

Mental health and behavioural difficulties in adopted children: A systematic review of post-adoption risk and protective factors

Morvwen Duncan¹, Matt Woolgar², Rachel Ransley¹, Pasco Fearon¹

¹Department of Clinical Educational and Health Psychology, University College London, UK.

²Department of Psychology, Institute of Psychiatry, Psychology & Neuroscience, King's College London, UK.

Corresponding author: Morvwen Duncan, Department of Clinical Educational and Health Psychology, University College London, UK, WC1E 6BT. Email: Morvwen.Duncan.11@ucl.ac.uk

Abstract

Previous research suggests that adopted children are at a greater risk of experiencing psychological and behavioural difficulties or accessing mental health services than non-adopted peers and that post-adoption variables are significant risk and protective factors producing this situation. This review seeks to summarise the post-adoption variables associated with adopted children's mental health or behavioural difficulties to inform future research and shape interventions. A search for publications that assess associated risk and protective factors using Web of Science, Psychinfo, Medline and Sociological Abstracts identified 52 studies that met rigorous methodological criteria. Children's and adolescents' mental health and behavioural outcomes were associated with parent, parent-child and wider family factors and by contextual variables. The findings highlight the importance of focusing on the multitude of systemic factors surrounding a child following adoption. Clinical implications and direction for future research are discussed.

Keywords

Adoption, mental health, behaviour, risk factor

Introduction

When social workers decide that a child's needs cannot be met by their birth parents within a reasonable timescale, current UK policy favours achieving permanence within another family setting, such as adoption (Department for Education, 2016). But despite this relatively simple ambition, research on adoption is confounded by its many forms and the different contexts in which it is conducted. For example, children can be adopted by strangers or people they know, such as foster carers or relatives; adoptions can be domestic or inter-country and are often marked by a variety of trans-racial and cross-cultural aspects. In addition, factors such as the age and previous histories of the children have also shown to affect outcomes. All of these variables have to be carefully considered when evaluating research studies and generalising findings.

In spite of these complications, numerous studies have demonstrated the positive impact of adoption on children's physical, cognitive and psychosocial development following adversity (Palacios, et al., 2011; Rutter, 1998; Segatto and Dal Ben, 2013; Juffer and Van Ijzendoorn, 2005). Findings from two meta-analyses suggest that most adopted children are well-

adjusted (Bimmel, et al., 2003; Juffer and van Ijzendoorn, 2005) but as a group show greater risk of psychological and behavioural difficulties and placement breakdowns that exacerbate their situation (Behle and Pinqart, 2016, Selwyn, et al., 2014).

Based on these findings, research has begun to explore causal processes and probe more deeply into the risk and protective factors that predict children's psychological adjustment. Pre-adoptive risk factors, such as the child's age and previous history, have been identified as important (Anthony, et al., 2019; Hawk and McCall, 2010; Tan, et al., 2010) but do not account for the entire variability in subsequent psychological adjustment or explain the fact that many adoptees from inauspicious backgrounds appear well-adjusted (Bimmel, et al., 2003; Juffer and van Ijzendoorn, 2005).

Various explanatory models of adoptees' difficulties have been fashioned (Peters, et al., 1999) but one that includes both pre-adoptive and post-adoption factors seems to be the most fruitful. It also suggests that family and systemic processes have greater impact on children's development than children's pre-adoptive history and cites as especially important the adoptive family's sense of coherence (Ji, et al., 2010) and the quality of prevailing relationships (Balenzano, et al., 2018). Similarly, parenting factors

such as the quality of care the children experience have been found to mitigate some of the effects of pre-adoptive adversity on behavioural difficulties (Kriebel and Wentzel, 2011) and provide the basis for parenting programmes recommended by the UK National Institute for Clinical Excellence for children with attachment difficulties (NICE, 2015).

A more recent transdiagnostic model seeking to explain the link between childhood trauma and later internalising and externalising psychopathology offers a different perspective and highlights the role of changes in threat-related social and emotional processing, alongside an accelerated biological aging process (McLaughlin, et al., 2020). It emphasises the protective role of caregiving support in buffering threat-related challenges. It highlights the importance of considering developmental processes overtime, rather than cross-sectional associations at one time point.

While each research study tends to focus on specific variables, the overriding conclusion from this information is that the psychological adjustment of adoptees cannot be predicted by a single risk factor but reflects an accumulation of multiple risks interacting with protective factors (Roskam and Stievenart, 2014), hence the broad span of this current literature review. As little can

be done to amend pre-adoptive risk factors, it focuses especially on post-adoption factors which provide a more promising basis for designing therapeutic services.

Method

Literature search strategy

The search terms used for the literature review comprised three clusters of factors: adoption/young people, mental health and risk and protective factors. Clinical psychologists working in adoption services were consulted to assess the completeness of the search terms.

Data Sources

The following electronic databases were searched: Web of Science, Psycinfo, Medline and Sociological Abstracts. Google scholar was employed to identify any further studies. The final search was from inception to October 2019.

Inclusion and Exclusion Criteria

Criteria for inclusion in the review are outlined in Table 1. Studies were only considered if they sampled adopted children or adolescents using a case-control, longitudinal or cross-sectional methodology, if they focused on post-adoptive psychosocial risk or protective factors and if they measured mental health, behavioural or psychological adjustment as an outcome measure.

Table 1

Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Adopted children or adolescents	Studies of adult populations or non-adopted children
Post-adoption psychosocial risk or protective factors	Genetic or genetic-environment adoption studies
Measure of mental health, behavioural difficulties or psychological adjustment	Studies focusing on pre-adoptive risk or protective factors
Case-control, longitudinal or cross-sectional studies	Studies not published in English
	Non-empirical or general discussion papers

Study Selection

The results of the literature search were downloaded and managed in an EndNote library, where duplicates were removed. Using the PRISMA guidelines, the titles were then screened against the inclusion and exclusion criteria and if the details were still unclear, the abstract was analysed. Once eligibility was determined, the full text was read and any further discrepancies were resolved by discussion among the researchers.

Data Extraction and quality assessment

Information on each study was extracted and entered into a predesigned template covering publication details, country of origin, methodology and participant characteristics. Further information included the post-adoption predictive factors, predictor measures, outcomes, outcome measures, key findings and limitations. The quality of the studies was assessed using the Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields (Kmet, et al., 2004). The findings from each study were then narratively synthesised to summarise the risk and protective factors identified and articulate the key findings relevant to the subject of this article: the post-adoption factors associated with adopted children's mental health and behavioural difficulties.

Results

Study Selection

Electronic database searches identified 2,350 relevant studies of which 831 were immediately rejected because of duplication. From the remaining 1,519, 919 were rejected following title screening and a further 796 after abstracts had been read, leaving 123 for close scrutiny. After reading the full texts of

these studies, 71 were rejected, leaving 52 for inclusion in this review.

Characteristics of the studies

Of the 52 studies scrutinised, 29 used cross-sectional and 23 longitudinal methodologies. The number of participants ranged from 32 (Tarroja) to 2,089 (Harwood), thirty studies focused on, or included, international adoptees and seven compared adoptive families with a matched non-adopter group. The risk factors examined varied; 23 studies looked at parent factors, 10 at parent-child relationships, 16 at family factors and 15 at contextual ones, with many studies looking at several of these.

