 2010). Examples of such behaviour problems are attention, externalising, internalising, social, and autistic-like symptoms, and they have been found to be particularly frequent among children who were adopted at an older age and, as a result, spent more time in the institution than did other institutionalised children (for a review, see Maclean, 2003).

Interestingly, behavioural and emotional problems though present at elevated rates in institutionally-reared children, appear to be relatively independent of disturbances of attachment (Zeanah et al., 2002). Indeed, studies that have examined the association between behaviour problems and attachment disorders have produced mixed findings (Chisholm, 1998; O'Connor, Rutter, & The ERA Study Team, 2000; Oosterman & Schungel, 2008; Tadano, 2002; Zeanah et al., 2002), with overall associations being modest and inconsistent. A recent study with currently institutionalised children and previously institutionalised children placed in foster care (Gleason et al., 2011)—from the Bucharest Early Intervention Project (BEIP)—discerned an association between rates of indiscriminate behaviour and increased externalising symptoms (activity/impulsivity, attention-deficit/hyperactivity, and in less degree with low inhibitory control), as well as between rates of inhibited behaviour and increased depressive symptoms. In spite of these associations, diagnoses of indiscriminate and inhibited RAD could be distinguished from diagnoses of attention-deficit/hyperactivity disorder and major depressive disorder, respectively. In order to better understand these inconsistencies and mixed findings in regards to attachment and behaviour problems, it will be important to evaluate the institutional environments to which children are exposed in more detail.

Given evidence that behaviour problems and disturbed attachment behaviour are relatively frequent but by no means inevitable sequelae of institutional rearing, understanding the mechanisms by which these behaviours arise, and the factors that modulate their occurrence, is critical. Most relevant research has focused on the dosage and timing of exposure to institutional care. Studies indicate, with some consistency, that more behaviour problems and higher rates of attachment-disordered symptoms are associated with a longer period of time in institutional care and later subsequent adoption (that is, after 6/18 months of age for the former and after 6/4 months of age for the latter symptoms; Hawk & McCall, 2010; O'Connor et al., 1999, 2000).

Despite such evidence, it remains difficult to draw firm conclusions about the influence of institutional rearing on disturbed attachment behaviour or on broader indices of adjustment (Gunnar, van Dulmen, & The International Adoption Project Team, 2007; Wiik et al., 2011; Zeanah et al., 2009). Moreover, it is currently unclear whether variation in the nature of the institutional experience affects the development of children there, over and above the effects of timing and dosage. Nevertheless, emerging evidence indicates that what matters more than the “social address” of institutionalisation is the actual developmental experience of children growing up in institutions, especially with regard to the quality of daily caregiving.

Some of the clearest evidence substantiating this claim with regard to these effects comes from Merz and McCall (2010) who studied 6–18-year-old Russian children adopted from institutions. Although the institutions in question provided adequate physical care and stimulation, including toys and activities, they were characterised by frequent changes in caregivers, low levels of caregiver–child social interaction, and insensitive, unresponsive care. Children

coming from these so-called psychosocially deprived settings were compared with age-mates from two post-institutionalised samples: 1) children adopted from institutions around the world representing varying levels of deprivation (Gunnar et al., 2007), and 2) those adopted from severely depriving Romanian institutions in the 1990s (Groza & Ryan, 2002). Results revealed that children adopted from Romanian globally-depriving institutions—which besides offering very poor resources, were characterised by much higher child-to-caregiver ratios than the institutions in the other two studies—had higher rates of all types of behaviour problems than those from the other two, less severely deprived post-institutionalised groups. These data are consistent with Juffer and van IJzendoorn's (2005) meta-analytic results indicating that adoptees who experienced more extreme deprivation in the institution had more behaviour problems than those who experienced less severe deprivation. Nevertheless, in Merz and McCall's (2010) study, even in the absence of severe physical deprivation, children from the psychosocially-depriving institutions were at a higher risk for attention and externalising problems relative to never-institutionalised children raised continuously in families. Relatedly, Smyke and colleagues (2007) reported that better observed caregiving quality was associated with less problem behaviour among currently institutionalised infants and toddlers from the BEIP.

