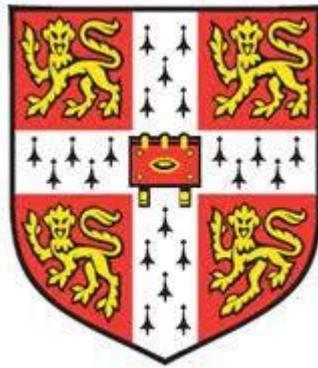


**A COMPARISON OF PSYCHOLOGICAL ADJUSTMENT AND
COGNITIVE FUNCTIONING BETWEEN ADOPTED AND
INSTITUTION-REARED CHILDREN IN CHILE**



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PREFACE

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text. It is not substantially the same as any that I have submitted, or, is being concurrently submitted for a degree of diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. I further state that no substantial part of my dissertation has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. This dissertation does not exceed 60,000 words.

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ABSTRACT

Many studies have shown that adopted children show higher levels of psychological adjustment than children living in institutions. However, there is little research comparing the behaviour and cognitive abilities of adopted and institution-reared children in Latin America, despite the large number of children living in institutional care. The aim of this thesis was to examine differences in the socio-emotional and cognitive functioning of adopted and institution-reared children in Chile, and to identify factors associated with the psychological adjustment and cognitive ability of adopted children.

Data were obtained from 52 adopted children and their parents, and a comparison group of 50 children living in institutions. All adoptions were national and the children were aged between 4-9 years. Children's psychological problems and attachment difficulties were assessed using the Strengths and Difficulties Questionnaire and the Relationship Problems Questionnaire, respectively, completed by adoptive parents or caregivers and teachers. Cognitive functioning was assessed using the Wechsler Intelligence Scale for Children-Third Edition (WISC-III). The Structured Child Assessment of Relationships in Families was used to assess children's perceptions of family relationships. Adoptive mothers and fathers were individually administered a standardised interview designed to assess parenting quality and questionnaire assessments of anxiety, depression, marital quality and parenting stress. Observational assessments of mother-child interaction were also carried out.

Adopted children showed significantly higher levels of socio-emotional and cognitive functioning than institution-reared children, with the majority of adopted children scoring within the normal range and the majority of institutionalised children showed clinical levels of emotional and behavioural problems. The mean IQ score of adopted children was 23 points higher than that of the institutionalised group. Factors associated with more positive outcomes among the adopted children were a younger age at adoption and lower levels of maternal and paternal stress.

Although a selection effect cannot be ruled out, with higher functioning children more likely to be adopted, the results point to a beneficial effect of adoption on the psychological development and wellbeing of institutionalised children in Chile.

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1. INTRODUCTION AND LITERATURE REVIEW

This thesis has two aims. The first aim is to investigate and compare the psychological adjustment and cognitive functioning of adopted children raised in Chilean families and children living in Chilean institutions. The second aim is to investigate the quality of parent-child relationships in adoptive families and to identify possible factors associated with the adjustment and cognitive functioning of adopted children.

This chapter begins with an introduction to children's psychological development, focusing on social, emotional and cognitive development during early and middle childhood and the impact of early deprivation on psychological development (section 1.1). Research exploring parent-child relationships and parental functioning is then presented (section 1.2), followed by research on adoption, factors associated with parenting adopted children, and the psychological consequences for children of being raised in adoptive families (section 1.3). The subsequent section (1.4) examines theoretical approaches and research relating to the psychological development of institution-reared children. This is followed by a description of the child protection system in Chile (section 1.5). The final section summarises the aims and rationale of this thesis (section 1.6).

1.1 INTRODUCTION TO CHILDREN'S PSYCHOLOGICAL DEVELOPMENT.

1.1.1 Psychological development in early and middle childhood.

Childhood is a period of significant developmental change, particularly with respect to psychological functioning. During this time, emotional, social and cognitive growth and transformation are remarkable and complex. As Sroufe (2005, p.352) put it “development is best characterized as changes in behavioural organization, not simply the addition of behaviours”. Stiles, Brown, Haist, and Jernigan (2015) argued that development is a multilevel process that continuously unfolds, beginning simply and becoming more complex over time. Moreover, development is integrated (Sroufe, 1996) and multifaceted (Rutter, 1975/1984). Thus, Rutter (1975/1984) stated that it would be misleading to label any period according to just one activity, and Sroufe (1996) argued that the individual functions as a totality; therefore, emotional development must be studied in concert with social and cognitive development.

Cognitive development describes changes in various mental rules and representations (Pennington, 2015) and becomes more elaborated and flexible throughout childhood. Research has shown that the processes that allow children to regulate and control their perceptual processes, thoughts, and actions in the context of goal-directed behaviour exhibit dramatic development during childhood (Stiles et al., 2015). Various cognitive constructs are involved in cognitive development. In the following paragraphs, some of these are briefly described.

Childhood typically involves the gradual acquisition of language. Through repeated exposures, infants may learn to associate an object with a particular sound or word for that object. Thus, research on language development has shown that growth in children's vocabulary is dependent on specific conversational input (MacWhinney, 2015). As Purves et al. (2001) pointed out, “humans require extensive postnatal experience to produce and decode speech sounds that are the basis of language.” Furthermore, they suggested that for this linguistic experience, to be effective, it must occur in early life. During middle childhood, the skills of reading and spelling are developed (Snowling, 2002), and children typically show an increased ability to consciously control their thoughts and actions, a complex cognitive construct conceptualised as executive function (Dodd & Crosbie, 2002). Studies of executive function have shown that the preschool years are characterised by dramatic improvements in inhibitory

control and the school-age years are marked by improved cognitive flexibility (Hughes, 2011). Another important finding is that multiple aspects of social interaction, such as maternal scaffolding, can be influential in children's executive function (Hughes & Ensor, 2009).

There are several theories for describing the mechanisms responsible for cognitive change. However, regardless of theoretical orientation, almost all have acknowledged the role of nurture in development (Lutz & Sternberg, 1999), including emotional development (Lamb & Bornstein, 2011).

Children's development is inextricably tied to their care. Children show a long period of immaturity and therefore remain dependant on caregivers for a number of years (Dozier & Rutter, 2016). It is both normative and functional for them to seek physical closeness and contact during this time (Sroufe, 2005). However, emotional dependency undergoes dramatic developmental change throughout childhood (Sroufe, 2005). During infancy, emotional dependency is a natural, universal state. Later, in the early school years, children do not need as much physical reassurance (Sroufe, 1979, 2005).

The organisation of emotional life in the early years is associated with the child's psychobiological maturation; self-understanding and understanding of others; capacity to appraise people and environments; social interaction; self-control; and awareness of social rules and social conventions. Thus, emotions can contribute to or undermine the growth of new skills and competencies in young children (Shonkoff & Phillips, 2000). In early childhood, there are marked increases in the ability to regulate behaviour (Gunnar, Doom, & Esposito, 2015). At the time of school entry, the child is expected to modulate emotional expression, to show rich fantasy play and empathy, and to establish relationships with peers (Sroufe, 1996). It has been claimed that emotion regulation, which is generally viewed as a suite of cognitive operations that adjust emotional responses (Lewis, Todd, & Xu, 2010), is the most challenging aspect of emotional development (Shonkoff & Phillips, 2000). The development of emotion regulation is affected by the architecture of the brain, in response to personal experiences and environment (National Scientific Council on the Developing Child, 2004a). Therefore, adults are important regulators of children's emotional states as they develop this competency (Labouvie-Vief, Grünh, & Studer, 2010).

By middle childhood, social and cognitive transformations contribute to more complex and sophisticated self-evaluations (Thompson, Winer, & Goodvin, 2011). At the same time, children become more reflective and strategic about their emotional lives (Thompson et al., 2011), and show marked improvements in understanding their own and others' feelings (Labouvie-Vief et al., 2010; Lamb & Bornstein, 2011). This enhances their vicarious sensitivity to the emotions of others (Lamb & Bornstein, 2011). According to Carpendale and Lewis, (2015), the ability to understand others is an essential aspect of being human. In children, psychological understanding both transforms, and is transformed by, social relationships (Hughes, 2011). As Hughes et al. (2005, p.356) put it: "children's abilities to understand others are dramatically transformed when they become aware that human actions are governed by mental states such as beliefs, desires, and intentions".

Since social relations influence social and cognitive development, factors such parenting and the parent-child relationship are crucial in children's self-regulation (Deater-Deckard & Petrill, 2004) and social understanding (Carpendale & Lewis, 2015). Parenting and the parent-child relationship are described later in this chapter.

1.1.2 Impact of early deprivation on psychological development.

Early life events can significantly affect a child's development. Childhood is a time of both great opportunity and considerable risk, and its influence can extend over a lifetime (Shonkoff, 2010). As highlighted by Meisels and Shonkoff (2000), not all children are raised by parents who can comfort and nurture them appropriately. When children are reared in neglectful conditions or experience social deprivation in their first years of life, there are significant consequences for their cognitive and socioemotional development (Zeanah et al., 2003).

Neglect, or extreme deprivation, is defined as a lack of sufficient attention, responsiveness, and protection, as appropriate for a child's age and needs (National Scientific Council on the Developing Child, 2012). Strong, frequent, or prolonged activation of the body's stress response system without the buffering protection of a supportive, adult relationship, can lead to toxic stress (Shonkoff et al., 2012). The biology of early childhood adversity has revealed the important role of toxic stress in disrupting brain development and adversely affecting the concurrent development of other organ systems and regulatory functions (Shonkoff et al.,

2012). Indeed, individuals who experience severe stress early in life are at heightened risk of many forms of psychopathology (Romens, McDonald, Svaren, & Pollak, 2015). Specifically, regulatory abilities may be particularly sensitive to early deprivation (Loman et al., 2013). Furthermore, children who experience neglect or abuse are likely to have difficulty forming and maintaining relationships (Wisner Fries & Pollak, 2017), and these socioemotional difficulties can remain for years after placement in an adequate caregiving environment (Lawler, Hostinar, Mliner, & Gunnar, 2014). Thus, neglect in early childhood may negatively impact children's socioemotional development, making it difficult for them to confront challenging and complex social interactions (Wisner Fries & Pollak, 2017).

Werner (2000), in a review on the role of protective factors in the lives of children who have experienced adverse conditions, has stated that several protective factor clusters emerge as recurrent themes in longitudinal studies of young children who managed to overcome great odds. Rutter (1990) argued that many vulnerability or protective processes concern key turning points in people's lives, rather than long-standing attributes or experiences as such. According to Werner (2000), as long as the balance between stressful life events and protective factors is favourable, successful adaptation is possible even for young children who live in high-risk conditions. However, when stressful life events outweigh the protective factors, even the most resilient child can develop problems. Some protective factors are internal resources that the individual brings to his or her encounter with stressful life events; others are external sources of support in the family and community.

Caregiver-child relationships are fundamental to early development. According to Bowlby, (1982), parental deprivation leads to compromised socio-emotional functioning. Children are born biologically prepared to develop attachment relationships to primary caregivers (Dozier & Rutter, 2008), and they seek comfort, support, nurturance, and protection from a small number of caregivers (Zeanah & Smyke, 2009). Secure, harmonious parent-child relationships provide a degree of protection against later risk environments (Rutter, 1990). A securely attached child expects others to be sensitive and supportive; in contrast, an insecure child expects others to be insensitive and not consistently supportive (Berlin, Cassidy, & Appleyard, 2008).

Young children who are raised in atypical environments (e.g., institutions) or extreme situations (e.g., with frequently changing caregivers or neglectful or abusive caregivers) may develop clinical disorders of attachment (Gleason et al., 2011; Smyke, Dumitrescu, & Zeanah, 2002; Zeanah & Smyke, 2009; Zeanah, Smyke, & Dumitrescu, 2002). Children who were never institutionalized showed little evidence of signs of attachment disorder (Smyke et al., 2002). According to Zeanah and Smyke (2009), the best described and studied clinical disorder of attachment is reactive attachment disorder (RAD). The RAD diagnosis first appeared in the third version of the *Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association* (American Psychiatric Association [APA], DSM-III), in 1980. Subsequently, the DSM-III-R (APA, 1987), the DSM-IV (APA, 1994), and the DSM-IV-TR (APA, 1999) sub-divided RAD into two subtypes: inhibited and disinhibited attachment disorders. More recently, the DSM-V (APA, 2013) developed the subtypes of the previous diagnostic category into two distinct disorders. RAD now refers to the emotional withdrawal/inhibited pattern, and a new category, disinhibited social engagement disorder which describes those children previously referred to as indiscriminately friendly (DeKlyen & Greenberg, 2016). This change is not without controversy, however. Vervoort, De Schipper, Bosmans, and Verschueren (2013) indicated that among childhood psychiatric disorders, reactive attachment disorder remains one of the most controversial and least understood. Lyons-Ruth (2015) pointed out that the DSM-V change essentially questions on whether the disinhibited social engagement disorder should be considered a disorder of attachment or a disorder with a nonattachment-related etiology (for a comprehensive review, see Lyons-Ruth, 2015; Zeanah & Gleason, 2015).

Attachment disorder concerns the inappropriate development of attachment relationships, and it seems more common among samples of maltreated children (Zeanah & Smyke, 2009). Children who have experienced seriously adverse and neglectful caregiving environments demonstrate increased risk for both the emotionally withdrawn/inhibited pattern and the indiscriminate/disinhibited pattern of RAD, relative to children who have not been exposed to such environments (Lyons-Ruth, 2015). The disinhibited and inhibited behaviours that are associated with these patterns are thought to arise from persistent caregiver neglect, physical or emotional abuse, and a lack of continuity in caregivers that prevents the formation of stable attachments (Moran, McDonald, Jackson, Turnbull, & Minnis, 2017).

Using the DSM-IV-TR terminology, the inhibited form of RAD is marked by hypervigilance, fear, emotional withdrawal, and ambivalence. Children with this pattern of RAD appear uncommunicative, do not seek comfort consistently, and are not easily soothed when distressed (Shemmings, 2014). In contrast, the disinhibited subtype of RAD is marked by indiscriminately friendly behaviour. Such behaviour is described as lacking in social selectivity, and it is manifested in children's close physical engagement, comforting seeking, or trust in going off with strangers (Wisner Fries & Pollak, 2017). In the indiscriminate/disinhibited pattern of RAD, wariness around strangers is lacking or substantially diminished (Zeanah & Smyke, 2009); children also demonstrate a lack of appropriate social and physical boundaries, such as interacting with adult strangers in overly close proximity (which the adults experience as intrusive) and by actively seeking close physical contact (Zeanah & Gleason, 2015).

Attachment disorder has been found to be strongly associated with other mental health problems (Moran et al., 2017). For instance, findings from a Belgium study, in which parents and teachers of 152 children from 20 schools completed the Relationship Problems Questionnaire (RPQ) and the Strengths and Difficulties Questionnaire (SDQ), showed significant associations between the RPQ and the SDQ (Vervoort et al., 2013). The inhibited form of RAD was related to both internalising and externalising problem behaviours, which might indicate that inhibited behaviours have an impact on children's general functioning.

To conclude, it is clear that early relationship experiences are fundamental as the foundation for later development. However, it is worth noting that developmental trajectories and contexts are diverse and may be altered at many points. Sroufe (2000) argued that, for most problems, the sooner that circumstances improve and the sooner that problems are addressed, the sooner a change in the child will occur. As outlined by Sroufe, Coffino, and Carlson, (2010, p.44): "even when there are clear relationships between early experience and some later outcome, this relationship is probabilistic, not deterministic". Early experiences do not determine in final form the emotional capacities of the child, but they can provide the basis for healthy development (Sroufe, 2000).

1.2 PARENT-CHILD RELATIONSHIPS AND FAMILY FUNCTIONING.

This section will examine aspects of family functioning that are considered most significant for the psychological well-being of the child, including warmth in the parent-child relationship, parental discipline and control, parental psychological well-being, and the mother and the father relationship.

1.2.1 Quality of the parent-child relationship.

What is the importance of the parent-child relationship in child development? As noted above, development takes place in an intricate series of transactions between the child and his or her environment (Daniel, Wassell, & Gilligan, 2010). Therefore, child adjustment is affected by differences in the quality of parenting and the parent-child relationship (Lamb, 2012). Attachment theory – the joint work of John Bowlby and Mary Ainsworth – is the most widely used and recognised conceptual framework in research into the effects of early parent-child relationships.

Attachment refers to the tendency of young children to seek contact with one or more consistent caregivers when they feel frightened, worried, or vulnerable, and when such contact is comforting (Fearon & Roisman, 2017). The attachment relationship, which refers to a particular organisation of behaviours with respect to a caregiver, consolidates in the second six months of life, on the basis of the interactive history of prior months (Sroufe, 1996). Different attachment patterns emerge in response to different types of caregiving, with infants developing secure or insecure attachments in response to more or less sensitive or predictable social environments (Bakermans-Kranenburg & van IJzendoorn, 2016). Attachment figures who are unresponsive or unavailable generate attachment insecurity in the child (Mikulincer & Shaver, 2007). According to Mikulincer and Shaver (2007), unavailable attachment figures disrupt a child's ability to cope with threats and increase the frequency and intensity of his or her distress. As a result, insecure attachment is often associated with difficulties in personality development. In contrast, available and responsive attachment figures enable the child to cope with threats and evoke feelings of safety and security.

Since its inception, attachment theory has been more than a theory of infant behaviour, and a key proposition of it is that security of attachment affects later socio-emotional development (Fearon & Roisman, 2017). When children are confident that an attachment figure will be available, sensitive, and responsive to their needs, they typically feel secure enough to explore their environments, take on challenges, engage in activities, and make discoveries (Feeney & Woodhouse, 2016). Moreover, Thompson (2016) argued that attachment security not only directly predicts developmental outcomes but also moderates other aspects of the parent–child relationship that contribute to those outcomes. For instance, Toth, Rogosch, Sturge-Apple, and Cicchetti, (2009) found that children’s attachment security mediated the relation between maternal depressive symptoms and negative representations of parents.

Attachment theory states that a securely attached child will expect others to be sensitive and supportive (Berlin et al., 2008). Furthermore, research on attachment has shown that secure attachment in children is associated with greater social, emotional, and cognitive competence, and less clinical symptomatology, including conduct and attention problems and internalising symptoms (Kerns, 2008). In this sense, Thompson, (2016) indicated that children in secure relationships are capable of developing and maintaining more supportive relationships, are stronger in emotion regulation, exhibit greater emotional understanding, and demonstrate more enhanced social competence with peers, relative to children in insecure relationships.

According to Bowlby (1973), children who experience responsive and sensitive care generally view themselves as worthy of others’ affection. In this regard, Bowlby maintained that interactions with caregivers become internal working models (Bretherton & Munholland, 2016). Kobak, Zajac, & Madsen (2016), argued that the internal working model concept is essential to understanding the resources an individual brings to coping with attachment disruptions. Kobak and colleagues make clear that individuals with secure internal models often apply more resources to interpreting and coping with relationship disturbance. Secure expectancies predispose children to openly signal their needs and assume that these signals will elicit a timely and effective caregiver response.

Another large body of research, building on Bronfenbrenner's (1979) work, addresses the individual in context. Bronfenbrenner developed ecological systems theory to explain how a child’s internal and external environment affects his or her growth and development. Bronfenbrenner’s bioecological model can be applied within family dynamics. Parents become

part of the microsystem, and have the ability to affect their children's outcomes (Bronfenbrenner & Morris, 2006). Bornstein (2015) argued that parenting is a complex activity, which involves more than feeding, protecting, and teaching. Parents nurture, protect, and guide children (Bornstein, 2015). Parenting is an important predictor of children's social and emotional adjustment. Indeed, according to Deater-Deckard (2005), children's healthy socio-emotional, cognitive, and physical development is optimised when parenting is supportive and sensitive to the child's individual needs.

Associations between parental warmth – demonstrating affection and acceptance, and verbally expressing positive affect towards the child – and children's adjustment indices are amongst the most extensive and reliable in developmental psychology (Lamb, 2012). A little more than 20 years ago, Herman and McHale (1993) found that warmth in the parent-child relationship may encourage the use of functional coping by creating an environment that supports an active and approach-oriented style. More recently, Davidov and Grusec (2006) found evidence that those children who receive high levels of parental warmth are better able to regulate positive affect.

Different parenting styles, which reflect the emotional climate in which children are raised, represent broad patterns of parenting practice. Parents each have their own parenting styles and beliefs, and often these styles differ between parents (Tavassolie, Dudding, Madigan, Thorvardarson, & Winsler, 2016). It is important to understand the differences between various parenting styles, as the same parenting practice may have different outcomes when implemented through one parenting style over another. Diana Baumrind (1967, 1971, 1996) developed one of the most widely recognised parenting styles typology. Baumrind explored the implications of different styles of parenting and identified three patterns – authoritative, authoritarian, and permissive – based on two aspects of parenting behaviour – control and warmth. Later, Maccoby and Martin (1983) took the Baumrind typology and classified parenting style along two dimensions: responsiveness (child-centeredness and warmth) and demandingness (control). Interaction between the two dimensions was thought to produce four parenting styles: authoritative (high warmth, high control), authoritarian (low warmth, high control), permissive (high warmth, low control), and disengaged (low warmth, low control).

In general, authoritative style (the combination of high parental warmth with high parental control) leads to better outcomes for children across many social and behavioural domains

(Tavassolie et al., 2016). Steinberg, Lamborn, Dornbusch, Steinberg, and Darling (1992) found that authoritative parenting leads to better adolescent school performance and stronger school engagement. More recently, in Steinberg, Blatt-Eisengart, and Cauffman's (2006) study of 1,355 young offenders aged between 14 and 17 years old, adolescents who described their parents as authoritative were found to be more psychosocially mature, more academically competent, less prone to internalised distress, and less likely to engage in problem behaviour than their peers, whereas those who described their parents as disengaged were less mature, less competent, and more troubled. In the same vein, Ruiz-Ortiz, Braza, Carreras, and Muñoz (2017) found in 203 Spanish children aged 7–8 years that parenting styles characterised by warmth and care were positively related to social adjustment and self-esteem in children.

A parallel body of research has examined the degree to which children's temperament may condition the effects of parenting on adjustment. Kiff, Lengua, and Zalewski (2011) in a review of specific dimensions of temperament in relation to parenting, indicated that children's temperament and parenting may shape each other, as well as condition each other's effects. Kiff and colleagues stated that, in general, children high in frustration, impulsivity and low in effortful control are more vulnerable to the adverse effects of negative parenting, while in turn, many negative parenting behaviours predict increases in these characteristics. In this regard, in a systematic review of multiple determinants of parenting, Belsky and Jaffee (2006) concluded that much of the research in this area relies on clinical samples and convenience samples. The authors argued that, "although a growing number of studies have shown that suboptimal parenting practices both mediate and moderate the association between parent and offspring psychopathology, more research is needed to explore bidirectional effects of parent and offspring disorder on parenting and to illuminate the circumstances under which parenting is not impaired" (Belsky & Jaffee, 2006, p. 59).

From the literature summarised above, it can be concluded that healthy human development – beginning at birth – requires nurturing, responsive, and stable relationships with caring adults and secure attachment to a responsive caregiver. Researchers have suggested that family process variables such as parental warmth, emotional sensitivity, parental involvement, and disciplinary style are essential in children's psychological development. Authoritative parenting has been associated to the most positive outcomes in the cognitive and social-emotional domains of development. Additional research has found bidirectional relations

between children's emotionality and parenting behaviours, suggesting that the relations between parenting and temperament and their effects on children's adjustment are complex.

1.2.2 Parents psychological well-being.

Some researchers claim that internal aspects of the parent shape parenting behaviour. Belsky (1984) focused on how parental factors affect child-rearing, which in turn influences child development. Belsky & Barends (2002) noted that psychologically healthier and more mature parents are likely to care for their children in a more sensitive, responsive, authoritative, and child-centred manner. Conversely, parental psychopathology has been found to have a detrimental effect on the parent-child relationship and the psychological adjustment of the child.

Belsky and Jaffee (2006) claimed that both mothers' and fathers' psychological health and well-being affect the quality of care they provide. They reviewed a body of work suggesting that children of depressed parents are at greater risk for a range of adverse outcomes, including problems in self-regulation, peer relationships, and sleep regulation, as well as attachment difficulties, behavioural and affective disorders, and academic difficulties. Depressed mothers fail to experience – or convey to their children – much happiness with life (Bornstein, 2002). Therefore, in general, children who are exposed to maternal depression during their early years are at heightened risk of socioemotional difficulties and psychopathology (Toth et al., 2009). Specifically, it has been found that children of depressed mothers are at greater risk of insecure attachment (Fearon & Belsky, 2016). In Toth et al's (2009) study of toddlers and their mothers with a history of major depressive disorder and no history of mental disorder, the severity of maternal depressive symptoms was related to the concurrent degree of attachment insecurity in toddlers at age 20 months, as well as to later attachment insecurity at age 3. However, there is considerable heterogeneity in findings within this body of research (Toth et al., 2009), with some studies finding that not all research on mother–toddler interaction reveals such adverse effects of depression (Belsky & Jaffee, 2006). In this regard, a meta-analysis based on 35 studies and 2,064 mother–child pairs addressing the association between attachment security and maternal mental health concluded that maternal depression operates as a risk factor, but it is far from deterministic, suggesting only modest associations between maternal depression and children attachment security (Atkinson et al., 2000).

Although, of all areas of parental psychopathology, depression has historically received the most empirical attention (Cummings & Davies, 1994), other symptoms of psychopathology have been found to predict child maladjustment. It has been documented that children of anxious parents are up to seven times more likely to develop an anxiety disorder compared to children of non-anxious parents (Beidel & Turner, 1997). Anxious parents may be overly focused on their own anxiety symptoms and may fail to notice and satisfy their children's emotional needs (Ginsburg & Schlossberg, 2002). Furthermore, anxious mothers, compared to non-anxious mothers, are more likely to describe their families as lacking in warmth, support, and togetherness (Drake & Ginsburg, 2011).

The relationship between parenting stress and child behaviour problems has also been studied. Parenting stress is the experience of negative feelings towards the self and towards the children, that are directly attributable to the demands of parenthood or perceived demands associated with the task of providing care (Deater-Deckard, 1998). Parents of children with developmental delays typically report more parenting stress than parents of typically developing children (Baker et al., 2003). Deater-Deckard (1998) showed that a high level of parenting stress is an important factor in the development of dysfunctional parent-child relationships and child psychopathology. In particular, associations between parenting stress and children's externalising behaviour, such as attention problems and aggression, have been consistently found (e.g., Baker et al., 2003; Barry, Dunlap, Cotten, Lochman, & Wells, 2005; Neece, Green, & Baker, 2012). For example, a longitudinal research integrating study of parenting and child self-regulation, found that elevated maternal distress increases children's risk of externalising problems by compromising early parenting and child self-regulation (Choe, Olson, & Sameroff, 2013). Furthermore, parenting stress has been linked to less responsive, more authoritarian, and more neglectful parenting (Belsky, Woodworth, & Crnic, 1996; Deater-Deckard & Scarr, 1996).

Regarding mental health problems in Chile, it is important to note that a study in 2002 found that 36% of the Chilean population had suffered from a psychiatric disorder at least once in their lifetime and 23% had suffered from a disorder in the previous 6 months (Vicente, Rioseco, Saldivia, Kohn, & Torres, 2002). Depression is one of the most common psychiatric disorders in the adult population in Chile, with a 6 month prevalence of 4.7% (Vicente et al., 2002) and a 1 week prevalence of 5.5% (Araya, Rojas, Fritsch, Acuna, & Lewis, 2001), and it is the

second leading cause of disability-adjusted life years (DALY)¹ for both sexes (Ministry of Health [Chile], 2008). The results of the 2009–2010 Chilean National Health Survey indicated that 17.2% of the general population had suffered from depressive symptoms in the previous year, and 21.2% had reported a diagnosis of depression at some point in their lives (Ministry of Health [Chile], 2011).

1.2.3 Parents' marital satisfaction.

More than 30 years ago, Belsky (1981) argued that to understand parenting and its influence on child development, attention must be given to the marital relationship. More recently, abundant evidence has emerged that marriage and parenting are related; however the way in which they affect each other it is unclear (Grych, 2002). Furthermore, Lamb (2012) argued that, although both parental conflict and parental harmony appear to directly affect children, much of the relevant research has focused on parental conflict only.

Marital conflict, defined as parents' presentation of negative hostile emotions and poor conflict-resolution strategies (Tavassolie et al., 2016), has been found to influence the parenting styles of both mothers and fathers. Cowan and Cowan (1992) concluded that maritally dissatisfied mothers and fathers were more authoritarian and less authoritative with their children, relative to maritally satisfied mothers. Tavassolie et al. (2016) found that the more disparity between parents in their levels of authoritativeness, the more marital conflict was experienced, especially by the mother, and the more behaviour problems were present in the children.

A significant body of research has shown an association between children's exposure to marital conflict and externalising behaviour (for a review, see Cummings & Davies, 2002). Marital conflict also increases the probability that children will have higher levels of non-compliance with peers, lower social competence and problem solving abilities (Katz & Low, 2004; Lindsey, Colwell, Frabutt, & MacKinnon-Lewis, 2006). Increased marital conflict has even been associated with disruptions in the quantity and quality of children's sleep (El-Sheikh, Buckhalt, Mize, & Acebo, 2006).

¹ Disability-adjusted life year (DALY) is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death (World Health Organization, 2017).

Children's emotional security also becomes disrupted when they witness marital conflict, because their internal goals about their family are disrupted and are more likely to become emotionally distraught (McCoy, Cummings, & Davies, 2009). In Fearon and Belsky's (2016) summary of evidence on marital functioning and infant-parent attachment security, is indicated that children growing up with parents who functioned well as a couple were more likely to develop secure attachment than those growing up in households with parents who were unhappy in their relationship. For example, McCoy and colleagues (2009) exploring the relationship between constructive and destructive marital conflict and emotional security and children's prosocial behaviour, found that destructive marital conflict was negatively associated with children's emotional security. Grych (2002) explored studies of parental warmth and rejection and concluded that greater satisfaction and intimacy in the marriage were associated with parents' greater expressions of warmth towards children; in contrast, higher levels of marital conflict predicted greater hostility or rejection in the parent-child relationship.

In summary, a significant body of research has shown that child adjustment is associated with the quality of parental relationship, and that marital conflict tends to destabilise the socioemotional family context. As Lamb (2012, p. 101) claimed "children thrive psychologically when they are nurtured by caring competent parents who are themselves embedded in warm supportive relationships". However, to fully understand the parental relationship's impact on the psychological development in children, additional information about the family context and family processes is necessary (Fearon & Belsky, 2016).

1.3 ADOPTION

The following review will examine the definition of adoption, factors associated with parenting adopted children, and the psychological consequences for children of being raised in an adoptive family.

Adoption, defined as the legal placement of abandoned, relinquished or orphaned children within an adoptive family (Juffer & van IJzendoorn, 2007), transcends all cultures, and has existed over centuries (Triseliotis, Shireman, & Hundleby, 1997). As a phenomenon inherently associated with loss-related experiences (Smith & Brodzinsky, 1994), adoption involves both risk and protective factors (Juffer & van IJzendoorn, 2007) and a drastic change in environment for many adopted children (van IJzendoorn, Juffer, & Klein Poelhuis, 2005). For most of the twentieth century, adoption was characterised by secrecy, anonymity, and confidentiality (Palacios & Brodzinsky, 2005). However, during the past 40 decades, many changes have occurred in adoption policy and practice (Von Korff & Grotevant, 2011) to reflect the changing needs and interests of society, and new empirical knowledge and theory (Triseliotis et al., 1997). Brodzinsky (1987) suggested that, of the many changes implemented, the most important has been the shift in emphasis from the needs of adoptive parents (adult-centred practice) to the needs of adopted children (child-centred practice) (Triseliotis et al., 1997). In addition, Grotevant and McRoy (1998) reported that, since the mid-1970s in North America and Western Europe, confidentiality has no longer been the norm. In this regard, current trends in adoption are leading towards openness - that is, contact between adoptive and birth families following the placement of adopted children - greater inclusiveness of racial, ethnic, and cultural diversity, and greater inclusion of and valuing of a child's birth heritage (Grotevant & Lo, 2017).

It is now recognised that good adoption practice is complex, but focused on the long-term welfare of the child (Triseliotis et al., 1997). Today, children can be adopted at different ages; by single persons and same-sex couples (in some countries) as well as by heterosexual married couples; and domestically or through inter-country adoption. Inter-country adoption describes the placement of children with families in other countries. According to Selman (2009), approximately one million children have been adopted into Western countries since the end of

the Second World War. The number of domestic adoptions (within countries) is harder to estimate, as in many countries, adoption statistics are not available (Palacios & Brodzinsky, 2005; van IJzendoorn & Juffer, 2006). Today, the most common type of adoption (other than by stepparents) in the United States, England, and Canada, is of children placed from the child welfare system. Approximately 50,000 children per year in North America, 3,500 in England, and 2,000 in Canada are adopted from foster care (Livingston Smith, 2013).

1.3.1 Adoptive parenting.

Adoptive families face many parenting challenges (Brodzinsky & Pinderhughes, 2002). It has been stated that adoptive parents, like nonadoptive parents, must adapt to the increased personal and interpersonal strains that accompany parenthood. However, unlike nonadoptive parents, they may also be subject to additional unique and potentially stressful hardships which include coping with the inability to conceive, agency evaluations of parental fitness, the uncertain wait for an eligible child, the adoption experience itself, and possible social stigma (Brodzinsky & Huffman, 1988). Adoptive parents may also be challenged by the demands of parenting children, who may arrive in the adoptive family with particular medical or psychological difficulties that quickly confront the new parent's expectations (Tasker & Wood, 2016). As Grotevant and Lo (2017) put it, effective adoptive parenting requires a focus on the distinctive needs of the adopted child.

Researchers have identified several factors associated to the successful parenting of adopted children, such as good preparation, realistic expectations, effective behaviour management skills, good communication, and adequate support (Brodzinsky & Pinderhughes, 2002). Brodzinsky (2008) also argued that, today, parental preparation, education, and support are vital to a stable adoption placement and the long-term emotional well-being of all family members. Each stage of the family lifecycle presents various tasks for the parents and children to consider, and of these, communication about adoption is central (Brodzinsky, 2013; Palacios & Brodzinsky, 2010). In most adoptive families, the disclosure process (relating to adoption) begins when the child is between 2 and 4 years of age (Mech, 1973, as cited in Brodzinsky, 1987). In middle childhood, some adoptees begin to struggle with the loss of their birth parents (Brodzinsky, Schechter & Hening, 1992, as cited in van IJzendoorn & Juffer, 2005), in relation

to their emerging realisation that being adopted not only involves gaining a family, but also losing one (Palacios & Brodzinsky, 2010).

Lionetti, Pastore, and Barone (2015) argued that adoptive parents are faced with the challenging task of developing and consolidating an attachment bond with a child whose early development may have occurred in a neglectful or abusive context. In this regard, research on the role of the adoptive family in child outcomes, has shown that positive family experiences after adoption – such as sensitive parenting and positive emotional relationships – may reduce psychological risk in adopted children and contribute to their recovery (Palacios & Brodzinsky, 2010). For instance, children internationally adopted from China with more sensitive adoptive mothers showed less indiscriminate friendliness (Van den Dries, Juffer, van IJzendoorn, Bakermans-Kranenburg, & Alink, 2012). Stams, Juffer, and van IJzendoorn (2002) found, in their longitudinal study of adopted children, that a higher quality of child–mother relationship, in terms of attachment security and maternal sensitivity, was associated with better social and cognitive development in the child. In addition, Steele et al. (2008) found that a parent’s unresolved mourning, or insecure (dismissing or preoccupied) state of mind, may exacerbate the emotional worries of a recently adopted child. Interestingly, Lawler, Koss and Gunnar (2017) examined parental sensitivity/responsiveness and structure/limit-setting in a group of 68 children adopted internationally from institutions, and found no differences in either sensitivity/responsiveness or structure/limit-setting between parents of adopted children and parents of non-adopted children.

Kaniuk, Steele, and Hodges (2004), in a longitudinal study exploring the development of attachment between older children and their adoptive parents, concluded that the earlier children are placed for adoption, the better the attachment relationships formed, and the greater the number of caregivers children have prior to adoption, the greater the stress on adoptive parents. Kaniuk and colleagues found that the majority of children showed marked progress in their attachments to their adoptive mothers, and the common factor in the children who failed to make progress was that their new mothers had unresolved attachment status with regard to earlier loss or trauma. In the same vein, in Italy, Barone and Lionetti (2012) studied the contribution of parents’ attachment (measured using the Adult Attachment Interview (AAI), to children’s secure attachment in a sample of children adopted from institutions, and found that a secure attachment in both adoptive parents was a protective factor towards children’s attachment disorganisation. Recently, Lavinia Barone, Lionetti, and Green (2017) found that

parents' secure attachment increased children's probability of presenting a secure attachment pattern; specifically, mothers' attachment patterns were most strongly associated with those of their adopted children.

1.3.2 Outcomes for adopted children. Child adjustment and cognitive development.

Compared with non-adopted children, adopted children may encounter more adversity and risks in the early years of their life (Juffer & van IJzendoorn, 2009). Even adopted children with no experience of institutional care may have a history of abuse or neglect (Julian & McCall, 2016). Adoption usually offers improved medical, physical, educational, and psychological opportunities for institutionalised children (Juffer & van IJzendoorn, 2005; Palacios & Sánchez, 1996), and there is strong evidence that adoption functions as a successful intervention following early adverse circumstances, enabling children to catch up on developmental stages (van IJzendoorn & Juffer, 2006; Palacios, Moreno, & Román, 2013; Rutter, Sonuga-Barke, & Castle, 2010). Nevertheless, despite significant improvements in functioning following adoption, long-term outcomes in children who have been adopted from institutional care vary widely.

Jiménez-Morago, León, and Román (2015) used the Strengths and Difficulties Questionnaire to compare the psychological adjustment of 230 Spanish children (aged 4 to 10 years) in different childcare placements (international adoption, institutional care, non-kin foster care, and kinship care), and a control group from a normative sample of families with children. They found that, despite the difficulties faced by adopted children pre-adoption, their psychological adjustment post-adoption was within the normal range. In contrast, children living in institutional care exhibited the greatest problems and difficulties. Palacios, Moreno, and Román (2013) compared 40 internationally adopted children with 50 children in institutions and 58 non-adopted children in Spain. They found adoptees to be closer to the non-adopted children than to the children in institutions, when social competence and social skills were assessed.