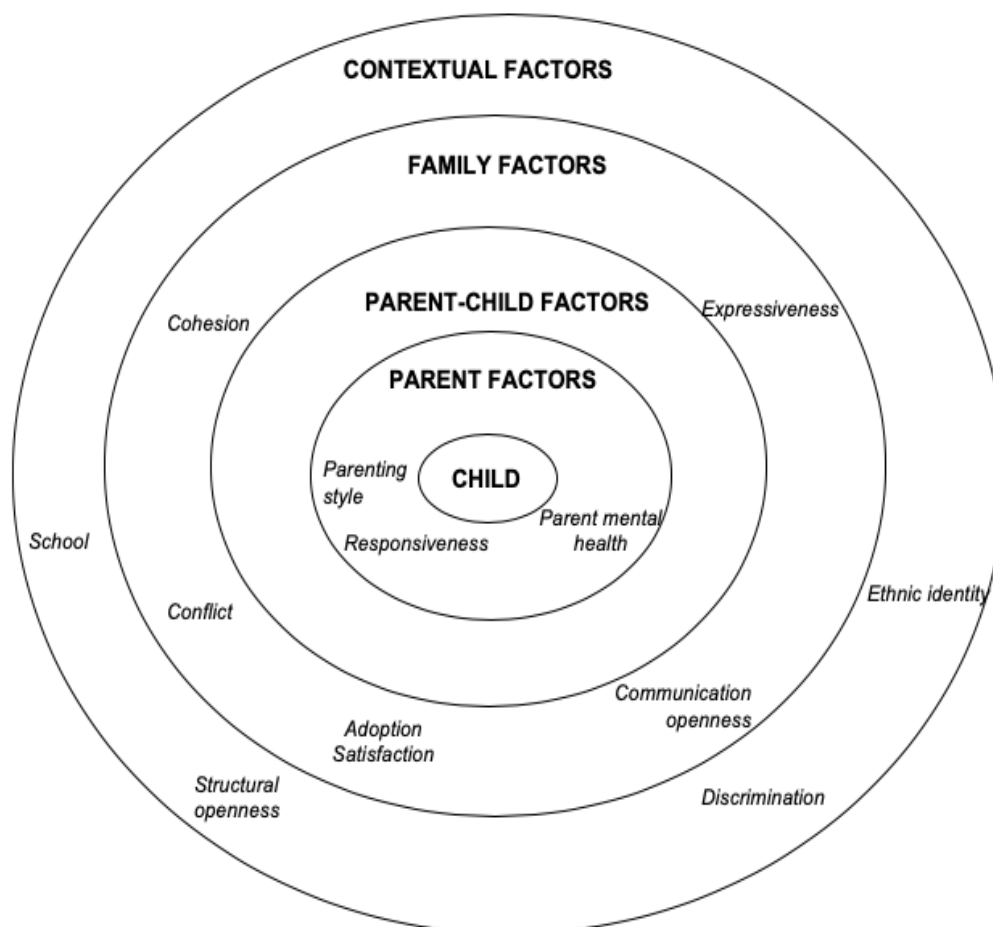
The choice of outcome measures was equally varied. The most used ones encompassed a broad spectrum of emotional and behavioural problems, such as the Child's Behavioural Check List, used in 26 studies, and the Strengths and Difficulties Questionnaire used in four. Some studies focused on narrower subdomains of internalising and externalising behaviours or on specific symptoms and aspects of psychological difficulties.

Narrative Synthesis

The overarching risk and protective factors associated with adopted children's mental health or behavioural difficulties were summarised under common themes outlined in Figure 1; namely, parent factors, parent-child variables, family features and contextual influences and these will now be considered in more detail.

Figure 1

Map of the Post-Adoption Variables Associated with Adopted Children's Mental Health or Behavioural Difficulties



Parent Factors

The role of adoptive parent factors was explored in 17 studies, covering parenting style, parental mental health and parental responsiveness. *Parenting style* was the focus in most of the studies with 10 consistently highlighting parenting style as an influence on children's mental health or behavioural difficulties. A Belgian cross-sectional study compared 40 international adoptees with 34 non-adopted children and found that in both groups externalising and internalising behaviours were linked to lower parenting support (Roskam and Stievenart), a finding echoed in a USA longitudinal study of 293 adoptive families (Simmel) and in a non-comparative Brazilian project involving 68 adoptees (Reppold and Hutz).

Some studies delved deeper into parenting styles and investigated the effects of permissive versus authoritarian styles. In a cross-sectional US study comprising a longitudinal cohort of 133 adoptees, both styles correlated with behaviour problems with authoritarian parenting mediating the effect of non-child-related family stress on adoptees' internalising behaviours and overall behavioural problems (Tan). **A mediation model aims to identify the process underlying an observed relationship between an independent variable and a dependent variable, through the**

inclusion of a third variable, known as a mediator variable. Among international adoptees, authoritarian parenting was observed more in families where the child learned of their adoption later rather than earlier and if parents had changed their child's first name, a feature that was linked to raised levels of depression and low self-esteem (Reppold and Hutz). Another longitudinal study that compared 75 Romanian adoptees with 46 non-adopted Canadian children found that authoritarian parenting style was positively predictive of inattention and/or overactivity in adoptees with lower levels of deprivation, but negatively predictive in children with higher levels (Audet and Le Mare).

Positive parenting styles, such as child-centred approaches, unsurprisingly mostly showed more positive effects and have been found to be an adaptive behaviour that moderates the effects of cumulative risk in the pre-adoptive environments. Kriebel and Wentzel's study of 70 domestic and international adoptees in the USA and Hornfeck and colleagues' German study of 172 domestic and international adoptees demonstrate this by showing that positive parenting was linked to lower emotional and behavioural problems even when pre-adoption conditions were considered. This tendency is further confirmed in two other projects, one from Wales (Anthony) where parental warmth was

found to moderate the association between the number of adverse early experiences and internalising symptoms three years post-adoption, and one from the US (Lawler) which followed up 68 adoptees and 52 non-adopted children and found that higher quality parental structure and limit-setting in the early period after adoption predicted lower child regulation difficulties. Especially significant was that fact that the style of parenting was not predicted by initial child regulation, so demonstrating the unique role of parenting quality.

Only one longitudinal study, of 74 Russian born adoptees in the US, found that behavioural outcomes showed no significant relation to parenting style as reported by mothers and fathers separately (Hein). However, methodological weaknesses, such as discrepancies between each parent's descriptions, question the wider applicability of the results.

In summary, it can be concluded that the evidence reviewed is consistent in indicating that parenting style is a both risk and a protective factor for adopted children's mental health and behavioural problems, depending on its nature, and is clearly an important protective factor when the style moderates the impact of adverse pre-adoptive experiences. Negative parenting styles appear to have a detrimental impact on adoptees health and

behaviour, whereas positive parenting is generally enhancing and, at minimum, has a positive buffering effect. However, the evidence is by no means robust as only four out of the 10 studies utilised observation of parenting as opposed to self-report and only seven out of 10 studies controlled for child-led factors such as pre-adoption adversity or academic ability (Anthony et al., Audet & Le Mare, Hein, Hornfeck et al., Kriebel & Wentzel, Lawler, Tan).

Parental mental health. The link between adoptive parent mental health and children's behaviour or mental health was explored in seven studies (Colvert; Gagnon-Oosterwaal; Goldberg and Smith; Hails; Hornfeck; Liskola; Smith-McKeever). One measured general parental mental health (Colvert), three focused on parental depression (Goldberg and Smith; Hails; Liskola), five explored parental stress (Gagnon-Oosterwaal; Miller; Santos-Nunes; Smith-McKeever; Smith) and one assessed parent self-regulation (Hornfeck).

Only one study, a UK longitudinal scrutiny of 217 domestic and Romanian adoptees (Colvert), found no evidence of an association between parental mental health and the onset of children's emotional disturbance. This contrasts with others where parental depressive symptoms were strongly related to

higher levels of both externalising and internalising symptoms in the children (Goldberg and Smith; Hails), with indications that associations were stronger for paternal mental health issues on children's depressive symptoms (Liskola; Hails).

Parental stress was another aspect of mental health commonly associated with children's internalising and externalising behavioural problems (Gagnon-Oosterwaal; Miller; Smith-McKeeever) and difficulties at school (Miller). Furthermore, in two Canadian longitudinal studies of international adoptees (Gagnon-Oosterwaal; Smith), it was found to mediate the relationship between children's characteristics and early risk factors, such as age of adoption and behavioural problems. From a slightly different angle, a Portuguese cross-sectional mediation study of 116 adoptees found that discrepancies between parents' expectations and real experiences post adoption were linked to increased parental stress, which in turn had a negative influence on the child's adjustment (Santos-Nunes). The stress was often manifested in relational indicators, such as the amount of positive time parents and children spend together and how often the parent thinks of the child when they are separated (Smith-McKeeever). In another study (Hornfleck), stress was incorporated into a broader concept of parent self-regulation that comprised

self-efficacy, perceived stress and psychological distress, and this too was found to be related to greater emotional and behavioural problems among the children.

Together, these findings highlight the important role of adoptive parental mental health as a risk factor for children's adjustment, and further suggest that parental stress, and not just diagnosable mental health issue, are important risk factors. An association was found in many studies, with some studies highlighting the direction of effect, with parental depressive symptoms predicting later internalising behaviours. One study demonstrated the role of parent mental health in mediating the effect of pre-adoption experience on child outcomes. However, they do not include non-adopted comparison groups, making it difficult to determine whether the results are specific to adoptive families or common among all.

Parental responsiveness. Three longitudinal studies focused on maternal sensitivity or self-reflectiveness as a risk factor. This refers to a parent's ability to mentalise their child's state of mind and the quality with which they respond to their child's cues in a timely and appropriate manner (Priel; van der Voort). Each study examined the specific rather than the general effects of this, so Priel and colleagues' Israeli study found an

association between low maternal self-reflectiveness and a higher rate of externalising behaviours amongst both adopted and non-adopted children, while van der Voort found maternal **sensitivity** was an important predictor of internalising problems and delinquent behaviour, but not aggression at age 14 .