There is also evidence that features of the institution's specific caregiving environment may play a role in the development of disturbed attachment behaviour. In particular, the absence of individualised and stable care from a particularly devoted caregiver—and thus the lack of caregiver emotional investment—are considered critical factors in the aetiology of disturbed attachment behaviour. One reason for this is that disturbed attachment behaviour appears quite common even in high-quality institutions in which only this kind of deprivation is found (e.g. Tizard & Rees, 1975). Notably, higher quality caregiving and reduced total number of caregivers assigned to individual children have been associated with lower rates of symptoms of disturbed attachment (Smyke et al., 2002; Zeanah et al., 2005). Similarly, more sensitive behaviour of the adoptive mother, rated with the Emotional Availability Scales during free play with the child, was associated with decreased indiscriminate behaviour in young children internationally adopted from institutions or foster care in China (Van Den Dries, Juffer, van IJzendoorn, Bakermans-Kranenburg, & Alinka, 2012; but see Dobrova-Krol, Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2010, who found the opposite result of a positive association between caregiving quality and rates of indiscriminate behaviour in institutionalised children). Finally, observed better quality of care (at 30 months) predicted lower rates of attachment-disordered behaviours and psychopathology (at 54 months) among institutionalised children from the BEIP, and this link was mediated by attachment security to the caregiver (at 42 months), particularly in the case of disinhibited RAD (McGoron et al., 2012).

Existing literature thus suggests that the micro-caregiving environment that each child experiences within an institution may play an important role in determining children's subsequent developmental outcomes. The fact remains, however, that only a few studies of institutionalised children have directly assessed the proximate process of caregiving quality and related it to child adjustment and attachment behaviour (Bakermans-Kranenburg et al., 2011). Accordingly, the current study examines the anticipated contribution of both distal institutional characteristics (i.e., structural and organisational aspects of the institution) and

Table 1. Child variables.

Measure	Mean (SD)	Range
Age at assessment (months)	53.39 (10.80)	36–75
Age at admission (months)	33.83 (16.43)	3–69
Time in institutional care (months)	19.06 (12.32)	6–49
Development quotient	96.19 (11.47)	70–129
Indiscriminate behaviour	1.10 (1.78)	0–6
Inhibited attachment	1.92 (1.80)	0–7
Secure-base distortions	.39 (.80)	0–4
Emotional/behaviour problems	34.46 (17.68)	8–85

Note. $N = 72$ (42 boys).

proximal, caregiving ones (i.e., relationship with the primary caregiver) to children's disturbed attachment behaviour and emotional/behavioural problems. It is hypothesised, not surprisingly, that higher quality of caregiving will be associated with reduced child problems. Beyond this most general prediction, we seek to determine whether the predictors of these two aspects of children's functioning are the same or different features of compromised caregiving.

Method

Participants

Participants in this study were 72 children (58.3% boys), aged 3–6 years, who had been placed in Portuguese institutions for at least 6 months (see Table 1 for descriptive statistics). These institutions are Temporary Care Centres that receive children abandoned or removed from their biological families by Social Services staff, due to reasons considered to endanger children's emotional and/or physical well-being such as abuse, neglect, or extreme economic hardship. Institutions were managed by different organisations, but all received financial support from and were regulated by the state. They differed greatly in terms of number of resident children ($M = 21.50$, range = 8–46) and children: caregiver ratio ($M = 6.39$, range = 3–11). Even though the Temporary Care Centres typically receive mostly young children, these institutions were housing children from birth to adolescence.

Criteria for exclusion of participants were the existence of moderate to severe mental or physical impairments, genetic syndromes or autism spectrum disorders. None of the children had entered elementary school at the time this research was conducted.

This sample was obtained from 16 institutions, with a minimum of one and a maximum of 10 children coming from any one institution. Five children had been previously institutionalised, and one had previously been placed in foster care, but they were all living with their biological families prior to admission to these institutions. Five children were African-Portuguese, two were African-other, one was Romani and the remaining Caucasian. There were nine pairs of siblings and two pairs of twins in this sample.

Also, 51 institutional caregivers, all female, participated in this research; 13 of them were assigned to more than one child. Caregivers were 37.56 years old on average ($SD = 10.71$ years), and had 8.08 years of professional caregiving experience on average ($SD = 6.82$ years). Of all the caregivers, 26 had not received any specific caregiver training, and only 22 had fixed, as opposed to rotating, shifts.