Juffer and van IJzendoorn (2005), in their meta-analysis of the effects of international adoption on behavioural problems (which included studies using the Child Behavior Check List and similar measures such as the Strengths and Difficulties Questionnaire), found that adopted

children showed more externalising and internalising problems than did non-adopted children, although the effect sizes were small ($d = .16 - .24$). Considering the modest rate of behaviour problems, it is concluded that the majority of international adoptees are well-adjusted, although they are referred to mental health services more often than non-adopted children. Also, international adoptees showed significantly fewer externalising and internalising behaviour problems than domestic adoptees, and within the group of international adoptees, those with preadoption adversity showed more total problems and externalising problems than those without evidence of extreme deprivation.

In the domain of attachment, Van den Dries, Juffer, Van Ijzendoorn, Bakermans-Kranenburg, and Alink (2012) in a short-term longitudinal study, examined maternal sensitivity, child responsiveness, attachment, and indiscriminate friendliness in families with children internationally adopted from institutions or foster care in China, 2 and 6 months after adoptive placement. They found that adopted children showed more disorganised attachment and were less likely to show secure attachment compared to the normative distribution of attachment. These results demonstrate the risk of disorganised attachment for children shortly after placement in an adoptive family. However, there is also meta-analytic evidence on more than 270 studies that include more than 230,000 adopted and non-adopted children and their parents, that early-adopted children manage to catch up almost completely with non-adopted peers for attachment security (van Ijzendoorn & Juffer, 2006). Adopted children show more attachment security and less attachment disorganisation than do children in residential care, but adopted children also display more attachment insecurity and disorganisation than their peers.

An important area in which developmental delay has been detected is emotional understanding (Barone & Lionetti, 2012; Vorria et al., 2006; Wismer Fries & Pollak, 2004). Adopted children's emotional understanding tend to show impairment compared to normative data. For example, it has been found that children who have been adopted from institutions show difficulty matching appropriate facial expressions to happy, sad, and fearful scenarios (when examined several years after adoption) when compared to non-adopted children living with their biological parents (Wismer Fries & Pollak, 2004). However, other studies have found no group difference between adopted children from institutions and non-adopted children in emotion understanding (Garvin, Tarullo, Van Ryzin, & Gunnar, 2012; Tarullo, Bruce, & Gunnar, 2007).

In the domain of cognitive development, it has been found that the IQ scores of adopted children are much higher than those of children in overburdened families or those living in deprived institutions (van IJzendoorn & Juffer, 2006; van IJzendoorn, Juffer, & Klein Poelhuis, 2005). In terms of school achievement, adopted children have also been found to outperform children living in institutions (van IJzendoorn et al., 2005). However, IJzendoorn et al. (2005) observed that adopted children performed less well in school than their non-adopted siblings or peers, despite showing no differences in IQ scores. Similarly, Loman, Wiik, Frenn, Pollak, and Gunnar (2009), found that relative to non-adopted children and children adopted early from foster care, adopted children from institutions (after an average of 8 years in the adoptive families) performed more poorly on cognitive and language tasks. Still, with regard to cognitive functioning, most adopted children were functioning within the normal range.

As adoptees enter adolescence, their understanding of their adoption status and awareness of the stigma that can surround adoption can lead to adjustment problems (Brodzinsky, 1993). Julian and McCall (2016) found that children who are adopted from socio-emotionally deprived institutions may exhibit poor social skills in adolescence, particularly if they are female. Similarly, Merz and McCall (2010) found a stronger association between age at adoption and social and externalising problems during adolescence than at younger ages. More recently, Askeland and colleagues (2017) found in a meta-analysis of 11 studies that internationally adopted adolescents 12 to 19 years old experience more mental health problems than their non-adopted peers, with adoptees showing higher scores for total problems and externalising difficulties.

1.3.3 Factors associated with variations in child outcomes.

Children who are adopted from institutional care experience varying levels of deprivation in their early life. Age at adoption is typically used as an index of the length of time children were exposed to depriving circumstances as well as what age they were exposed to such deprivation (Julian, 2013). Kaniuk, Steele, and Hodges (2004) argued that, in general, the earlier children are placed for adoption, the better. Many studies have attempted to understand the influence of the timing of early experiences. In a review of studies on the effects of age at adoption, Julian (2013, p. 16) concluded that “children adopted before a certain cut-off age are generally similar to parent-reared children in the problems they experience, but children adopted after that point

have elevated rates of problems”. This suggests the presence of a sensitive developmental period. Institutional care in general has been shown to have long-term effects on a children’s development. Kreppner et al. (2007) found significantly more impairments in children who had experienced more than 6 months of severe deprivation in Romanian institutions, than in children who had been adopted from these institutions before the age of 6 months. Similarly, Julian and McCall (2016) found that children adopted before 18 months of age had better social skills than those adopted after this age, and Merz and McCall (2010) found that rates of behaviour problems increased with age at adoption in children who had been adopted from psychosocially depriving Russian institutions.

With respect to attachment, van IJzendoorn and Juffer (2006) found that age at adoption significantly moderates attachment security, as children who are adopted after their first birthday show less ability to develop secure attachment relationships. Potential moderators, such as type of placement (international or domestic; same-race or transracial), age at assessment, and time in the adoptive family, have not been found to be significantly associated with attachment security and disorganisation (van den Dries et al., 2009).

Age at adoption seems also to have an important impact on cognitive performance, as reflected in school achievement. Children adopted after their first year of life show delays in school performance (van IJzendoorn & Juffer, 2005). However, neither age at assessment, child gender, nor domestic versus international adoption has been found to make a significant difference to IQ scores or school performance (van IJzendoorn et al., 2005).

Early adversity and their relationship with subsequent psychological adjustment has been explored. Jiménez-Morago et al. (2015) found in a study of 230 children aged 4 to 10 years that higher adversity amongst children in different childcare placements (international adoption, institutional care, non-kin foster care, and kinship care) was linked to poorest adaptation. After a period of time in their respective placements, children living in institutional care exhibited the most problems and difficulties. In Hawk and McCall's (2010) review of studies of behaviour problems in children adopted from institutions, the exposure to an unfavourable environment, specifically an institution, in the first 2 years of life was associated with behaviour problems, especially internalising, externalising, and attention problems, particularly if the age at adoption was after 6–18 months. Likewise, early adverse biological and environmental conditions have been identified as central to the quality of newly formed

relationships in adopted children. Carlson, Hostinar, Mliner, and Gunnar (2014), examining the formation and quality of attachment, found that – although the attachment system seemed intact following deprivation in the majority of children – early adversity was related to lower ratings of attachment security.

In the context of the post-adoption family environment, it has been found that a high degree of closeness and open communication among internationally adoptive family members is associated with better adaptive functioning and later competence in children (McGuinness & Pollansch, 2007, as cited in McCall, 2011). Brodzinsky (2006) found that the communicative attitudes and behaviours of adoptive parents are consistent predictors of adopted children's adjustment. Finally, as described earlier, child adjustment in adopted children has been found to be associated with sensitive parenting and positive emotional relationships.

In summary, adoption provides both risk and protective factors. The influence of early experience in institutional care on children's development constitutes a major risk factor. A key research question in this field has been: Is the socioemotional and cognitive development of adopted children different from that of (a) children who have remained in institutional care or (b) their current non-adopted siblings or peers? Comparisons between adopted and institutionalised children have shown that adopted children show significant gains in IQ scores and school achievement relative to children who remain in institutional care. Likewise, with respect to attachment, adopted children show considerable catch-up relative to institutionalised children: they show fewer disorganised attachments and more secure attachments. Comparisons between adopted and non-adopted children have shown that group differences in adjustment, when significant, are generally in the small-to-moderate range for effect size. That is, adopted children do not differ substantially from non-adopted peers in total behaviour problems although they are referred to mental health services more often than non-adopted controls. With respect to IQ and school achievement, compared to their non-adopted peers, adopted children showed similar IQ scores but their school performance and language abilities lagged behind. With respect to attachment, adopted children show delays relative to their non-adopted peers.

Overall, children's psychological outcomes are influenced by both post-adoption and pre-adoption experiences (Rutter, 2005). Although data indicate that developmental pathways after early experiences of deprivation vary enormously, there is clear evidence of children's

psychological gains following adoption from depriving institutions into well-functioning and nurturing families (e.g., Nelson, Furtado, Fox, & Zeanah, 2009; Palacios et al., 2013; Rutter et al., 2007; Rutter et al., 2009a; Van den Dries et al., 2012), particularly when the adoption occurs early in the child's life. In general, it has been found that later-placed children suffer greater problems than those placed earlier, and that a combination of late placement and early adversity is particularly damaging. Later adoption has been identified as a significant predictor of attachment insecurity, as well as behavioural and cognitive problems. Thus, it is clear that adoption marks a radical transition in caregiving for thousands of children adopted every year, mainly when they have been adopted from institutions, and for many of them this change is an effective intervention that improves their psychological development. However, the transition to adoptive parenthood and its relationship to parent and child adjustment remains less explored, and research is needed to determine which aspects of parenting contribute to children's behavioural adjustment after adoption (Lawler et al., 2017).

1.4 INSTITUTIONAL CARE

Recently, the superiority of family settings over institutional care has been emphasized by a group of experts on child development who have stated that growing up in a family is a right and a necessity for every child (Dozier et al., 2014). Similarly, the Convention on the Rights of the Child (CRC) recognises that every child, for full and harmonious development of his or her personality, should grow up in a family environment of happiness, love, and understanding (United Nations General Assembly, 1989). Despite these recommendations, today, many children throughout the world live apart from their families, in institutions (for a review, see Dozier, Zeanah, Wallin, & Shauffer, 2012). In fact, institutional rearing is common throughout the world, not only in low-income countries but also in middle- and high-income countries (Dozier et al., 2012; Save the Children, 2009). It is difficult to establish the exact number of children living in institutional care, because systematic record-keeping is lacking in many countries (Petrowski, Cappa, & Gross, 2017). It has been estimated that between 2 million (Petrowski, et al., 2017; United Nations General Assembly, 2010; USAID, 2009) and 8 million (Save the Children, 2009) children under the age of 18 are being raised in institutions worldwide, with the majority in Eastern Europe, Latin America, Asia, and Africa (McCall, 2012).

Institutional or residential care, which is care provided in a non-family based group setting (Petrowski et al., 2017), is a means of looking after children who are unable to remain with their birth parents in the long or short-term. It is defined by the Save the Children Fund (2003) as a “group living” arrangement for children (with arrangements ranging from small groups to large residential facilities such as orphanages) in which care is provided by remunerated adults. Poverty and social exclusion are two of the main reasons why children are unable to live at home (EveryChild, 2005; Save the Children, 2009). Although the CRC states that institutions should be a last resort of care for vulnerable children, a report by UNICEF (2007) shows that institutionalisation is utilised in many countries as a first resort, and is often used indiscriminately, without proper consideration of whether the children should live apart from their families (EveryChild, 2011). As a result, growth in the institutionalised child population has become a disturbing new trend over the last two decades (EveryChild, 2005; UNICEF, 2003).

1.4.1. Characteristics of institutions.

It is claimed that young children experience their world as an environment of relationships, and responsive relationships are developmentally expected and biologically essential, particularly during the earliest years (National Scientific Council on the Developing Child, 2004b). Many researchers have argued that institutional care confronts children with multiple stressors, and is structurally and psychologically at odds with their needs (Bakermans-Kranenburg, Dobrova-Krol, & van IJzendoorn, 2011; Dobrova-Krol, van IJzendoorn, Bakermans-Kranenburg, Cyr, & Juffer, 2008; Dozier et al., 2012)

There are often large differences between one institution and another, and from one unit to another within an institution, and even variability in the care individual children receive within the same unit (Dozier, Zeanah, Wallin, & Shauffer, 2012; Petrowski et al., 2017). Although there is considerable variability in both living conditions and the caregiving environment across alternative care settings, the rearing environment in most institutions is characterised by structural neglect, which may comprise minimal physical resources, unfavourable staffing patterns, many and changing caregivers with little or no training, and socially and emotionally inadequate caregiver–child interactions (van IJzendoorn et al., 2011). In institutions children are housed in large groups, often with 9 to 16 per ward, but sometimes up to 70 (McCall, 2012). Moreover, the lack of stability in the caregiving team and the high child to caregiver ratio – often much higher than 8 children per caregiver – result in insufficiently sensitive care in these settings (Bakermans-Kranenburg et al., 2011; Groark, McCall, McCarthy, Eichner, & Gee, 2013), which undermines the stability of children’s relationships (Gunnar, Bruce, & Grotevant, 2000) and deprives children of basic early experiences that drive typical brain development (Bick, Fox, Zeanah, & Nelson, 2017).

1.4.2 Outcomes for children living in institutions: Child adjustment and cognitive development.

Pioneering behavioural studies of children living in institutions have been conducted over the past 30 years, investigating the long-term social and psychological sequelae of profound psychosocial deprivation and neglect in early life. Among these are studies carried out in

Romania after the overthrow of the Ceausescu government in 1989, which left an estimated 170,000 children living in large, socially impoverished institutions. These include the Romanian Adoption Project, the English-Romanian Adoptees Study, and the Bucharest Early Intervention Project.

In the Romanian Adoption Project (Chisholm, 1998) children were studied who had been adopted out of Romanian institutions by Canadian families. They compared 46 children who had been adopted into Canada after having spent at least 8 months in a Romanian institution with 46 children who had been adopted in Canada before the age of 4 months (with minimal or no orphanage experience) and 29 Canadian-born non-adopted children matched on age and gender to the first group. The objectives of this study were to examine the children's attachment security and indiscriminately friendly behaviour (Chisholm, Carter, Ames, & Morison, 1995).

Attachment was assessed using an attachment security questionnaire (Waters and Deane Q-sort) and a home-based version of the Strange Situation coded with the Preschool Assessment of Attachment (Crittenden, 1992). Chisholm (1998) observed that significantly more post institutionalised children displayed insecure attachment patterns than did children in both the early-adopted (58% versus 35%) and Canadian-born (63% versus 42%) groups. In addition, children who had spent at least 8 months in institutions scored significantly lower on security of attachment than did children who had been adopted prior to 4 months of age (37% versus 66%) and non-adopted children (37% versus 58%) (Chisholm et al., 1995). Post institutionalised children displayed significantly more insecure attachment 3 years after adoption than did the Canadian-born and early adopted children. The post institutionalised group also displayed significantly more indiscriminate friendliness (or indiscriminate friendly behaviour), on the basis of parents' responses to five questions about their children's behaviour with new adults (Chisholm, 1998). Chisholm (1998) found no significant association between indiscriminate friendliness and attachment security over time: security of attachment between children who had been adopted after 8 months of age and their adoptive mothers increased significantly between 11 and 39 months after adoption, while levels of indiscriminate friendliness did not diminish.

The English-Romanian Adoptees (ERA) study was initiated in 1992 with 165 children who had been adopted from Romanian institutions by families in the United Kingdom (Rutter, 1998). Some had been adopted before 6 months of age, some between 6 and 24 months of age,

and some between 24 and 42 months of age. These children were compared to 52 non-institutionalised children who had been adopted within the United Kingdom before the age of 6 months. All of the children were assessed at 6, 11, and 15 years of age. Those who were young enough at the start of the study were also assessed at age 4 (Rutter et al., 2009b).

The ERA study explored what happened when children moved from profoundly deprived institutional care to generally well-functioning families (Rutter et al., 2009b). To determine normal functioning, seven domains were assessed (using psychometric measures, questionnaires, semi-structured interviews with parents, and a home-based version of the Strange Situation): attachment problems, inattention/overactivity, emotional difficulties, autistic features, cognitive impairment, peer difficulties and conduct problems (Rutter, Kreppner, & Connor, 2001). Across all of these domains of functioning, there was no measurable increase in the rate of deficits in children who had been adopted prior to or at the age of 6 months (Rutter et al., 2007). At the age of 6 years, the proportion of children without abnormality on any of these domains, who had experienced institutional privation and left Romania before the age of 6 months was nearly as high as the proportion within the UK-adopted sample. At age 11, however, emotional disturbance was significantly more frequent in the Romanian adoptees group (Rutter et al., 2001, 2007).

Four areas of difficulty were significantly and specifically related to institutional deprivation: quasi-autism, disinhibited attachment, cognitive impairment and inattention/overactivity (Kumsta et al., 2010; Rutter et al., 2001, 2007). These domains, which were identified as deprivation-specific psychological patterns, were observed in a majority of the children who had experienced more than 6 months of institutional care. All four patterns showed a substantial degree of persistence up to age 15, and the association with institutional deprivation continued over the same period (Rutter et al., 2009b).

The autistic-like features comprised a pattern of behaviour that closely resembled childhood autism (Rutter et al., 2001). However, unlike ordinary autism, this behaviour took an atypical course, showing marked improvement between the ages of 4 and 6 (Rutter et al., 1999). Only a minority of the children who had shown the quasi-autistic pattern when young showed a clearly autistic pattern at age 11 (Rutter et al., 2007). Several of those who had grown out of this quasi-autism pattern became much less preoccupied with intense, unusual, circumscribed interests, and showed interests that were more socially adaptive (Rutter et al., 2009b). The

pattern of disinhibited attachment was unusual in children who had not experienced institutional deprivation past the age of 6 months and was relatively common in those who had experienced it beyond 6 months of age (Kumsta et al., 2010). Disinhibited attachment in the institution-reared group usually persisted to age 11 (Rutter et al., 2007).

With respect to cognitive impairment, the ERA project found that institutional deprivation tended to have a lasting deleterious effect on all aspects of cognition. When children were 11 years of age, those who had been adopted prior to 6 months of age fell within the normal range of cognitive functioning, while children who had been adopted after 6 months of age had cognitive deficits (Beckett et al., 2006). Cognitive gains were found at age 15 years in those who had shown impairment at age 11 (Beckett, Castle, Rutter, & Sonuga-Barke, 2010). However, adolescents who had lived in an institution for longer than 6 months before being adopted showed significantly lower IQ scores than those who had been adopted earlier (Beckett et al., 2010). Similarly, institution-reared children continued to show significantly higher levels of inattention/overactivity than UK adoptees at age 11; moreover, children who had been adopted after the age of 6 months from Romania were at particular risk (Rutter et al., 2007).

In terms of recovery, Rutter et al. (2009b) found that, in general, amongst the children placed in a well-functioning family who had shown the most impairment at age 6, there were many cases of continued improvement between the ages of 6 and 11, and through to age 15. As Rutter et al. (1998, p. 475) pointed out, the initial developmental deficit present in the Romanian adoptees was a “function of the children’s prolonged experience of grossly depriving conditions, and that the subsequent catch-up was a function of the radical improvement in rearing conditions”.

The Bucharest Early Intervention Project (BEIP) was the first and only randomised controlled trial of foster care as an intervention for institutionalised children in Bucharest, Romania. It was designed to examine the effects of institutionalisation on young children’s development in order to determine the degree of recovery from early adversity that foster care can provide (Zeanah et al., 2003). This study, which was initiated in 2001, involved the assessment of institutionalised and age-matched non-institutionalised children (aged 11 to 70 months) for cognitive, social, emotional and neural development (Sheridan, Drury, McLaughlin, & Almas, 2010).

The BEIP began with a comprehensive baseline assessment of 136 children and their caregiving environments. Following this, 68 children were randomly assigned to a high-quality foster care intervention group and 68 remained in institutional care (Zeanah et al., 2003). The researchers also recruited 72 typically developing children from paediatric clinics in Bucharest to serve as a comparison group (the home-reared children group). Children were assessed at age 30, 42, and 54 months, 8 years and 12 years (Smyke et al., 2012; Zeanah, Humphreys, Fox, & Nelson, 2017). In almost every domain measured, developmental deficits were observed among the institutionalised children (Nelson et al., 2009). Psychiatric disorder (e.g. attention deficit hyperactivity disorder), and both externalising and internalising disorders were higher among children who had lived in institutions. Removing young children from institutions was shown to reduce the prevalence of internalising psychiatric disorders at 54 months of age (Zeanah et al., 2009). At 12 years of age, children who had remained in foster care showed significantly fewer signs of internalising and externalising disorders (Humphreys et al., 2015).

The BEIP also found that children raised in institutions showed serious attachment disturbances (as measured by the Strange Situation). Amongst them, 65% were classified as disorganised, and 17% (in comparison to 49% of the foster care group) were classified as securely attached at the age of 42 months. Children who had been placed in foster care before the age of 24 months were more likely to have secure attachment with their caregivers (Smyke, Zeanah, Fox, Nelson, & Guthrie, 2010). In addition, institutionalised children displayed less frequent positive affect, and more frequent negative affect, as well as more maladaptive and atypical behaviours, than the group of Romanian children who were living with their parents (Nelson, Furtado, Fox, & Zeanah, 2009; Smyke et al., 2007). “Extreme” social behaviours were found in institutionalised children, with some showing higher levels of withdrawal/inhibition and others showing indiscriminate attachment behaviours/disinhibition (Zeanah et al., 2005). Children in foster care settings showed large reductions in emotionally withdrawn or inhibited behaviour at the age of 30 months. However, at 54 months of age, institutionalised children showed higher levels of indiscriminate social behaviour than children who had never been institutionalised (Gleason et al., 2014). At age 12 years, foster children showed fewer signs of reactive attachment disorder (also known as inhibited behaviour) and disinhibited social engagement disorder (also known as indiscriminate social behaviour) (Humphreys, Nelson, Fox, & Zeanah, 2017).

Recent meta-analytic evidence supports the association between institutional rearing and attachment disturbances (Lionetti et al., 2015). Compared to their family-reared peers, institutionalised children are at greater risk for insecure and disorganised attachment. Similarly, a Chilean study examining attachment organisation and attachment formation among 41 children between the ages of 10 and 47 months showed a higher prevalence of disorganised attachment among institutionalised infants than non-institutionalised infants (Herrerros, 2013). However, surprisingly, half of institutionalised infants displayed secure attachment during the Strange Situation procedure – well above the 17.1% average reported in the Leiden group meta-analysis of attachment in institutionalised children (Bakermans-Kranenburg et al., 2011). Furthermore, 63.5% of the Chilean infants in institutional care were found to show fully formed attachment towards their primary caregiver – significantly higher than the percentage showing attachment organization amongst infants in Romanian orphanages (3%, Zeanah et al., 2005) and Ukrainian institutions (24%, Dobrova-Krol, Bakermans-Kranenburg, Van Ijzendoorn, & Juffer, 2010). It was concluded that family visits to the institutions were an important factor in infants' attachment development. It is important to point out that the quality of the Chilean institutions studied was higher than of Romanian institutions. As Rutter (1998) pointed out, the conditions in Romanian institutions, in all aspects, are incomparably worse than those in almost all industrialised countries. Given this, the extent to which the results of studies of Romanian institutions can be generalised to other countries is questionable. It is therefore important, as Gunnar et al. (2000) argued, to study institutionalised children raised across the world, in order to determine the effects of cultural variation in institutional care.

The BEIP also reported that the cognitive outcome of children reared in institutions was markedly lower than that of both foster children and children who had never been institutionalised (Nelson et al., 2009). Children who had been randomly assigned to foster care showed significant gains in cognitive function compared to institutionalised children at ages of 42 and 54 months (Nelson et al., 2007). These improved cognitive outcomes were most significant in children who had been placed in foster care before the age of 24 months. Similar outcomes were observed with respect to language development: children who had been placed in foster care before the age of 15 months showed better language abilities at the ages of 30 and 42 months (Nelson et al., 2009).

With respect to cognitive functioning, (Gunnar et al., 2000) stated that the majority of studies used non-specific tools (e.g., the Denver Development Screening Questionnaire, the Bayley

Scales of Infant Development and the McCarthy Scales), and thus only general cognitive functioning is measured. To address this issue, van IJzendoorn, Luijk, and Juffer (2008) conducted a meta-analysis on the IQ scores of children in institutions, including studies that specifically assessed IQ using standardised tests (e.g., the Wechsler Intelligence Scale for Children), and concluded that children growing up in institutions show a substantial delay in IQ compared with children reared in (foster or biological) families. The children reared in institutions showed on average an IQ of 84 whereas the average IQ of the comparison group was 104.

In summary, the studies discussed above show a range of differences in socio-emotional development and cognitive outcomes between institutionally-reared and family-reared children, such that institutionalised children display delays and maladaptation in various domains of development. Generally, children reared in institutions show serious disturbances in attachment and an increased likelihood of developing insecure attachment (Gunnar et al., 2000). Post-institutionalised children show lower rates of secure attachment and higher rates of disorganised attachment than the normative distribution of attachment (Van den Dries, et al., 2012). Additionally, children who experience institutionalisation show indiscriminate friendliness, which is described as the most prominent and lasting social abnormality of institutionalised children (Gleason et al., 2014). The BEIP study indicated that institutionalised children show externalising and internalising behaviour problems to a larger extent than do adopted children. Children who experience early social deprivation in institutional settings also exhibit cognitive delays when compared with children living in family settings.

1.4.3 Factors associated with variation in child outcomes.

It has been said that institutionalisation during the first 2 years of life is a salient experience with long-lasting effects on children's development (Vorria et al., 2006). The Canadian study found that the longer the duration of institutional care, the greater the level of behavioural disturbance and the lower the cognitive performance shown by children (Rutter, 2005). In contrast, the BEIP found no association between duration of institutional care, age at placement in an institution, and any of the psychiatric outcomes (Sheridan et al., 2010). Unfortunately, direct comparison of the results of these studies is not possible, due to differences in the

samples (the BEIP sample was more homogeneous) and ages at placement (Sheridan et al., 2010).

As mentioned previously, it is generally accepted that all institutions are not the same. It has been argued that the quality of care in each institution matters greatly. Smyke et al. (2007) found that, for institutionalised children, the percentage of time spent in institutionalised care has less of an impact on developmental outcomes than caregiving quality, which is associated with cognitive development, competence, and negative behaviour. Thus, it appears that the quality of caregiving matters, even in environments of severe deprivation. Smyke et al. (2007) concluded that institutionalisation, in itself, is less important than the micro-caregiving environment within which each child develops.

Similarly, in the Leiden group's study (Dobrova-Krol et al., 2010) comparing 64 Ukrainian uninfected and HIV-infected children reared in families and institutions, institutional care – but not the presence of the immunodeficiency virus – was associated with lower levels of attachment security and higher levels of indiscriminate friendliness. This finding suggests that the structural neglect in child institutional care may be more damaging for attachment formation than living with HIV in potentially at-risk families. Further, Carlson et al. (2014) found that stability and quality of care are critical to attachment formation. Zeanah et al. (2005) also suggested that active engagement with children may promote more developed and organised attachment.

As a final note, it has been argued that in terms of understanding the individual differences it is difficult to separate genetic and environmental factors, and also it is difficult to differentiate the effects of earlier and later environmental influences (e.g., pre-post adoption and pre-post institutional care) (Rutter, 2005; Rutter, Moffitt, & Caspi, 2006; Sonuga-Barke, Schlotz, & Kreppner, 2010). The implication is that all these factors, both risk (e.g., pre-adoptive neglect/abuse, later adoption, prolonged institutional care, and very low quality of care) and protective (e.g., early adoption, sensitive caregivers) must be taken into account to explain the children's outcomes.

1.5 CHILD PROTECTION SYSTEM IN CHILE

1.5.1 Chilean context.

Despite the significant advances made by Latin America society over the past two decades in poverty reduction², extreme income disparities and weak social welfare systems continue to result in widespread vulnerability for children (USAID, 2009). According to Valenzuela and Duryea (2011), in the Latin American context, Chile has the highest per capita income and the Human Development Index³, though the distribution of income is quite unequal. The uneven distribution of wealth in Chile is the highest of any nation in the Organization for Economic Co-operation and Development [OECD] (2017). Indeed, cross country comparisons place Chile amongst those countries with the highest GINI coefficient⁴ (Valenzuela & Duryea, 2011). The significant impact of inequality on children's development has long been recognised by UNICEF (2016). In this regard, it is important to note that, since the re-establishment of democracy in Chile in 1990, democratic governments have taken important steps towards protecting the child (Fuentes, 2007), implementing several changes to childcare policy (for an extensive review see Cárcamo, van der Veer, Vermeer, & van IJzendoorn, 2014). As a result, Chile has now achieved an infant mortality rate similar to that of developed countries. However, Chilean children still face violence, poverty and educational discrimination, daily. Recent figures show that more than 20% of Chilean children live below the poverty line (OECD, 2016), and violence against children is still common, both within the family and in institutions responsible for child protection (UNICEF, 2013b). According to UNICEF, 62% of Chilean children in all social strata are the victims of some type of violence and 28% of these children are the victims of serious violence (UNICEF, 2015).

² Between 2003 and 2012, poverty in Latin America decreased by more than 16% from 41.6% to 25.3% with extreme poverty being halved from 24.5% to 12.3% (Vakis, Rigolini, & Lucchetti, 2015).

³ The Human Development Index (HDI) is an index developed by the UN Development Program as a metric to assess the social and economic development levels of countries. It takes into account three dimensions: life expectancy, education, and per capita income indicators. A country scores higher HDI when the lifespan is higher, the education level is higher, and the GDP per capita is higher.

⁴ The GINI Coefficient measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. The Gini coefficient is a number between 0 and 1, where 0 corresponds with perfect equality and 1 corresponds with perfect inequality.

1.5.2 Child welfare system.

Chile does not have a comprehensive law for the protection of children and, therefore, the existing institutional structure is not based on protection legislation. Instead, the National Service for Children, SENAME⁵, acts in accordance with instructions received from Courts of Justice (Morlachetti, 2015). SENAME, the current child welfare system in Chile, was created in 1979 as part of the Ministry of Justice. In 1990 with the reinstatement of democracy, Chile signed the *UN Convention on the Rights of the Child*. SENAME's work with children is based on these rights. In 2004, the Family Tribunal was created to resolve family and childhood matters. Loss of parental rights in Chile occurs only by court order, stemming from a violation of a child's rights for which parents are deemed responsible (Muñoz-Guzmán, Fischer, Chia, & LaBrenz, 2015). Children without parental care – or those at risk of losing it – are protected by the Law of Minors 16.618, which enables a Family Tribunal to protect them, either by enrolling them or their carers into support programmes and providing preventative services or by arranging for alternative care outside the family home. SENAME is responsible for coordinating and supervising all support programmes and alternative care, including: a) child protection (for instance, placement in residential centres and foster families); b) adoption; and c) youth in conflict with justice.

1.5.3 Adoption programme.

Adoption is fully recognised in Chilean legislation and protected by the Civil Code and special rules, such as the Law No 19.620 on Adoption (launched in 1999). In 1999, Chile also ratified the Inter-American Convention on Conflicts of Laws on the subject of the adoption of minors and the Hague Convention on Protection of Children and Co-operation in Respect of Intercountry Adoption 1993 (Hague Adoption Convention). Articles 20 and following of the Law on Adoption set forth the persons who are authorised to adopt. Children on the national registry have been declared eligible for adoption by a judge and all parental rights to those children have been terminated. An absolute priority exists for married couples, whether they are Chilean or foreign. A single, divorced person or widow can only become an adoptive parent when there are no interested couples to adopt the minor. After a child is successfully matched

⁵ Decree No. 2.465 dated 16 January 1979, created the “Servicio Nacional de Menores” (SENAME) and established the text of its constitution. The constitutional law of SENAME is intended to assist “Minors in need of schooling as well as those who are in school, whose normal and integral development is at risk; displaying unreasonable conduct and in conflict with the law”.

with a family, the family must wait to obtain a hearing with a judge. This wait time is variable, but – according to SENAME – generally ranges from 18 to 24 months. Prospective adoptive parents have the right to decline a specific match.

In Latin-America – and in Chile in particular – adoption predominantly consists of domestic adoptions (Escobar & Santelices, 2013). More than 80% of adoption cases involve Chilean residents (SENAME, 2011), and Chilean adoption law gives priority to Chilean, over non-Chilean, families. All adoptions in Chile are closed, with no contact between the child's birth family and their adoptive family. However, with the Law 19.620, on reaching age 18, Chilean adoptees are legally able to access some information about their background.

In recent years, the number of adoptions in Chile has decreased. According to SENAME, this situation is directly related to the lessening number of children being declared adoptable by Family Courts, a number that dropped 45% between 2012 and 2016. In 2012, the total number of adoptions in Chile, including both national and international adoptions, was 605. In 2013, this number was 596; in 2014, it was 590; in 2015, it was 510; and in 2016, it was 473 (SENAME, 2017). As mentioned above, most adopted children remain in Chile, as approximately 80% of all adoptions are national.

In recent years, greater emphasis has been placed on the need to review and modify the current adoption model (SENAME, 2006). There is ongoing discussion of amendments to the adoption process, in order to promote greater flexibility and to offer alternatives to residential centres for children awaiting adoption.

1.5.4 Residential care programme.

Despite a de-institutionalisation movement in many parts of the world and important advances in contemporary public policy in Latin America, promoting a move from a correctional view towards a rights-based child welfare approach, institutional care remains the main option for children whose parents are unable to care for them in many Latin American countries (Garcia Quiroga & Hamilton-Giachritsis, 2014). In Chile, institutionalisation is an important phenomenon, and there is a marked tendency to place children and adolescents in residential institutions rather than to seek alternative measures (UNICEF, 2003b).

In the late eighteenth century, only one institution in Chile cared for vulnerable children, with no governmental support (Garcia Quiroga & Hamilton-Giachritsis, 2014). Currently in Chile, there are around 250 institutions (or residences) where about 15,000 children and adolescents live due to serious violations of their rights (Garcia Quiroga & Hamilton-Giachritsis, 2014; SENAME, 2015). It has been noted that the existing Chilean protection system does not promote family relationships; rather, it produces the progressive detachment and severance of family bonds (UNICEF, 2003b). Most of the institutional centres are not in the area of the child's hometown (57.4%) and a high percentage of centres impose restrictions on family visits (INDH, 2018a). Regarding to the quality of institutions, SENAME stipulates that institutions should have one educator per seven children to provide direct care during the day, however at night, there are fewer caregivers available and there are no rules regarding the number of shifts (Escobar & Santelices, 2013). According to a recent report published by Chile's National Institute of Human Rights (INDH, 2018) resulting from the observation of SENAME centres, 84.3% of children reported having been punished by staff during the last 12 months. INDH did not find differences between the centres according to region or whether they were in an urban or rural area.

Gunnar (2001) classified institutions into three categories, based on the quality of care they provide: (a) institutions that globally deprive children's health, nutrition, stimulation, and relationship needs; (b) institutions that provide adequate health and nutrition support but deprive children of their stimulation and relationship needs; and (c) institutions that meet all needs except for children's need for stable, long-term relationships with consistent caregivers. The majority of Chilean child care institutions fall under the second category. The residences provide for the children's basic needs (INDH, 2018b) and ensure that they are going to school (de Iruarrizaga, 2015). They are fairly clean environments that provide children with adequate nutrition, but on an organisational level, they suffer from a shortage of resources, high staff turnover and scant inter-professional work (Muñoz-Guzmán et al., 2015). Institutions vary in size from those accommodating 10 children to those housing over 150 children (Gale, 2016). Poor outcomes and several complaints made to the judicial system have triggered an in-depth review of Chilean child welfare services (Muñoz-Guzmán et al., 2015). In 2012, the project "*Levantamiento y unificación de información referente a niños, niñas y adolescentes en sistema residencial a nivel nacional*", collected and standardised information about children in the Chilean residential care system. Its main outcome was the Jeldres Report, which provided an

account of serious rights violations occurring in the SENAME residential system, including lengthy stays in institutions, lack of time limits for judicial decisions, unclear objectives for interventions, lack of adequate health care (especially in mental health), and mistreatment and abuse of children (UNICEF, 2013a).

1.5.5 Foster care programme.

According to reports by SENAME, the Chilean State plans to reduce residential services and extend the number of foster families available for children under the age of three (Muñoz-Guzmán et al., 2015). Foster care has a long history in Chile but has changed over time due to cultural, socioeconomic and regulatory transformations. Since 2005, a new Law (No 20.032) has established guidelines for the foster care programme. Previously, foster care was not regulated and involved a caregiver that raised children in addition to her own, usually in large groups (de Iruarrizaga, 2015). It has been argued, however, that the guidelines for foster care programmes are inadequate (Muñoz-Guzmán et al., 2015). For instance, the criteria for the recruitment of foster families are very general, and there is a lack of clear recommendations for intervention in the case of problems.

Today, there are few foster care programmes in Chile and the foster care system is not centralised (Muñoz-Guzmán et al., 2015). Instead, different programmes are run by different institutions, and with their own models of intervention (Garcia Quiroga & Hamilton-Giachritsis, 2014). The foster family programmes that are implemented by SENAME's collaborating agencies look after approximately 25% of the children that are under state care (Muñoz-Guzmán et al., 2015). The majority of foster care placements in Chile are in the children's extended families (de Iruarrizaga, 2015). Foster care can also be provided by a family that is not related to the child. The foster care programmes provide a regular financial contribution to the family, which has been described as insufficient to cover the needs of the children (Muñoz-Guzmán et al., 2015).

Despite the deinstitutionalisation policy in Chile, the first option for children whose rights have been threatened or violated continues to be institutional care. The available evidence shows that both institutional and foster care are affected by serious limitations that place children who are in the care of the State at risk (de Iruarrizaga, 2015; Muñoz-Guzmán et al., 2015).

1.6 THE PRESENT STUDY

Despite the need for a change in policy and practice relating to the child welfare system in Chile, little research has been conducted on the psychological well-being of children living in alternative care. This is the first study to investigate the psychological adjustment and cognitive functioning of adopted children in comparison to institution-reared children in Chile.

It has been stated that institutionalised children tend to be overlooked by researchers. Therefore, as emphasised by Palacios et al. (2013), comparisons between adopted children and institutionalised children are important, as they increase our understanding of the psychological development of adopted and institution-reared children, and on the impact and benefits of adoption on children. In Western countries, several studies have compared adopted children with non-adopted controls. The majority of non-adopted control groups have consisted of samples from the general population, classmates, and norm groups; however, only a small number of studies have compared adopted children with their institution-reared peers (Juffer & van IJzendoorn, 2005; van IJzendoorn et al., 2005).

This thesis had the following aims:

- a) to examine the quality of parent–child relationships and the psychological development of adopted children raised in Chilean families;
- b) to explore the psychological development of children living in Chilean institutions;
- c) to compare the psychological development of adopted children with those living in institutions
- c) to identify factors associated with the psychological adjustment and cognitive functioning of adopted children.