These studies extend findings about the importance of parental factors for children's mental health and behaviour, this time noting the protective effect of adoptive parents' ability to mentalise and respond to their child.

Parent-Child Relationship

The nature of the parent-child relationship, mostly measured through observational methods, was consistently linked to children's behavioural problems, and in particular adolescent behavioural difficulties (Groza, et al, 2002, 2003; Harwood, et al., 2013; Klahr, et al., 2011; Koh and Rueter, 2011; Santos-Nunes, et al., 2018).

Harwood and colleagues' longitudinal study of 2,089 domestic and international adoptees in the US found both direct and indirect paths between pre-adoptive adversities and mental health outcomes, with the majority of associations mediated or partially mediated by the quality of parent-child relationships. The

same effects were charted by Groza and by Klahr and colleagues for children's behavioural difficulties.

Ethnic socialisation in transracially adopted families was an important aspect of parent-child relationships associated with adoptee's wellbeing for many adopted children in two US studies (Yoon, 2000. 2004).

Improved parent-child attachment is a common aim of many post-adoption interventions (Kerr and Cossar, 2014) and two studies linked attachment difficulties to ADHD symptoms more strongly than pre-adoptive risk factors, such as deprivation and prenatal alcohol exposure (De Maat). In Roskam's study, externalising behaviours were linked to anxious-avoidant attachment and low parenting support in both adopted and non-adopted children.

These findings demonstrate that within adoptive families, like non-adoptive families, the parent-child relationship is associated with children's mental health and behavioural outcomes. However, there are adoption specific effects in the parent-child relationship to consider, such as the effect of difference, as highlighted by ethnic socialisation effects.

Family Factors

Family environment. Studies of the family environment all focused on cohesion, expressiveness and conflict within the adoptive family. A positive family environment was related to children's adaptive adjustment in five studies (Ji, et al., 2010; McGuinness and Pallansch, 2007; McGuinness, et al., 2005; Simmel, 2007; Tung, et al., 2018), one (Ji) suggesting that family coherence affected adoptees' adjustment considerably more than pre-adoptive risk factors. Another (Tung) specifically explored children's temperamental sensitivity and later family cohesion and found that adoptees with an early reactive temperament did not exhibit greater sensitivity to maltreatment or later adoptive family cohesion; however, adoptive family cohesion demonstrated a marginally significant and protective effect on later criminal behaviours and arrest rates.

The diminishing effects of pre-adoptive risk factors and the growing protective contribution of family environment to children's well-being were noted in three longitudinal studies by McGuinness and Pallansch, McGuinness, Ryan and colleagues and Simmel.

Conflict and family relationships were explored in three studies (Balenzano, et al., 2018; Goldberg and Smith, 2013; Tan, et al., 2012) and found in cross-sectional analysis to be

associated with children's behavioural problems (Tan) and greater internalising symptoms (Goldberg and Smith).

Although the study of family environments is something of an academic minefield, overall the findings are consistent in suggesting that cohesion, expressiveness and conflict serve as an important risk and protective factors for children's behavioural and mental health difficulties and that healthy family environments can serve to mitigate the impact of pre-adoption adversity and have an impact over and above pre-adoption risk factors. However, as before, without data from non-adopted comparison groups, it is difficult to know how far the findings are adoption-specific.

Communication openness.

The impact of communication openness where the adoptive parents recognise rather than deny the inherent differences associated with being an adoptive family was explored in six studies (Aramburu Alegret, et al., 2020; Brodzinsky, 2006; Grotevant, et al., 2011; Le Mare and Audet, 2014; Soares, et al., 2017; Tarroja, 2015) and was found to be a generally positive association.

Two cross-sectional studies of international adoptions found that communicative openness was associated with lower in

adolescent behavioural problems (Aramburu Alegret, Le Maret, Tarroja) and emotional lability and negativity (Soares).

But the relationship between openness and children's health and behaviour was less marked in Brodzinsky's study which found that although family structural and communication openness were positively correlated, only communication openness independently predicted children's adjustment. Similarly, Grotevant found that although the two factors were associated with contact, it was not related to children's externalising behaviours. There appears to be a role for adoptive parents being able to recognise and communicate about the inherent differences associated with being an adoptive family, but the evidence on the benefits of communicative openness is inconclusive.

Adoption satisfaction. Family members' satisfaction with adoption was measured in two studies (Balenzano, et al., 2018; Nilsson, et al., 2011). Nilson found that higher levels were related to fewer conduct problems among adolescents and Balenzano linked the **parents'** satisfaction with the adoption process, regarding open arrangements to young people's psychological distress. These findings highlight the importance of family factors, including the process of adoption and satisfaction, for children's mental health and behaviour.

Contextual Factors

Ethnic identity and discrimination. Six studies explored the relationship between psychological adjustment, ethnic identity development and experiences of discrimination, mostly among internationally adopted children (Juffer, et al., 2005; Lee, 2010; Schires, et al., 2020; Qin, et al., 2017; Yoon, 2000, 2004). Three US studies found that discrimination was linked to greater internalising and externalising problems, depressive symptoms and psychological distress (Lee, Schires; Qin) with another showing that discrimination was greater for parents of Asian and Latin American children than for white Eastern European children. Moreover, the perceived discrimination reported was uniquely related to greater problem behaviours for adopted children from Asia and Latin America than white Eastern European children, highlighting a specific effect of racial discrimination (Lee, 2010).

These findings indicate the importance for transracially adopted children of racial factors and experiences of discrimination. The psychological mechanism by which discrimination operates for adoptees is not yet well understood. It does not appear to be related to emotional regulation styles, which did not moderate the association between perceived

discrimination and adjustment (Qin). Schires found that the negative effects of discrimination were especially marked for children whose parents did not teach their children about racial identity or prepare them to cope with experiences of discrimination. Similarly, Yoon's studies of Korean born adoptees also found better psychological adjustment resulted from parents supporting their child's ethnic identity development and sharing ethnic socialisation experiences. One study of transracially adopted children found greater adjustment difficulties in children who internalised the perceived dominant skin colour of the host country as more desirable (Juffer).

Mohanty's (2015) study found a curvilinear relationship between adoptees sense of ethnic identity and self-esteem, in that a moderate level of identification with ethnicity of origin is associated with positive esteem whereas low and high levels are related to low self-esteem. However, Le Mar and Audet (2014) found that exposure to culture of origin did not relate to behavioural problems,.

This set of studies is specific to transracial adoption and cannot easily have a non-adopted control group. The studies highlight the importance of considering the cultural and racial contexts and adults' and children's experiences of discrimination

when seeking to improve the well-being of internationally adopted children.

Structural openness of adoption. Three studies assessed the impact of the structural openness of adoption, referring to post-adoption contact with birth families (Agnich, et al., 2016; Neil, 2009; Grotevant, et al., 2011). Overall, contact was not related to emotional or behavioural difficulties but a US study (Agnich) found higher rates of children in open adoptions receiving a diagnosis of “attachment disorder” although this was based on a limited methodology. A more promising explanatory factor than focusing on contact per se, was the presence of proactive cooperation between the adoptive and birth families. This supports Grotevant's finding that satisfaction with contact is an important influence on the effects of open adoption on children's mental wellbeing (Grotevant). Children in open arrangements are also more likely to have family relationships characterised by trust and adoptive parents' willingness to recommend adoption to others (Agnich). But as the birth family characteristics of children in open and closed adoptions, the findings on the role of structural openness on children's health and behaviour remains equivocal despite the fact that it is such an important feature of adoption plans.

Schools

Relationships between parents and school relationships were investigated in only one study (Goldberg and Smith, 2017). It found that parental school involvement was negatively related to later internalising symptoms in the child. While this finding highlights the importance of the network around the child being taken into consideration, evidence from one study means that any conclusions can only be tentative.

Discussion

The aim of this review was to review scientifically robust evidence to consolidate and expand current knowledge about adoptees' mental health and behavioural difficulties and to identify ways forward for research and practice. The findings of the narrative synthesis support previous research by highlighting the importance of focusing on the multitude of systemic factors surrounding the child and how these can be usefully divided into clusters according to their source of influence. Four areas were analysed in this review - parent, parent-child relations, family and context.

Overall, the findings of the analysis support the psychosocial and transdiagnostic developmental models described earlier. They indicate that post-adoption factors are associated with, and often predictive of, adoptees' difficulties and that some post-adoption factors have a greater effect than pre-adoptive ones, which were often measured as cumulative history of maltreatment. It is important to hold in mind the possible genetic and perinatal factors, not explored within the primary studies that are likely to hold long term consequences alongside post-adoptive factors.