Procedure

This research was approved by the University of Reading Ethics Committee, by the University College London Ethics Committee, and by the Portuguese National Commission for Data Protection. The recruitment process started by establishing a contact with Portuguese Social Services, which are responsible for managing the institutions and are the legal guardian of children while they remain there. Approval was obtained from the Social Services and the director of each of the Temporary Care Centres in the North of Portugal that participated in the research project. After identifying the children that could participate, their legal guardian provided consent for their participation. One child did not participate because she refused to do so, and four children did not participate due to parental refusal. One child was excluded from the study because she met the cut-off score on the Autism screening based on the Social Communication Questionnaire (Rutter, Bailey, & Lord, 2003) and was below 70 on the developmental quotient.

The primary institutional caregiver of each participating child was identified based on staff interviews, and their consents were also obtained. Specifically, caregivers were selected by asking the staff who was the key staff member who the child showed preference for and/or who knew the child best.

Demographic information about the children was gathered from their files in the institution and through staff interviews. A trained examiner assessed children's mental development and queried caregivers about children's attachment behaviour. Caregivers completed questionnaires to provide information on the child's behavioural problems and characteristics of their job. The director of each centre provided information on characteristics of their institution.

Measures

Child measures

Attachment-disturbed behaviour. The Disturbances of Attachment Interview (DAI; Smyke & Zeanah, 1999) is a semi-structured interview addressing 12 items designed to evaluate the presence of signs of disordered attachment. For each item, the interviewer asks multiple questions and follow-up probes sufficient to yield a rating reflecting degree of evidence of disturbed or disordered attachment: 0 = none/never, 1 = somewhat/sometimes, and 2 = considerable/frequently. The first five items of the interview are used to assess signs of emotionally withdrawn/inhibited attachment disturbance, yielding total scores ranging from 0 to 10. These issues address how well the child differentiates among adults and demonstrates a clear preference for a particular caregiver, how much a child seeks comfort from a preferred caregiver, how much a child responds to comforting when it is offered, whether the child responds reciprocally in interactions, and how well the child regulates emotions.

The next three items address signs of indiscriminate behaviour, with total scores ranging from 0 to 6. These issues concern whether the child checks back with the caregiver in unfamiliar settings or tends to wander off without purpose, whether the child shows initial reticence around strangers or readily approaches unfamiliar individuals, and whether the child would readily go off with an unfamiliar adult.

The last four items address signs of secure-base distortions, yielding total scores ranging from 0 to 8, namely self-endangerment,

clinging/inhibited exploration, vigilance/hyper-compliance, and role-reversal behaviour.

A subset of the interviews ($n = 18$) was coded during the training phase, by the group of raters, and the remaining ($n = 54$) were coded by two coders; discrepancies were resolved by conferencing, leading to a consensus for each item. Inter-rater agreement for the interviews coded in pairs was very good for inhibited behaviour ($r_i = .93$), indiscriminate behaviour ($r_i = .97$), and secure-base distortions ($r_i = .77$) ratings. Ordinal alpha values were calculated using the R (version 3.1.1) software package and were as follows: .64 for inhibited items, .92 for indiscriminate items, and .42 for secure-base distortions items. Evidence of the validity of this measurement system comes from work showing that it distinguishes between institutionalised and non-institutionalised children in Romania (Smyke et al., 2002; Zeanah et al., 2002) and reliably identifies signs of attachment disturbance in maltreated children (Zeanah et al., 2004).

Behavioural and emotional problems. The Portuguese – 1^{1/2}-5 version of the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000; Gonçalves, Dias, & Machado, 2007) was used to measure children's behavioural and emotional problems in the past 2 months, from the caregiver's perspective. For each of the 100 items that describe behavioural/emotional problems, the caregiver rates the child's behaviour on a 3-point scale: 0 = not true, 1 = sometimes/somewhat true, or 2 = very/frequently true. Because CBCL internalising and externalising scores greatly overlapped with the scale total score ($r = .89$ and $r = .88$, respectively), only CBCL total score was used (Cronbach's $\alpha = .93$).

Mental development. Griffith's Mental Development Scales (1984) assesses various areas of development by means of six subscales, and can be administered to children up to 8 years of age. A total score reflects general developmental level and separate subscales pertain to quotients for each area of development: locomotor (gross motor skills), personal-social (proficiency in the activities of daily living, level of independence and interaction with peers), language (both receptive and expressive), eye-and-hand co-ordination (fine motor skills and visual monitoring skills), performance (visuospatial skills including speed of working and precision), and practical reasoning (ability to solve practical problems, understanding of basic mathematical concepts and understanding of moral issues). A global quotient was calculated averaging the various sub-quotients (Cronbach's $\alpha = .79$).