The specific hypotheses were as follows:

- (1) Adopted children would show higher levels of social, emotional and cognitive functioning than institution-reared children;
- (2) For adopted children, the earlier the placement in the adoptive family, and adoption from foster rather than institutional care would be associated with higher levels of social, emotional and cognitive functioning; and
- (3) For adopted children, higher levels of parental well-being and parenting quality would be associated with higher levels of social, emotional and cognitive functioning.

2. METHOD

This chapter describes the methodology employed in the study. First, the recruitment and sample characteristics are outlined (section 2.1). This is followed by an explanation of the procedure for visiting families in their homes and visiting children in institutional settings (section 2.2), and a discussion of the ethical considerations of the study. Finally, the interview, questionnaire and observational measures are described (section 2.3).

2.1 SAMPLE

Participant recruitment.

Data were collected from 52 adoptive families and 50 institution-reared children, who were recruited in two⁶ regions of Chile: Araucanía⁷ and Metropolitana⁸. Adoptive families were recruited through three Chilean non-state adoption agencies⁹ – Fundación Chilena de la Adopción, Fundación San Jose and Fundación Mi Casa – and through the government agency in charge of childhood protection services (Servicio Nacional de Menores [SENAME]). The inclusion criteria were that the target child was aged between 4 and 9 years; had been living with the adoptive family for at least 12 months; and was a Chilean citizen (through birth) and resident. In order for confidentiality to be maintained, all families were asked to participate by the Director of their respective adoption agency. Parents were told that the aims of the study were to examine child development and the parenting experiences of mothers and fathers in Chilean adoptive families. Parents who agreed to be contacted were approached by mail or by telephone by a main researcher (PJE) to arrange the interview. Not all the agencies involved in recruitment kept systematic records of the families they contacted. However, for those that did

⁶ Chile is comprised of 15 regions.

⁷ The Araucanía Region is in southern Chile. The capital city of the Region is located 670 kilometres (416 miles) south of Santiago. Araucanía is Chile's poorest region in terms of GDP per capita. Seven of the 10 poorest communes in the country are in the Araucanía region, according to the latest survey of National Socioeconomic Characterization [CASEN]. Only one of the institutions visited in the Araucanía region was located in one of these communes. None of the adoptive families lived in any of these communes.

⁸ The Metropolitana Region is where the country's capital, Santiago, is located and where approximately 40% of the population lives.

⁹ In Chile there are four accredited non-state adoption agencies.

so, the cooperation rate was approximately 50%. No information is available on the families that declined participation; some may have done so due to the sensitive nature of the study topic.

Children in the institution-reared group were recruited with the assistance of the Chilean child protection authority (SENAME) from 12 children's institutions in the Araucania and Metropolitana Regions. The inclusion criteria were that the target child was aged between 4 and 9 years; had been living in institutional care for at least the prior 12 consecutive months; and had permanently resided in a care institution since admission. The institutions – and the children living in them – were supervised by SENAME, and it was SENAME that initially placed the children in the institutions after they were separated from their birth families by the judicial system due to a violation of their rights. Almost all of the institution-reared children had parents and or/relatives, and the majority ($n = 31$, 64%) were in contact with their birth families (ranging from regular to sporadic contact). They had been admitted to institutional care due to parental neglect ($n = 34$), sexual abuse ($n = 10$) or maltreatment ($n = 6$). Twenty-one had lived in more than one institution following their initial admission. On the basis of information provided by the staff of each institution (including the Director) and the observations of the main researcher during the visits, ratings were made of the quality of different aspects of institutional care, ranging from good/regular to poor. In those institutions rated as offering care of poorer quality ($n = 31$), staffing levels were very low (about 1 member of staff per 20 children), there were few toys or educational activities, and staff – child interaction and communication was poor or minimal.

Caregivers at institutions were told that they were taking part in a research project studying child development in institutional care. All of the institutional assessments were carried out in a private room with no major disturbances.

Information was also collected from the children's teachers, through two questionnaires. Teachers were contacted through the parents/caregivers when the latter consented to this participation. Each teacher received an envelope with an information letter explaining that the study aimed to examine the effects of different rearing settings on children's development. Questionnaires were sent to 51 teachers for the group of 52 adopted children (one family did not consent to the teacher's participation) and 49 teachers for the group of 50 institutionalised children (1 child was not attending school). In the adopted children group, 43 teachers (82.7%)

completed the questionnaires; in the institution-reared children group, 41 teachers (82%) did so.

Sample Characteristics.

Fifty-two adopted children and a comparison sample of 50 institution-reared children participated in the study. All of the children had been born in Chile and were between 4 and 9 years of age; 23.3% were preschool-aged and the rest were between 6 and 9 years old. The adoptive families lived in two Chilean regions, Metropolitana (69.2%) and Araucania (30, 8%); the institutionalised children lived mostly in institutions located in Araucania (82%), with the rest in Metropolitana (18%). In the study also participated 99 parents and 15 institutional caregivers.

In Chile, a large number of children (approximately 18,000) are under some measure of protection, living in a form of alternative care (e.g. in a children's home or foster care) (Garcia & Hamilton-Giachritsis, 2014). There is significant variability in quality between institutions (Herrerros, 2009). In this study, children were living in 12 different institutions, which also showed significant variability. For example, the maximum capacity of children living in the institutions varied from 20 to 80; there were differences in the child to caregiver ratio (ranging from 8 to 20 children per caregiver); and there were differences in institutional staff training and qualifications. Of the 12 institutions visited, 4 had boys and girls, 6 had girls only, and 2 had boys only.

Demographics of the adopted and institutionalised children.

There were similar proportions of boys and girls in each group. In the adopted children group, there were 31 boys (59.6%) and 21 girls (40.4%). In the institution-reared group, there were 27 boys (54%) and 23 girls (46%). However, there was a significant difference between groups in the age of children: ($t [97] = -2.35, p < .05$), with children in institutions being older at the time of assessment in the present study. The average age of the adopted children was 80.31 months ($SD = 18.24$). With regard to age distribution of the adopted children, 17.3% were 4 years old at the time of interview; 17.3% were 5; 21.2% were 6; 19.2% were 7; 19.2% were 8; and 5.8% were 9. The average age of the institution-reared children was 88 months ($SD = 14.67$) at the

time of study. In terms of age distribution, 8% were 4 years old at the time of interview; 4% were 5; 18% were 6; 38% were 7; 26% were 8; and 6% were 9.

There was a significant difference between groups in the length of placement in care: $t(100) = 5.46, p = .000$. On average, the adopted children had been living with their adoptive families for 61.83 months ($SD = 26.69$) at the time of assessment. The institutionalised children had spent at least 12 months (range 12 to 84 months) in a Chilean institution, and on average had been separated from their family living in institutional settings for 36.30 months ($SD = 19.91$). Regarding age at placement, the adopted children had arrived at their adopted homes at an average age of 18.48 months ($SD = 19.73$). Twenty-five (48.1%) children were adopted from 0 to 6 months of age, six (11.5%) were adopted from 7 to 12 months, four (7.7%) were adopted from 13 to 23 months, and 17 (32.3%) were adopted at 24 months or more. For institution-reared children, the average age at placement in institutional care (age at admission to institutions) was 51.70 months ($SD = 23.57$).

The demographic characteristics of the adopted and institution-reared children are displayed in Table 2.1.

Table 2.1. Demographics of the adopted and institution-reared children

	Adopted children ($n = 52$)		Institution-reared children ($n = 50$)		t	p
	M	SD	M	SD		
Age at assessment	80.31	18.24	88.00	14.67	-2.35	.02
Age at placement	18.48	19.73	51.70	23.57	-7.73	.00
Months living in family/ inst.care	61.83	26.69	36.30	19.91	5.46	.00
	N	%	N	%	χ^2	p
Gender - Boys	31	59.6	27	54	.33	.57
Gender - Girls	21	40.4	23	46		

All of the adopted children were attending school or nursery/preschool. Ten were attending nursery, 14 were attending reception, 8 were attending year 1, 13 were attending year 2, 4 were attending year 3, and 3 were attending year 4. Thirty-four children were attending a private

school (65.4%), 11 were attending a private school with a government subsidy (25%), 3 were attending a state-funded (public) school (5.8%), and 2 were attending a school for children with special educational needs (3.8%). The children in the institutions attended schools in their local community. Forty-nine of them were attending school or nursery/preschool, and all were attending public schools. Four of the children were attending nursery, 4 were attending reception, 18 were attending year 1, 14 were attending year 2, and 8 were attending year 3. One child was attending a special education school, and one was not attending school.

Information on the adopted children pre-placement.

It was not possible to collect comprehensive and systematic data on the pre-adoption history of children in the adopted group, as not all parents had full and accurate information on their child's early experiences. The information that was available showed that the proportion of children who had previously lived in foster care was 30.8% ($n = 16$) and the remaining 69.2% ($n = 36$) had lived in institutional care (Table 2.2). Twelve of the children who had lived in institutions and one who had lived in foster care had previously lived with their biological mother or biological grandparents, for an average of 18.23 months ($SD = 11.52$, range; 1 to 36 months). Two children had experienced adoption breakdowns. According to the adoptive parents' reports, the majority ($n = 27$, 51.9%) of the children had experienced adverse conditions before the adoption placement (Table 2.2). Twelve children had experienced neglect; 3 children had suffered from prenatal exposure to alcohol or drugs; 8 had experienced extreme poverty (three children had lived on the streets with their mothers); and 4 had been the victims of maltreatment. Nineteen children (36.5%) had no history of unfavourable conditions before placement, and 6 (11.5%) had an unknown history.

Table 2.2. Adopted children's early experiences

<i>Previous caregiving environment</i>	<i>N</i>	<i>%</i>
Lived in foster care	15	28.8
Lived in institution	22	42.3
Lived with biological family then institution	12	23.1
Lived with biological family then foster care	1	1.9
Adoption breakdown	2	3.8
Total	52	100

<i>Early adversity</i>	<i>N</i>	<i>%</i>
No early adversity	19	36.5%
Neglect	12	23.1%
Prenatal exposure to alcohol or drugs	3	5.8%
Extreme poverty	8	15.4%
Maltreatment	4	7.7%
Unknown	6	11.5%
Total	52	100

Adopted children's placement.

According to parents' reports, at the time of placement with their adoptive families, 46.2% of the children presented some type of language disorder (ranging from an extremely poor vocabulary to verbal dyspraxia) or showed some kind of emotional disturbance, such as excessive crying, tantrums, or aggressive behaviour (disinhibition), or withdrawal or lack of emotional expression (inhibition) (see Table 2.3).

Table 2.3 Adopted children's difficulties at the time of placement

Language disorder	<i>N</i>	<i>%</i>
Yes	15	28.8
No	37	71.2

Emotional disturbance	<i>N</i>	<i>%</i>
Inhibition	10	19.2
Disinhibition	9	17.3
No problem	33	63.5

Language disorder or Emotional disturbance	<i>N</i>	<i>%</i>
Yes	24	46.2
No	28	53.8

Demographic characteristics of the adoptive parents.

The demographic details for the mothers and fathers are shown in Table 2.4. Fifty-two adoptive mothers and 49 adoptive fathers participated in the research. Three of the mothers had no partner and, hence, no partner data was obtained. The mothers' ages ranged from 32 to 54 years, with a mean of 42.56 years ($SD = 5.40$); the fathers' ages ranged from 33 to 68 years, with a mean of 43.71 years ($SD = 5.91$). Thirty-eight of the mothers (73.1%) and 47 of the fathers (95.9%) were working at the time of their child's assessment. The majority of the mothers and fathers had professional occupations (mothers 51.9%, fathers 71.4%), and 69.2 % of the mothers and 75.5% of the fathers held a university degree.

Families' socioeconomic levels were defined according to the parents' income and level of education, with the distribution as follows: high socioeconomic level (19.2%), middle socioeconomic level (75%), and low socioeconomic level (5.8%).

Table 2.4. Demographic information for adoptive parents

	M	SD	Min	Max
Mothers age	42.56	5.40	32	54
Fathers age	43.71	5.91	33	68
	N	%		
Mother working Status				
Not working	14	26.9		
Part time	13	25		
Full time	25	48.1		
Father working Status				
Not working	2	4.1		
Part time	0	0		
Full time	47	95.9		
	Mothers (N=52)		Fathers (N=49)	
	N	%	N	%
Education				
None	0	0	0	0
Incomplete primary	2	3.8	0	0
Complete primary	1	1.9	0	0
Incomplete secondary	1	1.9	2	4.1
Complete secondary	3	5.8	1	2.0
Higher education				
Technical degree	9	17.3	9	18.4
Professional degree	29	55.8	20	40.8
Masters degree	6	11.5	15	30.6
Doctoral degree (PhD)	1	1.9	2	4.1
Household monthly income				
	N	%		
Under £600	3	5.8		
£600-£1600	13	25		
£1600-£3000	14	26.9		
£3000-£5000	12	23.1		
Over £5000	10	19.2		

In terms of family structure, 94.2% of the children were living with both parents (48 married couples, 1 cohabiting couple) and 5.8% were living with single mothers (1 divorced, 2 single mothers by choice). Thirty-five of the children had a sibling and 7 had an adopted full genetic sibling. In 32.7% of the adoptive families there was only one child, 51.9% of the adoptive families had two children, 7.7% had three, and 7.7% had four.

2.2 PROCEDURE

Description.

Data were obtained from adoptive families during visits to their homes and data from institutionalised children were obtained during visits to their institutions or residential centres. To accommodate the different settings, different procedures were used. All measures were administered by the main researcher (PJE) or three research assistants who had received specialised training from the main researcher.

Adoptive families were first contacted by the adoption agency, which invited them to participate in the study. The researcher only had access to data relating to the families who consented to being contacted for the study. These families were contacted by email and/or by telephone to arrange for a home visit. Data were obtained from 29 families through a visit by the main researcher and one of three trained research assistants, and from 23 families through a visit by the main researcher only. Each visit lasted approximately 4 hours.

During the visit, the main researcher explained the study and the observation procedure to both the parents and the child, in detail. Prior to data collection, parents were given an information sheet (see Appendix 1) and the opportunity to ask questions about the study in general. Written informed consent to participate in the study was obtained from each parent and verbal assent was obtained from the child (Appendix 2). Both parents signed a consent form on their child's behalf, permitting them to take part in the study (Appendix 3).

Standardised interviews relating to parenting and the quality of the parent–child relationship were conducted with mothers and fathers, separately, and were audio-recorded. These interviews were adapted from a procedure developed by Quinton and Rutter (1988), which has been validated against observational ratings of parent–child relationships in the home and has demonstrated a high level of agreement between interviewers' and observers' global ratings of parenting quality. Each interview lasted approximately 1.5 hours.

Information obtained from the interview with mothers and fathers was rated according to a standardised coding scheme (Quinton & Rutter, 1988). The interviews were conducted face-to-face. In one case, a mother opted to be interviewed over the telephone and this interview

was coded in exactly the same way. One father was unavailable for a home interview due to work commitments; therefore, his interview was conducted at his place of work.

Following the interviews, an observational measure of mother–child interaction was conducted. Mothers and children were given 10 minutes to complete a drawing task using an Etch-A-Sketch toy. With the parent’s permission, this interaction was videotaped. The observational task allowed for a detailed assessment of the quality of the dynamic interaction between parent and child, which the questionnaires and interview measures may have been less able to capture.

In addition to completing the interview and observational task, the mothers and fathers filled in a questionnaire booklet which took them approximately 20 minutes. The majority of the questionnaires were completed at home. In some cases, the questionnaire booklets were left with the parents to complete in their own time and the researcher later retrieved the booklets from the participants’ homes.

The children were assessed using the Structured Child Assessment of Relationships in Families (SCARF). Children who were aged 6 years or older were also administered the Wechsler Intelligence Scale for Children – Third Edition six-subtest short form (WISC-III). The SCARF booklet took approximately 15 minutes to complete, and the administration time for the WISC-III was approximately 35 minutes. In all cases, the WISC-III was administered by the main researcher, who is trained in psychological assessment.

Finally, during the visit, parents were asked to consent to the child’s teacher being sent two questionnaires designed to assess the child’s psychological adjustment. If permission was granted, the Strengths and Difficulties Questionnaire (Goodman, 1994) and the Relationships Problems Questionnaire (Minnis et al., 2002, 2007) were sent to the child’s teacher. Teachers received an envelope containing a covering letter and both questionnaires. The covering letter explained that their responses would be confidential and would not be reported back to the child’s parents (see Appendix 4). For all teachers who participated in this study, informed consent was obtained (see Appendix 5). The covering letter explained that the child was participating in a family research project; no information was given regarding the exact nature of the study.

In the institutional settings, SENAME facilitated the selection of children and access to these children. Institution directors were contacted via email or telephone and, after receiving the information about the study, were asked to take part. When consent was given, a visit to the institution was arranged. Institution-reared children were visited at the institutions. Data were collected from the main caregiver through questionnaires. The children were assessed using the SCARF and children who were aged 6 years or older were also administered the WISC-III, short-form.

During the visit, the Director of the institution or the main caregiver was asked for permission to send the child's teacher questionnaires designed to assess the child's psychological adjustment. Teachers were sent two questionnaires and a covering letter, which explained that their responses would be confidential (see Appendix 4). Written informed consent was obtained from the teachers (see Appendix 5). The covering letter stated that the child was participating in a research project about different rearing settings; no information was given regarding the exact nature of the study.

The participants in this study did not receive compensation.

Ethical considerations.

Ethical approval for this study was obtained from the University of Cambridge Psychology Research Ethics Committee. When contacting families to ask if they would be interested in taking part in the study, the main researcher spoke only with the parents, themselves, and messages were never left with family members or on the family's answering machine. The study was referred to as the "Chilean Adoption Study", both colloquially and in all letters sent to the families' homes.

All participants signed an informed consent form indicating that they understood the nature of the research. All children gave verbal consent, and adults, parents, and caregivers (at institutions), signed consent forms for themselves and their children. Participants were assured that they were free to withdraw from the study at any time.

An important ethical consideration in studies of this nature concerns the communication of findings to participants. Parents were given the opportunity to request information on the study

findings. Once the study is complete and the findings have been published, a report will be created to summarise the published findings, and parents will be given the option to request this information.

As the children living in institutions were in the custody of local governmental officials, informed consent was provided by legally responsible personnel. Regarding communication of findings to the institutions that participated, a report will also be created summarising the findings from this study.

2.3 MEASURES

For adoptive families, two aspects of family functioning were assessed: parental well-being and the quality of the parent–child relationship. For both the adopted and the institution-reared children, a third aspect was assessed: children’s psychological development. The interview, questionnaire, and observational measures that were employed are described below. The measures included in this study and the constructs they assessed are presented in Table 2.5.

Table 2.5. Description of measures

Measure	Construct	Informant	Type of measure
Trait-Anxiety Inventory	Stable aspects of “anxiety proneness”	Parent	Questionnaire
Beck Depression Inventory (BDI-II)	The existence and severity of symptoms of depression	Parent	Questionnaire
Parental Stress Index Short Form (PSI-SF)	Parent-child problems areas	Parent	Questionnaire
Golombok Rust Inventory of Marital State (GRIMS)	Quality of the relationship between a married or cohabiting couple	Parent	Questionnaire
Parenting Interview (Quinton & Rutter, 1988)	Socio-demographic family data Parenting quality and children’s psychological problems	Mother and father	Interview
Etch-A-Sketch	Mother–child interaction	Mother and child	Observational task
Strengths and Difficulties Questionnaire (SDQ)	Children’s emotional and behavioural problems	Parent/caregiver /teacher	Questionnaire
Relationships Problems Questionnaire (RPQ)	Symptoms associated with attachment disorders	Parent/caregiver /teacher	Questionnaire
Structured Child Assessment of Relationships in Families (SCARF)	Children’s perceptions of family relationships	Child	Non-verbal test
Wechsler Intelligence Scale for Children (WISC-III)	Cognitive ability	Child	Verbal and non-verbal test

Parental well-being.

The Trait-Anxiety Inventory (TAI; Spielberger, 1983), which is a 20-item questionnaire used to measure an individual's general level of anxiety, was administered to adoptive mothers and fathers. Scores on this questionnaire range from 20 to 80, with higher scores reflecting greater anxiety. The North American manual reports norms for a sample of working adults: for men, the mean TAI score is 34.89 ($SD = 9.19$) and women have a mean TAI score of 34.79 ($SD = 9.22$). This questionnaire is one of the most long-standing and frequently used measures of trait anxiety, having appeared in more than 3,000 studies (Spielberger, 1989). The TAI has been translated and adapted into 48 languages. It has been shown to have good reliability and to discriminate well between clinical and non-clinical samples (Spielberger, 1983). A Chilean study of the TAI demonstrated high internal consistency ($\alpha = .87$) for a general population sample (Vera-Villaruel, Atenas, Córdoba-Rubio, Buela-Casal, & Spielberger, 2007) and a 90th percentile score of 37 for women and 36 for men. In the present study, Cronbach's alpha for the mothers' scores was .73 and for the fathers' scores, was .83, suggesting acceptable internal consistency.

The Beck Depression Inventory, Second Edition (BDI-II; Beck, Steer, & Brown, 1996) as also administered to mothers and fathers to assess their levels of depression. The BDI-II is a widely used instrument that provides information about the presence and severity of depressive symptoms. The BDI was originally developed to detect, assess, and monitor changes in depressive symptoms among individuals in both mental health care and primary care settings. A second version of the inventory (BDI-II) was developed to reflect revisions in the DSM-IV (APA, 1994). The measure is a 21-item self-report inventory of symptoms of depression that has been used with both psychiatric and non-psychiatric samples. Scores on the individual items range from 0 to 3. For each item, respondents choose the statement that best represents their mood over the past 2 weeks. Total BDI-II scores range from 0 to 63, with higher scores reflecting higher levels of depression. A cut-off score of 14 or above is typically used to identify patients with at least mild symptoms of depression (Beck et al., 1996). The BDI-II has excellent reliability and validity (Wang & Gorenstein, 2013) and showed high internal consistency in a Chilean study of adolescents ($\alpha = .91$) (Melipillan, Cova, Rincon, & Valdivia, 2008). In the present study, Cronbach's alpha for the mothers' questionnaires was .78 and for the fathers' questionnaires, .90, indicating high internal consistency.

Mothers and fathers also completed the Parenting Stress Index – Short Form (PSI-SF; Abidin, 1990). The PSI-SF, is a brief version of the Parenting Stress Index which is a widely used and well-researched measure of stress associated with parenting. The PSI-SF is a 36-item self-report questionnaire with three subscales (Parental Distress, Parent–Child Dysfunctional Interaction, and Difficult Child); the scores on each subscale are combined to produce a total stress score that indicates the overall experience of parenting stress (Abidin, 1995). Total scores range from 36 to 180, with higher scores reflecting greater levels of stress experienced by the parent. The measure is both reliable and valid. A study of Chilean mothers concluded that the PSI-SF is an effective instrument for measuring parenting stress and that, due to its psychometric characteristics, it can be applied to the Chilean population (Aracena et al., 2016). The present study used the original version of the PSI-SF, which was developed and translated to Spanish by its original authors (Abidin, 1995). In the present study, Cronbach’s alpha was .97 for the mothers’ scores and .90 for the fathers’ scores, indicating high internal consistency.

In addition, mothers and fathers completed the Golombok Rust Inventory of Marital State (Rust, Bennun, Crowe, & Golombok, 1990), which is a 28-item questionnaire assessing the overall quality of the relationship between married or cohabiting couples. Each item is rated on a 4-point scale and scores range from 0 to 84, with higher scores indicating poorer relationship quality. Scores greater than 34 indicate relationship dissatisfaction. The measure produces an overall score of relationship quality for the male and female partner separately. Split-half reliability for this measure is .91 for men and .87 for women, and the questionnaire has been shown to significantly discriminate between couples who are about to separate and those who are not (Rust et al., 1990) demonstrating discriminate validity. Cronbach’s alpha for the current sample was .81 for the mothers and .88 for the fathers, indicating good internal consistency.

Parent–child relationships.

For the adoptive families, each parent was interviewed independently through an adaptation of a standardised interview that had been designed to assess parenting quality (Quinton & Rutter, 1988). During the interviews, detailed accounts were obtained of the child’s behaviour and the parent’s response to it, with reference to the child’s progress at school, peer adjustment, and relationships within the family unit. Particular attention was paid to parent-child interactions

relating to issues of parental warmth and control, and to the child's social and emotional development. Information obtained from the interview was rated according to a standardised coding scheme (Quinton & Rutter, 1988). The following variables relating to the quality of the parent-child relationship were coded:

Mother (father)-to-child warmth: This was a rating of the frequency and spontaneity of affection shown by the mother to the child. It was scored on a 4-point scale ranging from 0 (*little or no warmth*) to 1 (*some warmth*), 2 (*moderate warmth*), and 3 (*marked warmth*). A rating of 1 was made when there was evidence of routine or ritualistic demonstrations of affection, such as watching television or having meals together. When such demonstrations were absent, a rating of 0 was made. A rating of 2 was made when the level of expressed affection seemed within normal bounds, but without particular closeness or an excess of demonstrative behaviour. A rating of 3 was reserved for relationships with clear and overt physical affection and/or expressions of warmth and positive feelings about each other.

Child-to-mother (father) warmth. This rating represented the frequency and spontaneity of affection shown by the child to the mother. Ratings ranged from 0 (*little or none*) to 3 (*high*).

Mother's (father's) enjoyment of play. This rating assessed the extent to which the mother enjoyed playing with the child. Ratings ranged from 1 (*little or none*) to 4 (*a great deal*).

Expressed Warmth. This rating was based on information obtained from the entire interview. The interviewer took into account factors such as the mother's tone of voice and facial expressions when talking about the child, spontaneous expressions of warmth, sympathy and concern about any difficulties experienced by the child, and interest and enthusiasm in the child as a person. Ratings were made on a 6-point scale ranging from 0 (*no warmth*) to 1 (*little warmth*), 2 (*some warmth*), 3 (*moderate warmth*), 4 (*moderately high warmth*), and 5 (*high warmth*). Instances with definite and clear warmth, enthusiasm, interest in, and enjoyment of the child were rated as 4 or 5, according to the amount of warmth and enthusiasm expressed. Instances with definite understanding, sympathy, and concern but only limited warmth were rated as 2 or 3. Ratings of 0 or 1 were made when there was little or no understanding, sympathy, and concern, and no warmth, enthusiasm, interest in, or enjoyment of the child.

Quantity of interaction. This was a rating of the amount of time the parent and child spent in shared activities based on parents' reports of the amount of activities the parent and child share in a regular basis. Ratings were made on a 3-point scale ranging from 1 (*a little*) to 3 (*high*).

Quality of Interaction. This was a rating of the quality of interaction between the parent and the child based on parents' reports of the extent to which the parent and child enjoyed each other's company, wanted to be with one another, and spent time together. This rating was also based on the extent to which the child and mother showed affection to one another and the extent to which the mother took responsibility for the child. Ratings were made on a 5-point scale ranging from 0 (*very poor*) to 1 (*poor*), 2 (*moderate*), 3 (*good*), and 4 (*very good*).

Sensitive Responding. This was a rating of each parent's ability to recognise when their child was worried or anxious and respond appropriately to the child's needs. Ratings ranged from 1 (*somewhat sensitive*) to 2 (*average sensitivity*), 3 (*above average sensitivity*), and 4 (*very sensitive*). Parents with a limited ability to recognise anxiety or worry in their child and little empathy for any difficulties experienced by the child were rated as 1. This rating was made when the child was often left to sort out difficulties independently, or when the parent's response showed little flexibility or imagination. Parents who recognised and responded appropriately to their child's fears, anxieties, and worries, showing a sympathetic and comforting response were rated as 2. With this rating, the style of responding tended to be the same, regardless of the problem, and solutions frequently included culturally stereotyped responses. Parents who recognised worries and anxieties on the basis of non-verbal cues and who were able to anticipate anxiety-provoking situations were rated as 3. Parents who were rated as 4, showed the same behaviours as parents rated as 3, but also a keen awareness of the child as an individual; they actively assisted the child in anticipating and confronting problems, maximising the probability that the child would learn from the experience and would cope better in the future.

Frequency of Battles. This was a rating of the frequency of parent-child conflict. Parents were asked how often they had argued or fought with their child over the past 3 months. Ratings were made on a 5-point scale ranging from 1 (*never*) to 2 (*rarely*), 3 (*occasionally*), 4 (*frequently*), and 5 (*all the time*).

Level of Battles. This was a rating of the severity of parent– child conflict. Ratings were made on a 4-point scale ranging from 0 (*no confrontations*) to 1 (*minor*), 2 (*moderate*), and 3 (*major*). Minor episodes of confrontation were considered incidents that lasted no longer than 5 minutes. If confrontations lasted longer than 5 minutes, or usually involved a loss of temper or definite disciplinary activity such as sending the child to his/her room, a rating of 2 was given. A rating of 3 was given when incidents lasted half an hour or longer and involved loss of temper on one or both sides.

Criticism. This was a rating of the amount of criticism of the child by the parent. Ratings were made on a 5-point scale ranging from 0 (*none*) to 4 (*considerable*).

Control. This was a rating of the effectiveness of the parent’s strategies in controlling their child’s behaviour. Ratings were made on a 5-point scale ranging from 0 (*little or no control*), 1 (*poor control*) to 2 (*average*), 3 (*good*), and 4 (*over controlling*). Parents with a rating of 0, were unconcerned about their child’s whereabouts when outside the home, had little or no knowledge or concern over the child’s companions, and had set no clear time for the child to be home. Parents who were rated as 1 may have had rules and concerns about territory, time in, and companions, but these were considered too permissive for the child’s age and/or poorly defined and/or weakly enforced. Parents rated as 2 were generally aware of where their child was and with whom, at all times. Parents with this rating supervised their children as a matter of routine, and their action was mostly stimulated by transgression. Parents who exercised day-to-day monitoring of their child’s out-of-home activities on a flexible basis, allowing trips further than the normal routine only when there was adequate safety or supervision, were rated as 3. Optimum supervision was considered that which permitted the child’s exploration of the outside world whilst maintaining safety and control. Parents rated as 4 were generally over-controlling and restrictive of the child’s opportunities for exercising initiative.

Emotional Over-Involvement. This was a rating of the parent’s level of emotional over-involvement with the infant. Ratings ranged from 0 (*little or none*) to 1 (*some*), 2 (*moderate*), and 3 (*enmeshed*). Ratings took account of the following factors: the extent to which the parent was over-concerned or overprotective of the infant, the extent to which the parent had interests unrelated to the infant, the extent to which the needs, desires or interests of the infant were placed before other members of the family, and the extent to which the parent was willing to leave the infant with other caregivers

Emotional Under-Involvement. This rating took into account the extent to which family life and the emotional functioning of the parents is centred in the child. Ratings ranged from 0 (*little or none*) to 1 (*some*), 2 (*moderate*), and 3 (*detached/dismissive*).

Disciplinary Aggression. This was a rating based on the level of anger shown by the parent toward the child. Disciplinary aggression was rated on a 6-point scale, ranging from 0 (*none*) to 1 (*some*), 2 (*average*), 3 (*somewhat aggressive*), 4 (*aggressive*), and 5 (*abusive*). This rating measured parents' demonstrations of irritability, loss of temper, and physical aggression.

Disciplinary Indulgence. This was a rating of the disciplinary indulgence shown by parents. Disciplinary indulgence was rated on a 6-point scale, ranging from 0 (*none*) to 1 (*little*), 2 (*average*), 3 (*easy-going*), 4 (*somewhat indulgent*), and 5 (*indulgent*), based on the extent to which the parent let the child get away with things.

To assess inter-rater reliability for the ratings made from the mothers' and fathers' interviews, 30 out of 98 interviews (31%) were randomly selected and coded simultaneously by two trained coders. Over the span of 1 month, regular meetings were held to code the interviews and minimise discrepancies. Once good inter-rater reliability was achieved, the research assistant was assigned 27 of the remaining interviews to code independently in order to establish reliability in the coding. Intra-class correlations (single rater, absolute agreement) were as follow: .83 for sensitive responding, .75 for expressed warmth, .51 for quantity of interaction, .81 for quality of interaction, .87 for warmth parent to child, .52 for warmth child to parent, .74 for enjoyment of play, .50 for confiding, .91 for disciplinary aggression, .85 for criticism, .66 for level of battle, .94 for frequency of battle, .79 for resolution, .71 for emotional over-involvement, .66 for emotional under-involvement, .69 for disciplinary indulgence, and .95 for control.

Mother–child interaction.

Mothers and children were administered the Etch-A-Sketch task (Stevenson-Hinde, 1995) as an observational measure of dyadic parent–child interaction. This task was chosen because it was age-appropriate and could be taken into the family home. The Etch-A-Sketch is a drawing tool with two dials that allow one person to draw vertically and the other to draw horizontally.

The mother and child were asked to copy a picture of a house, each using one dial only, with clear instructions not to use the other dial. The number of observers was limited, where possible, to ensure that pure dyadic parent–child interaction could be observed. The sessions were video-recorded, and all sessions were coded (see Appendix 6) according to the Parent–Child Interaction System (PARCHISY; Deater-Deckard & O’Connor, 2000; Deater-Deckard & Petrill, 2004), to assess the construct of mutuality; that is, the extent to which the parent and child engaged in positive dyadic interaction characterized by warmth, mutual responsiveness, and cooperation.

The PARCHISY is an 18-item rating scale that measures parent–child interaction. The coding scheme is widely used in both community and clinical research. The 18 items in the PARCHISY comprise 7 items for mothers, 8 items for children, and 3 items for dyadic interaction. The items are rated on a 7-point scale, ranging from 1 (*no occurrence of the behaviour*) to 7 (*continual occurrence of the behaviour*). The PARCHISY coding scheme has been shown to discriminate between mothers of children who are “hard to manage” and control (Deater-Deckard, Atzaba-Poria, & Pike, 2004) and to predict individual differences in children’s social adjustment (Ensor & Hughes, 2010), thus demonstrating validity as a measure of parent–child interaction. In this study, the variables of *Mother Responsiveness to Child*, *Child Responsiveness to Mother*, *Dyadic Cooperation* and *Dyadic Reciprocity* were rated from the mother-child observational task. In previous investigations of mother-child interactions, these four codes have been combined to form the construct of mutuality (Kochanska, 1997).

Mother Responsiveness to Child. This is a rating of the mother’s responsiveness to the child’s comments, questions and behaviours, ranging from 1 (never responds, ignores child’s comments, questions, and behaviours) to 2 (one or two instances of responding to child), 3 (a few/several instances of responding to child), 4 (moderate amounts of responsiveness, responds to about half of the child’s comments, questions and behaviours, although some responses may be delayed), 5 (responds more than half the time), 6 (responds to most of the child’s comments, questions and behaviours, only one or two instances of non-responsiveness), and 7 (mother always responds immediately to the child, expanding on comments made).

Child Responsiveness to Mother. This is a rating of the child’s responsiveness to the mother’s questions, comments, and behaviours. Responses can be verbal or behavioural, and range from 1 (never responds, ignores parent’s comments, questions, and behaviours) to 2 (one or two instances of responding to parent), 3 (a few/several instances of responding to parent), 4

(moderate amounts of responsiveness – responds to about half of the mother’s comments, questions, or behaviours, although some responses may be delayed), 5 (responds more than half the time, with only a few delays in responses), 6 (responds to most of the parent’s comments, questions and behaviours, expands on some comments made by the parent, only one or two instances of non-responsiveness), and 7 (always responds immediately to mother, expands on some comments made by mother).

Dyadic Reciprocity: This is a rating of shared positive affect, eye contact, and a “turn taking” (i.e. conversation-like) quality of interaction. Ratings range from 1 (no evidence of reciprocity) to 2 (one or two instances of reciprocity [either shared affect or eye contact]), 3 (a few/several instances of reciprocity [either shared affect or shared eye contact]), 4 (moderate levels of reciprocity, evidence of both shared affect and eye contact, some evidence of conversation-like interaction), 5 (clear evidence of reciprocity, one or two episodes of intense shared positive affect coupled with eye contact that is sustained for several “turns” between parent and child), 6 (substantial reciprocity involving numerous episodes of shared affect coupled with eye contact that is sustained for several “turns”, only one or two instances of non-reciprocity), and 7 (highly integrated and reciprocal – constant shared affect and eye contact that never loses its turn-taking quality).

Dyadic Cooperation: This is a rating of explicit agreement and discussion as to how to proceed with and complete the task (e.g. mother asks, “Shall we do this next?” and child says, “Yes”). Ratings range from 1 (no evidence of cooperation during task) to 2 (one or two instances of cooperation), 3 (a few/several instances of cooperation), 4 (moderate amounts of cooperation that is present for approximately half of the interaction), 5 (cooperative interaction throughout, with a few/several instances of lack of explicit cooperation), 6 (substantial cooperation throughout, with one or two instances of lack of explicit cooperation), and 7 (highly cooperative interaction for entire task).

Recordings of mother–child interaction from the Etch-A-Sketch task, were coded independently by the main researcher (PJE) and one research assistant, both trained on the PARCHISY coding system. To establish reliability in the coding, 14 out of 52 videos were coded simultaneously by trained coders. Once good inter-rater reliability was achieved, the research assistant was assigned 88% of the remaining videos to code as a second rater. Intra-class correlations (single rater, absolute agreement) for the ratings from the PARCHISY coding

system were as follows: .88 for responsiveness mother to child, .98 for cooperation, .92 for reciprocity, and .62 for responsiveness child to mother.

Children's perceptions of family relationships.

To assess children's subjective feelings and experiences of family relationships, the Structured Child Assessment of Relationships in Families (SCARF; Strachan, Lund, & Garcia, 2010) was used. This is an interactive instrument for children aged 4 to 14 years that obtains information in a systematic and engaging way about their feelings towards and perceptions of their parents. The SCARF tackles domains such as emotional security, positive parenting, negative parenting, and co-parenting. The child is able to select different family members (e.g. mother, father, grandmother, grandparent, siblings) when answering a question (e.g., "Who do you want to be with when you get scared at night?"; "Who do you like to hug or cuddle?"; "Who helps you with your homework?").

The SCARF, follows a non-threatening structured interview format in which the child uses colourful stamps to respond to questions about parents and other family members. It was administered to both adopted and institutionalised children. The instrument consists of 64 items, which are subdivided into four dimensions (each with sub-scales): Perception of Emotional Security, Perception of Positive Parenting, Perception of Negative Parenting, and Co-parenting. The SCARF has shown good reliability for three dimensions: Emotional Security, Positive Parenting, and Negative Parenting (.94, .89, and .83, respectively). The average reliability of the Co-parenting sub-scales was .57 (Strachan et al., 2010).