Consistent evidence was found for the significance accorded to role of adoptive parents, including their parenting style, mental health and responsiveness, all of which were all linked to children's behavioural and emotional mental health. Importantly, parenting style and mental health were more strongly related than pre-adoptive risks, measured as cumulative history of maltreatment, to later child difficulties. However, such studies did not consider the genetic or perinatal factors that may have long term consequences, such as exposure to drugs or alcohol within the womb. Interestingly, Audet's study showed that the effects were not universal as authoritarian parenting had differential effects depending on the level of deprivation experienced by the child. Although it cannot establish causality, the study suggests that for severely deprived children, such parents may display sensitivity and responsiveness to their child's needs, aware that they are more likely to flourish in a structured environment.

Another important consideration was the quality and impact of adoptive parents' relationships with the child; this linked to children's behavioural problems and appeared to mediate the impact of pre-adoptive adversities and child outcomes. Family factors incorporated family environment, cohesion, expressiveness and conflict, which were all related to the

presence and extent of children's behavioural and mental health difficulties. Importantly, over time pre-adoptive risk factors declined in significance, whereas aspects of family environment became more salient, highlighting the importance of perceiving post-adoptive variables as an intervention, particularly as the age of the child increases. Communication openness within the family system also predicted children's later adjustment, buffering the impact of early adversity although this varied according to the level of maltreatment experienced by the child, with greater adversity being linked to lower openness. This highlights the importance of supporting families and parents with the information relating to their child's previous history and skills in communicating it.

A further finding of the review was the importance of contextual factors related to adoptees' behavioural or mental health difficulties. Open adoptions where contact with birth families is maintained were not associated with later difficulties but there is evidence that proactive cooperation between the adoptive and birth families accounts for any variations in outcomes. Further important contextual factors for many adopted children include the role of parental support of racial identity, discrimination and ethnic socialisation.

Limitations

The current review was confined by the limitations of the 52 included studies. Twenty-nine of them were cross-sectional and so could not draw conclusions about developmental processes and effects over time, only seven studies compared adoptive and non-adoptive families making it hard to know whether the findings are specific to adopted children and the data based on parental reports which could inflate the relationship between variables and outcomes.

In addition, the studies were conducted across 14 countries each its own adoption process and context, making it difficult to compare like with like. In the US, for instance, the majority of adoptions are by foster carers known to the child whereas in the UK most adoptions are to strangers. Given this diversity, it is difficult to generalise the findings and reach global conclusions about adoption; it is possible that the concept needs disaggregation if research is to be more fruitful.

The review was further limited by missing information or bias in the studies. Thirty focused on international adoptions but information on the countries sending the children was often scant and was completely missing in two and over half of them failed to

describe the ethnicity of the adopters. Only one study (Brodinsky) provided full details of the child's country of origin, the country where they were adopted and whether the adoption was transracial. This is a major omission given that parental support of ethnic socialisation is positively linked to children's adjustment, self-esteem and sense of belonging in their new home. Furthermore, due to variation between study design and methodology and missing information, it was not possible to compare effect sizes to understand the relative strength of association between the post-adoption variables.

Future Research

The review has shown that the available research tends to focus on one or two factors deemed to be important for adoptees' mental health and behaviour. Only one study (Balenzano) explored all of the four areas of influence suggested in this article, namely: parent, parent-child, family and contextual factors. More work is needed to explore the relationship between these influences and their impact on different types of children at different ages. Similar attention needs to be made to the diversity of adoptive families, especially with the widening of eligibility criteria to include single people and same sex couples.

Implications for Clinical Practice

These findings indicate important systemic areas for developing interventions to support adoptive families. It demonstrates the importance for clinicians to hold in mind the varied systems surrounding a child when assessing and formulating strategies. However, the supportive evidence often focuses on one factor, such as psychological interventions for parents or attachment therapies for children, and is limited to assessments of efficacy.

Although the current review highlighted that there are some adoption specific issues, pertaining to ethnic socialisation in transracial adoption, many of the risk and protective factors are similar to those found in non-adopted families, such as the role of parental mental health and family factors. This is important given the tendency to divert adoptive families away from standard care pathways to specialised care pathways, which are not always available locally. Where specialist care pathways for adoptive families are not available, standard care pathways should be readily trained in the complexities of pre and post-adoption factors specific to the experience of adoptive families. This may include identifying possible risks in the present review to guide intervention and individualised support to adoptive families.

Furthermore, the review found that pre-adoptive risk factors are often less important than later family factors, which suggests that adoptive families need continuing support to the point where these family factors are more important. Long term follow ups with adoptive families where early adversity occurs is vital.

Declaration of Conflicting Interests

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Supplementary File: Extraction Table

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Agnich et al., 2016	USA	X	1544 adoptees (712 female, 832 male).	n/a	Private adoption: 24% 1 year+ Public foster care adoption: 70% 1 year+		n/a			✓	Parent reported contact with birth family	<i>Mental Health:</i> PTSD or attachment disorder diagnosis <i>Delinquency:</i> Parent reported alcohol or drug use <i>Family relationships:</i> Parent report	Children in open foster care adoptions more likely to receive an attachment disorder diagnosis than those in closed foster care adoptions, but are also more likely to have family relationships characterised by trust and adoptive parents' willingness to recommend adoption to others.
Anthony et al., 2019	Wales	→	374 adoptees (45% female, 55% male). 93% white British. 84 adoptees at Time 1; 71 at Time 2; 62 at Time 3.	n/a	mean age 2 years (range 0–9 years)	3–5 months, 15–17 months, and 31–33 months post-placement.	n/a	✓			the warmth scale of the Iowa Family Interaction Rating Scales	Strengths and Difficulties Questionnaire	Internalising and externalising problems were significantly higher than the UK general population. The number of adverse childhood experiences was associated with internalising symptoms 3 years post-adoptive placement but this relationship was moderated by adoptive parental warmth.
Aramburu Alegret et al., 2020	Spain	X	100 adoptees (57 female, 43 male)	n/a	mean age 2.9 years old (SD=2.2)	mean age 13.9 years (SD=1.4)	🌐		✓		Adoption Communicative Scale, parent interview	Youth Self Report	A history of maltreatment prior to the adoption was associated with more closed

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Audet, & Le Mare, 2011	Canada →	Romanian Orphan adoptees 8 months+ institutionalised: 46 (26 female, 20 male) Romanian Orphan early adoptees: 29 (15 female, 14 male)	46 non-adopted children (20 female, 26 male).	Romanian Orphan 8month+: median=18.5 months (range=8–68) Early Adopted group: median=2 months (range=0–4)	11 months, 4.5 years old, 10.5 years old, 17 years old	🌐	✓				The Home Observation for Measurement of the Environment (HOME); the composite Parent Interaction Style measured the quality of parents' interactions with their child.	Child Behaviour Checklist Attentional Problems subscale (CBCL); diagnosis of ADHD	communication between parents and children. A lower degree of communicative openness was significantly associated with the presence of all adolescent behavioural problems. Significantly greater inattention/overactivity in the Romanian Orphan than Canadian Born group at all ages, and greater than the Early Adopted group at ages 4.5 and 10.5. Canadian Born and Early Adopted groups did not differ. Inattention/Overactivity at 10.5 was negatively related to warmth and stimulation in the adoptive home and attachment, after accounting for duration of deprivation. Authoritarian parenting was positively predictive of inattention/overactivity in children with minimal deprivation and negatively predictive in children

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Balenzano et al., 2018	Italy	X	59 adoptees, (29 female, 30 male).	n/a	at least 5 years old	37 adolescents (aged 11–18 years) and 22 emerging adults (aged 18–24 years)	n/a	✓	✓	✓	<p><i>Attachment organisation:</i> Adult Attachment Interview, Attachment Interview for Childhood and Adolescence.</p> <p><i>Adoptive Family Relationship Quality:</i> Family Environment Scale</p> <p><i>Birth family contact:</i> Self reported frequency</p>	Youth Self Report of the Achenbach System of Empirically Based Assessment (ASEBA) battery, The Symptom Checklist-90 Revised, Multidimensional Self-esteem Test	Results of a path-analytic model showed that attachment and family environment were significant in the prediction of adoptees' distress: attachment moderated the impact of age of first placement, type of foster care and the presence of biological children in the adoptive family, while the quality of adoptive family relationships moderated the impact of the frequency of birth-family contacts. Findings suggest attachment security and good current family relationships can mitigate the negative impact of pre-adoptive

with extensive deprivation.