Measures of the institutional care

Institutional placement. The date of birth and date of admission to the institution were obtained from the child's case file, affording calculation of the child's age at admission and the length of time in the institution.

Stability and individuality of care offered by the institution. A structured interview with the director of each institution enabled measurement of staffing variables that were used to create a composite measure of stable-individualised care experienced by the child by standardising (to z scores) and then summing specific variables reflecting number of caregivers that constitute the pool of caregivers available to take care of children; percentage of caregivers with rotating shifts; and average children-to-caregiver ratio.

Stability and individuality of care offered by the caregiver. Each caregiver participating in the study completed a questionnaire about

her employment. This addressed whether the caregiver had rotating versus fixed shifts (i.e., if she worked at the same time every day); whether she had time to spend individually with children; and the number of children she had responsibility for, on average, in one day (dichotomised in <10 vs. ≥ 10). The 3 items were summed to form a composite, with a higher score reflecting better quality of care.

Measures of the caregiver-child relationship

Classification of caregiver-child relationship. After identifying the key caregiver who would participate in the study with each child (as described under Procedure), each caregiver was classified in terms of whether she was the Assigned Caregiver, the Caregiver of Reference, or the Preferred Caregiver for a particular child. This classification was based on staff inquiry, with the help of a questionnaire that guided the respondent through a series of criteria that led to the classification. Afterwards, the classification by the staff was validated against the researcher's naturalistic observations of the dyad. The caregiver was considered as (a) a Preferred Caregiver if the child preferentially sought proximity to her, in most situations when distressed; if her absence caused the child to exhibit separation anxiety; if the child displayed more positive responses towards her and more acknowledgement of the reunions with her; and if the child preferentially approached her for comfort, in comparison with other caregivers. If (b) the child demonstrated some preference for the caregiver in comparison with others, but not enough to meet the preferred caregiver criteria, and/or the caregiver was the person who was more responsible for/more frequently looked after the child, she was considered as the Caregiver of Reference. If (c) the caregiver could not be distinguished from other caregivers, in other words, if the child did not exhibit any preference for any caregiver in the institution, that caregiver was considered as the Assigned Caregiver. The researcher's validation was in agreement with the staff classification for 43 dyads. Most frequent disagreements consisted in researchers not validating the staff classification of preferred caregivers (i.e., of the 36 dyads that the staff considered to meet criteria for Preferred Caregiver, 20 moved to the classification of Caregiver of Reference with the researchers' validation). The researcher's judgement ultimately determined the classification of the caregiver-child relationship, where there was a discrepancy.

Caregiver's sensitivity towards the child. To assess the caregiver's interactive behaviour with the child we used a 15-min videotaped task, divided in three episodes: play with a challenging toy; monitoring the child while completing a sham questionnaire, with the child only having an uninteresting toy to play but remains near more interesting toys s/he is instructed not to play with; and free play followed by clean up. Coding of these recorded sessions was carried out using Ainsworth's Maternal Sensitivity Scales (1969) adapted to the preschool years. The sensitivity vs. insensitivity scale was rated in all cases by two independent coders ($r_i = .95$) who did not know the dyad and were not aware of other data included in this inquiry; disagreements were discussed to obtain a consensus.

Data analysis

First, correlation analyses were run to test the association between children's attachment-disturbed behaviour and their emotional/behavioural problems. Then, two regression analyses were conducted for each of the four outcomes (i.e., scores on the three DAI

Table 2. Caregiver and institution variables.

	Mean (SD)	Range
Stability and individuality of care: caregiver (sum of dichotomised items) <i>N</i> = 51	1.16 (.77)	0.00–3.00
Caregiver's sensitivity <i>N</i> = 72	5.14 (1.95)	1.00–9.00
Stability and individuality of care: institution (sum of z scores of items) <i>N</i> = 16	.37 (1.76)	–2.64–2.39

	Frequencies		
	Assigned caregiver	Caregiver of reference	Preferred caregiver
Classification of caregiver-child relationship <i>N</i> = 72	16 (22.2%)	38 (52.8%)	18 (25.0%)