In the present study, two dimensions were assessed: Perception of Emotional Security (with three sub-scales and a maximum score of 15) and Perception of Positive Parenting (with five sub-scales and a maximum score of 21). High scores on the first dimension were indicative of positive children's perceptions of emotional security, closeness, and responsiveness; high scores on the second dimension were indicative of positive perceptions of parental behaviours, such as showing affection, setting reasonable limits, giving routine care, supporting the child emotionally, and supporting the child's school and activities.

The SCARF was completed by 50 adopted children¹⁰, who were asked about their perceptions of adoptive mothers and fathers, and 50 institutionalised who were asked about their perceptions of biological mothers and fathers and also about their caregiver(s)¹¹.

Cronbach's alpha for the Emotional Security dimension was .94 for mothers and .94 for fathers, and for the Positive Parenting dimension it was .94 for mothers and .94 for fathers, indicating excellent internal consistency.

Children's psychological adjustment.

The presence of behavioural or emotional problems in the children was assessed using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1994, 1997). This measure was administered to adoptive mothers, adoptive fathers, caregivers at the institutions, and children's teachers, to produce total scores of child adjustment problems, externalising problems and internalising problems (Goodman, Lamping, & Ploubidis, 2010), with higher scores indicating greater problems. The content of the SDQ for teachers and caregivers was identical to the parent-report version of the SDQ. The 25-item questionnaire rates is appropriate for children aged between 4 and 16 years. The utility of the SDQ as a screening instrument for psychiatric disorders among children in different countries has been extensively reported (e.g., Goodman, Ford, Simmons, Gatward, & Meltzer, 2000; Mathai, Anderson, & Bourne, 2004). The questionnaire comprises five subscales: Conduct Problems, Hyperactivity, Emotional Difficulties, Peer Problems, and Pro-social Behaviour. With the exception of the Pro-social subscale, each domain comprises items based on key symptoms of DSM-IV diagnoses. Some sample items are: "Often loses temper" (Item 5, Conduct Problems scale); "Helpful if someone is hurt, upset, or feeling ill" (Item 9, Prosocial scale); "Easily distracted, concentration wanders" (Item 15, Hyperactivity scale). Scores on each of the five scales range from 0 to 10. Scores are summed and higher scores indicate more internalising (emotional symptoms and peer problems) and externalising (conduct problems and hyperactivity) behaviours. Total difficulties scores are computed by adding all the individual scale scores except Prosocial, so

¹⁰ Two adopted children did not complete the SCARF due to lack of time.

¹¹ Two institution-reared children did not respond about their mother and father, as they did not have any contact with them. They respond about their caregivers. Three children did not respond about fathers due absolutely lack of contact. The answers analysed were only those referred to the parents and not to the caregivers.

difficulties scores range from 0 to 40 points, with higher scores indicating greater adjustment problems. The number of children who obtained a parent/carer - and teacher - rated total SDQ scores above the cut-off levels for psychiatric disorder was also calculated. These cut-off points are 14 for parent/carer and 12 for teacher for total difficulties.

The questionnaire has been found to have good inter-rater reliability, with a reported correlation between parent and teacher total difficulties scores of .62. In addition, the SDQ discriminates well between psychiatric and non-psychiatric samples. In this study, the official copyrighted Spanish version of the SDQ, as published on the instrument's web page, was used and found to be reliable. Cronbach's alpha was .79 for mothers, .76 for fathers, .75 for caregivers, and .80 for teachers.

Assessment of children's serious difficulties with attachment was carried out using the Minnis' Relationship Problems Questionnaire (RPQ; Minnis et al., 2007). The RPQ is a 10-item parent/carer and teacher-report instrument that screens attachment disorder behaviours of both the inhibited and disinhibited types, as described in the DSM-IV (Minnis, Rabe-Hesketh, & Wolkind, 2002). The scale has an internal consistency of .85 (Minnis et al., 2007) and has been validated against attachment disorder diagnoses in epidemiological research (Minnis et al., 2013). Factor analysis has identified that six items describe inhibited behaviours and four describe disinhibited behaviours (Pritchett, Pritchett, Marshall, Davidson, & Minnis, 2013). Total scores ranged from 0 to 30. Children with parent/carer or teacher RPQ scores of 7 or higher were defined as "likely cases" and screened as positive. Sample items include: "Gets too physically close to strangers" (disinhibited behaviour) and "Sometimes looks frozen with fear, without an obvious reason" (inhibited behaviour). For each item, there were four possible responses (exactly like my child; like my child; a bit like my child; and not at all like my child), which were scored as 3, 2, 1 and 0, respectively. The RPQ was administered to the adoptive parents, the institutionalised children's main caregiver, and the teachers for both groups. In this study, Cronbach's alpha was .81 for the mothers' total score, .76 for the fathers' total score, .85 for the caregivers' total score, and .79 for the teachers' total score.

Children's cognitive functioning.

Cognitive functioning was assessed in both the adopted and institution-reared children using the Wechsler Intelligence Scale for Children. This is a well-established and widely used means of assessing children's cognitive development. The Wechsler Intelligence Scale for Children—Third Edition was standardised in the United States on 2,200 children aged 6 to 16 years, and was stratified by age, sex, race, geographic region, and parents' education. The average reliabilities across the age groups were .95 for verbal IQ, .91 for performance IQ, and .96 for the full-scale IQ (Colom, 2004). In this study, the Chilean version (Ramírez & Rosas, 2007) of the WISC-III was used¹². The WISC-III can be used with children aged between 6 and 16 years. The scale comprises 13 subtests: 6 measure verbal abilities and 7 measure performance abilities. Combining the scores of these subtests produces a full-scale IQ score. In the present study, children aged 6 or older in both groups were administered a short form of the WISC-III to save administration time. The Picture Completion, Information, Coding, Similarities, Block Design, and Digit Span subtests were used, as these subtests have been shown to produce high correlations with the total score (Sattler, 2008).

The WISC-III was administered and scored according to the standardised procedures outlined in the manual (Ramírez & Rosas, 2007). For the prorated IQ scores, the subtests of Information, Similarities and Digit Span were used to obtain a Verbal IQ estimate; for the Performance IQ estimate, Picture Completion, Coding, and Block Design were included. A prorated sum of the scaled scores was obtained by multiplying the Verbal sum of the scaled scores by 5/3 and the Performance sum of the scaled scores by 5/3. A full-scale IQ score was derived from combining the Verbal IQ and Performance IQ scores.

¹² It was used the Wechsler Intelligence Scale for Children—Third Edition (WISC-III) because this is the most recent adaptation of the Wechsler Intelligence Scale for Children in Chile.

3. RESULTS

This chapter presents three sets of analyses relating to the hypotheses outlined in the Introduction chapter:

1. A comparison of children's social, emotional, and cognitive functioning between adopted and institution-reared children. The results are presented in terms of children's psychological adjustment, attachment-related problems, perceptions of family relationships, and cognitive functioning. Associations between the findings and the demographic characteristics of the children are also explored.
2. An examination of demographic factors associated with social, emotional, and cognitive outcomes for children in the adoptive families, including the age of the child at adoption and whether the child was adopted from foster care or institutional care.
3. An examination of the family functioning variables associated with social, emotional, and cognitive outcomes for children in the adoptive families, including parental psychological well-being, quality of parenting, and quality of the parent-child relationships.

3.1 COMPARISONS BETWEEN ADOPTED AND INSTITUTION-REARED CHILDREN

This section outlines the analytical strategy of this set of analyses is outlined, data preparation, and reduction techniques used for these comparisons, before presenting the results of the analyses.

Analytical strategy

For the analyses presented in this section, psychological adjustment and cognitive functioning were compared between adopted children and institution-reared children. Data were analysed using IBM SPSS Statistics, version 23.

Prior to the statistical analyses, dependent variables were checked for assumptions relating to normally distributed data and homogeneity of variance. Data distribution was explored using the Shapiro-Wilk test (Shapiro & Wilk, 1965) and z-scores of skew and kurtosis for each variable in the group. Z-score values greater than 1.96 were considered problematic (Field, 2013). Homogeneity of variance was examined using Levene's test (Levene, 1960).

When both assumptions were satisfied, independent samples *t*-tests or ANOVAs were used to compare the mean scores of both groups on a dependent variable. Multivariate analyses of variance (MANOVAs) were used to compare the mean scores of the two groups on conceptually-related variables. Pillai's Trace was selected as the multivariate test statistic because it is considered the most robust for data with violated assumptions of homogeneity of variance and normality (Field, 2013). Furthermore, the MANOVA test statistic has been found to be robust even when assumptions of multivariate normality are violated, and to outperform a non-parametric alternative in terms of power and controlling for Type I errors (Finch, 2005).

In cases when one or both assumptions are markedly violated, the outcome of parametric tests may be distorted, increasing the rate of Type I and Type II errors. When the Type II error rate is increased, there is an elevated risk that the test will falsely reject the null hypothesis

(suggesting that the test is too liberal); in cases of increased Type II errors, there is a greater chance that the test will incorrectly retain a false null hypothesis (suggesting that the test is too conservative). Where marked violations of one or both assumptions were present in the current data, Mann-Whitney *U*-tests were used to verify the results.

ANOVAs and independent samples *t*-tests were used to compare the mean scores between groups for the dependent variables. The aim of the analyses was to determine whether there was a difference between adopted and institution-reared children. Analyses of covariance (ANCOVAs) were conducted in cases where a correlation was found between a demographic variable and an outcome variable. Multivariate analyses of covariance (MANCOVAs) were carried out when more than two dependent variables were entered into an analysis. Chi-square tests were used to analyse categorical data.

P-values and effect sizes.

Exact *p*-values are reported throughout, as recommended in the most recent APA guidelines (American Psychiatric Association [APA], 2010). Effect sizes were also calculated and are reported here, in order to convey the magnitude of the difference between groups on a specific measure. The effect size statistic reported for interval data is Cohen's *d* (the standardised difference between two means). Cohen defined effect sizes as: small ($d = 0.2$), medium ($d = 0.5$) or large ($d = 0.8$) (Cohen, 1992). Confidence intervals are also reported for effect sizes at the 95% level (American Psychiatric Association [APA], 2010).

Covariates.

Demographic variables were compared between the adopted and institution-reared children groups. Adopted children and institution-reared children were found to differ according to three demographic variables: age at assessment in the present study, length of placement, and age at placement. Length of placement and age at placement were highly and negatively correlated ($r = -.803$), indicating multi-collinearity (i.e., a high correlation between these independent variables). The Variance Inflation Factor (*VIF*) indicates the presence of multi-collinearity, with values <1 or >3 considered problematic (it has been said that a cut-off point is hard to determine, however, the smaller the sample, the lower the cut-off point should be). A linear regression of the relationship between length of placement and age at placement found a *VIF*

value of 2.97. In order to avoid multi-collinearity, Field (2013) recommends that one predictor be removed from the model. Research on the psychological development of adopted children has shown that children's age at placement is a strong predictor of psychosocial adjustment, with adoption at a younger age predictive of more positive psychosocial adjustment (Howe, 2001; Julian, 2013). For this reason, age at placement (and not length of placement) was used as a control variable in analyses in which age at placement correlated significantly with the dependent variable.

Initially, in all of the comparisons between adopted and institution-reared children, the demographic variables that significantly differed between the groups - age at placement and/or age at assessment - were correlated with the outcome variable of interest. Where a significant relationship existed between a demographic variable and the outcome variable, the demographic variable was entered into the analysis as a covariate. Covariates were used in order to gain a greater understanding, where a significant difference was found between groups in an outcome variable, of whether the difference between groups genuinely reflected the effect of the rearing environment (adoptive family or institutional care) or merely resulted from the covariates.

Missing data.

Data for item non-response was screened. The only variable for which there was missing data was the Strengths and Difficulties Questionnaire (SDQ). In a small number of cases, there was missing data from mothers ($N = 2$) and fathers ($N = 4$). For missing SDQ items, an average score was calculated for the item on the subscale in which the missing item belonged; the average was then rounded to the nearest whole number (0, 1, or 2) and entered in place of the missing item.

Regression.

For adopted children, regression analyses were used to establish the predictive role of both child's age at placement and family variables on their psychological adjustment and cognitive functioning. Multiple hierarchical regression was used for children's adjustment and children's cognitive functioning was tested using simple linear regression,

Assumptions in multiple regression.

Normality: A normal distribution of data exhibits clusters around the mean. Violations of normality make it challenging to determine whether model coefficients are significantly different from 0 and to calculate confidence intervals for forecasts. Sometimes distribution errors are caused by a few large outliers. Since parameter estimation is based on the minimisation of *squared* error, a few extreme observations can exert a disproportionate influence on parameter estimates. If an error distribution is significantly non-normal, confidence intervals may be too wide or too narrow.

Multicollinearity: Multicollinearity (the existence of a very strong correlation between two predictor variables) is problematic in multiple regression analyses, because it means that each variable accounts for very little unique variance in the model. In this scenario, it can be difficult to identify the individual importance of each variable. In order to check for the presence of multi-collinearity in the present analyses, VIF was examined. Myers suggests that a VIF value greater than 10 is problematic (Myers, 1990). The variance proportions were also examined. Variance proportion shows the proportion of the variance of each predictor's regression coefficient that can be attributed to each eigenvalue. When two predictors have high proportions of variance on the same (small) eigenvalue this can indicate multi-collinearity.

Homoscedasticity: Homoscedasticity (the assumption that the variance of the residual terms should be constant at each level of the predictor variables) was tested through an examination of scatterplot of the standardised residuals plotted against standardised predicted values. Ideally, points on the scatterplot should be randomly and evenly dispersed throughout the plot.

Linearity: The linearity of the models was assessed through an examination of partial plots (scatterplots of the residuals of the outcome variable and each predictor variable when both variables were regressed separately on the remaining predictors).

Results

In the following analyses, comparisons between adopted and institution-reared children are organised according to: (a) psychological adjustment, (b) attachment-related problems, (c) perceptions of family relationships, and (d) cognitive functioning.

a) Children's psychological adjustment

Comparisons of children's psychological problems for mother/caregiver- and teacher-reported total SDQ scores.

The Strengths and Difficulties Questionnaire (SDQ) was administered to adoptive mothers or caregivers and teachers to assess children's psychological adjustment. In the preliminary analyses, mother- and caregiver-reported total scores on the SDQ were found to significantly correlate with both child's age at placement and child's age at assessment (see Table 3.1.1). Teacher-reported total SDQ scores were found to significantly correlate with child's age at placement (Table 3.1.1).

Table 3.1.1. Correlations between demographic variables and total SDQ scores as reported by mothers/caregivers and teachers

	Child's age at placement		Child's age at assessment	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
SDQ total score				
Mothers/Caregivers	.57	.000	.22	.028
Teachers	.48	.000	-.02	.851

Mothers'/caregivers' total SDQ scores were entered into an ANCOVA, controlling for age at placement and age at assessment, to examine differences between adopted and institution-reared children in psychological adjustment. A significant difference was found, $F(1, 98) =$

7.27, $p = .008$.¹³ Adopted children had lower mean scores on the SDQ total scale than the institution-reared children (see Table 3.1.2), indicating lower levels of psychological problems, according to mothers/caregivers reports. The difference in scores between groups showed a large effect size.

Table 3.1.2. Means, Standard Deviations, F , p , d , and 95% CI values for total SDQ scores as reported by mothers/caregivers and teachers

	Adopted children		Institution-reared children		F	p	d	95% CI
	Mothers ($N = 52$)		Caregivers ($N = 50$)					
	M	SD	M	SD				
SDQ total score	9.94	5.80	17.90	7.42	7.27	.008	1.20	[-7.31, -1.11]
	Teachers ($N = 43$)		Teachers ($N = 41$)					
	M	SD	M	SD				
SDQ total score	9.42	7.57	16.54	8.77	1.78	ns	.87	[-7.24, 1.42]

Teachers' total SDQ scores were entered into an ANCOVA, controlling for age at placement. The ANCOVA was non-significant, $F(1, 81) = 1.74$, $p = .19$, indicating that there was no significant difference in children's SDQ scores as rated by teachers (see Table 3.1.2).

¹³ As the Mother SDQ variable violated both the normal distribution and the homogeneity of variance assumptions, a non-parametric Mann-Whitney U-test was run, which confirmed the result, $U = 508.50$, $p = .000$.

Proportion of children with an SDQ score above the cut-off for psychological problems.

The proportion of children with an SDQ score above the cut-off for psychological problems was calculated. For this calculation, the UK cut-off values were used, as the Chilean cut-off values are similar to those reported for the UK (Rivera, 2013). Scores of 17 or above were considered indicative of clinical problems for mother-/caregiver-reported SDQ scores and scores of 16 or above were considered indicative of clinical problems for teacher-reported SDQ scores.

As shown in Table 3.1.3, the proportion of adopted children with a mother-reported total SDQ score above the cut-off for clinical problems was 13.5%, whereas the proportion of institution-reared children with a caregiver-reported SDQ score above the cut-off, was 52%. A chi-square analysis showed that the difference between groups in the proportion of children with scores above the cut-off for clinical problems was significant, $\chi^2(1, N = 102) = 17.30, p < .001$.

Table 3.1.3. Children exceeding the clinical cut-off for the SDQ total score as reported by mothers and caregivers

SDQ total score	Adopted children (<i>N</i> = 52)		Institutionalised children (<i>N</i> = 50)		χ^2	<i>p</i>
	Mothers		Caregivers			
	<i>N</i>	%	<i>N</i>	%		
Number above cut-off for abnormal range	7	13.5	26	52	17.30	.000

Similarly, according to teachers' ratings, the proportion of children with a total SDQ score above the cut-off for clinical problems differed significantly between adopted and institution-reared children ($\chi^2[1, N = 84] = 7.20, p = .007$). As shown in Table 3.1.4, 20.9% of adopted children scored above the cut-off for clinical problems. In contrast, the proportion of institutionalised children with total SDQ scores above the cut-off for clinical problems was 48.8%.

Table 3.1.4. Children exceeding the clinical cut-off for the SDQ total score as reported by teachers

SDQ total score	Adopted children (<i>N</i> = 43)		Institutionalised children (<i>N</i> = 41)		χ^2	<i>p</i>
	Teachers		Teachers			
	<i>N</i>	%	<i>N</i>	%		
Number above cut-off for abnormal range	9	20.9	20	48.8	7.20	.007

Comparisons of psychological adjustment between adopted and institution-reared children and the general population of children in Chile.

Brown, Capella, and Antivilo (2014) assessed the psychometric properties of the parent version of the SDQ in a sample of 798 caregivers of children aged 4 to 11 years, in Chile. They presented the results for boys and girls separately; therefore, the following analyses are also presented according to gender. T-tests were conducted to compare the mean SDQ scores of adopted children with those of the general population of children in Chile, and those of institution-reared children and the general population of children in Chile.

a) Comparisons of children's psychological adjustment between adopted children and the general population of Chilean children.

In order to examine whether adopted children's total SDQ scores differed from the total scores obtained by Chilean children, mother-reported total scores for girls and boys were compared with Chilean children's scores using an unpaired two sample t-test. There were no significant differences in psychological adjustment between adopted girls and the general population of girls in Chile, $t(510) = 1.03$, $p = .30$. However, significant differences were found between adopted boys and the general population of boys in Chile, $t(376) = 3.17$, $p = .002$. When the mother-reported total SDQ scores of adopted boys were compared with the scores for the general population of Chilean boys, adopted boys showed significantly fewer difficulties (Table 3.1.5).

Table 3.1.5. Means, Standard Deviations, t , p , and d values for total SDQ scores of adopted children and children in the Chilean population

	Adopted girls ($N = 21$)		Chilean population girls ($N = 491$)				
	M	SD	M	SD	t	p	d
SDQ total score	10.48	6.41	11.8	5.7	1.03	.302	.22
	Adopted boys ($N = 31$)		Chilean population boys ($N = 347$)				
	M	SD	M	SD			
SDQ total score	9.58	5.43	12.9	5.6	3.17	.002	.60

b) Comparisons of children's psychological adjustment between institution-reared children and the general population of Chilean children.

Caregiver-reported total SDQ scores for institution-reared girls and boys (separately) were compared with the scores of the general population of Chilean children, in order to examine differences in child psychological adjustment. The comparison was conducted using an unpaired two sample t-test. Significant differences in children's psychological adjustment were found between institution-reared children and the general population of Chilean children, in both girls and boys, $t(516) = 3.67, p < .001$ and $t(376) = 5.54, p < .001$, respectively. Institution-reared girls and boys showed significantly greater difficulties (Table 3.1.6), with a medium to large effect size for girls and a large effect size for boys.

Table 3.1.6. Means, Standard Deviations, *t*, *p*, and *d* values for total SDQ scores of institution-reared children and children in the Chilean population

	Institution-reared girls (<i>N</i> = 23)		Chilean population girls (<i>N</i> = 491)		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
SDQ total score	16.35	7.76	11.8	5.7	3.67	.0001	.67

	Institution-reared boys (<i>N</i> = 27)		Chilean population boys (<i>N</i> = 347)		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
SDQ total score	19.22	6.99	12.9	5.6	5.54	.0001	1.00

Comparisons of children's Internalising, Externalising and Pro-social SDQ subscales scores, as rated by mothers/caregivers, between adopted and institution-reared children.

As mothers'/caregivers' Externalising and Pro-Social subscale scores were found to correlate with child's age at placement in the preliminary analyses, and mothers'/caregivers' Internalising subscale scores were found to correlate with child's age at placement and child's age at assessment (Table 3.1.7), the following analyses were conducted to control for these variables.

Table 3.1.7. Correlations between demographic variables and Externalising, Internalising and Pro-social scales as reported by mothers/caregivers

	Child's age at placement		Child's age at assessment	
	<i>r</i>	<i>P</i>	<i>r</i>	<i>p</i>
Externalising problems	.48	.000	.13	.202
Internalising problems	.55	.000	.28	.004
Prosocial behaviour	-.23	.019	-.10	.327

Separate MANOVAs were conducted to examine differences in mean scores on the SDQ subscales relating to Externalising problems (conduct problems and hyperactivity) and Internalising problems (emotional problems and peer problems) between adopted and institution-reared children, according to ratings made by mothers/caregivers. As shown in Table 3.1.8, Pillai's Trace was significant for Externalising problems, $F(2, 98) = 7.68, p = .001$, controlling for age at placement. A univariate test found a significant difference between groups for conduct problems, reflecting fewer conduct problems among adopted children than institutionalised children. The effect size for the differences in scores between groups was large. A univariate analysis for hyperactivity was non-significant.

Following this, child's age at placement and child's age at assessment were included in the analysis as covariates to examine differences between groups in Internalising scores (see Table 3.1.8). Pillai's Trace was significant for Internalising, $F(2, 97) = 6.65, p = .002$.¹⁴ A univariate test found a significant difference between groups for peer problems. Adopted children showed significantly lower levels of peer problems than institution-reared children. The effect size for the difference in scores between groups was large. A univariate analysis for emotional symptoms was non-significant.

Additionally, for the Pro-Social subscale, a one-way ANCOVA was carried out controlling for age at placement. A significant difference between groups was found, $F(1, 99) = 6.61, p = .012$ (see Table 3.1.8).¹⁵ Adopted children had higher mean scores for the SDQ pro-social behaviour subscale than did institutionalised children, reflecting more pro-social (caring and helpful) behaviour. The effect size for the difference in scores between groups was medium to large.

¹⁴ As the Mother/Caregiver Internalising Problems variable violated both the normal distribution and the homogeneity of variance assumptions, a non-parametric Mann-Whitney U-test was run, which confirmed the result, $U = 477.00, p = .000$.

¹⁵ As the Mother/Caregiver Pro-Social variable violated both the normal distribution and the homogeneity of variance assumptions, a non-parametric Mann-Whitney U-test was run, which confirmed the result, $U = 844.50, p = .002$.

Table 3.1.8. Means, Standard Deviations, *F*, *p*, *d*, and 95% CI values for mother- and caregiver-reported scores on the Internalising, Externalising and Pro-social subscales on the SDQ for adopted and institution-reared children

	Adopted children (<i>N</i> = 52)		Institutionalised children (<i>N</i> = 50)		<i>F</i>	<i>p</i>	<i>d</i>	95% CI
	Mothers		Caregivers					
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Externalising problems					7.68	.001		
Conduct problems	2.10	1.77	4.90	2.52	13.27	.000	1.29	[-2.96, -.87]
Hyperactivity	4.87	2.85	6.00	2.68	.01	.912	0.41	[-1.41, 1.26]
Internalising problems					6.65	.002		
Emotional symptoms	1.71	1.80	3.28	2.50	.95	.332	.72	[-1.51, .52]
Peer problems	1.27	1.67	3.72	2.13	13.42	.000	1.28	[-2.64, -.78]
Pro-Social behaviour	6.94	0.96	5.78	2.15	6.52	.012	.70	[.24, 1.89]

Comparisons of children's teacher-rated Internalising, Externalising and Pro-social subscale scores between adopted and institution-reared children

As shown in Table 3.1.9, there were significant correlations between the teacher-rated Internalising, Externalising and Pro-social subscales and child's age at placement. Thus, child's age at assessment was entered as covariate in the following analyses.

Table 3.1.9. Correlations between demographic variables and the Externalising, Internalising and Pro-social subscales as reported by teachers

	Child's age at placement		Child's age at assessment	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Externalising problems	.41	.000	-.03	.791
Internalising problems	.46	.000	.05	.681
Prosocial behaviour	-.27	.012	.15	.175

Separate MANCOVAs were conducted to examine the differences in mean teacher-rated scores on the Externalising and Internalising SDQ subscales between the adopted and institution-reared children (see Table 3.1.10). Pillai's Trace was non-significant for Externalising problems, $F(2, 80) = .79, p = .459$, showing that adopted and institution-reared children were not significantly different in regard to externalising problems, according to teachers' ratings. Univariate tests for conduct problems and hyperactivity were non-significant

Pillai's Trace was also non-significant for Internalising problems, $F(2, 80) = .94, p = .39$, showing that there was no significant difference in internalising problems between the adopted and institution-reared children, according to teachers' ratings. Similarly, univariate analyses for emotional symptoms and peer problems were non-significant. Additionally, for the Pro-social subscale, a one-way ANCOVA was carried out, showing a non-significant difference between groups $F(1, 81) = .58, p = .449$ (see Table 3.1.10).

Thus, there was no main effect of rearing environment on teacher-rated SDQ scores for the Externalising, Internalising and Pro-Social subscales controlling for child's age at placement.

Table 3.1.10. Means, Standard Deviations, F , p , d , and 95% CI values for teacher-reported scores on the Internalising, Externalising and Pro-Social subscales of the SDQ for adopted and institution-reared children

	Adopted children ($N=43$)		Institutionalised children ($N=41$)		F	p	d	95% CI
	Teachers							
	M	SD	M	SD				
Externalising problems					.79	.459		
Conduct problems	1.91	2.13	4.17	3.03	1.29	.260	.86	[-2.18,.60]
Hyperactivity	4.37	3.19	6.12	3.16	1.33	.252	.55	[-2.82,.75]
Internalising problems					.94	.394		
Emotional symptoms	1.53	2.13	3.12	2.47	1.83	.180	.69	[-2.16,.41]
Peer problems	1.60	2.12	3.12	2.30	.141	.709	.69	[-1.39,.95]
Pro-Social behaviour	7.77	2.45	6.51	2.79	.579	.449	.48	[-.91,2.03]

b) Children's attachment-related problems

Comparisons of children's attachment-related problems according to mother-/caregiver- and teacher-reported total RPQ scores.

The Relationship Problems Questionnaire (RPQ) was administered to adoptive mothers or caregivers and teachers to assess children's signs of reactive attachment disorders. In the preliminary analyses, mothers'/caregivers' total scores on the RPQ were found to correlate with child's age at placement (Table 3.1.11). Teacher-reported total RPQ scores were also found to correlate with child's age at placement (Table 3.1.11).

Table 3.1.11. Correlations between covariates and total RPQ scores as reported by mothers/caregivers and teachers

RPQ total score	Child's age at placement		Child's age at assessment	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Mothers/caregivers	.36	.000	.14	.149
Teachers	.34	.002	-.06	.572

Mother-/caregiver-reported total scores on the RPQ were compared using a one-way ANCOVA, controlling for age at placement, to examine differences between adopted and institution-reared children in signs of reactive attachment disorders (RAD) (see Table 3.1.12). A significant difference was found, $F(1, 99) = 11.67, p = .001$, with lower levels of RAD reported for adopted children than for institution-reared children.¹⁶ The effect size was large.

¹⁶ As the Mother RPQ variable violated both the normal distribution and the homogeneity of variance assumptions, a non-parametric Mann-Whitney U-test was run, which confirmed the result, $U = 610.00, p = .000$.

Table 3.1.12. Means, Standard Deviations, F , p , d , and 95% CI values for total RPQ scores, as reported by mothers/caregivers and teachers

	Adopted children		Institution-reared children		F	p	d	95% CI
	Mothers ($N = 52$)		Caregivers ($N = 50$)					
	M	SD	M	SD				
RPQ total score	4.31	4.40	10.26	6.98	11.67	.001	1.02	[-7.84,-2.08]
	Teachers ($N = 43$)		Teachers ($N = 40$)					
	M	SD	M	SD				
RPQ total score	4.02	4.51	7.35	5.80	1.33	ns	.64	[-4.57, 1.22]

As shown in Table 3.1.12, teacher-reported total RPQ scores were compared using a one-way ANCOVA, controlling for child's age at placement. The test was non-significant, $F(1, 80) = 1.33$, $p = .252$. There was no significant difference between adopted and institution-reared children in levels of reactive attachment disorder reported by teachers.

Proportion of children with an RPQ score above the cut-off for attachment-related problems.

As shown in Table 3.1.13, the proportion of adopted children who scored above the cut-off for attachment-related problems was calculated. Scores of 7 or higher on the RPQ are considered indicative of clinical RAD symptoms (Minnis et al., 2013). There was a significant difference between adopted and institution-reared children in the proportion of children who obtained mother/caregiver ratings above this cut-off, $\chi^2(1, N = 102) = 22.87$, $p < .001$, with attachment-related problems more common in institution-reared children than adopted children. The proportion of adopted children who obtained total RAD scores above the cut-off was 19.2% ($N = 10$). For institution-reared children, the proportion was 66% ($N = 33$).

Table 3.1.13. Children exceeding the clinical cut-off for the RPQ total score, as reported by mothers and caregivers

	Adopted children (<i>N</i> = 52)		Institutionalised children (<i>N</i> = 50)		χ^2	<i>p</i>
	Mothers		Caregivers			
Attachment problems	<i>N</i>	%	<i>N</i>	%		
Number above cut-off	10	19.2	33	66	22.87	.000

The proportion of children scoring above the cut-off for RAD symptoms according to teacher reports, is shown in Table 3.1.14. Although a greater proportion of institution-reared children showed scores above the clinical cut-off relative to adopted children, the difference was not significant, $\chi^2(1, N = 83) = 2.70, p = .10$.

Table 3.1.14. Children exceeding the clinical cut-off for the RPQ total score, as reported by teachers

	Adopted children (<i>N</i> = 43)		Institutionalised children (<i>N</i> = 40)		χ^2	<i>p</i>
	Teachers		Teachers			
Attachment problems	<i>N</i>	%	<i>N</i>	%		
Number above cut-off	10	23.3	16	40	2.70	.10

Comparisons of children's Disinhibited and Inhibited subscale scores on the RPQ between adopted and institution-reared children, as rated by mothers/caregivers.

In order to examine differences between groups on the mother-/caregiver-reported RPQ subscales, adopted children were compared to institution-reared children on the Disinhibited and Inhibited subscales. Mothers'/caregivers' disinhibited and inhibited scores were found to correlate with child's age at placement in the preliminary analyses (Table 3.1.15). A multivariate analysis of variance (MANOVA) was conducted with child's age at placement as a covariate.

Table 3.1.15. Correlations between demographic variables and total RPQ scores, as reported by mothers and caregivers

	Child's age at placement		Child's age at assessment	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Disinhibited	.26	.009	.06	.534
Inhibited	.37	.000	.19	.054

As shown in Table 3.1.16, the multivariate test of differences between groups using the Pillai's Trace criteria was statistically significant. Univariate tests for both Disinhibited¹⁷ and Inhibited¹⁸ subscales were also significant, with adoptive mothers reporting fewer disinhibited and inhibited social behaviours in their children compared to caregivers' ratings for institution-reared children.

¹⁷ As the Disinhibited variable violated both the normal distribution and the homogeneity of variance assumptions, a Mann-Whitney *U*-test was run, which confirmed the result, $U = 830.50$, $p = .002$.

¹⁸ Result verified with a Mann-Whitney *U*-test, $U = 610.00$, $p = .000$.

Table 3.1.16. Means, Standard Deviations, *F*, *p*, *d*, and 95% CI values for RPQ subscale scores, as reported by mothers/caregivers

	Adopted children (<i>N</i> = 52)		Institutionalised children (<i>N</i> = 50)		<i>F</i>	<i>p</i>	<i>d</i>	95% CI
	Mothers		Caregivers					
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
RPQ					5.87	.004		
Disinhibited	2.90	3.00	5.68	4.24	7.34	.008	.76	[-4.32, -.67]
Inhibited	1.40	2.04	4.58	4.16	9.26	.003	.97	[-4.08, -.86]

Comparisons of children’s Disinhibited and Inhibited subscale scores on the RPQ between adopted and institution–reared children, as rated by teachers.

In order to examine differences between groups on the teacher-reported RPQ subscales, adopted children were compared to institution-reared children on the Disinhibited and Inhibited subscales. Teachers’ inhibited scores were found to correlate with child’s age at placement in the preliminary analyses (Table 3.1.17). A multivariate analysis of variance (MANOVA) was conducted with child’s age at placement as a covariate.

Table 3.1.17. Correlations between demographic variables and total RPQ scores, as reported by teachers

	Child’s age at placement		Child’s age at assessment	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Disinhibited	.21	.058	-.12	.294
Inhibited	.36	.001	.07	.555

As shown in Table 3.1.18, the multivariate test of differences between groups using the Pillai’s Trace criteria was non-significant. Univariate tests for both Disinhibited and Inhibited subscales were also non-significant, indicating that there was no difference in children’s RPQ subscales scores as rated by teachers (Table 3.1.18).

Table 3.1.18. Means, Standard Deviations, F , p , d , and 95% CI values for RPQ subscale scores, as reported by teachers

	Adopted children ($N = 43$)		Institutionalised children ($N = 40$)		F	p	d	95% CI
	Teachers		Teachers					
	M	SD	M	SD				
RPPQ					1.90	.156		
Disinhibited	1.98	3.07	3.93	3.56	3.40	ns	.59	[-3.63, .14]
Inhibited	2.05	2.54	3.43	3.62	.01	ns	.44	[-1.62, 1.77]

Convergence between the SDQ and the RPQ

To examine the convergence between externalising and internalising problems (as measured by the SDQ) and attachment-related difficulties (as measured by the RPQ) for each group, Pearson correlations were calculated.

Table 3.1.19. Correlations between SDQ and RPQ subscales for adopted children

		Mother SDQ		Teacher SDQ	
		Externalising	Internalising	Externalising	Internalising
Mother RPQ	Disinhibited	.52**	.45**	.42**	.40**
	Inhibited	.40**	.67**	.35*	.52**
Teacher RPQ	Disinhibited	.36*	.29	.47**	.41**
	Inhibited	.30	.32*	.65**	.71**

** $P < .01$, * $p < .05$.

Convergence between behavioural and emotional problems in adopted children.

Pearson correlations were calculated to examine the association between Externalising and Internalising subscale scores on the SDQ, and Disinhibited and Inhibited subscale scores on the RPQ. The SDQ and RPQ subscales were found to be highly inter-correlated (see Table 3.1.19), with two exceptions. This finding indicates the presence of a relationship between attachment-related behavioural difficulties and other psychological problems for adopted children, such that higher levels of RAD symptoms were associated with higher levels of externalising and internalising problems.

Table 3.1.20. Correlations between SDQ and RPQ subscales for institution-reared children

		Caregiver SDQ		Teacher SDQ	
		Externalising	Internalising	Externalising	Internalising
Caregiver RPQ	Disinhibited	.18	.11	.28	.26
	Inhibited	.37**	.50**	.62**	.35*
Teacher RPQ	Disinhibited	.35*	.19	.31	.33*
	Inhibited	.43**	.19	.51**	.68**

** $P < .01$, * $p < .05$.

Convergence between behavioural and emotional problems in institution-reared children.

Caregiver-reported Externalising subscale scores were positively associated with the Disinhibited and Inhibited subscale scores reported by teachers and the Inhibited subscale scores reported by caregivers (see Table 3.1.20). Caregiver-reported Internalising subscale scores were positively associated with caregiver-reported Inhibited subscale scores. Teacher-reported Externalising subscale scores were associated with caregiver- and teacher-reported Inhibited subscale scores, and the teacher-reported Internalising subscale scores were associated with the caregiver- and teacher-reported Inhibited subscale scores, and teacher-reported Disinhibited subscale scores. These results suggest that a relationship between attachment-related behaviour difficulties and other psychological problems also exists for institution-reared children.

c) *Children's perceptions of family relationships.*

The Structured Child Assessment of Relationships in Families (SCARF; Strachan et al., 2010) was administered to both adopted and institution-reared children to examine their perceptions of family relationships. Two dimensions were examined: (a) Perception of Emotional Security and (a) Perception of Positive Parenting.

MANOVAs were conducted to explore whether adopted and institution-reared children differed in their perceptions and feelings towards their parents (adoptive mother and adoptive father for adopted children and biological mother and biological father for institutionalised children). Separate analyses were conducted for the Perception of Emotional Security scale (relating to security, closeness, and emotional support) and the Perception of Positive Parenting scale (relating to practical caretaking, fostering development, authoritative parenting/rules and expectations, authoritative parenting/limit setting, and authoritative parenting/positive reinforcement).

Comparisons of children's perceptions of their mothers.

In the preliminary analyses, there were significant correlations between the Perception of Emotional Security and Perception of Positive Parenting scales and child's age at placement, so the following analyses were run controlling for child's age at placement (see Table 3.1.21).