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Brodzinsky, 2006	USA	X	73 adoptees (35 female, 38 male).	n/a	mean age 3.8 months (SD=3.65)	mean age 11.1 years (SD=1.41).	🌐	✓	✓	✓	<p><i>Family structural openness:</i> Family Structural Openness Inventory.</p> <p><i>Communicative Openness:</i> Adoption Communication Openness Scale.</p>	Self-Perception Profile for Children (SPPC), Child behaviour Checklist (CBCL)	<p>stressors on adoptees' later functioning, acting as protective factors.</p> <p>Family structural openness and communication openness were positively correlated. Only communication openness independently predicted children's adjustment. The findings suggest that family process variables generally are more predictive of children's psychological adjustment than family structural variables.</p>

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Colvert et al., 2008	UK	X	165 adoptees (144 institutional care, 21 direct adoption); 52 within-UK adoptees	n/a	within- UK group 2.54 months (SD=1.53); Romanian institutional deprivation<6months 3.98 months (SD=1.11); Romanian institutional deprivation 6<24months 14.89 months (SD=1.11); Romanian institutional deprivation 24months+ 30.30 months (SD=4.89)	6 years old, follow up 11 years old	🌐	✓	✓		<p><i>Thoughts about divorce/negative rating of the marriage:</i> Dynamic Adjustment Scale questionnaire.</p> <p><i>Change of partner:</i> retrospective interview</p> <p><i>Parental Mental Health:</i> the Malaise Inventory, parent interview</p> <p><i>Marriage evaluation:</i> parent interviews</p>	Revised Rutter scales - mother, father and teacher report (Elander & Rutter, 1996)	Emotional difficulty was significantly more prevalent at age 11 in the Romanian group than the within-UK adoptee group. Emotional difficulties in the Romanian adoptee group were found to be significantly and strongly related to previous deprivation-specific problems (disinhibited attachment, cognitive impairment, inattention/overactivity and quasi-autism). No links were found to duration of deprivation or other deprivation-related indices, stresses/difficulties in the postadoption family environment, or educational attainment and self-esteem.
De Maat et al., 2018	Netherlands	→	121 adoptees (48% female, 52% male).	n/a	Mean age 3 years (SD=1.6)	mean age 10.9 years (range 6.2-15.6), follow up 2 years later	🌐		✓		Global Indicationlist Attachment	The ADHD-questionnaire, Child Behaviour Checklist (CBCL)	Polish adoptees were four times more likely to have ADHD symptoms at a clinical or borderline level. Time in institutional care, early deprivation, and prenatal alcohol

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Gagnon-Oosterwaa l et al., 2012	Canada →	95 adoptees (69 female, 26 male)	n/a	4-18 months	Assessment at adoption, follow up at 7 years old, mean age 7 years 4 months.	🌐	✓				Parenting Stress Index	The Dominic Interactive (DI) and the Child behaviour Checklist (CBCL).	Children's characteristics at time of adoption were significantly related to their behaviour problems at school-age, and maternal stress was found to have a mediating effect on this relationship.
Goldberg & Smith, 2017	USA →	174 adoptees (82 female, 92 male).	n/a	37 adoptees >6 months	Time 1: 3.38 years old on average; Time 2 5.42 years old on average.	n/a				✓	Parent-Teacher Involvement Questionnaire (PTIQ)	Child Behaviour Checklist (CBCL)	Parents' school involvement was negatively related to later internalising symptoms; providing input to teachers about inclusion, and parent-teacher conflicts related to adoption, were both positively related to later internalising symptoms. Perceived acceptance by other parents was negatively related to later internalising and externalising symptoms.

Reference & Country	Design	Participants	Non-adoptivee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Goldberg, & Smith, 2013	USA	→	120 adopted families (56 female, 64 male). 91% adoptive parent's white; 49% adoptees white.	n/a	<18 months	2–3.5 years	n/a	✓			<i>Parental depression:</i> Center for Epidemiologic Studies Depression Scale (CES-D). <i>Relationship conflict:</i> Personal Relationships Scale	The Child behaviour Checklist (CBCL)	Parental depressive symptoms were associated with higher parent-reported levels of both externalising and internalising symptoms. Parents' relationship conflict was associated with higher levels of parent- and partner-reported internalising symptoms.
Grotevant et al., 1999	USA	X	190 adoptive families, 169 birth mothers.	n/a	mean age = 4 weeks	mean age 7.8 years (range 4-12)	n/a			✓	Questions to parents	Child Adaptive behaviour Inventory (CABI)	Collaboration in relationships within the adoptive and birth family network accounted for variations in children's socioemotional outcomes.
Grotevant et al., 2011	USA	→	190 adoptees; 182 adoptees White, 7 Latino, and 1 Black	n/a	mean age=4 weeks; median=2 weeks.	mean 7.81 years, (SD=2.14); mean age= 15.73 years, (SD=2.08); mean age = 24.95 years, (SD=1.88)	n/a		✓	✓	<i>Contact:</i> interviews <i>Satisfaction with contact:</i> interview and satisfaction scale <i>Communicative Openness:</i> Adoption communicative openness (ACO).	Child Adaptive behaviour Inventory (CABI), Youth Self Report (YSR), Child behaviour Checklist (CBCL), Adult Self Report (ASR); Adult behaviour Checklist (ABCL).	externalising behaviour showed moderate stability across childhood, adolescence, and emerging adulthood. Contact and adoption communicative openness were related to each other, but not to externalising behaviours in adolescence or emerging adulthood. Controlling for the effect of Childhood externalising, adoptive families

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Groza & Ryan, 2002	USA	X	230 Romanian adoptees (53% female, 47% male). 61 domestic adoptees (44% female, 56% male).	n/a	Romanian adoptees mean age 20.72 months (SD=25.77); Domestic adoptees mean age 26.44 months (SD=23)	Romanian adoptees mean age 72.11 months (SD=24.98); domestic adoptees mean age 71.07 months (SD=21.52)	☉	✓			parent-child relationship scale created by research team	Child Behaviour Checklist (CBCL)	most satisfied with contact reported relative declines in externalising behaviour during adolescence compared to those in less satisfied families. Satisfaction was also indirectly associated with Emerging Adult externalising, through its effect on Adolescent externalising. The most significant predictor of children's behaviour is a negative pre-adoptive history of abuse or institutionalization and the current parent-child relationship. The domestic and international adoptees' behaviour was more similar than it is different.
Groza et al., 2003	USA	→	96 adoptees (51% female, 49% male).	n/a	mean age 1.75 years (SD=25.2 months)	Time 1: 6 years, Time 2: 10 years	☉	✓			Questions devised by research team: getting along, time spent together, communication, trust, respect, closeness, impact on family	Child Behaviour Checklist (CBCL)	A history of institutionalization had minimal long-term adverse effects on children's behaviour. The parent-child relationship was a strong resource for parents and was the most consistent predictors of child behaviour from both

Reference & Country	Design	Participants	Non-adoptivee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
													time periods. There was a strong relationship between parental negative reports with the relationship and child behaviour problems.
Hails et al., 2019	USA	→	561 adoptive families (42% female, 57% male).	n/a	Mean age 6.2 days (SD=12.54)	9 months, 18 months and 6 years old	n/a	✓			Beck-Depression Inventory (BDI)	Child Behaviour Checklist (CBCL)	Adoptive fathers' depressive symptoms during infancy contributed independent variance to the prediction of children's internalising symptoms and also moderated associations between adoptive mothers' depressive symptoms and child externalising symptoms.
Harwood et al., 2013	USA	X	2,089 adoptees: 545 international adoptees (67% female, 33% male); 763 foster adoptees (51% female, 49% male); 781 private adoptees (49% female, 51% male).	n/a	international adoptees, mean age 1.28 (SD=2); foster adoption mean age 2.02 (SD=2.81); private adoption mean age 0.75 (SD=1.97)	international adoptees mean age 8.2 years(SD=4.67), foster adoptees, mean age 10.66 years (SD=4.51); private adoptees mean age 10.51 years (SD=4.73)	🌐	✓			Latent construct with 3 indicators created by research team: (1) parental perception of closeness of the relationship, (2) parental report of child affection, and (3) parental satisfaction with the relationship	questions on PTSD, Attachment Disorder and counseling access. Parent rating of school performance	Compared with privately adopted children, (a) children adopted from the foster care system were more likely to be identified with special health care needs, and (b) internationally adopted children showed on average poorer school performance as indexed by math and reading. Analyses yielded both direct and indirect paths

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Hein et al., 2017	USA →	74 adoptees (54.1% female, 45.9% male).	n/a	mean age 2.24 years (SD = 1.80)	mean age 5.17 years (SD = 1.66), follow up 15 months later.	🌐	✓				The Alabama Parenting Questionnaire (APQ)	Behavioural adjustment: behaviour Assessment System for Children-Parent Rating Scale (BASC-PRS) Adaptive behaviour: Vineland Adaptive behaviour Scales, Second Edition (VABS) Academic skills: Bracken School Readiness Assessment, Third Edition (BSRA)	between preadoption adversities and child outcomes, with the majority of associations mediated or partially mediated by quality of parent-child relationships and/or special health care needs status. Adoptees improved in early academic skills over time, whereas their adaptive functioning and behavioural adjustment remained stable within the normal range. Early academic skills were not related to behavioural adjustment at each time point and over time. Outcomes showed little to no relation to parenting as reported by mother and father separately, however, higher discrepancies between mothers' and fathers' reports of positive parenting were related to higher levels of behavioural symptoms and lower levels of adaptive skills at time point 2.