Table 3. Correlations between all variables.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Child age												
2. Child gender	.28*											
3. Child developmental quotient	–.01	–.16										
4. Child age at admission	.67***	.22	.00									
5. Child institutionalisation length	–.01	–.05	–.00	–.75***								
6. Stability and individuality of care: Institution	.28*	.10	.11	.20	.02							
7. Stability and individuality of care: Caregiver	.25*	.26*	.07	.16	.02	.24*						
8. Classification of caregiver-child relationship	–.08	–.21	.01	–.07	.02	.09	.27*					
9. Caregiver sensitivity	.05	–.17	.20	.14	–.14	–.06	.18	.26*				
10. Indiscriminate behaviour	.07	.06	–.21	.06	–.02	.09	–.06	.04	–.33**			
11. Inhibited attachment	–.06	–.07	–.25*	–.07	.03	–.20	.02	–.29*	–.26*	–.02		
12. Secure-base distortions	–.01	.02	–.12	–.12	.15	.10	–.01	–.12	–.34**	–.01	.40**	
13. Emotional/behaviour problems	–.16	–.10	–.08	–.21	.13	.03	.07	–.13	–.20	.19	.52***	.31**

Note. *N* = 72. All values are Pearson coefficients (2-tailed). * $p < .05$; ** $p < .01$; *** $p < .001$.

scales and on the CBCL total score), with distal predictors (i.e., duration of institutionalisation, stability and individuality of care offered by the institution) distinguished from more proximal predictors (i.e., stability and individuality of care offered by the caregiver, classification of caregiver-child relationship, caregiver sensitivity). These regression analyses were conducted to determine which features of the institutional experience proved strongest in predicting each dependent variable. To take into account the fact that the data were not independent in some regards—more importantly, some children came from the same institutions and some were observed with and rated by the same caregivers—multivariate analyses were run using robust variance estimates taking into account clustering, with Institution and Caregiver as clustering variables, using the Complex Samples function on SPSS (version 22.0). For the three attachment outcomes, because the DAI scores distributions were very skewed, Ordinal Regressions were chosen, while a Linear Regression was selected for the CBCL total scale.

Results

Descriptive statistics and bivariate associations

Attachment-disturbed behaviour and emotional/behavioural problems were frequent in this sample: 21 children met the cut-off criteria for inhibited (29%), 14 for indiscriminate (19%) and four for secure-base (6%) disturbed attachment behaviour; and 13 for emotional/behaviour total problems (18%). See Table 1 for

descriptive statistics of child variables and Table 2 for descriptive statistics of caregiver and institutional variables.

Correlations between the primary study variables are presented in Table 3. Inhibited attachment behaviour was positively correlated with secure-base distortions. Inhibited attachment behaviour and secure-base distortions were positively correlated with emotional/behaviour problems.

Further inspection of Table 3 reveals that an earlier age at admission was related to longer exposure to institutional rearing; that males were older than females and that they experienced more stability and individuality of care than females. Greater stability and individuality of care were also experienced more often by older (and older at admission) children than younger ones.

Moving to relations among predictors, greater stability and individuality of care of the caregiver was related to greater stability and individuality of care of the institution. A more selective caregiver-child relationship (as assessed by the classification of their relationship) was related to greater caregiver sensitivity and with greater stability and individuality of care provided by the caregiver.

Finally, regarding the predictor-outcome associations, greater caregiver sensitivity proved related to fewer disturbances in attachment behaviour reflecting indiscriminate, inhibited, and secure-base distortions. Moreover, a more selective caregiver-child relationship was related to less inhibited attachment behaviour. Higher inhibited attachment behaviour was also related to a lower developmental quotient. Child's age at admission and institutionalisation length, and the composites indexing stability and individuality of care offered by the institution and by the individual caregiver, were not related to any of the outcomes.

Table 4. Predictors of child attachment-disordered behaviours and emotional/behaviour problems.

	Indiscriminate behaviour			Inhibited attachment			Secure-base distortions			Emotional/behaviour problems		
	Wald F	β	SE	Wald F	β	SE	Wald F	β	SE	Wald F	β	SE
Child's developmental quotient ¹	–	–	–	3.16 [†]	–.03	.02	–	–	–	–	–	–
Child's institutionalisation length	.01	–.01	.02	.25	.01	.02	1.82	.02	.02	1.59	.19	.15
Stability and individuality of care: Institution	–.80	.11	.12	–1.89	–.17	.12	–.88	.15	.16	–.04	.33	1.64
Child's developmental quotient ¹	–	–	–	2.99 [†]	–.03	.02	–	–	–	–	–	–
Stability and individuality of care: Caregiver	.01	.02	.32	1.38	.27	.23	.08	.12	.42	1.21	3.30	3.00
Classification caregiver–child relationship	.04	.08	.37	4.02*	–.71	.35	.04	–.10	.54	1.57	–3.65	2.92
Caregiver sensitivity	6.77*	–.33	.13	1.03	–.13	.13	6.39*	–.40	.16	1.83	–1.66	1.23

Note. $N = 72$. Prediction models were ordinal regressions for indiscriminate behaviour, inhibited attachment and secure-base distortions, and linear regression for emotional/behaviour problems. All regression analyses included institution and caregiver as clustering variables.