Table 3.1.21. Correlations between demographic variables and children's perceptions of their mothers (SCARF)

	Child's age at placement		Child's age at assessment	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Perception of Emotional Security	-.21	.038	-.02	.874
Perception of Positive Parenting	-.33	.001	-.11	.299

Children's scores on the SCARF regarding their mothers were entered into two separate MANCOVAs to examine the differences in mean scores on the Perception of Emotional Security and the Perception of Positive Parenting scales (see Table 3.1.22). First, the Perception of Emotional Security sub-scales of security, closeness and emotional support were entered into a MANOVA. Pillai's Trace was significant, $F(3,93) = 6.96, p < .001$.¹⁹ The difference in scores between adopted and institution-reared children was large ($d = .91$), with adopted children showing significantly higher scores relating to security, emotional closeness, and emotional support compared to institution-reared children. This shows that adopted children had more positive feelings of emotional security concerning their mothers than institution-reared children.

Likewise, the MANCOVA for the Perception of Positive Parenting scale revealed a significant difference between adopted and institution-reared children, $F(5,91) = 11.62, p < .001$.²⁰ The difference in scores was large ($d = .1.66$). Adopted children showed significantly higher rates of positive perception with respect to all sub-scales (practical caretaking, fostering development, expectations and rules, limit setting, and positive reinforcement) compared to institution-reared children, indicating more positive views of positive parenting (functional ability to meet the child's needs) in their mothers.

¹⁹ As the Mothers' Perception of Emotional Security variable violated both the normal distribution and the homogeneity of variance assumptions, a Mann-Whitney U-test was run, which confirmed the result, $U = 715.00, p = .000$.

²⁰ As the Mothers' Perception of Positive Parenting variable violated both the normal distribution and the homogeneity of variance assumptions, a Mann-Whitney U-test was run, which confirmed the result, $U = 338.00, p = .000$.

Table 3.1.22. Means, Standard Deviations, F , p , d , and 95% CI values for children's perceptions of their mothers (SCARF)

	Adopted children ($N = 50$)		Institutionalised children ($N = 48$)		F	p	d	95% CI
	M	SD	M	SD				
<i>Perception of Emotional Security</i>	11.98	3.20	7.65	5.91	6.96	< .001	.91	
Security	4.10	1.22	2.79	2.03	15.11	.001	.78	[.63,2.38]
Closeness	4.02	1.29	2.77	2.12	12.59	.003	.71	[.47,2.30]
Emotional support	3.86	1.40	2.08	2.08	24.76	< .001	1.00	[1.20,3.04]
<i>Perception of Positive Parenting</i>	15.98	3.03	7.50	6.54	11.62	< .001	1.66	
Practical care	3.92	0.85	2.02	1.68	50.28	< .001	1.43	[1.54,2.92]
Fostering development	3.80	1.03	2.04	1.87	33.67	< .001	1.17	[1.32,2.88]
Expectations and rules	4.34	0.85	2.10	1.96	54.49	< .001	1.48	[1.91,3.46]
Limit setting	2.20	0.90	0.92	1.16	37.35	< .001	1.23	[1.10,2.17]
Positive reinforcement	2.54	0.73	1.38	1.36	28.07	< .001	1.06	[.81,1.95]

Comparisons of children's perceptions of their fathers

In the preliminary analyses, there were significant correlations between the Perception of Emotional Security and Perception of Positive Parenting scales and child's age at placement, so the following analyses were carried out controlling for child's age at placement (see Table 3.1.23).

Table 3.1.23. Correlations between covariates and children's perceptions of their fathers (SCARF)

	Child's age at placement		Child's age at assessment	
	r	p	r	p
Perception of Emotional Security	-.36	.000	-.08	.474
Perception of Positive Parenting	-.46	.000	-.12	.266

Children's scores on the SCARF regarding their fathers were entered into two separate MANCOVAs to examine the differences in mean scores on the Perception of Emotional Security and Perception of Positive Parenting scales (see Table 3.1.24). Pillai's Trace for Perception of Emotional Security was significant, $F(3,88) = 8.78, p < .001$.²¹ The effect size for the difference in scores between adopted and institution-reared children was large ($d = 1.37$), with adopted children showing significantly higher scores on security, emotional closeness, and emotional support compared to institution-reared children. This shows that adopted children held more positive feelings of emotional security for their fathers than institution-reared children.

Likewise, Pillai's Trace for the Perception of Positive Parenting scale revealed a significant difference between adopted and institution-reared children, $F(5,86) = 9.15, p < .001$.²² The difference in scores was large ($d = .1.85$), with adopted children showing significantly higher rates of positive perception across all sub-scales. This indicates that adopted children held more positive views of parenting for their fathers than did institution-reared children.

²¹ As the Fathers' Perception of Emotional Security variable violated both the normal distribution and the homogeneity of variance assumptions, a Mann-Whitney U-test was run, which confirmed the result, $U = 380.00, p = .000$.

²² As the Fathers' Perception of Positive Parenting variable violated both the normal distribution and the homogeneity of variance assumptions, a Mann-Whitney U-test was run, which confirmed the result, $U = 252.00, p = .000$.

Table 3.1.24. Means, Standard Deviations, F , p , d , and 95% CI values for children's perceptions of their fathers (SCARF)

	Adopted children ($N = 48$)		Institutionalised children ($N = 45$)		F	p	d	95% CI
	M	SD	M	SD				
<i>Perception of Emotional Security</i>	10.35	3.92	4.20	5.02	8.78	< .001	1.37	
Security	3.65	1.56	1.42	1.90	23.78	< .001	1.28	[1.46,3.48]
Closeness	3.60	1.43	1.56	1.87	23.29	< .001	1.23	[1.37,3.28]
Emotional support	3.10	1.59	1.22	1.48	18.49	< .001	1.22	[1.04,2.82]
<i>Perception of Positive Parenting</i>	14.10	4.19	4.76	5.77	9.15	< .001	1.85	
Practical care	3.23	1.36	1.13	1.56	47.93	< .001	1.43	[1.34,3.04]
Fostering development	3.44	1.20	1.20	1.47	64.91	< .001	1.67	[1.45,3.00]
Expectations and rules	3.04	1.37	1.07	1.48	44.63	< .001	1.38	[1.41,3.06]
Limit setting	2.13	0.98	0.58	0.97	58.68	< .001	1.59	[.91,2.04]
Positive reinforcement	2.27	0.82	0.78	1.09	56.59	< .001	1.54	[1.12,2.22]

d) **Children's cognitive functioning.**

As shown in Table 3.1.25, in the preliminary analyses child's age at placement correlated with IQ scores on the Full-scale, and the Performance, and Verbal subscales, so the following analyses were run controlling for child's age at placement.

Table 3.1.25. Correlations between demographic variables and children's Full-scale, Performance and Verbal IQ scores

	Child's age at placement		Child's age at assessment	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Full-Scale IQ	-.46	.000	-.04	.728
Performance IQ	-.43	.000	-.02	.850
Verbal IQ	-.44	.000	-.06	.589

Children's scores on the WISC-III for the Full-Scale, Performance, and Verbal subscales were analysed using separate ANOVAs, with child's age at placement entered as covariate, to examine differences between adopted and institution-reared children in cognitive functioning.

As shown in Table 3.1.26, there was a significant difference between groups for the Full-Scale IQ score, $F(1, 71) = 15.63$, $p < .001$, with adopted children showing higher scores than institution-reared children. The effect size for the difference in this score was large. The groups also differed in their Performance, $F(1, 71) = 9.88$, $p = .002$, and Verbal scores, $F(1, 71) = 16.18$, $p = .000$, with adopted children scoring significantly higher. The effect sizes for the differences in scores between groups for these subscales were large.

Table 3.1.26. Means, Standard Deviations, *F*, *p*, *d*, and 95% CI values for children's Full-Scale, Performance, and Verbal IQ scores

	Adopted children (<i>N</i> = 31)			Institutionalised children (<i>N</i> =43)			<i>F</i>	<i>p</i>	<i>d</i>	95% CI
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range				
Full Scale IQ	102.19	16.46	57 - 129	78.44	16.63	42 – 108	15.63	< .001	1.44	[9.83, 29.85]
Performance IQ	105.13	15.06	74 – 139	85.09	17.29	50 – 113	9.88	.002	1.24	[5.69, 25.44]
Verbal IQ	99.06	17.02	52 - 125	76.49	15.66	46 - 109	16.18	< .001	1.38	[10.04, 29.78]

IQ classifications of adopted and institution-reared children

The Wechsler intelligence scales class IQ scores of 90-109 as average intelligence, 120-129 as superior, 110-119 as high average, 80-89 as low average, 70-79 as borderline, and ≤ 69 as extremely low. As shown in Table 3.1.27, the majority of adopted children had a Full-Scale score within the average range ($n = 16$, 51.61%) or higher than this ($n = 10$, 32.26%), according to age standardised Chilean norms (Ramírez & Rosas, 2007), except for 5 children (16.13%) who scored below this range. On the other hand, 10 institutionalised children (23.26%) scored within the average range, no children scored above average, and more than half ($n = 33$, 76.74%) scored below average.

Table 3.1.27. IQ classifications for adopted and institution-reared children

	Adopted children		Institution-reared children	
	<i>N</i>	%	<i>N</i>	%
Superior	5	16.13	0	0
High average	5	16.13	0	0
Average	16	51.61	10	23.26
Low average	1	3.23	10	23.26
Borderline	3	9.67	9	20.92
Extremely low	1	3.23	14	32.56

3.1.2 Comparisons between institution-reared children living in institutions offering care of better quality and institution-reared children living in institutions offering care of poorer quality

In this study, it was clear that there were variations among institutions. Therefore, in order to examine whether the socioemotional and cognitive functioning of children living in institutions rated as offering care of better quality differed from the functioning of children living in institutions rated as offering care of poorer quality, caregiver-reported subscales scores on the SDQ and RPQ, and children's IQ scores were compared between better and poorer institutions.

Demographic variables – age at assessment, age of placement and length of placement – were compared between children living in better institutions and children living in poorer institutions. Children from better institutions were found to differ from children from poorer institutions with respect to age at assessment, with children living in better institutions being younger than children living in poorer institutions, $t(48) = -.292, p = .005$. As caregivers and teachers' scores on the SDQ and RPQ subscales and children's IQ full-scale scores did not correlate with child's age at assessment, this demographic variable was not entered into the analyses as a covariate (Table 3.1.2.1).

Table 3.1.2.1. Correlations between institution-reared children's age at assessment and SDQ subscales, RPQ subscales, and IQ scores

	Child's age at assessment	
	<i>r</i>	<i>p</i>
Caregiver-reported SDQ Externalising	.122	.400
Caregiver-reported SDQ Internalising	.161	.264
Teacher-reported SDQ Externalising	-.066	.683
Teacher-reported SDQ Internalising	.063	.694
Caregiver-reported RPQ Disinhibited	.046	.750
Caregiver-reported RPQ Inhibited	.130	.367
Teacher-reported RPQ Disinhibited	-.238	.140
Teacher-reported RPQ Inhibited	.111	.494
IQ full-scale	-.130	.405

Independent samples t-tests were conducted to examine whether children's externalising and internalising problems, disinhibited and inhibited social behaviours, and cognitive functioning differed between institutionalised children living in better institutions ($N = 19$) and institutionalised children living in poorer institutions ($N = 31$).

Table 3.1.2.2 Means, Standard Deviations, t , p , and 95% CI values for the SDQ and RPQ subscales scores as reported by caregivers and teachers, and children's IQ full-scale

	Better quality institutions		Poorer quality institutions		t	p	95% CI
	Caregivers ($N = 19$)		Caregivers ($N = 31$)				
	M	SD	M	SD			
Caregiver SDQ Externalising	10.37	4.27	11.23	4.62	-.66	.515	[-3.49,1.77]
Caregiver SDQ Internalising	6.74	3.56	7.16	3.88	-.39	.700	[-2.63,1.78]
Caregiver RPQ Disinhibited	4.26	4.25	6.55	4.06	-.90	.064	[-4.71,.14]
Caregiver RPQ Inhibited	3.42	3.25	5.29	4.53	-1.57	.124	[-4.27,.53]
	Teachers ($N = 16$)		Teachers ($N = 25$)				
	M	SD	M	SD			
Teacher SDQ Externalising	9.69	6.76	10.68	4.80	-.51	.614	[-4.99,3.01]
Teacher SDQ Internalising	5.81	4.48	6.52	3.81	-.54	.591	[-3.35,1.93]
Teacher RPQ Disinhibited	5.07	3.92	3.24	3.21	1.61	.117	[-.48,4.13]
Teacher RPQ Inhibited	3.27	3.67	3.52	3.65	-.21	.833	[-2.67,2.17]
	Children ($N = 13$)		Children ($N = 30$)				
	M	SD	M	SD			
IQ full-scale	82.46	12.86	76.70	17.94	1.04	.302	[-5.38,16.90]

As shown in Table 3.1.2.2, no differences were found between children living in institutions offering care of better quality and children living in institutions offering care of poorer quality for either caregivers' or teachers' ratings of externalising and internalising problems. Similarly, no differences were found between type of institution for either caregivers' or teachers' ratings of disinhibited and inhibited social behaviours. Finally, no significant differences were found between groups on IQ full-scale scores.

3.1.3 Comparisons between children living in the Metropolitana Region and children living in the Araucania Region

In order to examine whether the socioemotional and cognitive functioning of children living in the Metropolitana Region differed from the functioning of children living in the Araucania Region, parent- and caregiver-reported and teacher-reported total scores on the SDQ and RPQ, and children's IQ scores, were compared between groups (adopted and institutionalised children separately). Demographic variables – age at assessment, age of placement and length of placement – were compared between adopted children living in the Metropolitana and children living in the Araucania Region, and between institution-reared children living in the Metropolitana and institution-reared children living in the Araucania Region. None of the demographic variables differed between the groups, and thus were not included as covariates in the analyses.

The psychological adjustment, attachment difficulties, and cognitive performance variables were entered into independent samples *t*-tests. For adopted children, no differences were found between children living in the Metropolitana Region ($N = 36$) and children living in the Araucania Region ($N = 16$) for either parents' or teachers' ratings of behavioural ($t(50) = -.131$, $p = .90$, $t(41) = -.091$, $p = .93$, respectively) and emotional problems ($t(50) = -1.17$, $p = .25$, $t(41) = -.767$, $p = .45$, respectively). Similarly, no differences were found between Regions for children's scores on the IQ full-scale, $t(29) = 1.54$, $p = .13$.

Differences were then explored for institution-reared children. No differences were found between children living in Metropolitana Region ($N = 9$) and children living in Araucania Region ($N = 41$) for either caregivers' or teachers' ratings of behavioural ($t(48) = -.998$, $p = .32$, $t(39) = .476$, $p = .64$, respectively) and emotional problems ($t(48) = -.279$, $p = .78$, $t(38) = .690$, $p = .49$, respectively). Likewise, no differences were found between Regions for children's scores on the IQ full-scale, $t(8.14) = -.499$, $p = .63$.

3.2 FACTORS ASSOCIATED WITH ADOPTED CHILDREN'S FUNCTIONING.

In the following section, factors associated with the social, emotional, and cognitive functioning of children in the adoptive families, including child's age at placement²³ in the adoptive family, whether the child was adopted from foster care or institutional care, and whether or not the child had pre-adoptive adversity, are examined. First, correlations between child's age at placement and psychological adjustment (as assessed by the SDQ and RPQ), perception of family relationships (as assessed by the SCARF), and cognitive functioning (as assessed by the WISC-III) are presented. Second, comparisons of children's psychological adjustment and cognitive functioning between children adopted in their first 6 months and those adopted afterwards are examined. Third, comparisons of children's psychological adjustment and cognitive functioning between children adopted from foster care and children adopted from institutions are examined. Finally, comparisons of children's psychological adjustment and cognitive functioning between adoptees with pre-adoptive adversity and adoptees without pre-adoptive adversity are described.

Before analyses were conducted to explore associations between child's age at placement and psychological outcomes, correlations between mother- and father-reported SDQ and RPQ scores were calculated. As shown in Table 3.2.1, the correlation between adoptive mother- and father-reported total SDQ scores was statistically significant ($r = .62$). Likewise, the correlation between adoptive mother- and father-reported total RPQ scores was statistically significant ($r = .48$). Thus, a combined mother- and father-reported score was calculated for each questionnaire²⁴. When a child's mother and father both reported²⁵ on child behaviour and attachment difficulties, the two scores were averaged and combined into Internalising, Externalising, Disinhibited, and Inhibited scores. When reports were not available for both parents, the mother's report was used.²⁶ The combined mother-/father-reported variable was called Parents.

²³ Age at placement was defined as the age at which the child came into the adoptive parents' fulltime care (age at adoption).

²⁴ The combined score of child behaviour problems increases reliability (Tavassolie et al., 2016).

²⁵ In 49 cases, both the mother and father completed the SDQ and the RPQ.

²⁶ One divorced mother and two single mothers by choice.

Table 3.2.1 Correlations between mother-reported SDQ and RPQ total scores and father-reported SDQ and RPQ total scores

		Mother	
		SDQ total	RPQ total
Father	SDQ total	.62**	
	RPQ total		.48**

**p<.001.

3.2.1 Correlational analyses between child's age at placement and adopted children's social, emotional, and cognitive functioning.

Analyses were conducted to investigate child's age at placement in accordance with the second hypothesis: that earlier placement in the adoptive family would be associated with higher levels of adopted children's social, emotional, and cognitive functioning. Correlations were carried out between child's age at placement and child's adjustment (drawing on the Externalising and internalising sub-scales of the SDQ), attachment-related problems (using the Disinhibited and Inhibited sub-scales of the RPQ), perception of family relationships (referring to the Perception of Emotional Security and Perception of Positive Parenting scales of the SCARF), and cognitive functioning (using the WISC-III), in order to detect relationships between these variables. Separate analyses were carried out for parents' and teacher's ratings.

3.2.1.1. Correlations between child's age at placement and children's socio-emotional functioning, according to Parents' ratings.

Correlations between age at placement and children's psychological adjustment

Correlations between Parents' scores of SDQ subscales and child's age at placement were explored (see Table 3.2.1.1.1). The Externalising and Internalising SDQ subscales were found to be significantly correlated with child's age at placement, indicating that the earlier children were placed with their adoptive families, the fewer externalising and internalising problems their parents reported.²⁷

²⁷ These analyses, for parents' data, were repeated for length of placement. The results showed that the correlation between externalising problems and length of placement was significant ($r = -.338, p = .014$). Internalising problems did not correlate with length of placement ($r = -.122, p = .389$).

Table 3.2.1.1.1. Correlations between child's age at placement and children's psychological adjustment, according to parents' ratings

	Externalising problems		Internalising problems	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Child's age at placement	.352	.011	.398	.004

N = 52. Note: Pearson's correlation coefficient *r* is reported.

Correlations between child's age at placement and children's attachment-related problems.

Correlations between Parents' scores for the RPQ subscales and child's age at placement were explored (see Table 3.2.1.1.2). The Inhibited RPQ subscale was found to be significantly correlated with child's age at placement, indicating that the earlier children were placed with their adoptive families, the fewer inhibited social behaviours they displayed.²⁸

Table 3.2.1.1.2. Correlations between child's age at placement and adopted children's attachment-related problems, according to parents' ratings

	Disinhibited behaviour		Inhibited behaviour	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Child's age at placement	.223	.113	.501	.000

N = 52. Note: Pearson's correlation coefficient *r* is reported.

Correlations between age at placement and children's perception of family relationships.

Associations between children's perception of family relationships and their age at placement were examined. First, relationships between children's perceptions of their mothers (as assessed by the SCARF Perception of Emotional Security and Perception of Positive Parenting scales) and their age at adoption were explored. As shown in Table 3.2.1.1.3, no significant correlations were found.

²⁸ These analyses, for parents' data, were repeated for length of placement. The results showed that both disinhibited and inhibited behaviours correlated with length of placement ($r = -.290, p = .037$ and $r = -.367, p = .007$, respectively).

Table 3.2.1.1.3. Correlations between child's age at placement and children's perception of their mother

	Perception of Emotional Security		Perception of Positive Parenting	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Child's age at placement	-.136	.346	-.179	.213

N = 50. Note: Pearson's correlation coefficient *r* is reported.

Second, relationships between children's perceptions of their fathers (as assessed by SCARF Perception of Emotional Security and Perception of Positive Parenting scales) and their age at placement were explored. No significant correlations were found (Table 3.3.1.1.4).

Table 3.2.1.1.4. Correlations between child's age at placement and children's perception of their father

	Perception of Emotional Security		Perception of Positive Parenting	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Child's age at placement	-.139	.347	-.241	.099

N = 48. Note: Pearson's correlation coefficient *r* is reported.

3.2.1.2. Correlations between age at placement and children's cognitive functioning.

The relationship between children's cognitive performance and their age at placement was explored by examining correlations between children's Full-Scale, Verbal, and Performance IQ scores and their age at adoption. As shown in Table 3.2.1.2.1, Full-Scale IQ was found to be significantly correlated with child's age at placement. This indicates that the earlier the children were placed in their adoptive families the higher their total IQ scores. The Performance sub-scale significantly correlated with child's age at placement, indicating that the earlier the children were placed with their adoptive families the higher their scores on the Performance subscale.²⁹

²⁹ These analyses were repeated for length of placement. The results showed that Performance IQ correlated with length of placement ($r = .370, p = .040$). Full-Scale IQ and Verbal IQ did not correlate with length of placement ($r = .315, p = .085$ and $r = .213, p = .251$).

Table 3.2.1.2.1. Correlations between age at placement and children's cognitive functioning

	Full Scale IQ		Verbal IQ		Performance IQ	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Child's age at placement	-.356	.049	-.217	.240	-.448	.012

N = 31. Note: Pearson's correlation coefficient *r* is reported.

3.2.1.3. Correlations between child's age at placement and children's socio-emotional functioning according to teachers' ratings.

Correlations between child's age at placement and children's psychological adjustment.

Correlations between teacher-reported scores for the SDQ subscales and child's age at placement were explored (see Table 3.2.1.3.1). Statistically significant positive correlations were found between Externalising and Internalising scores on the SDQ and child's age at placement, showing that the earlier the children were placed with their adoptive families, the fewer externalising and internalising problems their teachers reported.³⁰

Table 3.2.1.3.1. Correlations between child's age at placement and children's psychological problems, according to teacher's ratings

	Externalising problems		Internalising problems	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Child's age at placement	.380	.012	.481	.001

N = 43. Note: Pearson's correlation coefficient *r* is reported.

³⁰ These analyses, for teachers' data, were repeated for length of placement. The results showed that both externalising and internalising problems correlated with length of placement ($r = -.424, p = .005$ and $r = -.447, p = .003$).

Correlations between child's age at placement and children's attachment-related problems.

Correlations between teacher-reported scores for the RPQ subscales and child's age at placement were explored (see Table 3.2.1.3.2). None of the RPQ scores correlated with child's age at placement.³¹

Table 3.2.1.3.2. Correlations between child's age at placement and children's attachment-related problems, according to teacher's ratings.

	Disinhibited behaviour		Inhibited behaviour	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Child's age at placement	.213	.171	.299	.052

N = 43. Note: Pearson's correlation coefficient *r* is reported.

3.2.2 Comparison of psychological adjustment, attachment difficulties, and cognitive functioning between adopted children placed in their first 6 months of life and those placed afterwards.

Independent samples t-tests were conducted to examine whether adopted children's socioemotional and cognitive functioning differed between those placed in their first 6 months (*N* = 25) and those placed after 6 months (*N* = 27) with their adoptive families. As there was no significant difference between groups in age at assessment, $t(50) = -.16$, $p = .873$, this demographic variable was not controlled in the following analyses.

Children's psychological adjustment and attachment-related problems.

Parent-reported scores for the SDQ Externalising and Internalising subscales and the RPQ Disinhibited and Inhibited subscales were analysed using independent samples t-tests (Table

³¹ These analyses, for teachers' data, were repeated for length of placement. The results showed that inhibited behaviours correlate with length of placement ($r = -.310$, $p = .043$) and disinhibited behaviours did not ($r = -.268$, $p = .082$).

3.2.2.1). Significant differences were found between adoptees placed in their first 6 months and adoptees placed after 6 months for the Externalising subscale of the SDQ and for both the Disinhibited and Inhibited subscales of the RPQ. The findings indicate that children adopted in their first 6 months of life showed lower levels of externalising problems and lower levels of disinhibited and inhibited social behaviours than children adopted at a later age, according to parents' ratings.^{32 33}

Table 3.2.2.1 Means, Standard Deviations, *t*, *p*, *d*, and 95% CI values for psychological adjustment and attachment difficulties in children placed in their first 6 months and children placed after 6 months, according to parents and teachers

		First 6 months (<i>n</i> = 25)		After 6 months (<i>n</i> = 27)		<i>t</i>	<i>p</i>	<i>d</i>	95%CI
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Parents	SDQ Externalising	5.52	3.13	8.09	3.43	-2.81	.007	.78	[-4.41,-.74]
	SDQ Internalising	2.54	2.44	3.80	2.50	-1.83	.073	.51	[-2.63, .12]
	RPQ Disinhibited	1.82	1.80	3.91	2.96	-3.10	.003	.85	[-3.45,-.73]
	RPQ Inhibited	.94	1.14	2.15	1.62	-3.13	.003	.86	[-1.98,-.43]
		First 6 months (<i>n</i> = 22)		After 6 months (<i>n</i> = 21)					
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Teachers	SDQ Externalising	4.05	4.36	8.62	4.39	-3.43	.001	1.04	[-7.27,1.88]
	SDQ Internalising	2.14	2.59	4.19	4.49	-1.85	.072	.56	[-4.30,.19]
	RPQ Disinhibited	1.05	1.79	2.95	3.80	-2.09	.046	.64	[-3.78,-.04]
	RPQ Inhibited	1.27	1.91	2.86	2.90	-2.11	.043	.65	[-3.11,-.06]

³² These analyses were repeated with age ≤12 months and ≤ 24 months as age-at-adoption cut points. Significant differences were found between groups with 12 months as a cut point for parent-reported externalising ($t(50) = -3.30, p = .002$) and internalising ($t(50) = -2.59, p = .013$) problems, parent-reported disinhibited ($t(50) = -2.96, p = .005$) and inhibited ($t(50) = -3.51, p = .001$) behaviours, teacher-reported externalising ($t(41) = -3.34, p = .002$) and internalising ($t(19.63) = -2.39, p = .027$) problems, and teacher-reported inhibited behaviours ($t(21.48) = -2.24, p = .036$). No difference was found for teacher-reported disinhibited behaviours ($t(25.18) = -1.50, p = .146$).

³³ When 24 months was used as a cut point significant differences were found between groups for parent-reported externalising ($t(50) = -2.32, p = .024$) and internalising ($t(50) = -2.15, p = .037$) problems, parent-reported inhibited behaviours ($t(50) = -3.25, p = .002$), and teacher-reported externalising ($t(41) = -2.55, p = .015$) and internalising ($t(16.46) = -2.28, p = .036$) problems. No significant differences were found for parent-reported disinhibited behaviours ($t(50) = -1.36, p = .181$), teacher-reported disinhibited ($t(41) = -1.21, p = .234$) and inhibited ($t(41) = -1.47, p = .149$) behaviours.

Teacher-reported scores for the SDQ Externalising and Internalising subscales and RPQ Disinhibited and Inhibited subscales were analysed using independent samples t-tests, as shown in Table 3.2.2.1. Significant differences were found between adoptees placed in their first 6 months and adoptees placed after 6 months for the SDQ Externalising subscale and for both the Disinhibited and Inhibited subscales of the RPQ, with children adopted in their first 6 months showing lower levels of externalising problems and lower levels of disinhibited and inhibited social behaviours than children adopted at a later age, as reported by teachers.

Children's cognitive functioning.

Children's scores for the full-Scale IQ on the WISC-III were analysed using independent samples t-tests. As shown in Table 3.2.2.2, a significant difference was found between adoptees placed in their first 6 months and adoptees placed after 6 months for full-scale IQ scores, with children adopted in their first 6 months showing higher IQ scores than children adopted at a later age³⁴. The effect size was large.

Table 3.2.2.2. Means, Standard Deviations, *t*, *p*, and *d* values for cognitive functioning in children placed in their first 6 months and children placed after 6 months

	First 6 months (<i>n</i> = 14)		After 6 months (<i>n</i> = 17)		<i>t</i>	<i>P</i>	<i>d</i>	95%CI
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Full-Scale IQ	108.71	9.41	96.82	19.18	2.25	.034	.79	[.98,22.80]

³⁴ These analyses were repeated with age ≤12 months and ≤ 24 months as age-at-adoption cut points. Significant differences were found with 12 months as a cut point for IQ scores ($t(29) = 3.08, p = .005$), but not when 24 months was used as a cut point ($t(29) = 1.60, p = .120$).

3.2.3 Comparison of psychological adjustment, attachment difficulties, and cognitive functioning between adoptees from foster care and adoptees from institutional care.

Independent samples t-tests were conducted to examine whether children's psychological adjustment and cognitive functioning differed between adoptees placed from foster care ($N = 16$) and adoptees placed from institutional care ($N = 36$).

Children's psychological adjustment and attachment-related problems.

Parent-reported scores for the SDQ Externalising and Internalising subscales and the RPQ Disinhibited and Inhibited subscales were analysed using independent samples t-tests (Table 3.2.3.1). No significant differences were found between adoptees from foster care and adoptees from institutional care for either of the SDQ subscales. Similarly, no differences were found for either subscales of the RPQ.

Teacher-reported scores for the SDQ Externalising and Internalising subscales and the RPQ Disinhibited and Inhibited subscales were analysed using independent samples t-tests, as shown in Table 3.2.3.1. No differences were found for either subscales of the RPQ. A non-significant trend was found for the Internalising subscale of the SDQ, $t(41) = -1.94$, $p = .060$, with children adopted from institutional care showing more internalising problems than children adopted from foster care.

Table 3.2.3.1 Means, Standard Deviations, *t*, *p*, *d*, and 95% CI values for psychological adjustment and attachment difficulties in children adopted from foster and institutional care

		Foster care (<i>n</i> = 16)		Institutional care (<i>n</i> = 36)		<i>t</i>	<i>p</i>	<i>d</i>	95%CI
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Parents	SDQ Externalising	6.59	2.60	6.97	3.87	-.36	.724	.05	[-2.51,1.76]
	SDQ Internalising	3.28	2.61	3.15	2.52	.17	.868	.12	[-1.41,1.67]
	RPQ Disinhibited	2.84	3.14	2.93	2.47	-.11	.915	.03	[-1.71,1.53]
	RPQ Inhibited	1.38	1.43	1.65	1.57	-.60	.549	.20	[-1.20,.65]
		Foster care (<i>n</i> = 12)		Institutional care (<i>n</i> = 31)					
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Teachers	SDQ Externalising	4.50	3.58	6.97	5.21	-1.50	.140	.55	[-.578,.84]
	SDQ Internalising	1.42	2.15	3.81	4.04	-1.94	.060	.74	[-4.88,.10]
	RPQ Disinhibited	1.58	3.37	2.13	2.99	-.52	.607	.17	[-2.67,1.58]
	RPQ Inhibited	1.75	2.18	2.16	2.70	-.47	.640	.17	[-2.18,1.35]

Children's cognitive functioning.

Children's scores for the full-Scale IQ on the WISC-III were analysed using independent samples *t*-tests. As shown in Table 3.2.3.2, a significant difference was found between children adopted from foster care and children adopted from institutional care for full-scale IQ scores, $t(29) = 2.07$, $p = .048$, with children adopted from foster care showing higher scores than children adopted from institutions. The effect size was large.

Table 3.2.3.2. Means, Standard Deviations, *t*, *p*, and *d* values for cognitive functioning in children adopted from foster and institutional care

		Foster care (<i>n</i> = 10)		Institutional care (<i>n</i> = 21)		<i>t</i>	<i>p</i>	<i>d</i>	95%CI
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Full-Scale IQ		110.6	15.86	98.19	15.20	2.07	.048	.80	[-24.69,-.13]

In order to examine whether differences in cognitive functioning between children adopted from foster care and children adopted from institutional care may have resulted from differences in demographic variables, child's age at placement, length of placement, and child's age at assessment, were compared between adoptees who were adopted from foster care and those who were adopted from institutional care. Adoptees from foster care and adoptees from institutional care were found to differ in age at placement, $t(38.78) = -4.67, p < .001$, and in length of placement, $t(50) = 2.78, p = .008$, with adoptees from foster care being adopted at a younger age and living longer with their adoptive families relative to adoptees from institutional care.

Table 3.2.3.3. Correlations between demographic variables and adopted children's Full-scale scores

	Child's age at placement		Length of placement	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Full Scale IQ	-.46	<.000	.32	.085

As child's age at placement correlated with full-scale IQ, the following analyses were run to control for this variable (Table 3.2.3.3). The univariate ANOVA indicated that the difference between adoptees from foster care and adoptees from institutional care on the full-scale became non-significant, $F(1, 28) = 1.61, p = .215$. This suggests that the higher IQ scores obtained by children adopted from foster care were associated with being placed with their adoptive family at a younger age.

3.2.4 Comparison of psychological adjustment, attachment difficulties, and cognitive functioning between adoptees without pre-adoptive adversity and adoptees with pre-adoptive adversity.

Independent samples t-tests were carried out to examine whether children's psychological adjustment and cognitive functioning differed between adopted children without pre-adoptive experience of adversity (including those with pre-adoptive adversity unknown; $N = 25$) and those adopted children with pre-adoptive adversity ($N = 27$). It should be noted that information regarding pre-adoption life was lacking in some cases and unreliable; explorative analyses were therefore conducted, based on data reported by parents, in order to check whether the outcomes of adopted children without pre-adoptive adversity differ from that of adopted children with pre-adoptive adversity.

Children's psychological adjustment and attachment-related problems.

Parent-reported scores for the SDQ Externalising and Internalising subscales and the RPQ Disinhibited and Inhibited subscales were analysed using independent samples t-tests (Table 3.2.4.1). A significant difference was found for the Externalising scale scores, between adoptees with pre-adoptive adversity and adoptees without pre-adoptive adversity, with adoptees without pre-adoptive adversity (or unknown) showing lower levels of psychological problems than adoptees with pre-adoptive adversity. Significant differences were found for both the Disinhibited and Inhibited subscales of the RPQ, with adoptees without pre-adoptive adversity (or unknown) showing lower levels of attachment difficulties than adoptees with pre-adoptive adversity.

Teacher-reported scores for the SDQ Externalising and Internalising subscales and the RPQ Disinhibited and Inhibited subscales were analysed using independent samples t-tests (Table 3.2.4.1). Significant differences were found for both the Externalising and Internalising subscales, with adoptees without pre-adoptive adversity (or unknown) showing lower levels of externalising and internalising problems than adoptees with pre-adoptive adversity. Significant differences were found for both the Disinhibited and Inhibited subscales, with adoptees without pre-adoptive adversity (or unknown) showing lower levels of attachment difficulties than adoptees with pre-adoptive adversity.

Table 3.2.4.1. Means, Standard Deviations, *t*, *p*, and *d* CI values for psychological adjustment and attachment difficulties in adoptees with pre-adoptive adversity and adoptees without pre-adoptive adversity, according to parents and teachers

		With pre-adoptive adversity (<i>n</i> = 27)		No adversity (<i>n</i> = 25)		<i>t</i>	<i>p</i>	<i>d</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Parents	SDQ Externalising	8.03	3.72	5.58	2.81	2.67	.010	.30
	SDQ Internalising	3.56	2.67	2.80	2.33	1.08	ns	.75
	RPQ Disinhibited	3.74	2.96	2.00	2.00	2.47	.017	.69
	RPQ Inhibited	2.02	1.71	1.08	1.13	2.35	.023	.65
		With pre-adoptive adversity (<i>n</i> = 20)		No adversity (<i>n</i> = 23)		<i>t</i>	<i>p</i>	<i>d</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Teachers	SDQ Externalising	8.70	5.23	4.17	3.50	3.28	.002	1.02
	SDQ Internalising	4.95	4.62	1.57	1.67	3.11	.005	.97
	RPQ Disinhibited	3.10	3.85	1.00	1.73	2.25	.033	.70
	RPQ Inhibited	3.30	3.11	.96	1.15	3.18	.004	1.00

Children's cognitive functioning.

As shown in Table 3.2.4.2, children's scores for the full-Scale IQ on the WISC-III were analysed using independent samples t-tests. A significant difference was found between adoptees without pre-adoptive adversity and adoptees with pre-adoptive adversity full-scale IQ scores, with children without pre-adoptive adversity showing higher scores than children with experiences of pre-adoptive adversity.

Table 3.2.4.2. Means, Standard Deviations, *t*, *p*, and *d* values for cognitive functioning in adoptees with pre-adoptive adversity and adoptees without pre-adoptive adversity

		With pre-adoptive adversity (<i>n</i> = 13)		No adversity (<i>n</i> = 18)		<i>t</i>	<i>p</i>	<i>d</i>	95%CI
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Full-Scale IQ		94.85	17.98	107.5	13.36	-2.25	.032	.80	[-24.15,-1.16]

In order to examine whether differences in psychological adjustment, attachment difficulties and cognitive functioning between adoptees with pre-adoptive adversity and adoptees without pre-adoptive adversity may have resulted from differences in demographic variables, child's age at placement, length of placement and child's age at assessment, were compared between groups. Adoptees with pre-adoptive adversity and adoptees without adversity were found to differ in age at placement, $t(35.24) = 5.61, p < .001$, and length of placement, $t(50) = -5.67, p < .001$, with adoptees without pre-adoptive adversity being adopted at a younger age and living longer with their adoptive families relative to adoptees with pre-adoptive adversity.

As child's age at placement and length of placement correlated with the SDQ and RPQ subscales and with the full-scale IQ (Tables 3.2.1.1.1, 3.2.1.1.2, 3.2.1.2.1), analyses were run to control for child's age at placement and length of placement. For parents' data, with child's age at placement and length of placement in the analyses, the ANOVAs became non-significant for both the Externalising ($F(1, 48) = 1.17, p = .285$) and Internalising ($F(1, 48) = .08, p = .775$) subscales. Likewise, the ANOVAs became non-significant for both the Disinhibited ($F(1, 48) = 2.05, p = .159$) and Inhibited ($F(1, 48) = .00, p = .958$) subscales. Similarly, the univariate ANOVA indicated that the difference between adoptees without pre-adoptive adversity and adoptees with pre-adoptive adversity on the full-scale IQ became non-significant, $F(1, 27) = 1.19, p = .284$. Thus, the differences between adoptees with pre-adoptive adversity and adoptees without pre-adoptive adversity in externalising and internalising problems, disinhibited and inhibited behaviours, and cognitive performance may have resulted from differences in children's age and length of placement.