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Hornfeck et al., 2019	Germany	X	Domestic adoptees: 115 (53.5% female, 46.5% male). Inter-country adoptees: 57 (47.4% female, 52.6% male).	n/a	mean age 15.07 months (SD=20.35)	Domestic adoptees: mean age 42.33 months (SD=19.99), Inter-country adoptees: mean age 64.58 (SD=25.91)	🌐	✓			<i>Parents' self efficacy:</i> Hastings & Brown (2002) questionnaire Adoptive parents <i>Perceived stress:</i> Perceived Stress Scale <i>Psychological distress:</i> Brief Symptom Inventory <i>Positive parenting:</i> Alabama Parenting Questionnaire	Strengths & Difficulties Questionnaire	There was a relatively low amount of stress regulation problems in parents — in terms of parenting stress, self-efficacy, and mental health problems. Parents with more stress regulation difficulties and parents who scored lower on the positive parenting scale were associated with children with higher SDQ total scores, even when preplacement conditions are considered.
Ji et al., 2010	USA	X	379 adoptees (162 female, 184 male) 69% Caucasian, 18% Latino, 7% African American, 7% other.	n/a	mean age 15.5 years (SD=1.2)	n/a			✓		Family Sense of Coherence Scale	behaviour Problem Index. Depressive Symptom Subscale of the Depression and Anxiety in Youth Scale	There was a significant impact of family sense of coherence on adoptees' psychosocial adjustment and a considerably less significant role of preadoptive risks.

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Juffer et al., 2004	Netherlands	→	176 adoptees (95 female, 81 male).	n/a	Sri Lanka adoptees mean age of 7 weeks (SD=3). Korean and Colombian adoptees mean age of 15 weeks (SD=4).	5 months, 7 years old,	🌐			✓	<p><i>Personality functioning:</i> The California Child Q-set (CCQ)</p> <p><i>Racial differences:</i> interviews with mothers - perception of the child's experiences with negative reactions from others, peers or adults, regarding skin color, different appearance, or origin (3-point scale: none, some, or many). Asked whether or not the child had ever expressed the wish to be white</p>	Child Behaviour Checklist (CBCL)	Resilient children showed very little behaviour problems; overcontrolling children showed pre-dominantly internalising behaviour problems; undercontrolling children showed high rates of externalising behaviour problems. Parents reported that the adopted children did not encounter many negative reactions addressing their physical appearance or skin colour, and no relation was found between negative reactions and problem behaviour. Children who parents reported expressed a wish to be white presented with more behaviour problems.
Klahr et al., 2011	USA	→	406 adoptive families (224 female, 182 male). 67% Asian-American, 21% Caucasian, 2% African-American, 2% East Indian, 3% Hispanic/Latin	204 non-adoptive families (55% female, 45% male). 95% caucasian origin.	10-18 years (average 14)	n/a	✓	✓			Observed coercive parenting, family interactions: Sibling Interaction and behaviour Study Rating Scales (SIBSRS): Observer rating of two 5 minute family interactions: task 1 - reach a consensus on a Rorschach inkblot, task 2 - moral	SIBSRS Antisocial (ANTI) scale: Observer rating of two 5 minute family interactions: task 1 - reach a consensus on a Rorschach inkblot, task 2 - moral dilemma Delinquent behaviour Index (DBI) self report	Parent-child conflict consistently predicts acting-out behaviour in adopted adolescents, and moreover, this association is equivalent to that in biologically-related adolescents.

Reference & Country	Design	Participants	Non-adoptivee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
		o, 1% South or Central American Indian, 4% mixed race, and 0.1% other ethnicities.									dilemma. Parent-Child relationship: The Parental Environment Questionnaire (PEQ)		
Koh & Rueter, 2011	USA	X	617 adoptive families, 252 international adoptees (66% Asian)	n/a	mean age 4.7 months (SD=3.4)	mean age 16.14 years (SD=1.5)	n/a	✓			Multidimensional Personality Questionnaire (MPQ)	Adolescent conflict: observer ratings from the Sibling Interaction and behaviour Rating Scales Externalising behaviour: Delinquent behaviour Inventory, symptom count from the Diagnostic Interview for Children and Adolescents– Revised, Conners' Teacher Rating Scale and Rutter Child Scale B	Findings support two conflict-mediated family processes that contributed to externalising behaviours: one initiated by parent–adolescent traits and one by adoption status. Findings also underscore the salience of conflict in families and the significance of aggressive traits and negative emotionality. Adoption status did not directly add to adolescent externalising behaviours, instead, adoption status was indirectly associated with externalising problems through a conflict-mediated relationship.
Kriebel & Wentzel, 2011	USA	X	70 adoptees (35 female, 35 male). Child's ethnicity: Korean American (20), Caucasian (17), mixed	n/a		mean age 112.4 months (range 7.1-11.9 years).	🌐	✓			<i>Parenting quality:</i> Weinberger Parenting Inventory for Parents	Child Behaviour Checklist Attentional Problems subscale (CBCL) parent and teacher report.	Results indicated that cumulative risk (e.g., history of maltreatment) was a significant negative predictor of adaptive behaviour, whereas parenting quality

Reference & Country	Design	Participants	Non-adoptive control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
		parentage (11), Eastern European (7), African American (5), South American (5), Chinese (3), and Central American (2).											(i.e., child-centered parenting) was a significant, positive predictor of adaptive behaviour. Child-centeredness moderated the effects of risk on behaviour, such that children with high risk seemed to benefit the most from child-centered parenting.
Lawler et al., 2017	USA →	68 adoptees (41 female, 27 male).	52 non-adoptive families (26 female, 26 male).	18-36 months	Adoptees mean age of 26.13 months, (4.99). 3 months after arrival to US, 8 months later. Non-adopted children mean age 27.65 months (SD=5.71)	🌐	✓				Observational during free play task, structured play task, clean up.	Observational during free play task, structured play task, clean up.	For post-institutionalized youth, higher quality parental structure and limit-setting soon after adoption predicted reduced child regulation difficulties eight months later; however, initial child regulation did not predict later parenting. Higher quality preadoptive care for children was associated with higher scores on both sensitivity/responsiveness and structure and limit-setting among adoptive parents. Less growth stunting, indicative of less preadoptive adversity, was associated with parents' use of more

Reference & Country	Design	Participants	Non-adoptivee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
													effective structure and limit-setting behaviours.
Le Mare & Audet, 2014	Canada	X	80 adolescents (41 female, 39 male)	n/a	mean age 18 months (SD=16.63)	mean age 15.74 years (SD=2.25)	🌐		✓	✓	<p><i>Attachment:</i> Parenting Stress Index, the Inventory of Parent and Peer Attachment</p> <p><i>Communicative openness/exposure to culture of origin:</i> Questionnaire devised by research team: openness about adoption and exposure to Romanian culture</p>	Child Behaviour Checklist (CBCL)	Attachment and communicative openness were each significantly and negatively correlated with behaviour problems; exposure to culture of origin was not. Attachment and communicative openness independently predicted behaviour problems in postinstitutionalized adolescents.
Lee, 2010	USA	X	1579 adoptees (944 female, 635 male).	n/a	mean age 20.64 months (SD=28.18)	mean age 9.59 years old (SD=2.69)	🌐			✓	Frequency of inappropriate or intrusive racial comments	Child Behaviour Checklist (CBCL)	Adoptive parents with Asian and Latin American children reported more discrimination than parents with Eastern European children. Perceived discrimination was uniquely associated with greater problem behaviours for adopted children from Asia and Latin

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Liskola et al., 2018	Finland	X	242 adoptees (125 female, 117 male)	n/a	mean age 2.74 years (SD=2.17)	mean age 10.5 years (SD=1.15)	☉	✓			General Health Questionnaire (GHQ)	Children's Depression Inventory (CDI)	America, with the strongest association among Latin American adolescents. Paternal depressive symptoms were related to the total depression score and two dimensions of children's depressive symptoms: negative mood and interpersonal problems. These associations remained significant even when adjusted for child's age and gender, age at adoption, type of placement before adoption, continent of birth and adoptive family's SES. No associations were found between maternal and any dimensions of offspring depressive symptoms.
McGuinness, & Pallansch, 2007	USA	→	105 families at Time 1 (57 female, 48 male). 57 at Time 2 (33 female, 24 male).	n/a	Time 1 mean age 7.7 years, Time 2 mean age 11 years	n/a			✓		Family environment: Family Environment Scale (FES)	Child Behaviour Checklist (CBCL)	Pre-adoptive risk factors declined in importance (except for birth weight) and protective factors (aspects of family environment) increased in influence over time.