[†]Values when other variables are entered (on the second block). [†] $p < .1$; * $p < .05$.

Predicting attachment-disturbed behaviour and emotional/behavioural problems

Because child's age and gender were not associated with any of the outcomes in the bivariate analyses, they were not included in the prediction models. Given that age at admission and length of institutionalisation were highly correlated, only the latter was entered in the models. Finally, because inhibited attachment scores were significantly correlated with the child's developmental quotient, the prediction models for this outcome controlled for the latter variable.

Regression parameters for the prediction of attachment-disturbed behaviour are presented in Table 4. Inspection of the table reveals that distal predictors failed to contribute significantly to the prediction of disturbed attachment behaviour. In contrast, lower caregiver sensitivity significantly predicted more indiscriminate behaviour. Additionally, having a less selective caregiver–child relationship (as assessed by the preferred caregiver, caregiver of reference or assigned caregiver classification) predicted more inhibited attachment behaviour. Less sensitive caregiving also predicted more secure-base distortions. Finally, experience in care at both distal and proximal levels failed to predict total emotional/behavioural problems (see Table 4).

Discussion

The current study was designed to assess children's individual experiences in institutional care, by assessing the quality of caregiving in detail, at several levels; with this information in hand, we further sought to identify caregiving conditions related to individual differences in the manifestation of disturbed attachment behaviour and emotional/behavioural problems.

Before proceeding to discuss the primary findings, it is important to note that we detected relatively high levels of disturbed attachment behaviour relative to that typically found in community samples; and this was the case even though children in this sample lived in relatively high-quality institutions that offered good physical and medical care, along with plenty of activities and equipment. A significant proportion of children (48.6%, $n = 35$) in the current inquiry had at least one definite symptom of an attachment disturbance, which is high when compared with what has been observed among children in foster care and post-institutionalised adoptees (Oosterman & Schungel, 2008; Rutter et al., 2007). Relative to previous studies with

currently institutionalised children, we found similar mean scores for inhibited but lower scores for indiscriminate behaviour in our sample (Smyke et al., 2002; Zeanah et al., 2005). It is important to note, however, that abuse and neglect are the main reasons for the institutionalisation of children in Portugal, while in East European countries like Romania and Russia, where the participants from the majority of studies of institutional care have come from, children are more likely to have been abandoned and institutionalised at, or soon after, birth. Another important difference between the current sample and the Romanian samples is the age at admission to institutional care, which was later, on average, in the former. This may have implications for the levels of indiscriminate behaviour observed in this inquiry, which were lower than those for inhibited behaviour, unlike other samples. This may itself have been the result of the fact that most children were living with their families until after the age of 2 years, before being institutionalised.

Contrary to our expectation, relatively low levels of emotional/behavioural problems were documented. Indeed, levels of psychopathology in the current sample were lower than what has been reported in other studies of institutionalised children (Zeanah et al., 2009), but similar to what has been detected in a foster care sample (Oosterman & Schungel, 2008). When compared to mean scores obtained in a large study of the Portuguese population, the current sample had slightly higher CBCL scores than the normative sample, but lower ones than a clinical sample (Dias, Machado, Silva, & Goncalves, 2009). A possible explanation for these surprisingly low levels of emotional/behavioural problems in the current study is the dismissive attitude that caregivers frequently conveyed about the developmental problems of the children in their care, using low standards as a reference for their ratings. In addition, it is likely that the lack of knowledge that caregivers have about children is more evident in the CBCL than the DAI scores, because the former instrument does not afford elaboration of meaning as does a clinical interview like the DAI.