For teachers' data, the ANOVAs for both the Externalising and Internalising subscales became non-significant. Similarly, the ANOVA for the Disinhibited subscale became non-significant. However, the difference in the Inhibited scores remained significant, $F(1, 39) = 5.72, p = .022$. This suggests that the differences in inhibited behaviours, reported by teachers, between adoptees with and without pre-adoptive adversity were related to the experience of pre-adoptive adversity, not demographic variables.

3.3 FAMILY FUNCTIONING IN ADOPTIVE FAMILIES

The aim of the following analyses was to explore the relations between family functioning variables - including parental psychological well-being, marital satisfaction, quality of parenting, and quality of the mother-child relationship - and children's psychological adjustment, perceptions of parent-child relationships, and cognitive functioning. The first section presents correlations between scores on the family functioning variables from the Parenting Stress Index (PSI), the Beck Depression Inventory (BDI-II), the Trait Anxiety Inventory (TAI), and the Golombok Rust Inventory of Marital Satisfaction (GRIMS); children's functioning scores, as assessed by the SDQ and RPQ questionnaires; children's perceptions of the parent-child relationship, as assessed by the SCARF; and cognitive functioning, as assessed by the WISC-III. The second section presents correlations between mothers' and fathers' parenting quality, as assessed by the interview administered to mothers and fathers, and children's psychological adjustment and cognitive functioning.

3.3.1 Associations between parental psychological well-being and marital satisfaction and children's social, emotional, and cognitive functioning.

The following section presents analyses that were conducted to test the hypothesis that higher levels of parental well-being would be associated with higher levels of children's social, emotional, and cognitive functioning.

Descriptive analyses were carried out to examine mothers' and fathers' well-being, as assessed by the PSI, BDI-II, TAI, and GRIMS. Correlational analyses were then conducted to examine the relations between adoptive mothers' and fathers' psychological well-being and children's social, emotional, and cognitive functioning, as assessed by the SDQ, RPQ, SCARF, and WISC-III.

a) Associations between adoptive mothers' psychological well-being and children's social, emotional, and cognitive functioning.

The majority of mothers' scores on the PSI, BDI-II, and TAI questionnaires fell within the normal range. On the PSI (Abidin, 1990), five mothers (9.6%) scored above the clinical cut-off levels for parenting stress. On the BDI-II (Beck, Steer & Brown, 1996), only three mothers (5.8%) scored above the cut-off. Lastly, on the TAI, eight mothers (15.4%) scored above the 90th percentile.

To explore the relationship between mothers' stress, depression and anxiety, and children's functioning, mothers' total scores on the PSI, BDI-II, and TAI questionnaires were correlated with children's SDQ and RPQ subscale scores (as reported parents and teachers), SCARF scores, and WISC-III total scores. As shown in Table 3.3.1.1, significant associations were found between mothers' parenting stress scores and both the Externalising and Internalising subscales scores of the SDQ, as completed by parents. A significant association was also found between mothers' parenting stress scores and the Inhibited subscale of the RPQ, as reported by parents. These results indicate that higher levels of maternal parenting stress were associated with higher levels of children's behavioural and emotional problems and inhibited social behaviour. Finally, a significant correlation was found between mothers' parenting stress and the Perception of Emotional Security SCARF scale, indicating that mothers with higher parenting stress were perceived by their children as providing more emotional comfort and support.

No significant associations were found between mothers' parenting stress and children's adjustment according to teachers' ratings on the SDQ and RPQ (Table 3.3.1.1). Similarly, no significant association was found between maternal parenting stress and child cognitive functioning.

Table 3.3.1.1. Correlations between mothers' PSI scores and children's functioning

Informant		Mothers' Parenting Stress (PSI)		
		<i>N</i>	<i>r</i>	<i>p</i>
Parents	SDQ Externalising	52	.40	.003
	SDQ Internalising	52	.41	.003
	RPQ Disinhibited	52	.14	.331
	RPQ Inhibited	52	.36	.008
Teacher	SDQ Externalising	43	.14	.386
	SDQ Internalising	43	.18	.249
	RPQ Disinhibited	43	.26	.870
	RPQ Inhibited	43	.10	.545
Child	SCARF Mother Emotional Security	50	.30	.037
	SCARF Mother Positive Parenting	50	.08	.571
	SCARF Father Emotional Security	48	.08	.598
	SCARF Father Positive Parenting	48	-.11	.461
Child	WISC-III full-scale IQ	31	-.22	.233

Correlations between mothers' depression scores (as assessed by the BDI-II) and children's psychological adjustment as rated by parents and teachers, perceptions of family relationships, and cognitive functioning were calculated. As presented in Table 3.3.1.2, there was a significant correlation between mothers' depression and Internalising scores on the SDQ completed by parents, indicating that the greater the mothers' depression, the more internalising problems shown by the child. No other correlations were significant.

Table 3.3.1.2. Correlations between mothers' BDI-II scores and children's functioning

Informant		Mothers' Depression Symptoms (BDI-II)	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	-.09	.545
	SDQ Internalising	.29	.037
	RPQ Disinhibited	.16	.249
	RPQ Inhibited	.21	.135
Teacher	SDQ Externalising	-.15	.327
	SDQ Internalising	.07	.666
	RPQ Disinhibited	-.21	.184
	RPQ Inhibited	-.12	.462
Child	SCARF Mother Emotional Security	-.02	.907
	SCARF Mother Positive Parenting	.01	.935
	SCARF Father Emotional Security	-.03	.858
	SCARF Father Positive Parenting	.01	.929
Child	WISC-III full-scale IQ	-.14	.464

Correlations between mothers' anxiety symptoms (as assessed by the TAI) and children's psychological adjustment as rated by parents and teachers, perceptions of family relationships and cognitive functioning were calculated. As presented in Table 3.3.1.3, no significant associations were found between mothers' anxiety and children's adjustment (as rated by parents and teachers), and children's scores on the SCARF and WISC-III.

Table 3.3.1.3. Correlations between mothers' TAI scores and children's functioning

Informant		Mothers' Anxiety Symptoms (TAI)	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	.08	.583
	SDQ Internalising	.22	.115
	RPQ Disinhibited	.25	.073
	RPQ Inhibited	.18	.182
Teacher	SDQ Externalising	-.14	.388
	SDQ Internalising	-.09	.585
	RPQ Disinhibited	-.20	.207
	RPQ Inhibited	-.08	.614
Child	SCARF Mother Emotional Security	.11	.451
	SCARF Mother Positive Parenting	.10	.488
	SCARF Father Emotional Security	.00	.977
	SCARF Father Positive Parenting	-.01	.929
Child	WISC-III full-scale IQ	.00	.981

b) Associations between adoptive mothers' marital satisfaction and children's social, emotional, and cognitive functioning.

The majority of mothers (75.5%) had marital satisfaction levels that were average or above average; only two mothers obtained scores above the cut-off for marital problems, indicating poor relationship quality.

To explore the relationship between mothers' marital satisfaction and children's functioning, mothers' scores on the GRIMS were correlated with children's scores on the Externalising and Internalising SDQ subscales, the Disinhibited and Inhibited RPQ subscales, the Perception of Emotional Security and Perception of Positive Parenting SCARF scales, and the WISC-III full-scale IQ score, as presented in Table 3.3.1.4. There was a significant correlation between marital satisfaction and Externalising scores on the SDQ completed by teachers, indicating that the greater the mother's marital satisfaction, the more externalising problems shown by the child (as reported by teachers), as reported by teachers. No other correlations were significant.

Table 3.3.1.4. Correlations between mothers' marital satisfaction and children's functioning

Informant		Mothers' Marital Satisfaction	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	-.17	.246
	SDQ Internalising	.05	.712
	RPQ Disinhibited	.16	.274
	RPQ Inhibited	-.06	.684
Teacher	SDQ Externalising	-.34	.030
	SDQ Internalising	-.10	.541
	RPQ Disinhibited	.02	.895
	RPQ Inhibited	-.24	.126
Child	SCARF Mother Emotional Security	.02	.909
	SCARF Mother Positive Parenting	.06	.672
	SCARF Father Emotional Security	-.01	.958
	SCARF Father Positive Parenting	-.05	.722
Child	WISC-III full-scale IQ	-.03	.865

c) Association between adoptive fathers' psychological well-being and children's social, emotional and cognitive functioning.

The majority of fathers' scores on the PSI, BDI-II, and TAI fell within the normal range. On the PSI, 2 out of 49 fathers (4.1%) scored above the clinical cut-off levels for parenting stress. On the BDI-II, 4 fathers (8.1%) had scores above the cut-off for depression. Lastly, on the TAI, 14 fathers (28.6%) scored higher than the 90th percentile.

To explore the relationship between fathers' anxiety, depression and stress symptoms and children's functioning, fathers' total scores on the TAI, BDI, and PSI were correlated with children's SDQ and RPQ scores (as reported by parents and teachers), SCARF scores, and WISC-III full-scale IQ scores.

As shown in Table 3.3.1.5, significant associations were found between fathers' total stress scores (on the PSI) and the Externalising subscale of the SDQ and both the Disinhibited and the Inhibited subscale scores of the RPQ. These results suggest that paternal stress was associated with the presence of children's externalising problems and attachment difficulties (as reported by parents). A significant association was found between fathers' total stress (PSI) scores and teacher-reported Inhibited scores of the RPQ, and a marginal correlation was found between parenting stress and teacher-rated Internalising scores on the SDQ, indicating that paternal stress was associated with the presence of children's disinhibited behaviours and internalising problems (as reported by teachers). Finally, a marginal correlation was found between paternal stress and full-scale IQ, indicating that as fathers' levels of parenting stress increased, children's scores on the WISC-III decreased.

Table 3.3.1.5. Correlations between fathers' PSI scores and children's functioning

Informant		Fathers' Parenting Stress (PSI)		
		N	<i>r</i>	<i>p</i>
Parents	SDQ Externalising	49	.38	.008
	SDQ Internalising	49	.27	.061
	RPQ Disinhibited	49	.35	.014
	RPQ Inhibited	49	.54	.000

Teacher	SDQ Externalising	41	.28	.080
	SDQ Internalising	41	.31	.050
	RPQ Disinhibited	41	-.04	.795
	RPQ Inhibited	41	.37	.017
Child	SCARF Mother Emotional Security	47	.05	.750
	SCARF Mother Positive Parenting	47	.04	.813
	SCARF Father Emotional Security	47	-.01	.925
	SCARF Father Positive Parenting	47	.01	.961
Child	WISC-III full-scale IQ	31	-.37	.051

Correlations between fathers' depression symptoms (as assessed by the BDI-II) and children's psychological adjustment (as reported by parents and teachers), perceptions of family relationships, and cognitive functioning were calculated. As presented in Table 3.3.1.6, a significant correlation was found between paternal depression and the Disinhibited subscale of the parent-reported RPQ, indicating that higher levels of paternal depression were associated with higher levels of disinhibited social behaviour in children, according to parent ratings. No significant relationships were found between fathers' BDI-II scores and children's psychological adjustment, according to teacher ratings. Likewise, no significant relationships were found between fathers' depression symptoms and children's scores on the SCARF and WISC-III.

Table 3.3.1.6. Correlations between fathers' BDI-II scores and children's functioning

Informant		Fathers' Depression Symptoms (BDI-II)	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	.12	.419
	SDQ Internalising	.12	.420
	RPQ Disinhibited	.29	.043
	RPQ Inhibited	.16	.281
Teacher	SDQ Externalising	-.00	.984
	SDQ Internalising	.10	.547
	RPQ Disinhibited	.19	.231
	RPQ Inhibited	.01	.948

Child	SCARF Mother Emotional Security	.08	.593
	SCARF Mother Positive Parenting	.19	.204
	SCARF Father Emotional Security	.03	.865
	SCARF Father Positive Parenting	-.02	.877
Child	WISC-III full-scale IQ	.01	.966

As presented in Table 3.3.1.7, correlations between fathers' anxiety symptoms (as assessed by the TAI) children's psychological adjustment (as rated by parents and teachers), perception of family relationships, and cognitive functioning were explored. No significant relationships were found between father's anxiety scores and children's socioemotional and cognitive functioning.

Table 3.3.1.7. Correlations between fathers' TAI scores and children's functioning

Informant		Fathers' Anxiety Symptoms (TAI)	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	-.08	.582
	SDQ Internalising	.06	.669
	RPQ Disinhibited	.14	.323
	RPQ Inhibited	.09	.542
Teacher	SDQ Externalising	-.06	.723
	SDQ Internalising	-.01	.950
	RPQ Disinhibited	-.05	.749
	RPQ Inhibited	.01	.542
Child	SCARF Mother Emotional Security	-.22	.136
	SCARF Mother Positive Parenting	-.21	.157
	SCARF Father Emotional Security	-.18	.231
	SCARF Father Positive Parenting	-.22	.147
Child	WISC-III full-scale IQ	-.25	.187

d) Association between fathers' marital satisfaction and children's social, emotional and cognitive functioning

Most fathers (79.6%) had marital satisfaction levels that were average or above average; four (8.1%) fathers obtained scores that were above the cut-off for marital problems.

To explore the relationship between fathers' marital satisfaction and children's functioning, fathers' total scores on the GRIMS were correlated with children's scores on the SDQ Externalising and Internalising subscales, the RPQ Disinhibited and Inhibited subscales, the SCARF Perception of Emotional Security and Positive Parenting scales, and the WISC-III full-scale IQ score. No significant associations were found (Table 3.3.1.8).

Table 3.3.1.8. Correlations between fathers' marital satisfaction and children's functioning

Informant		Fathers' Marital Satisfaction	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	-.07	.644
	SDQ Internalising	.22	.139
	RPQ Disinhibited	.18	.209
	RPQ Inhibited	.15	.299
Teacher	SDQ Externalising	-.03	.850
	SDQ Internalising	.22	.175
	RPQ Disinhibited	.03	.875
	RPQ Inhibited	.10	.526
Child	SCARF Mother Emotional Security	-.04	.798
	SCARF Mother Positive Parenting	-.06	.689
	SCARF Father Emotional Security	-.17	.259
	SCARF Father Positive Parenting	-.09	.545
Child	WISC-III IQ full scale	-.05	.779

3.3.2 Associations between parenting quality and children's social, emotional, and cognitive functioning.

Parenting quality: Confirmatory factor analyses.

The quality of mother-child and father-child relationships was assessed through interviews with mothers and fathers. Separate confirmatory factor analyses (CFAs) were conducted for the mothers and fathers interview variables in order to produce latent variables of parenting quality. Associations between mothers' and fathers' parenting quality and children's psychological adjustment, perceptions of family relationships, and cognitive functioning were then explored to examine whether quality of parenting was associated with children's functioning.

It is important to note that the reliability of factor analysis will depend on sample size. However, recommendations and findings about this issue are diverse and often contradictory (MacCallum, Widaman, Zhang, & Hong, 1999). There are two categories of general recommendations in terms of minimum sample size in factor analysis. One category says that the absolute number of cases (N) is important, while the another says that the ratio of N to the number of variables is important. A good general rule of thumb for factor analysis is 300 cases or at least 10-15 participants per variable (Field, 2013). Nevertheless, recommendations are not limited to these rules of thumb (Myers, Ahn, & Jin, 2011), the factor loadings also matter (Field, 2013). Guadagnoli and Velicer (as cited in Field, 2013) found that if a factor has four or more loadings greater than .6 then factor analysis is reliable regardless of sample size; this was the case in the present study (see Tables 3.3.2.2 and 3.3.2.3).

In line with previous studies (e.g., Golombok et al., 2017), Positive Parenting variables (i.e., sensitive responding, expressed warmth, quantity of interaction, quality of interaction, mother/father-to-child warmth, child-to-mother/father warmth, mother/father's enjoyment of play, and confiding) and Negative Parenting variables (i.e., disciplinary aggression, criticism, level of battle, frequency of battle, resolution, emotional over-involvement, emotional under-involvement, disciplinary indulgence, and control), were entered into the CFAs.

Two models were tested in a full-version CFA (Table 3.3.2.1) with all the above mentioned variables, for the mothers' and fathers' parenting variables, respectively. All of the

hypothesised Positive Parenting variables were loaded on the first factor and the Negative Parenting variables were loaded on the second factor, with both factors correlated.

Table 3.3.2.1. Comparison of CFA models

Model	RMSEA	CFI	TLI	χ^2	<i>df</i>	AIC	$\Delta\chi^2$
Mother full-version CFA	.14	.57	.45	243.21	118	347.21	--
Refined CFA	.00	1.00	1.00	7.43	8	45.43	
Father full-version CFA	.14	.55	.41	226.63	118	330.63	--
Refined CFA	.16	1.00	1.00	8.11	8	46.11	

Note: Because of missing values (i.e., values that were not applicable in some cases) in the variables, AMOS 23 (IBM, 2012) could not produce SRMR values for all the models reported here.

According to the commonly used model fit indices (i.e. a non-significant chi-square, CFI values above 0.95, and RMSEA values below 0.06; see Hu & Bentler, 1999), the full-version models did not fit the data well. Subsequently, two refined CFAs were run (Table 3.3.2.1) with only the high-loading variables identified in the previous two models for mothers and fathers. These models demonstrated significant improvements with respect to all model fit indices.

For mothers, sensitive responding, expressed warmth, and quality of interaction had the highest loadings on the Positive Parenting factor, while disciplinary aggression, criticism, and emotional under-involvement had the highest loadings on the Negative Parenting factor (Table 3.3.2.2). For mothers the two factors found, Positive Parenting and Negative Parenting (each with three variables), had item loadings of at least .64.

For fathers, quality of interaction, expressed warmth, and quality of interaction had the highest loadings on the Positive Parenting factor, while level of battle, disciplinary aggression, and frequency of battle had the highest loadings on the Negative Parenting factor (Table 3.3.2.3). For fathers the two factors found, Positive Parenting and Negative Parenting (each with three variables), had item loadings of at least .50.

Table 3.3.2.2 Parent Interview Parent Codes: Factor Loadings for 6 Items from the Mother Interview (*N* = 52)

	Positive Parenting	Negative Parenting
Sensitive responding	.77	-
Expressed warmth	.76	-
Quantity of interaction	-	-
Quality of interaction	.90	-
Warmth mother to child	-	-
Warmth child to mother	-	-
Enjoyment of play	-	-
Confiding	-	-
Disciplinary aggression	-	.72
Criticism	-	.79
Level of battle	-	-
Frequency of battle	-	-
Resolution	-	-
Emotional over involvement	-	-
Emotional under involvement	-	.64
Disciplinary indulgence	-	-
Control	-	-

Table 3.3.2.3 Parent Interview Parent Codes: Factor Loadings for 6 Items from the Father Interview ($N = 48$)

	Positive Parenting	Negative Parenting
Sensitive responding	.88	-
Expressed warmth	.68	-
Quantity of interaction	-	-
Quality of interaction	.91	-
Warmth father to child	-	-
Warmth child to father	-	-
Enjoyment of play	-	-
Confiding	-	-
Disciplinary aggression	-	.51
Criticism	-	-
Level of battle	-	.94
Frequency of battle	-	.50
Resolution	-	-
Emotional over involvement	-	-
Emotional under involvement	-	-
Disciplinary indulgence	-	-
Control	-	-

To compute total scores for Positive Parenting and Negative Parenting, the score for each variable was calculated. Mothers' Positive Parenting scores were generated from the mean score of sensitive responding, expressed warmth, and quality of interaction, and mothers' Negative Parenting scores were generated from the mean scores of disciplinary aggression, criticism, and emotional under-involvement. The correlation between mothers' Positive and Negative parenting factors was $-.74, p < .001$. Similarly, fathers' Positive Parenting scores were generated from the mean score of sensitive responding, expressed warmth, and quality of interaction, and fathers' Negative Parenting scores were generated from the mean score of level of battle, aggression, and frequency of battle. The correlation between fathers' Positive and Negative parenting factors was $-.11, p = .45$.

With the parenting factors identified, correlations between Mothers' Positive Parenting, Mothers' Negative Parenting, Fathers' Positive Parenting and Fathers' Negative Parenting factors and measures of children's psychological adjustment and cognitive functioning were explored. Analyses were carried out for each parent separately.

Correlations between adoptive mother's quality of parenting and children's psychological functioning

As shown in, Table 3.3.2.2 a significant correlation was found between the Mothers' Positive Parenting and scores on the Disinhibited subscale on the parent-reported RPQ ($r = -.34, p < .05$), showing that more positive parenting by mothers was associated with lower levels of disinhibited social behaviour in children as reported by parents. A significant correlation was also found between the Mothers' Negative Parenting and the Disinhibited subscale on the parent-reported RPQ, with more negative parenting by mothers associated with higher levels of disinhibited behaviour in children, as reported by parents.

For teacher-reported scores on the SDQ and RPQ, no significant associations were found between mothers' quality of parenting and children's psychological adjustment. Likewise, no significant associations were found between mothers' quality of parenting and children's perceptions of family relationships or cognitive functioning.

Table 3.3.2.2 Relationships between mothers' quality of parenting and children's functioning

Informant		Positive Parenting		Negative Parenting	
		<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Parents	SDQ Externalising	-.12	.388	.15	.290
	SDQ Internalising	-.24	.091	.25	.078
	RPQ Disinhibited	-.34	.015	.37	.007
	RPQ Inhibited	-.19	.189	.15	.302
Teachers	SDQ Externalising	-.08	.618	.07	.679
	SDQ Internalising	-.27	.075	.08	.620
	RPQ Disinhibited	-.09	.584	.08	.618
	RPQ Inhibited	-.19	.225	.112	.476
Child	SCARF Mother Emotional Security	.10	.483	.08	.588
	SCARF Mother Positive Parenting	-.13	.376	.14	.344
	SCARF Father Emotional Security	.07	.641	-.09	.538
	SCARF Father Positive Parenting	.22	.140	-.19	.199
Child	WISC-III full-scale IQ	.11	.548	-.14	.465

Correlations between adoptive father's quality of parenting and children's psychological functioning

The Negative Parenting factor correlated with the Externalising subscale of the parent-reported SDQ, showing that more negative parenting by fathers was associated with higher levels of externalising behaviour in children. In addition, Positive Parenting correlated with children's scores in the Perception of Positive Parenting subscale of the SCARF, regarding fathers, indicating that more positive parenting by fathers was associated with children's more positive perception of their father.

No significant associations were found between fathers' positive and negative parenting and children's psychological adjustment, as rated by teachers, on the SDQ and RPQ (Table 3.3.2.3). Likewise, no significant association was found between fathers' positive and negative parenting and children's cognitive functioning.

Table 3.3.2.3 Relationships between fathers' quality of parenting and children's functioning

		Positive Parenting		Negative Parenting	
		<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Parents	SDQ Externalising	-.08	.615	.33	.027
	SDQ Internalising	-.15	.306	.25	.093
	RPQ Disinhibited	-.12	.415	.17	.265
	RPQ Inhibited	-.17	.268	.19	.195
Teacher	SDQ Externalising	.03	.873	-.02	.886
	SDQ Internalising	-.04	.817	.03	.871
	RPQ Disinhibited	-.06	.737	.08	.647
	RPQ Inhibited	-.05	.783	.01	.937
Child	SCARF Mother Emotional Security	.14	.381	.10	.514
	SCARF Mother Positive Parenting	.13	.420	.14	.368
	SCARF Father Emotional Security	.23	.135	.15	.338
	SCARF Father Positive Parenting	.34	.024	.05	.727
Child	WISC-III full-scale IQ	-.02	.944	-.00	.993

3.3.3 Associations between quality of mother-child interaction and children's social, emotional, and cognitive functioning.

Quality of mother-child interaction was assessed through an observational task (Etch-A-Sketch). Correlations between the observational variables relating to mutuality (mother responsiveness, child responsiveness, dyadic cooperation and dyadic reciprocity) and children's psychological adjustment (SDQ), attachment-related problems (RPQ), perceptions of family relationships (SCARF), and cognitive functioning (WIC-III) were examined.

Correlations between mothers' responsiveness and children's psychological functioning

Mothers' responsiveness correlated with the Inhibited subscale of the parent-reported RPQ, showing greater responsiveness to be associated with lower levels of inhibited social behaviours in children. No other significant correlations were found with respect to mothers' responsiveness.

Table 3.3.3.1 Correlations between mothers' responsiveness and children's functioning

Informant		Mother Responsiveness	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	-.07	.636
	SDQ Internalising	-.21	.129
	RPQ Disinhibited	-.21	.130
	RPQ Inhibited	-.33	.018
Teacher	SDQ Externalising	.02	.903
	SDQ Internalising	-.18	.248
	RPQ Disinhibited	-.02	.907
	RPQ Inhibited	-.12	.452
Child	SCARF Mother Emotional Security	-.13	.363
	SCARF Mother Positive Parenting	-.15	.301
	SCARF Father Emotional Security	-.14	.333
	SCARF Father Positive Parenting	.00	.998
Child	WISC-III full-scale IQ	-.09	.625

Correlations between child responsiveness and children's psychological functioning

Children's responsiveness correlated with the Externalising subscale of the SDQ, as reported by teachers. Greater responsiveness was associated with higher levels of externalising problems. No other significant correlations were found with respect to child' responsiveness.

Table 3.3.3.2 Correlations between child responsiveness and children's functioning

Informant		Child Responsiveness	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	.23	.098
	SDQ Internalising	.16	.248
	RPQ Disinhibited	.11	.423
	RPQ Inhibited	.15	.287
Teacher	SDQ Externalising	.48	.001
	SDQ Internalising	.10	.519
	RPQ Disinhibited	.24	.118
	RPQ Inhibited	.19	.224
Child	SCARF Mother Emotional Security	.13	.376
	SCARF Mother Positive Parenting	-.06	.689
	SCARF Father Emotional Security	-.03	.851
	SCARF Father Positive Parenting	-.05	.762
Child	WISC-III full-scale IQ	-.15	.436

Correlations between dyadic cooperation and children's psychological functioning

As shown in Table 3.3.3.3, the only correlation that approached significance was between dyadic cooperation and children's scores on the Perception of Emotional Security scale of the SCARF, indicating greater dyadic cooperation to be associated with children's greater perception of emotional security towards their mothers.

Table 3.3.3.3 Correlations between dyadic cooperation and children's functioning

Informant		Dyadic Cooperation	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	-.10	.472
	SDQ Internalising	.07	.645
	RPQ Disinhibited	.02	.897
	RPQ Inhibited	-.01	.963
Teacher	SDQ Externalising	-.08	.620
	SDQ Internalising	-.17	.287
	RPQ Disinhibited	-.07	.653
	RPQ Inhibited	-.18	.257
Child	SCARF Mother Emotional Security	.27	.060
	SCARF Mother Positive Parenting	.16	.277
	SCARF Father Emotional Security	.10	.512
	SCARF Father Positive Parenting	.10	.492
Child	WISC-III full-scale IQ	.09	.651

Correlations between Dyadic Reciprocity and adopted children's psychological functioning

As shown in Table 3.3.3.4, no associations were identified between dyadic reciprocity and children's psychological functioning.

Table 3.3.3.4 Correlations between dyadic reciprocity and children's functioning

Informant		Dyadic Reciprocity	
		<i>r</i>	<i>p</i>
Parents	SDQ Externalising	.05	.738
	SDQ Internalising	-.04	.806
	RPQ Disinhibited	-.01	.924
	RPQ Inhibited	-.14	.335
Teacher	SDQ Externalising	.02	.896
	SDQ Internalising	-.12	.453
	RPQ Disinhibited	-.01	.938
	RPQ Inhibited	-.08	.632
Child	SCARF Mother Emotional Security	.21	.137
	SCARF Mother Positive Parenting	.05	.752
	SCARF Father Emotional Security	.04	.770
	SCARF Father Positive Parenting	.12	.429
Child	WISC-III full-scale IQ	.10	.608

3.3.4 Children's psychological adjustment and cognitive functioning: The role of family variables.

The following section examines the predictive role of both child's age at placement and family variables on adopted children's psychological adjustment³⁵ and cognitive functioning. The family variables of interest were parenting stress (as assessed by the PSI), depression (as assessed by the BDI-II), anxiety (as assessed by the TAI), marital satisfaction (as assessed by the GRIMS), and Positive and Negative Parenting. Children's psychological adjustment was assessed by the SDQ Externalising and Internalising subscales, as reported by parents, while children's cognitive functioning was assessed by scores on the WISC-III.

In line with previous research showing that age at adoption predicts adopted children's psychological adjustment (Hawk & McCall, 2010), age at placement was chosen as the child variable of interest in the following analyses. Accordingly, the analyses examined whether the family variables (parents' parenting stress, depression, anxiety, marital satisfaction, and quality of parenting) added any predictive value in terms of our understanding of the psychological adjustment and cognitive functioning of adopted children. A series of hierarchical regression analyses were conducted with the Externalising and Internalising sub-scales of the SDQ and the full-scale IQ of the WISC-III as dependent variables.

A note on sample size and preliminary analyses.

Various rules-of-thumb are given for the minimum number of cases to produce a meaningful estimate of the relationship between predictors and outcome variables in regression analyses (Coolican, 2004). Miles and Shevlin (2001) suggest that a sample size of 100 should be the minimum, while others have suggested a minimum of 5 or 10 participants per predictor variable for linear regression models in order to ensure accurate prediction (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996; Vittinghoff & McCulloch, 2007). It has also been argued that overfitted regression models occur when a regression model includes more predictor variables than warranted by the available data (Austin & Steyerberg, 2015). Given the present sample

³⁵ Attachment-related problems were highly correlated with psychological adjustment, as reported by parents ($r = .71, p < .001$). Therefore it was decided that attachment-related problems would not be included as a dependent variable in the following analyses.

size ($N = 52$), preliminary regression analyses were carried out to refine the set of predictor variables for inclusion in the final models. Mothers' and fathers' psychological state, marital satisfaction, and quality of parenting variables were examined separately. Predictors identified as non-significant were removed from subsequent analyses. The final refined models are presented separately for each dependent variable: child externalising problems, child internalising problems, and full-scale IQ.

Finally, it is important to note that the sample size for some regression analyses was not equal to the sample size of the adopted children group ($N = 52$), because the regression analyses only included participants for whom data was available for all predictors.

Family variables and child adjustment.

a) Hierarchical regression analysis for mothers' variables predicting externalising problems.

In the first analysis, children's externalising problems was the outcome variable of interest and child's age at placement and maternal stress were included as predictor variables. A two-stage hierarchical multiple regression was conducted with age at placement entered at stage one and parenting stress entered at stage two. A summary of the results is presented in Table 3.3.4.1

Table 3.3.4.1 Summary of hierarchical regression analyses for mothers' variables predicting externalising problems

Variable	B	SEb	β	p	R	R^2	ΔR^2
Model 1					.24	.06	.04
Age at placement	.04	.02	.24	.09			
Model 2					.32	.10	.07
Age at placement	.03	.03	.17	.24			
Mothers' parenting stress	.03	.02	.23	.12			

Note. $N = 52$

Model 1 shows that child's age at placement was not a significant predictor of children's externalising problems, $F(1, 50) = 2.95$, $p = .09$. In Model 2, maternal stress was included and

the results show that, taken together, age at placement and maternal stress were not significant predictors of children's externalising problems, $F(2, 49) = 2.80, p = .07$. In line with the non-significance of Model 2, the regression coefficients of each predictor variable were also not statistically significant. Thus, neither age at placement nor maternal stress contributed a unique amount of variance to children's externalising problems.

b) Hierarchical regression analysis for fathers' variables predicting externalising problems.

In this analysis, the outcome variable remained children's externalising problems, but the predictor variables were fathers' parenting stress, anxiety and Negative Parenting, as well as child's age at placement. As before, a two-stage hierarchical multiple regression was conducted with age at placement entered at stage one and paternal stress, anxiety and Negative Parenting entered stage two as predictors of children's externalising problems. Of the 52 adopted children, 46 fathers had scores for quality of parenting; thus, 46 children were included in the analysis. A summary of the results is presented in Table 3.3.4.2

Table 3.3.4.2 Summary of hierarchical regression analyses for fathers' variables predicting externalising problems

Variable	B	SEb	β	p	R	R^2	ΔR^2
Model 1					.29	.09	.07
Age at placement	.06	.03	.29	.048			
Model 2					.62	.39	.33
Age at placement	.03	.03	.17	.186			
Fathers' parenting stress	.13	.04	.54	.001			
Fathers' anxiety	-.21	.08	-.43	.007			
Fathers' negative parenting	1.34	.55	.30	.020			

Note. $N = 46$

Model 1 shows that child's age at placement was a significant predictor of children's externalising problems, $F(1, 44) = 4.13, p = .048$. This model explained 9% of the variance in scores. Fathers' parenting stress, anxiety, and Negative Parenting were then added in Model 2. Model 2 significantly predicted children's externalising problems, $F(4, 41) = 6.41, p < .001$, and explained 30% of the variance in scores. The change in R^2 from Model 1 to Model 2 was statistically significant, $F(3, 41) = 6.64, p = .001$. Thus, the addition of fathers' variables

significantly improved the predictive power of the model and reduced the strength of age at adoption as a predictor of children's externalising problems.

The regression coefficients show that each of the father variables contributed unique variance to the outcome variable (children's externalising problems). In Model 2, child's age at placement became non-significant. As shown in Table 3.3.4.2, the strongest predictor of Externalising scores was parenting stress ($\beta = .54, t = 3.46, p = .001$). Fathers' anxiety ($\beta = -.43, t = -2.83, p = .007$) and Negative Parenting ($\beta = .30, t = 2.43, p = .020$) were also significant. This indicates that children of fathers with higher parenting stress were more likely to show increased levels of reported externalising problems. Similarly, children exposed to higher levels of negative paternal parenting were reported by their parents to show higher levels of externalising problems. Conversely, higher paternal anxiety was associated with lower levels of reported externalising problems.

c) Hierarchical regression analysis for mothers' variables predicting internalising problems.

Following the preliminary analyses, none of the family variables related to fathers' well-being and quality of parenting were found to be significant predictors of children's internalising problems. Thus, only the family variable related to mothers' stress (in addition to child's age at adoption) was examined as a predictor of children's internalising problems. As with the previous analyses, a two-stage hierarchical multiple regression was conducted with age at placement entered at stage one and maternal stress entered stage two as predictors of children's internalising problems (the dependant variable). A summary of the results is presented in Table 3.3.4.3

Table 3.3.4.3 Summary of hierarchical regression analyses for mothers' variables predicting internalising problems

Variable	B	SEb	β	<i>p</i>	<i>R</i>	<i>R</i> ²	ΔR^2
Model 1					.48	.23	.21
Age at placement	.07	.02	.48	.000			
Model 2					.62	.39	.36
Age at placement	.05	.02	.35	.004			
Mothers' parenting stress	.04	.01	.41	.001			

Note. *N* = 52

Model 1 shows that child's age at placement was a significant predictor of children's internalising problems, $F(1, 50) = 14.84, p < .001$. This model explained 23% of the variance in scores. Model 2 shows that, taken together, child's age at placement and maternal stress significantly predicted children's internalising problems, $F(2, 49) = 15.34, p < .001$, and explained 16% of the variance in scores. The change in R^2 from Model 1 to Model 2 was statistically significant, $F(1, 49) = 12.44, p = .001$. Thus, the addition of parenting stress significantly improved the predictive power of the model and indicates that maternal parenting stress had an effect above and beyond child's age at placement on children's internalising problems.

As shown in Table 3.3.4.3, the regression coefficients indicate that both age at placement and maternal stress contributed unique variance to the outcome variable (children's internalising problems). The strongest predictor of children's internalising problems was parenting stress ($\beta = .41, t = 3.53, p = .001$), with higher maternal stress predicting children's higher internalising problem scores. Child's age at placement was also significant ($\beta = .35, t = 3.01, p = .004$), indicating that being adopted at an older age predicted higher levels of internalising problems in children.

Family variables and child cognitive functioning.

a) Regression analysis for variables predicting cognitive functioning.

To examine factors associated with children's cognitive performance, family variables (paternal stress, depression, anxiety, marital satisfaction and quality of parenting) were entered into a preliminary hierarchical regression model, as predictors. Examination of regression coefficients in the preliminary analysis indicated that none of the family variable predictors was significant. Thus, a simple linear multiple regression analysis was conducted to examine the effects of age at placement on children's full-scale IQ scores. Full-scale IQ was included as the dependent variable and child's age at adoption was entered as the predictor variable. Of the 52 adopted children, 31 had full-scale IQ scores; thus, only 31 children were included in the analysis. A summary of the results is presented in Table 3.3.4.4

Table 3.3.4.4 Summary of linear regression analysis predicting cognitive functioning

	B	SEb	β	<i>p</i>	<i>R</i>	<i>R</i> ²	ΔR^2
Model 1					.36	.13	.10
Age at placement	-.28	.13	-.36	.049			

Note. *N* = 31

The linear regression revealed that age at placement contributed significantly to the regression model, $F(1,27) = 4.72$, $p < .05$, and accounted for 13% of the variation in child cognitive functioning. This suggests that children adopted at an older age had lower cognitive functioning. Children's full-scale IQ decreased .28 points in scores for each additional month of age at placement into their adoptive family.

4. DISCUSSION

Summary of findings.

More than two decades after the dictatorship, Chile now has high growth rates, greater macroeconomic stability, and greatly reduced poverty levels. However, despite this progress, substantial social problems remain. Extreme income disparity and a weak social welfare system continue to result in pervasive vulnerability for children. In response to international recommendations, the Chilean state has implemented a deinstitutionalisation strategy since the 1990s, with the aim of reducing the number of children in residential care. Since this implementation, the state has reoriented policies and laws to emphasise family reunification and to place children, currently living outside of family care, in nurturing families. Nevertheless, since 2013, the number of adoptions in Chile has fallen and approximately 15,000 children are still living in institutional care, which continues to be the first option for children whose parents cannot care for them. Discussion of the serious violations of children's rights within the Chilean child welfare system has not yet translated into action, and vulnerable children are not a priority in the public policy agenda. Moreover, little research has evaluated the quality and impact of alternative care models, such as adoption and institutional care. This lack of systematic research of Chilean children in the child welfare system has made it impossible to identify the benefits and challenges of different models of formal alternative care. Many questions must be addressed before Chile can advance a long-term strategy of alternative care system reform. Is adoption an adequate alternative to institutional care? Do children benefit from adoption? Are there advantages for children adopted at a younger age? Does the situation of adopted and institution-reared children in Chile converge with evidence from other countries?