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
McGuinness et al., 2005	USA	→	47 adopted families (27 female, 20 male).	n/a		Time 1: mean age 11, Time 2 3.5 years later	🌐		✓		<i>Family environment: Family Environment Scale (FES)</i>	Child Behaviour Checklist (CBCL)	Adopted children generally fared well developmentally with protective family environments.
Miller et al., 2009	USA	X	55 adoptees (24 female, 26 male).	n/a	mean age 21 months (SD=12)	mean age 9.25 years (SD=14 months),	🌐	✓			Parenting Stress Index	behavioural Assessment System for Children (BASC)	Behavioural and school problems were common. Parent stress was high and correlated with child externalising behaviours and inversely to child full scale IQ. Child's age at adoption related inversely to parent stress.
Mohanty, 2015	USA	X	100 adoptees (61 female, 39 male).	n/a	median age 5 months (range=1-119 months).	mean age 20.09 years (SD=3.21)	🌐			✓	revised Multigroup Ethnic Identity Measure (MEIM)	<i>Psychological wellbeing: Brief Symptom Inventory (BSI)</i> <i>Self-esteem: The Rosenberg Self-Esteem Scale</i>	The study supports a curvilinear relationship between ethnic identity and self-esteem and marginally support the curvilinearity of ethnic identity with regard to psychological distress. A moderate level of ethnic identity was associated with positive esteem, whereas low and high levels of ethnic identity were related to low self-esteem.

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Neil, 2009	UK	X	62 adoptees (23 female, 39 male). 3 children of dual heritage, 59 white	n/a	mean age 22 months	mean age 8.5 years (range 5-13years)	n/a		✓	✓	parent interview, communicative openness rating scale	Child Behaviour Checklist (CBCL)	Adoptive parents involved in face-to-face contact arrangements were found to be more communicatively open than parents involved in letterbox contact. Children's emotional and behavioural development was not related to either the type of contact that they were having with their birth families or the communicative openness of their adoptive parents.
Nilsson et al., 2011	USA	X	202 adopted families (90 female, 112 male)	215 non-adoptive families (102 female, 113 male).	<12 months	16-19 years	n/a		✓		adoption satisfaction questionnaire measure	Diagnostic Interview Schedule for Children–Child Version (DISC); Monitoring the Future High School Senior Survey (MTF)	No significant differences between adopted and matched control participants on all measures of conduct disorder. Higher levels of adolescent and parent adoption satisfaction were associated with lower levels of conduct problems.
Priel et al., 2000	Israel	→	50 adoptees (21 female, 29 male). All parents and children were white; all parents Israeli. 14 international adoptees	80 non-adoptive families (36 female, 44 male).	60% adopted 0-2months, 40% adopted 2-3years old	mean age of 10.17 years (SD=1.45)	n/a	✓			Interview: researchers developed a measure Parental Self-Reflectiveness Scale (PSRP).	Child Behaviour Checklist (CBCL)	Significantly greater frequency of externalising behaviour among adopted children. A relationship was found between low maternal self-reflectiveness and a higher rate of

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Qin et al., 2017	USA	→	115 adoptees, (49.5% female, 50.5% male).	n/a	mean age 7.63 months (SD=4.80).	Time 1: 7- 12 years; Time 2:13-18 years. Mean age of 16.5 years (SD=2.3).	🌐		✓	<i>Racial/ethnic discrimination:</i> Study developed 9-item scale <i>Emotional Regulation:</i> Emotion Regulation Questionnaire (ERQ)	Strengths & Difficulties Questionnaire, Kessler Psychological Distress Scale	reported externalising behaviours among adopted as well as non-adopted children. Discrimination was associated with greater internalising problems, externalising problems, and psychological distress, even after controlling for childhood levels of these adjustment problems. No significant interaction effects between discrimination and the emotion regulation profiles.
Reppold & Hutz (2009)	Brazil	X	68 adoptees (51.5% female, 48.5% males)	n/a	mean age 14.4 years (SD=0.5)	n/a	✓			Scales of Parental Responsiveness and Demandingness	Rosenberg Self-Esteem Scale (SES), Children's Depression Inventory (CDI)	The late revelation of adoption and the change of the first name are connected to higher levels of depression and low self-esteem and to increased perceptions of negligent or authoritarian parenting style. Contact with the biological family frequently mentioned among those who perceived their parents as authoritative and presented the best

Reference & Country	Design	Participants	Non-adoptive control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Roskam & Stievenart, 2014	Belgium	X	40 adoptees (45% female, 55% male). Adopted from Vietnam (14.9%), Brazil (8.1%), Ethiopia (6.8%), China, Colombia and Haiti (4.1% each), Belgium and Romania (2.7% each) and Cape-Verde, Guatemala, Madagascar, Thailand and Ukraine (1.4% each).	34 non-adoptive families (54.2% female, 55.8% male).	mean age 16.12 months (SD=15.98)	Adoptee's mean age 13.15 (SD=1.88). Non-adoptees mean age 13.35 years (SD=1.93)	☉	✓	✓		<i>Attachment:</i> Experiences in Close Relationships Questionnaire — Revised <i>Parenting Behaviour:</i> EPEP scale	Child Behaviour Checklist (CBCL)	The accumulation of risk factors in the current characteristics of the adolescents and their family was significantly associated with behavioural outcomes of both adoptees and controls. Externalising behaviours were associated with anxious-avoidant attachment and low parenting support. Internalising behaviours were associated with low parent support.
Santos-Nunes et al., 2018	Portugal	X	116 adoptive families (52.2% female, 47.8% male).	n/a	mean age 2.45 years (SD=2.18)	mean age 8.25 years (SD=1.71)	n/a	✓			<i>Parenting Stress:</i> Parenting Stress Index- Short Form <i>Parent-child relationship:</i> The Parents' Evaluation of Expectations (PEE) <i>Parent satisfaction:</i> The Parental	Strengths and Difficulties Questionnaire	Parenting stress mediated the relationship between parents' evaluation of expectations and the perception of children's behavioural problems -a higher result in evaluation of expectations was associated with a

indicator of mood and self-esteem.

Reference & Country	Design	Participants	Non-adoptivee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
											Satisfaction (PS) index,		lower level of parenting stress, which, in turn, was related to a perception of fewer behavioural difficulties in the children. Discrepancies between parents' expectations and the real experience, after the child's arrival, are associated with an increase in parenting stress and have a negative influence on children's adjustment. Highly stressed parents appear to be more prone to perceiving their children's behaviour as difficult.
Schires et al., 2020	USA	→	274 families of 456 adoptees (61% female, 39% male).	n/a	mean age 4.8 months (SD=4.7).	mean age of 14.9 years(SD=1.9); follow up mean age of 18.3 years (SD=2.1), follow up at 22.3 years (SD=1.8).	🌐			✓	the Race and Culture questionnaire	Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV) Antisocial Personality Disorder (ASPD) Symptoms of major depressive disorder (MDD) the Structured Clinical Interview for the DSM-III-R Diagnosis	Discrimination predicted higher levels of depressive and externalising symptoms in youth who reported less preparation for bias. In those experiencing more preparation for bias, associations were not significantly different from zero. Ethnic socialization did not moderate these associations.

Reference & Country	Design	Participants	Non-adoptive control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Simmel, 2007	USA	→	293 adoptive families (49% female, 51% male). African American (11%), Asian (3%), Hispanic (29%), Caucasian (54%), and Other (3%).	n/a	Ages 2, 4, and 8 years post-adoption	n/a			✓		<i>Adoptive parent preparation:</i> self report ratings <i>Family environment:</i> Home Observation for Measurement of the Environment Short Form (HOME-SF)	Problem Behaviour Index of the Child Behaviour Checklist (CBCL)	The self-reported assessment of readiness of the adoptive parents was a significant factor influencing the behavioural outcomes. Negative parental affect and style were also important, although these effects emerged primarily at the second wave.
Smith et al., 2018	Canada	→	71 adolescent adoptees (56 female, 15 male)	n/a	mean age 11.28 months (range: 4-18)		Ⓜ		✓		Parenting Stress Index (PSI), Stress Index for Parents of Adolescents (SIPA)	The Dominic Interactive at age 7 and the Dominic Interactive for Adolescents at age 15, Child Behaviour Checklist (CBCL)	A lower percentage of children reported internalising problems during adolescence than at school age while mothers reported a decrease in externalising problems over age. A few correlations were found between internalising and externalising symptoms and early risk factors. However, these links were sequentially mediated by parenting stress at school age and in adolescence.
Smith-McKeever, 2004	USA	X	83 adoptees (42 female, 39 male). 100% African American.	n/a	female adoptees: 21.8 months; male adoptees: 22.5 months	mean of 8.7 years	n/a		✓		<i>Parenting stress:</i> Parenting Stress Index (PSI) <i>Acknowledgement of difference:</i> The Acknowledgement of	Child Behaviour Checklist (CBCL)	Behavioural problems were correlated with more relational factors, such as amount of enjoyable time parents and children spend together and