As expected, inhibited attachment behaviour and secure-base distortions proved to be positively correlated with total emotional/behavioural problems. But caution is needed when interpreting the association between DAI and CBCL ratings given that both measures were based on the same caregiver's report. Nevertheless, these results are in agreement with what Oosterman and Schuengel (2008) found in their sample of foster-cared children, using the same measures as the present work (the DAI and the CBCL), that children scoring higher on internalising and externalising problems

also displayed more evidence of attachment disturbance. Of note, however, is that this work did not distinguish types of disturbed attachment, thus making direct comparison difficult. Positive associations between disturbed attachment behaviour (assessed with different methodologies) and behaviour problems (measured using the CBCL) have also been reported among institutionalised (Tadano, 2002) and post-institutionalised children (Chisholm, 1998). Finally, previous work by our team has found moderate to strong positive associations linking DAI-inhibited scores and scores on all three CBCL scales in Portuguese institutionalised infants, but no relation between DAI-indiscriminate and CBCL scales (Oliveira et al., 2011).

Our primary hypothesis that disturbed attachment behaviour and emotional/behavioural problems would be explained by characteristics of the quality of caregiving in the institution, was supported partially. Recall that whereas children's disturbed attachment behaviour could be explained by, or was at least associated with, characteristics of caregiving received, none of the caregiving characteristics that were assessed explained variation in children's emotional/behavioural problems. These findings add to growing evidence of a more clear association between institutional rearing and attachment disturbances than with emotional/behaviour problems (Rutter, Kreppner, & O'Connor, 2001). Perhaps this should not be surprising given evidence indicating that contextual and biological risks experienced *before* children's admission to the institution are likely to be related to their emotional/behavioural symptoms (e.g. Vorria, Rutter, Pickles, Wolkind, & Hobsbaum, 1998). This is a particularly important consideration in the current study because admission to the institutions occurred, as already mentioned, at older ages than in most other published studies of institutionalised children. It is also plausible that taking children's attachment strategies into account, which was not possible in the current study, contribute to elucidate the relation between caregiving quality and psychopathology in children exposed to institutional care (McGoron et al., 2012).

We failed to predict children's attachment and emotional/behavioural problems using measurements of structural characteristics of institutional care; this was despite the fact that most children in the current study were, as were children in other institutionalised samples, exposed to multiple rotating caregivers and lack of individualised care. We should note that these measurements, based on the directors' and the caregivers' reports, are likely to be accurate, given that they pertain to concrete information. They might, on the other hand, offer limited insight into the actual stability and individuality of care experienced by these children. In fact, we should take into account that children in this sample were placed in many different institutions, where exposure to caregiver turnover and lack of individualised care could have varied substantially, and it was not possible to test the effect of purposely reducing the number of assigned caregivers (in comparison to a typical institution), as in Smyke and colleagues' (2002) study.

Nevertheless, the more proximal measure of the caregiving context, namely the caregiver's sensitivity and the classification of the caregiver-child relationship, predicted disturbed attachment behaviour. Recall that children who had more insensitive caregivers were rated as more indiscriminate. This result is in line with the hypothesis that this disturbed behaviour emerges as an *adaptive response* in institutional settings, reflecting an attempt to engage detached or overloaded caregivers (Smyke et al., 2002). It should be noted, despite the seeming soundness of this claim, that insensitive caregiving was not related to indiscriminate behaviour among

institutionalised children in Zeanah and colleagues' (2005) study. Furthermore, higher sensitivity of care was actually associated with more indiscriminate behaviour in Dobrova-Krol and colleagues' study (2010). However, more sensitive behaviour of the adoptive mother, assessed with similar methodology to the present study, was associated with lower indiscriminate behaviour in post-institutionalised and previously foster-cared adoptees (Van Den Dries et al., 2012). The reasons for these inconsistencies are unclear, and warrant further investigation.

In the present study, a closer and more discriminating relationship with the caregiver, as assessed by the classification of the relationship between caregiver and child, predicted less inhibited attachment behaviour. This result is in line with previous findings showing that inhibited attachment behaviour was related to the degree of development of attachment to the caregiver (Zeanah et al., 2005). It is also consistent with the literature on post-institutionalised adoptees or children placed in foster care suggesting that inhibited attachment-disturbed behaviour diminishes or disappears once the child is placed in a more normative caregiving environment (Smyke et al., 2002; Zeanah & Gleason, 2010). The staff's classification of the caregiver-child relationship in the present study was validated using the researchers' observations of the dyad—both at the institution and during two laboratory visits that were part of the larger research project; this approach contrasts somewhat with previous studies that have relied solely on staff report. Thus, the substantial number of disagreements between staff and researcher classifications of "preferred caregiver" in this sample has potential implications for existing work that relies on staff reports alone. If we recognise that caregivers may be biased and researchers have limited windows of observation, it seems reasonable to assume that availability and utilisation of multiple sources of information yields more accurate measurement.