Within this context, the present study aimed to examine the psychological well-being of adopted children in comparison with institution-reared children in Chile. Fifty-two adopted children were compared with 50 institution-reared children, all aged between 4 to 9 years. The children were, on average, adopted at an age of 18 months or placed in institutions at an age of 51 months. Standardised interviews, observational assessments and questionnaires on children's socioemotional and cognitive functioning were administered to mothers, fathers,

caregivers, children, and teachers. Overall, large differences were found between adopted and institutionalised children. Adopted children showed significantly higher levels of socioemotional functioning than institution-reared children, with the majority of adopted children showing healthy psychological adjustment and the majority of institutionalised children showing clinical levels of emotional and behavioural problems. Additionally, adopted children had more positive perceptions of family relationships than did institutionalised children. With respect to cognitive performance, most adopted children had IQ scores within or above the normal range. In contrast, institutionalised children had significantly lower IQ scores compared to adopted children, and three-quarters of them scored below average.

Another aim of this study was to explore predictors of positive and negative outcomes for adopted children. Within the group of adoptive families, parental well-being, the quality of parenting, and the quality of parent–child relationships were assessed. Parenting stress was found to be predictive of children’s externalising and internalising problems. Adoptive mothers’ quality of parenting was found to be associated with children’s disinhibited social behaviours and adoptive fathers’ quality of parenting was associated with children’s externalising problems. In addition, children placed for adoption at a younger age showed more positive outcomes than those who were placed for adoption at an older age. Specifically, a younger age of placement into an adoptive family was associated with fewer socioemotional problems and higher cognitive performance.

4.1 Discussion of findings

4.1.1 Comparisons between adopted and institution-reared children

Children’s adjustment and cognitive functioning were compared between adopted and institution-reared children. It was hypothesised that adopted children would show higher levels of social, emotional, and cognitive functioning relative to institution-reared children. As previous research has shown that the age at which the child is placed into an adoptive family or into an institution is associated with later psychological outcomes (for a review see Julian, 2013), and adopted and institution-reared children in the present study differed significantly in age at placement in either an adoptive family or an institution, all of the comparisons

between these groups were conducted controlling for children's age at placement. The findings of this set of analyses are discussed below, first in terms of children's psychological adjustment and attachment-related problems, followed by children's perceptions of family relationships. Finally, the findings relating to cognitive functioning are considered.

Children's psychological adjustment.

In line with the hypothesis, differences in psychological adjustment, as assessed by the Strengths and Difficulties Questionnaire (SDQ), were found between adopted and institution-reared children, as rated by mothers or caregivers. Adopted children showed significantly lower levels of externalising and internalising problems than children in institutional care, after controlling for children's age at placement. The differences found between the groups suggest that the lower levels of psychological problems found in adopted children were likely to have resulted from their more positive rearing environment. For mothers' and caregivers' scores, the effect sizes were particularly large for conduct problems ($d = 1.29$) and peer problems ($d = 1.28$).

In addition, the proportion of adopted children with scores above the cut-off for clinical problems on the SDQ was significantly smaller than that of children living in institutions. The majority of adopted children were found to be psychologically well-adjusted, with levels of psychological adjustment within the normal range, according to both mother and teacher reports. Conversely, approximately half of the institution-reared children had scores on the SDQ that were within the clinical range for psychological problems. Moreover, these differences came from mothers'/caregivers' and teachers' reports, independently, adding weight to the validity of the results. These findings, which suggest that adopted children fare better than children in institutions, are in line with the findings of a recent Spanish study of the adversity profiles of children in different childcare placements (Jiménez-Morago et al., 2015). The Spanish study collected information from parents or caregivers using the SDQ and similarly found that adopted children had psychological adjustment scores within the normal range and showed significantly fewer psychological problems compared with institutionalised children.

With respect to the institution-reared children, approximately 50% of those in the present study scored above the cut-off for clinical problems on the SDQ, according to caregivers' and teachers' reports. This finding supports a substantial body of work in other countries showing that institutional rearing is associated with deleterious effects on children's socioemotional development and behaviour (e.g., Johnson & Gunnar, 2011; Zeanah et al., 2005; Zeanah, Humphreys, Fox, & Nelson, 2017). The higher levels of externalising and internalising problems in children living in institutional environments relative to those living in adoptive families were expected, due to the structural neglect that is inherent in most institutional-child rearing settings (van IJzendoorn et al., 2011). This typical institutional environment of structural neglect, involving minimal physical resources, unstable staffing patterns, and socio-emotionally inadequate caregiver-child interactions, is also present in Chilean institutions. Thus, the present findings suggest that the psychosocial deprivation involved in institutionalisation in Chile may prevent children from engaging with the type of nurturing and stimulating environment that is necessary for healthy psychological development. This finding adds to the growing body of literature demonstrating that institution-reared children are at high risk for emotional and behavioural problems (e.g., Sheridan, Drury, McLaughlin, & Almas, 2010; Smyke et al., 2007; van Ijzendoorn et al., 2011).

In this study, institutional care showed a particularly strong association with conduct problems and peer problems. This finding is inconsistent with findings from the English and Romanian Adoptees (ERA) study (Rutter, Kreppner, & Connor, 2001), which showed high levels of some forms of psychopathology, such as attachment disorder, inattention/over-activity, and quasi-autistic behaviour in post-institutionalised children, but no specific differences between these children and a comparison group of adopted children with no history of institutionalisation in either conduct problems or peer problems. The difference in findings between the two studies may be due to dissimilarities in the samples studied, as the ERA study compared children raised in Romanian institutions who were later adopted into families living in the UK with children who were born in the UK and adopted into similar British families (Rutter et al., 2007). Therefore, none of these children at the time of study was living in institutions.

The present study also found significant differences between adopted and institution-reared children in pro-social behaviour. Mother or caregiver ratings on the SDQ indicated that adopted children showed higher levels of prosocial behaviour than children living in institutions. In the SDQ, pro-social behaviour is a measure of the child's ability to relate well with peers and to

favour actions that benefit the individuals with whom he/she lives. Therefore, the results are in line with findings from a Spanish study on social competence in internationally adopted and institutionalised children showing that adopted children had significantly fewer problems with peers and better social skills than children living in institutions (Palacios et al., 2013). Taken together, the findings of the Chilean and Spanish studies suggest that psychosocial deprivation in early life not only affects the adjustment of institutionalised children but also their development of competent social interaction skills.

In terms of clinical problems shown by the adopted children, fewer than 15% of children according to mothers' reports, and approximately 20% of children according to teacher's reports, showed clinical problems, as assessed by the proportion above the cut-off for clinical problems on the SDQ. The low level of clinical problems for the adopted children was unexpected, given that previous studies have found high levels of behaviour problems in adopted children. For example, about 30% of adopted children in the Netherlands were classified as having clinical problems on the Child Behavior Checklist (CBCL) (Stams, Juffer, Rispen, & Hoksbergen, 2000). Moreover, the finding is surprising given the high prevalence of psychiatric disorders in Chile among children aged 4 to 11. According to a general population study of children and adolescents in Chile, the prevalence of psychiatric disorders among 4 to 11 year olds was 27.8%, with the most frequent disorder being conduct disorder followed by anxiety disorder (De la Barra, Vicente, Saldivia, & Melipillán, 2012; Vicente et al., 2012). Therefore, the proportion of adopted children scoring above the cut-off level for clinical problems on the SDQ in the present study was lower than that of children in the Chilean population. The instrument used in the Chilean study of psychiatric disorders was the Diagnostic Interview Schedule for Children, version IV (DISC-IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-stone, 2000), which is a structured psychiatric interview based on contemporary classification systems of child mental disorders (the *DSM-IV* and *ICD-10*). Therefore, the result of the present study is even more striking, considering that the DISC-IV provides a stringent assessment of child psychiatric disorder whereas the SDQ, as a brief behavioural screening questionnaire, is likely to detect less severe difficulties.

When the mother-rated SDQ scores from the present sample were compared with the SDQ scores of a normative sample of children in Chile (Brown et al., 2014), no significant difference was found between adopted girls and girls in the normative group, and adopted boys showed significantly fewer difficulties than boys in the normative group. This finding, which suggests

that the majority of adopted children in the present study were doing as well as children in the general population, runs contrary to research in other countries showing that, in middle childhood, adopted children, and particularly those with a history of early institutional rearing, display higher levels of externalising and internalising symptoms compared to non-adopted children (e.g. Hawk & McCall, 2010; Knuiman, Rijk, Hoksbergen, & van Baar, 2014; Stams, Juffer, Rispen, & Hoksbergen, 2000). Such research has led to the conclusion that adopted children are at greater risk of emotional and behavioural problems than their non-adopted peers living with biological parents (Brodzinsky, 1993; Wiik et al., 2011). In addition, some researchers have claimed that adopted children are difficult and vulnerable (Miller, 2005). While the present findings contrast with some previous studies, they support the conclusions of Juffer and van IJzendoorn (2009), who – on the basis of meta-analytic evidence – concluded that the rate of behavioural problems among adopted children is modest and most adoptees are well-adjusted.

One possible explanation for the discrepancy between the findings of the present study and studies showing a high risk of emotional and behavioural problems for adopted children, is that many of the children in previous studies spent more time in an institution before adoption and were adopted at an older age than children in the present study. For example, Knuiman and colleagues (2014) included children from Poland who were adopted in the Netherlands at an average age of 36 months, while the average age at adoptive placement in the present study was 18 months. A number of studies have shown that age at adoption is an important factor in the adjustment of adopted children, with an older age at adoption associated with longer periods of adversity and higher levels of adjustment difficulties (e.g., Gunnar & Van Dulmen, 2007; Julian & McCall, 2016; Merz & McCall, 2010; Rutter, Sonuga-Barke, & Castle, 2010). As children in the present study were adopted at a relatively young age, they are likely to have experienced less pre-adoptive adversity, such as neglect or abuse, which may have resulted in lower levels of emotional and behavioural problems.

Interestingly, results from the comparisons between adopted and institution-reared children on the SDQ, varied according to the informants. For mothers/caregivers, there was a significant difference between groups with adopted children showing lower levels of psychological adjustment problems than children in institutional care. Teachers' data on the SDQ showed no significant differences between adopted and institutionalised children, although adopted children's scores on the SDQ were lower than those of institution-reared children. However,

fewer teachers than parents or caregivers participated in this study which may have reduced the statistical power to detect a significant difference between the groups. It is possible that the teachers who did not complete the questionnaires were teachers of children with greater problems. However, there was no significant difference in mothers'/caregivers' total SDQ scores between children for whom teachers' SDQ scores were available and those for whom they were not. Thus, there did not appear to be a bias towards higher levels of psychological adjustment among children whose teachers did not complete the questionnaires. The discrepant findings could result from rater bias, that is, mothers/caregivers having a lower threshold for perceiving or reporting behaviour problems in their children than teachers (e.g., Culp et al., 2001; Major, Seabra-Santos, & Martin, 2015). Further, different informants such as parents or teachers see the children in different contexts and interact with the children in different ways (Stone, Otten, Engels, Vermulst, & Janssens, 2010), and it has been found that agreement on reports of child behaviour problems of different informants typically is low (Achenbach, McConaughy, & Howell, 1987; Culp, Howell, Culp, & Blankemeyer, 2001). Goodman (1997) argued that parents and teachers make SDQ ratings based on different sources of information. The environment in the classroom is different from that experienced by children at home or at the institution. Therefore, it is also possible that discrepant findings represent salient differences in the child's reaction to the home (or institutional setting) and school situation.

Age at time of placement was controlled in all the comparisons. On average, adopted children were placed in their adoptive family at the age of 18 months and institutionalised children were placed at an institution at the age of 51 months. This illustrates that institutionalised children were removed from their home and placed in an institution as a protective measure much later than the adopted children were placed in their adoptive family. Therefore, it seems that institution-reared children were exposed to early deprivation for a longer period of time than that of the adopted children, who experienced similar deprivation. This indicated that the poorer psychological adjustment scores obtained by institutionalised children as rated by teachers may have resulted from their older age at placement in institutions, rather than the effect of their rearing environment.

Overall, the findings suggest that adopted children in the present study were not only better adjusted than the institution-reared children, but also closer – or even better, in the case of boys – in psychological profile as assessed by the SDQ to children in the general population of Chile. One possible explanation for this finding is that, because participation in this study was

voluntary, the adoptive families who agreed to take part might have been those with the most well-adjusted children.

The results may also reflect a tendency to normalise adopted children's emotional and behavioural problems. Although this explanation is plausible, it is weakened by the high correlation found between the SDQ scores reported by adoptive parents and teachers ($r = .51$, $p < .001$). If adoptive parents had portrayed their child in a desirable light, a lack of association between informants would have been expected.

Another possible explanation is that high levels of psychological adjustment among the adoptive parents promoted greater psychological adjustment in their adopted children. Family systems theory suggests that the family is a complex, dynamic, and integrated whole, in which each member influences and is influenced by all other members (Minuchin & Fishman, 1981). In the present study, the adoptive mothers and fathers were found to be generally well-adjusted. The adopted children's more positive perceptions of family relationships compared to institution-reared children may also explain the higher levels of psychological adjustment in adopted than in institutionalised children. In addition, disparities in socioeconomic status between the groups may have played a part.

The positive findings for adopted children may also be explained by the high motivation and commitment of adoptive parents. The Chilean adoption process has been described as costly and exhausting for those wishing to adopt (Gale, 2016). Thus, couples who successfully go through the procedure are likely to have overcome many obstacles in their journey to become a parent, and those who were less committed to adoptive parenthood are likely to have dropped out along the way.

Children's attachment-related problems.

In line with the hypothesis that adopted children would show lower levels of emotional difficulties than children in institutions, differences were found between groups with respect to mother or caregiver ratings of reactive attachment disorder on the Relationship Problems Questionnaire (RPQ). Adopted children showed significantly fewer attachment-related

problems than children in institutional care, after controlling for children's age at placement. This indicated that the lower levels of attachment-related problems seen in adopted children were likely an effect of their rearing environment.

The finding that adopted children showed fewer attachment difficulties than children living in institutions is consistent with findings from the Bucharest Early Intervention Project (BEIP), which showed that children in family settings (foster care) had fewer signs of reactive attachment disorder than those in institutional care (Smyke et al., 2012). Furthermore, in the present study, the majority (approximately 80%) of adopted children did not show signs of reactive attachment disorder, as measured by the RPQ. They had average RPQ total scores of 4.31 and 4.02, as rated by mothers and teachers, respectively, whereas scores of 7 or higher are considered to reflect attachment-related problems. These findings are in line with findings from a study of the emotional recovery of Russian children aged 4 to 9 years old who were adopted in Spain, in which the RPQ was used to assess attachment difficulties (Palacios et al., 2009). Palacios and colleagues found that, after three years in the adoptive family, adopted children had an average RPQ score of 4.0 and did not differ from a comparison group of non-adopted children. The results from the current study similarly indicate that, in spite of early adverse experiences, over-friendliness to strangers, a great desire for adult attention, and watchful behaviour do not seem to be characteristics of Chilean adopted children's behaviour. It is not known whether or not the adopted children showed attachment difficulties before they were adopted. It is conceivable that children with attachment difficulties were less likely to have been adopted. Alternatively, their attachment difficulties may have disappeared following their adoption. It is likely that both of these factors were at play.

While the majority of adopted children in the present study did not show signs of attachment disorder, it is important to point out that approximately 20% did. This finding is interesting, but explanations for it are difficult. Attachment disorder is a relatively new diagnosis and further evidence is needed for a better understanding of its prevalence in different groups. Although research into attachment disorders has expanded, most studies have been conducted with Romanian institutionalised children, who lived in institutions under conditions that have been described as worse than those in almost all industrialised countries (Rutter, 1998). Moreover, there is no gold-standard measure for the assessment of attachment disorders and the precise mechanism of how they arise remains unclear (Kay, Green, & Sharma, 2016).

Minnis and colleagues (2013) found the prevalence of attachment disorders in 1,646 children (aged 6 to 8 years) in a deprived area of the UK to be 1.4%. In another UK study, Kay and colleagues (2016) found the prevalence of the disinhibited behaviour style in adopted children (aged 6 to 11 years) – children with no history of institutional care but prevalent experiences of maltreatment – to be 49%. The Bucharest Early Intervention Project team found that the placement of institutionalised children in a family setting (foster care) resulted in a marked reduction in signs of the inhibited style: after age 30 months, signs of the inhibited style in children in the foster care group were indistinguishable from signs in a never-institutionalised group (Smyke et al., 2012). In addition, in the BEIP, differences in disinhibited behaviours were examined at the age of 54 months in children with a history of institutional care and a comparison group of home-reared children, using an observational technique called the “Stranger at the Door”. In this procedure, a stranger rings the doorbell and invites the child to go for a walk (Gleason et al., 2014). The researchers found that children with a history of institutional care were more likely (20 out of 60 [33%]) to leave with the stranger than never-institutionalised children (1 out of 29 [3.5%]). Differences in the methodologies used to assess attachment disorder across various studies make it difficult to compare the results. In addition, the present study did not include a sample of non-adopted children. Thus, it was not possible to compare the percentages of reactive attachment disorder in adopted and non-adopted children in Chile. However, the percentage of adopted children from the current study who scored above the clinical cut-off level for problems on the RPQ indicates that signs of attachment difficulties were present in one-fifth of these children. One potential reason for this finding is the enduring nature of early deprivation on attachment disorders (Zeanah & Smyke, 2009). Thus, although the vast majority of adopted children in this study did not show attachment difficulties, for a minority of adopted children, the time spent in an institution and/or the experience of adversity prior to the adoption placement may have resulted in attachment difficulties, even after adoption. In future research, the role of early adversity on attachment difficulties should be clarified and examined.

For the institution-reared children in the present study, the results relating to attachment difficulties were strikingly different from those obtained for the adopted children. As hypothesised, the findings indicate that attachment difficulties were common in institutionalised children; they had average caregiver- and teacher-reported total RPQ scores of 10.26 and 7.35, respectively. A high percentage of these children obtained scores above the clinical cut-off level for reactive attachment disorder (66% according to the caregiver-report

and 40% according to the teacher-report), including inhibited and disinhibited behaviour. This finding is consistent with studies that have shown that children raised in deprived populations – and specifically those living in institutions – exhibit higher rates of reactive attachment disorder than children who are not exposed to adverse caregiving environments (Bakermans-Kranenburg et al., 2011; Humphreys, Nelson, Fox, & Zeanah, 2017; Minnis et al., 2013; O'Connor & Rutter, 2000; Zeanah et al., 2005). Specifically, disinhibited social behaviour is the most commonly reported socially aberrant behaviour in institutionalised children (e.g., Chisholm, 1998; Lawler et al., 2014). Previous studies have found that attachment disorders are associated with abuse and neglect; as a result, those who suffer from these disorders have significant difficulties relating to others (Minnis et al., 2013). There is now broad consensus that, in early childhood, attachment disorders result from inadequate caregiving environments (Zeanah & Gleason, 2015). Thus, it is possible that the high rate of attachment difficulties found in institutionalised children was due to their atypical caregiving context (i.e., their lack of a stable caregiving figure). However, this finding may also be explained by the children's experiences of neglect and abuse prior to their placement in institutions. In the current study, children living in institutional care had experienced a significant amount of adversity. The most common reasons why they had ended up in institutional care were parental neglect (64%) and sexual abuse (20%). Moreover, the high levels of attachment difficulties in institution-reared children may be explained by the combination of both pre and post institutionalisation experiences, that is, by the accumulation of risk. According to this theoretical perspective, is the accumulation of risk exposures across settings and time that is most likely to lead to disturbance (Rutter, 1990; Werner, 2000).

Another possible explanation for the high levels of disinhibited and inhibited social behaviour found in the institutionalised children is that, in Chile, over 72% of children remain in institutions for more than 1 year, and more than 33% remain in institutions for more than 3 years. During this time, family visits tend to diminish, producing gaps and ruptures in family bonds (UNICEF, 2003). In this study, 42% of the children in institutions had lived in multiple institutional care facilities and more than one third had lived at least half of their life in institutional care. Parents are important social influences on development (Sroufe, 2005), and attachment is considered a vital component of social and emotional development in the early years (Zeanah & Smyke, 2009). Thus, for children living in institutions, the experience of being separated from parents (or having little contact with them) may have resulted in their high rates of attachment difficulties. However, the current study did not include data on children's

parenting experiences or psychological problems prior to entering institutions as this information was not available, and thus their pre-placement attachment difficulties are unknown. As a result, it was not possible to separate the influence of pre-placement experiences from those of the institutional environment in which the children lived.

Comparisons between adopted and institution-reared children for the teachers' data on the RPQ produced different results from those obtained for the mothers/caregivers' data. For the teachers' data, although adopted children scores on the RPQ were lower than those of institution-reared children, those differences were not statistically significant. It is possible that the teachers who did not respond to the questionnaires were teachers of children with greater problems. However, there was no significant difference in mothers' total RPQ scores between children for whom teachers' RPQ scores were available and those for whom they were not. Thus, there did not appear to be a bias towards higher levels of adjustment among children whose teachers completed the questionnaires.

Convergence between psychological adjustment and attachment-related problems.

Interestingly, within the adopted and institutionalised groups, mother/caregiver and teacher ratings of psychological adjustment (SDQ) were significantly and positively correlated with mother/caregiver and teacher ratings of reactive attachment disorder (RPQ), suggesting the presence of complex and overlapping psychological problems in children. This finding is in line with the conclusions of a UK study of 1,600 children, in which children with reactive attachment disorder were likely to have comorbidities with multiple other disorders, as well as behavioural problems (Pritchett et al., 2013). The finding that higher psychological adjustment problems were associated with higher levels of attachment difficulties also supports findings from a Belgium study of 152 children from special education schools in which significant associations were found between RPQ and SDQ scores, as rated by parents and teachers (Vervoort et al., 2013). Further, Vervoort and colleagues found that the Inhibited subscale of the RPQ, as compared to the Disinhibited subscale, was more strongly associated with children's behavioural and emotional problems (as assessed with the SDQ), similar to the finding of the present study. Thus, it seems that psychological adjustment and attachment disorders are relatively dependent constructs in childhood.

Children's perceptions of family relationships.

In the present study, children's perceptions of family relationships, as assessed by the subscales of Perception of Emotional Security and Perception of Positive Parenting from the Structured Child Assessment of Relationships in Families (SCARF), were compared between adopted and institution-reared children. The results showed that children's feelings of emotional security and experiences of positive parenting with respect to their mother and father were significantly more positive among adopted than institution-reared children. These differences were found after controlling for children's age at placement. This suggests that adopted children's more positive views and feelings towards their mothers were an effect of being reared in an adoptive family.

It was unsurprising that adopted children had more positive perceptions of family relationships than institutionalised children, given that institutional care means that children grow up outside the family context. However, this finding is inconsistent with findings from a study from Israel, which examined the feelings of institutionalised children (all placed due neglect), aged 10 to 15, towards family members, in comparison with: (a) the feelings of non-institutionalised children who were candidates for institutional placement, and (b) the feelings of children living with their parents (Jaffe, 1977). The results from Jaffe's study showed no differences between groups, and it was concluded that both institutionalised and non-institutionalised children showed strong feelings and emotional involvement towards their mother and father. However, the children in the Israeli study were much older than the children in the present study and may have spent longer with their birth parents. In addition, the Israeli study used the Bene-Anthony Family Relations Test as an assessment of family relationships, an instrument whose reliability has been described as limited (Parkin, 2001).

The less positive perceptions of family relationships by institution-reared children than by adopted children, can have different explanations. It is generally assumed that institutions – sometimes called orphanages – are meant to support orphans, but over 80% of children living in institutions worldwide have a living parent (Save the Children, 2009). In Chile, being at risk of – or subject to – abuse and neglect is the predominant reason why children are placed in formal alternative care. In this study, the children had been admitted to institutional care due to parental neglect, sexual abuse, or maltreatment. Thus, the lower positive perceptions of family relationships among institutionalised children are likely to have resulted from their

negative experiences of birth parents and family dysfunction prior to institutionalisation. As described above, the current child protection system in Chile fails to support family relationships. In this study, almost all of the institution-reared children had parents and 64% were in contact (ranging from regular to sporadic contact) with their birth families. According to attachment theory (Bowlby, 1973, 1982), separation from an attachment figure is a source of distress, that can lead children to view that person as unavailable or inconsistently responsive. Thus, the finding that institution-reared children have less positive perceptions of family perceptions may be explained by institutionalised children's lack of meaningful contact with their biological family post-placement.

Cognitive functioning.

Children's cognitive functioning, as assessed by the WISC-III, was compared between adopted and institution-reared children. In line with the hypothesis, the adopted children showed significantly higher scores on the full-scale IQ, and Performance and Verbal IQ subscales, compared to institutionalised children. These differences were found after controlling for children's age at placement. This indicates that adopted children's higher IQ scores were an effect of being reared in an adoptive family.

These findings are consistent with meta-analytic evidence showing that adopted children scored significantly higher on IQ scales than their institutionalised peers (van IJzendoorn & Juffer, 2005). The findings are also consistent with results from the Bucharest Early Intervention Project showing that children removed from Romanian institutions and placed into a family setting (foster care) displayed higher scores at each of the follow up assessments (30, 42, 54 months, and 8 years of age) compared to those children randomised to remain in institutions (Fox, Almas, Degnan, Nelson, & Zeanah, 2011; Nelson et al., 2007).

In the present study, adopted children not only had higher IQ scores than institution-reared children, but the majority had scores in the average or above the average range, according to age-standardised Chilean norms. Only 16% of adopted children scored below average. These findings are consistent with the findings of previous research on adopted children's IQ, in

which adopted children have been found to have similar IQ scores to their non-adopted peers or siblings (van IJzendoorn & Juffer, 2005).

Institutionalised children clearly lagged behind adopted children in cognitive performance. On average, institution-reared children were more than 23 IQ points behind adopted children, with 76% of them scoring below average. These findings are consistent with those of previous studies showing the negative effects of early deprivation on cognitive performance (Beckett et al., 2010; Nelson et al., 2007; Vorria et al., 2003) and highlight the potential negative impact of institutional care on IQ. They are also in line with a meta-analysis of studies examining IQ, in which children growing up in institutions showed lower IQs compared with children reared in a (foster or biological) family (van IJzendoorn et al., 2008); children reared in institutions showed, on average, an IQ of 84 and comparison children raised in a family context showed an average IQ of 104. In the present study, children in institutional care had lower cognitive performance than adopted children, in particular on the Verbal subscale. Mean Verbal IQ was 76 for institution-reared children and 99 for adopted children. Language has been described as “the quintessential symbol-manipulating system” (Pinker, 1999). Therefore, this low Verbal IQ represents a major disadvantage in everyday life and education for children living in institutions. Multiple explanations have been advanced for these disadvantages. Zeanah and colleagues (2011) suggested that because institutionalised children are often reared in conditions of social and material privation, this might have profound consequences for brain development and functioning. Furthermore, Belsky and Pluess (2012) stated that a lack of cognitive –and especially language – stimulation, associated with a poor quality of care in early life, undermines foundational cognitive linguistic skills. Both of these explanations seem highly likely in the present sample, given the characteristics of institutions in Chile, which have recently been found to exhibit serious violations to the rights of children through long child residencies, unstable caregiving, and poorly qualified professional and technical staff (Muñoz-Guzmán et al., 2015; UNICEF, 2013).

The finding that adopted children had IQ scores in the average or above the average range and that their IQ scores were higher than those of institution-reared children, are likely to result from environmental influences as social advantages in early life increase children’s access to educational resources (UNICEF, 2016). Adoptive parents in this study were well educated (mothers with professional degrees: 69.2%; fathers with professional degrees: 75.5%) and most adoptive families held a middle or high socioeconomic status (84%). Previous studies have

shown that adoption into highly educated families with high socioeconomic status (SES) tends to enhance children's overall cognitive scores. Duyme, Dumaret, and Tomkiewicz's (1999) study of French adopted children showed substantial IQ gains (in a range of 7 to 19 points, with a mean of 14 points) in a sample of 65 deprived children, on the basis of the adoptive parents' SES. The authors concluded that IQ can be boosted by significant environmental changes. The current findings similarly suggest that the SES of adoptive parents impacts the cognitive performance of their children. Nonetheless, as the current study did not include data on children's IQs prior to their placement in an adoptive family, the issue of whether SES of parents can boost the IQ of their adopted children cannot be concluded conclusively.

Finally, when only data from institution-reared children were considered, no differences were found between children living in institutions rated as offering care of better quality and children living in institutions rated as offering care of poorer quality for either caregivers' or teachers' ratings of psychological adjustment and attachment difficulties. Similarly, no group differences were found for children's IQ scores. This finding is in line with studies showing that even institutional care with relatively high staff- to-child ratios and adequate cognitive stimulation has deleterious effects on young children's development (Gunnar & Van Dulmen, 2007), and it is also consistent with the notion that even in institutions where social stimulation can be considered adequate, it is rare that children experience the type of continuity in caregivers that may be needed for normal social development (Gunnar & Kertes, 2005).. However, it is possible that the small sample size of the institution-reared children may have reduced the statistical power to detect significant differences between the groups.

Although the quality of institutions in this study did not seem to make a difference in the outcomes of the institution-reared children, it is important to emphasise that this does not imply that the quality of these contexts is not relevant. Dozier, Zeanah, Wallin, and Shauffer (2012) argued that interactions with consistent and committed caregivers are key to the development of young children.

In summary, the present study found significant differences in development between adopted and institution-reared children. According to the reports of mothers and caregivers, adopted children had fewer behavioural and emotional problems and exhibited more pro-social behaviours than children growing up in institutional care. Despite having experienced early adversity, the majority of adopted children were found to be psychologically well-adjusted and

were classified as having above average or average cognitive performance. Additionally, children's feelings of emotional security and perceptions of positive parenting were greater among adopted children, relative to institution-reared children. Taken together, these findings suggest that adoption is associated with numerous developmental benefits for Chilean children who cannot be cared for by their biological parents. The high incidence of socioemotional problems and the low cognitive performance of institution-reared children supports existing evidence on the potentially profound and negative impact of institutional care on children's behavioural, emotional, and cognitive development.

Interpretation of these results is challenging, as it is possible that children with better psychological adjustment and higher cognitive skills are more likely to be adopted, thus accounting for the more favourable results for the adopted children. However, significant correlations were found between the length of time children had been living with their adoptive family and children's socioemotional and cognitive functioning, with more positive outcomes for children who had lived longer in an adoptive family. This suggests that selection bias cannot fully explain the group differences found in the present study. Instead, it appears that adoption, in itself, is associated with many benefits to children's functioning.

The next challenge in interpreting the findings is that the significant differences found between adopted and institution-reared children could be explained by the interplay of multiple factors, individual and environmental, e.g. the child's genetic disposition, pre-natal, and pre/post adoption and institutional care (Rutter, Moffitt, & Caspi, 2006). Furthermore, for institutionalised children, the variable of "institutionalisation" refers to a complex mix of social, perceptual, physical, intellectual, and emotional deprivation. As a result, it has been argued that when institution-reared children are found to differ from family-reared children, it is usually not possible to specify the type of deprivation that produced the differences (MacLean, 2003).

4.1.2. Factors associated with adopted children's functioning

Factors associated with the social, emotional, and cognitive functioning of the children in adoptive families were examined. It was hypothesised that social, emotional and cognitive

problems would be lowest in children placed in an adoptive family at a younger age and who were adopted from foster, rather than institutional, care.

Age at placement and children's psychological adjustment, attachment-related problems, and cognitive functioning.

As expected, children's age at placement in their adoptive family was associated with their functioning. Specifically, fewer psychological adjustment problems, fewer inhibited social behaviours, and higher IQ scores were associated with a younger age at placement. Although an association might have been expected between age at placement and children's perceptions of their parents, given that later-adopted children tend to show more difficulties with parent-child relationships (Julian, 2013), this was not found to be the case in the present sample.

While some studies have found no effect of child's age at placement on the development of psychological problems (e.g., Caprin, Benedan, Ballarin, & Gallace, 2017; Juffer & van IJzendoorn, 2005; van den Dries, Juffer, van IJzendoorn, & Bakermans-Kranenburg, 2009), the findings of the present study are more in line with studies showing that later-adopted children have a higher rate of problems than earlier-adopted children (e.g., Camras, Perlman, Fries, & Pollak, 2006; Julian & McCall, 2016; Kreppner et al., 2007; Rutter, Sonuga-Barke, & Castle, 2010). The lack of consistency in findings in the existing literature may be due to several factors, including differences in children's severity of deprivation, children's age at assessment, adoptive parents' backgrounds, and the adoptive environment (Beckett et al., 2006; Julian, 2013).

In the present study, for the parents' and teachers' data, there were significant associations between children's age at placement and internalising problems. For the teachers' data there was a significant association between children's age at placement and externalising problems. For the parents' data, there was a significant association between children's age at placement and inhibited behaviours and for the teachers' data this correlation approached significance.

Specifically, comparisons were made between children placed into adoption at 6 months or younger and children placed after the age of 6 months. It was found that children placed at 6 months or younger showed fewer externalising problems and fewer levels of disinhibited and

inhibited social behaviours than children placed older than 6 months, according to both parents' and teachers' ratings. Likewise, a significant difference was found between groups for IQ scores. Significant differences were also found in 8 out of 9 dependent variables when the age cut point was 12 months; when the cut point was 24 months, significant differences were found in 5 out of 9 dependent variables. This suggests that recovery from early adversity seems to be higher when the pre-adoptive deprivation did not persist beyond the age of 6-12 months. This finding is in line with the English and Romanian Adoptees Study (ERA) study which showed that Romanian children adopted after severe deprivation in institutional care beyond six months of age had significantly more behavioural problems than children adopted before the age of six months (Kreppner et al., 2007).

Taken together, the results show that the earlier children are adopted, the more positive are the outcomes in terms of their psychological well-being. The findings add to the body of literature that has found evidence of the possibility of a sensitive period for development (Kreppner et al., 2007; Zeanah, Gunnar, McCall, Kreppner, & Fox, 2011). From the perspective of risk and protective factors (Rutter, 1990; Werner, 2000), being placed at a younger age in a protective environment can buffer the negative impact of early adverse experiences, highlighting the importance of the timing of the protective measure. Consistent with the results of the current study, children's age at the time of their adoption has been found to be the major factor contributing to difficult behaviour in adopted children in a number of previous studies. Hawk and McCall (2010), in a review of 18 studies (each of which used the Child Behavior Checklist), found that children adopted after the age of 6 to 18 months showed higher levels of behaviour problems, especially internalising, externalising, and attention problems. Likewise, in the International Adoption Project in Minnesota, adoption after age 2 years was associated with greater problems in both internalising and externalising on the Child Behavior Checklist (Gunnar & Van Dulmen, 2007). The finding of the present study that the inhibited type of reactive attachment disorder was associated with children's age at adoption is consistent with other studies reporting an association between duration of deprivation and severity of attachment disorder (O'Connor & Rutter, 2000), and supports previous findings that early placement in an adoptive family (before the age of 24 months) is associated with fewer signs of inhibited social behaviours (Smyke et al., 2012).

Given that children's age at adoption serves as a proxy for the presence of greater turmoil and adversity in children's pre-adoption history, a likely explanation for association between age

at adoption and children's functioning in the present study is that children who were adopted at an older age experienced deprivation for longer periods than those placed at a younger age. In the current study, there was no significant association between children's age at adoption and disinhibited behaviour, which is consistent with other studies reporting that the inhibited type may be more responsive to enhanced caregiving than the disinhibited type (Smyke et al., 2012).

As hypothesised, when factors associated with children's cognitive performance scores were explored, child's age at placement was found to be the strongest predictor. Children placed at a younger age in the adoptive family showed higher IQ scores than their older peers. In fact, the "cost" to those children adopted at older ages was .28 IQ points per month. This finding is in line with those of the English and Romanian Adoptees study (O'Connor, Rutter, Beckett, Keaveney, & Kreppner, 2000), which showed that, at age 6 years, age at placement was the strongest predictor of individual differences in cognitive competence, with late-placed adopted children showing lower IQ scores compared with earlier adopted children. The finding is also in line with the Bucharest Early Intervention Project's findings showing that the younger the age at which a previously institutionalised child is placed in a family environment, the better the child's cognitive outcome (Nelson et al., 2007). According to Nelson and colleagues, this indicates that the timing of environmental enhancement is crucial and suggests a possible sensitive period in cognitive development. The present study's finding similarly suggests that placement in a stimulating rearing environment early in life protects children's cognitive competence.

Adoption from foster care versus institutional care.

The present study compared two pre-adoption rearing arrangements: institutional and foster care. While children placed into adoption from foster care were expected to have higher levels of adjustment, given that foster care is set up as an extension of the child's family, with foster parents assuming parental roles (Lo et al., 2015), this was not found to be the case. There were no significant differences in children's psychological adjustment or in reactive attachment disorder between children adopted from foster care and children adopted from institutional care. This finding is in line with other studies showing no differences in attachment difficulties

between different pre-adoption rearing arrangements. Van den Dries and colleagues (2012) found that post-institutionalised and former foster children did not differ in the disinhibited subtype of reactive attachment disorder. However, as they found that former foster children showed a greater increase in responsiveness over time, and more attachment security, than the post-institutionalised children, it was concluded that pre-adoption foster care was more beneficial than pre-adoption institutional care.

In general, foster care is better than institutional care as an alternative for children deprived of parental care, but the quality of foster care is likely to have a significant impact on children's development (Julian & McCall, 2011). In Chile, both institutional and foster care programmes have been found to provide sub-optimal care for children, with institutions facing difficulty in recruiting and retaining specialised professionals and foster care programmes struggling to provide an appropriate level of staffing (Muñoz-Guzmán et al., 2015). In addition, in a study comparing foster carers in Chile and Spain, it was found that the majority of carers in Chile had a low educational level and, in contrast to Spanish foster families, Chilean foster parents had higher stress levels and smaller social support networks (Jiménez & Zavala, 2011). It is possible that the poor standards of Chilean foster care programmes, and deficient support provided to foster families, prevented the foster carers in Chile from enhancing the development of the children they fostered, thus explaining the absence of differences between the children adopted from foster care and the children adopted from institutions. Additionally, the sample size of the adopted children group in this study may have been too small to detect differences in SDQ and RPQ scores between different pre-adoption rearing arrangements.

4.1.3. Family functioning in Chilean adoptive families

The psychological health of mothers and fathers in the adoptive families was found to be good, with the majority exhibiting levels of depression, anxiety, and parenting stress within the normal range. Fewer than 6% of mothers and 8% of fathers showed clinical levels of depression; fewer than 10% of mothers and 4% of fathers had clinical levels of parental stress; and only 15% of mothers and 28% of fathers showed clinical levels of anxiety.