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
											Difference Scale (ADS)		how often the parent thinks of the child when they are separated.
Soares et al., 2017	Portugal	X	70 adoptees	n/a	mean age 3.19 years (SD=1.98)	mean age 8.96 years (SD=0.79)	n/a		✓		Questions devised by research team	Emotion Regulation Checklist (ERC).	Parents perceived their adopted children's emotion regulation as adequate. In relation to family dynamics, acknowledgment of the adoption specificities significantly predicted the emotional lability/negativity of the adoptees, simultaneously mediated by the emotional quality of and the parental satisfaction with the communication about adoption.
Tan et al., 2012	USA	X	133 adoptees, 100% female.	n/a	mean age 12.8 months (SD=4.1)	mean age 5.2 years (SD=0.7)	🌐	✓	✓		<i>Family Stress:</i> Social Problem Questionnaire (SPQ) <i>Parenting Style:</i> Parenting Styles and Dimensions Questionnaire (PSDQ).	Child Behaviour Checklist (CBCL)	Adoptive mothers reported relatively mild family stress, frequent authoritative parenting, and few behaviour problems in their children. Family stress, authoritarian and permissive parenting styles positively correlated with children's behavioural

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Tarroja, 2015	Philippines	X	32 adoptees (15 female, 17 male).	n/a	mean age 12.84 (range 8-17).	n/a			✓		<i>Family functioning:</i> People in my Life Scale <i>Adoption openness:</i> Adoptive Parent Scale Adoptive Filiation Scale	Child Behaviour Checklist (CBCL), Draw A Person-Screening Procedure for Emotional Disturbance	problems. Authoritarian parenting mediated the effect of non-child-related family stress (NCR-stress) on internalising and overall problems. Family functioning predicted the adjustment of Filipino adopted children while adoption secrecy predicted family functioning. Adopted children's perception of their family functioning and adoption openness buffer the impact of the early adversity experienced by the adopted children.

Reference & Country	Design	Participants	Non-adoptivee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Tarullo et al., 2016	USA →	Post institutionalised adoptees: 27 adoptees (24 female; 3 male) Internationally adopted from foster care: 26 (10 female, 16 male)	37 non-adopted children (30 female, 7 male).	Post institutionalised adoptees: mean age 12.08 months (SD=1.8); Internationally adopted from foster care: 8.08 months (SD=3.28).	3 years old, 5.5 years old.	🌐	✓				<i>Mental state language:</i> International Affective Picture System parent-child dyad <i>Emotional understanding:</i> Denham's (1986) emotion labeling and affective perspective taking tasks,	MacArthur Health and behaviour Questionnaire, Parent Version (HBQ-P)	At 5.5-year follow-up, post institutionalised children had lower levels of emotion understanding than non-adopted children. Parent mental state language at age 3 years predicted 5.5-year emotion understanding after controlling for child language ability. The association of parent mental state language and 5.5-year emotion understanding was moderated by adoption status, such that parent mental state language predicted 5.5-year emotion understanding for the internationally adopted children, but not for the non-adopted children. At 5.5 years, PI children had more internalising and externalising problems than NA children, and these behavioural problems related to lower levels of emotion understanding.

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
Tung et al., 2018	USA	→	83 adoptees (46.3% female, 53.7% male). 32.9% Latino/a, 26.8% Black, 18.3% Caucasian, 22% Mixed race/other.	n/a	mean age 3.92 (SD=2.2)	Assessment at 4 months to 8 years of age (average=4 years) annual follow ups for 5 years. Long-term follow-up conducted after 11–15 years			✓		<i>Family Cohesion: Family Environment Scale (FES)</i>	Child Behaviour Checklist (CBCL), arrest history, substance use	Youth with early reactive temperament did not exhibit heightened sensitivity to maltreatment nor to later adoptive family cohesion. Reactive temperament was associated with higher externalising behaviours at initial adoptive placement and escalating across childhood, controlling for age, gender, race-ethnicity, preadoption maltreatment, and adoptive family cohesion. By late adolescence/young adulthood, rates of arrest and substance use in this sample were relatively comparable to normative populations of youth, although older age of adoption predicted more substance use in late adolescence/young adulthood. Adoptive family cohesion continued to exhibit a marginally significant and protective effect on arrest history.

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
van der Voort et al., 2013	Netherlands →	160 adoptees	n/a	mean age 10.76 weeks (SD=5.53)	infancy, 7 years old, 14 years old	🌐	✓				<p><i>Effortful control:</i> Dutch Temperament Questionnaire</p> <p><i>Maternal sensitivity:</i> Observation at 12, 18, and 30 months during structured tasks (building a tower or solving puzzles)</p>	Achenback Teacher Report Form (TRF).	Lower effortful control, concurrent as well as 7 years earlier, predicted higher levels of delinquency in adolescence and aggression in middle childhood and in adolescence. Lower levels of effortful control in infancy predicted higher levels of maternal sensitivity in adolescence which in its turn predicted less adolescent delinquent behaviour. Maternal sensitivity also plays a role in the development of delinquent behaviour, buffering a lack of effortful control, but was not related to aggression at age 14.

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
van der Voort et al., 2014	Netherlands	X	160 adoptees (85 female; 75 male).	n/a	mean age 10.76 weeks (SD=5.53)	infancy, 7 years old, 14 years old.	🌐	✓			<p><i>Maternal sensitivity:</i> the Egeland/Erickson 7-point sensitivity rating scales were used to rate supportive presence, intrusiveness, sensitivity and timing, and clarity of instruction during structured tasks.</p> <p><i>Behavioural inhibition:</i> the Dutch Temperament Questionnaire</p>	The Child behaviour Checklist (CBCL)	More sensitive parenting in infancy and middle childhood predicted less inhibited behaviour in adolescence, which in turn predicted fewer internalising problems in adolescence. Maternal sensitivity lowers adolescents' inhibited behaviour and decreases the risk for adolescents' internalising problem behaviour indirectly through lower levels of inhibition.
Yoon, 2000	USA	X	241 adoptees	n/a		mean age 14 (range 12-19)	🌐	✓	✓	✓	<p><i>Collective self-esteem:</i> Multigroup Ethnic Identity Measure (MEIM).</p> <p><i>Parent-child relationship:</i> Parent Acceptance-Rejection Questionnaire (PARQ)</p> <p><i>Parents support of child's ethnic background:</i> developed by research team</p>	<p><i>Personal self-esteem:</i> Rosenberg Self-Esteem Scale (RSE).</p> <p><i>Psychological adjustment:</i> items selected from the State-Trait Anxiety Inventory (STAI) and Beck's Depression Inventory (BDI), Affect Balance Scale (ABS), Satisfaction with Life Scale (SWLS)</p>	A more positive parent-child relationship, in which the parents support their children's ethnic identity development and share ethnic socialization experiences, predicted better psychological adjustment of the adopted children.
Yoon, 2004	USA	X	241 adoptees (104 female, 137 male).	n/a		mean age 14.2 years (SD=1.51)	🌐	✓	✓	✓	<p><i>Adoptive parental support of ethnic socialisation:</i> researchers developed a 4-item measure</p> <p><i>Collective self-esteem:</i> Collective Self-Esteem</p>	Affect Balance Scale (ABS) and the Satisfaction with Life Scale (SWLS), the State-Trait Anxiety Inventory (STAI) and the Beck's Depression Inventory (BDI)	A more positive parent-child relationship and a greater collective self-esteem acquired through parental support of ethnic socialization each predicts a

Reference & Country	Design	Participants	Non-adoptee control group	Age at adoption	Age at assessment/ follow up	International adoption	Parent Factor	Parent-child Factor	Family Factor	Context Factor	Predictor measure	Outcome measure	Key Findings
											Scale (CSE), measure of pride and shame in ethnic origin. <i>Parent-child relationship:</i> Parental Acceptance-Rejection Questionnaire (PARQ), the Parent-Adolescent Communication Scale (PACS)		greater subjective well-being of adopted children, suggesting that a negative sense of ethnic identity represents a vulnerability to psychosocial well-being.

X = cross-sectional design

→ = longitudinal design

🌐 = Intercountry or international adoption included

Note: A mediation model aims to identify the process underlying an observed relationship between an independent variable and a dependent variable, through the inclusion of a third variable, known as a mediator variable