Interestingly—given the scarcity of data on this type of attachment-disturbance—behaviours indicating secure-base distortions were predicted by lower caregiver sensitivity. One should be cautious in interpreting—or even breathing meaning into—this result, given the very low levels of this type of behaviour detected in the present inquiry; after all, only four children scored above the cut-off point and thus qualified as showing clear signs of secure-base distortions. It is nonetheless not surprising that the behaviour in question might be rare in currently institutionalised children, because the presence of secure-base distortions implies that a discriminated attachment relationship exists, which is true only for a subset of children in this sample. Oosterman and Schuengel (2008) obtained the opposite finding, with greater foster parent sensitivity being related to the *presence* of secure-base distortions. These investigators suggested that perhaps the behaviours of foster children with secure base distortions (e.g. clinging behaviour) elicit more attention and therefore more sensitive caregiving behaviour from their foster parents. However, children with secure-base distortions in their sample were less securely attached than were children without these distortions. This inconsistency in findings related to behaviours indicating secure-base distortions reinforces the need to further evaluate validity of this attachment construct and explore the role of the quality of caregiving, in different samples.

Finally, it is important to reiterate that seemingly inconsistent or divergent findings from other studies may be explained by sample characteristics, in that some studies (as ours) investigate children who are currently in institutional care, while others assess previously institutionalised children (who have been adopted),

and yet others assess children with varying (or none) experience in institutional care, living with foster families. This can have implications for the function and aetiology of similar (attachment-related) deviant behaviours, which may have different meanings in different samples.

Limitations

There are several limitations that need to be considered when interpreted these findings. First, the primary caregiver provided information about both the child's attachment-disturbed behaviour and emotional/behaviour problems, making it impossible to rule out informant bias. Also, it was common that caregivers did not always know the children very well (even though they were supposedly the one who knew the child best), imposing constraints on the interpretation of results with these two measures. Given the suspicion that behaviour problems may be underreported by caregivers, and due to the fact that a problem-behaviour checklist such as the CBCL does not afford elaboration of caregiver views in the way that a psychiatric interview does, which could explain the failure to replicate McGoron et al.'s (2012) finding that caregiving quality predicted psychopathology symptoms, future studies would likely benefit from the inclusion of diagnostic interviews with caregivers and/or observational measures of emotional and behavioural problems.

It was also not possible to test the existence of critical periods in this sample, because all children were in the institution for at least 6 months, and only two children entered the institution before 6 months of age. In addition, the cross sectional nature of the study limits interpretations of associations.

As these 72 children were placed in different institutions that vary in several ways, they were exposed to different contextual characteristics that are complex to define and measure. Future research should include observational methods that rely in extensive and systematic information, and invest in the assessment of dynamic and interactive characteristics of institutional care.

Finally, comparisons with existing literature on the effects of institutional care must be done with caution in view of the fact that most relevant studies have focused on children placed in East European institutions at a very early age and for reasons that differ from those leading to placement of Portuguese children in institutions, typically at older ages.

Clinical implications

These findings show that sensitive caregiving may, even in the unfavourable environment of an institution, make a difference in reducing children's attachment-disturbed behaviour. Whether less problematic attachment behaviour elicited more sensitive caregiving or sensitive caregivers promoted children's attachment behaviour remains unclear, but the literature supports the possibility that the latter is reasonable. We would highlight McCall and colleagues' (The St. Petersburg-USA Orphanage Research Team, 2008) intervention study aimed at improving the quality of caregiving in institutions in Russia. This team provided training to promote more sensitive and responsive caregiving, and structural changes to support positive relationships between caregivers and children, mostly by reducing the number of caregivers per child. In those institutions receiving both training and these structural changes, children displayed more positive emotions, more

proximity-seeking and contact maintaining attachment behaviour, and less avoidant attachment behaviour with their caregivers. These data then accord well with those cited earlier by McGoron et al.'s (2012) which also highlighted the importance of the caregiving environment and the quality of the relationship with the caregiver when it comes to understanding variation in the development of institutionalised children. These findings support the potential value of promoting the quality of caregiving that institutionalised children receive in order to promote healthier attachment behaviour and to reduce emotional/behavioural problems.

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