In Chile, the prevalence of psychiatric disorders in the adult population is high. It should be noted that there are no norms for the BDI-II in Chile. However, depression is highly prevalent

in adults. Recently, the first nationally representative study of depression in Chile examined the 12-month prevalence of a major depressive episode in two samples in 2003 and 2010, using the Composite International Diagnostic Interview, Short Form (CIDI-SF). The study found a prevalence of depression of 20.5% in 2003 and 18.4% in 2010 (Markkula, Zitko, Peña, Margozzini, & Retamal, 2017). Therefore, the percentages of mothers and fathers with clinical levels of depression on the BDI-II in the present study were considerably lower than those found in the Chilean population study. Similarly, the low prevalence of parenting stress in the sample of adoptive parents is surprising, considering the results of a UK study comparing 86 adoptive parents and 167 biological parents of children aged 3 to 11, in which 70% of the adoptive parents reported high levels of parenting stress on the PSI-SF (Harris-Waller, Granger, & Gurney-Smith, 2016). An explanation for this difference may lie in the nature of the UK study, which was an online survey; in contrast, the present study was based on home visits, and therefore a lack of anonymity may have affected the responses for example, by increasing social desirability. It may also be the case that adoptive parents in Chile are less stressed than adoptive parents in the UK. The low levels of parenting stress in Chilean adoptive parents may be associated with the low levels of psychological problems in their adopted children (Sameroff & Fiese, 2000; Sameroff & Mackenzie, 2003). It is also possible, due to the long and strict process of adoption in Chile, that couples with lower levels of stress were more likely to persevere and be declared suitable to adopt.

Regarding anxiety, it is not surprising that this was the most prevalent symptom shown by adoptive parents in the present study, considering that anxiety ranks among the most common categories of mental disorder reported in large-scale epidemiological studies within the general population in many countries (e.g., Jenkins et al., 1997; Kessler et al., 2005; Robins & Regier, 1991). In Chile, anxiety disorders have also been found to be the most prevalent (Vicente, Saldivia, & Kohn, 2012).

As hypothesised, when associations between adoptive mothers' psychological well-being and children's functioning were explored, higher levels of maternal parenting stress were associated with children's higher externalising problems, internalising problems, and inhibited social behaviours. In addition, maternal depression was associated with children's internalising problems. Similarly, when associations between fathers' psychological well-being and children's functioning were explored, higher levels of paternal parenting stress were associated with children's higher externalising problems and disinhibited and inhibited social behaviours.

Paternal depression was also associated with children's disinhibited behaviours. However, maternal and paternal anxiety were not related to children's outcomes. Thus, it appears that parenting stress and parental depression, rather than parental anxiety, are associated with children's psychological problems.

The finding that parenting stress was a significant predictor of children's externalising and internalising problems, is consistent with previous research showing high levels of parenting stress as an important factor in the development of child psychopathology (Deater-Deckard, 1998), particularly with respect to externalising and internalising problems (e.g., Barry et al., 2005; Huaqing & Kaiser, 2003; Robinson & Neece, 2015). Similarly, Harris-Waller and colleagues (2016) found that higher levels of parenting stress were associated with perceived child behaviour difficulties, including attachment-related behaviour problems, and Coldwell, Pike, and Dunn (2006) found that a high level of household chaos was an exacerbating factor for children's problem behaviour. In addition, some studies have found that adoptive parents express unfulfilled and unrealistic expectations in the domains of self, child, family or friends, and society (Foli, 2010), which may make the transition to adoptive parenthood stressful (Belsky et al., 1986). It should also be emphasised, drawing from a transactional model of development (Belsky, 1984; Sameroff & Mackenzie, 2003), that children's behaviour problems may result in greater stress for their parents.

For the teachers' data, unlike the findings for the parents' data, no significant associations were found between parenting stress and children's externalising and internalising problems. The discrepancy may result from collinearity of the measures, given that parents reported on both their own psychological state and that of their children. Parents who were under stress may have been more likely to rate their children's behaviour as problematic. For this reason, it is important to pay attention to the independent teachers' reports of children's adjustment difficulties which do not show an association with parenting stress. However, adoptive parents may be more sensitive to adoption issues and to their children's problems, or may have a lower threshold for perceiving behaviour problems in their children than teachers. For teachers, the child is one of a large group of children, and teachers may have not detected their difficulties. Moreover, adopted children may show different behaviour in different contexts (Juffer, 2006), and therefore the results may genuinely reflect children's behaviour at home and at school. It is important to mention that the associations between fathers' parenting stress and teacher-reported externalising and internalising problems approached significance, indicating that the

pattern of associations between fathers' parenting stress and children's adjustment is similar, for parents' and teachers' reports.

Consistent with the study by Harris-Waller and colleagues (2016), the present study found associations between paternal parenting stress and children's disinhibited and inhibited behaviours, according to parents' and teachers' reports. The association between fathers' parenting stress and children's inhibited behaviour was especially robust since the same outcome was found for parents' and teachers' data. It is possible that children's emotional withdrawal acted as a coping strategy for dealing stressed parents, who are frequently more irritable, critical, and severe towards their children. Alternatively, the children's withdrawal and inhibition may have generated more stress in their parents. It is difficult to reach a definitive explanation of the mechanisms involved without data on the children's pre-adoptive psychological functioning.

The finding that maternal depression was associated with children's parent-reported internalising problems is consistent with previous studies (Goodman et al., 2011) and supports the view that maternal depression has a negative effect on children's behaviour, possibly because the child receives no feedback or contingent responsiveness from their mother (Field, 1995). As a result, the child may become more withdrawn and develop emotional problems. A positive association between fathers' depression and children's parent-reported disinhibited behaviours, was also found. Evidence of the specific impact of fathers' depression, rather than mothers' depression, on the psychological development of children is relatively scarce. However, the current finding is in line with previous studies showing that paternal depression is associated with greater problems in children (Ringoot et al., 2015) and suggests that paternal depression affects children's well-being and places children at risk for developing disinhibited social behaviour. A possible explanation for the association between fathers' depression and children's disinhibited behaviour relates to the finding that depressed parents are more hostile, unsupportive, and insensitive towards their children, when compared to non-depressed parents (Cummings & Davies, 1994). Therefore, children's disinhibited behaviour may be a coping mechanism, or an adaptation, to a less engaged and less available father. As depressed fathers tend to reject their children, the children may be more sociable with strangers. This may be particularly likely among adopted children. However, as the associations between parental depression and children's outcomes were not found from the teachers' data, the findings may again have resulted from collinearity of the measures, or from differences in children's behaviours in different contexts (home/school).

There were a few unexpected associations in the present study between parental well-being and children's outcomes. For example, a positive relationship was found between children's feelings of emotional security towards their mother and maternal parenting stress. Another unexpected finding was the association between children's teacher-reported externalising problems and mothers' scores on the Golombok Rust Inventory of Marital State (GRIMS), indicating that more positive marital was associated with higher levels of children's problems. These unexpected findings contradict the psychological literature on the influence of parenting on child development and are most probably chance effects.

Quality of parenting and quality of the mother-child relationship were also examined in adoptive families, with quality of parenting assessed from the parents' and children's perspectives. As expected, associations were identified between quality of parenting, as assessed by the interview administered to mothers and fathers, and children's outcomes. Lower levels of positive parenting and higher levels of negative parenting by mothers, were associated with children's disinhibited social behaviours. For fathers, more negative parenting was associated with higher levels of children's externalising problems, and more positive parenting was associated with children's more positive perceptions of their fathers. These results are consistent with the large body of research showing that parenting characterised by warmth and sensitivity is positively related to social and emotional adjustment in children, and that more negative parenting is associated with raised levels of children's internalising and externalising behaviour (e.g., Belsky, 1984; Bowlby, 1973; Ruiz-Ortiz et al., 2017; Tavassolie et al., 2016).

The association between adoptive mothers' parenting and children's disinhibited behaviour suggests that the quality of parenting is especially important for adopted children's attachment behaviours. This finding is consistent with studies of non-adopted children showing that a lack of positive parenting and lower parental involvement increase children's risk for self-regulatory difficulties (Deater-Deckard, Dodge, Bates, & Pettit, 1998).

In terms of the observational assessment of mother-child interaction, as assessed by the *Etch-A-Sketch* task, few significant associations were found between the mutuality variables of mother responsiveness to child, child responsiveness to mother, dyadic cooperation, and dyadic reciprocity and child functioning. The fact that few of the children had clinically relevant levels of problem behaviours may explain the lack of significant associations.

4.2. Strengths and limitations

This study had a number of limitations. One major limitation, as mentioned earlier, is that the more well-adjusted children may be more likely to be adopted, and therefore the differences in socioemotional and cognitive functioning between adopted and institutionalised children may have resulted from selection bias. Although it was not possible to obtain data on the adopted children's functioning before placement in their adoptive families, correlations between the length of time they had been living with their adoptive family and their psychological adjustment, attachment-related problems, and cognitive functioning showed that, the longer children had been placed with their adoptive family, the better their socioemotional and cognitive functioning. Consequently, irrespective of selection bias, the findings show that time with an adoptive family is associated with benefits to the development and well-being of young children in Chile.

In terms of understanding the individual differences within the group of adopted children, it was found that age at adoption and length of placement correlated with the children's psychological outcomes. However, as discussed above, it is also possible that other factors may have played a part. Looking at the pre-adoptive history of the children in a systematic way would have helped to better understand the effects of adoption. Although some information about pre-adoptive adversity was given by the adoptive parents, in many cases, they did not have detailed information, or lacked this information altogether. As in many adoption studies, it was not possible to assess the risk factors the adoptive children had been exposed to prior to adoption.

Another limitation of the study is the relatively small sample size, which reduced the power of the statistical analysis and may have resulted in significant effects not being detected. However, clear patterns with large effect sizes were found for all of the psychological domains assessed. In addition, the fact that the sample was composed of participants from only two regions of Chile and the response rate for adoptive families was approximately 50%, means that the sample may differ from the general population of adoptive families in Chile; this limits the generalisability of the results. However, one of the regions studied was where the capital of Chile is located, and this represents an important strength of this study. Furthermore, 12 institutions were visited, representing a diverse sample of institutions.

Another weakness concerns the lack of a comparison group of non-adopted children. Studies comparing adopted with non-adopted children have shown that adoptees are over-represented in clinical populations, and that they are at higher risk for behavioural problems (e.g., Hawk & McCall, 2010; Juffer & van IJzendoorn, 2005). Although this research aimed to provide data related to alternative placements for children who could not be looked after by their birth parents, a community sample of non-adopted children would have enhanced understanding of the findings, for example, by showing how Chilean adopted children are faring compared to their non-adopted peers. Nevertheless, Chilean norms were available for two of the outcomes measures (the SDQ and WISC-III), and showed that adopted children are doing just as well, or even better, than a community sample of children.

Given that parents reported on both their own psychological state and their child's problems, an important limitation is that some associations may have been inflated due to bias. For example, parents with higher levels of depression are more likely to perceive problems in their children (Field, 1995). In this study, the teachers' reports represented an attempt to control for informant bias. Using the teachers' data some of the significant findings disappeared, indicating the possible confounding effects of collinearity. It remains possible, however, that the children's behaviour may have differed at home and at school.

A further limitation of the study is that not all of the parenting variables that were derived from the interview showed inter-rater agreement of 80% or above, and one of the four mutuality variables derived from the observational task did not show inter-rater agreement of 80% or above. This may have prevented some significant effects from being identified. In addition, when analysing the relationships between parental well-being and children's outcomes, a large number of statistical tests were conducted, which may have led to some of the associations arising by chance alone.

Despite these limitations, the present study contributes valuable information regarding the psychological well-being and cognitive functioning of adopted and institution-reared children in Chile. An advantage of the study is that data were obtained using a multi-method approach (drawing on interviews, observational assessment, psychological test and questionnaires), and a multi-informant design (involving mothers, fathers, caregivers, children, and teachers). The complexity of the developmental questions addressed in this research made the use of multi-informant and multi-method approaches especially valuable (Brownell, Lemerise, Pelphrey, &

Roisman, 2015; Meisels & Atkins-Burnett, 2000). As discussed above, having multiple informants reporting on the behavioural and emotional questionnaires is valuable because psychosocial problems may be highly situational (Achenbach et al., 1987)

Furthermore, the high response rate of the adopted and institution-reared children's teachers is another strength of this study, providing independent reports. Socioemotional ratings from two informants (mother/caregiver and teacher) allowed a broader view of the children's adjustment, both at home/institution and at school. Likewise, the use of a combined mother-father report of child behaviour problems and attachment difficulties increased the reliability of the adopted children's data.

The present study also benefited from a multidimensional approach for assessing the psychological functioning of children. Three domains of development were assessed: emotional, social, and cognitive. Assessment of the cognitive domain using the WISC-III was a particularly valuable addition to the study, not only because the WISC is the most widely used measure of IQ in children (Pennington, 2015), but also because the measure assessed cognitive functioning from the children's own performance or "report".

This study was the first to have compared adopted children with institution-reared children in Chile. To date, research on adoptive families and institutionalised children has been dominated by studies from Europe and North America. The present study provides a unique examination of the psychological functioning of adopted and institution-reared children in a Latin American sample.

4.3. Implications for policy and practice

Many researchers have highlighted the need for research exploring children's psychological functioning post-adoption (Bakermans-Kranenburg et al., 2011; Viana & Welsh, 2010) and the impact of early social deprivation on child development (Bakermans-Kranenburg, Dobrova-Krol, & van IJzendoorn, 2011; Barone, Dellagiulia, & Lionetti, 2016; Berens & Nelson, 2015; Moulson et al., 2015). The findings presented in this thesis provide just that. The findings have implications for theory, policy, and legislation relating to child protection in Chile. The results suggest that placement in family-reared environments is more advantageous for psychological adjustment and cognitive functioning in young children than placement in institutional settings. The results also indicate that institutionalised children are at risk for psychological adjustment problems, attachment difficulties, and low cognitive performance.

The most important theoretical finding is that the timing of adoptive placement is a critically important predictor of children's psychological outcomes. The study showed that the younger children are adopted (≤ 6 -12 months) and the longer they are in adoptive homes, the lower their levels of externalising and internalising problems, and disinhibited and inhibited behaviours, and the higher their cognitive performance.

Despite the experience of early deprivation among half of the adopted children, the findings provide clear evidence that the majority are well-adjusted. These findings reflect what Bronfenbrenner (1979) described as the ecology of human development. According to this model, the child is not only affected by his or her own characteristics but also by his or her immediate social and physical environment. From this perspective, the quality of the interactions between adults and children is an important proximal context of children's development (Bronfenbrenner & Morris, 1998). The finding on the importance of age at adoption for children's development and well-being also fits well with the theory of risk and protective factors, which suggests that an accumulation of risk factors leads to less optimal child development, whereas protective factors may buffer the negative effects of the risks (Rutter, 1990; Werner, 2000). Based on this perspective, the change of environment from institutional care or from foster care to a nurturing adoptive family represents a protective factor with the capacity to turn children's development in a positive direction, with greater likelihood of healthy adjustment. Moreover, a briefer preadoption period may imply a shorter exposure to risk factors such as neglect or maltreatment.

The findings also have important implications for child welfare policy and practice in Chile. Taken together with previous research on adoption and institutionalisation, it is clear that psychological adjustment, attachment behaviours and cognitive performance are severely compromised in young children living in institutions, and highlighted the importance of high quality caregiving for children who have experienced extreme conditions of social deprivation. Despite the finding that children in institutional care showed socioemotional and cognitive difficulties, regardless of the quality of the residential centres, it is important to note that perhaps in this study no differences in socioemotional and cognitive functioning were found because standards of care in the Chilean institutions were all poor. Therefore, large improvements in the quality of care in Chilean institutions may have positive effects on the psychological well-being of children and they can effectively achieve a recovery from adversity. In addition, no differences in socioemotional and cognitive functioning were found according to the region-of-origin in children living in institutions. This finding suggests that the problems found in the group of institutionalised children seem to be more generalised than specific to certain areas of the country. Thus reform of the current system of child protection is required at a national level. This calls for greater investment in programmes for highly vulnerable children. Until Chile makes the transition from a system that prioritises the institutionalisation of vulnerable children to another based on family care alternatives (eg, foster care, adoption, reunification), the introduction of structural improvements and improvement in children's social interaction with caregivers and peers (e.g., increasing caregiver interactions with children) in institutions are imperative.

The finding that children's socioemotional and cognitive functioning is associated with their age at adoption adds weight to the growing body of evidence showing that the timing of a child's placement in quality care is important for that child's development. The earlier children are placed in adoptive families, the less likely they are to show socioemotional problems and the more likely they are to achieve higher IQ scores. Therefore, the results strongly support the placement of institutionalised children into a family setting at as young an age as possible.

Regarding the adoption process in Chile, although the low prevalence of parenting stress found in this sample of adoptive parents suggests that the group was not particularly vulnerable, the association between parenting stress and children's psychological problems suggests a need for post-adoption support and intervention programmes that address the challenges of adoptive parenting.

This study suggests several directions for future research. First, as parents are not the only important social influences on children's development (Sroufe, 2005), differences in children's behaviour might be linked to different social influences (e.g., siblings, peer relationships). Therefore, future studies should include systematic data on the social context of children to collect evidence on social-interactive influences on children's functioning. Second, as suggested above, future studies should gather detailed information about children's pre-adoptive experiences in order to better understand the influence of early deprivation on adopted children's wellbeing. Finally, a follow-up study to assess the psychological well-being of the children who participated in this study when they are adolescents would serve as an important addition to the present investigation. Difficulties in adoptees are more likely to arise during adolescence than in early childhood (Brodzinsky, 1993; Smith & Brodzinsky, 1994), as this is the time when most adopted children begin to experience feelings of grief, loss, and abandonment. As adoptees enter late childhood and early adolescence, their increasing understanding of their adoption and awareness of the stigma that can surround it might lead them to develop adjustment problems (Brodzinsky, 1993). At this time, adoptees may be less likely to view adoption as positive and may be more likely to report ambivalent feelings about their adoption (Smith & Brodzinsky, 1994). Moreover, the process of identity development that started during childhood takes on a new prominence and presents particular challenges for adopted adolescents (Grotevant, Dunbar, Kohler, & Esau, 2000; Grotevant, 2008). Therefore, longitudinal research follows up adopted children to adolescence and beyond is required before conclusions can be drawn about the long-term effects of adoption on child adjustment in Chile.

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Appendix 1: Study information sheet



FAMILY LIFE & CHILD DEVELOPMENT IN ADOPTIVE FAMILIES

Thank you for your interest in our study of parents and children in adoptive families. We'd like to tell you more about the study and what taking part involves.

Why are we doing the study?

This study will be the first to examine child development and family relationships in adoptive families in Chile. We are asking adoptive families to take part in this study in order to explore the quality of parent-child relationships and the psychological development of adopted children, and to identify possible variables related to the adjustment and psychological functioning of adopted children. We hope to increase understanding of the roles that fathering and mothering play in children's development in adoptive families and to broaden public understanding of adoptive family life. We also hope that this study will provide further data that will inform legislators and policy makers around in Chile in relation to adoption.

What does taking part involve?

As part of the study you and your husband/wife will be interviewed and asked to fill out questionnaires about your family life, the things you do together, and your child's development. The interview will last approximately 1 hour and the questionnaires will take about 35 minutes to complete.

We would like to make a video recording of you and your child doing a task together for 5 minutes. Finally we would like to ask your child's teacher to complete a questionnaire about your child's behaviour at school. This is not necessary in order for you or your child to take part in the study. We shall not contact your child's teacher unless you give the interviewer the teacher's contact details and permission to send the questionnaire. Teachers will be told that their pupil is participating in a study of family life and child development. No further details about the type of families being studied will be given.

Before we begin the interviews we will talk to parents and children about what will happen during the interview and how we will protect the data we collect. We will ask parents and children to give written and verbal consent before taking part. We will make it clear to your child that they do not have to take part if they don't want to and may stop the interview or tasks at anytime, without giving reason - and this applies to parents too!

What are the possible benefits or disadvantages of taking part?

There are no direct benefits intended for the families taking part although we hope that you and your children will enjoy talking to us and will find the practical tasks fun to do. We do not expect there to be any disadvantages in taking part, but if at any time you or your child become uncomfortable or upset during the interviews we will not continue. Neither you nor your children are under any obligation to take part.

Will my taking part in this study be kept confidential?

Anything that you or your children say during this research will be kept strictly confidential. This means that:

- Personal details of your family will only be known to the researcher in charge of the study and the person who interviews you.
- Information entered onto the computer for data analysis will be in the form of numbers and will not include names/addresses or any other identifying information.
- Information you give us will be used for statistical purposes only, and the results will be reported in terms of cases or percentages.
- When the results of the study are published, you will not be identified as having taken part in the study. Neither will information which might make you identifiable be published.
- Confidentiality will be broken **only** in the rare circumstance that it was disclosed during the interview that your child was being harmed. In all other cases the privacy, anonymity and confidentiality of you and your family will remain intact.
-

What will happen to the findings of the research?

The findings will be written up for publication in academic journals and presented at academic conferences and to other specialist groups of professionals who are directly involved in working with adoptive parent families. To increase public awareness and understanding we intend to make findings widely available through the media.

Who is doing this research?

The study is headed by PhD student Pamela Jimenez at the University of Cambridge and psychologist from the Universidad de La Frontera, Chile. Pamela Jimenez is supervised by Professor Susan Golombok, Director of the Centre for Family Research at the University of Cambridge. Susan Golombok has conducted previous researches on adoptive families. The interviews will be carried out by Pamela Jimenez.

Who should I contact if I want further information?

If you have any questions about the study please telephone, e-mail or write to Pamela Jimenez at the above address. Please keep this information sheet in case you want to contact us at a later time or if there is anything you want to check. This project has been reviewed by the Psychology Research Ethics Committee of the University of Cambridge and has received ethical approval.

Appendix 2: Consent form for parents

Participant's ID NUMBER:

- | | |
|--|--------------|
| 1. Have you read the information sheet? | YES___ NO___ |
| 2. Have you had an opportunity to ask questions and discuss this study? | YES___ NO___ |
| 3. Have you received satisfactory answers to your questions? | YES___ NO___ |
| 4. Do you understand that you are free to withdraw from this study? | YES___ NO___ |
| <ul style="list-style-type: none"> • at any time • without giving a reason for withdrawing | |
| 5. Do you agree to take part in this study? | YES___ NO___ |
| 6. Do you agree to allow the interview to be recorded? | YES___ NO___ |
| 7. Do you agree to allow the game with you and your child to be video recorded? | YES___ NO___ |
| 8. May we contact your child's teacher to request that he/she completes a questionnaire about your child's behaviour in school?
(Note that your own participation in the study is not affected by whether or not you agree to your child's teacher being contacted) | YES___ NO___ |
| 9. May we contact you in future regarding the research? This would not commit you to take part in further studies. | YES___ NO___ |

Signed

Name in Block Letters.....

Date.....

Appendix 3: Parental consent for child participation

Participant's ID NUMBER:

1. Have you read the information sheet? YES___ NO___

2. Do you understand that your child is free to withdraw from this study?
 - at any time
 - without giving a reason for withdrawingYES___ NO___

3. Do you agree to allow your child to take part in this study? YES___ NO___

4. Do you agree to allow the interview/games with your child to be tape-recorded? YES___ NO___

Signed.....

Name in Block Letters.....

Date.....

Appendix 4: Study information sheet for teachers

University of Cambridge
CENTRE FOR FAMILY RESEARCH
United Kingdom
EMAIL: paj37@cam.ac.uk

FAMILY LIFE & CHILD DEVELOPMENT STUDY

A project is being carried out by the Centre for Family Research looking at child development and family relationships. Your pupil _____ is a participant in this study. We would like you to fill in the attached questionnaire about your pupil's behaviour, this will take approximately 5 minutes to complete. The parents of your pupil have given permission for you to be sent this questionnaire; however you are under no obligation to take part.

If you are happy to take part in this project your results will be completely confidential. This means that:

- Your personal data and your pupil's data will be held in a locked filing cabinet at the University of Cambridge with no identifying information attached. An identification number will be used in place of your and your pupil's name.
- Information entered onto the computer for data analysis will be in the form of numbers and will not include names, addresses or any other identifying information.
- When the results of the research are written up, you will not be identified as having taken part in the study. Neither will information which might make you identifiable be reported.
- We will protect the confidentiality of the information you provide within the limitations of the law.
- Confidentiality will be broken **only** in the rare circumstance that it was disclosed that your pupil was being harmed. In all other cases privacy, anonymity and confidentiality will remain intact.

The project has been reviewed by the Cambridge Psychological Research Ethics Committee and has received ethical approval.

If you have any queries, please do not hesitate to contact Pamela Jimenez on paj37@cam.ac.uk

Appendix 5: Consent form for teachers

Participant's ID NUMBER:

CONSENT FORM

1. Have you read the information sheet? YES/NO
2. Do you understand that you are free to withdraw from the study at YES/NO
 - any time
 - without giving reason for withdrawing
3. Have you been told that the parents of your pupil have agreed that we contact you? YES/NO
4. Do you agree to take part in this study? YES/NO

Signed.....

Name in Block Letters.....

Date.....

Appendix 6: PARCHISY Coding Sheet

ID:

Date:

Coder's Initials:

Start Time:

Notes:

Code	Tally and Notes	Final Score
Positive Content (control) Praise Explanation Open ended questions		
Negative Content (control) Touching dial or child's hand/arm Criticism		
Positive Affect (warmth) Smiling Laughter		
Negative Affect: Rejection Frowning Cold, harsh voice		
Responsiveness: To child's questions, comments, behaviour Expands on comments		

Child codes

Code	Tally and Notes	Final Score
Positive Affect (warmth) Smiling Laughing		
Negative Affect Rejection Frowning Cold/ harsh tone		
Responsiveness: To mother's questions, comments, behaviours		

Expands on comments		
Noncompliance: Does s/he do what the mother tells him?		

Dyadic Codes

Code	Tally and Notes	Final Score
Reciprocity: Shared positive affect Eye contact Turn taking interaction		
Conflict: Disagreement, arguing Shared negative affect Tussling		
Cooperation: Explicit agreement and discussion		

Appendix 6: PARCHISY Coding Manual

PARCHISY

TWIN PARNET CHILD INTERACTION SYSTEM

PART 1: GLOBAL RATINGS FOR THE ECTH-A-SKETCH TASK

Kirby Deater-Deckard, Maria V. Pylas, & Steven A. Petrill

Institute of Psychiatry & Institute of Education,
University of London

May 1997

Edited October 2010

Casey, P., Blake, L., Readings, J.R.

Do not cite or circulate without permission of the authors. Address correspondence to Kirby Deater-Deckard at the Institute of Psychiatry, 113 Denmark Hill, London SE5 8AF, United Kingdom.

General points:

- Only code the task picture, not the practice picture (practice picture is the square).
- Note the start and end points of each interaction

- Stop coding when interviewer begins talking at end of task, or when participants talk to interviewer after completing task/show result to interviewer.
- Codes measuring 'Content' are referring to *what* is said
- Codes measuring 'Affect' are referring to *how* it is said
- Be careful of 'double coding', i.e. coding a behaviour in more than one way.

Parent Codes

1. Positive Content (Control): Use of praise, explanation, and open-ended questions

1. no positive control shown
2. one or two instances of positive control
3. a few/several instances of positive control; reliance on explicit directions ("up, down, stop")
4. moderate amounts of positive control shown; reliance on explicit directions with at least one instance of praise, explanation or questioning
5. two or more instances of explanation, questioning, and praise, with some explicit directions
6. substantial use of explanation, questioning, and praise, and few explicit directions; only one or two instances of non-positive control shown
7. exclusive use of explanation, questioning and praise.
 - *To code a 6 or 7, parent must have shown at least 2 of the 3 examples (praise, explanation, and questioning)*
 - *All three examples of positive content do not need to be present in order to code a 7.*

2. Negative Content (Control): use of physical control of dials or child's hand/arm/body, use of criticism

1. no negative control shown
2. one or two instances of negative control
3. a few/several instances of negative control
4. moderate amounts of negative control: reliance on critical comments ("no, don't do that") and /or manipulation of dials
5. negative control used for more than half on the interaction
6. substantial use of criticism, and physically "taking over" task; only a few instances of non-negative control shown
7. exclusive use of criticism (can include shaming) and physical control of dials and/or child's hand/arm/body; may include instances of corporeal punishment.
 - *Even if parent's actions are helpful/reasonable, if she is physically helping the child, this is considered negative control.*

- *Must distinguish between a description of the picture, and when parent is passing a judgement on it. Only the latter is considered negative control.*

3. Positive Affect (warmth): smiling, laughing, warm tone of voice (includes affectionate nick-names, hugs, kisses)

1. no positive affect displayed
2. one or two instances of positive affect
3. a few/several instances of positive affect
4. moderate amounts of positive affect- smiling, laughing for about half of the interaction
5. positive affect for more than half of the interaction
6. substantial amounts of positive affect; only one or two instances of non-positive affect
7. constant positive affect- smiling and/or laughing throughout the task.

4. Negative Affect (rejection): frowning, cold/harsh voice

1. no negative affect displayed
2. one or two instances of negative affect
3. a few/several instances of negative affect
4. moderate amounts of negative affect- frowning, stern looking, harsh/cold voice for about half of the interaction
5. negative affect for more than half of the interaction
6. substantial amounts of negative affect; only one or two instances of non-negative affect
7. constant negative affect- always scowling/frowning, voice always in harsh tones.

5. Responsiveness to child's questions, comments and behaviours

1. never responds; ignores child's comments, questions and behaviours
2. one or two instances of responding to child
3. a few/several instances of responding to child
4. moderate amounts of responsiveness- responds to about half of the child's comments, questions, and behaviours, although some responses may be delayed
5. responds more than half the time, with only a few delays in responses
6. responds to most of the child's comments, questions, and behaviours, with no delay; expands on some comments made by the child; only one or two instances of non-responsiveness
7. always responds immediately to the child; expands on comments made by the child (i.e. parent is *really* engaged).
 - *A very important code*
 - *There must be a 'bid' by child intended to elicit a response from the parent, and a response to that bid from the parent.*
 - *Is it sometimes easier to watch how many times the parent is unresponsive.*

6. On task (initiative/persistence): persistence with respect to the task that we have given them- doing some other drawing does not qualify as completing the task

1. no interest in task; no initiative; does not begin task
2. begins task, but clearly not interested in it
3. begins task with initiative, but does not attempt to complete task with child

4. moderate interest, initiative, for about the half of the task
5. consistently attempts to complete task with the child, few instances of off-task behaviour
6. persistent; only one or two instances of off-task behaviour
7. constant interest and persistence; always on-task.
 - *Note boredom and a desire to simply get to the end of the task*
 - *Code in terms of how parent began the task and how they continue throughout the task*
 - *Interest and enthusiasm are very important.*
 - *If parent displays lots of energy and enthusiasm throughout, it is often easier to make a note of instances where they are off task*
 - *What to do if telephone rings during task: Depends on response of parent. If they keep the call brief and explain to caller that a researcher is here etc., this is still on task. If parent have an entire conversation with caller, this is off task.*
 - *If parent or child is displaying an example of off task behaviour (e.g. controlling both dials, doing a section or the task alone), you cannot code the child for autonomy. However, you can code behaviour on other measures that are not mutually exclusive with on/off task behaviour*
 - *When parent or child is controlling both dials, must code both parent and child as off task.*

7. Verbalisations

1. none
2. one or two utterances
3. a few/several utterances
4. multiple utterances; moderate amounts of speaking; talks during about half of the interaction
5. talks during more than half, but not entire interaction
6. substantial amounts of speaking; only one or two moments when not talking
7. speaks throughout the interaction (excluding when the child is speaking); no clear moments of silence.
 - *Does the parent fill every moment with speech that they could have? I.e. when the child is not speaking.*

Child Codes

8. Positive Affect (warmth): smiling, laughing

1. no positive affect displayed
2. one or two instances of positive affect
3. a few/several instances of positive affect
4. moderate amounts of positive affect- smiling, laughing for about half of the interaction
5. positive affect for more than half of the interaction
6. substantial amounts of positive affect; only one or two instances of non-positive affect
7. constant positive affect- smiling and laughing throughout the task.

9. Negative Affect (rejection): frowning, cold/harsh voice

1. no negative affect displayed
2. one or two instances of negative affect
3. a few/several instances of negative affect
4. moderate amounts of negative affect- frowning, stern looking, harsh/cold voice for about half of the interaction
5. negative affect for more than half of the interaction
6. substantial amounts of negative affect; only one or two instances of non-negative affect
7. constant negative affect- always scowling/frowning, voice always in harsh tones.

10. Responsiveness to parent's questions, comments and behaviours

1. never responds; ignores parent's comments, questions and behaviours
2. one or two instances of responding to parent
3. a few/several instances of responding to parent
4. moderate amounts of responsiveness- responds to about half of the parent's comments, questions, and behaviours, although some responses may be delayed
5. responds more than half the time, with only a few delays in responses
6. responds to most of the parent's comments, questions, and behaviours, with no delay; expands on some comments made by the parent; only one or two instances of non-responsiveness. N.b. No more than 2 instances of non-responsiveness
7. always responds immediately to parent; expands on comments made by the child- but expansion on comments made by child is not requisite for a code of 7.

11. On task (initiative/persistence): persistence with respect to the task that we have given them- doing some other drawing does not qualify as completing the task

1. no interest in task; no initiative; does not begin task
2. begins task, but clearly not interested in it
3. begins task with initiative, but does not attempt to complete task with parent
4. moderate interest, initiative, just completes task with parent
5. completes task with the parent, with few instances of off-task behaviour
6. persistent; only one or two instances of off-task behaviour
7. constant interest and persistence; always on-task.
 - *'On task' is more about enthusiasm and interest rather than physical behaviour*
 - *Some children will start off with enthusiasm and initiative, and then will simply start complying with parent/following direction- this would receive a low code for 'on task'.*
 - *When parent or child is controlling both dials, must code both parent and child as off task.*

12. Noncompliance

1. always does what is asked by parent during task
2. one or two instances of noncompliance
3. a few/several instances of noncompliance
4. moderate amounts of noncompliance- during about half of the interaction
5. noncompliant for about half of the interaction, with a few/several instances of compliance
6. substantial amounts of noncompliance; only one or two instances of compliance
7. noncompliant throughout task; always refuses or does something contrary to that which is asked of him/her; no instances of compliance (at least three instances of noncompliance are required for this code).

- *Child's behaviour must be more than just unresponsiveness- there should be evidence of noncompliance or defiance*
- *If parent asks a question, or phrases a direction as a question, and the child answers 'no', this is not considered noncompliance.*
- *If the child is never asked to do anything by the parent, you cannot give a code for noncompliance, code is not applicable.*

13. Autonomy/Independence (child leads and controls task); does not include off-task behaviours

1. no evidence of autonomy/independence; parent leads throughout task
2. one or two instances of child's autonomy
3. a few/several instances of child's autonomy
4. moderate amounts of autonomy; controls task for about half of the time
5. controls task for more than half of the time
6. substantial autonomy; one or two instances of following parent's lead
7. completely independent; controls entire task from beginning to end.
 - *Instances of autonomy/independence do not necessarily need to be verbal.*
 - *Often useful to tally instances of autonomy/independence to help to decide appropriate code*
 - *If parent or child is displaying an example of off task behaviour (e.g. controlling both dials, doing a section or the task alone), you cannot code the child for autonomy. However, you can code behaviour on other measures that are not mutually exclusive with on/off task behaviour.*

14. Activity (energy); includes all minor body movements (moving arms, pointing to stimuli or places on the screen) and major body movements (jumping up and down, getting up and sitting down) not including fine motor manipulation of dials.

1. child seems extremely lethargic or tired; makes no movement (aside from turning dials)
2. one or two instances of activity or movement
3. a few/several instances of activity or movement
4. moderate amounts of child's activity- moving for about half of the interaction
5. active for more than half of the interaction
6. substantial amounts of activity; only one or two instances of inactivity
7. child is constantly moving, very active and energetic or fidgety, moves quickly.

15. Verbalisations

8. none
9. one or two utterances
10. a few/several utterances
11. multiple utterances; moderate amounts of speaking; talks during about half of the interaction
12. talks during more than half, but not entire interaction
13. substantial amounts of speaking; only one or two moments when not talking
14. speaks throughout the interaction (excluding when the child is speaking); no clear moments of silence.

Dyadic Codes

16. Reciprocity: e.g. shared positive affect, eye contact, a “turn-taking” (i.e. conversation-like) quality of interaction

1. no evidence of reciprocity
2. one or two instances of reciprocity (either shared affect or eye contact)
3. a few/several instances of reciprocity (either shared affect or eye contact)
4. moderate levels of reciprocity; evidence of both shared affect and eye contact; some evidence of conversation-like interaction
5. clear evidence of reciprocity; one or two episodes of intense shared positive affect coupled with eye contact that is sustained for several “turns” between parent and child
6. substantial reciprocity involving numerous episodes of intense shared affect coupled with eye contact that is sustained for several “turns”; only one or two instances of non-reciprocity
7. highly integrated and reciprocal; constant shared affect and eye contact that never loses “turn-taking” quality.
 - *shared positive affect, eye contact, a “turn-taking”- these are examples of reciprocity, reciprocal behaviour may take other forms*
 - *To code a 6 or a 7, there must be clear instances of both shared positive affect and eye contact.*

17. Conflict: minor or major disagreement- mutual or shared negative affect: arguing, tussling over toy, etc.

1. no evidence of conflict during task
2. one or two instances of conflict
3. a few/several instances of conflict
4. moderate amounts of conflict- about half of the interaction is conflictual
5. conflicted interaction throughout, with a few/several instances of no conflict
6. substantial conflict throughout, with one or two instances of no conflict
7. highly conflicted interaction for entire task
 - *arguing, tussling over toy- these are examples of conflict, behaviour may take other forms*
 - *May not see many instances of ‘conflict’ if sample are harmonious, this is fine.*

18. Cooperation: defined as explicit agreement and discussion, about how to proceed with and complete task (e.g. “Shall we do this next?” and child says “Yes”)

1. no evidence of cooperation during task
2. one or two instances of cooperation
3. a few/several instances of cooperation
4. moderate amounts of cooperation- appears during about half of the interaction
5. cooperative interaction throughout, with a few/several instances of lack of explicit cooperation
6. substantial cooperation throughout, with one or two instances of lack of explicit cooperation
7. highly cooperative interaction for entire task
 - *Cooperation must be verbalised.*